# Contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Series</th>
<th>Model</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ThinkPad L13</td>
<td>ThinkPad L13 Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ThinkPad L13 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ThinkPad L380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>ThinkPad L380 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ThinkPad L390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>ThinkPad L390 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>ThinkPad L480</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>ThinkPad L480 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>ThinkPad L490</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>ThinkPad L490 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>ThinkPad L570</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>ThinkPad L570 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>ThinkPad L580</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>ThinkPad L580 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>ThinkPad L590</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>ThinkPad L590 Platform Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>Page</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad P73</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad P73 Platform Specifications</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T Series</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T470</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T470 Platform Specifications</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T470s</td>
<td>69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T470s Platform Specifications</td>
<td>69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T480</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T480 Platform Specifications</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T480s</td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T480s Platform Specifications</td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T490</td>
<td>72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T490 Platform Specifications</td>
<td>72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T490s</td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T490s Platform Specifications</td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T495</td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T495 Platform Specifications</td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T495s</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T495s Platform Specifications</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T580</td>
<td>76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T580 Platform Specifications</td>
<td>76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T590</td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad T590 Platform Specifications</td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad Yoga</td>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad L13 Yoga</td>
<td>79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad L13 Yoga Platform Specifications</td>
<td>79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad L380 Yoga</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad L380 Yoga Platform Specifications</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad L390 Yoga</td>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad L390 Yoga Platform Specifications</td>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (3rd Gen)</td>
<td>82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (3rd Gen) Platform Specifications</td>
<td>82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (4th Gen)</td>
<td>83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (4th Gen) Platform Specifications</td>
<td>83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X380 Yoga</td>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X380 Yoga Platform Specifications</td>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga</td>
<td>85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga Platform Specifications</td>
<td>85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (5th Gen)</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (5th Gen) Platform Specifications</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (6th Gen)</td>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (6th Gen) Platform Specifications</td>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (7th Gen)</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (7th Gen) Platform Specifications</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (8th Gen)</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (8th Gen) Platform Specifications</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (9th Gen)</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (9th Gen) Platform Specifications</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (10th Gen)</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (10th Gen) Platform Specifications</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (11th Gen)</td>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (11th Gen) Platform Specifications</td>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (12th Gen)</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (12th Gen) Platform Specifications</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (13th Gen)</td>
<td>94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (13th Gen) Platform Specifications</td>
<td>94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (14th Gen)</td>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (14th Gen) Platform Specifications</td>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (15th Gen)</td>
<td>96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (15th Gen) Platform Specifications</td>
<td>96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (16th Gen)</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (16th Gen) Platform Specifications</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (17th Gen)</td>
<td>98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (17th Gen) Platform Specifications</td>
<td>98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (18th Gen)</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (18th Gen) Platform Specifications</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (19th Gen)</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (19th Gen) Platform Specifications</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (20th Gen)</td>
<td>101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (20th Gen) Platform Specifications</td>
<td>101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (21st Gen)</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (21st Gen) Platform Specifications</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (22nd Gen)</td>
<td>103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (22nd Gen) Platform Specifications</td>
<td>103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (23rd Gen)</td>
<td>104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (23rd Gen) Platform Specifications</td>
<td>104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (24th Gen)</td>
<td>105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (24th Gen) Platform Specifications</td>
<td>105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (25th Gen)</td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (25th Gen) Platform Specifications</td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (26th Gen)</td>
<td>107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (26th Gen) Platform Specifications</td>
<td>107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (27th Gen)</td>
<td>108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (27th Gen) Platform Specifications</td>
<td>108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (28th Gen)</td>
<td>109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (28th Gen) Platform Specifications</td>
<td>109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (29th Gen)</td>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (29th Gen) Platform Specifications</td>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (30th Gen)</td>
<td>111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (30th Gen) Platform Specifications</td>
<td>111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (31st Gen)</td>
<td>112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (31st Gen) Platform Specifications</td>
<td>112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (32nd Gen)</td>
<td>113</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (32nd Gen) Platform Specifications</td>
<td>113</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (33rd Gen)</td>
<td>114</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (33rd Gen) Platform Specifications</td>
<td>114</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (34th Gen)</td>
<td>115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (34th Gen) Platform Specifications</td>
<td>115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (35th Gen)</td>
<td>116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (35th Gen) Platform Specifications</td>
<td>116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (36th Gen)</td>
<td>117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (36th Gen) Platform Specifications</td>
<td>117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (37th Gen)</td>
<td>118</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (37th Gen) Platform Specifications</td>
<td>118</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (38th Gen)</td>
<td>119</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (38th Gen) Platform Specifications</td>
<td>119</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (39th Gen)</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (39th Gen) Platform Specifications</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (40th Gen)</td>
<td>121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThinkPad X390 Yoga (40th Gen) Platform Specifications</td>
<td>121</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

October 30, 2019 - Version 550

Additions in this update

► New product(s)
  ThinkPad L13 models announced October 2019
  ThinkPad L13 Yoga models announced October 2019

► Others
  ThinkPad L490 - Spec updated
  ThinkPad L590 - Spec updated
  ThinkPad X1 Carbon (7th Gen) - Spec updated
  ThinkPad X1 Yoga (4th Gen) - Spec updated

Withdrawals in this update

► Withdrawn product(s)
  None
## Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Burst Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>m3-7Y30</td>
<td>2</td>
<td>1.0 GHz</td>
<td>2.6 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 615</td>
</tr>
<tr>
<td>i5-7Y54</td>
<td>4</td>
<td>1.2 GHz</td>
<td>3.2 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
</tr>
<tr>
<td>Celeron N4100</td>
<td>4</td>
<td>1.1 GHz</td>
<td>2.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
</tr>
<tr>
<td>Pentium Silver N5000</td>
<td>4</td>
<td>1.1 GHz</td>
<td>2.7 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
</tr>
</tbody>
</table>

## Graphics

- Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor,
- supports external digital monitor via HDMI or USB Type-C;
supports dual independent display;
Max resolution: 3840x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

## Chipset

- Intel SoC (System on Chip) platform

## Memory

- 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets

## Display

- 11.6" HD (1366x768) TN Anti-glare 250 nits 16:9 400:1 or 500:1 45% 90°
- 11.6" HD (1366x768) IPS Anti-glare 250 nits 16:9 800:1 or 500:1 45% 170°

## Storage

- eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

## Optical

- None

## Ethernet

- Realtek RTL8111GUS Gigabit Network Connection

## WLAN + Bluetooth™

- One of the following, configurable by model:
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card (US only)

## WWAN

- None

## Dimensions

| Weight | WxDxH: 11.81" x 8.27" x 0.86"; 300mm x 210mm x 21.9mm |

## Portability

| Case color | Black |
| Case material | Display cover: PC/ABS+GF; Bottom: PC/ABS plastic |

## Security

- Power-on password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- None

## Camera

- HD720p camera, fixed focus
- HD Audio, Realtek ALC3287 codec, stereo speakers, 2W x 2, Dolby Audio™, mono digital microphone, combo audio/microphone jack

## Audio support

- HD Audio, Realtek ALC3287 codec, stereo speakers, 2W x 2, Dolby Audio™, mono digital microphone, combo audio/microphone jack

## Keyboard

- 6-row, spill-resistant, multimedia Fn keys
- Buttonless Mylar surface touchpad below keyboard, multi-touch

## Touchpad

- Buttonless Mylar surface touchpad below keyboard, multi-touch
- None

## Battery

- Integrated Li-ion 42Wh battery
- MobileMark® 2014: 13.9 hr

## Battery life

- * Battery life varies significantly with settings, usage, & other factors

## Operating system (optional)

- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro in S mode
  - No OS

## Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service

## Mil-Spec test

- MIL-STD-810G military testing

## Environment

- EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
August 2019
## ThinkPad A275 Platform Specifications

### Processor AMD PRO A-Series APUs

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO A10-8730B</td>
<td>4</td>
<td>4</td>
<td>2.4 GHz</td>
<td>3.3 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon™ R5 Graphics</td>
</tr>
<tr>
<td>PRO A10-8830B</td>
<td>4</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.4 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon R7 Graphics</td>
</tr>
<tr>
<td>PRO A10-9700B</td>
<td>4</td>
<td>4</td>
<td>2.7 GHz</td>
<td>3.4 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon R7 Graphics</td>
</tr>
</tbody>
</table>

* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B

### Graphics
- AMD Radeon R5 or R7 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

- AMD SoC (System on Chip) platform
- Memory: 16GB max / 1866MHz DDR4, one DDR4 SO-DIMM socket

### Display
- Some: 12.5” (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
- Some: 12.5” (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Multi-touch (opt): On-cell touch, supports 10-finger gesture (FHD only, US only)

### Storage
- System has one HDD slot or one M.2 slot exclusively for storage.
- Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: SSD / SATA 6.0Gb/s, 2.5” wide, 7mm high (e.g. xxxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

### Optical
- None

### Ethernet
- Realtek® RTL8111EPV Gigabit Ethernet connection

### WLAN
- Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + BT 4.1, M.2 card

### WWAN (optional)
- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
- Operating system: One of the following, configurable by model:
  - Windows 7 Professional 64 preinstalled
  - Windows 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro 64

### SIM card (optional)
- One of the following configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A, Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)
  - Micro-SIM card slot, opt Verizon LTE (US) SIM card

### Dimensions Weight
- WxDxH: 12.03” x 8.21” x 0.80”; 305.5mm x 208.5mm x 20.3mm
- Weight: 2.79 lb / 1.27 kg; 2.98 lb / 1.36 kg; 3.33 lb / 1.52 kg

### Case color
- Black

### Case material
- Glass-Fiber Reinforced Plastic

### Smart card reader
- Optional: Smart card reader

### Media reader
- 4-in-1 reader (MMC, SD, SDHC, SDXC)

### Ports
- Two USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45)
- Monitor cable (optional): Lenovo HDMI to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter

### Camera (optional)
- HD720p resolution, fixed focus

### Audio support
- HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack

### Keyboard
- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight

### UltraNav™
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Security
- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: dTPM 1.2: discrete TPM 1.2, TCG Certified
dTPM 2.0: discrete TPM 2.0, TCG Certified

### Fingerprint reader
- Optional: Touch style match on chip fingerprint reader on the palm rest

### Internal battery
- Option: Integrated Li-ion or Li-Polymer 3-cell (23Wh)

### External battery
- Li-ion 3-cell (23Wh) or 6-cell (48Wh)

### Max battery life (MobileMark® 2014)
- Models: No + 3-cell, 3-cell + 3-cell, 3-cell + 6-cell 48Wh
- Max battery life: 5.05 hr, 10.1 hr, 15.6 hr

### AC adapter
- Optional: 3-year/1-yr battery limited onsite service, 1-year depot repair service

### Limited warranty
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test
- MIL-STD-810G military testing

### Environment
- EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
## ThinkPad A285 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 PRO 2300U</td>
<td>4</td>
<td>4</td>
<td>2.0 GHz</td>
<td>3.4 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 6 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2500U</td>
<td>8</td>
<td>8</td>
<td>2.0 GHz</td>
<td>3.6 GHz</td>
<td></td>
<td>Radeon Vega 8 Graphics</td>
<td></td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700U</td>
<td>8</td>
<td>8</td>
<td>2.2 GHz</td>
<td>3.8 GHz</td>
<td></td>
<td>Radeon Vega 10 Graphics</td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports four independent displays; Max resolution: 5120x2880 @60Hz (USB Type-C); 4096x2160@60Hz (HDMI)

### Chipset Memory

AMD SoC (System on Chip) platform

8GB or 16GB / 2400MHz DDR4, soldered to systemboard, no sockets

### Display

Some: 12.5” (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16.9 aspect ratio, 400:1 contrast ratio

Some: 12.5” (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16.9 aspect ratio, 800:1 contrast ratio, 170° viewing angle

On-cell touch, supports 10-finger gesture (FHD only)

### Storage

One of the following, configurable by model:

- M.2 SSD / SATA 6.0Gb/s
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

### Optical

None

### Ethernet

Gigabit Ethernet connection via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN

Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card

### Bluetooth™

Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7390 (Fibocom L850-GL), M.2 card

* For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM card (optional)

Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card slot

### Dimensions

WxDxH (HD & FHD multi-touch): 12.11” x 8.26” x 0.69”; 307.7mm x 209.8mm x 17.4mm

WxDxH (FHD non-touch): 12.11” x 8.26” x 0.69”; 307.7mm x 209.8mm x 17.8mm

### Weight

- FHD non-touch model: 2.48 lb / 1.13 kg
- HD non-touch model: 2.78 lb / 1.26 kg
- FHD multi-touch model: 2.79 lb / 1.27 kg

### Case color

Black

### Case material

Display cover: Carbon Fiber (FHD non-touch model) or PPS (HD & FHD multi-touch model);

Bottom: Magnesium/Aluminum

### Security

Power-on password, hard disk password, supervisor password, security keyhole

### Security chip

Discrete TPM 2.0, TCG Certified

### System Mgmt

DASH Management

### Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest

### Battery

Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### Max battery life

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

### AC adapter

45W or 65W USB Type-C AC adapter

### Operating system

Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

One of the following, configurable by model:

- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

### Mil-Spec test

MIL-STD-810G military testing

### Environment

EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD PRO A-Series APUs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Number</strong></td>
<td><strong># of Cores</strong></td>
</tr>
<tr>
<td>PRO A10-8730B</td>
<td>4</td>
</tr>
<tr>
<td>PRO A12-8830B</td>
<td>4</td>
</tr>
<tr>
<td>PRO A10-9700B</td>
<td>4</td>
</tr>
<tr>
<td>PRO A12-9800B</td>
<td>4</td>
</tr>
</tbody>
</table>

* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B

**Graphics**
AMD Radeon R5 or R7 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset**
AMD SoC (System on Chip) platform

**Memory**
32GB max / 1866MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

**Display**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Type</th>
<th>aspect ratio</th>
<th>contrast ratio</th>
<th>viewing angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; (355mm) HD</td>
<td>anti-glare, LED backlight</td>
<td>16:9</td>
<td>700:1</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; (355mm) FHD</td>
<td>anti-glare, LED backlight, IPS</td>
<td>16:9</td>
<td>700:1</td>
<td>170°</td>
</tr>
</tbody>
</table>

**Multi-touch (opt)**
On-cell touch, supports 10-finger gesture (FHD only, US only)

**Storage**
System has one HDD slot or one M.2 2280 slot exclusively for storage

- Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ (e.g. xxxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4 and run at PCIe 3.0 x 4 due to M.2 SSD adapter limitation
- Optional: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4

**Optical**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 nits</td>
<td>16:9</td>
</tr>
</tbody>
</table>

**Ethernet**
Realtek® RTL8111EVP Gigabit Ethernet connection

**WLAN**
Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + BT 4.1, M.2 card

**Bluetooth™**
Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A
  - Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)
- For non-WWAN model, it means the model is NOT WWAN upgradable

**SIM card (opt)**
Micro-SIM card slot, opt Verizon LTE (US) SIM card

**Camera (optional)**
HD720p resolution, fixed focus

**Audio support**
HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack

**Security**
Power-on password, hard disk password, supervisor password, security keyhole

**Security chip**

- dTPM 1.2: discrete TPM 1.2, TCG Certified
- dTPM 2.0: discrete TPM 2.0, TCG Certified

**NFC**
None

**Battery**

<table>
<thead>
<tr>
<th>Model</th>
<th>Battery life (Max)</th>
<th>AC adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-cell</td>
<td>3-cell 48Wh</td>
<td>45W or 65W AC adapter, 45W or 65W USB Type-C AC adapter</td>
</tr>
<tr>
<td>3-cell 6-cell</td>
<td>48Wh</td>
<td>45W or 65W AC adapter, 45W or 65W USB Type-C AC adapter</td>
</tr>
</tbody>
</table>

**Dimensions**
WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm

**Weight**

| Models | 3-cell 3-cell 6-cell 6-cell |
|--------|-----------------------------|-----------------------------|
| Weight | 3.49 lb / 1.58 kg | 3.92 lb / 1.78 kg |
| Weight | 3.63 lb / 1.65 kg | 4.35 lb / 1.85 kg |

**Limited warranty**
One of the following, configurable by model:
- 1-year depot repair service
- 3-year/1-yr battery limited onsite service

**Mil-Spec test**
MIL-STD-810G military testing

**Environment**

<table>
<thead>
<tr>
<th>Environment</th>
<th>Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</th>
</tr>
</thead>
</table>

Note: The specifications above may not be available in all regions.

Lenovo
August 2019
### ThinkPad A485 Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 PRO 2300U</td>
<td>4</td>
<td>2.0 GHz</td>
<td>3.4 GHz</td>
<td>2MB</td>
<td>L2 / 4MB L3</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2500U</td>
<td>6</td>
<td>2.0 GHz</td>
<td>3.7 GHz</td>
<td>2MB</td>
<td>L2 / 4MB L3</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700U</td>
<td>8</td>
<td>2.2 GHz</td>
<td>3.8 GHz</td>
<td>2MB</td>
<td>L2 / 4MB L3</td>
<td>DDR4-2400</td>
</tr>
</tbody>
</table>

**Graphics**

AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; supports four independent displays.

Max resolution: 1920x1200 at 60Hz (USB Type-C); 1920x1080 (HDMI)

**Chipset Memory**

AMD SoC (System on Chip) platform

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

* Installed DIMMs are actually 2666MHz but run at 2400MHz due to AMD limitation

**Display**

Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio

Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

**Multi-touch (opt)**

On-cell touch, supports 10-finger gesture (FHD only)

**Storage**

System has one HDD slot or one M.2 SSD slot exclusively for storage

Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™

Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4

Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2

* Installed M.2 SSD is PCIe 3.0 x 4 but run at PCIe 3.0 x 2 due to M.2 SSD adapter limitation

**Optical**

None

**Ethernet**

Realtek® RTL8111GUL Gigabit Ethernet connection

**WLAN**

Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

**WWAN (optional)**

Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

* For non-WWAN model, it means the model is NOT WWAN upgradable

**SIM card (opt)**

Nano-SIM card slot, optional Verizon LTE (US) SIM card

**Dimensions**

Weight: 13.25" x 9.15" x 0.79", 336.6mm x 232.5mm x 19.95mm

**Media reader**

4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I

One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2

two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), dock, headphone / microphone combo jack, optional smart card reader, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Monitor cable (opt)**

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter

**Bundled Accy (opt)**

USB-C to DP: Lenovo USB-C to DisplayPort Adapter

**Camera (optional)**

One of the following, configurable by model:

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

**Audio support**

HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack

**Keyboard**

6-row, spill-resistant, multimedia Fn keys, optional LED backlight

**UltraNav™**

TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

**Security**

Power-on password, hard disk password, supervisor password, security keyhole

**Security chip**

Discrete TPM 2.0, TCG Certified

**System Mgt**

DASH Management

**Fingerprint reader**

Optional: Touch style match on chip fingerprint reader on the keyboard bezel

**Battery**

Integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery

**Max battery life (MobileMark® 2014)**

Max battery life: 5.37 hr 10.76 hr 16.4 hr 10.76 hr 16.4 hr 22.15 hr

* Battery life varies significantly with settings, usage, & other factors

**AC adapter**

45W or 65W USB Type-C AC adapter

**Operating system**

Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

One of the following, configurable by model:

- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

**Mil-Spec test**

MIL-STD-810G military testing

**Environmental**

EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

**Note:** The specifications above may not be available in all regions.
ThinkPad E14 Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-10110U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>4.1 GHz</td>
<td>4MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>6MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i7-10510U</td>
<td>6</td>
<td>12</td>
<td>1.3 GHz</td>
<td>4.7 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

**Graphics**

- Intel UHD Graphics in processor only or
- Intel UHD Graphics in processor and
- AMD Radeon RX 640 Graphics, 2GB GDDR5 memory;
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

**Chipset**

- Intel SoC (System on Chip) platform

**Memory**

- 16GB max / 2666MHz DDR4, one DDR4 SO-DIMM socket

**Display**

- Size: 14.0” FHD (1920x1080) TN Anti-glare
- Resolution: 220 nits
- Brightness: 16:9
- Contrast Ratio: 400:1
- Viewing Angle: 90°

**Multi-touch**

- None

**Storage**

- Up to two drives (one M.2 SSD and one HDD)
- M.2 2280 SSD / SATA 6.0Gb/s, 2.5″ wide, 7mm high, Active Protection System™
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optical**

- None

**Ethernet**

- Gigabit Ethernet Connection, Realtek R8111GUS

**WLAN + Bluetooth™**

- One of the following, configurable by model:
  - Realtek® RTL8822CE, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

**WWAN**

- None

**SIM card**

- None

**Dimensions**

<table>
<thead>
<tr>
<th>Case Material</th>
<th>Dimensions (WxDxH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>12.80” x 9.13” x 0.70”; 325mm x 232mm x 17.9mm</td>
</tr>
<tr>
<td>PC/ABS</td>
<td>12.80” x 9.13” x 0.81”; 325mm x 232mm x 20.5mm</td>
</tr>
<tr>
<td>Aluminum Display cover + PC/ABS Bottom</td>
<td>12.80” x 9.13” x 0.74”; 325mm x 232mm x 18.9mm</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Case Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>starting at 3.81 lb / 1.73 kg</td>
</tr>
<tr>
<td>PC/ABS</td>
<td>starting at 3.90 lb / 1.77 kg</td>
</tr>
<tr>
<td>Aluminum Display cover + PC/ABS Bottom</td>
<td>starting at 3.74 lb / 1.69 kg</td>
</tr>
</tbody>
</table>

**Media reader**

- None

**Ports**

- One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, security keyhole

**Camera**

- HD720p camera with optional ThinkShutter camera privacy, fixed focus

**Audio support**

- HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

**Keyboard**

- 6-row, spill-resistant, multimedia Fn keys; optional LED backlight

**UltraNav™**

- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

**Security chip**

- Power-on password, hard disk password, supervisor password, security keyhole

**Security**

- Integrated model: discrete TPM 2.0, TCG Certified
- Discrete model: firmware TPM 2.0 integrated in chipset

**System Mgt**

- None

**Fingerprint reader**

- Optional: Touch style match on chip fingerprint reader on power button

**Battery**

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- MobileMark® 2014: 13.8 hr
- *Battery life varies significantly with settings, usage, & other factors

**Max battery life**

- 45W or 65W USB Type-C AC adapter

**Operating system**

- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro in S mode
  - No OS

**Limited warranty**

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service

**Mil-Spec test**

- MIL-STD-810G military testing (by the end of Dec. 2019)

**Environment**

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
October 2019
## ThinkPad E15 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-10110U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>4.1 GHz</td>
<td>4MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>6MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i7-10510U</td>
<td>6</td>
<td>12</td>
<td>1.8 GHz</td>
<td>4.9 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics in processor only or
- Intel UHD Graphics in processor and AMD Radeon RX 640 Graphics, 2GB GDDR5 memory;
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 3840x2160@30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform

### Memory

- 16GB max / 2666MHz DDR4, one DDR4 SO-DIMM socket

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot;</td>
<td>FHD (1920x1080)</td>
<td>TN</td>
<td>Anti-glare</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1</td>
<td>90°</td>
</tr>
<tr>
<td>15.6&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Multi-touch

- None

### Storage

- Up to two drives (one M.2 SSD and one HDD)
- M.2 2280 SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical

- None

### Ethernet

- Gigabit Ethernet Connection, Realtek R8111GUS

### WLAN + Bluetooth™

- One of the following, configurable by model:
  - Realtek® RTL8822CE, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

### WWAN

- None

### SIM card

- None

### Smart card reader

- None

### Media reader

- None

### Ports

- One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, security keyhole

### Monitor cable

- None

### Bundled Acce

- None

### Camera

- HD720p camera with optional ThinkShutter camera privacy, fixed focus

### Audio support

- HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

### Security

- Power-on password, hard disk password, supervisor password, security keyhole

### Security chip

- Integrated model: discrete TPM 2.0, TCG Certified
- Discrete model: firmware TPM 2.0 integrated in chipset

### System Mgt

- None

### Security keyhole

- None

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- MobileMark® 2014: 12.2 hr
- *Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W or 65W USB Type-C AC adapter

### Limited warranty

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service

### Mil-Spec test

- MIL-STD-810G military testing (by the end of Jan. 2020)

### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.
# ThinkPad E480 Platform Specifications

## Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-7020U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i3-7130U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### 8th Generation Intel Core i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8550U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

## Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent displays; Max resolution: 1920x1080 (HDMI) @60Hz.

## Chipset

- Intel SoC (System on Chip) platform
- Memory: 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- * System clocks down for processors with lower memory controller*

## Display

- Some: 14.0” (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
- Some: 14.0” (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 400:1 contrast ratio

## Multi-touch

- None

## Storage

- Up to 2 drives (one M.2 SSD and one HDD)
  - Some: HDD / SATA 6.0Gb/s, 2.5” wide, removable, upgradable, Active Protection System™
  - Some: M.2 SSD / PCIe NVMe
- Optical: None

## Optane™ memory

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

## Ethernet

- Gigabit Ethernet Connection, Realtek R8111GUS

## WLAN + Bluetooth™

- One of the following, configurable by model:
  - Realtek RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
  - Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - Intel Dual Band Wireless-AC 3165, 1x1, Wi-Fi + Bluetooth 4.1, M.2 Card
  - * Intel 3165ac card supports BT4.2 but is limited to BT4.1 by Windows OS*

## WWAN

- SIM card: None

## Memory

- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

## SIM card

- None

## Case material

- Display cover: Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic

## Smart card reader

- None

## Media reader

- MicroSD card reader

## Ports

- One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole

## Camera

- HD720p camera, fixed focus

## Audio support

- HD Audio, Synaptic® CX11852 codec / Advanced Audio
- Stereo speakers, 1.5W x 2, Dolby® Advanced Audio
- Dual array microphone, headphone / microphone combo jack

## Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip (opt) Firmware TPM 2.0 integrated in chip or discrete TPM 2.0 TCG Certified

## Fingerprint reader

- Optional: Touch style fingerprint reader on the palm rest
- NFC: None

## Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Max battery life: 13.51 hr * Battery life varies significantly with settings, usage, & other factors

## AC adapter

- 45W or 65W USB Type-C AC adapter

## Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

## Limited warranty

- One of the following, configurable by model:
  - 1-year mail-in repair service
  - 1-year depot repair service

## Mil-Spec test

- MIL-STD-810G military testing

## Environment

- EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo August 2019
## ThinkPad E490 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8145U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550X Graphics, 2GB GDDR5 memory.
- Supports external digital monitor via HDMI or USB Type-C.
- Supports dual independent display.

### Chipset

- Intel SoC (System on Chip) platform.

### Memory

- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets.
- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation.

### Display

<table>
<thead>
<tr>
<th>Size / Resolution</th>
<th>Surface</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
<th>Multi-touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; HD (1366x768)</td>
<td>Anti-glare</td>
<td>TN</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1</td>
<td>90°</td>
<td>Non-touch</td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>Anti-glare</td>
<td>IPS</td>
<td>250 nits</td>
<td>16:9</td>
<td>600:1</td>
<td>170°</td>
<td>Non-touch</td>
</tr>
</tbody>
</table>

### Multi-touch

- None

### Storage

- Up to two drives (one M.2 SSD and one HDD):
  - HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
  - *Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

### Optane™ memory

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### Optical

- None

### Ethernet

- Gigabit Ethernet Connection, Realtek R8111GUS

### WLAN + Bluetooth™

- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

### WWAN

- None

### SIM card

- None

### Processor Specifications Reference (PSREF)

**Note:** The specifications above may not be available in all regions. Lenovo August 2019

### Smart card reader

- None

### Media reader

- MicroSD card reader

### Ports

- One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Monitor cable

- None

### Monitor

- HD720p camera, fixed focus

### Audio support

- HD Audio, Synaptic® CX11880 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Security

- Power-on password, hard disk password, supervisor password, security keyhole

### Security chip

- Integrated model: discrete TPM 2.0, TCG Certified
- Discrete model: firmware TPM 2.0 integrated in chipset
- None

### System Mgt

- None

### Fingerprint reader

- Optional: Touch style fingerprint reader on the palm rest
- None

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- MobileMark® 2014: 13 hr
- * Battery life varies significantly with settings, usage, & other factors
- 45W or 65W USB Type-C AC adapter

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year mail-in repair service
  - 1-year depot repair service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant
## ThinkPad E490s Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>1.8 GHz</td>
<td>4</td>
<td>4.5 GHz</td>
<td>6MB</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 540X Graphics, 2GB GDDR5 memory.
- Supports external digital monitor via HDMI or USB Type-C.
- Supports three independent displays.
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI).

### Chipset

- Intel SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets.
  * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

### Display

- 14.0” FHD (1920x1080) Anti-glare TN 220 nits 16:9 400:1 90°
- 14.0” FHD (1920x1080) Anti-glare IPS 250 nits 16:9 600:1 170°

### Storage

- One of the following, configurable by model:
  * M.2 2280 SSD / SATA 6.0Gb/s
  * M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  * M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
  * Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

### Optical

- Gigabit Ethernet Connection, Realtek R8111GUS

### Ethernet + Bluetooth

- Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

### WWAN

- None

### SIM card

- None

### Weight

- Starting at 3.68 lb / 1.67 kg

### Case color

- Black or silver

### Aluminum

### Operating system

- Optional: Windows 10 Home 64 or Windows 10 Pro 64

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Integrated model: discrete TPM 2.0, TCG Certified
- Discrete model: firmware TPM 2.0 integrated in chipset
- Touch style fingerprint reader on the palm rest
- Battery Integrated Li-ion 42Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Max battery life MobileMark 2014: 11.5 hr
- * Battery life varies significantly with settings, usage, & other factors
- AC adapter 45W or 65W USB Type-C AC adapter

### Battery

- 1-year depot repair service
- MIL-STD-810G military testing
- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

---

Note: The specifications above may not be available in all regions.
ThinkPad E495 Platform Specifications

Processor AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 3200U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>1MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 3 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon RX Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 3700U</td>
<td>8</td>
<td>16</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon RX Vega 10 Graphics</td>
</tr>
</tbody>
</table>

Graphics AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

Chipset AMD SoC (System on Chip) platform

Memory 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

Display Size / Resolution Surface Type Brightness Aspect Ratio Contrast Ratio Viewing Angle Multi-touch
14.0” HD (1366x768) Anti-glare TN 220 nits 16:9 400:1 90° Non-touch
14.0” FHD (1920x1080) Anti-glare IPS 250 nits 16:9 600:1 170° Non-touch

Multi-touch None

Storage Up to two drives (one M.2 SSD and one HDD)

Optical • HDD / SATA 6.0Gb/s, 2.5” wide, 7mm high, Active Protection System™

Ethernet Gigabit Ethernet Connection, Realtek R8111GUS

WLAN + Bluetooth™ One of the following, configurable by model:
• Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
• Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

WWAN SIM card None

Dimensions Aluminum (WxDxH): 12.96” x 9.53” x 0.78”; 329mm x 242mm x 19.9mm

Weight PC/ABS (WxDxH): 12.96” x 9.53” x 0.83”; 329mm x 242mm x 21.9mm

Starting at 3.87 lb / 1.75 kg

Case color Black

Smart card reader None

Media reader MicroSD card reader

Ports One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Monitor cable None

Camera HD720p camera, fixed focus

Audio support HD Audio, Synaptic® CX11880 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

Keyboard UltraNav™ 6-row, spill-resistant, multimedia Fn keys

Security chip Power-on password, hard disk password, supervisor password, security keyhole

Security chip Fingerprint reader None

Battery Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life MobileMark® 2014: 11 hr

AC adapter 45W or 65W USB Type-C AC adapter

Operating system Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty 1-year depot repair service

Mil-Spec test Work in progress

Environment EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo August 2019
### Processor Specifications

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-7020U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>i3-7130U</td>
<td>4</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>i5-7260U</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td></td>
</tr>
</tbody>
</table>

### 8th Generation Intel Core i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>i5-8255U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
<td></td>
</tr>
</tbody>
</table>

* i3-7130U is NOT available in US and EMEA

### Graphics Specifications

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display, Max resolution: 1920x1080 (HDMI)@60Hz

### Chipset Specifications

- Intel SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- System clocks down for processors with lower memory controller

### Display Specifications

- Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight
- 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio

### Multi-touch Specifications

- None

### Storage Specifications

- Up to 2 drives (one M.2 SSD and one HDD)
- Some: HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™
- Some: M.2 SSD / PCIe NVMe

### Optical Specifications

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- None

### Ethernet Specifications

- Gigabit Ethernet Connection, Realtek R8111GUS

### Audio Specifications

- HD Audio, Synaptic CX11852 codec
- 4 stereo speakers, 2W x 2, Dolby* Advanced Audio
- 2W x 2, Dolby Audio
- 2W x 2, Dolby Audio
- stereo speakers, 2W x 2, Dolby

### Security Specifications

- Power-on password, hard disk password, supervisor password, security keyhole
- Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
- Security chip (opt)
- vPro

### Operating System

- Optional: Windows 10 Home 64 or Windows 10 Pro 64

### Limited Warranty

- One of the following, configurable by model:
  - 1-year mail-in repair service
  - 1-year depot repair service

### MIL-Spec Test

- MIL-STD-810G military testing

### Environment

- EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.
ThinkPad E590 Platform Specifications

- Processor: 8th Generation Intel® Core™ i3 / i5 / i7 Processor
  - Processor Number: 8th Generation Intel® Core™ i3 / i5 / i7 Processor
  - # of Cores: 2
  - # of Threads: 4
  - Base Frequency: 2.1 GHz
  - Max Turbo Frequency: 3.9 GHz
  - Cache: 4MB
  - Memory Types: DDR4-2400
  - Processor Graphics: Intel UHD Graphics 620

- Graphics: Intel UHD Graphics 620 in processor only or AMD Radeon RX 550X Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

- Chipset: Intel SoC (System on Chip) platform

- Memory: 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
  - * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

- Display: 15.6" HD (1366x768) Anti-glare TN 220 nits 16:9 400:1 90° Non-touch
  - 15.6" FHD (1920x1080) Anti-glare IPS 250 nits 16:9 600:1 170° Non-touch

- Multi-touch: None

- Storage: Up to two drives (one M.2 SSD and one HDD)
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
  - * Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

- Optane™ memory: Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

- Ethernet: Gigabit Ethernet Connection, Realtek R8111GUS

- WLAN + Bluetooth™: One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

- WWAN SIM card: None

- Operating system: Optional: Windows® 10 Home 64 or Windows 10 Pro 64

- Security: Power-on password, hard disk password, supervisor password, security keyhole

- Security chip: Integrated model: discrete TPM 2.0, TCG Certified
  - Discrete model: firmware TPM 2.0 integrated in chipset

- System Mgt: None

- Battery: Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
  - Max battery life: 2014: 11 hr
  - * Battery life varies significantly with settings, usage, & other factors

- AC adapter: 45W or 65W AC adapter

- Warranty: 1-year mail-in repair service

- Mil-Spec test: MIL-STD-810G military testing

- Environment: ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
August 2019
### ThinkPad E595 Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 3200U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>1MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 3 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon RX Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 3700U</td>
<td>4</td>
<td>8</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon RX Vega 10 Graphics</td>
</tr>
</tbody>
</table>

#### Graphics

- AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor;
- supports external digital monitor via HDMI or USB Type-C;
- supports dual independent display;
- Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

#### Chipset & Memory

- AMD SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- *Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation*

#### Display

<table>
<thead>
<tr>
<th>Size / Resolution</th>
<th>Surface Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
<th>Multi-touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot; HD (1366x768)</td>
<td>Anti-glare TN</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1</td>
<td>90°</td>
<td>Non-touch</td>
</tr>
<tr>
<td>15.6&quot; FHD (1920x1080)</td>
<td>Anti-glare IPS</td>
<td>250 nits</td>
<td>16:9</td>
<td>600:1</td>
<td>170°</td>
<td>Non-touch</td>
</tr>
</tbody>
</table>

#### Storage

- Up to two drives (one M.2 SSD and one HDD)
  - HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
  - M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

#### Optical

- Gigabit Ethernet Connection, Realtek R8111GUS

#### Ethernet

- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

#### Camera

- HD720p camera, fixed focus

#### Audio support

- HD Audio, Synchronous CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

#### Security chip

- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified

#### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- MobileMark® 2014: 10.3 hr

#### Ac adapter

- 45W or 65W USB Type-C AC adapter

#### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

#### Limited warranty

- One of the following, configurable by model:
  - 1-year mail-in repair service
  - 1-year depot repair service

#### Mil-Spec test

- Work in progress

#### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.
ThinkPad L13 Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Core Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-10110U</td>
<td>2</td>
<td>2.1 GHz</td>
<td>4.1 GHz</td>
<td>4MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i3-10210U</td>
<td>4</td>
<td>1.8 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-10510U</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.9 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graphics

Intel UHD Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

Memory

4GB, 8GB, or 16GB / 2666MHz DDR4 / soldered to systemboard, no sockets

Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.3&quot;</td>
<td>HD (1366x768)</td>
<td>Anti-glare</td>
<td>TN</td>
<td>250 nits</td>
<td>16:9</td>
</tr>
<tr>
<td>13.3&quot;</td>
<td>FHD (1920x1080)</td>
<td>Anti-glare</td>
<td>IPS</td>
<td>250 nits (non-touch) 300 nits (multi-touch)</td>
<td>16:9</td>
</tr>
</tbody>
</table>

Multi-touch (opt)

On-cell touch, supports 10-finger gesture (FHD only)

Storage

One of the following, configurable by model:
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4
- None

Optical

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional Lenovo USB-C to Ethernet Adapter

WLAN + Bluetooth™

One of the following, configurable by model:
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card
- M.2 2280, PCIe NVMe 3.0 x 4
- None

WWAN

SIM card

None

Dimensions

WxDxH: 12.26" x 8.62" x 0.69"; 311.5mm x 219mm x 17.6mm

Weight

Starting at 3.06 lb / 1.38 kg

Case color

Black or Silver

Case material

Display cover: Aluminum

Bottom: GFRP

Note: The specifications above may not be available in all regions.

Lenovo
October 2019
ThinkPad L380 Platform Specifications

Product Specifications Reference (PSREF)

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 3965U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>i5-7202U</td>
<td>4</td>
<td>4</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7130U</td>
<td>4</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**8th Generation Intel Core i5 / i7 Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8550U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**

Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset Memory**

Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets *System clocks down for processors with lower memory controller

**Display**

Some: 13.3" (338mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 500:1 contrast ratio

Some: 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

**Multi-touch (optional)**

On-cell touch, supports 10-finger gesture

**Storage**

One of the following, configurable by model:

- M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)

**Optical**

None

**Ethernet**

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable

**WLAN + Bluetooth**

Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card *Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

**WWAN**

None

**SIM card**

None

**Dimensions**

WxHxD: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm

**Weight**

Starting at 3.22 lb / 1.46 kg

**Case color**

Black or Silver

**Case material**

Display: Aluminum

**Display cover:**

Bottom: GFRP

**Smart card reader**

None

**Media reader**

MicroSD card reader

**Ports**

Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole

**Monitor cable**

( optional)

Depending on many factors, actual data transfer speed may be lower than theoretical speed

**HDMI to VGA:** Lenovo HDMI to VGA Monitor Adapter

**USB-C to VGA:** Lenovo USB-C to VGA Adapter

**USB-C to DP:** Lenovo USB-C to DisplayPort Adapter

**Bundled Accy**

Optional: ThinkPad Ethernet Extension Cable

**Camera**

HD720p camera, fixed focus

**Audio support**

HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby Audio / dual array microphone, headphone / microphone combo jack

**Keyboard**

6-row, spill-resistant, multimedia Fn keys, optional LED backlight

**Audio**

TrackPoint pointing device and buttonless Mylar surface touchpad, multi-touch

**Battery**

Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

**AC adapter**

45W or 65W USB Type-C AC adapter

**Operating system**

Optional: Windows 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

One of the following, configurable by model:

- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

**Mil-Spec test**

MIL-STD-810G military testing

**Environment**

EPEAT Gold (US only); ENERGY STAR 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
**ThinkPad L390 Platform Specifications**

**Processor**
- 8th Generation Intel® Core™ i3 / i5 / i7 Processor
- Processor: 8th Generation Intel® Core™ i3 / i5 / i7 Processor
- Number: # of Cores / # of Threads
- Frequency: Base Frequency / Turbo Frequency
- Cache: L2 / L3
- Graphics: Intel UHD Graphics 620

**Graphics**
- Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays;
- Max resolution: 4096x2304 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

**Chipset**
- Intel SoC (System on Chip) platform

**Memory**
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

**Display**
- Size: 13.3" HD (1366x768)
- Resolution: Anti-glare TN
- Brightness: 250 nits
- Aspect Ratio: 16:9
- Contrast Ratio: 500:1
- Viewing Angle: 90°

**Storage**
- One of the following, configurable by model:
  - M.2 2280, PCIe NVMe 3.0 x 4
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optical**
- None

**Ethernet**
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter

**WLAN**
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN**
- Non-vPro
- vPro

**Dimensions**
- WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm
- Weight: Starting at 3.22 lb / 1.46 kg

**Case color**
- Black or Silver

**Case material**
- Display cover: Aluminum
- Bottom: GFRP

**Smart card reader**
- None

**Media reader**
- MicroSD card reader

**Ports**
- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole

**Monitor cable (optional)**
- Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Bundled Accessories (optional)**
- USB-C to USB-A Adapter
- Lenovo USB-C to USB-C Cable 2m

**Camera**
- HD720p camera, fixed focus

**Audio support**
- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby Audio™ Premium / dual array microphone, headphone / microphone combo jack

**Keyboard**
- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight

**Security chip**
- Power-on password, hard disk password, supervisor password, security keyhole

**System Mgl (opt)**
- Intel vPro Technology

**Operating system**
- Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

**Environment**
- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

**Note:** The specifications above may not be available in all regions.

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Lenovo
August 2019
## ThinkPad L480 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
<th>WWAN (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-7020U</td>
<td>2</td>
<td>4</td>
<td></td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>One of the following, configurable by model:</td>
</tr>
<tr>
<td>i3-7130U</td>
<td>2</td>
<td>4</td>
<td></td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>-</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>4</td>
<td>8</td>
<td></td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>-</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>4</td>
<td>8</td>
<td></td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>-</td>
</tr>
</tbody>
</table>

* i3-7130U is NOT available in US and EMEA

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory (discrete models are NOT available in EMEA);
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- Intel Ethernet Connection I219-LM (Jacksonville)
- Intel Ethernet Connection I219-V (Jacksonville)

### Display

- Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
- Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle

### Multi-touch (optional)

- On-cell touch, supports 10-finger gesture (FHD only)

### Storage

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s
- Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN + Bluetooth

- One of the following, configurable by model:
  - Realtek® RTL8822BE, 802.11ac + Bluetooth 4.1, M.2 card (US only)
  - Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- * Intel 8265ac Card supports B74.2 but is limited to B74.1 by Windows OS

### WWAN (optional)

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE:
    - Intel XMM™ 7626 (Fibocom L830-EB), M.2 card (EMEA only)
    - Intel XMM™ 7620 (Fibocom L830-GL), M.2 card
- * For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Dimensions

- WxDxH: 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm

### Weight

- Starting at 3.71 lb / 1.68 kg

### Case color

- Black

### Case material

- PC/ABS plastic

### Memory

- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Chipset

- Intel SoC (System on Chip) platform
- Intel Ethernet Connection I219-LM (Jacksonville)

### Audio support

- One of the following, configurable by model:
  - HD720p camera, fixed focus
  - IR camera and HD720p camera, fixed focus

### Security

- Power-on password, hard disk password, supervisor password, security keyhole

### Security chip

- Discrete TPM 2.0, TCG Certified

### Security chip (vPro (optional))

- Intel vPro Technology

### Fingerprint reader

- Optional: Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology

### NFC (optional)

- Near Field Communication

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### Max battery life

- MobileMark® 2014: 12.2 hr
- * Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W or 65W USB Type-C AC adapter

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.

Lenovo

August 2019
## ThinkPad L490 Platform Specifications

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 4305U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td></td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics 610</td>
</tr>
<tr>
<td>3-8145U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI).

### Chipset

- Intel SoC (System on Chip) platform
- 64GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; HD (1366x768)</td>
<td>TN Anti-glare</td>
<td>220 nits</td>
<td>16:9</td>
<td>500:1</td>
<td>45%</td>
<td>90°</td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>45%</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Storage

- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

### Optane™ Memory Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)
- One of the following, configurable by model:
- Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card (NOT available in EMEA)
- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
- Lenovo USB-C to VGA Adapter
- Optional: Lenovo USB-C to VGA Monitor Adapter
- Optional: Lenovo USB-C to DP Adapter
- Optional: Lenovo USB-C to DisplayPort Adapter

### WWAN (optional)

- Wireless WAN upgradable
- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM Card

- None

### Media Reader

- MicroSD card reader

### Ports

- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort)
- HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole
- Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Monitor Cable

- Optional:
  - HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
  - USB-C to VGA: Lenovo USB-C to VGA Adapter
  - USB-C to DP: Lenovo USB-C to DisplayPort Adapter

### Bundled Accessories

- One of the following, configurable by model:
  - TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
  - 3-year/1-yr battery depot repair service
  - 1-year depot repair service

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: Discrete TPM 2.0, TCG Certified
- Intel vPro Technology
- Intel vPro Technology
- Optional: Touch style fingerprint reader on the palm rest
- NFC (optional)

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- Maximum battery life: MobileMark® 2014: 12 hr
- Battery life varies significantly with settings, usage, & other factors
- AC adapter: 45W, 65W, or 65W slim USB-C AC adapter

### Audio Support

- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- UltraNav™: TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Case Material

- PC/ABS plastic
- Starting at 3.72 lb / 1.69 kg

### Display Modular Support

- One of the following, configurable by model:
  - HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
  - USB-C to VGA: Lenovo USB-C to VGA Adapter
  - USB-C to DP: Lenovo USB-C to DisplayPort Adapter

### On-cell Touch, supports 10-finger gesture (FHD only)

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

### Camera (optional)

- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

### Case Color

- Silver; ENERGY STAR®

### Dimensions

- WxDxH: 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm

### Weight

- Starting at 3.72 lb / 1.69 kg

### Operating System

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Warranty

- Limited warranty: One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service

### Mil-Spec Test

- MIL-STD-810G military testing

### EPEAT

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

### Note

- The specifications above may not be available in all regions.

October 2019
## ThinkPad L570 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Processor or 7th Generation Intel Core i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-6006U</td>
<td>2</td>
<td>4</td>
<td>2.0 GHz</td>
<td>-</td>
<td>3MB</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i3-6100U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-6200U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>2.8 GHz</td>
<td>3MB</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-6300U</td>
<td>2</td>
<td>4</td>
<td>2.4 GHz</td>
<td>2.9 GHz</td>
<td>3MB</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i7-6500U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>4MB</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i7-6600U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Intel Celeron Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Processor or 7th Generation Intel Core i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 3965U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>3-7100U</td>
<td>2</td>
<td>4</td>
<td>2.4 GHz</td>
<td>-</td>
<td>3MB</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>3-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>3-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.6 GHz</td>
<td>4MB</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>3-7500U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>7-7600U</td>
<td>2</td>
<td>4</td>
<td>2.8 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>Intel HD Graphics 610</td>
</tr>
</tbody>
</table>

### Graphics

- **Intel HD Graphics 520, 610, or 620 in processor only:**
  - Supports external analog monitor via VGA and digital monitor via Mini DisplayPort.
  - Supports three independent displays;
  - Max resolution: 3840x2160@60Hz (DP via mDP cable); 1920x1200@60Hz (VGA)

### Chipset

- **Intel SoC (System on Chip) platform**

### Display

- **Some:** 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio
- **Some:** 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio
- **Some:** 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio, 160° viewing angle

### Multi-touch

- **None**

### Storage

- **Some:** HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- **Some:** SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)
- **Some:** M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16GB/s
- **Some:** 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

### Optical (optional)

- **DVD-ROM or DVD burner, 9mm high, fixed, not removable, tray-in**

### Ethernet

- **Non-vPro model:** Intel Ethernet Connection I219-V (Jacksonville)
- **vPro model:** Intel Ethernet Connection I219-LM (Jacksonville)

### WWAN (optional)

- **One of the following, configurable by model:**
  - **Wireless WAN upgradable**
  - **Integrated Mobile Broadband 4G LTE-A**
  - Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card
  - **Integrated Mobile Broadband 4G LTE**

### SIM card (opt)

- **Micro-SIM card slot, opt Verizon LTE (US) or Lenovo™ Connect (EMEA) SIM card**

### Dimensions

- **WxDxH:** 14.84" x 10.04" x 1.08-1.21"
- **Weight:** 377mm x 255mm x 27.6-30.85mm

### Weight

- **Starting at 2.5 lb / 2.98 kg**

### Case color

- **Black**

### Case material

- **PC/ABS plastic**

### ExpressCard (opt)

- **One slot (ExpressCard/34)**

### Smart card reader

- **Optional:** Smart card reader

### Media reader

- **4-in-1 reader (MMC, SD, SDHC, SDXC)**

### Ports

- **Four USB 3.1 Gen 1 (USB 3.0, one Always On), VGA, Mini DisplayPort, Ethernet (RJ-45), Dock connector**

### Monitor cable

- **Depending on many factors, actual data transfer speed may be lower than theoretical speed**

### Camera (optional)

- **1080p resolution, fixed focus**

### Audio support

- **HD Audio, Realtek ALC3245 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack**

### Keyboard

- **6-row, spill-resistant, multimedia Fn keys, numeric keypad**

### UltraNav™ Pointing device and buttonless Mylar surface multi-touch touchpad

### Security

- **Power-on password, hard disk password, supervisor password, security keyhole**
- **Discrete TPM 2.0, TCG Certified**

### Security chip

- **Intel vPro Technology**

### Fingerprint reader

- **Optional:** Swipe style fingerprint reader on the palm rest

### NFC

- **None**

### Battery

- **Li-ion 6-cell (48Wh)**

### Max battery life

- **MobileMark® 2014:** 14.8 hr

### AC adapter

- **45W slim tip AC adapter**

### Operating system

- **One of the following, configurable by model:**
  - **Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64**
  - **Windows 10 Home 64**
  - **Windows 10 Pro 64**

### Limited warranty

- **One of the following, configurable by model:**
  - **1-year depot repair service**
  - **3-year/1-year battery depot repair service**
  - **3-year/1-year battery limited onsite service**

### Mi-Spec test

- **MIL-STD-810G military testing**

### Environment

- **EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant**

---

Note: The specifications above may not be available in all regions.

Lenovo

September 2018
### ThinkPad L580 Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
<th>Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 3965U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
<td>i3 / i5</td>
</tr>
<tr>
<td>3-7020U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>3.3 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>i3 / i5</td>
</tr>
<tr>
<td>3-7130U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>4.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>i3 / i5</td>
</tr>
<tr>
<td>5-7200U</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>i3 / i5</td>
</tr>
<tr>
<td>5-7300U</td>
<td>4</td>
<td>8</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
<td>i3 / i5</td>
</tr>
</tbody>
</table>

* 3-7130U is NOT available in US and EMEA

#### Graphics

- Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory
- Supports external digital monitor via HDMI or USB Type-C; supports three independent displays
- Max resolution: 4096x2304 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

#### Chipset

- Intel SoC (System on Chip) platform
- Intel HD Graphics

#### Display

- Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle

#### Storage

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s
- Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

#### Optical

- None

#### Ethernet

- None

#### WLAN + Bluetooth

- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card (US only)
  - Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - Intel 8265ac card supports 874.2 but is limited to 874.1 by Windows OS

---

**Note:** The specifications above may not be available in all regions.
### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 4305U</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics 610</td>
</tr>
<tr>
<td>8th Gen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i3-8145U</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>8th Gen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th Gen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th Gen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th Gen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory (discrete models are NOT available in EMEA);
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 2048x1152 at 60Hz (USB Type-C); 2048x1152 at 60Hz (HDMI);
- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### Chipset

- Intel SoC (System on Chip) platform
- 64GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot; HD</td>
<td>(1366x768)</td>
<td>TN</td>
<td>Anti-glare</td>
<td>220 nits</td>
<td>16:9</td>
<td>500:1</td>
<td>45%</td>
</tr>
<tr>
<td>15.6&quot; FHD</td>
<td>(1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>45%</td>
</tr>
</tbody>
</table>

### Storage

- • HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- • SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high
- • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- • Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

### Optane™ Memory

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- None

### Ethernet

- Non-vPro model: Intel Ethernet 9260 (Jacksonville)
- vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- One of the following, configurable by model:
  - Intel 82583V, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card (NOT available in EMEA)
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE, Fibocom LB300-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - For non-WWAN model, it means the model is NOT WWAN upgradable

### Security

- Power-on password, hard disk password, supervisor password, security keyhole

### Display

- Stereo speakers, 2W x 2, Dolby®️ Advanced Audio / trackpoint pointing device and buttonless Mylar surface multi-touch touchpad

### Camera

- HD720p camera with ThinkShutter camera privacy, fixed focus

### Audio

- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby®️ Advanced Audio / dual array microphone, headphone / microphone combo jack

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

### Operating System

- Windows®️ 10 Home 64 or Windows 10 Pro 64

### Limited Warranty

- 1-year depot repair service
- 3-year/1-yr battery depot repair service

---

**Note:** The specifications above may not be available in all regions.
## ThinkPad P1 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8400H</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-8750H</td>
<td>6</td>
<td>12</td>
<td>2.2 GHz</td>
<td>4.1 GHz</td>
<td>9MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>E-2176M</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>4.3 GHz</td>
<td>9MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics P630</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro P1000 or P2000, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt; supports four independent displays; Max resolution: 5K@60Hz (Thunderbolt), 4K@60Hz (HDMI)

### Chipset

- Mobile Intel CM246 Chipset

### Memory

- Mobile DDR4 ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets

### Display

- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 72% gamut, 170° viewing angle
- Some: 15.6" (396mm) UHD (3840x2160), LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)

### Multi-touch (opt)

- Capacitive-type multi-touch, supports 10-finger gesture (4K only)
- Supports pen accessory, please see the accessory compatibility for details

### Storage

- Up to 2 drives (two M.2 SSD)
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

### RAID (optional)

- RAID 0/1 support
- None

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable

### WLAN

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN

- None

### SIM card

- None

### Dimensions

- WxHxD (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm
- WxHxD (multi-touch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm

### Weight

- Non-touch model: starting at 3.76 lb / 1.7 kg
- Multi-touch model: starting at 4.06 lb / 1.8 kg

### Case color

- Black

### Case material

- Display cover: CFRP/GFRP hybrid
- Bottom: Aluminum alloy

### Smart card reader

- Optional: Smart card reader

### Media reader

- None

### ExpressCard

- None

### Ports

- SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card
- Two USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, SD card reader, security keyhole

### Monitor cable

- HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter
- Optional: ThinkPad Ethernet Extension Cable

### Camera (optional)

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus
  - HD Audio, Realtek ALC3286 codec / stereo speakers, 2W x 2, Dolby Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos™ headphone

### Audio support

- One of the following, configurable by model:
  -扬声器支持
  - Dolby Atmos

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, LED backlight

### UltraNav

- TrackPoint pointing device and buttonless glass surface multi-touch touchpad

### Security chip

- Security chip
- Security chip
- Intel vPro Technology
- Discrete TPM 2.0, TCG Certified

### Security

- Power-on password, hard disk password, supervisor password, security keyhole

### Fingerprint reader

- Touch style match on chip fingerprint reader on the keyboard bezel

### Color calibration

- None

### Battery

- Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- Max battery life
  - Discrete mode: 7.36 hr; Hybrid mode: 13.87 hr
  - Battery life varies significantly with settings, usage, & other factors

### Operating system

- One of the following, configurable by model:
  - Windows 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro 64 for Workstations

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot repair service
  - 1-year depot repair service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

---

Note: The specifications above may not be available in all regions.

Lenovo
August 2019
## ThinkPad P1 (2nd Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-9400H</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>4.3 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-9750H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.5 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-9850H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.6 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i9-9880H</td>
<td>8</td>
<td>16</td>
<td>2.3 GHz</td>
<td>4.6 GHz</td>
<td>16MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>E-2276M</td>
<td>6</td>
<td>12</td>
<td>2.8 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics P630</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 630 in processor only
- Intel UHD Graphics 630 or P630 in processor and NVidia Quadro T1000 or T2000, 4GB GDDR5 memory
- Supports external digital monitor via HDMI or Thunderbolt™
- Supports four independent displays
- Max resolution: 5K @ 60Hz (Thunderbolt); 4K @ 60Hz (HDMI)

### Chipset

- Mobile Intel CM246 Chipset
- Mobile Intel Xeon® E Processor

### Memory

- 64GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>72% NTSC</td>
<td>170°</td>
</tr>
<tr>
<td>15.6&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>72% NTSC</td>
<td>170°</td>
</tr>
<tr>
<td>15.6&quot;</td>
<td>UHD (3840x2160)</td>
<td>IPS Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100% Adobe</td>
<td>170°</td>
</tr>
<tr>
<td>16&quot;</td>
<td>UHD (3840x2160)</td>
<td>OLED Anti-reflection</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100% DCI-P3</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Multi-touch (opt)

- Capacitive-type multi-touch, supports 10-finger gesture (UHD OLED only), anti-reflection (AR), anti-smudge (AS) coating
  - Supports pen accessory, please see the accessory compatibility for details

### Storage

- Up to two M.2 SSD
- M.2 2280 SSD / PCIe NVMe 3.0 x 4

### RAID (optional)

- RAID 0/1 support
- None

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable

### WLAN

- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN

- None
- None

### Battery

- Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

### Max battery life

- MobileMark® 2014: 13.8 hr

### AC adapter

- 135W slim tip AC adapter

### Operating system

- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro 64 for Workstations

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Memory Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8655U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor and NVIDIA Quadro® P520, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 3840x2160@60Hz (USB-C); 3840x2160@30Hz (HDMI)

### Chipset & Memory

- Intel SoC (System on Chip) platform
- 48GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
- *Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
<th>Multi-touch (opt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0”</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>250 nits (non-touch) 300 nits (multi-touch)</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0”</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0”</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0”</td>
<td>WQHD (2560x1440)</td>
<td>IPS</td>
<td>Glossy</td>
<td>500 nits</td>
<td>16:9</td>
<td>1500:1</td>
<td>100%</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Storage

- M.2 2280 SSD / SATA 6.0Gbps
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- One of the following, configurable by model:
  - Wired LAN upgradeable
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - For non-WWAN model, it means the model is NOT WWAN upgradeable

### SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Software

- Windows 10 Home 64 or Windows 10 Pro 64

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: Intel vPro Technology
- System Mgt (opt): Lenovo vPro Technology

### Operating system

- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-year depot repair service
  - 3-year/1-year battery limited onsite service

### Environment

- MIL-STD-810G military testing
- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

### Dimensions

- WxDxH: 12.95” x 8.94” x 0.70”; 329mm x 227mm x 17.9mm

### Weight

- Models | Weight
- -------|---------
- FHD    | 3.43 lb / 1.55 kg
- FHD Low Power | 3.28 lb / 1.49 kg
- WQHD  | 3.24 lb / 1.47 kg

### Notes

- The specifications above may not be available in all regions.
### ThinkPad P51 Platform Specifications

<table>
<thead>
<tr>
<th><strong>Processor</strong></th>
<th>6th or 7th Generation Intel® Core™ i7 Processor or Intel Xeon® Processor E3 v5 or v6 Family</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Graphics</strong></td>
<td>Intel HD Graphics 530, 630, P530, or P630 in processor and NVIDIA Quadro® M1200 or M2200, 4GB memory; supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays; Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable): 3840x2160@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Mobile Intel CM238 Chipset 64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>Some: 15.6&quot; (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle; Some: 15.6&quot; (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>Up to 3 drives (two M.2 SSD and one HDD)</td>
</tr>
<tr>
<td><strong>RAID</strong></td>
<td>Optional: RAID 0/1 support</td>
</tr>
<tr>
<td><strong>Ethernet</strong></td>
<td>Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)</td>
</tr>
<tr>
<td><strong>WLAN</strong></td>
<td>One of the following, configurable by model: Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card</td>
</tr>
<tr>
<td><strong>Bluetooth</strong></td>
<td>Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter</td>
</tr>
<tr>
<td><strong>WWAN</strong></td>
<td>One of the following, configurable by model: Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card</td>
</tr>
<tr>
<td><strong>SIM card</strong></td>
<td>Micro-SIM card slot, opt Verizon LTE (US) or Lenovo™ Connect (EMEA) SIM card</td>
</tr>
</tbody>
</table>

**Dimensions** (WxDxH): 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm

**Weight** (WxDxH): 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm

**Case color** Black; Display cover: Glass-Fiber Reinforced Plastic; Bottom: Magnesium/Aluminum

**Camera (optional)** HD720p resolution, fixed focus

**Audio support** HD Audio, Realtek ALC3268 codec / stereo speakers, 2x2 / dual array microphone, combo audio/microphone jack

**Security** Power-on password, hard disk password, supervisor password, security keyhole

**Fingerprint reader** Touch style match on chip fingerprint reader on the palm rest

**Color calibration** Optional: Pantone color calibrator by X-Rite color calibration sensor in palm rest

**Battery** Lithium Polymer 4-cell (66Wh) or 6-cell (90Wh)

**Operating system** One of the following, configurable by model:

- Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations

**Limited warranty** One of the following, configurable by model:

- 1-year depot repair service
- 3-year/1 yr battery depot repair service
- 3-year/1 yr battery limited onsite service

**Mi-Spec test** MIL-STD-810G military testing

**Environment** EPEAT™ Gold (US Only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
### ThinkPad P52 Platform Specifications

**Processor** 8th Generation Intel® Core™ i7 / i9 Processor or Intel Xeon® E Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8750H</td>
<td>6</td>
<td>2.2 GHz</td>
<td>4.1 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>7-8850H</td>
<td>6</td>
<td>2.6 GHz</td>
<td>4.3 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>9-8950HK</td>
<td>6</td>
<td>2.9 GHz</td>
<td>4.8 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>E-2176M</td>
<td>6</td>
<td>2.7 GHz</td>
<td>4.4 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
</tbody>
</table>

**Graphics** Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro P1000 (4GB memory), P2000 (4GB memory), or P3200 (6GB memory, VR ready); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt; supports four independent displays; Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable); 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)

**Chipset** Mobile Intel CM246 Chipset

**Display**
- **Some**: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 160° viewing angle.
- **Some**: 15.6" (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch.

**Multi-touch (opt)** Capacitive-type multi-touch, supports 10-finger gesture (4K only)

**Pen** Supports pen accessory, please see the accessory compatibility for details

**Storage** Up to 3 drives (two M.2 SSD and one HDD)
- **Some**: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- **Some**: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32GB/s

**Optane™ memory** Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

**RAID (optional)** RAID 0/1 support

**Optical**
- **Non-vPro model**: Intel Ethernet Connection I219-V (Jacksonville)
- **vPro model**: Intel Ethernet Connection I219-LM (Jacksonville)

**Ethernet**
- **Non-vPro model**: Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- **vPro model**: Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN**
- **Bluetooth™**: Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**
- **Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7380 (Fibocom L890-GL), M.2 card**

**SIM card (opt)**
- **Nano-SIM card slot, optional Verizon LTE (US) SIM card**

**Dimensions**
- **WxDxH**: 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm
- **WxDxH(Touch)**: 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm

**Weight**
- **Non-touch model**: starting at 5.4 lb / 2.45kg
- **Multi-touch model**: starting at 6.4 lb / 2.9kg

**Case color** Black

**Case material** Display cover: Glass-Fiber Reinforced Plastic; Bottom: Magnesium/Aluminum

**Smart card reader** Optional: Smart card reader

**Media reader**
- **4-in-1 reader** (MMC, SD, SDHC, SDXC), supports UHS-II SD card
- **Three USB 3.1 Gen 1 (one Always On)**
- **two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP)**
- **Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45)**
- **nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader** (MMC, SD, SDHC, SDXC), security keyhole

**Power Delivery only supports power-out for charging peripherals**

**Camera (optional)**
- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus

**Audio support**
- **HD Audio, Realtek® ALC3286 codec** / stereo speakers, 2W x 2, Dolby® Audio® Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone

**Keyboard** 6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight

**UltraNav™** 3-button TrackPoint® pointing device and 4-button Mylar surface multi-touch touchpad

**Security chip**
- Intel vPro Technology
- Discrete TPM 2.0, TCG Certified

**Fingerprint reader**
- Touch type match on chip fingerprint reader on the palm rest
- None

**NFC (optional)** Near Field Communication

**Battery**
- Swappable Li-ion 90Wh battery

**Max battery life**
- **Discrete mode**: 6.1 hr, Hybrid mode: 8.9 hr
  * Battery life varies significantly with settings, usage, & other factors

**AC adapter**
- 170W slim tip AC adapter

**Operating system**
- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro for Workstations

**Limited warranty**
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1yr battery depot repair service
  - 3-year/1yr battery limited onsite service

**Mil-Spec test** MIL-STD-810G military testing

**Environment**
- EPEAT® Silver; ENERGY STAR® 6.1; RoHS-compliant

---

Note: The specifications above may not be available in all regions.

Lenovo
August 2019
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Specifications</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>Intel UHD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>Intel UHD Graphics 620</td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor and NVIDIA Quadro P500, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display

- On-cell touch, supports 10-finger gesture (FHD only)
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle

### Storage

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16GB/s
- Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16GB/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

### Optane™ Memory

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

### WLAN + Bluetooth™

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

### SIM Card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Memory

- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Case Material

- Glass-Fiber Reinforced Plastic

### Optane™

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### Processor

- Intel 8th Generation Core i5 / i7 Processor
- 1.7 GHz to 4.2 GHz
- 6MB L3 Cache
- Intel UHD Graphics 620

### Graphics

- Intel XMM 7360 (Fibocom L850-GL), M.2 card
- 7262 (Fibocom L830-EB), M.2 card (EMEA only)

### Display

- Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

### Battery

- Optional integrated Li-ion 32Wh battery and swappable Li-ion 24Wh, 48Wh, or 72Wh battery

### Ports

- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt3 (with the function of PD and DP)
- HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole

### Monitor Cable

- Optional: Lenovo USB-C to DisplayPort Adapter

### Media Reader

- Optional: Smart card reader

### Audio Support

- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack

### Security Chip

- Intel vPro Technology

### Security Chip

- Security chip: Discrete TPM 2.0, TCG Certified

### Media Reader

- Optional: Smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC)

### Keyboard

- 6-row, spill-resistant, multimedia F n keys, numeric keypad, optional LED backlight
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Bluetooth

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus

### Touch Screen

- Touch style match on chip fingerprint reader on the palm rest
- Anti-spoofing technology

### Operating System

- Windows 10 Home 64 or Windows 10 Pro 64

### AC Adapter

- 65W USB Type-C AC adapter

### Maximum Battery Life (MobileMark® 2014)

<table>
<thead>
<tr>
<th>Models</th>
<th>48Wh</th>
<th>72Wh</th>
<th>32Wh + 24Wh</th>
<th>32Wh + 48Wh</th>
<th>32Wh + 72Wh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max battery life</td>
<td>12.2 hr</td>
<td>18.5 hr</td>
<td>13.5 hr</td>
<td>20.1 hr</td>
<td>26.3 hr</td>
</tr>
</tbody>
</table>

### Limited Warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service
  - 3-year (including battery) limited onsite service

### Mil-Spec Test

- MIL-STD-810G military testing

### Environmental Compliance

- EPEAT® Silver; ENERGY STAR® 6.1; RoHS-compliant

### Note

- The specifications above may not be available in all regions.
ThinkPad P53 Platform Specifications

**Product Specifications Reference (PSREF)**

---

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-9400H</td>
<td>4</td>
<td>2.5 GHz</td>
<td>4.3 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-9750H</td>
<td>6</td>
<td>2.6 GHz</td>
<td>4.5 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-9850H</td>
<td>6</td>
<td>2.6 GHz</td>
<td>4.6 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i9-9880H</td>
<td>8</td>
<td>2.3 GHz</td>
<td>4.8 GHz</td>
<td>16MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics P630</td>
</tr>
<tr>
<td>E-2276M</td>
<td>6</td>
<td>2.8 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics P630</td>
</tr>
</tbody>
</table>

**Note:** The specifications above may not be available in all regions. Lenovo October 2019

### Graphics

Intel UHD Graphics 630 or P630 in processor and NVIDIA™ Quadro® T1000 (4GB GDDR5), T2000 (4GB GDDR5), RTX 3000 (6GB GDDR6, VR ready), RTX 4000 (8GB GDDR6, VR ready), or RTX 5000 (16GB GDDR6, VR ready); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports five independent displays; Max resolution: 5K@60Hz (Thunderbolt®), 4K@60Hz (USB-C or HDMI)

### Chipset

Mobile Intel CM246 Chipset

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
<th>Multi-touch (opt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>120°</td>
<td>Capacitive-type multiple-touch, supports 10-finger gesture (UHD only), anti-smudge (AS) coating</td>
</tr>
<tr>
<td>15.6&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td>15.6&quot;</td>
<td>UHD (3840x2160)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>15.6&quot;</td>
<td>UHD (3840x2160)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Pen

Multi-touch model: 3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad

### Storage

Up to 3 drives (3x M.2 SSD or 1x HDD + 2x M.2 SSD)

- **HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™**
- **M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4**

**Note:** HDD is only available for T1000 and T2000 graphics model

### Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### RAID (optional)

RAID 0/1/5 support

### Optical

None

### Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN (optional)

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

### Bluetooth (optional)

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

One of the following, configurable by model:

- **Wireless LAN upgradable**
- **Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card**

**Note:** For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM card (optional)

Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Wi-Fi

Mobile Intel CM246 Chipset supports five independent displays; Max resolution: 5K@60Hz (Thunderbolt®), 4K@60Hz (USB-C or HDMI)

### Intel Ethernet Connection I219-V (Jacksonville)

- **Integrated Li-ion 90Wh battery, supports Rapid Charge (charge up to 80% in 1hr)**

### Windows 10

One of the following, configurable by model:

- **Windows® 10 Home 64**
- **Windows 10 Pro 64**
- **Windows 10 Pro 64 for Workstations**

### Monitor cable (optional)

- **HDMI to VGA:** Lenovo HDMI to VGA Monitor Adapter
- **USB-C to VGA:** Lenovo USB-C to VGA Adapter
- **USB-C to DP:** Lenovo USB-C to DisplayPort Adapter

### Bundled ACCy

None

### Security chip

Security chip: Intel vPro Technology

### Security

Power-on password, hard disk password, supervisor password, security keyhole

### Fingerprint reader

Discrete TPM 2.0, TCG Certified

### Headphone / microphone combo jack

HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2 / dual array far-field microphone, headphone / microphone combo jack, Dolby Atmos® sound system

### Speaker

Dolby Atmos®

### Operating system

One of the following, configurable by model:

- **Windows® 10 Home 64**
- **Windows 10 Pro 64**
- **Windows 10 Pro 64 for Workstations**

### Limited warranty

One of the following, configurable by model:

- **1-year depot repair service**
- **3-year/1-yr battery depot repair service**
- **3-year/1-yr battery limited onsite service**

### MIL-Spec test

MIL-STD-810G military testing

### Environment

EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.
ThinkPad P53s Platform Specifications  

**Processor**  
8th Generation Intel® Core™ i7 Processor  
- **Processor Number**  
  - 7-8565U: 4 cores, 8 threads  
  - 8665U: 4 cores, 8 threads  
- **Base Frequency**  
  - 1.8 GHz  
- **Max Turbo Frequency**  
  - 4.6 GHz  
- **Cache**  
  - 8MB  
- **Memory Types**  
  - DDR4-2400  
- **Processor Graphics**  
  - Intel UHD Graphics 620  

**Graphics**  
Intel UHD Graphics 620 in processor and NVIDIA Quadro® P520, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays;  
- **Max resolution**  
  - 3840x2160@60Hz (USB-C); 3840x2160@30Hz (HDMI)  

**Chipset**  
Intel SoC (System on Chip) platform  
- **Memory**  
  - 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket  
- **Chipset**  
  - Intel SoC (System on Chip) platform  
- **Bluetooth**  
  - Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter  
- **WLAN**  
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0  
- **WWAN (optional)**  
  - One of the following, configurable by model:  
    - Wireless WAN upgradable  
    - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)  
    - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card  
  - For non-WWAN model, it means the model is NOT WWAN upgradable  

**Optical**  
None

**Display**  
- **Size**  
  - 15.6" FHD (1920x1080) IPS Anti-glare 250 nits 16:9 700:1 45% Adobe 170°  
  - 15.6" UHD (3840x2160) Dolby Vision™ HDR IPS Anti-glare 500 nits 16:9 1200:1 100% Adobe 170°  
- **Resolution**  
  - 1920x1080@60Hz (USB-C); 3840x2160@30Hz (HDMI)  
- **Types**  
  - Dolby Vision  
- **Graphics**  
  - Intel UHD Graphics 620 in processor and NVIDIA Quadro® P520, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays;  
- **Max resolution**  
  - 3840x2160@60Hz (USB-C); 3840x2160@30Hz (HDMI)  

**Audio**  
- **HD Audio, Realtek® ALC3287 codec / premium Audio**  

**Multi-touch (opt) Pen**  
On-cell touch, supports 10-finger gesture (FHD only)  
- **Surface**  
  - IPS Anti-glare  
- **Contrast Ratio**  
  - 700:1  
- **Color Gamut**  
  - 45% Adobe  
- **Viewing Angle**  
  - 170°  

**Storage**  
- **M.2 2280 SSD / SATA 6.0Gb/s**  
- **M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4**  
- **M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2**  
- **Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4**  

**Optical**  
None

**Ethernet**  
Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)  
- **VPro model**: Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN**  
- **Bluetooth**  
  - Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter  

**WWAN (optional)**  
One of the following, configurable by model:  
- Wireless WAN upgradable  
- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)  
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card  
  - For non-WWAN model, it means the model is NOT WWAN upgradable

**SIM card (opt)**  
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

**Battery**  
- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)  
- **Max battery life**  
  - 15 hr (FHD model) / 10 hr (UHD model)

**AC adapter**  
- 65W USB Type-C AC adapter

**Operating system**  
- Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**  
- One of the following, configurable by model:  
  - 1-year depot repair service  
  - 3-year/yr battery depot repair service  
  - 3-year/yr battery limited onsite service

**Environmental**  
- MIL-STD-810G military testing  
- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

**Dimensions**  
- WxDxH: 14.40" x 9.76" x 0.75"; 365.8mm x 248mm x 19.1mm

**Weight**  
- starting at 3.87 lb / 1.75 kg

**Case color**  
- Black

**Case material**  
- Display cover: PPS / 50% GF; Bottom: PA / 50% GF

**Media reader**  
- MicroSD card reader

**Ports**  
- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole

**Monitor cable (optional)**  
- HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter  
  - USB-C to VGA: Lenovo USB-C to VGA Adapter  
  - USB-C to DP™: Lenovo USB-C to DisplayPort Adapter

**Bundled Accy**  
- None

**Camera (optional)**  
- One of the following, configurable by model:  
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD camera and HD720p camera with ThinkShutter camera privacy, fixed focus

**Audio**  
- One of the following, configurable by model:
  - Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack
  - Realtek® ALC3287 codec / stereo speakers, 2W x 2

**Security**  
- Power-on password, hard disk password, supervisor password, security keyhole, discrete TPM 2.0, TG certified

**Fingerprint reader**  
- Optional: Touch style match on chip fingerprint reader on the palm rest

**IBM Warranty**  
- 3-year/1-yr battery limited onsite service

**Battery**  
- Smart card reader: Optional: Smart card reader

**System Mgt**  
- Intel vPro Technology

**Security chip**  
- Discrete TPM 2.0, TCG Certified

**Fingerprint reader**  
- Optional: Touch style match on chip fingerprint reader on the palm rest

**Smart card reader**  
- Optional: Smart card reader

**Battery**  
- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)  
- **Max battery life**  
  - 15 hr (FHD model) / 10 hr (UHD model)

**AC adapter**  
- 65W USB Type-C AC adapter

**Operating system**  
- Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**  
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/yr battery depot repair service
  - 3-year/yr battery limited onsite service

**Environment**  
- MIL-STD-810G military testing

**EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

**Note:** The specifications above may not be available in all regions.

* Depending on many factors, actual data transfer speed may be lower than theoretical speed.

**Lenovo August 2019**
## ThinkPad P72 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
<th>( \text{Max DDR4-2400} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8750H</td>
<td>6</td>
<td>12</td>
<td>2.2 GHz</td>
<td>4.1 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
<td></td>
</tr>
<tr>
<td>7-8850H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.3 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
<td></td>
</tr>
<tr>
<td>E-2176M</td>
<td>6</td>
<td>12</td>
<td>2.7 GHz</td>
<td>4.4 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics P630</td>
<td></td>
</tr>
<tr>
<td>E-2186M</td>
<td>6</td>
<td>12</td>
<td>2.9 GHz</td>
<td>4.8 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics P630</td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro P600 (4GB memory), P2000 (4GB memory), P3200 (6GB memory), P4200 (8GB memory), or P5200 (16GB memory); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt; supports four independent displays:
  - Max resolution: 3840X2160@60Hz (DisplayPort via Mini DisplayPort cable); 5120X2880@30Hz (Thunderbolt); 4906x2160@60Hz (HDMI)

### Chipset

- Mobile Intel CM246 Chipset

### Memory

- 128GB non-ECC or 64GB ECC max / 2400MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets
- *Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation

### Display

- **Some:** 17.3" (439mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle
- **Some:** 17.3" (439mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% Adobe CG, 170° viewing angle

### Multi-touch Pen

- None

### Storage

- Up to 3 drives (two M.2 SSD and one HDD)
- **Some:** HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- **Some:** M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

### Optane™ memory

- **Optional:** Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN

- None

### SIM card

- None

### Camera (optional)

- IR camera and HD720p camera, fixed focus

### Audio support

- HD Audio, Realtek® ALC3286 codec / ALC3286codec / ALC268 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight

### Security

- Power-on password, hard disk password, supervisor password, security keyhole

### Security chip

- Discrete TPM 2.0, TCG Certified

### Fingerprint reader

- TD Pro Technology

### Fingerprint reader Touch style match on chip fingerprint reader on the palm rest

### Color calibration

- None

### NFC (optional)

- Near Field Communication

### Battery

- Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

### Max battery life

- MobileMark® 2014: 16 hr
  - *Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 230W slim tip AC adapter

### Operating system

- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro for Workstations

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant

---

Note: The specifications above may not be available in all regions.

Lenovo

May 2019
### ThinkPad P73 Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-9400H</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>4.3 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>7-9750H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.5 GHz</td>
<td>12MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-9880H</td>
<td>8</td>
<td>16</td>
<td>2.6 GHz</td>
<td>4.6 GHz</td>
<td>16MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-2276M</td>
<td>6</td>
<td>12</td>
<td>2.8 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td></td>
<td>Intel UHD Graphics P630</td>
</tr>
</tbody>
</table>

#### Graphics

- Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro P620 (4GB GDDR5), T2000 (4GB GDDR5), RTX 3000 (6GB GDDR6, VR ready), RTX 4000 Max-Q (8GB GDDR6, VR ready), or RTX 5000 Max-Q (16GB GDDR6, VR ready);
- supports external digital monitor via HDMI or Thunderbolt;
- supports five independent displays;
- Max resolution: 5K@60Hz (Thunderbolt), 4K@60Hz (USB-C or HDMI)

#### Chipset

- Mobile Intel CM246 Chipset
- Dual-channel capable, four DDR4 SO-DIMM sockets
- 128GB max / 2666MHz DDR4
- 128GB max / 2666MHz DDR4 (ECC function supported only on Xeon processor)
- Mobile Intel CM246 Chipset
- Dual-channel capable, four DDR4 SO-DIMM sockets
- 128GB max / 2666MHz DDR4 (ECC function supported only on Xeon processor)

#### Display

- 17.3" FHD (1920x1080) IPS Anti-glare 300 nits 16:9 700:1 72% 160°
- 17.3" UHD (3840x2160) Dolby Vision® HDR IPS Anti-glare 400 nits 16:9 1000:1 100% 170°

#### Chipset Memory

- Mobile Intel CM246 Chipset
- Dual-channel capable, four DDR4 SO-DIMM sockets
- 128GB max / 2666MHz DDR4 (ECC function supported only on Xeon processor)
- Dual-channel capable, four DDR4 SO-DIMM sockets
- 128GB max / 2666MHz DDR4 (ECC function supported only on Xeon processor)

#### Storage

- Up to 3 drives (two M.2 SSD and one HDD)
  - HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Optane™ memory Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- RAID (optional) RAID 0/1 support
- Optical None

#### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)
- Intel Ethernet Connection I219-LM (Jacksonville)

#### WLAN

- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### WWAN

- None

#### SIM card

- None

#### Display

- Size: 17.3" FHD (1920x1080)
- Resolution: 16:9
- Type: IPS Anti-glare
- Brightness: 300 nits
- Aspect Ratio: 16:9
- Contrast Ratio: 700:1
- Color Gamut: 72%
- Viewing Angle: 160°

#### Multi-touch Pen

- None

#### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip vPro (optional)
- Intel vPro Technology
- Fingerprint reader Touch style match on chip fingerprint reader on the palm rest
- Color calibration Optional: X-Rite Pantone factory color calibration (UHD model only)
- NFC (optional) Near Field Communication

#### Battery

- Integrated Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- Max battery life *Battery life varies significantly with settings, usage, & other factors
- AC adapter 170W or 230W slim tip AC adapter

#### Operating system

- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro 64 for Workstations

#### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

#### Mil-Spec test

- MIL-STD-810G military testing

#### Environment

- EPEAT Silver; ENERGY STAR 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
October 2019
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-6200U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>2.8 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-6300U</td>
<td>2</td>
<td>4</td>
<td>2.4 GHz</td>
<td>3.0 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i7-6500U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i7-6600U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

Intel HD Graphics 520 or 620 in processor only, or Intel HD Graphics 620 in processor and NVIDIA GeForce® 940MX, 2GB 2.5GHz GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI)

### Chipset Memory

Intel SoC (System on Chip) platform

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display

On-cell touch, supports 10-finger gesture (FHD IPS panel with PPS cover only)

### Storage

System has one HDD slot or one M.2 2280 slot exclusively for storage

Some: SSD / Sata 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™

Some: SSD / Sata 6.0Gb/s, 2.5” wide, 7mm high (e.g. xxG5 SSD)

Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

Some: 128GB M.2 SSD / Sata 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN and WiGiG

### Optical

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)

vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN

One of the following, configurable by model (WiGiG can coexist with WWAN):

- Realetek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Tri-Band Wireless-AC 18265, WiGiG 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card

Bluetooth™

Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS

WWAN (optional)

One of the following, configurable by model (WWAN can coexist with WiGiG):

- Wireless WAN upgradable
- Integrated Mobile Broadband 4G LTE-A
- Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card
- Integrated Mobile Broadband 4G LTE
- Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only)

SIM card (opt)

Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card

Dimensions

<table>
<thead>
<tr>
<th>Weight</th>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-cell + 3-cell</td>
</tr>
<tr>
<td>Magnesium</td>
<td>3.49 lb / 1.58 kg</td>
</tr>
<tr>
<td>PS</td>
<td>3.63 lb / 1.65 kg</td>
</tr>
</tbody>
</table>

### Case color

Black

### Case material

Display cover: Magnesium Hybrid or PPS;

Bottom: Glass-Fiber Reinforced Plastic

### Smart card reader

Optional: Smart card reader

### Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I

### Ports

Three USB 3.1 Gen 1 (USB 3.0, one Always On),

USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP),

HDMI 1.4b, Ethernet (RJ-45), Dock connector

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

### WiGiG dock (opt)

ThinkPad WiGiG dock

### Monitor cable

Optional: Lenovo USB-C to VGA Adapter

### Camera (optional) 720p

HD 720p resolution, fixed focus

IR & 720p: IR camera and HD720p camera (mutually exclusive with WiGiG)

Audio support

HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 /
dual array microphone, combo audio/microphone jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, optional LED backlight

UltraNav™

TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Discrete TPM 2.0, TCG Certified

Intel vPro Technology

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the keyboard bezel

NFC (optional)

Near Field Communication

### Internal battery

Models

- 3-cell
- 3-cell + 3-cell
- 6-cell 48Wh
- 6-cell 72Wh
- 3 + 6-cell 48Wh
- 3 + 6-cell 72Wh

Integrated

- 6.9 hr
- 13.9 hr
- 13.9 hr
- 20.9 hr
- 20.9 hr
- 27.1 hr

Discrete

- 6.9 hr
- 13.9 hr
- 14.3 hr
- 21.6 hr
- 21.2 hr
- 28.6 hr

* Battery life varies significantly with settings, usage, & other factors

### AC adapter

54W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter

### Operating system

One of the following, configurable by model:

- Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64
- Windows 10 Home 64
- Windows 10 Pro 64

### Limited warranty

One of the following, configurable by model:

- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

### Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT® Gold (US) / ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
## ThinkPad T470s Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-6200U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>2.8 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-6300U</td>
<td>2</td>
<td>4</td>
<td>2.4 GHz</td>
<td>3.0 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i7-6600U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
</tbody>
</table>

### Graphics

Intel HD Graphics 520 or 620 in processor;
supports external digital monitor via HDMI or USB Type-C;
supports three independent displays;
Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Chipset

Intel SoC (System on Chip) platform
20GB or 24GB max DDR4 / 2400MHz DDR4, dual-channel capable,
4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket

### Display

Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS,
250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle
Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS,
300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle
On-cell touch, supports 10-finger gesture, 250 nits (FHD only)

### Storage

One of the following, configurable by model:
- M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)

### Optical

None

### Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN

One of the following, configurable by model (WiGig is mutually exclusive with WWAN):
- Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card

### Bluetooth

Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

One of the following, configurable by model (mutually exclusive with WiGig):
- Wireless WAN upgradable
- Integrated Mobile Broadband 4G LTE-A, Qualcomm Snapdragon X7 LTE-A (Sierra Wireless EM7455), M.2 card
- Micro-SIM card slot, opt Verizon LTE (US) or Lenovo Connect (EMEA) SIM card

### Memory

20GB or 24GB max7 / 2400MHz DDR4, dual-channel capable,
Intel SoC (System on Chip) platform

### Chipset

• Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card
• Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card

### Software

Operating system:
- One of the following, configurable by model:
  - Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64
  - Windows 10 Home 64
  - Windows 10 Pro 64

### Security

Intel vPro Technology
Power-on password, hard disk password, supervisor password, security keyhole
Discrete TPM 2.0, TCG Certified

### UltraNav

TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Camera

Camera (optional)/HD720p resolution, fixed focus

### Audio

Audio support:
- models without camera are NOT available in EMEA
- HD Audio, Realtek® ALC3268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack

### Keyboard

6-row, spill-resistant, multimedia Fn keys, optional LED backlight

### Battery

Internal battery:
- Front Li-Polymer 3-cell (23Wh) and rear Li-ion 3-cell (26Wh), both Integrated
- MobileMark® 2014: up to 10.5 hr

Max battery life:
- MobileMark® 2014: up to 10.5 hr

AC adapter:
- 45W slim tip AC adapter, 45W or 65W USB Type-C AC adapter

### Limited warranty

One of the following, configurable by model:
- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

### Environmental

EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
## ThinkPad T480 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th Generation Intel® Core™ i5 Processor</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.0 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory (discrete graphics is available only on i7 models in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays;

Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

Intel SoC (System on Chip) platform

### Memory

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display

Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio;

Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle;

Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle

### Multi-touch (opt)

On-cell touch, supports 10-finger gesture (FHD only)

### Storage

System has one HDD slot or one M.2 2280 slot exclusively for storage;

Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™

Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGb SSD)

Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4

Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

* Installed M2 SSD is PCIe 3.0 x 4 but run at PCIe 3.0 x 2 due to M.2 SSD adapter limitation

### Optane™ memory

Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### Optical

None

### Ethernet

Non-vPro model: Intel Ethernet Connection 1219-V (Jacksonville)

vPro model: Intel Ethernet Connection 1219-LM (Jacksonville)

### WLAN + Bluetooth™

Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

One of the following, configurable by model (mutually exclusive with Intel Optane memory):

- Wireless WAN upgrade
- Integrated Mobile Broadband 4G LTE, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EAME only)
- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

* For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM card (opt)

For non-WWAN model, it means the model is NOT WWAN upgradable

Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Bluetooth

* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

### IPMC test

 MIL-STD-810G military testing

### Power-on password

Power-on password, hard disk password, supervisor password, security keyhole

### Software

- Operating system: Windows 10 Home 64 or Windows 10 Pro 64
- Smart card reader: Optional: Smart card reader
- Media reader: 4-in-1 reader (MMC, SD, SDHC, SDXC)
- Ports: Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole
- Camera (optional): One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus
  - HD Audio, Realtek® ALC297 CODEC / stereo speakers, 2W x 2, Dolby® Audio Premium / dual array microphone, headphone / microphone combo jack
  - Bottom: Glass-Fiber Reinforced Plastic

### Battery

- Battery: Optional integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery
- Max battery life (MobileMark® 2014)

<table>
<thead>
<tr>
<th>Models</th>
<th>24Wh</th>
<th>48Wh</th>
<th>72Wh</th>
<th>24Wh + 24Wh</th>
<th>24Wh + 48Wh</th>
<th>24Wh + 72Wh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated model</td>
<td>7.2 hr</td>
<td>14.4 hr</td>
<td>21.8 hr</td>
<td>14.4 hr</td>
<td>21.8 hr</td>
<td>29.0 hr</td>
</tr>
<tr>
<td>Discrete model</td>
<td>6.6 hr</td>
<td>13.2 hr</td>
<td>19.8 hr</td>
<td>13.6 hr</td>
<td>19.8 hr</td>
<td>26.4 hr</td>
</tr>
</tbody>
</table>

### Limited warranty

- 1-year depot repair service
- 1-year depot repair with 2-year system board repair service
- 3-year/1-year battery depot repair service
- 3-year/1-year battery limited onsite service

**Note:** The specifications above may not be available in all regions.
ThinkPad T480s Platform Specifications

Product Specifications Reference (PSREF)

Processor 7th Generation Intel® Core™ i5 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

or 8th Generation Intel Core i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

Chipset

- Intel SoC (System on Chip) platform
- 4GB or 8GB memory soldered to systemboard; one DDR4 SO-DIMM socket
- * System clocks down for processors with lower memory controller

Display

- Some: 14.0” (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle, supports ThinkPad Privacy Guard on some models
- Some: 14.0” (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle

Multi-touch (opt)

- On-cell touch, supports 10-finger gesture, 250 nits (FHD only)

Storage

- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

Optical

- None

Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™

- Intel Dual Band Wireless-A/C 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradeable
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7362 (Fibocom L830-EB), M.2 card

SIM card (opt)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

Note: The specifications above may not be available in all regions.

Dimensions

- WxDxH: 13.03” x 8.93” x 0.73”
- 331mm x 226.8mm x 18.45mm

Weight

- Starting at 2.9 lb / 1.32 kg

Case color

- Black or Silver

Case material

- Display cover: CFRP Hybrid;
- Bottom: Magnesium

Smart card reader

- Optional: Smart card reader

Media reader

- 4-in-1 reader (MMC, SD, SDHC, SDXC)

Ports

- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

USB-C to VGA: Lenovo USB-C to VGA Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Monitor cable (optional)

Camera

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus

Audio support

- HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack

Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight

UltraNav™

- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

Security

- Security chip
- Security chip
  - Discrete TPM 2.0, TCG Certified
  - Intel vPro Technology

Fingerprint reader (optional)

- Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology

NFC (optional)

- Near Field Communication

Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (0-80% in 60 mins) with 65W USB Type-C AC adapter

Max battery life

- MobileMark® 2014: 15.6 hr

AC adapter

- 45W or 65W USB Type-C AC adapter

Operating system (optional)

- Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

Mil-Spec test

- MIL-STD-810G military testing

Environment

- EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant

Lenovo

August 2019
## Processor

<table>
<thead>
<tr>
<th>Processor 8th Generation Intel® Core™ i5 / i7 Processor</th>
<th>Processor 10th Generation Intel® Core™ i5 / i7 Processor (NOT available in EMEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>5-8265U</td>
<td>4</td>
</tr>
<tr>
<td>5-8365U</td>
<td>4</td>
</tr>
<tr>
<td>7-8565U</td>
<td>4</td>
</tr>
<tr>
<td>7-8665U</td>
<td>4</td>
</tr>
</tbody>
</table>

## Graphics

- Intel UHD Graphics 620 or Intel UHD Graphics in processor only or Intel UHD Graphics 260 or Intel UHD Graphics in processor and NVIDIA® GeForce® MX250, 2GB GDDR5 memory, supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 4096x2304 @60Hz (Thunderbolt); 4096x2160 @24Hz (HDMI)

## Chipset

- Intel SoC (System on Chip) platform
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2280 SSD / SATA 6.0Gb/s (NOT available in EMEA)
- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

## Display

- 14.0" FHD (1920x1080)
- 14.0" WQHD (2560x1440)
- 14.0" QHD (2560x1440) HDR, Dolby Vision™

## Multi-touch (opt)

- On-cell touch, supports 10-finger gesture (FHD only)

## Storage

- M.2 2280 SSD / SATA 6.0Gb/s (NOT available in EMEA)
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4
- None

## Optical

- None

## Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

## WLAN + Bluetooth™ (optional)

- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 (AX201 for 10th Gen processor only)

## WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 4x4, M.2 card

## SIM card (opt)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

Note: The specifications above may not be available in all regions.

### Important Notes:
- Processors may not be available in all regions.
- The specifications above may not be available in all regions.
- Lenovo
- September 2019

### Additional Information:
- Processor 8th Generation Intel® Core™ i5 / i7 Processor
- Processor Number
- # of Cores
- # of Threads
- Base Frequency
- Max Turbo Frequency
- Cache
- Memory Types
- Processor Graphics
- Case color
- Case material
- Display cover:
- Green; EPEAT
- Silver; ENERGY STAR
- 7.1; RoHS-compliant
- Lenovo USB-C to DisplayPort Adapter
- DisplayPort
- 4K (UHD): 3840x2160@60Hz (Thunderbolt); 2560x1440@24Hz (HDMI)

### Security:
- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip
- System Mgt (opt)
- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip

### Camera:
- Integrated camera
- HD 720p
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

### Audio support:
- Stereo speakers, 2W x 2, Dolby® Audio™ Premium
- Stereo speakers, 2W x 2, Dolby® Audio™ Silver

### Keyboard:
- 6-row, spill-resistant, multimedia F keys, optional LED backlight
- 6-row, spill-resistant, multimedia F keys, optional LED backlight

### Security chip:
- System Mgt (opt)
- Security chip
- System Mgt (opt)

### Preload:
- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro in S mode

### Limited warranty:
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Environment:
- EPEAT Silver
- ENERGY STAR
- RoHS-compliant
ThinkPad T490s Platform Specifications

Processor 8th Generation Intel® Core™ i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>3.9 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

Graphics Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 1920 x 1080 @ 60 Hz (Thunderbolt); 1920 x 1200 @ 24 Hz (HDMI)

Chipset Intel SoC (System on Chip) platform

Memory 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to system board, no sockets
* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits (non-touch) / 300 nits (multi-touch)</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>WQHD (2560x1440)</td>
<td>HDR, Dolby Vision™</td>
<td>IPS Glossy</td>
<td>16:9</td>
<td>1500:1</td>
<td>100% Adobe</td>
<td>170°</td>
<td></td>
</tr>
</tbody>
</table>

Multi-touch (optional) On-cell touch, supports 10-finger gesture (FHD only)

Storage
• M.2 2280 SSD / SATA 6.0Gb/s
• M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
• M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
• Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

Optical None

Ethernet Native Intel Ethernet Connection i219-V (Non-vPro) or i219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN - Bluetooth™ (optional) One of the following, configurable by model:
• Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
• Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

WWAN (optional) One of the following, configurable by model:
• Wireless WAN upgradable
• Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
• Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

SIM card (optional) One of the following, configurable by model:
• Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

<table>
<thead>
<tr>
<th>Weight</th>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Models</td>
<td></td>
<td>Black with FHD / Privacy Guard:</td>
</tr>
<tr>
<td></td>
<td>Black with FHD Low Power / WWQD:</td>
<td>12.94&quot; x 8.91&quot; x 0.63&quot;</td>
</tr>
<tr>
<td></td>
<td>Silver</td>
<td>12.96&quot; x 8.92&quot; x 0.68&quot;</td>
</tr>
</tbody>
</table>

Case color Black or Silver
Case material Bottom: Magnesium

Battery Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
Max battery life MobileMark® 2014: 20 hr
AC adapter 45W, 65W, or 65W slim USB-C AC adapter

Operating system Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty One of the following, configurable by model:
• 1-year depot repair service
• 1-year depot service with 2-year system board repair service
• 3-year/1-yr battery depot repair service
• 3-year/1-yr battery limited onsite service

Mil-Spec test MIL-STD-810G military testing
Environment EPEAT™ Gold; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
Lenovo October 2019
### ThinkPad T495 Platform Specifications

**Product Specifications Reference (PSREF)**

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 Pro 3300U</td>
<td>4</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.5 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 6 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 Pro 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 Pro 3700U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 10 Graphics</td>
</tr>
</tbody>
</table>

**Note:** The specifications above may not be available in all regions. Lenovo July 2019

#### Graphics

- AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor;
- supports external digital monitor via USB-C or HDMI;
- supports 4K Ultra HD resolution;
- Max resolution: 5120x2880 @ 60Hz (USB-C); 4096x2160 @ 60Hz (HDMI)

#### Chipset

- AMD SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable,
- 8GB or 16GB memory soldered to system board, one DDR4 SO-DIMM socket
- Installed memory is actually 2933MHz but run at 2400MHz due to AMD limitation

#### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot;</td>
<td>HD (1366x768)</td>
<td>TN Anti-glare</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1</td>
<td>45%</td>
<td>90°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits (non-touch)</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
</tbody>
</table>

- On-cell touch, supports 10-finger gesture (FHD only)
- **Multi-touch (opt)**

#### Storage

- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- **Optical**
  - None

#### Ethernet

- RealTek® RTL8111 Gigabit Ethernet connection

#### WLAN

- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradeable
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - Nano-SIM card slot, optional Verizon LTE (U.S.) SIM card

#### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

### Limitations

**Note:** The specifications above may not be available in all regions.
ThinkPad T495s Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 5 Pro 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2</td>
<td>DDR4-2400</td>
<td>Radeon Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 Pro 3700U</td>
<td>4</td>
<td>8</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2</td>
<td>DDR4-2400</td>
<td>Radeon Vega 10 Graphics</td>
</tr>
</tbody>
</table>

Graphics

- AMD Radeon Vega 8 or Vega 10 Graphics in processor; supports external digital monitor via USB-C or HDMI; supports three independent displays; Max resolution: 4096x2304@60Hz (US); 4096x2160@24Hz (HDMI)

Chipset

- AMD SoC (System on Chip) platform 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets
  * Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation

Display

<table>
<thead>
<tr>
<th>Size (inch)</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits (non-touch); 300 nits (multi-touch)</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0</td>
<td>FHD (1920x1080)</td>
<td>ThinkPad Privacy Guard</td>
<td>IPS Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
</tr>
</tbody>
</table>

Multi-touch (optional)

- On-cell touch, supports 10-finger gesture (FHD only)

Storage

- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Ethernet

- Realtek® RTL8111E LP Gigabit Ethernet connection

WLAN (optional)

- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  * Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN (optional)

- One of the following, configurable by model: Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  * For non-WWAN model, it means the model is NOT WWAN upgradable

SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

| Weight (FHD / Privacy Guard): | 12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm |
| Weight (Low Power): | 12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm |

Case color

- Black

Case material

- Display cover: CFRP Hybrid;
  Bottom: Magnesium/Aluminum

Smart card reader

- Optional: Smart card reader

Media reader

- MicroSD card reader

Ports

- One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole
  * Depending on many factors, actual data transfer speed may be lower than theoretical speed

Monitor cable (optional)

- USB-C to VGA: Lenovo USB-C to VGA Adapter
  Optional: ThinkPad Ethernet Extension Adapter Gen 2

Audio support

- HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack

Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight

Security

- Power-on password, hard disk password, supervisor password, security keyhole
  - Discrete TPM 2.0, TCG Certified
  - DASH Management

Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
  - MobileMark® 2014: 16.4 hr
  * Battery life varies significantly with settings, usage, & other factors

AC adapter

- 45W or 65W USB Type-C AC adapter

Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1yr battery depot repair service

Mil-Spec test

- MIL-STD-810G military testing

Environment

- EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
## ThinkPad T580 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.9 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

or 8th Generation Intel Core i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory.
- Supports external digital monitor via HDMI or USB Type-C.
- Supports three independent displays.

### Chipset

- Intel SoC (System on Chip) platform
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle

### Storage

- System has one HDD or one M.2 2280 slot exclusively for storage
- Some: HDD / SAT A 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s
- Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

### Optical memory

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection 219-V (Jacksonville)
- vPro model: Intel Ethernet Connection 219-LM (Jacksonville)
- Optional: Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7360 (Fibocom L830-GL), M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L830-GL), M.2 card
  - For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Bluetooth, WLAN, WWAN

- Optional: Bluetooth 4.2, WLAN +, WWAN

### Audio support

- Stereo speakers, 2W x 2, Dolby™ Audio™ Premium / stereo speakers, 2W x 2, Dolby™ Audio™ Premium
- Optional: AC adapter 45W or 65W USB Type-C AC adapter

### Keyboard

- Optional: 6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight
- UltraNav™ pointing device and buttonless Mylar surface multi-touch touchpad

### Security

- Security chip: Intel vPro Technology
- Security lock: Discrete TPM 2.0, TCG Certified

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Optional: Intel vPro Technology
- Near Field Communication

### Battery

- Optional: Integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery
- Optional: Battery
  - 45W or 65W USB Type-C AC adapter
  - Battery life varies significantly with settings, usage, & other factors

### Camera

- Optional: HD Audio, Realtek® ALC2287 codec / stereo speakers, 2W x 2, Dolly™ Audio™ Premium / dual array microphone, headphone / microphone combo jack

### Display

- On-cell touch, supports 10-finger gesture (FHD only)
- Optional: Multi-touch display, supports three independent displays;
  - One of the following, configurable by model:
    - HD LED Audio, Realtek® ALC2287 codec
    -TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
    -6.1; RoHS-compliant
  - TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Video

- Optional: Video card
  - NVIDIA GeForce® MX150, 2GB GDDR5 memory;
  - Intel HD Graphics 620 or Intel UHD Graphics 60 in processor and
    - or 8th Generation Intel Core i5 / i7 Processor

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64
- Optional: Windows 10 Home 64 or Windows 10 Pro 64
- Optional: Windows 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service

### Environment

- EPEAT® Silver; ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8665U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.8 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce MX250, 2GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 4096x2304@860Hz (Thunderbolt); 4096x2160@24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 4GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
- * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

### Display

- 15.6" FHD (1920x1080) IPS Anti-glide 250 nits 16:9 700:1 45% 170°
- 15.6" UHD (3840x2160) HDR, Dolby Vision® IPS Anti-glide 500 nits 16:9 1200:1 100% Adobe 170°

### Multi-touch (optional)

- On-cell touch, supports 10-finger gesture (FHD only)

### Storage

- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4
- None

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN (optional)

- Intel Wireless-AC 9560, Wi-Fi 2X2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- Wireless WAN upgradable
- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EOMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### SIM card

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Dimensions

- WxDxH: 14.40" x 9.76" x 0.75";
- 365.8mm x 248mm x 19.1mm

### Weight

- FHD model: 3.87 lb / 1.75 kg;
- UHD model: 3.86 lb / 1.75 kg

### Case color

- Black

### Case material

- Display cover: PPS / 50% GF;
- Bottom: PA / 50% GF

### Smart card reader

- Optional: Smart card reader

### Media reader

- MicroSD card reader

### Ports

- Two USB 3.1 Gen 1 (one Always On);
- USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort);
- one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP);
- HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole

### Monitor cable (optional)

- USB-C to VGA: Lenovo USB-C to VGA Monitor Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter (NOT available in EMEA)

### Bundled Accy

- None

### Camera (optional)

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby Audio® Premium / dual array far-field microphone, headphone / microphone combo jack

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlighting
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: Discrete TPM 2.0, TCG Certified
- System Mgr (optional): Intel vPro Technology
- Fingerprint reader: Optional: Touch style match on chip fingerprint reader on the palm rest
- NPF (optional): Near Field Communication

### Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Max battery life: MobileMark® 2014: 14.98 hr (9.5 hr for UHD model with discrete graphics)
- AC adapter: 45W or 65W USB Type-C AC adapter

### Operating system

- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
August 2019
### ThinkPad L13 Yoga Platform Specifications

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Processor 10th Generation Intel® Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>i3-10110U</td>
</tr>
<tr>
<td>i5-10210U</td>
</tr>
<tr>
<td>i7-10510U</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Intel UHD Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays: Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td>Intel SoC (System on Chip) platform 4GB, 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets</td>
</tr>
<tr>
<td>Display</td>
<td>13.3” (337.8mm) FHD (1920x1080), LED backlight, IPS, Glossy, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, Color Gamut 72%, 170° viewing angle, capacitive-type multi-touch supports 10-finger gesture</td>
</tr>
<tr>
<td>Multi-touch</td>
<td>Yoga hinge, 360 degree</td>
</tr>
<tr>
<td>Storage</td>
<td>One of the following, configurable by model: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2</td>
</tr>
<tr>
<td>Optical</td>
<td>None</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Gigabit Ethernet via USB-C to Ethernet Adapter Dongle or Mechanical Dock</td>
</tr>
</tbody>
</table>

| WWAN     | None |
| Dimensions | WxDxH: 12.26” x 8.62” x 0.69”; 311.5mm x 219mm x 17.6mm |
| Weight   | Starting at 3.17lb / 1.43kg |
| Case color | Black or silver |
| Case Material | Display cover: Magnesium + Aluminum Bottom: GFRP (Glass Fiber Reinforced Polymer) |
| Smart card reader | Optional: Smart card reader |
| Media reader | MicroSD card reader |
| Ports     | Two USB 3.1 Type-A Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and Display Port), HDMI 1.4b, microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole |

| Monitor cable (optional) | USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter USB-C to RJ45: Lenovo USB-C to Ethernet Adapter USB-C to USB-A: Lenovo USB-C to USB-A Adapter USB-C to USB-C: Lenovo USB-C to USB-C Cable 2M |
| Bundled Accy (optional) | Lenovo USB-C to VGA Adapter Lenovo USB-C to HDMI Adapter Lenovo USB-C to DisplayPort Adapter Lenovo USB-C to Ethernet Adapter Lenovo USB-C to USB-A Adapter Lenovo USB-C to USB-C Cable 2M |

| Camera | One of the following, configurable by model: HD720p camera, with ThinkShutter™ camera privacy, fixed focus IR camera and HD720p camera, with ThinkShutter camera privacy, fixed focus World facing camera, 5MP resolution, auto focus (Fingerprint model only) HD Audio, Synaptics® CX11880-11Z / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack |
| Audio support | UltraNav™ 6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad |
| Security | Power-on password, hard disk password, supervisor password, system management password, security keyhole Security chip | Discrete TPM 2.0 TCG Certified |
| Fingerprint reader | Optional: Touch style match on host fingerprint reader on the palm rest |
| Battery | Integrated Li-ion 46Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter Max battery life | MobileMark® 2014: 12.23 hrs |
| AC adapter | 45W USB Type-C, 65W USB Type-C or 65W Slim USB Type-C AC adapter |
| Light sensor | None |
| G-sensor | Yes |
| Gyroscope | None |
| Preload | Windows® 10 Pro 64 |
| Limited warranty | One of the following, configurable by model: 1-year depot repair service 1-year depot with 2-year system board service 3-year repair service |
| Mil-Spec test | MIL-STD-810G military testing |

**Note:** The specifications above may not be available in all regions.
### ThinkPad L380 Yoga Platform Specifications

#### Processor
<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-7020U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>4</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

#### 8th Generation Intel Core i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.1 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

#### Graphics
- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor;
- Supports external digital monitor via HDMI or USB Type-C;
- Supports three independent displays:
  - Max resolution: 4096x2304@60Hz (USB Type-C);
  - 4096x2160@30Hz (HDMI)

#### Chipset
- Intel SoC (System on Chip) platform
- Up to 32GB max / 2400MHz DDR4, dual-channel capable,
- Two DDR4 SO-DIMM sockets
- * System clocks down for processors with lower memory controller

#### Display
- 13.3” (338mm) FHD (1920x1080), glossy, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle
- Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture

#### Multi-touch (opt)
- Yoga hinge, 360 degree
- Laptop, tent, stand, yoga and tablet
- ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

#### Storage
- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32GB/s (e.g. xxxGB SSD M.2 PCIe NVMe)

#### Optane Memory
- None

#### Optical
- None

#### Ethernet
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via optional ThinkPad Ethernet Extension Cable Gen 2

#### WLAN + Bluetooth
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- * Wireless card supports BT4.2 but is limited to BT4.1 by Windows OS

#### WWAN
- None

#### Preload
- Windows 10 Home 64 or Windows 10 Pro 64

#### Limited warranty
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service

#### Mil-Spec test
- MIL-STD-810G military testing

#### Environment
- EPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant

---

**Dimensions**
- WxDxH: 12.67” x 8.82” x 0.74”; 322mm x 224.2mm x 18.8mm

**Weight**
- Starting at 3.44 lb / 1.56 kg

**Case color**
- Black or Silver

**Case material**
- Display cover: Aluminum

**Bottom**
- GFRP

**Smart card reader**
- None

**Media reader**
- MicroSD card reader

**Ports**
- Two USB 3.1 Gen 1 (one Always On),
- Two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
- HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack

**Monitor cable**
- Optional:
  - HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
  - USB-C to VGA: Lenovo USB-C to VGA Adapter
  - USB-C to DP+: Lenovo USB-C to DisplayPort Adapter

**Camera**
- 720p:
- HD720p resolution, low light sensitive, fixed focus

**Audio support**
- IR & 720p:
- IR camera and HD720p camera, fixed focus
- World facing: Rear camera, 5MP resolution, auto focus
- HD Audio, Realtek ALC3287 codec, Dolby® Advance / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

**Keyboard**
- 6-row: multimedia Fn keys, optional LED backlight

**UltraNav™**
- TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

**Security**
- Power-on password, hard disk password, supervisor password, security keyhole

**Security chip**
- Discrete TPM 2.0, TCG Certified

**System Mgmt (opt)**
- Intel vPro Technology
- Optional: Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology

**NFC (optional)**
- Near Field Communication (mutually exclusive with smart card reader)

**Battery**
- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- with 65W USB Type-C AC adapter

**Max battery life**
- MobileMark® 2014: 12.85 hrs
- * Battery life varies significantly with settings, usage, & other factors

**AC adapter**
- 45W or 65W USB Type-C AC adapter

**Preload**
- Windows® 10 Home 64 or Windows 10 Pro 64

---

Lenovo
March 2019
## ThinkPad L390 Yoga Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8145U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**

Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset**

Intel SoC (System on Chip) platform

**Memory**

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

**Display**

13.3” (338mm) FHD (1920x1080), glossy, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle

**Multi-touch**

Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture

**Hinge**

Yoga hinge, 360 degree

**Pen (optional)**

ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

**Storage**

One of the following, configurable by model:
- M.2 SSD / SATA 6.0Gb/s
- M.2 (2242) SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 (2280) SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optane™ Memory**

Optional: Intel Optane Memory H10

**Optical**

None

**Ethernet**

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter

**WLAN**

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN**

None

**Dimensions**

WxDxH: 12.67” x 8.82” x 0.74”; 321.8mm x 224.2mm x 18.8mm

**Weight**

Starting at 3.44 lbs / 1.56 kg

**Case color**

Black or Silver

**Case material**

Display cover: Magnesium / Aluminum, Bottom: GFRP

**Processor 8th Generation Intel® Core™ i3 / i5 / i7 Processor**

<table>
<thead>
<tr>
<th>Processor Name</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8145U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**

Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset**

Intel SoC (System on Chip) platform

**Memory**

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

**Display**

13.3” (338mm) FHD (1920x1080), glossy, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle

**Multi-touch**

Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture

**Hinge**

Yoga hinge, 360 degree

**Pen (optional)**

ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

**Storage**

One of the following, configurable by model:
- M.2 SSD / SATA 6.0Gb/s
- M.2 (2242) SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 (2280) SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optane™ Memory**

Optional: Intel Optane Memory H10

**Optical**

None

**Ethernet**

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter

**WLAN**

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN**

None

**Dimensions**

WxDxH: 12.67” x 8.82” x 0.74”; 321.8mm x 224.2mm x 18.8mm

**Weight**

Starting at 3.44 lbs / 1.56 kg

**Case color**

Black or Silver

**Case material**

Display cover: Magnesium / Aluminum, Bottom: GFRP

**Smart card reader**

None

**Media reader**

MicroSD card reader

**Ports**

Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole

**Monitor cable (optional)**

- USB-C to VGA + Power Adapter: Lenovo USB-C to VGA Adapter
- USB-C to HDMI: Lenovo USB-C to HDMI Adapter
- USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI Plus Power Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter

**Bundled**

USB-C to RJ45:

Lenovo USB-C to Ethernet Adapter

**Accessories (optional)**

USB-C to USB-A:

Lenovo USB-C to USB-A Adapter

USB-C to USB-C:

Lenovo USB-C to USB-C Cable 2M

**Camera**

720p: HD720p resolution, low light sensitive, fixed focus

IR & 720p: IR camera and HD720p camera, fixed focus (black model only)

**Audio support**

HD Audio, Realtek ALC3287 codec, Dolby Audio premium / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

**Keyboard**

6-row, spill-resistant, multimedia Fn keys, optional LED backlight

TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

**Security**

Power-on password, supervisor password, system management password, hard disk password, security keyhole

Discrete TPM 2.0, TCG Certified

**Security chip**

Intel vPro Technology

**Fingerprint reader**

Optional: Touch style fingerprint reader on the palm rest (mutually exclusive with World facing camera)

**NFC (optional)**

Near Field Communication

**Battery**

Integrated Li-Ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter

**Max battery life**

MobileMark® 2014: 12.17 hrs

**AC adapter**

45W or 65W USB Type-C AC adapter

**Preload**

Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

One of the following, configurable by model:
- 1-year depot repair service
- 1-year depot with 2-year system board service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

**MI-Spec test**

MIL-STD-810G military testing

**Environment**

EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

Lenovo

July 2019
## ThinkPad X1 Yoga (3rd Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-8550U</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-8650U</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform

### Display

- 14.0" (355mm) FHD (1920x1080), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS
- 14.0" (355mm) QHD (2560x1440), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS
- 14.0" (355mm) HDR QHD (2560x1440) with Dolby Vision™, LED backlight, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle, IPS

### Multi-touch

- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture, reduces overall display brightness by 10% multi-touch gesture

### Hinge

- Yoga hinge, 360 degree

### Convert-mode

- Laptop, tent, stand, and tablet

### Pen (optional)

- ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

### Storage

- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD)
- Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection WGI219-LM (vPro) via optional ThinkPad Ethernet Extension Cable

### WLAN

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
- Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7390 (Fibocom L890-GL), M.2 card
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Dimensions

- WxDxH: 13.11" x 9.02" x 0.67"; 333mm x 229mm x 17.05mm
- Weight: Starting at 3.08 lb / 1.4kg

### Case color

- Black or silver

### Case material

- Display cover: Carbon-Fiber and Glass-Fiber hybrid
- Bottom: magnesium-PPS hybrid

### Preload

- Windows™ 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board service
  - 3-year/1-yr battery depot repair service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Silver; ENERGY STAR®; RoHS-compliant

---

**Lenovo**

**July 2019**
## ThinkPad X1 Yoga (4th Gen) Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>1.6 GHz</td>
<td>4.9 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>6</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td>LPDDR4</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>6</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>6</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td>LPDDR4</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8210U</td>
<td>4</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8210U</td>
<td>4</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-10510U</td>
<td>6</td>
<td>1.1 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>LPDDR4</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-10710U</td>
<td>6</td>
<td>1.1 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>LPDDR4</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**

Intel UHD Graphics 620 or Intel UHD Graphics in processor; supports external digital monitor via HDMI or USB Type-C/Thunderbolt; supports three independent displays; Max resolution: 5120x2880 @ 60Hz (USB Type-C); 4096x2160 @ 24Hz (HDMI)

**Chipset**

Intel SoC (System on Chip) platform

**Display**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; FHD</td>
<td>1920x1080 Low Power</td>
<td>IPS Glossy</td>
<td>380 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; FHD</td>
<td>1920x1080</td>
<td>IPS Glossy</td>
<td>380 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; QHD</td>
<td>2560x1440</td>
<td>IPS Glossy</td>
<td>280 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; UHD</td>
<td>3840x2160 Dolby Vision™</td>
<td>IPS Glossy</td>
<td>470 nits</td>
<td>16:9</td>
<td>1400:1</td>
<td>90%</td>
<td>170°</td>
</tr>
</tbody>
</table>

**Multi-touch**

Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture

**Hinge**

Yoga hinge, 360 degree

**Pen**

ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

**Storage**

One of the following, configurable by model:

- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optical**

None

**Ethernet**

Native Intel Ethernet Connection I2191-LM (vPro) or I2191-V (Non-vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

**WLAN**

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

**Bluetooth**

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**

One of the following, configurable by model:

- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card

**SIM card (opt)**

Nano-SIM card slot, optional Verizon LTE (US) SIM card

**Dimensions**

WxDxH (Privacy Guard): 12.71" x 8.58" x 0.63", 323mm x 218mm x 15.95mm

Weight

Privacy Guard model: starting at 3.24lb / 1.47kg

Other model: starting at 2.99lb / 1.36kg

**Case color**

Privacy Guard model: starting at 3.24lb / 1.47kg

Other model: starting at 2.99lb / 1.36kg

**Case material**

Display cover: Aluminium; Bottom: Magnesium

**Smart card reader**

None

**Media reader**

None

**Ports**

Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, side docking connector, security keyhole

**Monitor cable**

Optional: Lenovo HDMI to VGA Monitor Adapter

Optional: ThinkPad Ethernet Extension Adapter Gen 2

**Camera (optional)**

One of the following, configurable by model:

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

**Audio support**

HD Audio, Realtek® ALC1012L codec, 3D Atmos / Ambisonic, ALC1012

**Security chip**

Discrete TPM 2.0 TCG Certified

**Fingerprint reader**

Optional Intel vPro Technology

**Keyboard**

6-row, spill-resistant, multimedia Fn keys, LED backlight

**UltraNav™ TouchPad**

pointing device and buttonless Glass surface multi-touch touchpad

**Security**

Power-on password, supervisor password, system management password, hard disk password

**Security chip**

Discrete TPM 2.0 TCG Certified

**Fingerprint reader**

Optional Intel vPro Technology

**Finger print reader style**

Touch style match on chip fingerprint reader on the palm rest

**NFC**

Optional: Near Field Communication

**Battery**

Integrated Li-ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter

**Max battery life**

MobileMark® 2014: 18.1 hrs

* Battery life varies significantly with settings, usage, & other factors

**AC adapter**

45W USB Type-C, 65W USB Type-C or 65W Slim USB Type-C AC adapter

**G-sensor**

3D accelerometer

**Gyroscope**

3D gyrometer

**GPS**

GPS function is integrated into WWAN module

**Preload**

One of the following, configurable by model:

- Windows® 10 Pro 64
- Windows 10 Home 64

**Limited warranty**

One of the following, configurable by model:

- 1-year depot repair service
- 1-year depot with 2-year system board service
- 3-year/1-yr battery depot repair service

**Environment**

EPEAT® Gold; ENERGY STAR® 7.1; RoHS-compliant

**Lenovo**

October 2019
### ThinkPad X380 Yoga Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

#### Graphics

Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; supports up to 4K resolution via Intel HD Graphics 620 (optional);

Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

#### Chipset

Intel SoC (System on Chip) platform:
8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets

* System clocks down for processors with lower memory controller

#### Display

13.3“ (337.8mm) FHD (1920x1080), LED backlight, IPS

300 nits, 16:9 aspect ratio, 170° viewing angle

Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture

#### Hinge

Yoga hinge, 360 degree

#### Convert-mode

Laptop, tent, stand, yoga and tablet

ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

#### Storage

Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxxSSD)

Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxSSD / PCIe NVMe)

#### Optical

None

#### Optical Memory

None

#### Ethernet

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable

#### WLAN

Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card

Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### WWAN (optional)

One of the following, configurable by model:

* Integrated Mobile Broadband 4G LTE, Fibocom LB30-EB, M.2 card (EMEA only)

Nano-SIM card slot

#### SIM card (optional)

Optional:

G-sensor, Ambient Light Sensor, 3D accelerometer and 3D magnetometer

G-sensor, IR camera and HD720p camera, fixed focus

IR & 720p camera, fixed focus

TrackPoint® pointing device and 3+2 buttons Mylar surface multi-touch click pad

#### Security

Power-on password, hard disk password, supervisor password, security keyhole

Discrete TPM 2.0 TCG Certified

Near Field Communication (mutually exclusive with smart card reader)

#### Battery

Li-Ion 51Whh battery

* Battery life varies significantly with settings, usage, & other factors

MobileMark® 2014: 13.6 hrs

#### AC adapter

45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter

#### Light sensor

Ambient Light Sensor

#### Gyroscope

3D gyrometer

#### Preload

Some: Windows® 10 Home 64

Some: Windows 10 Pro 64

#### Limited warranty

One of the following, configurable by model:

* 1-year depot repair service
* 1-year depot with 2-year system board service
* 3-year/1-yr battery depot repair service

#### Mil-Spec test

MIL-STD-810G military testing

#### Environment

EPEAT® Gold; ENERGY STAR®; RoHS-compliant

#### Processor 8th Generation Intel® Core™ i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

#### Smart card reader

Optional: Smart card reader (mutually exclusive with NFC)

#### Media reader

One microSD card slot (microSD, microSDHC, microSDXC), UHS-I

#### Ports

Two USB 3.1 Gen 1 (one Always On), Ethernet extension connector, one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (Power Delivery, DisplayPort, Data transfer), HDMI 1.4b, microSD card reader, nano-SIM card slot (WWAN models), headphone / microphone combo jack

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

#### WiGig dock

Monitor cable (optional)

USB-C to DisplayPort Adapter

HDMI to VGA:

Lenovo HDMI to VGA Monitor Adapter

#### Camera

One of the following, configurable by model:

720p:

HDCAM camera, fixed focus

720p:

HDCAM camera, fixed focus

Audio support

HD Audio, Conexant® CX11771 codec / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

#### Keyboard

6-row, spill-resistant, multimedia Fn keys, LED backlight

#### Multi-touch

UltraNav™ TrackPoint® pointing device and 3+2 buttons Mylar surface multi-touch click pad

#### Chipset

Intel SoC (System on Chip) platform:
8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets

* System clocks down for processors with lower memory controller

#### Optical Memory

None

#### Security

Power-on password, hard disk password, supervisor password, security keyhole

#### AC adapter

45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter

#### Audio support

HD Audio, Conexant® CX11771 codec / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

#### Encryption

Intel vPro Technology

Discrete TPM 2.0 TCG Certified

Near Field Communication (mutually exclusive with smart card reader)

#### Battery

Li-Ion 51Whh battery

* Battery life varies significantly with settings, usage, & other factors

MobileMark® 2014: 13.6 hrs

#### AC adapter

45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter

#### Light sensor

Ambient Light Sensor

#### Gyroscope

3D gyrometer

#### Preload

Some: Windows® 10 Home 64

Some: Windows 10 Pro 64

#### Limited warranty

One of the following, configurable by model:

* 1-year depot repair service
* 1-year depot with 2-year system board service
* 3-year/1-yr battery depot repair service

#### Mil-Spec test

MIL-STD-810G military testing

#### Environment

EPEAT® Gold; ENERGY STAR®; RoHS-compliant

Lenovo

March 2019
ThinkPad X390 Yoga Platform Specifications

Processor

- **8th Generation Intel® Core™ i5 / i7 Processor**
  - **Number**: [i5-8265U, i5-8365U, i7-8565U, i7-8665U]
  - **# of Cores**: [4, 8]
  - **Frequency**: [1.6 GHz, 1.8 GHz, 1.6 GHz, 1.9 GHz]
  - **Max Turbo Frequency**: [4.8 GHz, 4.6 GHz, 4.6 GHz, 4.8 GHz]
  - **Cache**: [6MB, 6MB, 8MB, 8MB]
  - **Memory Types**: DDR4-2400
  - **Graphics**: Intel UHD Graphics 620

Graphics

- Intel UHD Graphics 620 in processor only;
- Supports external digital monitor via HDMI or USB Type-C;
- Supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

Chipset

- **Memory**: Intel SoC (System on Chip) platform
- **8GB or 16GB / 2400MHz DDR4 / soldered to system board, no sockets**
- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

Display

- 13.3" (337.8mm) FHD (1920x1080), LED backlight, IPS, Glossy, 270 nits, 16:9 aspect ratio, 800:1 contrast ratio, Color Gamut 72%, 170° viewing angle, capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture

Multi-touch

- Yoga hinge, 360 degree

Hinge

- **Convert-mode Pen**: Laptop, tent, stand and tablet
- **ThinkPad Pen Pro**, active pen for multi-touch display, on-board rechargeable

Optane™ memory

- **Optional**: Intel Optane Memory H10
- **None**

Storage

- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2280 SSD, PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD, PCIe NVMe, PCIe 3.0 x 2
- Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe, PCIe 3.0 x 4

Optical

- **Optional**: Lenovo USB-C to DisplayPort Adapter
- **Optional**: Lenovo USB-C to HDMI Adapter
- **Optional**: Lenovo USB-C to VGA Adapter
- **Optional**: Lenovo USB-C to DP Adapter
- **Optional**: Lenovo USB-C to DisplayPort Adapter

Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN

- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

Bluetooth™

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - For non-WWAN model, the modem is not WWAN upgradable

WWAN (optional)

- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- MobileMark® 2014: 14.5 hrs
- Battery life varies significantly with settings, usage, & other factors

Battery

- Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- 65W USB Type-C AC adapter
- 65W Slim USB Type-C AC adapter

Max battery life

- None
- 3D accelerometer
- 3D gyrometer

Preload

- Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service

Mil-Spec test

- MIL-STD-810G military testing

Environment

- EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

Specifications Reference (PSREF)

Lenovo

July 2019
### ThinkPad Yoga 11e (5th Gen) Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Burst Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>m3-7Y30</td>
<td>2</td>
<td></td>
<td>1.0 GHz</td>
<td>2.6 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 615</td>
</tr>
<tr>
<td>5Y54</td>
<td>2</td>
<td></td>
<td>1.2 GHz</td>
<td>3.2 GHz</td>
<td>4MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cel N4100</td>
<td>4</td>
<td></td>
<td>1.1 GHz</td>
<td>2.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
</tr>
<tr>
<td>Pen N5000</td>
<td>4</td>
<td></td>
<td>1.1 GHz</td>
<td>2.7 GHz</td>
<td>4MB</td>
<td></td>
<td>Intel UHD Graphics 605</td>
</tr>
</tbody>
</table>

#### Graphics

- Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor, supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

#### Chipset

- Intel SoC (System on Chip) platform

#### Memory

- 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to system board, no sockets

#### Display

- 11.6” (295mm) HD (1366x768), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, Corning® Gorilla® Glass
- Capacitive-type multi-touch, supports 10 fingers

#### MultiTouch

- Yoga hinge, 360 degree Convertible mode
- Optional: ThinkPad Pen Pro, batteries required, on-board garage

#### Storage

- eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

#### Optical

- None

#### Ethernet

- RealtekRTL8111GUS-CG Gigabit Network Connection

#### WLAN

- One of the following, configurable by model:
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Bluetooth wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### Bluetooth™

- None

#### Preload

Some: Windows™ 10 Home 64
Some: Windows 10 Pro 64

#### Limited warranty

One of the following, configurable by model:
- 1-year depot repair service
- 3-year depot repair service

#### Mil-Spec test

MIL-STD-810G military testing

#### Environment

- EPEAT™ Gold; ENERGY STAR™ 6.1; RoHS-compliant

---

**Dimensions**

WxDxH: 11.81” x 8.27” x 0.89”; 300mm x 210mm x 22.5mm

**Weight**

From 3.4 lb / 1.54kg

**Display cover**: PC/ABS+GF; **Bottom**: PC/ABS plastic

**Media reader**: MicroSD card reader

**Ports**

- Two USB 3.1 Gen 1
- one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI1.4, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Power button, volume control button

**Camera**

One of the following, configurable by model:

- 720p:
  - HD720p resolution, low light sensitive, fixed focus
- World facing:
  - Rear camera, 5MP resolution, auto focus
- HD Audio, Realtek® ALC3287 codec Dolby Audio™ / stereo speakers, 2W x 2 / monaural microphone, headphone / microphone combo jack

**Audio support**

- Keyboard UltraNav™
  - 6-row, multimedia Fn keys
- Two buttons click pad below keyboard, multi-touch

**Battery**

Integrated Li-Ion 42Wh battery

**Max battery life**

MobileMark® 2014: 12 hrs

**AC adapter**

- 45W or 65W slim tip AC adapter or USB Type-C AC adapter

**Preload**

Some: Windows™ 10 Home 64
Some: Windows 10 Pro 64

---

Lenovo
March 2019
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

or 8th Generation Intel Core i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 5120x2880 @60Hz (USB Type-C); 4096x2160 @30Hz (HDMI)
- Intel UHD Graphics 620 for some models

### Chipset

- Intel SoC (System on Chip) platform

### Memory

- 8GB or 16GB / 2133MHz LPDDR3 / soldered to system board, no sockets
- *System clocks down for processors with lower memory controller

### Display

- One of the following, configurable by model:
  - 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle
  - 14.0" (355mm) QHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle
  - 14.0" (355mm) HDR QHD (2560x1440) with Dolby Vision™, glossy, LED backlight, IPS, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle
- On-cell touch, supports 10-finger gesture (FHD only)

### Storage

- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32GB/s (e.g. xxxGB SSD M.2 PCIe NVMe)

### Optical

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
- *For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM card (opt)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

---

### Environmental Specifications

- **Dimensions**: WxDxH: 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm
- **Weight**: Starting at 2.49 lb / 1.13 kg
- **Case color**: Black or Silver (silver case is NOT available in EMEA)
- **Case material**: Display cover: CFRP/GFRP hybrid; Bottom: magnesium alloy / PPS hybrid
- **Smart card reader**: None
- **Media reader**: MicroSD card reader, supports UHS-II
- **Ports**: Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader, side docking connector, security keyhole
- **Monitor cable**: (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter, USB-C to VGA: Lenovo USB-C to VGA Adapter, USB-C to DP™: Lenovo USB-C to DisplayPort Adapter
- **Bundled Accy**: Optional: ThinkPad Ethernet Extension Adapter Gen 2
- **Camera (optional)**: One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus
- **Audio support**: HD Audio, Realtek® ALC3286 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby® Atmos™ via headphones
- **Keyboard**: 6-row, spill-resistant, multimedia Fn keys, LED backlight
- **TrackPoint®**: pointing device and buttonless glass surface multi-touch touchpad
- **Security chip**: Power-on password, hard disk password, supervisor password, keyhole
- **Security keyhole**: Discrete TPM 2.0, TCG Certified
- **Fingerprint reader**: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology
- **NFC (optional)**: Near Field Communication
- **Battery**: Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- **Max battery life**: MobileMark® 2014: 19.3 hr
- **AC adapter**: 45W, 65W, or 65W Low Halogen USB-C AC adapter
- **Operating system**: Optional: Windows® 10 Home 64 or Windows 10 Pro 64
- **Limited warranty**: One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service
- **Mil-Spec test**: MIL-STD-810G military testing
- **Environment**: EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

---

**Lenovo**

**August 2019**
## ThinkPad X1 Carbon (7th Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>8th Generation Intel® Core™ i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
</tr>
<tr>
<td>i5-8650U</td>
<td>4</td>
</tr>
<tr>
<td>i5-10210U</td>
<td>4</td>
</tr>
<tr>
<td>i5-10510U</td>
<td>6</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
</tr>
<tr>
<td>i7-10510U</td>
<td>6</td>
</tr>
</tbody>
</table>

For non-WWAN model, it means the model is NOT WWAN upgradable.

**Note:** The specifications above may not be available in all regions. Lenovo October 2019

### Graphics

- Intel UHD Graphics 620 or Intel UHD Graphics in processor
- Supports external digital monitor via HDMI or USB Type-C / Thunderbolt
- Supports three independent displays
- Max resolution: 5K@60Hz (Thunderbolt); 4K@24Hz (HDMI)

### Chipset

Intel SoC (System on Chip) platform

### Memory

- 8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>Multi-touch</td>
<td>Anti-reflection</td>
<td>300 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080) Low Power</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; WQHD (2560x1440)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; UHD (3840x2160) HDR 400, Dolby Vision™</td>
<td>IPS</td>
<td>Glossy</td>
<td>500 nits</td>
<td>16:9</td>
<td>1400:1</td>
<td>90%</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Multi-touch (opt)

- Capacitive-type multi-touch, supports 10-finger gesture (FHD only), anti-reflection (AR), anti-smudge coating

### Storage

- One of the following, configurable by model:
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2280 SSD / PCIe NVMe 3.0 x 4
  - Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4
  - Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 2
  - Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical

**Note:** The specifications above may not be available in all regions. Lenovo October 2019

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN +

**Note:** The specifications above may not be available in all regions. Lenovo October 2019

### Bluetooth

- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 (AX201 for 10th Gen processor only)

### WWAN (optional)

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L960-GL, MIMO 2x2, M.2 card

### SIM card (opt)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Dimensions

- WDxH (Privacy Guard): 12.72" x 8.54" x 0.61"; 323mm x 217mm x 15.4mm
- WDxH (other model): 12.72" x 8.54" x 0.59"; 323mm x 217mm x 14.95mm

### Weight

- Privacy Guard model: starting at 2.66 lb / 1.21 kg
- Other model: starting at 2.4 lb / 1.09 kg

### Case color

- Black paint or black weave

### Case material

- Display cover: Carbon Fiber; Bottom: magnesium alloy

### Smart card reader

- None

### Media reader

- None

### Ports

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, side docking connector, security keyhole

### Monitor cable

- Optional: Lenovo HDMI to VGA Monitor Adapter

### Bundled Accy

- Optional: ThinkPad Ethernet Extension Adapter Gen 2

### Camera (optional)

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

### Audio support

- HD Audio, Realtek ALC3286 codec / Dolby Atmos™ speaker system, 2W x 2, 0.8 x 2 / 4 array far-field microphones, headphone / microphone combo jack

### Keyboard UltraNav™

- 6-row, spill-resistant, multimedia Fn keys, LED backlight
- TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip
  - Intel vPro Technology
  - Discrete TPM 2.0, TCG Certified

### Fingerprint reader

- Touch style match on chip fingerprint reader on the palm rest

### NFC (optional)

- Near Field Communication

### Battery

- Integrated Li-ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- with 65W AC adapter
- MobileMark® 2014: 18.3 hr
- * Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W, 65W, or 65W slim USB-C AC adapter

### Operating system

- Optional: Windows 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT Gold; ENERGY STAR® 7.1; RoHS-compliant
### ThinkPad X1 Extreme Platform Specifications

#### Processor
<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8300H</td>
<td>4</td>
<td>8</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i5-8400H</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-8750H</td>
<td>6</td>
<td>12</td>
<td>2.2 GHz</td>
<td>4.1 GHz</td>
<td>9MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-8850H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.3 GHz</td>
<td>9MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
</tbody>
</table>

#### Graphics
- Intel UHD Graphics 630 in processor and NVIDIA® GeForce® GTX 1050 Ti, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt™; supports four independent displays; Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (HDMI) (optional)

#### Chipset
- Mobile Intel CM246 Chipset

#### Display
- **15.6" (396mm) FHD (1920x1080)**, anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle
- **15.6" (396mm) HDR UHD (3840x2160)** with Dolby Vision™, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)
- Capacitive-type multi-touch, supports 10-finger gesture (4K only)

#### Storage
- Up to 2 drives (two M.2 SSD)
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)
- **RAID 0/1 support**

#### RAID (optional)
- **Optical**

#### Ethernet
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
  - via bundled or optional ThinkPad Ethernet Extension Cable
- Mobile Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)

#### WLAN
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### WWAN
- None

#### SIM card
- None

#### Dimensions
- **WXxH (non-touch):** 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm
- **WXxH (multi-touch):** 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm
- **Weight (non-touch):** starting at 3.76 lb / 1.7 kg
- **Weight (multi-touch):** starting at 4.06 lb / 1.8 kg

#### Case color
- Black

#### Case material
- Display cover: CFFRP/GFRP hybrid
- Bottom: Aluminum alloy

---

**Note:** The specifications above may not be available in all regions.

---

**Lenovo**

**August 2019**
ThinkPad X1 Extreme (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-9300H</td>
<td>4</td>
<td>8</td>
<td>2.4 GHz</td>
<td>4.1 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i5-9400H</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>4.3 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-9750H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.5 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Nordic College Graphics</td>
</tr>
<tr>
<td>i7-9850H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.6 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Nordic College Graphics</td>
</tr>
<tr>
<td>i9-9880H</td>
<td>8</td>
<td>16</td>
<td>2.6 GHz</td>
<td>4.8 GHz</td>
<td>16MB</td>
<td>DDR4-2666</td>
<td>Nordic College Graphics</td>
</tr>
</tbody>
</table>

**Graphics**

- Intel UHD Graphics 630 in processor and NVIDIA GeForce® GTX 1650, 4GB GDDR5 memory;
- supports external digital monitor via HDMI or Thunderbolt™;
- supports four independent displays;
- Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (HDMI)

**Chipset**

- Mobile Intel CM246 Chipset
- Mobile Intel® QM290 Chipset
- Mobile Intel® QM290 Chipset
- Mobile Intel® QM290 Chipset
- Mobile Intel® QM290 Chipset

**Memory**

- 64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

**Display**

- 15.6" FHD (1920x1080)
- 15.6" FHD (1920x1080)
- 15.6" UHD (3840x2160)
- 15.6" UHD (3840x2160)

**Multi-touch (opt)**

- Capacitive-type multi-touch, supports 10-finger gesture (UHD OLED only), anti-reflection (AR), anti-smudge (AS) coating

**Pen**

- Supports pen accessory, please see the accessory compatibility for details

**Storage**

- Up to two M.2 SSD
- RAID (optional)
- Optical

**Ethernet**

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable

**WLAN (optional)**

- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

**WWAN**

- None

**SIM card**

- None

**Audio support**

- HD Audio, Synaptic®
- Dolby Atmos® sound system

**Camera (optional)**

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Synaptic® CX11880 codec + stereo speakers, 2W x 2, Dolby® Audio™ Premium + dual 360° far-field microphone, headphone / microphone combo jack

**USB-C to DP**

- Lenovo USB-C to DisplayPort Adapter

**Battery**

- Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Operating system**

- Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service

**Note:** The specifications above may not be available in all regions.

Lenovo

September 2019
<table>
<thead>
<tr>
<th>Processor</th>
<th>6th Generation Intel® Core™ / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>3-6006U</td>
<td>2</td>
</tr>
<tr>
<td>3-6100U</td>
<td>2</td>
</tr>
<tr>
<td>5-6200U</td>
<td>2</td>
</tr>
<tr>
<td>5-6300U</td>
<td>2</td>
</tr>
<tr>
<td>7-6500U</td>
<td>2</td>
</tr>
<tr>
<td>7-6600U</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processor</th>
<th>7th Generation Intel® Core™ / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>3-7100U</td>
<td>2</td>
</tr>
<tr>
<td>3-7200U</td>
<td>2</td>
</tr>
<tr>
<td>5-7300U</td>
<td>2</td>
</tr>
<tr>
<td>7-7500U</td>
<td>2</td>
</tr>
<tr>
<td>7-7600U</td>
<td>2</td>
</tr>
</tbody>
</table>

**Graphics**

- Intel HD Graphics 520 or 620 in processor
- Supports external digital monitor via HDMI or USB Type-C
- Supports three independent displays
- Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

**Chipset Memory**

- Intel SoC (System on Chip) platform
- 16GB max / 2400MHz DDR4 RAM, one DDR4 SO-DIMM socket
- * System clocks down for processors with lower memory controller

**Display**

- Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16.9 aspect ratio, 500:1 contrast ratio
- Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Some: 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Multi-touch (optional)
  - On-cell touch, supports 10-finger gesture (FHD only)

**Storage**

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. x86 SSD) (opt)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s
- Some: 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN and WiGig

**Optical**

- None

**Ethernet**

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN**

- One of the following, configurable by model (WiGig is mutually exclusive with WWAN):
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1
  - Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1
  - Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1
  - Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1
  - Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter
  - Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
  - Dual-band (US only)
  - Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
  - Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS

**WWAN (optional)**

- One of the following, configurable by model (mutually exclusive with WiGig):
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom LB311-EAU) (EMEA only)

**SIM card (optional)**

- Micro-SIM card slot, opt Verizon LTE (US) or Lenovo™ Connect (EMEA) SIM card

**WxHxD:** 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm

**Weight:**
- No + 3-cell: 2.79 lb / 1.27 kg
- 3-cell + 3-cell: 2.98 lb / 1.36 kg
- 3 + 6-cell: 3.33 lb / 1.52 kg

**WLAN**

- 802.11a/b/g/n/ac + Bluetooth
- Intel Dual Band Wireless-AC 8260, Bluetooth 4.1
- Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1
- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**Ports**

- 4-in-1 reader (MMC, SD, SDHC, SDXC)
- USB 3.1 Type-C and USB 3.1 Type-A (with the function of Power Delivery and DisplayPort)
- HDMI 1.4b, Ethernet (RJ-45), Dock connector

**Smart Card Reader**

- Optional: Smart card reader

**Media Reader**

- Optional: SD card reader

**Battery life**

- 3-cell: 5.82 hr
- 3-cell + 3-cell: 11.15 hr
- 3-cell + 6-cell: 16.17 hr
- 3-cell + 6-cell: 22.24 hr
- 6-cell: 26.9 hr

**Dimensions**

- WxDxH: 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm

**Weight**

- No + 3-cell: 2.79 lb / 1.27 kg
- 3-cell + 3-cell: 2.98 lb / 1.36 kg
- 3 + 6-cell: 3.33 lb / 1.52 kg

**Lenovo**

August 2019
### ThinkPad X280 Platform Specifications

#### Processor
- **7th Generation Intel® Core™ i3 / i5 Processor**
  - i3-7130U is NOT available in US and EMEA; i5-7200U is NOT available in US
  - Processor Graphics: DDR4-2133 Intel HD Graphics 620
  - or 8th Generation Intel Core™ i3 / i5 / i7 Processor
  - Processor Graphics: DDR4-2400 Intel UHD Graphics 620

#### Memory
- 4GB, 8GB, or 16GB / 2400MHz DDR4 / soldered to system board, no sockets

#### Chipset
- Intel SoC (System on Chip) platform
- * 4GB memory is NOT available in US and EMEA
  * System clocks down for processors with lower memory controller

#### Display
- **Some**: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
  - **Some**: 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Multi-touch (opt): On-cell touch, supports 10-finger gesture (FHD only)
- * FHD non-touch model is NOT available in US

#### Storage
- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)
- None

#### Optical
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

#### WWAN (optional)
- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
  - * For non-WWAN model, it means the model is NOT WWAN upgradable

#### SIM card (opt)
- Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card

#### Graphics
- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor;
- supports external digital monitor via HDMI or USB-C; supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

#### Chipset
- Intel SoC (System on Chip) platform

#### Memory
- 4GB, 8GB, or 16GB / 2400MHz DDR4 / soldered to system board, no sockets
- * 4GB memory is NOT available in US and EMEA
  * System clocks down for processors with lower memory controller

#### Display
- **Some**: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
  - **Some**: 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Multi-touch (opt): On-cell touch, supports 10-finger gesture (FHD only)
- * FHD non-touch model is NOT available in US

#### Storage
- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)
  - None

#### Optical
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

#### WWAN (optional)
- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
  - * For non-WWAN model, it means the model is NOT WWAN upgradable

#### SIM card (opt)
- Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card

#### Camera (optional)
- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD camera and HD720p camera, fixed focus
  - HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby Audio® Premium / dual array microphone, headphone / microphone combo jack

#### Audio support
- • HD720p camera with ThinkShutter camera privacy, fixed focus
  - • IR camera and HD720p camera, fixed focus
  - • HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby Audio® Premium / dual array microphone, headphone / microphone combo jack
  - Discrete TPM 2.0, TCG Certified

#### Security chip
- Security: Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: Discrete TPM 2.0, TCG Certified

#### Battery
- Battery: Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Max battery life: 16.6 hr
- * Battery life varies significantly with settings, usage, & other factors

#### AC adapter
- 45W or 65W USB-C AC adapter

#### Operating system
- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

#### Limited warranty
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

#### Mil-Spec test
- MIL-STD-810G military testing

#### Environment
- EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
### ThinkPad X390 Platform Specifications

#### Processor

| Processor 8th Generation Intel® Core™ i3 / i5 / i7 Processor |  
|---|---|
| Processor Number | # of Cores | # of Threads | Base Frequency | Max Turbo Frequency | Cache | Memory Types | Processor Graphics |
| i3-8145U | 2 | 4 | 2.1 GHz | 3.9 GHz | 4MB | DDR4-2400 | Intel UHD Graphics 620 |
| i5-8265U | 4 | 8 | 1.6 GHz | 4.1 GHz | 6MB | DDR4-2400 | Intel UHD Graphics 620 |
| i5-8365U | 4 | 8 | 1.6 GHz | 4.6 GHz | 8MB | DDR4-2400 | Intel UHD Graphics 620 |
| i7-8565U | 4 | 8 | 1.6 GHz | 4.8 GHz | 8MB | DDR4-2400 | Intel UHD Graphics 620 |
| or 10th Generation Intel Core i5 / i7 Processor (NOT available in EMEA) |  
| Processor Number | # of Cores | # of Threads | Base Frequency | Max Turbo Frequency | Cache | Memory Types | Processor Graphics |
| i5-10210U | 4 | 8 | 1.6 GHz | 4.2 GHz | 6MB | DDR4-2400 | Intel UHD Graphics 620 |
| i7-10510U | 4 | 8 | 1.6 GHz | 4.9 GHz | 8MB | DDR4-2400 | Intel UHD Graphics 620 |

#### Graphics

- Intel UHD Graphics 620 or Intel UHD Graphics in processor
- Supports external digital monitor via HDMI or USB Type-C
- Supports three independent displays
- Max resolution: 4096x2304 @60Hz (Thunderbolt); 4096x2160 @24Hz (HDMI)

#### Chipset

- Intel SoC (System on Chip) platform

#### Memory

- 4GB, 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets
- * 32GB memory for 10th Gen processor only
- * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

#### Display

- Size: 13.3\" HD (1366x768)
- Resolution: 1366x768
- Type: TN
- Anti-glare: 250 nits
- Brightness: 16:9
- Aspect Ratio: 500:1
- Contrast Ratio: 45% 90°
- Color Gamut: 800:1 (non-touch) 700:1 (touch) 72% 170°

#### Multi-touch (optional)

- On-cell touch, supports 10-finger gesture (FHD only)

#### Storage

- M.2 2280 SSD / Sata 6.0Gbps
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2282 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

#### Optical

- None

#### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

#### WLAN (optional)

- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Bluetooth 5.0 wireless, integrated Wi-Fi + Bluetooth combo adapter

#### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradeable
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - * For non-WWAN model, it means the model is NOT WWAN upgradeable

#### Security

- Security chip: Discrete TPM 2.0, TCG Certified
- Intel vPro Technology
- Finger Print Reader: Optional: Touch style match on chip fingerprint reader on the palm rest
- NFC (optional): Near Field Communication

#### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

#### Battery

- Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- MobileMark® 2014: 17.6 hr
- * Battery life varies significantly with settings, usage, & other factors

#### Specifications Reference (PSREF)

- Lenovo October 2019

Note: The specifications above may not be available in all regions.
## ThinkPad X395 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 Pro 3300U</td>
<td>4</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.5 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 6 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 Pro 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 Pro 3700U</td>
<td>8</td>
<td>8</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 10 Graphics</td>
</tr>
</tbody>
</table>

### Graphics

- AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor;
- Supports external digital monitor via USB-C or HDMI;
- Supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB-C); 4096x2160@24Hz (HDMI)

### Chipset Memory

- AMD SoC (System on Chip) platform
- 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.3&quot;</td>
<td>HD (1366x768)</td>
<td>TN Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>300:1</td>
<td>45%</td>
<td>90°</td>
</tr>
<tr>
<td>13.3&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>800:1 (non-touch) 700:1 (multi-touch)</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>13.3&quot;</td>
<td>FHD (1920x1080)</td>
<td>ThinkPad Privacy Guard</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>178°</td>
</tr>
</tbody>
</table>

### Multi-touch (opt)

- On-cell touch, supports 10-finger gesture (FHD only)

### Storage

- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

### Optical

- None

### Ethernet

- Native Realtek® RTL8113 Gigabit Ethernet connection via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN (optional)

- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradeable
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Safety

- Mil-Spec test MIL-STD-810G military testing
- Environmental: EPEAT Silver; ENERGY STAR 7.1; RoHS-compliant

### Security

- Security chip: Discrete TPM 2.0, TCG Certified
- DASH Management
- Fingerprint reader: Optional: Touch style match on chip fingerprint reader on the palm rest

### Ports

- USB-C to VGA: Lenovo USB-C to VGA Monitor Adapter
- HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
- AC adapter: 45W or 65W USB Type-C AC adapter

### Battery

- Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- Max battery life: MobileMark® 2014: 14.5 hr
- AC adapter: 45W or 65W USB Type-C AC adapter

### Operating system

- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service

### Note

The specifications above may not be available in all regions.
This publication was developed for products and services offered in the North America, E.M.E.A and Asia & Pacific countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographical errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkBook, ThinkCentre, ThinkStation, ThinkVision and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

**Carry-in or Mail-in Service:** Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

**Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business. If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


Visit [www.lenovo.com/warranty](http://www.lenovo.com/warranty) for Lenovo Warranty Services terms and conditions for complete details and restrictions.

**Included software:** may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

**Battery life:** Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>1</td>
</tr>
<tr>
<td>Contents</td>
<td>2</td>
</tr>
<tr>
<td>Summary Of Change</td>
<td>3</td>
</tr>
<tr>
<td>ThinkPad Tablets</td>
<td>4</td>
</tr>
<tr>
<td>ThinkPad X1 Tablet (3rd Gen)</td>
<td>4</td>
</tr>
<tr>
<td>ThinkPad X1 Tablet (3rd Gen) Platform Specifications</td>
<td>5</td>
</tr>
<tr>
<td>Legal Information</td>
<td>6</td>
</tr>
</tbody>
</table>
Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

October 30, 2019 - Version 550

Additions in this update

► New product(s)
  None

► New model(s)
  None

► Others
  ThinkPad X1 Tablet (3rd Gen) - Spec updated

Withdrawals in this update

► Withdrawn product(s)
  None


**ThinkPad X1 Tablet (3rd Gen) Platform Specifications**

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8650U</td>
<td>8</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**

- Intel UHD Graphics 620 in processor
- Supports external digital monitor via USB Type-C

**Chipset**

- Intel SoC (System on Chip) platform

**Memory**

- 8GB or 16GB / 2133MHz LPDDR3, soldered to system board, no sockets

**Display**

- 13.0" (330mm) QHD+ (3000x2000), glossy, LED backlight, IPS, anti-fingerprint display with Corning® Gorilla® Glass, WideView (160° viewing), 400 nits, 3/2 aspect ratio, 1200:1 contrast ratio
- Capacitive touch panel, supports ten-finger gesture
- Lenovo Pen Pro or Lenovo Active Pen (ThinkPad Pen Pro)
- Opening angle up to 170 degrees

**Storage**

- One of the following, configurable by model:
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

**Optical Storage extension**

- One MicroSD card reader, in the combo slot with nano-SIM card, support USH-I, microSDHC, microSDXC

**Ethernet**

None

**WLAN (optional)**

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**

- Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)

**SIM card (optional)**

- Nano-SIM card slot, in the combo slot with microSD card reader

**Dimensions**

- iPad only: 11.97" x 8.9" x 0.35"
- Tablet + keyboard: starting at 2.8 lb / 1.27kg

**Weight**

- Black

**Case color**

- Black

**Environment**

- EPEAT™ Silver, GREENGUARD, Low Halogen, RoHS

**Lenovo**

July 2019
This publication was developed for products and services offered in the North America, E.M.E.A and Asia & Pacific countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographical errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkBook, ThinkCentre, ThinkStation, ThinkVision and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

**Carry-in or Mail-in Service:** Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

**Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td></td>
</tr>
<tr>
<td>Contents</td>
<td></td>
</tr>
<tr>
<td>Summary Of Change</td>
<td></td>
</tr>
<tr>
<td>M Series AIO</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M810z AIO</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M810z AIO Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M820z AIO</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M820z AIO Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910z AIO</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910z AIO Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920z AIO</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920z AIO Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>M Series Desktop</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M600 Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M600 Tiny Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M600 Tiny Thin Client</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M600 Tiny Thin Client Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M625 Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M625 Tiny Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M625 Tiny Thin Client</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M625 Tiny Thin Client Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M630e Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M630e Tiny Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710 SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710 SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710 Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710 Tiny Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710 Tower</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710 Tower Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710e SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M710e SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tiny (2nd Gen)</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tiny (2nd Gen) Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tiny Thin Client</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tiny Thin Client Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tower</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tower Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tiny Thin Client</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tiny Thin Client Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 (2nd Gen)</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 (2nd Gen) Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tower</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M715 Tower Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 Tiny Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 Tiny Thin Client</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 Tiny Thin Client Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 Tower</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720 Tower Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720e SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M720e SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M725 SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M725 SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M75s SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M75s SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M90n-1 Nano</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M90n-1 Nano Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M90n-1 Nano IoT</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M90n-1 Nano IoT Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910 SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910 SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910 Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910 Tiny Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910 Tower</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M910 Tower Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920 SFF</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920 SFF Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920 Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920 Tiny Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920 Tower</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920 Tower Platform Specifications</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920x Tiny</td>
<td></td>
</tr>
<tr>
<td>ThinkCentre M920x Tiny Platform Specifications</td>
<td></td>
</tr>
</tbody>
</table>
Contents

ThinkCentre M920x Tiny Platform Specifications 71
Smart Office 72
ThinkSmart Hub 500 72
ThinkSmart Hub 500 Platform Specifications 73
Tiny-In-One 74
ThinkCentre Tiny-In-One 22 74
ThinkCentre Tiny-In-One 22 Platform Specifications 75
ThinkCentre Tiny-In-One 22 Gen3 76
ThinkCentre Tiny-In-One 22 Gen3 Platform Specifications 77
ThinkCentre Tiny-In-One 24 78
ThinkCentre Tiny-In-One 24 Platform Specifications 79
ThinkCentre Tiny-In-One 24 Gen3 80
ThinkCentre Tiny-In-One 24 Gen3 Platform Specifications 81
ThinkCentre Tiny-In-One 27 82
ThinkCentre Tiny-In-One 27 Platform Specifications 83
Legal Information 84
Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

September 2019 - Version 549

Additions in this update

► New product(s)
  ThinkCentre M75s SFF
  ThinkCentre M720e SFF

► New model(s)
  None

► Others
  None

Withdrawals in this update

► Withdrawn product(s)
  None

► Withdrawn model(s)
  None
### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium G4400</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 510</td>
</tr>
<tr>
<td>Pentium G4560</td>
<td>2 / 4</td>
<td>3.5G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2 / 6</td>
<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i3-6100</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>2 / 4</td>
<td>3.0G / 3.5G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 6</td>
<td>3.4G / 4.1G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.5G / 4.1G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

### Memory

- 32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, dual-channel capable
- * System clocks down for the processors with lower memory controller

### Storage

- Some: Hard Drive / SATA 6.Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Intel Optane™ Memory (models with 7th gen Core processor), M.2
- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.5mm)
- Optional 9-in-1 media card reader

### Optical

- Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch
- Optional 1080p camera, fixed focus, with dual microphone, LED indicator, physical switch on/off

### Media reader

- Optional 9-in-1 media card reader

### Graphics

- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX 12, external monitor support via DisplayPort™
- Max resolution: 4096x2304 (DP) @60Hz, 1920x1080 (Panel) @60Hz

### Display

- 21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color, MVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode
- Multi-touch Camera
- Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch
- Optional 1080p camera, fixed focus, with dual microphone, LED indicator, physical switch on/off

### Controls

- Controls
- Physical buttons for Microphone mute, brightness up/down, and power on/off

### Chipset

- Intel B250 Chipset

### Rear ports

- Four USB 3.1 Gen1, ethernet (RJ-45), DisplayPort, optional serial (9-pin), two USB 3.1 Gen1 (one is Always On and fast charge), optional card reader, one headphone / microphone combo jack (3.5mm)

### Audio support

- High Definition (HD) Audio, Realtek ALC233 / two internal speakers (2W x 2), Dolby® Audio™ certified

### WLAN

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A dual band, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A dual band, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-Wireless AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-Wireless AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Bluetooth™

### Manageability

- None

### Security chip

- TPM (Trusted Platform Module) 2.0, TCG Certified

### Environment

- EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ErP Lot 3; GREENGUARD® certified; RoHS-compliant

### MIL-SPEC test

- MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)

### Security features

- Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis)
- Smart USB protection, allows keyboard/ mouse only, blocks all storage devices
- Optional cable lock to physically lock keyboard and mouse

### Mechanical

- Business black color
- Toolless stand
- Support VESA mount (100mm)

### Preload

- Preloaded operating system
- Some: Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit

### Accessories

- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)
## ThinkCentre M820z Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores/Threads</th>
<th>Frequency Base/Max (GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 2</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5420</td>
<td>2 / 2</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G6620</td>
<td>2 / 4</td>
<td>4.0G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i5-8600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>6 / 12</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-9100</td>
<td>4 / 6</td>
<td>3.6G / 4.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-9300</td>
<td>4 / 4</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.4G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.6G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 8</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i9-9900</td>
<td>8 / 16</td>
<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
</tbody>
</table>

### Memory

- 32GB max (16GB SO-DIMM only available via special bid models), DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- System clocks down for the processors with lower memory controller

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" or SSD
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- *128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s
- Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVD+RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Optional 3-in-1 media card reader

### Optical

- Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™
- Max resolution: 4906x2304 (DP) @60Hz, 1920x1080 (Panel) @60Hz
- Full HD 1080p (1920x1080) TFF color, Borderless design, MVA panel, wide viewing angle (±89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode
- Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology
- Optional 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°)
- Physical buttons on side for microphone mute and power on/off

### Chipset

- Intel B360 Chipset
- Four USB 3.1 Gen1 (one supports Smart Power On), one ethernet (RJ-45), one DisplayPort, one optional serial (9-pin)
- One USB 3.1 Gen2 (one is Always On and fast charge, one USB 3.1 Type-C Gen1, or optional card reader, one headphone / microphone combo jack (3.5mm)
- Two M.2 Card slots (one for WLAN, one for SSD/Optane)

### Audio support

- High Definition (HD) Audio, Realtek ALC2323 / two internal speakers (2W x 2), Dolby® Audio™ Premium

### Dimensions (WxDxH)

<table>
<thead>
<tr>
<th>Max weight (lb / kg)</th>
<th>Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.3 X 1.9 X 3.5</td>
<td>19.49 kg</td>
</tr>
<tr>
<td>(inch)</td>
<td>(19.49 kg)</td>
</tr>
<tr>
<td>491 X 49 X 342</td>
<td>(19.49 kg)</td>
</tr>
<tr>
<td>(mm)</td>
<td>(19.49 kg)</td>
</tr>
</tbody>
</table>

### Power supply

- 150 watts, autosensing, 90% PSU

### Preload

- Preloaded operating system
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 10 Home 64-bit
- Preloaded applications (only some listed)
  - Lenovo Vantage
  - Microsoft Office preloaded; purchase a product key to activate
  - Cyberlink PowerDVD (only for models with DVD / DVD+RW)
  - Cyberlink Power2GO (only for models with DVD+RW)
  - LinkedIn

### Environment

- ENERGY STAR® 7.0, EPEAT® Silver rating* (*not for non-OS models), ErP Lot 3
- TCO AIO Computer certified, GREENGUARD certified, TUV Eye comfort certified (for Full Function Monitor Stand only), TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), RoHS-compliant
- MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus)

### Accessories

- For compatible accessories, please go to http://smartfind.lenovo.com

---

**Note:** The specifications above may not be available in all regions.

Lenovo, June 2019
## ThinkCentre M910z Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron®, Intel Pentium®, or 6th / 7th Gen Intel Core™ i3 / i5 / i7 Processor</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-6100</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
<td>3.4G / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 6</td>
<td>3.0G / 3.5G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7500</td>
<td>4 / 8</td>
<td>3.5G / 4.1G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.6G / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

### Memory

- 32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, dual-channel capable
- * System clocks down for the processors with lower memory controller
- Adjustments

### Storage

<table>
<thead>
<tr>
<th>Some:</th>
<th>Hard Drive / SATA 6.0Gb/s, 2.5&quot;, 5400 rpm or 7200 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some:</td>
<td>Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5&quot;</td>
</tr>
<tr>
<td>Some:</td>
<td>M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s</td>
</tr>
<tr>
<td>Some:</td>
<td>Intel Optane™ Memory (models with 7th gen Core processor), M.2</td>
</tr>
<tr>
<td>Some:</td>
<td>DVD-Burner (DVD+RW), SATA 1.5Gb/s Drive, slim (9.5mm)</td>
</tr>
</tbody>
</table>

### Optical

| Some: | Intel HD Graphics 530/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; Max resolution: 4096x2304 (DP) @60Hz, 1920x1080 (Panel) @60Hz, 23.8" (604.5mm) Full HD 1080p (1920x1080) TFT color, WVA panel, wide viewing angle (±/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo) |

### Multi-touch Camera

- Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch
- Optional 1080p camera, fixed with dual microphone, LED indicator, physical switch on/off

### Controls

- Physical buttons for Microphone mute, monitor mode switch, brightness up/down, and power on/off
- Tilt: 45° back, -5° forward

### Chipset

Intel Q270 Chipset

### Rear ports*

- Four USB 3.1 Gen1, ethernet (RJ-45), DisplayPort in/out combo port, optional serial (9-pin)

### Side ports*

- Two USB 3.1 Gen1 (one is Always On and fast charge), optional card reader, one headphone / microphone combo jack (3.5mm), optional USB 3.1 Type-C Gen1
- Optional cable lock to physically lock

### M.2 card slot

- Two M.2 Card slots (one for WLAN, one for SSD/Optane)

### Audio support

High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby® Audio integrated

### WLAN

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

### Bluetooth

- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

### Ethernet

- Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®

### Environment

- EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ULE Gold; E3P Lot 3; GREENGUARD® certified; RoHS-compliant
- MIL-SPEC test MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)

### Accessories

For compatible accessories, please go to [http://www.lenovouskipick.com](http://www.lenovouskipick.com)

---

See footnotes for more detailed information © Lenovo (M910z-Spec) February 2017
### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max (GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron G4000</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel G9420</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel G9430</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel G9450</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel Pentium Gold G5400</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel Pentium Gold G5420</td>
<td>2 / 4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel Pentium Gold G6500</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel Pentium Gold G6520</td>
<td>2 / 4</td>
<td>4.0G</td>
<td>4 MB</td>
<td>DDR4-2400/2440</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>4 / 4</td>
<td>3.6G / 4.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i7-9300</td>
<td>4 / 4</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400/2440</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 8</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i9-9900</td>
<td>8 / 16</td>
<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

### Memory

- 32GB max (16GB SO-DIMM only available via special bid models), DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable.
- * System clocks down for the processors with lower memory controller.

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, supports up to two HDs (2nd HDD occupies Odd day), RAID 0/1 support (RAID preset only available via special bid model).
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5", M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s.
- * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s.
- Some: Intel Optane Memory (not support Celeron / Pentium Processor), M.2.
- Some: DVD-ROM SATA 1.5Gb/Drive, slim (9.0mm).
- Some: DVD Burner (DVD+RW), SATA 1.5Gb/Drive, slim (9.0mm).
- Optional 3-in-1 media card reader.

### Optical

- Optional M.2 card slot.

### Display

- Intel HD Graphics 660/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™.
- Max resolution: 4096x2304 (DP) @ 60Hz, 1920x1080 (Panel) @ 60Hz.
- 25.7" (64.0cm) Full HD 1080p (1920x1080) TFT color, LED backlighting, WVA panel, wide viewing angle (±/89°), LED backlight, 250 nits, 16:9 aspect ratio, 100:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo).
- Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology.
- Some: 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-direction (horizontal 0° to 180°, vertical 25° to 25°).
- Some: RGBIR camera, 1080p, with dual microphone, physical switch on/off, supports multi-direction (horizontal 0° to 180°, vertical 25° to 25°).
- Windows Hello support, only available via special bid models.

### Mechanical

- Business black color.
- Tilt: 45° back, -5° forward; Lift: 136mm; Swivel: +/-45°.
- Limited warranty: Some: 1-year or 3-year, depot repair service / service upgrades available.

### Preload

- Preloaded operating system:
  - Some: Windows 10 Pro 64-bit.
  - Some: Windows 10 Home 64-bit.

- Preloaded applications (only some listed):
  - Lenovo Vantage.
  - Microsoft Office preloaded; purchased a product key to activate.
  - Cyberlink PowerDVD (only for models with DVD / DVD±RW).
  - Cyberlink Power2GO (only for models with DVD±RW).
  - Cyberlink Power2GO (only for models with DVD±RW).
  - LinkedIn.
  - ENERGY STAR® 7.0®, EPEAT™ Silver rating* (*not for non-OS models), ErP Lot 3, TCO AIO Computer certified, GREENGUARD® certified, TUV Eye comfort certified, TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), RoHS-compliant.

### Environment


### Audio support

- High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby Audio™ Premium.

### Bluetooth™

- Ethernet™
- Some: Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter.

### Security chip

- Security features:
  - Security slot (in rear for attachment of optional Kensington MicroSaver® cable).
  - Boot sequence control.
  - Boot without keyboard and mouse.
  - Individual USB port disablement.
  - Optional Chassis intrusion switch.

### Accessory

- For compatible accessories, please go to http://smartfind.lenovo.com.
## ThinkCentre M600 Tiny Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron N3050</td>
<td>2 / 2</td>
<td>1.6 / 2.16 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD</td>
</tr>
<tr>
<td>Intel Celeron J3060</td>
<td>2 / 2</td>
<td>1.6 / 2.48 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD</td>
</tr>
<tr>
<td>Intel Pentium N3700</td>
<td>4 / 4</td>
<td>1.6 / 2.4 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD</td>
</tr>
<tr>
<td>Intel Pentium J3710</td>
<td>4 / 4</td>
<td>1.6 / 2.64 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD 405</td>
</tr>
</tbody>
</table>

Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution.

### Chipset

Intel HD Graphics in processor, uses main memory, DirectX™ 11.1, twoDisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display.

Maximum resolution: 3840x2160(DP)@30Hz; 1920x1200(optional VGA)@60Hz; 1920x1080(DP to HDMI dongle)@60Hz; 3840x2160(DP to HDMI dongle)@30Hz

Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution.

### Graphics

- Some: hard disk, 5400 or 7200 rpm, SATA 6.0Gb/s, 2.5" Wide
- Some: 500GB (5400 rpm) Solid State Hybrid Drive (SSHD) / with 8GB MLCC NAND flash memory, SATA 6.0Gb/s, 2.5" wide
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Wide
- Some: external ODD box with DVD-ROM, 9.5mm high, via USB
- Some: external ODD box with DVD±RW, 9.5mm high, via USB
- Some: external ODD box for TIO with DVD-ROM, 9.5mm high, via USB
- Some: external ODD box for TIO with DVD±RW, 9.5mm high, via USB
- Some: SATA 6.0Gb/s controller, one connectors on planar

### Storage

- Two USB 2.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)

### Optical

- Two USB 2.0, two USB 3.0 (optional external optical box or I/O box occupies one or two specific USB on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone

### I/O box

Optional external I/O box, extends two USB 2.0, two USB 3.0, and one serial on rear, two USB 2.0 on front, via USB (occupy two specific USB 3.0 of M600 Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Audio support

High Definition (HD) Audio, Realtek ALC223 / optional internal speaker (1 watt)

### WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1

Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1

Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9617 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1

Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8260, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

### Bluetooth

Some: 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet

One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

### Modem

None

### Manageability

None

### Security chip

None

### Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Hard disk password
- Padlock loop
- Smart USB protection, allows keyboard/ mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablenent
- Chassis intrusion switch

### Keyboard

Some: Preferred Pro USB Keyboard (USB connector), Lenovo logo

### Mouse

Some: Lenovo USB Fingerprint Keyboard (USB connector)

### Mechanical

- Tiny (1L), black color, metal case

### Power supply

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

### Limited warranty

Some: 1-year or 3-year, depot service / service upgrades available

Some: 1-year or 3-year, limited onsite service / service upgrades available

Some: 3-year, limited onsite service, OID (Onsite International Delivery) / service upgrades available

For Lenovo service upgrade options, please go to S-TC sheet

### Preload

Some: Windows® 7 Professional 64

Preinstalled through downgrade rights in Windows 10 Pro 64-bit

Some: Windows 7 Professional 64

Some: Windows 10 Pro 64-bit

Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)

- Desktop Power Manager
- Lenovo Solution Center
- Lenovo REACHit
- Lenovo SHAREit
- Lenovo Bluetooth Lock
- McAfee® LiveSafe® (30-day trial)
- Microsoft Office preloaded: purchase a product key to activate
- PowerDVD Create (DVD±RW)
- Lenovo ThinkVantage Tools - Only for Window 10
- Lenovo Companion (Win10)
- Cyberlink PowerDVD (DVD, DVD±RW)
- Lenovo QuickOptimizer - Only for Window 7
- Rescue and Recovery
- Password Manager
- ThinkVantage System Update
- Lenovo Message Center Plus
- Adobe® Reader®

### Environment

ENERGY STAR® 6.0®, EPEAT® Silver rating* (*not for non-OS models); GREENGUARD®, RoHS-compliant; Cisco EnergyWise compatible; EHP Lot 3

### Accessories

For compatible accessories, please go to TC-AQP sheet
### ThinkCentre M600 Tiny Thin Client Platform Specifications

#### Product Specifications Reference (PSREF)

**Processor**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron N3000 Series or Intel Pentium N3000 Series</td>
<td>2 / 2</td>
<td>1.04 / 2.08 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD 400</td>
</tr>
<tr>
<td>Intel Celeron N3010</td>
<td>2 / 2</td>
<td>1.04 / 2.24 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD 400</td>
</tr>
</tbody>
</table>

**Chipset**

Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution.

**Graphics**

Intel HD Graphics in processor, uses main memory, DirectX®11.1 twoDisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display:

- Maximum resolution: 3840x2160(DP)@30Hz; 1920x1200(optional VGA)@60Hz; 1920x1080(DP to VGA dongle)@60Hz; 1920x1080(DP to DVI dongle)@60Hz; 1920x1080(DP to HDMI dongle)@30Hz
- Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

**Monitor cable**

Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

**Memory**

- 8GB max / DDR3 Low Voltage, DDR3L-1600, non-parity, one 204-pin SO-DIMM socket
- 16GB, 32GB, or 128GB M.2 Solid State Drive (SSD), SATA interface
- SATA 6.0 Gb/s controller, one connectors on planar

**Storage**

**光学存储**

**Onboard SATA**

- None
- SATA 6.0 Gb/s controller, one connectors on planar

**Front ports**

- Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)
- Two USB 2.0, two USB 3.0, ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone; additional four serial (9-pin), one parallel (25-pin), and two PS/2 ports on 2L models

**Rear ports**

- Two USB 2.0, two USB 3.0, ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone; additional four serial (9-pin), one parallel (25-pin), and two PS/2 ports on 2L models

**I/O box**

- None
- Two USB 0.3 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)
- Two USB 2.0, two USB 3.0, ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone; additional four serial (9-pin), one parallel (25-pin), and two PS/2 ports on 2L models

**Audio support**

- High Definition (HD) Audio, Realtek ALC223 / optional internal speaker (1 watt)
- 11ac wireless, M.2 Card, Realtek RTL8211AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1
- 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 (only for 1L models)
- Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

**WLAN**

- Some: 11ac wireless, M.2 Card, Realtek RTL8211AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 (only for 1L models)
- Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

**Bluetooth**

- None
- Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

**Ethernet**

- None
- Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

**Modem**

- None
- Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

**Manageability**

- None
- Trusted Platform Module, TCG 1.2-compliant

**Security features**

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

**Keyboard**

- Some: PS/2 Keyboard (PS/2 connector), Lenovo logo (for 2L models)
- Some: Preferred Pro USB Keyboard (USB connector), Lenovo logo
- Some: Ultraslim Plus Wireless Keyboard (2.4GHz via USB receiver), black
- Some: PS/2 Optical Wheel Mouse, black, Lenovo logo (for 2L models)
- Some: Enhanced Optical USB Mouse, black, Lenovo logo
- Some: Ultraslim Plus Wireless Mouse (2.4GHz via USB receiver), black

**Mouse**

- Some: PS/2 Optical Wheel Mouse, black, Lenovo logo (for 2L models)
- Some: Enhanced Optical USB Mouse, black, Lenovo logo
- Some: Ultraslim Plus Wireless Mouse (2.4GHz via USB receiver), black

**Mechanical**

- Tiny (1L or 2L), black color, metal case

**Power supply**

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

**Limited warranty**

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available
- Some: 3-year, limited onsite service, OID (Onsite International Delivery) / service upgrades available

**Environment**

- ENERGY STAR® 6.0, EPEAT® Gold rating* (*not for non-OS models)
- GREENGUARD®, RoHS-compliant; Cisco EnergyWise compatible; EiP Lot 3

**Accessories**

- For compatible accessories, please go to TC-AQP sheet

**Note:** The specifications above may not be available in all regions.

---

Lenovo, November 2017
## ThinkCentre M625 Tiny Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>APU</th>
<th>Cores</th>
<th>Frequency Base/Max</th>
<th>L2 Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD A9 series APU</td>
<td>2</td>
<td>1.8 / 2.7 GHz</td>
<td>1 MB</td>
<td>DDR4-1866</td>
<td>Radeon R5 Series</td>
</tr>
</tbody>
</table>

### Memory

- 8GB max, DDR4-2666, one 260-pin SO-DIMM socket
- System frequency automatically clocks down for the lower capability of memory controller in processor

### Disk

- SATA 6.0Gb/s, 2.5" Wide, 5400 rpm or 7200 rpm
- Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface
- Some: 256GB M.2 Solid State Drive (SSD) / PCIe NVMe interface

### Optical Onboard SATA Media reader

- None
- one SATA 6.0Gb/s connector on planar

### Graphics

- **AMD Radeon Graphics** in processor, uses main memory, DirectX 12, two DisplayPort, one optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays:
  - Max resolution: 3840x2160 (DP) @60Hz; 2048x1280 (VGA) @60Hz;
  - 3480x2160 (USB 2.0 Type-C) @60Hz

### Monitor cable

- Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

### Chipset

- **AMD SoC platform**

### Front ports*

- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm)
- one headphone / microphone combo jack (3.5mm)

### Rear ports*

- One USB 3.1 Gen1, three USB 2.0, ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial)
  - Depending on many factors, actual data transfer speed may be lower than theoretical speed

### I/O box

- High Definition (HD) Audio, Realtek ALC233-VB2-CG/ internal speaker (1.5 watt)

### Audio support

- Realtek ALC233-VB2-CG/ internal speaker (1.5 watt)

### WLan™

- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2

### Bluetooth™

- Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter
  - Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1

### Ethernet Modem

- Gigabit ethernet, Realtek RTL8111HN, Wake on LAN

### Security chip

- None
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password

### Manageability

- None
- Security slot (in rear for optional Kensington MicroSaver cable)
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

### Mechanical

- Tiny (1L), black color; metal case
  - Toolless chassis open (for models with optional toolless chassis screw)
  - Toolless HDD, SSD, memory, Wi-Fi removal
  - Optional dust filter

### VESA mount

- Optional VESA mount bracket kit, supports VESA 75mm and 100mm

### Floor Stand

- Optional system floor stand for vertical orientation

### Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

### Limited warranty*

- Some: 1-year, depot service / service upgrades available
- Some: 1-year, limited onsite service / service upgrades available

### Preload

#### Preloaded operating system

- Windows 10 Pro 64-bit
- Windows 7 Professional 64

#### Preloaded applications (only some listed)

- Windows 10 only
- Lenovo Vantage
- Microsoft Office preloaded; purchase a product key to activate
- Lenovo Solution Center
- Lenovo System Update
- Factory Recovery
- User Guide Viewer
- Microsoft Office preloaded; purchase a product key to activate
- Adobe Reader

### Environment

- ENERGY STAR® 6.1*, EPEAT™ Silver rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO

### MIL-SPEC test


### Accessories

- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

Lenovo, May 2018
## ThinkCentre M625 Tiny Thin Client Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>AMD E2 series APU</th>
<th>APU Cores</th>
<th>Frequency Base/Max</th>
<th>L2 Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2-9000e</td>
<td>2</td>
<td>1.5 / 2.0 GHz</td>
<td>1 MB</td>
<td>DDR4-1866</td>
<td>Radeon R2 Series</td>
</tr>
</tbody>
</table>

### Memory

- 8GB max, DDR4-2666, one 260-pin SO-DIMM socket
- System frequency automatically clocks down for the lower capability of memory controller in processor

### Disk

- Some: 32GB M.2 Solid State Drive (SSD) / SATA interface
- Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface
- None

### Optical Onboard SATA Media reader

- one SATA 6.0Gb/s connector on planar

### Graphics

- **AMD Radeon™ Graphics** in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays;
- **Max resolution**: 3840x2160 (DP)@60Hz; 2048x1280 (VGA)/@60Hz;
- **3840x2160 (USB 2.0 Type-C)@60Hz**
- Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

### Monitor cable

- Two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial)
- Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Chipset

- **AMD SoC platform**

### Audio support

- High Definition (HD) Audio, Realtek ALC233-VB2-CG / internal speaker (1.5 watt)

### WLAN

- **Some**: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- **Some**: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- **Some**: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- **Some**: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- **Some**: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter
- **Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1**

### Bluetooth™

- *Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1*

### Ethernet Modem

- Gigabit ethernet, Realtek RTL8111H, Wake on LAN®

### Manageability Security chip

- None

### Security features

- Discrete TPM 2.0, TCG Certified
  - Security slot (in rear for optional Kensington® MicroSaver® cable)
  - Smart USB protection, allows keyboard/mouse only, blocks all storage devices
  - Power-on password
  - Administrator password
  - Hard disk password
  - Boot sequence control
  - Boot without keyboard and mouse
  - Individual USB port disablement
  - Chassis intrusion switch

### Mechanical

- Tiny (1L), fan-less design, black color, metal case
- Toolless chassis open (for models with optional toolless chassis screw)
- Toolless SSD, memory, Wi-Fi removal
- M625 Tiny Thin Client only:
  - 7.05" W X 7.20" D X 1.36" H
  - 179mm W X 182.9mm D X 34.5mm H
- 2.9 lbs (1.3 kg), weight may vary by configuration
- MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Fungus, Solar Radiation)

### VESA mount

- Optional VESA mount bracket kit, supports VESA 75mm and 100mm

### Floor Stand

- Optional system floor stand for vertical orientation

### Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

### Limited warranty

- **Some**: 1-year, depot service / service upgrades available
- **Some**: 1-year, limited onsite service / service upgrades available

### Preload

- **Preloaded operating system**
  - **Some**: Windows Embedded Standard 7 V2 (WES 7 V2)
  - **Some**: Windows 10 IoT Enterprise
  - **Some**: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

### Environment

- **ENERGY STAR® 6.1**, EPEAT™ Silver rating® (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO

### MIL-STD test


### Accessories

- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

---

Lenovo, May 2018
## ThinkCentre M630e Tiny Platform Specifications

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium Gold 5405U</td>
<td>2 / 4</td>
<td>2.3G</td>
<td>2 MB</td>
<td>DDR4-2133</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-8145U</td>
<td>2 / 4</td>
<td>2.1G / 3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
<tr>
<td>Core i5-8265U</td>
<td>4 / 8</td>
<td>1.6G / 3.9G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
</tbody>
</table>

### Memory

- 16GB max, DDR4-2666*, one 260-pin SO-DIMM sockets, non-ECC

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 SSD (2280) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: M.2 SSD (2242) / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

### Onboard SATA

- One onboard SATA 6.0Gb/s connector

### Graphics

- Intel HD Graphics 610/620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, up to 2 independent displays;
- Max resolution: 4096x2304 (DP)@60Hz; 4096x2304 (HDMI)@24Hz

### Monitor cable

- Optional DP to VGA dongle or DP to HDMI 1.4 dongle

### Chipset

- Intel SoC (System on Chip) platform

### Front ports* (Std.)

- One USB 3.1 Gen1, one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

### Rear ports* (Std.)

- Two USB 3.1 Gen1, two USB 2.0, one ethernet (RJ-45), one DisplayPort, one HDMI

### Rear ports* (Opt.)

- None

### Audio support

- Realtek ALC233VB / internal speaker (1.5 watt)

### WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2

### Bluetooth

- Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet

- Gibabit ethernet, Realtek RTL8111HN-CG

### Manageability

- None

- Security chip
- Security features
  - Firmware TPM 2.0, integrated in chip
  - Security slot (in rear for optional Kensington® MicroSaver™ cable)
  - Chassis intrusion switch
  - Power-on password
  - Administrator password
  - Hard disk password

### Keyboard

- None

### Mouse

- Some: Lenovo Calloipe Keyboard (USB connector), black
- Some: Lenovo Calloipe Mouse (USB connector), black

### Mechanical

- Tiny (1L), black color; metal case
- Optional dust filter
- One 2.5" bay for HDD/SSD, two M.2 slots (one for WLAN, one for M.2 SSD)

### Dimensions (WxDxH) Weight (Approx.)

<table>
<thead>
<tr>
<th>VESA mount Floor Stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional VESA mount bracket kit, supports VESA 75mm and 100mm</td>
</tr>
<tr>
<td>Optional system floor stand for vertical orientation</td>
</tr>
</tbody>
</table>

### Power supply

- Some: 65 watts adapter, autosensing, 88% PSU

### Limited warranty

- Some: 1-year, depot service / service upgrades available
- Some: 1-year, limited onsite service / service upgrades available

### Preload

- Preloaded operating system
  - Some: Windows® 10 Pro 64-bit
  - Some: Windows 10 Home 64-bit
- Preloaded applications (only some listed)
  - Lenovo Vantage
  - Microsoft Office preloaded; purchase a product key to activate
  - LinkedIn
- Environment
  - ENERGY STAR® 7.0, EPEAT™ Silver rating, ErP Lot 3, TCO, RoHS-compliant, WEEE, REACH
- MIL-SPEC test
  - Coming soon
- Accessories
  - For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, October 2019
**ThinkCentre M710 SFF Platform Specifications**

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/MHz</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium G4400</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 510</td>
</tr>
<tr>
<td>Pentium G4560</td>
<td>2 / 4</td>
<td>3.5G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2 / 4</td>
<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i3-6100</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>2 / 4</td>
<td>3.2G / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 550</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
<td>3.4G / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 670</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 4</td>
<td>3.0G / 3.5G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 4</td>
<td>3.4G / 3.8G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7600</td>
<td>4 / 4</td>
<td>3.5G / 4.1G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.6G / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

### Memory

- 64GB max, UDIMM, DDR4-2400, four 288-pin DIMM sockets, non-ECC, dual-channel capable*<br>  * System automatically clocks down for the processors with lower memory controller

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm<br>  Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"<br>  Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s<br>  Some: Intel Optane™ Memory (models with 7th gen Core processor), M.2
- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Optional SATA 6.0Gb/s connectors: Optional 7-in-1 media reader

### Optical

- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays;
  - Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz
  - Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts;
  - Max resolution: 3840x2160 (DisplayPort) @ 60Hz;
- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

### Chipset

- Intel B250 Chipset

### Front ports*

- Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)

### Rear ports*

- Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse);
- Additional DisplayPort on optional graphics on some models

### Rear audio ports*

- Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)

### Audio support

- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt )

### WLAN

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

### Bluetooth™ Ethernet Modem

- Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- Gigabit ethernet, Realtek RTL8111G, Wake on LAN* <br>  * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Manageability

- TPM (Trusted Platform Module) 2.0, TCG Certified
- Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

### Security chip

- None

### Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional cable lock to physically lock both keyboard and mouse
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Individual USB port disablement
- Optional chassis intrusion switch

### Keyboard

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black

### Mouse

- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Mechanical

- SFF (8.4L), black color; metal case
- (WiDi/HD) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 342.5mm
- Approx. 13.2 lb (6.0 kg), weight may vary by configuration
- Tasteeless, cord, disk optical removal
- Optional dust filter
- Bay 1: Slim external ODD bay
- Bay 2: 3.5", 1" high, internal, HDD/SSD
- Bay 3: 2.5", internal, HDD/SSD (optional bay)
- Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16*
- Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1*
- Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1*
- Slot 4: no slot, only bracket for optional port extension*
- M.2 card slots: Two (one for WLAN, one for SSD/Optane)
- Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot
- Optional system floor stand for vertical orientation

### Power supply

- Some: 180 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 92% PSU (only available via special bid)

### Limited warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

### Preloaded operating system

- Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor)
- Some: Windows® 10 Home 64-bit
- Some: Windows® 10 Home 64-bit

### Preloaded applications (only some listed)

- Microsoft Office preloaded; purchase a product key to activate<br>  - Only for Window 10
- Lenovo Companion<br>  - Only for Window 7
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Adobe® Reader
- Cyberlink PowerDVD Create (DVD±RW)

### Environment

- ENERGY STAR® 6.1, EPEAT® Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)

### Accessories

- For compatible accessories, please go to http://www.lenovoquickpick.com

---

Note: The specifications above may not be available in all regions.

Lenovo, June 2017
Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max (GHz)</th>
<th>Cache</th>
<th>Memory Support (Up To)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium G4400T</td>
<td>2 / 2</td>
<td>2.9G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 510</td>
</tr>
<tr>
<td>Pentium G4560T</td>
<td>2 / 2</td>
<td>2.9G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600T</td>
<td>2 / 2</td>
<td>3.0G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 610</td>
</tr>
<tr>
<td>Core i3-6100T</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-6500T</td>
<td>4 / 8</td>
<td>2.50 / 3.1G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-6700T</td>
<td>4 / 8</td>
<td>2.85 / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-7100T</td>
<td>2 / 4</td>
<td>3.4G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400T</td>
<td>4 / 4</td>
<td>2.4G / 3.0G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7500T</td>
<td>4 / 4</td>
<td>2.7G / 3.3G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7600T</td>
<td>4 / 4</td>
<td>2.8G / 3.7G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700T</td>
<td>4 / 8</td>
<td>2.9G / 3.8G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

Memory

- 32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable
- System automatically clocks down for the processors with lower memory controller

Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Intel Optane™ Memory (models with 7th Gen Core processor), M.2

Optical

- Some: DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box
- Some: DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box

Onboard SATA

- One onboard SATA 6.0Gb/s connector

Media reader

- None

Graphics

- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays;
- Max resolution: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz; 4096x2160 (HDMI) @ 24Hz; 1920x1200 (VGA) @ 60Hz

Monitor cable

- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

Chipset

- Intel B250 Chipset

Front ports*

- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

Rear ports*

- Four USB 3.1 Gen1 (optional external optical box or external I/O box occupies one or two specific USB 3.1 Gen1 on some models), two DisplayPort, two optional ports (Port 1 for VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode), Port 2 for serial)
- Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny)
- I/O box:
  - * Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

- High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)

WLAN™

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

Bluetooth™

- Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet Modem

- Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN™

Manageability

- None

Security chip

- TPM (Trusted Platform Module) 2.0*, TCG Certified
- * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

Keyboard

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Calliope Mouse (USB connector), black
- Some: Calliope Wireless Mouse (2.4GHz via USB receiver), black

Mouse

- Tiny (1L), black color; metal case
- Tootless chassis open
- Tootless HDD, SSD, memory removal
- Optional tootless chassis screw
- Optional dust filter

Dimensions (WxDxH)

- M710 Tiny only:
  - 7.05" x 7.20" x 1.36" (with DisplayPort Alternate Mode)
- 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz

Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
- 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)

Limited warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

Preload

- Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor)
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)

- Microsoft Office preloaded; purchase a product key to activate
- Only for Window 10
- Lenovo Companion
- Only for Window 7
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Adobe® Reader
- Lenovo ThinkVantage PowerDVD Create (DVD±RW)

MIL-SPEC test


Accessories

- For compatible accessories, please go to http://www.lenovoquickpick.com

See footnotes for more detailed information

© Lenovo

(M710 Tiny-Spec) February 2017
## ThinkCentre M710 Tower Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium G4400</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 510</td>
</tr>
<tr>
<td>Pentium G4560</td>
<td>2 / 2</td>
<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2200</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2 / 2</td>
<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2200</td>
<td>HD 660</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-6700</td>
<td>4 / 8</td>
<td>3.4G / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2200</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 2</td>
<td>3.9G</td>
<td>3 MB</td>
<td>DDR4-2200</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-5700</td>
<td>4 / 4</td>
<td>3.5G / 4.1G</td>
<td>6 MB</td>
<td>DDR4-2200</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7600</td>
<td>4 / 4</td>
<td>3.5G / 4.1G</td>
<td>6 MB</td>
<td>DDR4-2200</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.6G / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2200</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

### Memory

- 64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- System automatically clocks down for the processors with lower memory controller

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Optane™ Memory (models with 7th gen Core processor), M.2
- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: Three onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

### Optical

- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™ supports 3 independent displays, works along with discrete graphics to support more displays;
- Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz
- Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe x 8 adapter, base/Max(GHz)
  - Max resolution: 3840x2160 (DisplayPort) @ 60Hz.
- Some: AMD Radeon™ R7 370, DirectX 11, 2GB, PCIe 3.0 x 8 adapter, one VGA, one HDMI, 75 watts, occupies two slots;
  - Max resolution: 4096x2160 (HDMI) @ 24Hz, 2048x1536 (VGA) @ 85Hz
- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

### Monitor Cable

- Intel B250 Chipset

### Front ports

- Four USB 3.1 Gen1, one optional two USB 3.1 Type-C Gen2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)

### Rear ports

- Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse);
- Additional VGA, DisplayPort, or HDMI on optional graphics on some models
- Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)

### Audio support

- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)

### WLAN

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

### Bluetooth

- Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet

- Gigabit ethernet, Realtek RTL8111GN, Wake on LAN®

Note: The specifications above may not be available in all regions.

Lenovo, June 2017
### ThinkCentre M710e SFF Platform Specifications

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G3900</td>
<td>2 / 2, 2.8G, 2 MB DDR4-2133, HD 510</td>
</tr>
<tr>
<td>Celeron G3930</td>
<td>2 / 2, 2.9G, 3 MB DDR4-2133, HD 610</td>
</tr>
<tr>
<td>Pentium G4400</td>
<td>2 / 2, 3.5G, 3 MB DDR4-2133, HD 530</td>
</tr>
<tr>
<td>Pentium G4640</td>
<td>2 / 2, 3.5G, 3 MB DDR4-2133, HD 610</td>
</tr>
<tr>
<td>Pentium G4650</td>
<td>2 / 2, 3.5G, 3 MB DDR4-2133, HD 530</td>
</tr>
<tr>
<td>Pentium G4660</td>
<td>2 / 2, 3.6G, 3 MB DDR4-2133, HD 630</td>
</tr>
<tr>
<td>Core i3-6100</td>
<td>2 / 4, 3.7G, 3 MB DDR4-2133, HD 530</td>
</tr>
<tr>
<td>Core i5-6460</td>
<td>4 / 4, 3.7G / 3.9G, 6 MB DDR4-2133, HD 530</td>
</tr>
<tr>
<td>Core i5-6650</td>
<td>4 / 4, 3.2G / 3.6G, 6 MB DDR4-2133, HD 530</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8, 3.4G / 4.0G, 8 MB DDR4-2133, HD 530</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 4, 3.9G, 3 MB DDR4-2133, HD 630</td>
</tr>
<tr>
<td>Core i3-7300</td>
<td>2 / 4, 4.0G, 4 MB DDR4-2133, HD 630</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 4, 3.4G / 3.8G, 6 MB DDR4-2133, HD 630</td>
</tr>
<tr>
<td>Core i5-7600</td>
<td>4 / 4, 3.5G / 4.1G, 6 MB DDR4-2133, HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8, 3.6G / 4.2G, 8 MB DDR4-2133, HD 630</td>
</tr>
</tbody>
</table>

### Memory

- 32GB max., UDIMM, DDR4-2400*, two 288-pin DIMM sockets, non-ECC, dual-channel capable
- System channel clocks down for the processors with lower memory controller

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"/3.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Two onboard SATA 6.0Gb/s connectors

### Optical

- Optional: 7-in-1 media reader

### Graphics

- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX®12, one VGA, one DisplayPort™, supports 2 independent displays, works along with discrete graphics to support more displays:
  - Max resolution: 4096x2160 (DP)@60Hz; 1920x1200 (VGA)@60Hz
  - Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x 8 adapter, two DisplayPort, 35 watts;
  - Max resolution: 3840x2160 (DisplayPort)@60Hz

### Monitor cable

- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

### Chipset

- Intel B250 Chipset

### Front ports

- Two USB 3.1 Gen1, microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

### Rear ports

- Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, one DisplayPort, optional external USB to PS/2 ports cable (for PS/2 keyboard / mouse);
  - Additional DisplayPort on optional graphics on some models

### Rear audio ports

- Line-out jack (3.5mm)

### IEEE 1394®

- None

### Audio support

- High Definition (HD) Audio, Realtek ALC233 / internal speaker (1.5 watt)

### WLAN™

- None

### Bluetooth™

- None

### Ethernet

- Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®

### Modern

- None

### Manageability

- None

### Security chip

- TPM (Trusted Platform Module) 2.0, TCG Certified
- Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

### Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional smart card clip to physically lock both keyboard and mouse

### Mechanical

- SFF (7.4L), black color, metal case
- ((WxDxH) 3.9” X 11.9” X 10.8”; 100mm X 303.5mm X 273.5mm
- Approx. 9.37 lb (4.25 kg), weight may vary by configuration
- Bay 1: Slim external ODD bay
- Bay 2: 3.5”, 1" high, internal, supports 2.5" or 3.5" HHDD (2.5 to 3.5 bracket comes with disk)
- Slot 1: low-profile (length < 152mm, height < 64mm), PCIe 3.0 x16
- Slot 2: low-profile (length < 152mm, height < 64mm), PCIe 3.0 x1
- M.2 card slots: one for SSD
- Optional rear 2x USB2.0 / parallel occupies one expansion slot
- Optional system floor stand for vertical orientation

### Floor Stand

- Preloaded operating system
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 10 Home 64-bit
  - Some: Windows 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit(not available with 7th Gen Intel processor)

### Preloaded applications (only some listed)

- Microsoft Office preloaded;
- Cyberlink PowerDVD (D Volk DVD,RW)
- Cyberlink PowerDVD Create (D Volk/DW)
- Only for Windows 10
- Lenovo Companion
- Only for Windows 7
- Lenovo Solution Center
- Lenovo System Update
- Create Recovery Media
- Adobe® Reader®

### Environment

- ENERGY STAR® 6.1, EPEAT™ Silver rating (North America), EErP Lot 3, RoHS-compliant, WEEE

### Accessories

- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

Note: The specifications above may not be available in all regions.

Lenovo, January 2018
## ThinkCentre M715 SFF Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>APU / processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>L2 Cache</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 PRO 1200</td>
<td>4 / 4</td>
<td>3.1 / 3.4</td>
<td>2MB</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 3 PRO 1300</td>
<td>4 / 4</td>
<td>3.5 / 3.7</td>
<td>2MB</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 5 PRO 1500</td>
<td>4 / 8</td>
<td>3.5 / 3.7</td>
<td>2MB</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 7 PRO 1700</td>
<td>8 / 16</td>
<td>3.0 / 3.7</td>
<td>4MB</td>
<td>None</td>
</tr>
<tr>
<td>PRO A6-8570</td>
<td>2 / 2</td>
<td>3.5 / 3.8</td>
<td>1MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A10-8770</td>
<td>4 / 4</td>
<td>3.5 / 3.8</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A12-8870</td>
<td>4 / 4</td>
<td>3.7 / 4.2</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A6-9500</td>
<td>2 / 2</td>
<td>3.5 / 3.8</td>
<td>1MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A8-9600</td>
<td>4 / 4</td>
<td>3.1 / 3.4</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A10-9700</td>
<td>4 / 4</td>
<td>3.5 / 3.8</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A12-9800</td>
<td>4 / 4</td>
<td>3.8 / 4.2</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
</tbody>
</table>

### Memory

- 64GB max, UDIMM, DDR4-2400, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- * System automatically clocks down for the processors with lower memory controller

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)

### Optical

- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)

### Onboard SATA Media reader

- Three onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

### Graphics

- **AMD Radeon™ Graphics in processor** (not for AMD Ryzen processor), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are invalid on the models with AMD Ryzen processor), supports 3 independent displays, works along with AMD discrete graphics to support more displays; **Max resolution**: 4096x2160 (DP) @ 60Hz; 1920x1200 (VGA) @ 60Hz
- **Some**: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts: **Max resolution**: 3840x2160 (DisplayPort) @ 60Hz;
- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

### Chipset

- **AMD B350 Chipset**

### Monitor cable

- Front ports: Two USB 3.1 Gen2, two USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)
- Rear ports: Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA and two DisplayPort (not available on models with AMD Ryzen processor), two PS/2 ports (keyboard / mouse)
- Additional DisplayPort on optional graphics on some models
- Rear audio ports: Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)
- IEEE 1394
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Audio support

- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)
- **WLAN**: 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1
- **One**: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- **One**: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- **Bluetooth**: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- **Ethernet**: Gigabit ethernet, Realtek RTL8111E/PV, Wake on LAN

### Manageability

- Security chip
- TPM (Trusted Platform Module) 2.0, TCG Certified
- * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

### Preload

- **Preloaded operating system**
  - Some: Windows 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (only available with Pro A6/A10/A12-6xxx APUs)
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 10 Home 64-bit

### Preloaded applications (only some listed)

- Microsoft Office preloaded;
- purchase a product key to activate
- * For Windows 10
- * Lenovo Companion
- * Only for Windows 7
- * Lenovo Solution Center
- * Lenovo ThinkVantage Tools
- * Create Recovery Media
- * Adobe® Reader®
- * CyberLink PowerDVD Create (DVD±RW)

### Environment

- ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant

### Accessories

- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

### Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disabling
- Optional chassis intrusion switch

### Keyboard

- **Some**: Lenovo Calliope Keyboard (USB connector), black
- **Some**: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- **Some**: Lenovo Calliope Mouse (USB connector), black
- **Some**: Lenovo Calliope Mouse Wireless (2.4GHz via USB receiver), black

### Mouse

- **Some**: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

### Mechanical

- **SFF (8.4L)**, black color: metal case
- **(WxDxH)**: 3.6" x 11.4" x 13.5"; 92.5mm x 290.5mm x 343.5mm
- **Approx. 13.2 lb (6.0 kg)**, weight may vary by configuration
- **Touloop cover, disk, optical removal**
- **Optiional dust filter**
- **Bay 1**: Slim external ODD bay
- **Bay 2**: 3.5", internal, HDD/SSD
- **Bay 3**: 2.5", internal, HDD/SSD (bay only comes with 2.5" 2nd disk)
- **Slot 1**: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16
- **Slot 2**: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
- **Slot 3**: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
- **Slot 4**: no slot, only bracket for optional port extension
- M.2 card slots: two (one for WLAN, one for SSD)
- * Optional front USB3.1 Type-C x2 module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot

### Floor Stand

- Optional system floor stand for vertical orientation

### Power supply

- **Some**: 180 watts, autosensing, 85% PSU
- **Some**: 210 watts, autosensing, 85% PSU
- **Some**: 210 watts, autosensing, 92% PSU (only available via special bid)

### Limited warranty

- **Some**: 1-year or 3-year, depot service / service upgrades available
- **Some**: 1-year or 3-year, limited onsite service / service upgrades available

Note: The specifications above may not be available in all regions.
### ThinkCentre M715 Tiny (2nd Gen) Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency</th>
<th>L2 / L3 Cache</th>
<th>Memory Support</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlon 200GE</td>
<td>2 / 4</td>
<td>3.2 GHz</td>
<td>1 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon Vega 3</td>
</tr>
<tr>
<td>Athlon PRO 200GE</td>
<td>2 / 4</td>
<td>3.2 GHz</td>
<td>1 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon Vega 3</td>
</tr>
<tr>
<td>PRO A6-8570E</td>
<td>2 / 2</td>
<td>3.0 / 3.4 GHz</td>
<td>1 MB / -</td>
<td>DDR4-2400</td>
<td>Radeon R5</td>
</tr>
<tr>
<td>PRO A10-8770E</td>
<td>4 / 4</td>
<td>2.8 / 3.5 GHz</td>
<td>2 MB / -</td>
<td>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>PRO A6-9500E</td>
<td>4 / 4</td>
<td>3.0 / 3.5 GHz</td>
<td>1 MB / -</td>
<td>DDR4-2400</td>
<td>Radeon R5</td>
</tr>
<tr>
<td>PRO A10-9700E</td>
<td>4 / 4</td>
<td>3.0 / 3.5 GHz</td>
<td>1 MB / -</td>
<td>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>PRO A12-9800E</td>
<td>4 / 4</td>
<td>3.1 / 3.7 GHz</td>
<td>2 MB / -</td>
<td>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>Ryzen 3 2200GE</td>
<td>4 / 4</td>
<td>3.2 / 3.6 GHz</td>
<td>2 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon Vega 8</td>
</tr>
<tr>
<td>Ryzen 3 PRO 2300GE</td>
<td>4 / 4</td>
<td>3.2 / 3.6 GHz</td>
<td>2 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon Vega 8</td>
</tr>
<tr>
<td>Ryzen 5 2400GE</td>
<td>4 / 8</td>
<td>3.2 / 3.8 GHz</td>
<td>2 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon RX Vega 11</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2400GE</td>
<td>4 / 8</td>
<td>3.2 / 3.8 GHz</td>
<td>2 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon RX Vega 11</td>
</tr>
</tbody>
</table>

#### Memory

32GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- System automatically clocks down for the lower memory controller

#### Disk

| Some: | Hard Drive / SATA 6.0Gb/s, 2.5" | 5400 rpm or 7200 rpm |
| Some: | Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" |
| Some: | M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s |
| * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s |
| Some: | DVD-ROM, 9.0mm high, via USB external ODD box |
| Some: | DVD±RW, 9.0mm high, via USB external ODD box |

#### Optical Onboard SATA

One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

#### Graphics

**AMD Radeon™ Graphics** in processor, uses main memory, DirectX 12, two displayPorts**, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI), 3rd DP supports 4K display. Supports maximum of 2 concurrent HDMI/DVI dongles, and Athlon / Athlon PRO only support 2 displays;
- Max resolution: 1920x1200 (VGA) @60Hz;
- 4096x2160 (DP) @60Hz;
- 7680x4320 (4K) @ 60Hz;
- 12, two DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays;

#### Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle

#### Chipset

**AMD B300 Chipset**

#### Front ports* (Std.)

Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)

#### Rear ports* (Std.)

One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphone

#### Rear ports* (Opt.)

One optional port (VGA**, 3rd DP**, HDMI**, or serial on some models)

#### Audio support

High Definition (HD) Audio, Realtek ALC233-VCB2 / internal speaker (1.5 watt)

#### WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8882CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1

#### Bluetooth

Some: Bluetooth 4.2, wireles, integrated in Wi-Fi + BT combo adapter

#### Ethernet

Gigabit ethernet, Realtek RTL8111E2PV, Wake on LAN*

#### Manageability

| DASH 1.0/1.1 |
| Discrete TPM 2.0, TCG Certified |

#### Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password

#### Keyboard

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

#### Mouse

- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

#### Mechanical

Tiny (1L), black color; metal case
- Toolless chassis open (need optional toolless chassis screw)
- Optional dust filter

#### Mechanical (continued)

M715 Gen2 Tiny only:
- 7.05” W X 7.20” D X 1.38” H
- 179mm W X 182.9mm D X 34.5mm H
- 2.91 lb (1.32 kg), weight may vary by configuration

With VESA mount & ODD box:
- 7.42” W X 7.30” D X 2.48” H
- 188.4mm W X 183.38mm D X 63mm H
- 3.66 lb (1.66 kg), weight may vary by configuration

#### VESA mount

Optional VESA mount bracket kit, supports VESA 75mm and 100mm

#### Floor Stand

Optional system floor stand for vertical orientation

#### Power supply

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

#### Preload

- Preloaded operating system:
  - Windows 10 Home 64-bit
  - Windows 10 Pro 64-bit
  - Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit

- Preloaded applications (only some listed):
  - Windows 10 only
    - Windows 10 only
    - Lenovo Vantage
    - Microsoft Office preloaded;
    - Cyberlink PowerDVD (only for models with DVD / DVs-RW)
    - Cyberlink Power2GO (only for models with DVD-RW)
    - LinkedIn
    - Windows 7 only
    - Lenovo Solution Center
    - ThinkVantage System Update
    - Create Recovery Media
    - Microsoft Office preloaded;
    - Cyberlink PowerDVD (only for models with DVD-RW)

#### Environment

- ENERGY STAR® 7.0, EPEAT™ Silver rating* (*Not for non-OS models);
- ErP Lot 3; RoHS-compliant

#### MIL-SPEC test

MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)

#### Accessories

For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

Note: The specifications above may not be available in all regions.

Lenovo, July 2018
**ThinkCentre M715 Tiny Thin Client Platform Specifications**

**Product Specifications Reference (PSREF)**

**Processor**

<table>
<thead>
<tr>
<th>APU</th>
<th>Cores</th>
<th>Frequency Base/Max</th>
<th>L2 Cache</th>
<th>Memory Types</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO A6-8570E</td>
<td>2</td>
<td>3.0 / 3.4 GHz</td>
<td>1 MB</td>
<td>DDR4-2400</td>
<td>Radeon R5 Series</td>
</tr>
<tr>
<td>PRO A10-8770E</td>
<td>4</td>
<td>2.8 / 3.5 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A12-8870E</td>
<td>4</td>
<td>2.9 / 3.8 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
</tbody>
</table>

*PRO A12-8870E (support Windows 10 IOT only) is only available via special bid models*

**Memory**

4GB max, DDR4 2400, two 260-pin SO-DIMM sockets

**Disk**

*Some: 256GB Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"*

*Some: 32GB M.2 Solid State Drive (SSD) / SATA interface*

*Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface*

None

One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

**Graphics**

**AMD Radeon™ Graphics** in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles):

- Max resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz; 1920x1200 (VGA)@60Hz

Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

**I/O box**

Audio support: High Definition (HD) Audio, Realtek ALC233-CG / internal speaker (1.5 watt)

**LAN**

Some: 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1

**Bluetooth™**

Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter

**Ethernet Modem**

Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®

**Manageability**

**Security chip**

DASH 1.0/1.1

Discrete TPM 2.0, TCG Certified

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password

- Administrator password
- Hard disk password
- Boot sequence control
- Individual USB port disablement
- Chassis intrusion switch

**Security features**

**Keyboard**

*Some: Fullsize USB Keyboard (USB connector), Lenovo logo*

**Mouse**

*Some: USB Optical Wheel Mouse, black, Lenovo logo*

**Mechanical**

Tiny (1L), black color; metal case

- M715 Tiny only: 7.05" W X 7.20" D X 1.36" H
- 179mm W X 182.9mm D X 34.5mm H
- 2.9 lb (1.3 kg), weight may vary by configuration

**VESA mount**

Optional VESA mount bracket kit, supports VESA 75mm and 100mm

**Floor Stand**

Optional system floor stand for vertical orientation

**Power supply**

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

**Preload**

Preloaded operating system

- Some: Windows Embedded Standard 7 V2 (WES 7 V2)
- Some: Windows 10 IoT Enterprise
- Some: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

**Preload**

LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

**Environment**

ENERGY STAR® 6.1®, EPEAT™ Gold rating* (*not for non-OS models);

ErP Lot 3; GREENGUARD®, RoHS-compliant

**Accessories**

For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

Lenovo, October 2017
## ThinkCentre M715 Tiny Thin Client (2nd Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD Athlon, A6, A10, or Ryzen processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>APU</td>
<td>Athlon PRO 200GE, PRO A6-8570E, PRO A10-8770E, Ryzen 3 PRO 2200GE</td>
</tr>
<tr>
<td>Cores / Threads</td>
<td>2 / 4, 2 / 2, 4 / 4</td>
</tr>
<tr>
<td>Frequency Base/Max</td>
<td>3.2 GHz / 3.0 / 3.4 GHz, 2.8 / 3.5 GHz</td>
</tr>
<tr>
<td>L2 / L3 Cache</td>
<td>1 MB / 4 MB, 2 MB / -</td>
</tr>
<tr>
<td>Memory Support (Up to)</td>
<td>DDR4-2666, DDR4-2400</td>
</tr>
<tr>
<td>Integrated Graphics</td>
<td>Radeon Vega 3, Radeon R5, Radeon R7, Radeon Vega 8</td>
</tr>
</tbody>
</table>

### Memory

- 8GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- System automatically clocks down for the lower memory controller

### Disk

- Some: 32GB M.2 Solid State Drive (SSD) / SATA interface
- Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 2
- None

### Optical Onboard SATA

- One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

### Graphics

- AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays);
- Max resolution: 4096x2160 (DP) @ 60Hz, 4096x2160 (HDMI) @ 30Hz, 1920x1200 (VGA) @ 60Hz

### Monitor cable

- Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle

### Chipset

- AMD B300 Chipset

### Front ports* (Std.)

- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)

### Rear ports* (Std.)

- One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphone jack

### Rear ports* (Opt.)

- One optional port (VGA**, 3rd DP**, HDMI**, or serial on some models)
  - Depending on many factors, actual data transfer speed may be lower than theoretical speed
  - **Not support VGA, 3rd DP, HDMI for the models with Athlon / Athlon PRO

### Audio support

- High Definition (HD) Audio, Realtek ALC223-VB2 / internal speaker (1.5 watt)

### WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
- Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter

### Bluetooth Ethernet

- * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1
- Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®

### Manageability Security features

- DASH 1.0/1.1
- Discrete TPM 2.0, TCG Certified
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Hard disk password
- Power-on password
- Administrator password
- Padlock loop
- Boot sequence control
- Smart USB protection, allows keyboard / mouse only, blocks all storage devices
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

### Mechanical

- Tiny (1L), black color; metal case
  - Toolless chassis open (need optional toolless chassis screw)
  - Optional dust filter
  - M715 Gen2 Tiny only:
    - 7.05° W X 7.20° D X 1.36° H
    - 179mm W X 182.9mm D X 34.5mm H
  - 2.91 lb (1.32 kg), weight may vary by configuration

### Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

### Limited warranty

- 1-year or 3-year, limited onsite service / service upgrades available

### Preload

- Preloaded operating system
  - Some: Windows Embedded Standard 7 V2 (WES 7 V2)
  - Some: Windows 10 IoT Enterprise
  - Some: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

### Environment

- ENERGY STAR® 6.1*, EPEAT™ Silver rating* (“not for non-OS models);
- EnP Lot 3; RoHS-compliant

### MIL-SPEC test

- MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)

### Accessories

- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

---

Note: The specifications above may not be available in all regions.

Lenovo, July 2018
ThinkCentre M715 Tower Platform Specifications

Product Specifications Reference (PSREF)

Note: The specifications above may not be available in all regions.

Lenovo, July 2017
ThinkCentre M720 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron®</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel Celeron®</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Intel Pentium®</td>
<td>2 / 2</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Intel Pentium®</td>
<td>2 / 2</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Intel Core i3</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Intel Core i3</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Intel Core i5</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Intel Core i5</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Intel Core i7</td>
<td>8 / 12</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Intel Core i7</td>
<td>8 / 12</td>
<td>3.3G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Intel Core i9</td>
<td>10 / 12</td>
<td>3.6G / 4.9G</td>
<td>14 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Intel Core i9</td>
<td>10 / 12</td>
<td>3.7G / 4.9G</td>
<td>14 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Intel Core i9</td>
<td>16 / 18</td>
<td>3.9G / 5.2G</td>
<td>16 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Intel Core i9</td>
<td>16 / 18</td>
<td>3.7G / 4.9G</td>
<td>14 MB</td>
<td>DDR4-2466</td>
<td>UHD 663</td>
</tr>
</tbody>
</table>

Memory 64GB max, UDIMM, DDR4-2666, four 288-pin DIMM sockets, non-ECC, dual-channel capable
* System automatically clocks down for the processors with lower memory controller.

Storage

<table>
<thead>
<tr>
<th>Storage Type</th>
<th>Capacity</th>
<th>Frequency</th>
<th>Type</th>
<th>Technology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Drive</td>
<td>500 GB</td>
<td>7200 rpm</td>
<td>SATA</td>
<td>6.0Gb/s</td>
<td>2.5&quot; or 3.5&quot;</td>
</tr>
<tr>
<td>Solid State Drive</td>
<td>120 GB</td>
<td>3D TLC</td>
<td>NVMe</td>
<td>PCIe 3.0 x4</td>
<td>32Gb/s</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>256 GB</td>
<td>3.0 x 4</td>
<td>PCIe</td>
<td>NVMe</td>
<td>3.0 x 4, 32Gb/s</td>
</tr>
<tr>
<td>SSD</td>
<td>1TB</td>
<td>2500 rpm</td>
<td>TLC</td>
<td>M.2 NVMe</td>
<td>128Gb, 256Gb, 512Gb, 1TB, 2TB</td>
</tr>
<tr>
<td>Some: M.2 Solid State Drive (SSD)</td>
<td>256 GB</td>
<td>3.0 x 4</td>
<td>PCIe</td>
<td>NVMe</td>
<td>3.0 x 4, 32Gb/s</td>
</tr>
</tbody>
</table>

Optical

<table>
<thead>
<tr>
<th>Optical Type</th>
<th>Capacity</th>
<th>Frequency</th>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD Burner</td>
<td>240 min</td>
<td>120 mm</td>
<td>DVD-RW</td>
<td>SATA 1.5Gb/s</td>
</tr>
<tr>
<td>M.2 15 mm</td>
<td>600 GB</td>
<td>3.0 x 2</td>
<td>DVD-RW</td>
<td>SATA 1.5Gb/s</td>
</tr>
</tbody>
</table>

Onboard SATA Media reader

<table>
<thead>
<tr>
<th>Media reader</th>
<th>Connectors</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional 7-in-1 media reader</td>
<td>4</td>
<td>Supports multiple media formats</td>
</tr>
</tbody>
</table>

Graphics Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one displayPort supports 3 independent displays, works along with discrete graphics to support more displays.
Max resolution: 4096x2304 (DP) @60Hz, 2048x1536 (VGA) @50Hz

Some: NVIDIA GeForce GT 730, DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts.
Max resolution: 3840x2160 (DisplayPort) @60Hz.
Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage with intel integrated graphics), or DP to HDMI 1.4 dongle.

Monitor controller

<table>
<thead>
<tr>
<th>Monitor controller</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional DP to VGA</td>
<td>Dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage with intel integrated graphics), or DP to HDMI 1.4 dongle</td>
</tr>
</tbody>
</table>

Chipset Intel B360 Chipset

<table>
<thead>
<tr>
<th>Front ports*</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Std.) 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (18W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)</td>
<td></td>
</tr>
</tbody>
</table>

Front ports* (Opt.) | Description |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional: 1x media reader</td>
<td></td>
</tr>
</tbody>
</table>

Rear ports* | Description |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Std.) 4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)</td>
<td></td>
</tr>
</tbody>
</table>

Rear ports* (Opt.) | Description |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional: 2x USB 3.1 Gen1 via PCI2 x1**, 2x USB 3.1 Type-C Gen2 via PCIe x4** (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1 parallel (25-pin), 2x PS/2 ports (keyboard/mouse), additional RJ-45 and video ports available on optional graphics or ethernet card</td>
<td></td>
</tr>
</tbody>
</table>

Audio support High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt )

WLAN Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1

Bluetooth™ Some: 4.2 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet (Opt.) Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®

Some: Intel Ethernet Server Adapter I350-T4®, gigabit ethernet, 4x RJ-45, PCIe x4 Some: Bitland BN8EBB®, gigabit ethernet, PCIe x1 (only available via special bid) * Choose either I350-T4 or BN8EBB

Some: Intel® Celeron®, Intel® Pentium®, or 8th / 9th Gen Intel® Core™ i3 / i5 / i7 / i9 Processor

Some: Windows® 10 Pro 64-bit

Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black

Some: Lenovo Calliope Mouse (USB connector), black

Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical

- SFF (8.4L), black color, metal case
- (Wx(DxH)) 3.64" X 11.44" X 13.52", 92.5mm X 290mm X 343.5mm
- Approx. 2.64 lbs, 1.19kg

Some: 3840x2160 (DisplayPort) @60Hz.
Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage with intel integrated graphics), or DP to HDMI 1.4 dongle.

Flloor Stand Optional system floor stand for vertical orientation

Limited warranty Some: 1-year or 3-year, depot service / service upgrades available

Some: 1-year or 3-year, limited onsite service / service upgrades available

Preload

Preloaded operating system

Some: Windows® 10 Pro 64-bit

Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)

- Lenovo Vantage
- Microsoft Office preloaded
- Superfetch
- Cyberlink PowerDVD (only for models with DVD / DVD±RW)
- Cyberlink Power2GO (only for models with DVD±RW)
- LinkedIn

Environment ENERGY STAR® 6.1, EPEAT® Silver rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant

Accessories For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.
### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900T</td>
<td>2 / 2</td>
<td>2.9G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400T</td>
<td>2 / 4</td>
<td>3.1G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8200T</td>
<td>4 / 4</td>
<td>3.4G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8200T</td>
<td>4 / 4</td>
<td>3.4G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400T</td>
<td>6 / 6</td>
<td>1.7G / 3.3G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8500T</td>
<td>6 / 6</td>
<td>2.1G / 3.5G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8600T</td>
<td>6 / 6</td>
<td>2.3G / 3.7G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-8700T</td>
<td>6 / 12</td>
<td>2.4G / 4.0G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9100T</td>
<td>4 / 4</td>
<td>3.1G / 3.7G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9300T</td>
<td>4 / 4</td>
<td>3.2G / 3.8G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400T</td>
<td>6 / 6</td>
<td>1.8G / 3.4G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9500T</td>
<td>6 / 6</td>
<td>2.2G / 3.7G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9600T</td>
<td>6 / 6</td>
<td>2.3G / 3.9G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9700T</td>
<td>8 / 8</td>
<td>2.0G / 4.3G</td>
<td>16 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i9-9900T</td>
<td>8 / 16</td>
<td>2.1G / 4.4G</td>
<td>16 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

### Memory

- **32GB max, DDR4-2666**, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable
- * System automatically clocks down for the processors with lower memory controller

### Storage

- **Some:** Hard Drive / SATA 6.0Gb/s
- **Some:** Solid State Drive (SSD) / SATA 6.0Gb/s
- **Some:** M.2 2280 NVMe, PCIe 3.0 x4, 32G/s
- **Some:** 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s
- **Some:** Intel Optane Memory (not support Celeron / Pentium Processor), M.2
- **Some:** DVD-ROM, slim (9.0mm), via USB external ODD box
- **Some:** DVD Burner (DVD+RW), slim (9.0mm), via USB external ODD box
- **Some:** One onboard SATA 6.0Gb/s connector

### Graphics

- **Intel HD Graphics 660/630** in processor, uses main memory, DirectX 12, one DisplayPort, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP)
- **Some:** USB 3.1 Type-C Gen1 with DisplayPort function, up to 3 independent displays
- **Max resolution:** 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz
- **Some:** 4096x2160 (onboard HDMI) @ 24Hz; 2048x1536 (VGA) @ 50Hz
- **Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dp display

### Monitor cable

- **Monitor cable:** Intel B360 Chipset

### Chipset

- **Intel B360 Chipset**

### Front ports

- **(Std.)** one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

### Rear ports

- **(Std.)** 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI
- **(Opt.)** two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function; Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x4, 4x serial (9-pin) via PCIe x1

### Audio support

- **Audio support:** Realtek ALC223/2VB / optional internal speaker (1.5 watt or 2 watt)

### WLAN

- **Some:** 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- **Some:** 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- **Some:** 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- **Some:** 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2

### Bluetooth

- **Some:** Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet

- **Some:** Gigabit ethernet, Intel Ethernet Connection H281V (Jacksonville), Wake on LAN
- **Some:** Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

### Manageability

- **Security chip features:** None
- **Security chip security features:** None
- **Discrete TPM 2.0, TCG Certified**
- **Security slot (in rear for optional Kensington® MicroSaver® cable)**
- **Chassis intrusion switch**
- **Power-on password**
- **Administrator password**
- **Hard disk password**
- **Boot sequence control**
- **Boot without keyboard and mouse**
- **Individual USB port disablement**
- **Smart USB protection, allows keyboard/ mouse only, blocks all storage devices**

### Keyboard

- **Some:** Lenovo Calliope Keyboard (USB connector), black
- **Some:** Lenovo Traditional Keyboard (USB connector), black
- **Some:** Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- **Some:** Lenovo Calliope Mouse (USB connector)
- **Some:** Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- **Some:** Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Mouse

- **Some:** Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Mechanical

- **Tiny (11L), black color, metal case**
- **Toolless chassis open (need optional toolless chassis screw)**
- **Toolless HDD, SSD, memory removal**
- **Optional dust filter**

### Preload

- **Preloaded operating system:** Windows 10 Pro 64-bit
- **Preloaded applications (only some listed):**
  - Lenovo Vantage
  - Microsoft Office preloaded
  - Cyberlink PowerDVD (only for models with DVD / DVD+RW)
  - One (3.5mm), One headset, One microphone
  - 10 Pro 64-bit
  - **Preloaded applications (only some listed):**
  - Lenovo Vantage
  - Microsoft Office preloaded
  - Cyberlink PowerDVD (only for models with DVD / DVD+RW)
  - One (3.5mm), One headset, One microphone
  - 10 Pro 64-bit

### Environment

- **ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant**

### MIL-SPEC test


### Accessories

- **For compatible accessories, please go to http://smartfind.lenovo.com**
**ThinkCentre M720 Tower Platform Specifications**

**Processor**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base(Max)(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5500</td>
<td>2 / 4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 640</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 640</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.9G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>6 / 12</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-9100</td>
<td>4 / 4</td>
<td>3.6G / 4.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9300</td>
<td>4 / 4</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9320</td>
<td>4 / 4</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 8</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i9-9900</td>
<td>8 / 16</td>
<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
</tbody>
</table>

**Memory**

64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable

* System automatically clocks down for the processors with lower memory controller.

**Storage**

| Storage        | Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm | Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" | M.2 SSD Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s | * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Some:</td>
<td>Intel Optane™ Memory (not support Celeron / Pentium Processor)</td>
<td>M.2</td>
<td>Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)</td>
<td>Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)</td>
</tr>
<tr>
<td>Optical</td>
<td></td>
<td></td>
<td>Some:</td>
<td>Some:</td>
</tr>
<tr>
<td>Onboard SATA Media reader</td>
<td>Three onboard SATA 6.0Gb/s/connections</td>
<td>Optional 7-in-1 media reader</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Graphics**

Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™ supports 3 independent displays, works along with discrete graphics to support more displays;

Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz

Some: NVIDIA GeForce® GT 730, DirectX 12, GigaBit, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts.

Max resolution: 3840x2160 (DisplayPort) @ 60Hz.

Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle.

**Chipset**

Intel B360 Chipset

**Preload**

Preloaded operating system

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)

- Lenovo Vantage
- Microsoft Office preloaded;
- purchase a product key to activate
- Cyberlink PowerDVD (only for models with DVD / DVD±RW)
- Cyberlink Power2GO (only for models with DVD±RW)
- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Traditional Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Keyboard (PS/2 connector), black (only available via special bid)
- Lenovo Calliope Mouse (USB connector), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Mouse (PS/2 connector), black (only available via special bid)
- Tower (15L), black color, metal case
- **(WxHxDxH)** 5.91” x 10.65” x 14.17”, 150mm x 270.5mm x 360mm
- Approx. 15.21 lb (6.9 kg), weight may vary by configuration
- Optional dust filter
- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Traditional Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Keyboard (PS/2 connector), black (only available via special bid)
- Tower (15L), black color, metal case
- (WxHxDxH) 5.91” x 10.65” x 14.17”, 150mm x 270.5mm x 360mm
- Approx. 15.21 lb (6.9 kg), weight may vary by configuration
- Optional dust filter

**Power supply**

Some: 180 watts, auto-ensing, 85% PSU
Some: 210 watts, auto-ensing, 85% PSU
Some: 260 watts, auto-ensing, 92% PSU (available via special bid)

**Limited warranty**

Some: 1-year or 3-year, depot service / service upgrades available
Some: 1-year or 3-year, limited onsite service / service upgrades available

Note: The specifications above may not be available in all regions.

Lenovo, June 2019
### ThinkCentre M720e SFF Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5500</td>
<td>2 / 4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5640</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5680</td>
<td>2 / 4</td>
<td>4.0G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>6 / 12</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9100</td>
<td>4 / 4</td>
<td>3.6G / 4.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.4G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.6G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 8</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i9-9900</td>
<td>8 / 16</td>
<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

**Memory** 32GB max, UDIMM, DDR4-2666*, two 288-pin DIMM sockets, non-ECC, dual-channel capable
* Memory may be underclocked to DDR4-2400 for the lower memory controller in processor.

**Storage**

- Some: Hard Drive / SATA 6.0Gb/s; 2.5" or 3.5"; 5400 rpm or 7200 rpm
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4

**Optane memory**

- Some: Intel Optane™ Memory, M.2 2280, PCIe NVMe, PCIe 3.0 x 2
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)

**Onboard SATA Media reader**

- Some: DVDr Burner (DVDRW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: Two onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

**Graphics**

- Lenovo HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, one DisplayPort™, supports 2 independent displays, works along with discrete graphics to support more displays;
- Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz
- Some: AMD Radeon™ 520, DirectX 12, 2GB GDDR5, PCIe 3.0 x8 adapter, one VGA, one HDMI, 30 watts (Max)
- Max resolution: 3840x2160 (HDMI) @30Hz; 2048x1536 (HDMI) @85Hz
- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

**Monitor cable**

**Chipset**

- Intel B365 Chipset

**Front ports** (Std.)

- Two USB 3.1 Gen1, microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

**Rear ports** (Opt.)

- None

**Audio support**

- High Definition (HD) Audio, Realtek ALC623 / internal speaker (2 watt )

**WLAN**

- None

**Bluetooth**

- None

**Ethernet**

- Gigabit ethernet, Realtek RTL8111HN, Wake on LAN
- Some: Bitland BN8E88*, gigabit ethernet, PCIe x1

**Modem**

- None

**Power supply** 180 watts, autosensing, 85% PSU

**Limited warranty**

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

**Preload**

- Preloaded operating system
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit
- Some: Linux Ubuntu

**Environment**

- ENERGY STAR® 7, EPEAT Silver rating (North America), ErP Lot 3, RoHS-compliant, WEEE

**Accessories**

- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

**Security features**

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional smart card clip to physically lock both keyboard and mouse

**Security chip**

- Discrete TPM 2.0, TCG Certified

**Power-on password**

**Administrator password**

**Hard disk password**

**Boot sequence control**

**Boot without keyboard and mouse**

**Individual USB port disablement**

**Optional chasis intrusion switch**

**Keyboard**

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

**Mouse**

**Mechanical**

- SFF (7.4L), black color, metal case
- (WxDxH) 3.9” X 11.9” X 10.8”; 100mm X 303.5mm X 274.8mm
- Approx. 9.37 lb (4.25 kg), weight may vary by configuration

**Floor Stand**

- Optional rear 2x USB2.0 / parallel occupies one expansion slot
- Optional system floor stand for vertical orientation

**Packaging**

- (WxDxH) 7.7” X 15.4” X 19.7”; 195mm X 390mm X 500mm
- Cross weight (approx.) 14.48 lb (6.57 kg)

**Note:** The specifications above may not be available in all regions.
Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>L2 / L3 Cache</th>
<th>Memory Support (Up To)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO A6-9500</td>
<td>2 / 2</td>
<td>3.5 / 3.8</td>
<td>1MB</td>
<td>DDR4-2400</td>
<td>Radeon R5</td>
</tr>
<tr>
<td>PRO A8-9600</td>
<td>4 / 4</td>
<td>3.1 / 3.4</td>
<td>2MB</td>
<td>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>PRO A10-9700</td>
<td>4 / 4</td>
<td>3.5 / 3.8</td>
<td>2MB</td>
<td>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>PRO A12-9800</td>
<td>4 / 4</td>
<td>3.8 / 4.2</td>
<td>2MB</td>
<td>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>Ryzen 3 2300X</td>
<td>4 / 8</td>
<td>3.5 / 4.0</td>
<td>2MB / 8MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 5 2500X</td>
<td>4 / 8</td>
<td>3.6 / 4.0</td>
<td>2MB / 8MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 7 2700X</td>
<td>4 / 8</td>
<td>3.5 / 3.6</td>
<td>2MB / 4MB</td>
<td>DDR4-2933</td>
<td>Radeon Vega 8</td>
</tr>
<tr>
<td>Ryzen 5 2400G</td>
<td>4 / 8</td>
<td>3.6 / 3.8</td>
<td>2MB / 4MB</td>
<td>DDR4-2933</td>
<td>Radeon RX Vega 11</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2600</td>
<td>6 / 12</td>
<td>3.4 / 3.9</td>
<td>3MB / 16MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700</td>
<td>8 / 16</td>
<td>3.2 / 4.1</td>
<td>4MB / 16MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
</tbody>
</table>

Memory

4GBx8 max, UDIMM, DDR4-2466*, four 288-pin DIMM sockets, non-ECC, dual-channel capable

Storage

Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 320Gb/s
* 128GB SSD M.2 (2242) PCIe NVMe and AMD A6 / A8 / A10 / A12 processor only supports PCIe 3.0 x 2, 16Gb/s

Optical

Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
Some: DVD Burner (DVD+RW), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA

Three onboard SATA 6.0Gb/s connectors, RAID 0/1/0 support (RAID preset only available via special bid model)

Media Reader

Optional 7-in-1 media reader

Graphics

AMD Radeon™ Graphics in processor (only for some processors), uses main memory, Direct3D 12, one VGA, two DisplayPort
* All ports are only available on the models with integrated graphics, supports 3 independent displays, works along with AMD discrete graphics to support more displays;
  * Max resolution: 4096x2160 (DP) @ 60Hz; 1920x1200 (VGA) @ 60Hz
  * Some: NVIDIA GeForce® GT 730, Direct3D 12, 2GB GDDR5, PCIe 2.0 x16 (x8 elec., adapter), two DisplayPort, 35 watts;
  * Max resolution: 3840x2160 (DisplayPort) @ 60Hz

Monitor Cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

Chipset

AMD B450 Chipset

Front ports (Std.) 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm)
Front ports (Opt.) Optional: 1x media reader, 2x USB 3.1 Type-C Gen2 via PCIe card (special bid only)
Rear ports (Std.) 2x USB 3.1 Gen1, 2x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA*, 2x DisplayPort**, 2x PS/2 ports (keyboard / mouse); 1x line-in (3.5mm), 1x line-out (3.5mm), 1x microphone (3.5mm)
Rear ports (Opt.) Optional: 2x USB 2.0, 1x 2nd serial (9-pin), 1x parallel (25-pin), additional RJ-45 and video ports available on optional graphics or ethernet card
* Depending on many factors, actual data transfer speed may be lower than theoretical speed only available on the models with integrated graphics

Audio Support

High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RT8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Realtek RT8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
* Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1

Bluetooth™

Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Ethernet (Opt.)

Manageability

Security Chip

Security features

DASH 10/1.1
Discrete TPM 2.0, TCG Certified
- Security slot (in rear for optional Kensington (MicroSaver) cable)
- Padlock loop
- Smart USB protection, allows keyboard/ mouse only, blocks all storage devices
- Optional cable lock to physically lock both keyboard and mouse
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Optional chassis intrusion switch

Keyboard

Some: Lenovo Calliope Keyboard (USB connector), black
Some: Lenovo Traditional Keyboard (USB connector), black
Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Some: Lenovo Keyboard (PS/2 connector), black (only available via special bid)
Some: Lenovo Calliope Mouse (USB connector), black
Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mouse

Some: Lenovo Calliope Mouse (USB connector), black
Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical

Some: SFF (8.4L), black color, metal case
Some: WWX(DX) 3.6” X 11.4” X 13.5”, 92.5mm X 290.5mm X 343.5mm
Approx: 13.2 lb (6.0 kg), weight may vary by configuration
Some: Touchless cover, disk, optical removal
Some: Optional dust filter
Bay 1: Slim external ODD bay
Bay 2: 3.5” internal, HDD/SSD
Bay 3: 2.5” internal, HDD/SSD (bay only comes with 2.5” 2nd disk)
Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16
Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
Slot 4: low-profile (length < 150mm, height < 68mm), PCI 3.0
M.2 card slots: two (one for WLAN, one for SSD)
Some: Optional system floor stand for vertical orientation

Power Supply

Some: 180 watts, autosensing, 85% PSU
Some: 210 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 92% PSU (only available via special bid)

Limited Warranty

1-year or 3-year, limited onsite service / service upgrades available

Preload

Preload operating system
Some: Windows 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Preload applications (only some listed)
- Lenovo Vantage
- Microsoft Office preload; purchase a product key to activate
- Cyberlink PowerDVD (only for models with DVD / DVD+RW)
- Cyberlink Power2GO (only for models with DVD+RW)
- LinkedIn

Environment

ENERGY STAR® 7.0*, EPEATTM Silver rating* (*not for non-OS models)
ErP Lot 3; RoHS-compliant

Accessories

For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, July 2018
**ThinkCentre M75s-1 SFF Platform Specifications**

### Processor

<table>
<thead>
<tr>
<th>Core</th>
<th>Frequency (Base/Max)</th>
<th>L2 / L3 Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlon PRO 300GE</td>
<td>2 / 4</td>
<td>3.4 / 3.4</td>
<td>1MB / 4MB</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Ryzen 3 PRO 3200G</td>
<td>4 / 4</td>
<td>3.6 / 4.0</td>
<td>2MB / 4MB</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Ryzen 5 PRO 3400G</td>
<td>4 / 8</td>
<td>3.7 / 4.2</td>
<td>2MB / 4MB</td>
<td>DDR4-2933</td>
</tr>
</tbody>
</table>

### Memory

- 64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- *Memory may be underclocked to DDR4-2666, DDR4-2133, or DDR4-2400 for the lower capability of memory controller in processor

### Storage

- Hard Drive / SATA 6.0 GB/s: 2.5" or 3.5", 5400 rpm or 7200 rpm
- M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4

### Optical

- Some: DVD Burner (DVD±RW), SATA 1.5GB/s Drive, slim (9.0mm)

### Onboard SATA

- Three onboard SATA 6.0GB/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

### Media Reader

- Optional 7-in-1 media reader

### Graphics

- **AMD Radeon™ Graphics in processor** (only for some processors), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are only available on the models with integrated graphics), supports 3 independent displays, works along with AMD discrete graphics to support more displays
- **Max resolution:** 4096x2160 (DP) @ 60Hz
  - Some: AMD Radeon™ 520, DirectX 12, 2GB GDDR5, PCIe 3.0 x8 adapter, two DisplayPort, 30 watts (Max):
  - **Max resolution:** 4096x2160 (DP) @ 60Hz

### Monitor Cable

- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

### Chipset

- **AMR PRO 560 FCH**

### Front Ports

- **(Std.)** 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm)

### Mechanical

- SFF (6.4L), black color, metal case
- (WxDxH) 3.6" x 11.4" x 13.5": 92.5mm X 295.0mm X 343.5mm
- Approx. 13.2 lb (6.0 kg), weight may vary by configuration
- Toolless cover, disk, optical, and extension card removal
- Optional dust filter
- Bay 1: Slim external ODD bay
- Bay 2: 3.5", internal, HDD/SSD
- Bay 3: 2.5", internal, HDD/SSD (bay only comes with 2.5" 2nd disk)
- Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16
- Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
- Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
- Slot 4: low-profile (length < 150mm, height < 68mm), PCIe 3.0
- M.2 card slots: two (one for WLAN, one for SSD)

### Floor Stand

- Optional system floor stand for vertical orientation

### Power Supply

- Some: 180 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 85% PSU
- Some: 260 watts, autosensing, 92% PSU (only available via special bid)

### Preload

- Preloaded operating system
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 10 Home 64-bit
  - Some: Windows 10 IoT Enterprise
  - Some: Linux Ubuntu

### Environment

- ENERGY STAR® 7.0, EPEAT™ Silver rating* (*not for non-OS models)
- ErP Lot 3; RoHS-compliant, WEEE

### Accessories

- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

---

*Note: The specifications above may not be available in all regions.*

Lenovo, September 2019
<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® 8th Generation Intel® Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i3-8145U</td>
<td>2 / 4, 2.1G / 3.9G, 4 MB, DDR4-2400, UHD 620</td>
</tr>
<tr>
<td>Core i5-8265U</td>
<td>4 / 8, 1.6G / 3.9G, 6 MB, DDR4-2400, UHD 620</td>
</tr>
<tr>
<td>Core i7-8665U</td>
<td>4 / 8, 1.9G / 4.8G, 8 MB, DDR4-2400, UHD 620</td>
</tr>
</tbody>
</table>

**Memory**

8GB or 16GB / DDR4-2666* / soldered to system board, no sockets, non-ECC

* System automatically clocks down for the processors with lower memory controllers

**Storage**

Support up to two M.2 SSD

Some: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4*

Some: M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

Some: Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 (not support Celleron)

* M.2 SSD / Optane with SSD in PCIe 3.0 x 2 M.2 slot can only run at PCIe 3.0 x 2

**RAID**

RAID 0/1 support (RAID preset only available via special bid model)

**Optical**

None

**Graphics**

Intel UHD Graphics 620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one USB 3.1 Type-C Gen2 with display function, up to 2 independent displays;

Max resolution: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz;

Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to HDMI dongle, Type-C to DP dongle

**Chipset**

Intel SoC (System on Chip) platform

**Monitor cable**

2x USB 3.1 Gen 2, 1x USB 3.1 Type-C Gen 2, one headphone / microphone combo jack (3.5mm)

**WLAN**

Some: 11ac wireless, M.2 Card, Realtek RT8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1

Some: 11ac wireless, M.2 Card, Realtek RT8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1

Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

**Bluetooth**

Some: Bluetooth 5.0 wireless, integrated in Wi-Fi + BT combo adapter

**Audio support**

Realtek ALC333VB / internal speaker (1watt)

**Front ports (Std.)**

2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2, one headphone / microphone combo jack (3.5mm)

**Rear ports (Std.)**

2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2 (with display function, support power-in [20V and +45W]), 1x ethernet (RJ-45), 1x DisplayPort

**Power supply**

65 watts AC/DC adapter, autosensing, 88% PSU (Not for TIO models)

**Dimensions (WxDxH)**

M90n-1 Nano: 7.05” X 3.46” X 0.87”

Weight (Approx.)

1.11 lb (0.505 kg), vary by config

**Floor Stand**

None

**Mounting**

Some: VESA mount bracket kit, supports VESA 75mm

Some: VESA mount bracket kit with adapter holder, supports VESA 75mm

Some: DIN rail mount bracket kit

**Limited warranty**

Some: 1-year, limited onsite service / service upgrades available

Some: 3-year, limited onsite service / service upgrades available

**Preload**

Preloaded operating system

Some: Windows® 10 Pro 64-bit

Some: Windows 10 Home 64-bit

**Environment**

ENERGY STAR® 7.1, EPEAT™ Silver rating (North America), ErP Lot 3, TCO 8.0, TUV ultra low noise verified (on some models), RoHS, WEEE, REACH

**MIL-SPEC test**

MIL-STD-810H (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Solar Radiation)

**Accessories**

For compatible accessories, please go to http://smartfind.lenovo.com
### ThinkCentre M90n-1 Nano IoT Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron®</td>
<td>2 / 2</td>
<td>1.8G</td>
<td>2 MB</td>
<td>DDR4-2133</td>
<td>UHD 610</td>
</tr>
<tr>
<td>or 8th Generation Intel Core™ i3 Processor</td>
<td>2 / 4</td>
<td>2.1G / 3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
</tbody>
</table>

**Memory**

- 4GB / DDR4-2666
- soldered to systemboard, no sockets, non-ECC
- * System automatically clocks down for the processors with lower memory controller

**Storage**

- Support up to two M.2 SSD
- Some: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Some: M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Some: Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 (not support Celeron)

**Chipset**

- Intel® SoC (System on Chip) platform

**Front ports (Std.)**

- 2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2, one headphone / microphone combo jack (3.5mm), 2x serial

**Monitor cable**

- Intel UHD Graphics 610/620 in processor, uses main memory, DirectX™ 12, one DisplayPort™, one USB 3.1 Type-C Gen2 with display function, up to 2 independent displays
- Max resolution: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz
- Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to HDMI dongle, Type-C to DP dongle

**RAID**

- Optinal 0/1 support (RAID preset only available via special bid model)

**Audio support**

- Realtek ALC233VB / internal speaker (1watt)

**WLAN**

- Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8888EE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

**Ethernet**

- Gigabit ethernet, Realtek RTL8111K, 1x RJ-45, Wake on LAN™
- With Core i3: Two gigabit ethernet, Realtek RTL8111K and RTL8111HN, 2x RJ-45, Wake on LAN™

**Security chip Security features**

- None
- Discrete TPM 2.0, TCG Certified
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Chassis intrusion switch
- Power-on password
- Administrator password
- Hard disk password

**Management**

- None
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement

**Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Traditional Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Calliope Mouse (USB connector), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

**Mouse**

- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

**WLAN, and one for WWAN**

- Some: 2 for M.2 SSD (one PCIe 3.0 x4 and one PCIe 3.0 x2), one for WLAN, and one for WWAN

**Mechanical**

- Nano (fanless 0.55L), black color; metal case
- Four M.2 slots: two for M.2 SSD (one PCIe 3.0 x4 and one PCIe 3.0 x2), one for WLAN, and one for WWAN

**Dimensions (WxDxH)**

- 7.05” X 3.46” X 1.36”
- 179mm X 88mm X 34.5mm
- 1.58 lb (0.72 kg)

**Weight (Approx.)**

- vary by config

**Mounting**

- VESA mount bracket kit, supports VESA 75mm
- VESA mount bracket kit with adapter holder, supports VESA 75mm
- DIN rail mount bracket kit

**Floor Stand**

- None

**Power supply**

- 65 watts AC/DC adapter, autosensing, 88% PSU
- 65 watts AC/DC adapter (wide temperature), autosensing, 88% PSU (only for Machine Type 11AS)

**Limited warranty**

- 1-year, limited onsite service / service upgrades available
- 3-year, limited onsite service / service upgrades available

**Preload**

- Preloaded operating system
- Windows® 10 Pro 64-bit
- Windows® 10 Home 64-bit
- Windows® 10 IoT Enterprise (only available via special bid model)

**Environment**

- ENERGY STAR® 7.1, EPEAT™ Silver rating (North America), ErP Lot 3, TCO 8.0, TUV ultra low noise verified (on some models), RoHS, WEEE, REACH

**MIL-SPEC test**


**Accessories**

- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.
ThinkCentre M910 SFF Platform Specifications

Processor  
- Intel® Celeron®, Intel® Pentium®, or 6/7th Generation Intel® Core™ i3 / i5 / i7 Processor
- Cores / Frequency: 3.4G / 4.0G
- DDR4-2133 / 8 MB
- Core i5-6500: 4 / 4, 2 / 4 GHz, HD 630
- Core i7-6700: 4 / 8, 3.4G / 4.0G, HD 630
- Core i3-7300: 2 / 4, 4.0G / --, DDR4-2400 / 4 GB
- Core i5-7400: 4 / 4, 3.0G / 3.5G, HD 630
- Core i7-7700: 4 / 8, 3.4G / 3.8G, HD 630
- Core i5-7600: 4 / 4, 3.5G / 4.1G, HD 630
- Core i7-7700: 4 / 8, 3.6G / 4.2G, HD 630

Memory  
- 64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller

Storage  
- Some: Hard Drive / SATA 6.Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.Gb/s, 2.5" or 3.0", 32Gb/s
- Some: Intel Optane™ Memory (with 7th gen Core processor), M.2

Optical  
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVD+R DL), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA  
- Four onboard SATA 6.Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

Media reader  
- Optional 7-in-1 media reader

Graphics  
- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz
- Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort) @ 60Hz
- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

Chipset  
- Intel Q270 Chipset

Front ports*  
- Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)
- Rear ports*  
- Four USB 3.1 Gen1, optional two USB 2.0, serial (9-pin), optional serial (9-pin), optical parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, optional two PS/2 ports (keyboard/mouse);
- Rear audio ports  
- IEEE 1394* • Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)
- Audio support  
- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt )

WLAN™  
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

Bluetooth™  
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2, Intel vPro technology support, 2x2

Ethernet  
- Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®
- None

Modem  
- None

Manageability  
- Intel Active Management Technology 11.0 (Intel AMT 11.0)
- Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip  
- TPM (Trusted Platform Module) 2.0, TCG Certified
- Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

Security features  
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional cable lock to physically lock both keyboard and mouse

Keyboard  
- Some: Lenovo Callopute Keyboard (USB connector), black
- Some: Lenovo Callopute Wireless Keyboard (2.4GHz via USB receiver), black

Mouse  
- Some: Lenovo Callopute Mouse (USB connector), black
- Some: Lenovo Callopute Wireless Mouse (2.4GHz via USB receiver), black

Mechanical  
- SFF (8.4L), black color, metal case
- (WxHxD) 3.6" x 11.4" x 13.5"; 92.5mm X 290.5mm X 342.5mm
- Approx. 11.92 lb (5.4 kg), weight may vary by configuration
- Tooless cover, disk, optical, graphic card removal
- Optional dust filter
- Bay 1: Slim external ODD bay
- Bay 2: 3.5", 1" high, internal, HDD/SSD
- Bay 3: 2.5", internal, HDD/SSD (optional bay)
- Slot: 1: lower-profile (length < 150mm, height < 68mm), PCIe 3.0 x16*1
- Slot 2: lower-profile (length < 150mm, height < 68mm), PCIe 3.0 x1
- Slot 3: lower-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 (4x signal)*4
- Slot 4: no slot, only bracket for optional port extension*6

Floor Stand  
- Optional system floor stand for vertical orientation

Power supply  
- Some: 180 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 85% PSU
- Some: 220 watts, autosensing, 92% PSU (only available via special bid)

Limited warranty  
- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

Preload  
- Preloaded operating system
- Some: Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel® processor)
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)  
- Microsoft Office preload:
- Only for Window 10
- Lenovo Companion
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Adobe® Reader
- Cyberlink PowerDVD Create (DVD+RW)

Environment  
- ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)

Accessories  
- For compatible accessories, please go to http://www.lenovoquickpick.com

Note: The specifications above may not be available in all regions.

Lenovo, August 2017
ThinkCentre M910 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i5-6500T</td>
<td>4 / 4</td>
<td>2.50 / 3.1G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-6700T</td>
<td>4 / 8</td>
<td>2.8G / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-7500T</td>
<td>4 / 7</td>
<td>2.7G / 3.3G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7600T</td>
<td>4 / 8</td>
<td>2.8G / 3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700T</td>
<td>4 / 8</td>
<td>2.9G / 3.8G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

Memory

32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable
* System automatically clocks down for the processors with lower memory controller.

Storage

| Some:                       | Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, APS |
| Some:                       | Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"               |
| Some:                       | M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s |
| Some:                       | Intel Optane™ Memory (models with 7th gen Core processor), M.2 |
| Some:                       | DVD-ROM, slim (9.0mm), via USB external ODD box            |
| Some:                       | DVD Burner (DVD+RW), slim (9.0mm), via USB external ODD box |

Optical

Onboard SATA Media reader

None

Graphics

Intel HD Graphics 510/530/610/630 in processor, uses main memory. DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays;
Max resolution: 4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz
Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

Monitor cable

I/O box

Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny)
* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

High Definition (HD) Audio, Realtek ALC224 / optional internal speaker (1w or 2w)

WLAN™

Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2

Bluetooth™

Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter
* Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1

Ethernet

Gigabit ethernet, Intel Ethernet Connection (219-LM,Jacksonville), Wake on LAN®

Manageability

Intel Active Management Technology 11.0 (Intel AMT 11.0);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

TPM (Trusted Platform Module) 2.0*, TCG Certified
* Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

Keyboard

Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Some: Lenovo Calliope Mouse (USB connector), black

Mouse

Some: Lenovo Calliope Mouse Wireless (2.4GHz via USB receiver), black

Mechanical

Tiny (1L), black color; metal case
- Toolless chassis open
- Toolless HDD, SSD, memory removal
- Optional toolless chassis screw
- Optional dust filter

Dimensions (WxDxH)

M910 Tiny only

7.05" X 7.20" X 1.36"
179mm X 182.9mm X 34.5mm
2.91 lb (1.32 kg), vary by config

With VESA mount & ODD box

7.42" X 7.30" X 2.48"
188.4mm X 185.38mm X 63mm
3.66 lb (1.66 kg), vary by config

With VESA mount & I/O box

7.42" X 7.30" X 2.62"
188.4mm X 185.38mm X 66.6mm
3.66 lb (1.66 kg), vary by config

Power supply

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)

Limited warranty

Some: 1-year or 3-year, depot service / service upgrades available
Some: 1-year or 3-year, limited onsite service / service upgrades available

Preload

Some: Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor)
Some: Windows 10 Pro 64-bit
Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)

- Microsoft Office preloaded;
- Only for Window 10
- Lenovo Companion
- Intel Unite download link (vPro models only)
- Only for Window 7
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Adobe® Reader®
- Cyberlink PowerDVD Create (DVD±RW)
- Intel Unite (vPro models only)

Environment

ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)

MIL-SPEC test

MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

Accessories

For compatible accessories, please go to http://www.lenovopickup.com

See footnotes for more detailed information © Lenovo (M910 Tiny-Spec) February 2017
## ThinkCentre M910 Tower Platform Specifications Product Specifications Reference (PSREF)

### Processor
<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 4</td>
<td>3.4G / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-7300</td>
<td>2 / 4</td>
<td>4.0G / --</td>
<td>4 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 4</td>
<td>3.0G / 3.5G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 4</td>
<td>3.4G / 3.8G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7600</td>
<td>4 / 4</td>
<td>3.5G / 4.1G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7770</td>
<td>4 / 4</td>
<td>3.6G / 4.2G</td>
<td>8 GB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

### Memory
- 4GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- * System automatically clocks down for the processors with lower memory controller

### Storage
- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 NVMe Direct Drive State (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Intel Optane™ Memory (models with 7th gen Core processor), M.2
- Some: Front accessible and removable HDD, 3.5", lockable via physical key
- Some: DVD-ROM, SATA 1.5Gb/s, 5.25" or slim (9.0mm)
- Some: WD Burner (DVD+RW), SATA 1.5Gb/s, 5.25" or slim (9.0mm)
- Onboard SATA: Four onboard SATA 6.0Gb/s connectors (1x eSATA and 3x SATA), RAID 0/1 support (RAID preset only available via special bid model)

### Optical

### Monitor Cable
- Optional: PD to VGA, PD to DVI-D (single link), PD to dual DP, or PD to HDMI 1.4

### Chipset
- Intel Q270 Chipset

### Graphics

### Monitor Cable
- Optional cable lock to physically lock
- Optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot
- M.2 card slots: Two (one for WLAN, one for SSD/Optane)
- * System automatically clocks down for the processors with lower memory controller
- Optional chassis intrusion switch

### Security chip
- Security slot (in rear for optional
- Kensington® MicroSaver® cable)
- Hard disk password
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional cable lock to physically lock both keyboard and mouse
- Individual USB port disablement

### Mechanical
- Tower (18L), black color, metal case
- (WxDxH) 6.5" X 12.65" X 16.15"; 165mm X 321.35mm X 410.25mm
- Approx. 15.45lb (7 kg), weight may vary by configuration
- Touchless cover, disk, optical, graphic card removal
- Optional cover handle, dust filter
- Bay 1: Slim external odd bay
- Bay 2: 5.25", 1.6" high, external, ODD / optional front access HDD
- Bay 3: 3.5", 1" high, internal, HDD/SSD
- Bay 4: 3.5", 1" high, internal, HDD/SSD (optional bay, bay comes with disk)
- Bay 5: 2.5", internal, HDD/SSD (optional bay)

### Power supply
- 180 watts, autosensing, 85% PSU
- 250 watts, autosensing, 85% PSU
- 400 watts, autosensing, 92% PSU (only available via special bid)

### Environment
- ENERGY STAR® 6.1, EPEAT® Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)

### Accessories
- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)
<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5500</td>
<td>2 / 4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5640</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>6 / 12</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9100</td>
<td>4 / 4</td>
<td>3.6G / 4.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9300</td>
<td>4 / 4</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9320</td>
<td>4 / 4</td>
<td>3.7G / 4.4G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.4G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.6G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 16</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i9-9900</td>
<td>8 / 16</td>
<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

Memory: 46GB max, DDR4-2666, four 288-pin DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller.

Storage:

- SATA 6.0Gb/s:
  - Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" SSD
  - Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCle 3.0 x 4, 32Gb/s
  - Some: 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s

- SATA 6.0Gb/s:
  - Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2

Optical:

- Some: DVD-ROM, SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVD+RW), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA:

- Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

Media reader:

Optional 7-in-1 media reader

Graphics:

- Intel UHD Graphics 610 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays:
- Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz

Monitor cable:

- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with Intel integrated graphics), or DP to HDMI 1.4 dongle

Chipset:

Intel Q370 Chipset

Front ports*: (Std.) 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports*: (Opt.) 1x media reader

Rear ports*: (Std.) 4x USB 3.1 Gen1, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)

Rear ports*: (Opt.) 2x USB 2.0, 2x USB 3.1 Gen1 via PCIe x1, 2x USB 3.1 Type-C Gen2 via PCIe x4 (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 (available on 09/30/2018), additional RJ-45 and video ports available on optional graphics or ethernet card

* Depending on many factors, actual data transfer speed may be lower than theoretical speed.

Note: The specifications above may not be available in all regions.

Lenovo, June 2019
**Processor**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Core i3 / i5 / i7 / i9 Processor</td>
<td>2 / 2</td>
<td>2.9G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4900T</td>
<td>2 / 2</td>
<td>3.0G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400T</td>
<td>2 / 4</td>
<td>3.1G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5600T</td>
<td>2 / 4</td>
<td>3.2G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600T</td>
<td>2 / 4</td>
<td>3.4G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100T</td>
<td>4 / 4</td>
<td>3.2G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400T</td>
<td>6 / 6</td>
<td>1.7G / 3.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-8500T</td>
<td>6 / 6</td>
<td>2.1G / 3.5G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i3-8300T</td>
<td>4 / 4</td>
<td>2.5G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9100T</td>
<td>4 / 4</td>
<td>1.9G / 3.7G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9300T</td>
<td>4 / 4</td>
<td>3.2G / 8G</td>
<td>8 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-9400T</td>
<td>6 / 6</td>
<td>1.8G / 3.4G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-9500T</td>
<td>6 / 6</td>
<td>2.5G / 3.9G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-9600T</td>
<td>6 / 6</td>
<td>2.3G / 3.9G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i7-9700T</td>
<td>8 / 8</td>
<td>2.0G / 4.3G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i9-9900T</td>
<td>8 / 16</td>
<td>2.1G / 4.4G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 660</td>
</tr>
</tbody>
</table>

**Memory**

- 32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- * System automatically clocks down for the processors with lower memory controller

**Storage**

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" & M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 3200/s
- * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s

**Optical**

- Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 SSD
- Some: DVD-ROM, slim (9.0mm), via USB external ODD box
- Some: DVD Burner (DVD+RW), slim (9.0mm), via USB external ODD box
- Some: Intel Build-in optical drive (Slim, 12.7mm)
- Onboard SATA One onboard SATA 6.0Gb/s connector

**Graphics**

- Intel HD Graphics 610 / 630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen 1 with DisplayPort function), up to 3 independent displays
- Max resolution: 4096x2304 (DP) @ 60Hz, 4096x2304 (Type-C) @ 60Hz

**Monitor cable**

- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with integrated graphics), or DP to HDMI 1.4 dongle

**Chipset**

- Intel Q370 Chipset

**Front ports (Std.)**

- One USB 3.1 Gen 1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

**Rear ports (Std.)**

- Two USB 3.1 Gen 2, two USB 3.1 Gen 1, one ethernet (RJ-45), 1x DisplayPort, 1x HDMI

**Rear ports (Opt.)**

- Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function); Port 2 for serial; Optional ports PCIe card: 2x USB 3.1 Gen 1 via PCIe x1, 8x serial (9-pin) via PCIe x1, 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4

**Audio support**

- Realtek ALC233VB / optional internal speaker (1.5 watt or 2 watt)

**WLAN**

- Some: 11ac wireless, M.2 Card, Realtek RTL8882CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BEcri (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band)
- Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2

**Bluetooth**

- Some: Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter

**Ethernet**

- Some: Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN
- Intel Ethernet Server Adapter I350-T4, gigabit ethernet, RJ-45, PCIe x4

**Manageability**

- Intel Active Management Technology 12 (Intel AMT 12): Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

**Security chip**

- Some: Security features
  - Security slot (in rear for optional Kensington® MicroSaver® cable)
  - Chassis intrusion switch
  - Boot sequence control
  - Boot without keyboard and mouse
  - Individual USB port disablement
  - Smart USB protection, allows keyboard/mouse only, blocks all storage devices

**Keyboard**

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector)
- Some: Lenovo Finger Print Mouse, Windows Hello support, black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

**Mouse**

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector)
- Some: Lenovo Finger Print Mouse, Windows Hello support, black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

**Mechanical**

- Tiny (1L), black color; metal case
- * Tasteful chassis open (need optional tasteful chassis screw)
- Tasteful HDD, SSD, memory removal
- Optional dust filter
- Optional 1.25" bay for HDD/SSD, one PCIe 3.0 x 8 slot (low-profile), two M.2 slots (one for WLAN, one for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive

**VESA mount**

- Floor Stand
- VESA mount & ODD box
- Dimensions (WxDxH):
  - Tiny only: 7.65" X 7.20" X 1.36" (194.7mm X 183.0mm X 34.5mm)
  - 2.91 lb (1.32 kg), vary by config
- With VESA mount & ODD box: 7.42" X 7.30" X 2.48" (188.4mm X 185.38mm X 63mm)
- 3.66 lb (1.66 kg), vary by config

**Power supply**

- Some: 65 watts AC/DC adapter, autosensing, 88% PSU
- Some: 90 watts AC/DC adapter, autosensing, 88% PSU
- Some: 135 watts AC/DC adapter, autosensing, 88% PSU

**Limited warranty**

- Some: 1-year or 3-year, depot service / service upgrade available
- Some: 1-year or 3-year, limited onsite service / service upgrade available

**Preload**

- Preloaded operating system
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 10 Home 64-bit

**Preloaded applications**

- Some: Optimize operating system
  - Microsoft Office preloaded; purchase a product key to activate
  - Cyberlink PowerDVD (only for models with DVD / DVD±RW)
  - Cyberlink Power2Go (only for models with DVD±RW)
  - LinkedIn
  - Intel Unit (Machine Type 10V8 models only)

**Environment**

- ENERGY STAR® 7.0, EPEAT® Gold rating (North America), ErP Lot 3, TCO, EU low ultra noise verified (coming soon, on some models), RoHS-compliant

**MIL-STD test**


**Accessories**

- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, June 2019
### Processor Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron**, Intel Pentium**, or 8th/9th Gen Intel Core™ i3 / i5 / i7 / i9 Processor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Memory

- 64GB max, DDR4-2666, four 288-pin DIMM sockets, dual-channel capable
- System automatically clocks down for the processors with lower memory controller

#### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s

#### Optical

- Optional: DVD/CD-RW, SATA 1.5Gb/s Drive, slim (9.0mm)

#### Onboard SATA

- Onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

#### Media reader

- Optional: 7-in-1 media reader

#### Graphics

- Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays
- Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz
- Some: NVIDIA Geforece™ GT 730, DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts;
- Some: resolution: 3840x2160 (DisplayPort) @ 60Hz;
- Some: NVIDIA Geforece GTX 1060 (special only), DirectX 12, 6GB, PCIe 3.0 x16 adapter, 1x DVI-D, 1x HDMI, 3x DP, 120 watts, occupies two slots;
- Max resolution: 2560x1600 (DVI-D) @ 60Hz; 4096x2160 (HDMI) @ 60Hz 5120x3200 (DP) @ 60Hz;

#### Monitor Cable

- Optional: DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage display with integrated graphics), or DP to HDMI 1.4 dongle

#### Chipset

- Intel Q370 Chipset

#### Front ports’ Std.

<table>
<thead>
<tr>
<th>Port</th>
<th>Quantity</th>
<th>Type</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>4x USB 3.1 Gen1</td>
<td>2</td>
<td>4x USB 3.1 Gen1</td>
<td>15mb charging</td>
</tr>
<tr>
<td>1x microphone</td>
<td>3.5mm</td>
<td>1x microphone</td>
<td>3.5mm</td>
</tr>
</tbody>
</table>

#### Rear ports’ Std.

<table>
<thead>
<tr>
<th>Port</th>
<th>Quantity</th>
<th>Type</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x serial (9-pin)</td>
<td>1</td>
<td>1x serial (9-pin)</td>
<td>Ethernet (94)</td>
</tr>
<tr>
<td>1x ethernet (VGA)</td>
<td>1</td>
<td>1x DisplayPort</td>
<td>60mb</td>
</tr>
</tbody>
</table>

#### Rear ports’ Opt.

<table>
<thead>
<tr>
<th>Port</th>
<th>Quantity</th>
<th>Type</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x USB 2.0</td>
<td>2</td>
<td>2x USB 2.0</td>
<td>60mb</td>
</tr>
<tr>
<td>1x serial (9-pin)</td>
<td>1</td>
<td>1x serial (9-pin)</td>
<td>1mb</td>
</tr>
<tr>
<td>1x serial (9-pin)</td>
<td>4</td>
<td>4x serial (9-pin)</td>
<td>1mb</td>
</tr>
</tbody>
</table>

#### Power supply

- Some: 180 watts, autosequencing, 85% PSU
- Some: 250 watts, autosequencing, 85% PSU
- Some: 400 watts, autosequencing, 92% PSU (only available via special bid)

#### Warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

#### Preload

- Some: Windows® 10 Pro 64-bit
- Some: Windows® 10 Home 64-bit

#### Environment

- ENERGY STAR® 6.1, EPEAT® Silver rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant

#### Accessories

- For compatible accessories, please go to http://smartsfind.lenovo.com

---

Note: The specifications above may not be available in all regions.
Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 2</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 2</td>
<td>3.5G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5620</td>
<td>2 / 2</td>
<td>3.6G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

Monitor cable

- 4x Mini DisplayPort, up to 4 independent displays, works along with onboard DP and HDMI to support up to 6 independent displays;
- Max resolution: 5120x2880@60Hz (up to 2 Mini DisplayPort);
- 4096x2160@60Hz (up to 4 Mini DisplayPort)

Optional DP to VGA dongle, DP to DVI-D dongle. DP to dual DP dongle (for Collage Display with integrated graphics), or DP to HDMI 1.4 dongle, Mini DP to DP.

Chipset

- Intel Q70 Chipset

Front ports (Std.)*

- one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

Rear ports (Opt.)*

- 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45, 1x DP, 1x HDMI)
- Two optional ports (mutually exclusive with PCIe card). Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function; Port 2 for serial.
- Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1, 1x Thunderbolt 3 (using USB3 1 Type-C Gen 2 / DP) via PCIe x4

* Depending on many factors, actual data transfer speed may be lower than theoretical speed.

Audio support

- Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)

WLAN

- Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
- Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8882BE (dual band), 2x2
- Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
- Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2
- Some: 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band)

Intel vPro technology support, 2x2

- Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter
- Gigabit ethernet, Intel Ethernet Connection 219L-MJ/Jacksonville. Wake on LAN®
- Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

Security chip

- Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a VPro-support Wi-Fi adapter to enable vPro function through wired connection)

- Discrete TPM 2.0, TCG Certified
- Security slot (in rear for optional Kensington MicroSaver® cable)
- Chassis intrusion switch
- Power-on password
- Administrator password
- Hard disk password

- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices

Keyboard

- Lenovo Calliope Keyboard (USB connector), black (opt.)
- Lenovo Traditional Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Calliope Mouse (USB connector), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

Mouse

- Tiny (1L), black color; metal case
- Touchless chassis open (need optional touchless chassis screw)
- Touchless HDD, SSD, memory removal
- Optional dust filter

- one 2.5" bay for HDD/SSD, one PCIe 3.0 x8 slot (low-profile), three M.2 slots (one for WLAN, two for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive
- Optional VESA mount bracket kit, supports VESA 75mm and 100mm
- Optional system floor stand for vertical orientation

- 135 watts AC/DC adapter, autosensing, 88% PSU

Limited warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

Preload

- Some: Windows® 10 Pro 64-bit
- Some: Windows® 10 Home 64-bit

Environment

- ENERGY STAR® 7.0, EPEAT® Gold rating (North America), EAP Lot 3, TCO Solar (North America), TUV solar ultra low noise verified (coming soon, on some models), RoHS-compliant

MIL-SPEC test


Accessories

- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.
### ThinkSmart Hub 500 Platform Specifications

| Positioning | Purpose-built Skype Room Systems device |
| Processor | 7th Gen Intel Core™ i5 Processor with vPro |
| **Processor** |  |
| Core | i5-7500T |  |
| Cores / Threads | 4 / 4 |  |
| Frequency Base/Max (GHz) | 2.7G / 3.3G |  |
| Memory Support (Up to) | 6 MB |  |
| Integrated Graphics | DDR4-2400 HD 630 |
| Memory | 4GBx2, DDR4-2400, two 260-pin SO-DIMM sockets, dual-channel capable |
| Storage | 128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s |
| Graphics |  |
| Display | Intel HD Graphics 630 in processor, uses main memory, DirectX® 12 11.6" (294.64mm) Full HD 1080p (1920x1080) TFT color, wide viewing angle (+/- 85°), LED backlight, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, anti-glare, smudge resistant |
| Multi-touch | Supports 10-point touch, OGS |
| Sensor | IR Presence/Motion sensor, automatically dim / brighten display (Detection angle: +/-45% (from display); detection distance: 3 meters at minimum) |
| LED indicators | 360 degree LED ring on hinge neck, indicates Skype status for all users in the room; power LED on power button |
| Chipset | Intel Q270 Chipset |
| Ports* | Four USB 3.1 Gen1 (Type A), two HDMI-out, one HDMI-in (1920x1080@60Hz at maximum), one ethernet (RJ-45), one headphone / microphone combo jack (3.5mm), one power connector |
| M.2 card slot | Two M.2 Card slots (one for WLAN, one for SSD) |
| * Depending on many factors, actual data transfer speed may be lower than theoretical speed |
| Audio support | Dual 4W speakers, 2 omnidirectional microphones for 360 degree audio capture |
| WLAN13 | 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1* combo adapter, Intel VPro technology support, 2x2 Bluetooth 4.1* wireless, integrated in Wi-Fi + Bluetooth combo adapter |
| Bluetooth™ | * Hardware supports Bluetooth 4.2, but Win10 RS3 only supports Bluetooth 4.1 |
| Ethernet | Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN* |
| Manageability | Intel Active Management Technology 11.0 (Intel AMT 11.0), Intel VPro technology |
| Security chip | TPM (Trusted Platform Module) 2.0, TCG Certified |
| Security features |  |
|  | • Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) |
|  | • Secure cable management door |
|  | • Power-on, admin, hard disk password |
|  | • Boot sequence control |
|  | • Boot without keyboard and mouse |
| Keyboard | None |
| Mouse | None |
| Mechanical |  |
|  | • Business black color |
|  | • (WxDxH) 7.60" X 10.98" X 7.02"; 193.25mm X 278.9mm X 178.45mm |
|  | • Approx. 5.51 lb (2.5 kg) |
|  | • Secure Cable Management Door, secures physical ports and prevents cables being accidentally disconnected |
|  | • 360 degree rotatable Display |
| Power supply | 90 watts adapter, autosensing, 88% efficiency |
| Limited warranty³ | 3-year, limited onsite service / service upgrades available |
| Preload | Preloaded operating system Windows® 10 IoT Enterprise CBB X64 (RS3) |
|  | Preloaded applications Microsoft Skype Room Systems App |
| Certification | Skype for Business Group Certified |
| Environment | ErP Lot 26, GREENGUARD® certified, RoHS, WEEE |
| Accessories | For compatible accessories, please go to http://www.lenovoquickpick.com |

See footnotes for more detailed information © Lenovo (Hub500-Spec) March 2018
ThinkCentre Tiny-in-One (TIO) 22

**Specifications**

**Model** 10LKPAR6++ / 10LKPAT6++

**Form factor** Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 22, clean cabling and effortless setup

**Compatible Tiny:** M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*; M83 Tiny, M73 Tiny*; or M53 Tiny. *Non-TIO models can't be turned on by pressing power button of TIO 22

**Panel** TFT-LCD, In-Plane Switching (IPS), White LED backlight

**Viewable image size** 21.5" (546.1mm) diagonal

**Max view area (W x H)** 18.74" x 10.54" / 476.06mm x 267.79mm

**Bezel Width** Top: 2mm; Side: 2mm; Bottom: 16.3mm

**Optimum resolution** 1920x1080

**Aspect ratio** 16:9

**Pixel pitch (mm)** 0.24795mm

**Dot/Pixel per Inch (dpi)** 102.4 dpi

**Brightness** 250 nits or cd/m² (typical)

**Contrast ratio** 1000:1 (typical)

**Pixel response time** 7ms

**Color gamut** 72%

**Anti-reflective** Yes

**Viewing angle at 10:1 CR (°)** 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Preset resolutions**

<table>
<thead>
<tr>
<th>Preset</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>640x350</td>
<td>70Hz</td>
</tr>
<tr>
<td>640x480</td>
<td>60Hz, 66Hz, 72Hz, 75Hz</td>
</tr>
<tr>
<td>720x400</td>
<td>70Hz</td>
</tr>
<tr>
<td>800x600</td>
<td>60Hz, 72Hz, 75Hz</td>
</tr>
<tr>
<td>1024x768</td>
<td>60Hz, 70Hz, 75Hz</td>
</tr>
<tr>
<td>1152x864</td>
<td>75Hz</td>
</tr>
<tr>
<td>1280x800</td>
<td>60Hz</td>
</tr>
<tr>
<td>1280x1024</td>
<td>60Hz, 72Hz, 75Hz</td>
</tr>
<tr>
<td>1366x768</td>
<td>60Hz</td>
</tr>
<tr>
<td>1440x900</td>
<td>60Hz, 75Hz</td>
</tr>
<tr>
<td>1600x1200</td>
<td>60Hz, 70Hz, 75Hz</td>
</tr>
<tr>
<td>1680x1050</td>
<td>60Hz</td>
</tr>
<tr>
<td>1920x1080</td>
<td>60Hz</td>
</tr>
</tbody>
</table>

**Presets / user settings** Presets: 25; user settings: 25

**On screen display** On screen display with digital user controls (8 languages)

**Control features** Mode-switching (TIO mode / standalone monitor mode), switches video / audio / USB input sources / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power button

**Tiny-in-One Power On** Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)

**Front ports** Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm)

- The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port

**Side ports** Side ports offered by installed Tiny (optional)

**Rear ports** One DisplayPort 1.2 port, one USB upstream port, one power connector

**3-in-1 Cable** Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0 / USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)

**Internal Speaker** 1.5 watt x1

**Security** Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO 22 together, more security features offered by Tiny installed (optional)

**Mechanical**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>TIO 22 without stand</th>
<th>TIO 22 with stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>W x D x H (inch)</td>
<td>19.25 x 2.65 x 12.47</td>
<td>19.25 x 9.90 x 14.02 - 18.35</td>
</tr>
<tr>
<td>W x D x H (mm)</td>
<td>489.06 x 67.2 x 316.78</td>
<td>489.06 x 251.4 x 356.07 - 466.07</td>
</tr>
</tbody>
</table>

**Weight** (approximately) 11.27 lb / 5.11 kg (with stand)

**Mounting features** Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPM (100mm mount)

**Adjustable stand** Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°

**Power supply** 90 watts AC/DC adapter, 88% PSU, universal

**Power consumption** 15.57 watts typical, 35 watts maximum, <0.5 watts standby / suspend

**Limited warranty** 3-years. Customer Carry-In or Mail-In via Rapid Replacement Service

**VESA-compliant** VESA DDC2B/C1, VESA DPM-compliant

**Ergonomics** ISO 9241-307

**Emission standards** FCC Class B

**Environmental** TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0

**Windows certifications** Windows 7, Windows 8/8.1, and Windows 10 certified

**Ship group** TIO 22 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster

**Accessories** For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

---

See footnotes for more detailed information

© Lenovo (TIO22) April 2016
ThinkCentre Tiny-in-One (TIO) 22 Gen3

Model
Non-touch model: 10R1PAR1++/10R1PAT1++;
Touch model: 10R0PAR1++/10R0PAT1++;

Form factor
Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into
the back of TIO, clean cabling and effortless setup

Compatible Tiny:
- P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M93/p / M83 / M73+/ M53 / Chromebox Tiny
- Non-TIO models can’t be turned on by pressing power button of TIO

Panel
TFT-LCD, In-Plane Switching technology**, White LED backlight
Note: In-Plane Switching may refer to VA, PLS, and IPS panels

Viewable image size
21.5" (546.1mm) diagonal
Max view area (W x H)
18.74" x 10.54" / 476.1mm x 267.8mm
Bezel Width
Top / Side: 2mm, Bottom: 22.1mm
Native resolution
1920x1080
Multi-touch
Optional 10-point multi-touch, supports Wake on Touch
Aspect ratio
16:9
Pixel pitch (mm)
0.24795mm
Dot/Pixel per inch
102.4 dpi
Brightness
250 nits or cd/m² (typical)
Contrast ratio
1000:1 (typical)
Pixel response time
14ms (default), over drive to 4ms, 6ms
Color gamut
72%
Anti-reflective
Anti-glare
Viewing angle at 10:1 CR
178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

Preset resolutions
- 640x435 @ 70Hz
- 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz
- 720x400 @ 70Hz
- 800x600 @ 60Hz, 72Hz, 75Hz
- 1024x768 @ 60Hz, 70Hz, 75Hz
- 1152x864 @ 75Hz
- 1280x800 @ 60Hz
- 1280x1024 @ 60Hz, 72Hz, 75Hz
- 1366x768 @ 60Hz
- 1440x900 @ 60Hz, 75Hz
- 1600x1200 @ 60Hz, 70Hz, 75Hz
- 1680x1050 @ 60Hz
- 1920x1080 @ 60Hz

Presets / user settings
Preset: 25; user settings: 25

On screen display
Front:
- Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button
- Volume up button, Volume down button

Tiny-in-One Power On
Pressing Alt + P on keyboard or pressing Power button positioned on TIO
can turn on both TIO and Tiny (only some Tiny support, see compatible list)
One USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port)

Notes: The USB port is only available when a Tiny is installed or a PC is
connected via USB upstream port

Side ports (TIO)
Side ports offered by installed Tiny (optional)

Side ports (Tiny)
One DisplayPort in port, one USB upstream port, one power connector
Undetachable 3-in-1 cable (Power connector, USB [supports USB 3.1 Gen 1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)

Camera
720p camera with dual microphone for VOIP, LED indicator

Security
Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features
offered by Tiny installed (optional)

Mechanical
Dimensions
TIO without stand
TIO with stand
W x D x H (inch)
19.26 x 2.85 x 13.35
19.26 x 10.76 x 14.59 - 18.93
W x D x H (mm)
489.3 x 72.5 x 339
489.3 x 273.3 x 370.7 - 480.7
Weight (Approx.)
7.01 lb / 3.19 kg
11.77 lb / 5.34 kg

Mounting features
Wall or desk mounting using the extend arm or third-party accessories

Adjustable stand
Tilt:
- 30° back, -5° forward;
- lift:
  - 4.3" (110mm);
swivel: +/-45°;
Pivot: clockwise 0° to 90°

Power supply
90 watts AC/DC adapter, 88% PSU, universal
Power consumption
19 watts typical, 32 watts maximum, <0.5 watts standby / suspend

Limited warranty
3-years, Customer Carry-In or Mail-In via Rapid Replacement Service

Ergonomics
ISO 9241-307, TUE Eye Comfort certified

Emission standards
FCC Class B

Environmental
TCO 7.0, TCO Edge 2.0, WEEE, ENERGY STAR® 7.0,
EPEAT™ Silver rating, ULE Gold, TUV, VOC

Windows certifications
Windows 7 and Windows 10 certified

Ship group
TIO (Monitor), detachable stand, AC/DC power adapter, power cord, user’s
guide and driver CD, quick start and safety poster

Accessories
For compatible accessories, please go to http://www.lenovouniquickpick.com

ThinkCentre Tiny-in-One 22 Gen3 Compatible list

<table>
<thead>
<tr>
<th>Model</th>
<th>P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M83 / M53 Tiny M90n Nano (with TIO kit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M93/p Tiny</td>
<td>M73 Tiny</td>
</tr>
<tr>
<td>Turn on TIO and Tiny together via Alt + P on USB KB</td>
<td>All models</td>
</tr>
<tr>
<td>Turn on TIO and Tiny together via TIO Power Button</td>
<td>All models</td>
</tr>
</tbody>
</table>

Notes:
- TFT-LCD, In-Plane Switching technology**, White LED backlight
- In-Plane Switching may refer to VA, PLS, and IPS panels
- Non-TIO models can’t be turned on by pressing power button of TIO
- For compatible accessories, please go to http://www.lenovouniquickpick.com

Lenovo, October 2019
## ThinkCentre Tiny-in-One (TIO) 24

**Model:** 10LLPAR6++ / 10LLPAT6++

**Form factor:** Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 24, clean cabling and effortless setup

**Compatible Tiny:** M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*, M83 Tiny, M73 Tiny*, or M53 Tiny, Chromebox

*Non-TIO models can't be turned on by pressing power button of TIO 24

**Panel:**
- **Viewable image size:** 23.8" (604.7mm) diagonal
- **Max view area (W x H):** 21.06" x 12.32" / 535.0mm x 313.0mm
- **Bezel Width:** Top / Side: 2mm, Bottom: 16.3mm
- **Optimum resolution:** 1920x1080
- **Aspect ratio:** 16:9
- **Pixel pitch (mm):** 0.2745mm
- **Dot/ Pixel per inch:** 92.6 dpi
- **Brightness:** 250 nits or cd/m² (typical)
- **Contrast ratio:** 1000:1 (typical)
- **Pixel response time:** 7ms
- **Color gamut:** 72%
- **Anti-reflective:** Anti-glare
- **Viewing angle at 10:1 CR:** 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Preset resolutions:**
- 640x350 @ 70Hz
- 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz
- 720x400 @ 70Hz
- 800x600 @ 60Hz, 72Hz, 75Hz
- 1024x768 @ 60Hz, 70Hz, 75Hz
- 1152x864 @ 75Hz
- 1280x800 @ 60Hz
- 1280x1024 @ 60Hz, 72Hz, 75Hz
- 1366x768 @ 60Hz
- 1440x900 @ 60Hz, 75Hz
- 1600x1200 @ 60Hz, 70Hz, 75Hz
- 1680x1050 @ 60Hz
- 1920x1080 @ 60Hz

**Preset resolutions / User settings:**
- Presets: 25, user settings: 25

**On screen display:**
- On screen display with digital user controls (8 languages)
- Mode-switching (TIO mode / standalone monitor mode, switches video / audio / USB input sources) / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power button

**Tiny-in-One Power On:**
- Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)

**Front ports:**
- Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm)
- The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port

**Side ports:**
- Side ports offered by installed Tiny (optional)

**Rear ports:**
- One DisplayPort 1.2 port, one USB upstream port, one power connector

**3-in-1 Cable:**
- Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0 / USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)

**Internal Speaker:**
- 1.5 watt x1

**Security:**
- Security keyhole for attachment of optional cable lock (Kensington lock compatible), locks optional Tiny with TIO 24 together, more security features offered by Tiny installed (optional)

**Mechanical:**

<table>
<thead>
<tr>
<th>Dimensions (TIO 24 without stand)</th>
<th>Dimensions (TIO 24 with stand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W x D x H (inch)</td>
<td>21.24 x 2.7 x 13.64</td>
</tr>
<tr>
<td></td>
<td>21.24 x 9.90 x 15.16 - 19.46</td>
</tr>
<tr>
<td>W x D x H (mm)</td>
<td>539.6 x 68.2 x 346.45</td>
</tr>
<tr>
<td></td>
<td>539.6 x 251.4 x 385.08 - 495.08</td>
</tr>
</tbody>
</table>

**Weight (approximately):**
- 12.25 lb / 5.57 kg (with stand)

**Mounting features:**
- Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI (100mm mount)

**Adjustable stand:**
- Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°

**Power supply:**
- 90 watts AC/DC adapter, 88% PSU, universal

**Power consumption:**
- 16.7 watts typical, 35 watts maximum, <0.5 watts standby / suspend

**Limited warranty:**
- 3-years, Customer Carry-In or Mail-In via Rapid Replacement Service

**Ergonomics:**
- VESA-compliant
- Ergonomics: ISO 9241-307

**Emission standards:**
- FCC Class B

**Environmental:**
- TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0
- EPEAT™ Gold rating, ULE Gold, TUV, VOC

**Windows certifications:**
- Windows 7, Windows 8/8.1, and Windows 10 certified

**Ship group:**
- TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster

**Accessories:**
- For compatible accessories, please go to http://www.lenovouquickpick.com

---

See footnotes for more detailed information
**ThinkCentre Tiny-in-One (TIO) 24 Gen3**

**Model**
- Non-touch model: 10QYPAR1++/10QYPAT1++;
- Touch model: 10QXPAR1++/10QXPAT1++

**Form factor**
- Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup

**Compatible Tiny:**
- P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M93p / M83 / M73 / M93 / Chromebox Tiny
- Non-TIO models can’t be turned on by pressing power button of TIO

**Panel**
- TFT-LCD, In-Plane Switching technology**, White LED backlight
- Notes: In-Plane Switching may refer to VA, PLS, and IPS panels

<table>
<thead>
<tr>
<th>Viewable image size</th>
<th>Max view area (W x H)</th>
<th>Bezel Width</th>
<th>Native resolution</th>
<th>Multi-touch</th>
<th>Aspect ratio</th>
<th>Pixel pitch (mm)</th>
<th>Dot/Pixel per inch</th>
<th>Brightness</th>
<th>Contrast ratio</th>
<th>Pixel response time</th>
<th>Color gamut</th>
<th>Anti-reflective</th>
<th>Viewing angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.8” (604.7mm) diagonal</td>
<td>21.06” x 12.32” / 535.0mm x 313.0mm</td>
<td>Top / Side: 2.2mm, Bottom: 22.1mm</td>
<td>1920x1080</td>
<td>Optional 10-point multi-touch, supports Wake on Touch</td>
<td>16:9</td>
<td>0.2745mm</td>
<td>92.6 dpi</td>
<td>250 nits or cd/m² (typical)</td>
<td>1000:1 (typical)</td>
<td>14ms (default), over drive to 4ms, 6ms</td>
<td>72%</td>
<td>Anti-glare</td>
<td>101° CR178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
</tbody>
</table>

**Presets / user settings**
- Presets: 25; user settings: 25

**On screen display**
- Control features:
  - Bottom: Volume up button, Volume down button
  - Adjust the volume with the buttons on the monitor directly.

**Preset resolutions**
- 640x350 @ 70Hz
- 640x480 @ 60Hz, 67Hz, 72Hz, 75Hz
- 720x400 @ 70Hz
- 800x600 @ 60Hz, 67Hz, 72Hz, 75Hz
- 1024x768 @ 60Hz, 70Hz, 75Hz, 85Hz
- 1152x864 @ 75Hz
- 1280x800 @ 60Hz
- 1280x1024 @ 60Hz, 72Hz, 75Hz
- 1366x768 @ 60Hz
- 1440x900 @ 60Hz, 75Hz
- 1600x1200 @ 60Hz, 70Hz, 75Hz
- 1680x1050 @ 60Hz
- 1920x1080 @ 60Hz

**Power**
- Power supply: 90 watts AC/DC adapter, 88% PSU, universal
- Power consumption: 19 watts typical, 32 watts maximum, <0.5 watts standby / suspend

**Limited warranty**
- 3-years, Customer Carry-In or Mail-In via Rapid Replacement Service

**Environmental**
- VESA-compliant: VESA DDC2B/Ci, VESA DPMS-compliant
- Ergonomics: ISO 9241-307, TUV Eye Comfort certified
- Emission standards: FCC Class B
- Environmental: TCO 7.0, TCO Edge 2.0, WEEE, ENERGY STAR® 7.0, EPEAT™ Silver rating, ULE Gold, TUV, VOC
- Windows certifications: Windows 7 and Windows 10 certified

**Ship group**
- TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user’s guide and driver CD, quick start and safety poster

**Accessories**
- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

---

**ThinkCentre Tiny-in-One 24 Gen3 Compatible list**

<table>
<thead>
<tr>
<th>Model</th>
<th>Turn on TIO and Tiny together via Alt + P on USB KB</th>
<th>Turn on TIO and Tiny together via TIO Power Button</th>
</tr>
</thead>
<tbody>
<tr>
<td>P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M93 Tiny M90n Nano (with TIO kit)</td>
<td>All models</td>
<td>All models</td>
</tr>
</tbody>
</table>

**Mechanical**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>TIO without stand</th>
<th>TIO with stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>W x D x H (inch)</td>
<td>21.25 x 2.85 x 14.47</td>
<td>21.25 x 11.11 x 15.72 - 20.06</td>
</tr>
<tr>
<td>W x D x H (mm)</td>
<td>539.8 x 72.5 x 367.6</td>
<td>539.8 x 282.3 x 399.4 - 509.4</td>
</tr>
<tr>
<td>Weight (Approx.)</td>
<td>7.96 lb / 3.61 kg</td>
<td>12.92 lb / 5.86 kg</td>
</tr>
</tbody>
</table>

---

*In-Plane Switching may refer to VA, PLS, and IPS panels

Lenovo, October 2019
**ThinkCentre Tiny-in-One (TIO) 27**

**Form factor**
Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup

**Compatible Tiny:**
ThinkCentre Tiny, ThinkCentre Nano, and ThinkStation Tiny

**Panel**
TFT-LCD, In-Plane Switching technology**, White LED backlight
**Notes:** In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA

**Viewable image size**
27" (685.8mm) diagonal

**Max view area (W x H)**
23.49" x 13.22" / 596.7mm x 335.7mm

**Bezel Width**
Top / Side: 2mm, Bottom: 23.3mm

**Native resolution**
2560x1440

**Accessories**
- TIO 27 (Monitor), detachable stand, power adapter, power cord, reference
- TIO models
- All models
- Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)

**Preset resolutions**
- 640x350 @ 70Hz
- 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz
- 720x400 @ 70Hz
- 800x600 @ 60Hz, 72Hz, 75Hz
- 1024x768 @ 60Hz, 70Hz, 75Hz
- 1152x864 @ 75Hz
- 1280x768 @ 60Hz
- 1280x800 @ 60Hz
- 1280x1024 @ 60Hz, 72Hz, 75Hz
- 1366x768 @ 60Hz
- 1440x900 @ 60Hz, 75Hz
- 1600x1200 @ 60Hz, 70Hz, 75Hz
- 1680x1050 @ 60Hz
- 1920x1080 @ 60Hz
- 2560x1440 @ 60Hz

**Presets / user settings**
- Presets: 27; user settings: 25

**On screen display**
- On screen display with digital user controls (8 languages)

**Control features**
- Front: Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button
- Bottom: Volume up button, Volume down button

**Tiny-in-One Power On**
- Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some support, see Compatible Matrix)
- Two USB 3.1 Gen1 (downgrade to USB 2.0 when installing M73 or M53 or connecting USB 2.0 via USB upstream port), one headphone / microphone combo jack

**Side ports (TIO)**
Notes: The USB ports are enabled by installing a Tiny or connecting USB upstream port; the audio port is enabled by installing a Tiny or connecting USB upstream, DisplayPort(in), or HDMI(in) port
- One DisplayPort(in) port, one HDMI(in) port, one USB (Type-B) upstream port, one power connector
- 3-in-1 Cable: Undetachable 3-in-1 cable, connecting to the power connector, one USB, and one DisplayPort of the installed Tiny (optional)
- Camera: RGBIR camera with dual microphone, supports Window Hello and Facial Recognition, Think Shutter for Privacy Security, LED indicator 2 watt x2

**Security**
- Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)

**Mechanical**

<table>
<thead>
<tr>
<th>Feature</th>
<th>TIO without stand</th>
<th>TIO with stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H mm / inch)</td>
<td>614.0 x 73.89 x 413.1 / 24.17 x 2.91 x 16.26</td>
<td>614.0 x 329.0 x 444.25 / 24.17 x 12.95 x 17.49</td>
</tr>
<tr>
<td>Weight (Approx.)</td>
<td>4.91 kg / 10.82 lb</td>
<td>7.95 kg / 17.53 lb</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPPM/MT (100mm mount)</td>
<td></td>
</tr>
<tr>
<td>Adjustable stand</td>
<td>Tilt: 35° back, -5° forward; swivel: +/-45°; Pivot: clockwise -5° to 90°</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>170 watts adapter, 88% PSU, universal 37 watts typical, 57 watts maximum, &lt;0.5 watts standby / suspend</td>
<td></td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3-years, Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)</td>
<td></td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC/CI, VESA DPMS-compliant</td>
<td></td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307, TUV Eye Comfort certified</td>
<td></td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO 6.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Silver rating, ULE Gold, TUV, VOC</td>
<td></td>
</tr>
<tr>
<td>Windows certifications</td>
<td>Windows 7 and Windows 10 certified</td>
<td></td>
</tr>
<tr>
<td>Ship group</td>
<td>TIO 27 (Monitor), detachable stand, power adapter, power cord, reference and driver CD</td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td>For compatible accessories, please go to <a href="http://smartfind.lenovo.com">http://smartfind.lenovo.com</a></td>
<td></td>
</tr>
</tbody>
</table>

**ThinkCentre Tiny-in-One 27 Compatible Matrix**

<table>
<thead>
<tr>
<th>Model</th>
<th>P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M83 / M53 Tiny / M90n Nano (with TIO kit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIO without stand</td>
<td>M93/p Tiny, M73 Tiny, Chromebox</td>
</tr>
<tr>
<td>Tiny together via Alt + P on USB KB</td>
<td>Turn on TIO and Tiny together via Alt + P on USB KB</td>
</tr>
<tr>
<td>Tiny together via TIO Power Button</td>
<td>Turn on TIO and Tiny together via TIO Power Button</td>
</tr>
</tbody>
</table>

**Lenovo, October 2019**
This publication was developed for products and services offered in the United States and E.M.E.A countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkCentre, ThinkStation and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.


© Lenovo, 2019. All rights reserved.
Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.
Summary of Changes

This section describes the changes made in this version of ThinkStation PSREF and in previous version. This edition might also include minor corrections and editorial changes which are not identified.

August 7, 2019 - Version 546
► Update processor information on ThinkStation P330 Tiny

July 17, 2019 - Version 545
► Update EPEAT rating to Silver on most ThinkStation

June 26, 2019 - Version 544
► Add ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 CPU Async update

May 15, 2019 - Version 542
► New ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 announced on April 2019
► Update ThinkStation P920/P720/P520 specifications, add Quadro RTX 8000, DDR4-2933, Xeon Scalable Gen 2

March 13, 2019 - Version 539
► Add Intel vPro information on ThinkStation P330 Tower/P330 SFF/P520c/P520/P720/P920

February 20, 2019 - Version 538
► New ThinkStation P330 Tower models announced on February 2019
► Update ThinkStation P920/P720/P520/P520c specifications, add Quadro RTX4000/5000/6000

August 22, 2018 - Version 529
► New ThinkStation P330 Tower/SFF/Tiny models announced on August 2018
► Update ThinkStation P920/P720 specifications, update flex bay and graphics adapter section

August 1, 2018 - Version 528
► New product ThinkStation P330 Tower/SFF/Tiny announced on July 2018
► Update ThinkStation P920/P720/P520/P520c, add Refresh 2.0 information
► Remove all MTM PN s from PDF version

June 20, 2018 - Version 526
► New ThinkStation P320 Tower models announced on June 2018
► Update ThinkStation P720 and P920 models, remove EOL models for US
► Update Windows 10 Pro 64 for Workstations for some ThinkStation P720/P920 models

May 30, 2018 - Version 525
► Added ThinkStation P720/P920 EMEA May 2018 models

April 18, 2018 - Version 523
► New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P720/P920 models announced on April 2018

March 28, 2018 - Version 522
► New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P920 announced on March 2018

March 7, 2018 - Version 521
► New ThinkStation P320 Tower/ P320 SFF/P720/P920 announced on February 2018

January 30, 2018 - Version 519
► New ThinkStation P520c and P520 announced on January 2018
► New ThinkStation P320 Tower/P320 SFF announced on January 2018
December 20, 2017 - Version 517
► New ThinkStation P920 models announced on December 2017
► Add Optional Ports on ThinkStation P320 Tiny

September 29, 2017 - Version 513
► New ThinkStation P920 and P720 announced on September 2017
► New ThinkStation P320 Tower/P320 SFF/P410/P510/P710/P910 announced on September 2017

September 12, 2017 - Version 512
► New ThinkStation P320 Tower and P320 SFF models announced on August 2017

August 23, 2017 - Version 511
► New ThinkStation P320 Tiny models announced on August 2017

August 2, 2017 - Version 510
► New ThinkStation P320 Tiny/P320 Tower/ P320 SFF/P410/P510 models announced on July 2017

June 21, 2017 - Version 508
► New ThinkStation P320 Tiny announced on June 2017

May 26, 2017 - Version 507
► Add ThinkStation P410/P510/P710/P910 Refresh 3.0 Wave 1 models and update platform specifications

April 19, 2017 - Version 505
► New ThinkStation P320 Tower announced on April 2017
► New ThinkStation P320 SFF announced on April 2017

March 29, 2017 - Version 504
► Added ThinkStation P310 Tower and SFF models announced on March 2017
► Added ThinkStation P410 models announced on March 2017

January 25, 2017 - Version 501
► Update quantity of PCIe SSD adapter in ThinkStation P510/P910

January 4, 2017 - Version 500
► Added ThinkStation P310 models announced on December 2016

December 14, 2016 - Version 499
► Added ThinkStation P410/P510/P710/P910 EMEA models
► Added 1TB M.2 PCIe SSD, Quadro P5000, Quadro P6000 support on ThinkStation P510/P710/P910
► Added Quadro P5000 support on ThinkStation P410
► Added 6TB 7.2K SATA6Gb/s HDD support on ThinkStation P410/P510/P710/P910
► Added ThinkStation P410/P510/P710/P910 models announced on December 2016

November 23, 2016 - Version 498
► Removed ThinkStation P500/P900 due to EOL
► Added ThinkStation P310 Tower and SFF models announced on November 2016

October 12, 2016 - Version 496
► Removed flash option on ThinkStation P510/P710/P910
► Added ThinkStation P310/P410/P510/P710/P910 models announced on September 2016

August 3, 2016 - Version 493
► Removed ThinkStation P500/P700/P900 Windows 7 DG from Win8.1 U.S. models
► Added keyboard and mouse features on all ThinkStation

July 13, 2016 - Version 492
► Added ThinkStation P500, P700, and P900 Windows 10 downgrade to Windows 7 models
► Updated Maximum configuration weight of ThinkStation P410
► Added ThinkStation P710 and P910 models announced on July 2016
► Added "Maximum drives in 3.5" bay" feature on ThinkStation P500/P510/P700/P710/P910/P910
June 22, 2016 - Version 491
► Added new product ThinkStation P410/P510
► Added NVIDIA Quadro M2000 on ThinkStation P310 Tower
► Added keyboard and mouse information on ThinkStation P710/P910
► Added internal USB information on ThinkStation P710/P910

June 2, 2016 - Version 490
► Added ThinkStation P710/P910 US models
► Updated ThinkStation P710/P910 processor information

May 19, 2016 - Version 489
► Added NVIDIA Quadro M2000 on compatible product
► Updated maximum weight on ThinkStation P710
► Removed 30AT000BUS

April 27, 2016 - Version 488
► Added ThinkStation P710 and P910 models for EMEA, announced on April 2016
► Updated Energy star information on ThinkStation P500/P700/P710/P900/P910

April 6, 2016 - Version 487
► New ThinkStation P710 and P910, announced April 5, 2016 (specification only)

March 23, 2016 - Version 486
► Added processors specifications for P310/P500/P700/P900

February 24, 2016 - Version 485
► Added ThinkStation P310 and P700 models for US, announced on February 2016
► Added ThinkStation P700 and P900 models for EMEA, announced on February 2016

December 9, 2015 - Version 482
► New ThinkStation P310 Tower and SFF, announced November 24, 2015

November 18, 2015 - Version 481
► Combines ThinkStation PSREF United States version and Western Europe version.
► Extends the supported GEO into Europe, Middle East and Africa.
► Covers all TopSeller and Relationship models for US and all focus models for EMEA
ThinkStation P320 SFF Platform Specifications

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td>Intel C236 Chipset</td>
</tr>
<tr>
<td>Intel AMT</td>
<td>Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models</td>
</tr>
<tr>
<td>Processor</td>
<td>One Intel &quot;Kabylake&quot; or &quot;Skylake&quot; processor as listed: &quot;Kaby Lake&quot;</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1220 v6, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1230 v6, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1235 v6, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1240 v6, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1245 v6, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i5-7400, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i5-7500, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i5-7600, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i7-7700, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i7-7800, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i7-7900, KX3, 8GB, 80W, DDR4-2400</td>
</tr>
<tr>
<td>Memory DIMM slots</td>
<td>4 DIMM slots, 2-channel (integrated memory controller in processor)</td>
</tr>
<tr>
<td>Memory type/capacity</td>
<td>Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400. UDIMM. &quot;Skylake&quot; processor supports up to DDR4-2133. Core i7 and i5 processors cannot support ECC</td>
</tr>
<tr>
<td>Intel HD Graphics in processor</td>
<td>Integrated Intel HD P530 in Xeon E3-12x5 v5 processors, or Intel HD P630 in Xeon E3-12x5 v6 processors, or Intel HD 530 in Core i7, i5, or i3 6000 processors, or Intel HD 630 in Core i7, i5, or i3 7000 processors. Works along with discrete graphics to support multi-display, enables three display connectors (2 DP, 1 VGA) on rear.</td>
</tr>
<tr>
<td>Disk Bays and PCIe Slots</td>
<td>Two PCI Express 3.0 x16 slots for graphics adapters. Up to two NVIDIA Quadro P1000. Supports the following NVIDIA graphic adapters:</td>
</tr>
<tr>
<td>Adapter</td>
<td>NVS 310, 48 GB, 19.5W, 2xDP, 2xminiDP</td>
</tr>
<tr>
<td>Adapter</td>
<td>NVS 315, 48 GB, 19.5W, 2xminiDP</td>
</tr>
<tr>
<td>Adapter</td>
<td>NVS 510, 192 GB, 33.4W, 4xminiDP</td>
</tr>
<tr>
<td>Adapter</td>
<td>Quadro P400, 256 GB, 30W, 3xminiDP</td>
</tr>
<tr>
<td>Adapter</td>
<td>Quadro P600, 384 GB, 40W, 4xminiDP</td>
</tr>
<tr>
<td>Adapter</td>
<td>Quadro P1000, 640 GB, 47W, 4xminiDP</td>
</tr>
<tr>
<td>Onboard drive controller</td>
<td>Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA. RAID 0, 1, 5, 6, 10, 50, 60, 100 support RAID 0, 1, 5, 6, 10, 50, 60, 100 support RAID 5 needs three 2.5&quot; SSD drives.</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>One external 5.25&quot; bay, one internal 3.5&quot; bay (see right). Up to one 9mm optical + 2 x 3.5&quot; disk drive bays + 1 x 2.5&quot; disk drive bay + two M.2 NVMe SSD</td>
</tr>
<tr>
<td>Supporting drives</td>
<td>3.5&quot; SATA HDD (7.2k 6Gb) 1 TB/2 TB/4 TB/8 TB hybrid2 TB hybrid</td>
</tr>
<tr>
<td></td>
<td>5.25&quot; SATA SSD (60lbs) 512 GB/512 GB Opal/1 TB Opal/2 TB Opal</td>
</tr>
<tr>
<td></td>
<td>M.2 NVMe SSD, via PCIe adapter 512 GB Opal/1 TB Opal, via PCIe 3.0 x4 adapter, up to 16 GB Intel Optane Memory. PCIe 3.0 x2</td>
</tr>
<tr>
<td>Max internal storage</td>
<td>10 TB (2 x 4 TB 3.5&quot; HDs + 1 x 2 TB 2.5&quot; SSD) plus two 1 TB M.2 NVMe SSD</td>
</tr>
<tr>
<td>Media reader</td>
<td>9-in-1 card reader. Optional 29-in-1 card reader on selected models</td>
</tr>
<tr>
<td>Power supply</td>
<td>210 watts with variable speed fan, autosensing, Climate Savers Computing Bronze, 80 PLUS Bronze qualified</td>
</tr>
<tr>
<td>Onboard Ethernet</td>
<td>One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN</td>
</tr>
<tr>
<td>HD Audio</td>
<td>Realtek ALC662 codec</td>
</tr>
<tr>
<td>TPM</td>
<td>Standard, TCG 2.0-compliant</td>
</tr>
</tbody>
</table>

© Copyright Lenovo 2017. All rights reserved.
<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td>Intel C236 Chipset</td>
</tr>
<tr>
<td>Intel AMT</td>
<td>Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models</td>
</tr>
<tr>
<td></td>
<td>Core i7-7700 &quot;Kaby Lake&quot; or &quot;Skylake&quot; processor as listed: &quot;Kaby Lake&quot;</td>
</tr>
<tr>
<td>Processor</td>
<td>Xeon E3-1280 v6: Kc3:3GHz/8MB/72W/DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1285 v6: Kc3:3.7GHz/8MB/72W/DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1290 v6: Kc3:3.9GHz/8MB/72W/DDR4-2400</td>
</tr>
<tr>
<td>Memory DIMM slots</td>
<td>4 DIMM slots, 2-channel (integrated memory controller in processor)</td>
</tr>
<tr>
<td>Memory type/capacity</td>
<td>Integrated Intel HD P530 in Xeon E3-12x5 v5 processors, or Intel HD P630 in Xeon E3-12x5 v8 processors, or Intel HD 530 in Core i7, i5, or i3 6000 processors, or Intel HD 630 in Core i7, i5, or i3 7000 processors. Works along with discrete graphics to support multi-display, enables three display connectors (2 DP, 1 VGA) on rear.</td>
</tr>
<tr>
<td>Intel HD Graphics in processor</td>
<td>Two PCIe Express 3.0 x16 slots for graphics adapters. Up to two Quadro P1000 on 250 watts models. Or up to two Quadro P2000, or up to one Quadro P4000 on 400 watts models. Supports the following NVIDIA graphics adapters:</td>
</tr>
<tr>
<td>Discrete graphics</td>
<td>Adapter</td>
</tr>
<tr>
<td></td>
<td>NVS 310</td>
</tr>
<tr>
<td></td>
<td>NVS 510</td>
</tr>
<tr>
<td></td>
<td>NVS 810</td>
</tr>
<tr>
<td></td>
<td>Quadro P400</td>
</tr>
<tr>
<td></td>
<td>Quadro P600</td>
</tr>
<tr>
<td></td>
<td>Quadro P1000</td>
</tr>
<tr>
<td></td>
<td>Quadro P2000</td>
</tr>
<tr>
<td></td>
<td>Quadro P4000</td>
</tr>
<tr>
<td>Onboard drive controller</td>
<td>Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA, RAID 0, 1, 5, 10 support</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>Two external 5.25&quot; bays, two internal 3.5&quot; bays (see right). Up to one 9mm optical plus 4 x 3.5&quot; disk drive bays plus two M.2 NVMe SSD</td>
</tr>
<tr>
<td>Supporting disk drives</td>
<td>3.5&quot; SATA HDD (7.2K Gbps)</td>
</tr>
<tr>
<td></td>
<td>2.5&quot; SATA SSD (600ms)</td>
</tr>
<tr>
<td>Max internal storage</td>
<td>16TB (4 x 4TB 3.5&quot; HDDs) plus 2TB (2 x 1TB) M.2 NVMe SSD</td>
</tr>
<tr>
<td>Media reader</td>
<td>9-in-1 card reader. Optional 29-in-1 card reader on selected models</td>
</tr>
</tbody>
</table>

**Power supply**
- One 250 watts with variable speed fan, autosensing.
- Climate Savers Computing Bronze, 80 PLUS Bronze qualified.
- Or one 400 watts with variable speed fan, autosensing.
- Climate Savers Computing Platinum, 80 PLUS Platinum qualified.

**Onboard Ethernet**
- One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN.

**HD Audio**
- Realtek ALC662 codec.

**TPM**
- Standard, TCG 2.0-compliant.

**Front ports**
- Two USB 3.0, microphone (3.5mm), headphone (3.5mm).

**Rear ports**
- 1 VGA and 2 DisplayPort (for Intel HD Graphics models only), two USB 2.0, four USB 3.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in).

**Environmental certifications**
- GREENGUARD certified/RoHS-compliant/EPEAT Gold rating/ENERGY STAR 6.1 qualified.

**Limited warranty**
- 1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units.

**ISV certifications**
- Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/).
**ThinkStation P330 SFF Platform Specifications**

### Components & Specifications

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Machine Type</strong></td>
<td>MT 30C7 for Transactional model and MT 30C8 for Relationship model. For configuration of all 30C7 EMEA and US models, please visit: <a href="http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF">http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF</a></td>
</tr>
<tr>
<td><strong>Form factor</strong></td>
<td>6.4L mini-tower</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Maximum configuration: 13.23 lb (6.0kg)</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Up to one Intel Xeon E-2100 family processor, up to 80W, up to 6 cores at 3.7GHz, up to 3.8GHz with 4 cores, up to 12MB cache, DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, i7, i5, or i3, up to 65W, up to 6 cores at 3.2GHz, up to 3.7GHz with 4 cores, up to 12MB cache, DDR4-2666 memory speed. Or up to one Intel Pentium G5400 via Special Bids, 58W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed.</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel C246 Chipset</td>
</tr>
<tr>
<td><strong>Memory protection</strong></td>
<td>ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM</td>
</tr>
<tr>
<td><strong>Expansion slots</strong></td>
<td>Three PCIe 3.0 slots as following:</td>
</tr>
<tr>
<td>Slot 1 PCIe 3.0 x16</td>
<td>Full height, full length, links to CPU</td>
</tr>
<tr>
<td>Slot 2 PCIe 3.0 x1</td>
<td>Full height, full length, links to PCH</td>
</tr>
<tr>
<td>Slot 3 PCIe 3.0 x16</td>
<td>Negotiable link width x4), full height, half length, links to PCH</td>
</tr>
<tr>
<td><strong>Graphics - Processor graphic</strong></td>
<td>Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G5400. Works along with discrete graphics to support multi-display, enables three display connectors (2x DP, 1x HDMI. HDMI is optional) on rear</td>
</tr>
<tr>
<td><strong>Graphics - Discrete graphics card</strong></td>
<td>Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:</td>
</tr>
<tr>
<td>Adapter</td>
<td>Cores</td>
</tr>
<tr>
<td>Quadro P400</td>
<td>256</td>
</tr>
<tr>
<td>Quadro P620</td>
<td>512</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>640</td>
</tr>
<tr>
<td><strong>Storage controllers</strong></td>
<td>Integrated Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD</td>
</tr>
<tr>
<td><strong>Internal storage bay</strong></td>
<td>Up to 3 bays with two disk bays and one slim optical bay:</td>
</tr>
<tr>
<td>Bay 1</td>
<td>Primary 3.5&quot; SATA bay</td>
</tr>
<tr>
<td>Bay 2</td>
<td>2.5&quot; SATA bay (Optional)</td>
</tr>
<tr>
<td>Bay 3</td>
<td>9mm Slim ODD bay</td>
</tr>
<tr>
<td><strong>Disks</strong></td>
<td>3.5&quot; HDD supports up to 4TB each, 6Gbps SATA, 7.2K.</td>
</tr>
<tr>
<td><strong>M.2 slot for SSD</strong></td>
<td>Up to 3x M.2 SSD with one dedicated onboard M.2 slot plus two PCIe to M.2 adapters. PCIe to M.2 adapter uses slot 1 or 3. Supports RAID 0/1 with PCH. When used as RAID, M.2 SSD should be installed on onboard M.2 slot and slot 3. Up to one Optane memory per system; Optane memory must work with a HDD or SSD; Optane memory cannot supported on Pentium G5400 models</td>
</tr>
<tr>
<td><strong>M.2 SSD</strong></td>
<td>M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal.</td>
</tr>
<tr>
<td><strong>M.2 slot for Wi-Fi and Bluetooth</strong></td>
<td>One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps</td>
</tr>
</tbody>
</table>

### Media reader
- Optional SD card reader on most models

### Network interfaces
- One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available

### Security features
- Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock

### Intel vPro
- Supports Intel vPro on Xeon models.
- vPro also requires Wireless-AC 9560 if Wi-Fi is needed

### Intel AMT
- Intel Active Management Technology 12 on Xeon models.
- Intel Standard Manageability on other models

### Base warranty
- US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs

### HD Audio
- Intel HD Audio interface with Realtek ALC233 Codec

### Rear ports
- 2x USB 3.1 Gen 1 Type A, 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C, 1x Mic-in, 1x Combo jack

### Rear ports
- 2x USB 3.1 Gen 1 Type A, 2x USB 2.0 Type-A. 1x RJ-45. 1x COM, 2x DP. 1x Audio line-out
  - Notes: DP needs Core, Pentium, or -G suffix Xeon processor

### Optional rear ports
- 2x USB 3.1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI. 1x Audio line-out
  - Notes: HDMI needs Core, Pentium, or -G suffix Xeon processor

### Temperature
- Operating: 41°F to 104°F (10°C to 35°C)
- Non operating (no package): 14°F to 140°F (-10°C to 60°C)
- Non operating (package): -40°F to 140°F (-40°C to 60°C)

### Altitude
- Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft).
- Storage: -15.2 m (-50 ft) to 10,668 m (35 000 ft)

### Humidity
- Operating: 30%–90%, non-condensing
- Storage (with package): 20%–90%, non-condensing

### Environmental certification
- RoHS-compliant. GREENGUARD. EPEAT Silver rating and ENERGY STAR 7 qualified
- Supports one 210W or 260W power supply. 210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified. 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Platinum qualified

### iSV certifications
- Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

Note:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.

Lenovo, July 2019
## Components Specification

**Form factor**
- 8.4L mini-tower

**Dimensions**
- Height: 343.5 mm (13.5 in)
- Width: 92.5 mm (3.6 in)
- Depth: 305.6 mm (12 in)

**Weight**
- Maximum configuration: 13.23 lb (6.0kg)

**Memory Protection ECC on models with UDIMM ECC memory**

**Memory Capacity**
- 64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC

**Memory Types**
- 8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB/32GB DDR4-2666 UDIMM non-ECC

**Memory Sockets**
- 4 DIMM sockets with 2 channels

**Chipset**
- Intel C246 Chipset

**Processor**
- Supports one of the following processors:
  - Xeon E-2273G EC/16T/3.4GHz/16MB/80W/DDR4-2666 (260W PSU needed)
  - Xeon E-2276G EC/12T/3.8GHz/80W/DDR4-2666
  - Xeon E-2277G IC/8T/4.0GHz/8MB/83W/DDR4-2666
  - Xeon E-2224G IC/4T/3.6GHz/8MB/86W/DDR4-2666
  - Xeon E-2234 IC/6T/3.6GHz/8MB/120W/DDR4-2666
  - Xeon E-2225G IC/6T/3.6GHz/8MB/83W/DDR4-2666
  - Xeon E-2224G IC/4T/3.6GHz/8MB/71W/DDR4-2666
  - Xeon E-2224 IC/4T/3.6GHz/8MB/71W/DDR4-2666
  - Xeon E-2174G IC/8T/3.8GHz/8MB/120W/DDR4-2666
  - Core i9-9900 IC/16T/3.4GHz/16MB/80W/DDR4-2666
  - Core i7-9700 IC/6T/3.8GHz/12MB/90W/DDR4-2666
  - Core i7-9700K IC/6T/3.8GHz/12MB/90W/DDR4-2666
  - Core i5-9600 IC/6T/3.6GHz/9MB/65W/DDR4-2666
  - Core i5-8500 IC/6T/3.6GHz/9MB/65W/DDR4-2666
  - Core i5-9500 IC/6T/3.6GHz/9MB/65W/DDR4-2666
  - Core i3-8100 IC/4T/3.6GHz/6MB/65W/DDR4-2666
  - Core i3-8300 IC/4T/3.7GHz/8MB/62W/DDR4-2666
  - Core i3-8300 IC/4T/3.7GHz/8MB/62W/DDR4-2666
  - Core i3-8100 IC/4T/3.6GHz/8MB/62W/DDR4-2666

**Processor graphics**
- Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i5 or i3 processors.

**Discrete graphics card**

**Expansion slots**
- Three PCIe 3.0 slots as following:
  - Slot 1 PCIe 3.0 x16, low profile, links to CPU
  - Slot 2 PCIe 3.0 x1, low profile, links to PCH
  - Slot 3 PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH

**Storage Controller**
- Storage bay:
  - Bay 1: Primary 3.5" SATA bay
  - Bay 2: 2.5" SATA bay (Optional)
  - Bay 3: 9mm Slim ODD bay

**M.2 slot for Wi-Fi and Bluetooth**
- One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps

**Network interfaces**
- One onboard GbE port via integrated gigabit Ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe Ethernet adapters are available

**Security features**
- Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant.

**Intel vPro**
- Supports Intel vPro on Xeon models.
- vPro also supports Wireless-AC 9560 if Wi-Fi is needed

**Intel AMT**
- Intel Active Management Technology 12 on Xeon models.
- Intel Standard Manageability on other models

**Base warranty**
- US models comes with 3-year limited onsite service with 9x5/NBD.
- 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs

**HD Audio**
- Intel HD Audio interface with Realtek ALC233 Codec

**Front ports**
- 2x USB 3.1 Gen Type A, 2x USB 3.1 Gen Type A, 1x USB 3.1 Gen Type C, 1x Mic-in, 1x Combo jack

**Rear ports**
- 2x USB 3.1 Gen Type A, 2x USB 2.0 Type-A, 1x RJ-45, 1x COM, 2x DP, 1x Audio line-out

**Power supply**
- 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Bronze qualified.
- 210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified.

**Environmental**
- Operating: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
- Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
- Humidity: Operating: 20%~90%, non-condensing
- Storage: 20%~90%, non-condensing

**RoHS-compliant**
- Lenovo, July 2019

**Lenovo, July 2019**

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Supports one of the following processors:</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2273G EC/16T/3.4GHz/16MB/80W/DDR4-2666 (260W PSU needed)</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2276G EC/12T/3.8GHz/80W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2277G IC/8T/4.0GHz/8MB/83W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2224G IC/4T/3.6GHz/8MB/86W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2234 IC/6T/3.6GHz/8MB/120W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2225G IC/6T/3.6GHz/8MB/83W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2224 IC/4T/3.6GHz/8MB/71W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2224 IC/4T/3.6GHz/8MB/71W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Xeon E-2174G IC/8T/3.8GHz/8MB/120W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i9-9900 IC/16T/3.4GHz/16MB/80W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i7-9700 IC/6T/3.8GHz/12MB/90W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i7-9700K IC/6T/3.8GHz/12MB/90W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i5-9600 IC/6T/3.6GHz/9MB/65W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i5-8500 IC/6T/3.6GHz/9MB/65W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i5-9500 IC/6T/3.6GHz/9MB/65W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i3-8100 IC/4T/3.6GHz/6MB/65W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i3-8300 IC/4T/3.7GHz/8MB/62W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i3-8300 IC/4T/3.7GHz/8MB/62W/DDR4-2666</td>
</tr>
<tr>
<td></td>
<td>Core i3-8100 IC/4T/3.6GHz/8MB/62W/DDR4-2666</td>
</tr>
</tbody>
</table>

**Discrete graphics**

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Cores</th>
<th>Memory</th>
<th>Power</th>
<th>Connectors</th>
<th>Max QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadro P400</td>
<td>256</td>
<td>GDDR5</td>
<td>30W</td>
<td>3x miniDP</td>
<td>2</td>
</tr>
<tr>
<td>Quadro P620</td>
<td>512</td>
<td>GDDR5</td>
<td>40W</td>
<td>4x miniDP</td>
<td>2</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>640</td>
<td>GDDR5</td>
<td>47W</td>
<td>4x miniDP</td>
<td>2</td>
</tr>
</tbody>
</table>

**Storage Controller**

<table>
<thead>
<tr>
<th>Type</th>
<th>Interface</th>
<th>Disk Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Intel RST SATA RAID</td>
<td>SATA 6Gb/s</td>
<td>RAID 0/1</td>
</tr>
<tr>
<td>Onboard Intel RST PCIe RAID</td>
<td>PCIe NVMe M.2</td>
<td>RAID 0/1</td>
</tr>
</tbody>
</table>

**Notes:**
- M.2 SSD support is limited, please see Storage bay section for more information

**Storage Support**

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Max QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5&quot; SATA HDD</td>
<td>SATA 6Gb/s</td>
<td>7,2K</td>
<td>1TB/2TB/4TB</td>
</tr>
<tr>
<td>2.5&quot; SATA SSD</td>
<td>SATA 6Gb/s</td>
<td>7,2K</td>
<td>500GB/1TB</td>
</tr>
<tr>
<td>2.5&quot; SATA SSD</td>
<td>SATA 6Gb/s</td>
<td>7,2K</td>
<td>256GB/512GB/1TB</td>
</tr>
<tr>
<td>M.2 PCIe SSD</td>
<td>PCIe NVMe</td>
<td>1, used with HDD/SSD</td>
<td>256GB/512GB/1TB</td>
</tr>
</tbody>
</table>
## ThinkStation P330 Tiny Platform Specifications - I of II

### Components Specification

| Form factor | 1L, Optional VESA mount bracket kit, supports VESA 75mm and 100mm. Optional floor stand for vertical orientation. Optional tool-less chassis open. Optional dust filter. |
| Dimensions | Height: 179 mm (7.0 in). Width: 36.5 mm (1.437 in). Depth: 182.9 mm (7.2 in) |
| Weight | Maximum configuration: 3.08 lb (1.4kg) |

### Supported TIO monitors

- Tiny-in-One 23 (MT: 10DQ)
- Tiny-in-One 22 (MT: 10LK)
- Tiny-in-One 24 (MT: 10LL)
- Tiny-in-One22 Gen3 (MT: 10R1)
- Tiny-in-One22 Gen3 Touch (MT: 10R0)
- Tiny-in-One24 Gen3 (MT: 10OY)
- Tiny-in-One24 Gen3 Touch (MT: 10OX)

**Recommended monitors**

Lenovo recommends ThinkVision P series monitors for best display performance and productivity.

- Tiny-in-One24 Gen3 Touch (MT: 10QX).
- Tiny-in-One24 Gen3 (MT: 10QY).
- Tiny-in-One22 Gen3 Touch (MT: 10R0).
- Tiny-in-One22 Gen3 (MT: 10R1).
- Tiny-in-One 24 (MT: 10LL).
- Tiny-in-One 23 (MT: 10DQ).

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th>Cores</th>
<th>Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i9-9900T</td>
<td>8</td>
<td>16</td>
<td>2.1GHz</td>
<td>16MB</td>
<td>35W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i7-9700T</td>
<td>8</td>
<td>8</td>
<td>2.0GHz</td>
<td>12MB</td>
<td>35W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-9600T</td>
<td>6</td>
<td>6</td>
<td>2.3GHz</td>
<td>9MB</td>
<td>35W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6</td>
<td>6</td>
<td>3.1GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-9500T</td>
<td>6</td>
<td>6</td>
<td>2.2GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6</td>
<td>6</td>
<td>3.0GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-9400T</td>
<td>6</td>
<td>6</td>
<td>1.8GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6</td>
<td>6</td>
<td>2.9GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-9320</td>
<td>4</td>
<td>4</td>
<td>3.7GHz</td>
<td>8MB</td>
<td>62W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-9320T</td>
<td>4</td>
<td>4</td>
<td>3.2GHz</td>
<td>8MB</td>
<td>62W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-9300</td>
<td>4</td>
<td>4</td>
<td>3.7GHz</td>
<td>8MB</td>
<td>62W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-9100T</td>
<td>4</td>
<td>4</td>
<td>3.1GHz</td>
<td>6MB</td>
<td>35W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-9100</td>
<td>4</td>
<td>4</td>
<td>3.6GHz</td>
<td>6MB</td>
<td>35W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i7-8700T</td>
<td>12</td>
<td>24</td>
<td>2.4GHz</td>
<td>12MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>12</td>
<td>12</td>
<td>3.2GHz</td>
<td>12MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-8600T</td>
<td>6</td>
<td>6</td>
<td>2.3GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-8600</td>
<td>6</td>
<td>6</td>
<td>3.1GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-8500T</td>
<td>6</td>
<td>6</td>
<td>2.1GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6</td>
<td>6</td>
<td>3.0GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-8400T</td>
<td>6</td>
<td>6</td>
<td>1.7GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6</td>
<td>6</td>
<td>2.8GHz</td>
<td>9MB</td>
<td>65W</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-8320T</td>
<td>4</td>
<td>4</td>
<td>3.2GHz</td>
<td>8MB</td>
<td>62W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4</td>
<td>4</td>
<td>3.7GHz</td>
<td>8MB</td>
<td>62W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-8100T</td>
<td>4</td>
<td>4</td>
<td>3.1GHz</td>
<td>6MB</td>
<td>35W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4</td>
<td>4</td>
<td>3.6GHz</td>
<td>6MB</td>
<td>35W</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
</tbody>
</table>

### Components Specification

<table>
<thead>
<tr>
<th>Chipset</th>
<th>Intel Q370 Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>2 DIMM sockets. DDR4-2666. SoDIMM. Non-ECC</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>One PCIe slot via specific riser card: PCIe 3.0 x16 (negotiable link width x8) and low profile for discrete graphics card. PCIe 3.0 x4 and low profile for i350-T4 adapter and quad COM ports adapter</td>
</tr>
<tr>
<td>Graphics</td>
<td>65W or 62W processor models supports processor graphics only. 35W processor models come with processor graphics plus a discrete graphics adapter</td>
</tr>
<tr>
<td>Graphics - Processor</td>
<td>Integrated Intel UHD Graphics 630. Works along with discrete graphics to support multi-display</td>
</tr>
<tr>
<td>Graphics - Discrete graphics card</td>
<td>One of the following discrete graphics cards on 35W processor models:</td>
</tr>
</tbody>
</table>

#### Storage controllers

- Integrated Intel SATA AHCI controller in chipset, 6Gbps SATA, one onboard SATA port for 2.5" HDD

#### Internal storage bay

- Up to one 2.5" HDD

#### Disks

- Two onboard M.2 slots for M.2 SSD, one for M.2 2280 SSD, one for M.2 2280 or 2242 SSD
- M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, optional Opal. M.2 2242 SSD supports up to 128GB, PCIe 3.0 x2, NVMe

#### Optane memory

- Up to one 16GB Optane memory per system. Optane memory must work with a 2.5" HDD

#### M.2 slot for Wi-Fi and Bluetooth

- One dedicated M.2 2230 slot for optional Wi-Fi card, supports one of the following: Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps. Intel Wireless-AC 9265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps. Note: Wi-Fi card, or specific functions of Wi-Fi card may not be supported in some countries

#### Wi-Fi antenna

- Optional Tiny 2.4GHz/5GHz SMA antenna kit

#### Optical

- Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW. VESA mount is required

#### Media reader

- None. Using USB adapter

#### Network interfaces

- One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional Intel i350-T4 for 4x GbE ports, using PCIe slot

#### Security features

- Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Chassis intrusion switch. Optional Kensington lock

#### Intel vPro Technology

- Supports vPro on models with the following processors: Core i7-8700T, Core i7-8700, Core i5-8600T, Core i5-8600, Core i5-8500T, Core i5-8500. vPro also requires Wireless-AC 9560 if Wi-Fi is needed

#### Systems management

- Intel Active Management Technology 12 on vPro models, Intel Standard Manageability on other models

#### Base warranty

- 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs

#### HD Audio

- Intel HD Audio interface with Realtek ALC233 Codec

#### Front standard ports

- 1x USB 3.1 Gen 1 Type A (charging). 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack

#### Rear standard ports

- 2x USB 3.1 Gen 2 Type A. 2x USB 3.1 Gen 1 Type-A. 1x RJ-45. 1x DP. 1x HDMI

#### Optional rear ports - via punch out cable

- Up to two optional rear ports via punch out cable. Port 1 supports one of the following: 1x USB 3.1 Gen 1 Type-C, also supports DP function. Port 2 supports one COM

---

Lenovo, August 2019
<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional rear ports</td>
<td>Up to two optional rear ports via punch out cable. Port 1 supports one of the following:</td>
</tr>
<tr>
<td>via punch out cable</td>
<td>1x USB 3.1 Gen 1 Type-C, also supports DP function. 1x COM. 1x VGA. 1x DP. 1x HDMI. Port 2 supports one COM.</td>
</tr>
<tr>
<td>Optional rear ports</td>
<td>Supports one of the following:</td>
</tr>
<tr>
<td>via PCIe adapter</td>
<td>4x miniDP with Quadro P620 or P1000, 35W processor models only 2x USB 3.1 Gen 1 4x RJ-45 GbE with Intel I350-T4. 4x COM</td>
</tr>
<tr>
<td></td>
<td>Note: Punch out cable and PCIe adapter are mutually exclusive</td>
</tr>
<tr>
<td>Temperature</td>
<td>Operating: 50 °F to 95 °F (10 °C to 35 °C)</td>
</tr>
<tr>
<td></td>
<td>Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)</td>
</tr>
<tr>
<td>Altitude</td>
<td>Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft)</td>
</tr>
<tr>
<td></td>
<td>Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)</td>
</tr>
<tr>
<td>Humidity</td>
<td>Operating: 20%–80%, non-condensing</td>
</tr>
<tr>
<td></td>
<td>Storage (with package): 20%–90%, non-condensing</td>
</tr>
<tr>
<td>MIL-SPEC</td>
<td>Certified</td>
</tr>
<tr>
<td>Environmental Certification</td>
<td>RoHS-compliant, GREENGUARD, EPEAT Silver rating and ENERGY STAR 7 qualified</td>
</tr>
<tr>
<td>Power supply</td>
<td>Supports one 135W power adapter, 100V - 240V, 88% PSU</td>
</tr>
<tr>
<td>SV certifications</td>
<td>Please visit <a href="http://www.thinkworkstations.com/isv-certifications/">www.thinkworkstations.com/isv-certifications/</a></td>
</tr>
<tr>
<td>Components</td>
<td>Specification</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Machine Type</td>
<td>MT 30CS for Transactional model and MT 30C6 for Relationship model. For configuration of all 30C5 EMEA and US models, please visit: <a href="http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tower">http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tower</a></td>
</tr>
<tr>
<td>Form factor</td>
<td>18L Tower</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 23.4 lb (10.6kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, I7, i5, or i3, up to 95W, up to 6 cores at 3.7GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one Intel Pentium Gold G5400 via Special Bids, 54W, 2 cores at 3.7GHz, 4MB cache, DDR-2400 memory speed.</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C246 Chipset</td>
</tr>
<tr>
<td>Memory</td>
<td>4 DIMM sockets. DDR4-2666. UDIMM. ECC and non-ECC are supported, but memory types cannot be intermixed.</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>Up to 64GB with 4x16GB, both ECC and non-ECC</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>Three PCIe 3.0 slots as following:</td>
</tr>
<tr>
<td>Slot 1 PCIe</td>
<td>3.0 x16, full height, half length, links to CPU</td>
</tr>
<tr>
<td>Slot 2 PCIe</td>
<td>3.0 x1, full height, full length, links to PCH</td>
</tr>
<tr>
<td>Slot 3 PCIe</td>
<td>3.0 x16 (negotiable link width x4), full height, half length, links to PCH</td>
</tr>
<tr>
<td>Graphics - Processor</td>
<td>Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G5400. Works along with discrete graphics to support multi-display, enables three display connectors (2x DP, 1x HDMI, HDMI is optional) on rear.</td>
</tr>
<tr>
<td>Graphics - Discrete</td>
<td>Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3). Supports the following graphics adapters: adapter: Core Power Connectors Max qty</td>
</tr>
<tr>
<td>Graphics card</td>
<td>Quadro P400 256 2GB GDRRS 30W 3x miniDP 2</td>
</tr>
<tr>
<td></td>
<td>Quadro P660 512 2GB GDRRS 40W 4x miniDP 2</td>
</tr>
<tr>
<td></td>
<td>Quadro P1000 640 4GB GDRRS 47W 4x miniDP 2</td>
</tr>
<tr>
<td></td>
<td>Quadro P2000 1024 5GB GDRRS 75W 4x DP 2</td>
</tr>
<tr>
<td></td>
<td>Quadro P4000 1792 8GB GDRRS 105W 4x DP 1</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5&quot; HDD plus 1x 2.5&quot; SSD, or 4x 2.5&quot; SSD</td>
</tr>
<tr>
<td>Bay 1</td>
<td>Primary disk bay, 3.5&quot; or 2.5&quot;</td>
</tr>
<tr>
<td>Bay 2</td>
<td>2.5&quot; SATA bay, cannot be available when 2nd Quadro P2000 is used</td>
</tr>
<tr>
<td>Bay 3</td>
<td>Secondary disk bay, 3.5&quot; or 2.5&quot;</td>
</tr>
<tr>
<td>Bay 4</td>
<td>5.25&quot; Flex bay, supports one of the following:</td>
</tr>
<tr>
<td></td>
<td>• Flex module for optional front eSATA/TurboBolt/IEEE1394</td>
</tr>
<tr>
<td></td>
<td>• 3rd disk bay, 3.5&quot; or 2.5&quot;, removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode</td>
</tr>
<tr>
<td></td>
<td>• 3rd disk bay, 3.5&quot; or 2.5&quot;, via 5.25&quot; to 3.5&quot; HDD Kit</td>
</tr>
<tr>
<td></td>
<td>• M.2 drive, via Front removable M.2 enclosure, also occupies slot 1 or 3</td>
</tr>
<tr>
<td>Bay 5</td>
<td>9mm Slim Odd bay</td>
</tr>
<tr>
<td>Disks</td>
<td>3.5&quot; HDD supports up to 4TB each, 6GBps SATA, 7.2K</td>
</tr>
<tr>
<td></td>
<td>2.5&quot; SSD supports up to 1TB each, 6GBps SATA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 slot for SSD</td>
<td>Up to 3x M.2 SSD with one dedicated onboard M.2 slot plus two PCIe to M.2 adapters. PCIe to M.2 adapter uses slot 1 or 3. Supports RAID 0/1 with PCH, When used as RAID, M.2 SSD should be installed in onboard M.2 slot and slot 3. Up to one Optane memory per system; Optane memory must work with a HDD or SSD; Optane memory cannot supported on Pentium G5400 models</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal, Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint</td>
</tr>
<tr>
<td>M.2 slot for Wi-Fi and Bluetooth</td>
<td>One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz Channels), 802.11ac, Bluetooth 5, up to 1.73Gbps</td>
</tr>
<tr>
<td>Media reader</td>
<td>Optional SD card reader on most models</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock</td>
</tr>
<tr>
<td>Security features</td>
<td>Power-on and admin password, Trusted Platform Module, TCG 2.0 compliant.</td>
</tr>
</tbody>
</table>

**Notes:**
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer

**Lenovo, July 2019**
ThinkStation P330 Tower Gen 2 (30CY and 30D0) Platform Specifications - I of II

### Components Specification

#### Form factor
18L Tower

#### Dimensions
Height: 376 mm (14.8 in), Width: 165 mm (6.5 in), Depth: 328 mm (12.9 in)

#### Weight
Maximum configuration: 28.22 lb (12.8kg)

---

### Memory Protection
ECC on models with UDIMM ECC memory

### Memory Types
- 8GB/16GB DDR4-2666 UDIMM ECC or
- 4GB/8GB/16GB/32GB DDR4-2666 UDIMM non-ECC

### Memory Capacity
64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC

### Chipset
Intel C246 Chipset

### Processor
Supports one of the following processors:
- Xeon E-2286G 6C/12T/4.0GHz/12MB/95W/DDR4-2666 400W PSU needed
- Xeon E-2278G 6C/12T/3.4GHz/16MB/80W/DDR4-2666 400W PSU needed
- Xeon E-2276G 6C/12T/3.9GHz/16MB/80W/DDR4-2666 400W PSU needed
- Xeon E-2274G 4C/8T/4.0GHz/8MB/80W/DDR4-2666 400W PSU needed
- Xeon E-2264G 6C/12T/3.6GHz/12MB/80W/DDR4-2666 400W PSU needed
- Xeon E-2244G 4C/8T/3.8GHz/8MB/71W/DDR4-2666 400W PSU needed
- Xeon E-2236 4C/8T/3.8GHz/8MB/71W/DDR4-2666 400W PSU needed
- Xeon E-2226G 6C/12T/3.4GHz/12MB/80W/DDR4-2666 400W PSU needed
- Xeon E-2224G 4C/8T/3.9GHz/8MB/71W/DDR4-2666 400W PSU needed
- Xeon E-2224 4C/8T/3.9GHz/8MB/71W/DDR4-2666 400W PSU needed
- Xeon E-2186G 6C/12T/3.6GHz/12MB/80W/DDR4-2666 400W PSU needed
- Xeon E-2174G 4C/8T/3.8GHz/8MB/71W/DDR4-2666 400W PSU needed
- Pentium Gold G5620 2C/4T/4.0GHz/4MB/54W/DDR4-2400
- Core i3-8100 4C/4T/3.6GHz/6MB/65W/DDR4-2400
- Core i3-8300 4C/4T/3.7GHz/8MB/62W/DDR4-2400
- Core i3-9100 4C/4T/3.6GHz/6MB/65W/DDR4-2400
- Core i3-9300 4C/4T/3.7GHz/8MB/62W/DDR4-2400
- Core i5-8500 6C/6T/3.0GHz/9MB/65W/DDR4-2666
- Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666
- Core i5-9500 6C/6T/3.0GHz/9MB/65W/DDR4-2666
- Core i5-9600 6C/6T/3.1GHz/9MB/65W/DDR4-2666
- Core i5-9600K 6C/6T/3.7GHz/9MB/95W/DDR4-2666 400W PSU needed
- Core i7-9700 8C/8T/3.0GHz/12MB/65W/DDR4-2666
- Core i7-9700K 8C/8T/3.6GHz/12MB/95W/DDR4-2666 400W PSU needed
- Core i9-9900 8C/16T/3.1GHz/16MB/65W/DDR4-2666
- Pentium Gold G5620 2C/4T/4.0GHz/4MB/54W/DDR4-2400
- Intel vPro Supports Intel vPro on Xeon models.

### Memory Protection

#### Storage Controller

<table>
<thead>
<tr>
<th>Storage Controller</th>
<th>Type</th>
<th>Interface</th>
<th>Disk Type</th>
<th>RAID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Intel RST SATA RAID</td>
<td>Std</td>
<td>SATA 6Gb/s</td>
<td>HDD or SSD</td>
<td>0/1:10/5</td>
</tr>
<tr>
<td>Onboard Intel PCIe NVMe RAID</td>
<td>Std</td>
<td>PCIe NVMe</td>
<td>M.2 PCIe SSD</td>
<td>0/1</td>
</tr>
</tbody>
</table>

### Storage Support

<table>
<thead>
<tr>
<th>Storage Device</th>
<th>Capacity</th>
<th>Power Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to five bays</td>
<td>3.5&quot; SATA HDD</td>
<td>3</td>
</tr>
<tr>
<td>with four disk</td>
<td>2.5&quot; SATA SSD</td>
<td>4</td>
</tr>
<tr>
<td>bays plus one</td>
<td>Optane Memory</td>
<td>32GB</td>
</tr>
<tr>
<td>optical bay</td>
<td>PCIe NVMe</td>
<td>used with HDD/SSD</td>
</tr>
</tbody>
</table>

### Storage Bays

#### Processor graphics

- Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5" HDD plus 1x 2.5" SSD, or 4x 2.5" HDD/SSD

- Bay 1 Primary disk bay, 3.5" or 2.5"
- Bay 2 2.5" SATA bay, cannot be available when 2nd Quadro P2000 is used
- Bay 3 Secondary disk bay, 3.5" or 2.5"
- Bay 4 4x2.5" Flex bay, supports one of the following:
  - Flex module for optional front eSATA/Thunderbolt/IEEE1394
  - 3 disk bay, 3.5" or 2.5", removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode
  - 3 disk bay, 3.5" or 2.5", via 4x 2.5" to 3.5" HDD Kit
- Bay 5 9mm Slim ODD bay
- Bay 6 M.2 2x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)

### Network and Media reader

#### Network
- One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
- One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps

#### Media reader
- Optional SD card reader on most models

### Security features

#### Intel vPro
- Supports Intel vPro on Xeon models.
- vPro also requires Wireless-Ac 9560 if Wi-Fi is needed

#### Intel AMT
- Intel Active Management Technology 12 on Xeon models.
- Intel Standard Manageability on other models

### Base warranty
- US models comes with 3-year limited onsite service with 9x5/NBD.
- 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs

### HD Audio
- Intel HD Audio interface with Realtek ALC233 Codec

### Front ports
- 2x USB 3.1 Gen 1 Type A, 1x USB 3.1 Gen 1 Type-C, 1x Mic-in, 1x Combo jack
- 2x USB 3.1 Gen 1 Type A, 2x USB 2.0 Type-A, 1x RJ-45, 1x COM, 2x DP
- 2x Thunderbolt (USB Type-C), one of two ports supports video-out. 1x eSATA. 1x IEEE1394

### Rear ports
- 1x Audio line-out
- 1x Thunderbolt (USB Type-C)

### Temperature
- Operating: 50°F to 104°F (-10°C to 40°C)
- Non operating: 40°F to 140°F (-40°C to 60°C)

---

### Lenovo, September 2019
**Components** | **Specification**
--- | ---
Altitude | Operating: -15.2 m (-50 ft) to 3048 m (10,000 ft). 
Storage: -15.2 m (-50 ft) to 10,668 m (35,000 ft)
Humidity | Operating: 30%–90%, non-condensing 
Storage (with package): 20%–90%, non-condensing
Environmental certification | RoHS-compliant, GREENGUARD, EPEAT Silver rating and ENERGY STAR 7 qualified
Power supply | Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.
ISV certifications | Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

*Note:*
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.
### ThinkStation P520 Platform Specifications

**Product Specifications Reference (PSREF)**

#### Storage Controller

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xeon W-2195</td>
<td>18</td>
<td>36</td>
<td>2.3GHz</td>
<td>24.75MB</td>
<td>140W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2175</td>
<td>14</td>
<td>28</td>
<td>2.5GHz</td>
<td>19MB</td>
<td>140W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2155</td>
<td>10</td>
<td>20</td>
<td>3.3GHz</td>
<td>13.75MB</td>
<td>140W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2145</td>
<td>8</td>
<td>16</td>
<td>3.7GHz</td>
<td>11MB</td>
<td>140W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2135</td>
<td>6</td>
<td>12</td>
<td>3.6GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2125</td>
<td>4</td>
<td>8</td>
<td>4.0GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2123</td>
<td>4</td>
<td>8</td>
<td>3.6GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2114</td>
<td>4</td>
<td>8</td>
<td>3.2GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon W-2102</td>
<td>4</td>
<td>4</td>
<td>2.9GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2666</td>
</tr>
</tbody>
</table>

#### Processor Support

**Chipset** Intel C422 Chipset

**Memory Sockets** 8 DIMM sockets with 4 channels

**Memory Types** DDR4-2666 RDIMM

**Memory Capacity** 256GB with 8 x 32GB RDIMMs

**Memory Protection ECC**

**Weight** Maximum configuration: 52.91 lb (24kg)

**Dimensions** 165mm/6.5" W x 460mm/18.1" D x 440mm/17.3" H (with feet)

**Form factor** 33L Tower

**Max Storage**
- Supports up to 5x M.2 SSD + 6x 3.5" HDD/6x 2.5" SATA SSDs/disks/4x 2.5" SAS HDD + 1x PCIe AIC SSD.
- All HDD: 36TB using 6x 3.5" HDD.
- All SSD: 30.48TB using 6x 2.5" SATA SSD, 9x M.2 SSD, and 1x PCIe AIC SSD

**Power supply**
- One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified
- One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified

**Power-on and admin password**
- Trusted Platform Module, TCG 2.0 compliant, switch
- Trusted Platform Module, TCG 2.0 compliant, switch

**BIOS**
- Intel AMT Intel Active Management Technology 11

**Diagostics**
- Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diagnostics for Android and iOS. Optional front 4-digit diagnostic display on flex module
- Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diagnostics for Android and iOS. Optional front 4-digit diagnostic display on flex module

**Base warranty** 1 or 3-year limited onsite service with 9x5/5x2

**Environmental**
- Temperature - operating: 60°F to 95°F (10°C to 35°C)
- Temperature - storage (no package): -4°F to 140°F (-20°C to 60°C)
- Temperature - storage (with package): -40°F to 140°F (-40°C to 60°C)
- Altitude - storage (Unpressurized): -50ft-10000ft (-15.2m-3048m)
- Humidity - operating: 10%~80%, non-condensing
- Humidity - storage (with package): 10%~90%, non-condensing
- RoHS-compliant. GREENGUARD EPEAT Silver rating. ENERGY STAR 6.1 qualified on model 30BE0008US and 30BE0009US

**ISV certifications** Please visit www.thinkworkstations.com/isv-certifications/

**Note:**
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. To support the maximum expandability, 900W power supply may be needed.
3. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer

Lenovo, September 2019
## ThinkStation P520c Platform Specifications

**Form factor** 25L Tower  
**Dimensions** 175mm/6.89” W x 426mm/16.77” D x 376mm/14.8” H (with feet)  
**Weight** Maximum configuration: 31.97 lb (14.5kg)

### Processor Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xeon W-2195</td>
<td>18</td>
<td>26</td>
<td>2.3GHz</td>
<td>24.75MB</td>
<td>140W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon W-2195</td>
<td>16</td>
<td>28</td>
<td>2.5GHz</td>
<td>19MB</td>
<td>140W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon W-2155</td>
<td>10</td>
<td>20</td>
<td>3.3GHz</td>
<td>13.75MB</td>
<td>140W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon W-2145</td>
<td>8</td>
<td>16</td>
<td>3.7GHz</td>
<td>11MB</td>
<td>140W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon W-2133</td>
<td>6</td>
<td>12</td>
<td>3.6GHz</td>
<td>8.25MB</td>
<td>140W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon W-2125</td>
<td>4</td>
<td>8</td>
<td>4.0GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon W-2123</td>
<td>4</td>
<td>8</td>
<td>3.8GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon W-2114</td>
<td>4</td>
<td>4</td>
<td>3.2GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2400</td>
</tr>
</tbody>
</table>

### Storage Specifications

- **Weight**: Maximum configuration: 31.97 lb (14.5kg)  
- **Dimensions**: 175mm/6.89” W x 426mm/16.77” D x 376mm/14.8” H (with feet)  
- **Battery**: 2 flex bays. Supports the following:  
  - 2x half-height optical drives  
  - 2x 5.25” 9.0mm optical drives  
  - 1x 5.25” 9.0mm optical drive + 2x 3.5” 2.5” SATA SSD/HDD  
  - 1x 3.5” 2.5” SATA SSD/HDD with Front Access Storage Enclosure  
  - 1x flex module for the following options:  
    - Tray 1: 9.0mm optical  
    - Tray 2: 15-in-1 USB 3.0 reader, 2x Thunderbolt, or 4-digit diagnostic display  
    - 1x 3.5” 2.5” disks on front removable drive enclosures  
- **Disk Bays**: Up to 2x 3.5” 2.5” disks with 2 disk bays  

### Expansion Slots

<table>
<thead>
<tr>
<th>Slot</th>
<th>Memory</th>
<th>Power</th>
<th>Connector</th>
<th>SLI/NV-link</th>
<th>Max Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 1 (CPU)</td>
<td>PCIe 3.0 x16, full height, full length, 75W,</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Slot 2 (CPU)</td>
<td>PCIe 3.0 x8, full height, full length, 25W, open ended</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Slot 3 (CPU)</td>
<td>PCIe 3.0 x16, full height, full length, 75W,</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Slot 4 (PCH)</td>
<td>PCIe 3.0 x4, full height, full length, 25W, open ended</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

### Power Supply

- **Max Storage**: Supports up to 5x M.2 SSD + 4x 3.5” HDD/4x 2.5” SSD/4x 2.5” HDD  
  - All HDD: 24TB using 4x 3.5” 2.5” HDD  
  - All SSD: 18TB using 4x 2.5” SATA SSD and 5x M.2 SSD  
- **Power supply**: One fixed 500W, autosensing, 92%, 80 PLUS Platinum qualified  
- **Media reader**: SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module  
- **Network interfaces**: Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available  
- **WLAN + Bluetooth**: Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps  
- **Security features**: Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and bad lock  
- **Intel vPro**: Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed  
- **Intel AMT**: Intel Active Management Technology 11  
- **Diagnostic**: ThinkStation Diagnostics for Windows. Optional front 4-digit diagnostic display on flex module  
- **Base warranty**: 1 or 3-year limited onsite service with 9x5/NBD  
- **HD Audio**: Realtek ALC662 codec  
- **Front ports**: 2x USB 3.0, microphone (3.5mm), headphone (3.5mm)  
- **Rear ports**: 2x USB 2.0, 4x USB 3.0, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2  
- **Optional ports**: Supports the following optional ports:  
  - Front: 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out  
  - 1x eSATA on flex module  
  - 1x USB Type-C on flex module, USB 3.1 gen 1  
- **Environmental specifications**:  
  - Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C)  
  - Temperature - storage (no pack- age): 14 °F to 140 °F (-10 °C to 60 °C)  
  - Temperature - storage (with pack- age): 40 °F to 140 °F (-40 °C to 60 °C)  
- **Humidity - operating**: Unpressurized, ~50% to 80%, non-condensing  
- **Humidity - storage (with package)**: 10%–90%, non-condensing  

### Storage Support

- **3.5” SATA SSD**: SATA 6Gb/s 7.2K 1TB/2TB/4TB/6TB 4  
- **2.5” SATA SSD**: SATA 6Gb/s 7.2K 500GB/500GB FIPS 4  
- **M.2 PCIe SSD**: PCIe NVMe 256GB/512GB/1TB/2TB 4  
- **Disk Bays**: Supports the following options:  
  - 2x half-height optical drives  
  - 2x 5.25” 9.0mm optical drives  
  - 1x 5.25” 9.0mm optical drive + 2x 3.5” 2.5” SATA SSD/HDD  
  - 1x 3.5” 2.5” SATA SSD/HDD with Front Access Storage Enclosure  
  - 1x flex module for the following options:  
    - Tray 1: 9.0mm optical  
    - Tray 2: 15-in-1 USB 3.0 reader, 2x Thunderbolt, or 4-digit diagnostic display  
    - 1x 3.5” 2.5” disks on front removable drive enclosures  
- **Disk Bays**: Up to 2x 3.5” 2.5” disks with 2 disk bays  

---

**Lenovo, September 2019**
ThinkStation P720 Photography

Product Specifications Reference (PSREF)

© Copyright Lenovo 2018. All rights reserved.

Expansion slots

<table>
<thead>
<tr>
<th>Slot 1 (CPU)</th>
<th>PCIe x16, full height, full length, 75W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 2 (CPU)</td>
<td>PCIe x16, full height, full length, 75W, double-in</td>
</tr>
<tr>
<td>Slot 3 (CPU)</td>
<td>PCIe x16, full height, full length, 25W, open ended</td>
</tr>
<tr>
<td>Slot 4 (CPU)</td>
<td>PCIe x16, full height, full length, 75W, double-in</td>
</tr>
<tr>
<td>Slot 5 (PCI)</td>
<td>PCIe x16, full height, full length, 25W</td>
</tr>
<tr>
<td>Slot 6 (PCH)</td>
<td>PCIe x4, half height, half length, 25W, open ended</td>
</tr>
</tbody>
</table>

900W PSU supports two 6+2-pin aux power connectors. 860W PSU supports one 6+2-pin aux power connector.

Note: All expansion cards are optional.
# ThinkStation P720 Platform Specifications

**Form factor**: 36L Tower

**Dimensions**: 175mm/6.89" W x 485mm/19.1" D x 446mm/17.6" H (with feet)

**Weight**: Maximum configuration: 52.25 lb (23.7kg)

**Processor Sockets**: 2x FCLGA3647

**Processor Support**: Up to two 150 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum

## Processor Offering

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xeon Gold 6242</td>
<td>16</td>
<td>32</td>
<td>2.6GHz</td>
<td>22MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 6238T</td>
<td>22</td>
<td>44</td>
<td>1.9GHz</td>
<td>30MB</td>
<td>125W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 6234</td>
<td>8</td>
<td>16</td>
<td>3.0GHz</td>
<td>25MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Gold 6230</td>
<td>20</td>
<td>40</td>
<td>2.1GHz</td>
<td>28MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 5222</td>
<td>6</td>
<td>12</td>
<td>3.6GHz</td>
<td>17MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 5218</td>
<td>16</td>
<td>32</td>
<td>2.3GHz</td>
<td>22MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Gold 5217</td>
<td>8</td>
<td>16</td>
<td>3.0GHz</td>
<td>11MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Gold 5215</td>
<td>10</td>
<td>20</td>
<td>2.5GHz</td>
<td>13.75MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4216</td>
<td>16</td>
<td>32</td>
<td>2.1GHz</td>
<td>22MB</td>
<td>100W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon Silver 4215</td>
<td>8</td>
<td>16</td>
<td>2.5GHz</td>
<td>11MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4214</td>
<td>12</td>
<td>24</td>
<td>2.2GHz</td>
<td>17MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4210</td>
<td>10</td>
<td>20</td>
<td>2.2GHz</td>
<td>14MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4209T</td>
<td>8</td>
<td>16</td>
<td>2.2GHz</td>
<td>11MB</td>
<td>75W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4208</td>
<td>8</td>
<td>16</td>
<td>1.9GHz</td>
<td>11MB</td>
<td>70W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Bronze 3204</td>
<td>6</td>
<td>12</td>
<td>1.6GHz</td>
<td>8.25MB</td>
<td>85W</td>
<td>DDR4-2133</td>
</tr>
<tr>
<td>Xeon Platinum 8160T</td>
<td>16</td>
<td>32</td>
<td>2.1GHz</td>
<td>33MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 6142</td>
<td>16</td>
<td>32</td>
<td>2.6GHz</td>
<td>22MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 6136</td>
<td>12</td>
<td>24</td>
<td>3.0GHz</td>
<td>24.75MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 6134</td>
<td>8</td>
<td>16</td>
<td>3.2GHz</td>
<td>24.75MB</td>
<td>130W</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Xeon Gold 6128</td>
<td>6</td>
<td>12</td>
<td>3.4GHz</td>
<td>19.25MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 5122</td>
<td>4</td>
<td>8</td>
<td>3.6GHz</td>
<td>16.5MB</td>
<td>150W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Gold 5120T</td>
<td>14</td>
<td>28</td>
<td>2.2GHz</td>
<td>19.25MB</td>
<td>105W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Gold 5118</td>
<td>12</td>
<td>24</td>
<td>2.5GHz</td>
<td>16.5MB</td>
<td>105W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Gold 5115</td>
<td>10</td>
<td>20</td>
<td>2.4GHz</td>
<td>13.75MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4116</td>
<td>12</td>
<td>24</td>
<td>2.1GHz</td>
<td>16.5MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4114T</td>
<td>10</td>
<td>20</td>
<td>2.2GHz</td>
<td>13.75MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4114</td>
<td>10</td>
<td>20</td>
<td>2.2GHz</td>
<td>13.75MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4112</td>
<td>4</td>
<td>8</td>
<td>2.6GHz</td>
<td>8.25MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4110</td>
<td>8</td>
<td>16</td>
<td>2.1GHz</td>
<td>11MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4109T</td>
<td>8</td>
<td>16</td>
<td>2.0GHz</td>
<td>11MB</td>
<td>70W</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>Xeon Silver 4108</td>
<td>8</td>
<td>16</td>
<td>1.83GHz</td>
<td>11MB</td>
<td>85W</td>
<td>DDR4-2400</td>
</tr>
</tbody>
</table>

**Chipset**: Intel C621 Chipset

**Memory Sockets**: 12 DIMM sockets with 12 channels, 6 DIMM sockets with 6 channels per processor

**Memory Types**: DDR4-2666 RDIMM

**Memory Capacity**: 768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2466 RDIMM)

**Memory Protection**: ECC

## Expansion slots

<table>
<thead>
<tr>
<th>Slot 1 (CPU2)</th>
<th>PCIe 3.0 x16, full height, full length, 75W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 2 (CPU1)</td>
<td>PCIe 3.0 x16, full height, full length, 75W, double-width</td>
</tr>
<tr>
<td>Slot 3 (CPU1)</td>
<td>PCIe 3.0 x16, full height, full length, 75W, double-width</td>
</tr>
<tr>
<td>Slot 4 (CPU1)</td>
<td>PCIe 3.0 x16, full height, full length, 75W, double-width</td>
</tr>
<tr>
<td>Slot 5</td>
<td>PCI, full height, full length, 25W</td>
</tr>
<tr>
<td>Slot 6 (PCH)</td>
<td>PCIe 3.0 x4, full height, half length, 25W, open-ended</td>
</tr>
</tbody>
</table>

**Processor Support**: Supports up to two 150 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum

**Chipset**: Intel C621 Chipset

**Memory Sockets**: 12 DIMM sockets with 12 channels, 6 DIMM sockets with 6 channels per processor

**Memory Types**: DDR4-2666 RDIMM

**Memory Capacity**: 768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2466 RDIMM)

**Memory Protection**: ECC

## Discrete Graphics Offering

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Memory</th>
<th>Power</th>
<th>Connector</th>
<th>SLI / NVLink</th>
<th>Max Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVS 810</td>
<td>4GB DDR3</td>
<td>68W</td>
<td>8xmini DP</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Quadro P4000</td>
<td>8GB DDR5</td>
<td>160W</td>
<td>3xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 4000</td>
<td>16GB DDR6</td>
<td>256W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 5000</td>
<td>24GB DDR6</td>
<td>256W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 8000</td>
<td>48GB DDR6</td>
<td>325W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro GP1000</td>
<td>16GB HBM2</td>
<td>235W</td>
<td>1xV-DI-D DL+4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro GV1000</td>
<td>32GB HBM2</td>
<td>250W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 5000</td>
<td>16GB DDR6</td>
<td>256W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 6000</td>
<td>24GB DDR6</td>
<td>256W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 8000</td>
<td>48GB DDR6</td>
<td>325W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Storage Controller**: Onboard Intel RS8e, Std Sata 6Gb/s, RAID 0/1/5/10/50

**Storage Support**: Supports up to 9x M.2 SSD + 6x 3.5" SAS SSD/HDD + 2x PCIe AIC SSD

**Storage Bays**: Supports up to 9x M.2 SSD + 6x 3.5" SAS SSD/HDD + 2x PCIe AIC SSD

**Discrete Graphics Offering**: Supports up to 9x M.2 SSD + 6x 3.5" SATA SSD/10x 2.5" SATA SSD/10x 2.5" SATA SSD + 2x PCIe AIC SSD

---

Lenovo, September 2019
<table>
<thead>
<tr>
<th><strong>Power supply</strong></th>
<th>Supports one of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• One fixed 690W, autosensing, 92%, 80 PLUS Platinum qualified</td>
</tr>
<tr>
<td></td>
<td>• One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Media reader</strong></th>
<th>SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Network interfaces</strong></th>
<th>Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>WLAN + Bluetooth</strong></th>
<th>Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Security features</strong></th>
<th>Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Chassis intrusion switch. Optional access panel lock, Kensington lock, and pad lock</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Intel vPro</strong></th>
<th>Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Intel AMT</strong></th>
<th>Intel Active Management Technology 11</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Diagnostic</strong></th>
<th>Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diagnostics for Android and iOS. Optional front 4-digit diagnostic display on flex module</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Base warranty</strong></th>
<th>1 or 3-year limited onsite service with 9x5/NBD</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>HD Audio</strong></th>
<th>Realtek ALC662 codec</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Front ports</strong></th>
<th>4x USB 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Rear ports</strong></th>
<th>2x USB 2.0, 4x USB 3.0, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Optional ports</strong></th>
<th>Supports the following optional ports:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Front:</td>
</tr>
<tr>
<td></td>
<td>• 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out</td>
</tr>
<tr>
<td></td>
<td>• 1x eSATA on flex module</td>
</tr>
<tr>
<td></td>
<td>• 1x USB Type-C on flex module, USB 3.1 gen 1</td>
</tr>
<tr>
<td></td>
<td>Rear:</td>
</tr>
<tr>
<td></td>
<td>• 1x COM port</td>
</tr>
<tr>
<td></td>
<td>• 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W</td>
</tr>
<tr>
<td></td>
<td>Internal:</td>
</tr>
<tr>
<td></td>
<td>• 1x internal USB 3.0 port</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Environmental specification</strong></th>
<th>Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temperature - storage (no package): 14 °F to 140 °F (-10 °C to 60 °C)</td>
</tr>
<tr>
<td></td>
<td>Temperature - storage (with package): -40 °F to 140 °F (-40 °C to 60 °C)</td>
</tr>
<tr>
<td></td>
<td>Altitude - operating: (Unpressurized): 0-10000ft (0-3048m)</td>
</tr>
<tr>
<td></td>
<td>Humidity - operating: 10%-80%, non-condensing</td>
</tr>
<tr>
<td></td>
<td>Humidity - storage (with package): 10%-90%, non-condensing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Environmental Certifications</strong></th>
<th>RoHS-compliant, GREENGUARD, EPEAT Silver rating. ENERGY STAR 6.1 qualified on model 30BA0007US and 30BA0008US</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>SV certifications</strong></th>
<th>Please visit <a href="http://www.thinkworkstations.com/sv-certifications/">www.thinkworkstations.com/sv-certifications/</a></th>
</tr>
</thead>
</table>

**Note:**
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. To support the maximum expandability, 900W power supply may be needed.
3. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.
## ThinkStation P920 Platform Specifications

### Processor Offering

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xeon Platinum 8280</td>
<td>28</td>
<td>56</td>
<td>2.7GHz</td>
<td>38MB</td>
<td>205W DRR4-2933</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6254</td>
<td>18</td>
<td>36</td>
<td>3.1GHz</td>
<td>25MB</td>
<td>200W DRR4-2933</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6242</td>
<td>16</td>
<td>32</td>
<td>2.8GHz</td>
<td>30MB</td>
<td>150W DRR4-2933</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6238T</td>
<td>22</td>
<td>44</td>
<td>1.9GHz</td>
<td>30MB</td>
<td>125W DRR4-2933</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6234</td>
<td>8</td>
<td>16</td>
<td>3.3GHz</td>
<td>25MB</td>
<td>130W DRR4-2933</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6230</td>
<td>20</td>
<td>40</td>
<td>2.1GHz</td>
<td>28MB</td>
<td>125W DRR4-2933</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6222</td>
<td>8</td>
<td>16</td>
<td>3.0GHz</td>
<td>17MB</td>
<td>105W DRR4-2933</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 5218</td>
<td>16</td>
<td>32</td>
<td>2.3GHz</td>
<td>22MB</td>
<td>125W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 5217</td>
<td>8</td>
<td>16</td>
<td>3.0GHz</td>
<td>11MB</td>
<td>115W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 5215</td>
<td>10</td>
<td>20</td>
<td>2.5GHz</td>
<td>13.75MB</td>
<td>85W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4216</td>
<td>16</td>
<td>32</td>
<td>2.1GHz</td>
<td>22MB</td>
<td>100W DRR4-2400</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4215</td>
<td>8</td>
<td>16</td>
<td>2.5GHz</td>
<td>11MB</td>
<td>85W DRR4-2400</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4214</td>
<td>12</td>
<td>24</td>
<td>2.2GHz</td>
<td>17MB</td>
<td>85W DRR4-2400</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4210</td>
<td>10</td>
<td>20</td>
<td>2.2GHz</td>
<td>14MB</td>
<td>85W DRR4-2400</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4209T</td>
<td>8</td>
<td>16</td>
<td>2.2GHz</td>
<td>11MB</td>
<td>70W DRR4-2400</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4208</td>
<td>8</td>
<td>16</td>
<td>2.1GHz</td>
<td>11MB</td>
<td>70W DRR4-2400</td>
<td></td>
</tr>
<tr>
<td>Xeon Bronze 3204</td>
<td>6</td>
<td>6</td>
<td>1.9GHz</td>
<td>8.25MB</td>
<td>85W DRR4-2133</td>
<td></td>
</tr>
<tr>
<td>Xeon Platinum 81601</td>
<td>24</td>
<td>48</td>
<td>2.1GHz</td>
<td>33MB</td>
<td>150W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6142</td>
<td>16</td>
<td>32</td>
<td>2.6GHz</td>
<td>22MB</td>
<td>150W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6136</td>
<td>12</td>
<td>24</td>
<td>3.0GHz</td>
<td>24.75MB</td>
<td>150W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6128</td>
<td>8</td>
<td>16</td>
<td>3.2GHz</td>
<td>24.75MB</td>
<td>130W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 6128T</td>
<td>8</td>
<td>16</td>
<td>3.4GHz</td>
<td>19.25MB</td>
<td>115W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 5122</td>
<td>4</td>
<td>8</td>
<td>3.6GHz</td>
<td>16.5MB</td>
<td>105W DRR4-2666</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 5120T</td>
<td>14</td>
<td>28</td>
<td>2.2GHz</td>
<td>19.25MB</td>
<td>105W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 5118</td>
<td>12</td>
<td>24</td>
<td>2.3GHz</td>
<td>16.5MB</td>
<td>105W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Gold 5116</td>
<td>10</td>
<td>20</td>
<td>2.4GHz</td>
<td>13.75MB</td>
<td>85W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4116</td>
<td>12</td>
<td>24</td>
<td>2.1GHz</td>
<td>16.5MB</td>
<td>85W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4114T</td>
<td>10</td>
<td>20</td>
<td>2.2GHz</td>
<td>13.75MB</td>
<td>85W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4114</td>
<td>10</td>
<td>20</td>
<td>2.2GHz</td>
<td>13.75MB</td>
<td>85W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4112</td>
<td>4</td>
<td>8</td>
<td>2.6GHz</td>
<td>13.75MB</td>
<td>85W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4110</td>
<td>8</td>
<td>16</td>
<td>2.1GHz</td>
<td>11MB</td>
<td>70W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4109T</td>
<td>8</td>
<td>16</td>
<td>2.0GHz</td>
<td>11MB</td>
<td>70W DRR4-2664</td>
<td></td>
</tr>
<tr>
<td>Xeon Silver 4108</td>
<td>8</td>
<td>16</td>
<td>1.8GHz</td>
<td>11MB</td>
<td>70W DRR4-2664</td>
<td></td>
</tr>
</tbody>
</table>

### Expansion slots

| Slot (CPU1) | PCIe x16, full height, full length, 75W, double-width |
| Slot (CPU2) | PCIe x16, full height, full length, 75W, double-width |
| Slot (CPU3) | PCIe x4, full height, full length, 25W, open ended |
| Slot (CPU4) | PCIe x4, full height, full length, 25W, open ended |
| Slot (CPU5) | PCIe x16, full height, full length, 75W, double-width |
| Slot (CPU6) | PCIe x16, full height, full length, 75W, double-width |

### Chipset

- Intel C621 Chipset

### Memory Sockets

- 16 DIMM sockets with 12 channels, 8 DIMM sockets with 6 channels per processor

### Memory Capacity

- 1TB (DRR4-2666 LRDIMM, DRR4-2666 RDIMM) or DRR4-2933 RDIMM

### Memory Protection

- ECC

### Storage Bays

- 1x 5.25" SSD (2 onboard, via PCIe to M.2 adapter)
- 2x 3.5" or 2.5" disks. Supports the following:
  - 3x half-height optical drives
  - 2x 5.25" 9.0mm optical drives
  - 1x 5.25" 9.0mm optical drive + 1x 3.5"/2.5" SATA SSD/HDD
  - 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure
  - 1x flex module for the following options:
    - Tray 1: 9.0mm optical drive
    - Tray 2: Front USB 3.0 Type-C or eSATA
  - 1x 5.25" SATA HDD
  - 1x 3.5"/2.5" SATA SSD/HDD
  - 1x 3.5"/2.5" SATA SSD/HDD

### Storage Support

- Onboard Intel RSTe Std SATA 6Gb/s 0/1/10/5
- Onboard Intel RSTe Opt SAS 12Gb/s SATA 6Gb/s 0/1/10/5
- NVMe Basic Opt PCIe NVMe 0/1/10
- NVMe Premium Opt PCIe NVMe 0/1/10
- NVMe for Intel SSD Opt PCIe NVMe 0/1/10

### Storage Controller

- Disk Type Interface RPM Offering Max Qty (9460 used)
- 3.5" SATA HDD SATA 6Gb/s 7.2K 1TB/2TB/4TB/6TB 6 (Also supports additional 4x 2.5" SATA SSD/HDD)
- 2.5" SATA HDD SATA 6Gb/s 7.2K 500GB/500GB FIPS 10
- 2.5" SAS HDD SAS 12Gb/s 10K 300GB/600GB 8
- 2.5" SATA SSD SSD 6Gb/s 256GB/512GB/1TB/2TB 10
- 2.5" PCIe SSD PCIe NVMe 1.5TB 4
- M.2 PCIe SSD PCIe NVMe 256GB/512GB/1TB/2TB 9
- PCIe AIC SSD PCIe NVMe 480GB 2

### Graphics

- NVS 810 4GB DDR3 68W 8xmini DP
- Quadro P4000 2GB GDDR5 30W 3xminiDP
- Quadro P6000 2GB GDDR5 45W 4xminiDP
- Quadro P620 2GB GDDR5 40W 4xminiDP
- Quadro P1000 4GB GDDR5 50W 4xminiDP
- Quadro P2000 5GB GDDR5 75W 4xDP
- Quadro P4000 8GB GDDR5 120W 4xDP
- Quadro P5000 16GB GDDR5X 180W DVI-D DL+4xDP
- Quadro P6000 24GB GDDR5X 250W DVI-D DL+4xDP
- Quadro RTX 4000 8GB GDDR6 160W 6xDP, 1xVirtualLink
- Quadro RTX 5000 16GB GDDR6 265W 4xDP, 1xVirtualLink
- Quadro RTX 6000 24GB GDDR6 295W 4xDP, 1xVirtualLink
- Quadro RTX 8000 48GB GDDR6 295W 4xDP, 1xVirtualLink
- Quadro GP100 16GB HBM2 235W 1xV-DI-D DL+4DP
- Quadro NV100 32GB HBM2 250W 4xDP
- Quadro NV100 32GB HBM2 250W 4xDP

### Discrete Graphics Offering

- NVL / NVlink

### Disk bay

- 9x Flex Bay Drive Enclosures
- NVMe Basic Opt PCIe NVMe 0/1/10
- NVMe for Intel SSD Opt PCIe NVMe 0/1/10

### Flex Bay

- 4x 3.5" SATA HDD
- 4x 3.5" SATA SSD + 4x 2.5" SATA SSD/HDD
- 8x 2.5" SATA SSD/HDD or 8x 2.5" SAS HDD
### Max Storage
- Supports up to 9x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD.
  - All HDD: 36TB using 6x 3.5" HDD
  - All SSD: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD

### Power supply
- One fixed 1400 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified.
- Countries with input voltage under 115V, output power limited to 1125 watts

### Media reader
- SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module

### Network interfaces
- Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available

### WLAN + Bluetooth
- Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps

### Security features
- Power-on and admin password, Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting, Chassis intrusion switch. Optional access panel lock, Kensington lock, and pad lock

### Intel vPro
- Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed

### Intel AMT
- Intel Active Management Technology 11

### Diagnostic
- Front 4-digit diagnostic display. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diagnostics for Android and iOS

### Base warranty
- 1 or 3-year limited onsite service with 9x5/NBD

### HD Audio
- Realtek ALC662 codec

### Front ports
- 4x USB 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)

### Rear ports
- 2x USB 2.0, 4x USB 3.0, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2

### Optional ports
- Supports the following optional ports:
  - Front:
    - 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out
    - 1x eSATA on flex module
    - 1x USB Type-C on flex module, USB 3.1 gen 1
  - Rear:
    - 1x COM port
    - 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W
  - Internal:
    - 1x internal USB 3.0 port

### Environmental specification
- Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C)
- Temperature - storage (no package): 14 °F to 140 °F (-10 °C to 60 °C)
- Temperature - storage (with package): -40 °F to 140 °F (-40 °C to 60 °C)
- Altitude - operating: 0-10000 ft (0-3048m)
- Humidity - operating: 10%-80%, non-condensing
- Humidity - storage (with package): 10%-90%, non-condensing

### Environmental Certifications
- RoHS-compliant, GREENGUARD, EPEAT Silver rating, ENERGY STAR 6.1 qualified on model 30BC0008US and 30BC0009US

### ISV certifications
- Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

**Note:**
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer (houyf@lenovo.com)
This publication was developed for products and services offered in the United States and E.M.E.A countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors. 

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkCentre, ThinkStation and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

<table>
<thead>
<tr>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
</tr>
<tr>
<td>Contents</td>
</tr>
<tr>
<td>Summary Of Change</td>
</tr>
<tr>
<td>13 Inch - 16 Inch</td>
</tr>
<tr>
<td>ThinkVision M14</td>
</tr>
<tr>
<td>404x404 ThinkVision M14 Platform Specifications</td>
</tr>
<tr>
<td>17 Inch - 20 Inch</td>
</tr>
<tr>
<td>ThinkVision E1922s</td>
</tr>
<tr>
<td>ThinkVision E1922s Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision E2054</td>
</tr>
<tr>
<td>ThinkVision E2054 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision LT1913p Square</td>
</tr>
<tr>
<td>ThinkVision LT1913p Square Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T1714</td>
</tr>
<tr>
<td>ThinkVision T1714 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T1714p</td>
</tr>
<tr>
<td>ThinkVision T1714p Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T2054p</td>
</tr>
<tr>
<td>ThinkVision T2054p Platform Specifications</td>
</tr>
<tr>
<td>21 Inch - 24 Inch</td>
</tr>
<tr>
<td>ThinkVision E21</td>
</tr>
<tr>
<td>ThinkVision E21 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision E24</td>
</tr>
<tr>
<td>ThinkVision E24 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision P24h</td>
</tr>
<tr>
<td>ThinkVision P24h Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision P24q</td>
</tr>
<tr>
<td>ThinkVision P24q Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision S22e</td>
</tr>
<tr>
<td>ThinkVision S22e Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision S24e</td>
</tr>
<tr>
<td>ThinkVision S24e Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T2224d</td>
</tr>
<tr>
<td>ThinkVision T2224d Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T2254</td>
</tr>
<tr>
<td>ThinkVision T2254 Platform Specifications</td>
</tr>
<tr>
<td>Product</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>ThinkVision P27u</td>
</tr>
<tr>
<td>ThinkVision P32u</td>
</tr>
<tr>
<td>ThinkVision P32u Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision P44w-10</td>
</tr>
<tr>
<td>ThinkVision P44w-10 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision S27i</td>
</tr>
<tr>
<td>ThinkVision S27i Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T25d-10</td>
</tr>
<tr>
<td>ThinkVision T25d-10 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T25m-10</td>
</tr>
<tr>
<td>ThinkVision T25m-10 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T27i</td>
</tr>
<tr>
<td>ThinkVision T27i Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision T27p-10</td>
</tr>
<tr>
<td>ThinkVision T27p-10 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision X1</td>
</tr>
<tr>
<td>ThinkVision X1 Platform Specifications</td>
</tr>
<tr>
<td>ThinkVision X1 (2nd Gen)</td>
</tr>
<tr>
<td>ThinkVision X1 (2nd Gen) Platform Specifications</td>
</tr>
<tr>
<td>Legal Information</td>
</tr>
</tbody>
</table>
Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

**Julý, 2019 - Version 534**

Additions in this update

► **New product(s)**
  ThinkVision M14 announced June 2019

► **New model(s)**
  None

► **Others**
  None

Withdrawals in this update

► **Withdrawn product(s)**
  None
### Connect with USB Type-C

- **USB Type-C**
  - Replaces the need for multiple cables
  - Power Delivery
  - Charging devices
  - Data transfers

### Features and Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Type</td>
<td>14-inch WLED</td>
</tr>
<tr>
<td>Screen Dimensions (W x H, mm)</td>
<td>309.31 x 173.99</td>
</tr>
<tr>
<td>Pixel Pitch (H x V, mm)</td>
<td>0.1611 x 0.1611</td>
</tr>
<tr>
<td>Refresh Rate</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Contrast Ratio</td>
<td>1570:1</td>
</tr>
<tr>
<td>Brightness (typical)</td>
<td>300 nits</td>
</tr>
<tr>
<td>Colour Gamut NTSC (CIE 1931)</td>
<td>72%</td>
</tr>
<tr>
<td>Color Support (typical)</td>
<td>16.7 Million</td>
</tr>
<tr>
<td>Color Depth</td>
<td>8-bit (6-bit + FRC)</td>
</tr>
<tr>
<td>Viewing angle (H x V @ CR 10:1)</td>
<td>178° / 178°</td>
</tr>
<tr>
<td>Panel Size</td>
<td>204.49 x 118.78</td>
</tr>
<tr>
<td>Size Packed (D x H x W)</td>
<td>96.54 x 220.03 x 323.37 mm</td>
</tr>
<tr>
<td>Bezel Width (top / bottom)</td>
<td>5.47 mm / 23.87 mm</td>
</tr>
<tr>
<td>Bezel Width (side)</td>
<td>3.8 x 8.66 x 12.73 inches</td>
</tr>
<tr>
<td>Tilt Angle (front/back)</td>
<td>-5° ~ 90°</td>
</tr>
<tr>
<td>Monitor Stand</td>
<td>Yes</td>
</tr>
<tr>
<td>Height Adjustable Foot</td>
<td>Yes</td>
</tr>
<tr>
<td>Weight</td>
<td>2.0 kg / 4.4 lbs.</td>
</tr>
<tr>
<td>Size Unpacked w/stand</td>
<td>260.87 x 69.55 mm / 10.27 x 2.74 inches</td>
</tr>
</tbody>
</table>

### Package Contents

- 1 x Monitor (WLED)
- 1 x QSG
- 1 x Quick Start Guide
- 1 x Power Cord
- 2 x USB Type-C Cables
- 2 x USB Type-C to C Cables
- 1 x Power Cord (1 m / 3 ft)

### Safety Information

- **Arsenic-free Glass**: Yes
- **Mercury free**: Yes
- **Arsenic-free / Lead-free / Mercury-free / PVC-free**: Yes
- **Energy Efficiency Standard**: Tier 2
- **China Energy Efficiency Standard**: 1.0
- **Low Blue Light / Eye Comfort**: Yes (Low Blue Light)

### Region Availability

- **Worldwide**: Yes

### Warranty

- **Duration**: 3 years
- **Worldwide**: Yes

### Power Consumption

- **Switch-Off Mode**: < 0.3 W
- **Full Power**: 4.88 W
- **Maximum**: 15.53 kWh
- **Power Supply**: DC 5 V to 20 V
- **USB Type-C/Power Delivery**: Up to 65 W
- **AC Input**: 110-240 V, 50-60 Hz
- **Power Consumption Inside/off Base**: 1.67 kg / 3.67 lbs.
# Lenovo ThinkVision E1922s Wide

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>E1922s Wide Flat Panel Monitor</td>
</tr>
<tr>
<td><strong>Case color</strong></td>
<td>Black</td>
</tr>
<tr>
<td><strong>Type-model</strong></td>
<td>60G2AAR6US / 60G2AAT6EU</td>
</tr>
<tr>
<td><strong>Panel</strong></td>
<td>TFT-LCD, twisted nematic (TN), White LED backlight</td>
</tr>
<tr>
<td><strong>Viewable image size</strong></td>
<td>18.5&quot; (470mm) diagonal</td>
</tr>
<tr>
<td><strong>Max view area (W x H)</strong></td>
<td>16.1&quot; x 9.1&quot; / 409.8mm x 230.4mm</td>
</tr>
<tr>
<td><strong>Native resolution</strong></td>
<td>1366x768</td>
</tr>
<tr>
<td><strong>Aspect ratio</strong></td>
<td>16:9</td>
</tr>
<tr>
<td><strong>Pixel pitch (mm)</strong></td>
<td>0.3mm</td>
</tr>
<tr>
<td><strong>Dot/Pixel per inch</strong></td>
<td>85 dpi</td>
</tr>
<tr>
<td><strong>Brightness</strong></td>
<td>200 nits or cd/m² (typical)</td>
</tr>
<tr>
<td><strong>Contrast ratio</strong></td>
<td>600:1 (typical)</td>
</tr>
<tr>
<td><strong>Pixel response time</strong></td>
<td>5ms (typical)</td>
</tr>
<tr>
<td><strong>Color gamut</strong></td>
<td>72%</td>
</tr>
<tr>
<td><strong>Viewing angle at 10:1 CR</strong></td>
<td>180° (+/- 90°) horizontal, 100° (+/- 50°) vertical</td>
</tr>
<tr>
<td><strong>Stand</strong></td>
<td>Tilt adjustable stand</td>
</tr>
<tr>
<td><strong>Bezel width</strong></td>
<td>Sides: 0.73&quot; (18.5mm)</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td>341.5mm H x 448.4mm W x 167.2mm D</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>13.7 watts typical, 17 watts maximum, &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>6.03 lb; 2.74 kg</td>
</tr>
<tr>
<td><strong>Limited warranty</strong></td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td><strong>Available date</strong></td>
<td>March 2014</td>
</tr>
</tbody>
</table>

## Features
- Widescreen 18.5-inch monitor
- Supports HD 1366x768 resolution
- Supports VESA mount (100mm)
- Mercury free panel and arsenic free glass
- Kensington lock slot ready for enhanced security
- Support Lenovo Tiny PC via VESA mount
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified

## Preset resolutions
- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600, 832x624
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA: 1366x768

## Presets / user settings
- Standard presets: 15
- User settings: 16

## Viewing adjustments
- Tilt: 20° backward, -5° forward

## Rotating screen
- None

## Control features
- On screen display with digital user controls (8 languages)

## Multiple input
- None

## Monitor connectors
- VGA 15-pin D-shell, analog, blue

## Signal cables
- Detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter

## Mounting features
- Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

## Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

## Ship group
- Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord

---

**Limited Warranty**


**Accessories**

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kensington MicroSaver Cable Lock</td>
<td>73P2582</td>
</tr>
<tr>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
</tbody>
</table>

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**Lenovo ThinkVision E2054 Wide**

### Features
- Widescreen 19.5-inch monitor
- Supports HD 1440x900 resolution
- Supports VESA mount (100mm)
- Mercury free panel and arsenic free glass
- Kensington lock slot ready for enhanced security
- Support Lenovo Tiny PC via VESA mount
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

### Specifications

<table>
<thead>
<tr>
<th>Name</th>
<th>E2054 Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case color</td>
<td>Raven black</td>
</tr>
<tr>
<td>Type-model</td>
<td>60DFAAR1US / 60DFAAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>19.5&quot; (494mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>16.48&quot; x 10.33&quot; / 418.6mm x 262.4mm</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1440x900</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:10</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.097mm x 0.292mm</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>7ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Top: 0.71&quot; (18.0mm)</td>
</tr>
<tr>
<td></td>
<td>Bottom: 0.70&quot; (17.9mm)</td>
</tr>
<tr>
<td></td>
<td>Sides: 1.02&quot; (26.0mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>14.65&quot; H x 17.95&quot; W x 7.41&quot; D: 372.0mm H x 456.0mm W x 188.3mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>16 watts typical, 20 watts maximum, &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>6.17 lb; 2.8 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>November 2015</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DPMS-compliant</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® 6.0</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO (TCO Displays 6.0), WEEE, RoHS, EPEAT® Silver rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x768, 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA: 1366x768</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900</td>
</tr>
<tr>
<td>Presets / user settings</td>
<td>Standard presets: 18 user settings: 10</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 22° backward, -5° forward</td>
</tr>
<tr>
<td>Rotating screen</td>
<td>None</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access (control buttons on front) for automatic image setup and adjustment for brightness</td>
</tr>
<tr>
<td>Multiple input</td>
<td>None</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>VGA 15-pin D-shell, analog, blue</td>
</tr>
<tr>
<td>Signal cables</td>
<td>detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)</td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
</tbody>
</table>

### Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

**Limited Warranty**

## Lenovo ThinkVision LT1913p Square Flat Panel Monitor

**Name**: Lenovo ThinkVision LT1913p Square Flat Panel Monitor  
**Type-model**: 60FBHAR1US / 60FBHAT1EU  
**Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight  
**Viewable image size**: 19.0" (480.0mm) diagonal  
**Max view area (W x H)**: 14.76" x 11.80" (374.7mm x 299.8mm)  
**Optimum resolution**: 1280x1024  
**Max pixel rate**: 250MHz (VGA), 165MHz (DVI)  
**Aspect ratio**: 5:4  
**Pixel pitch (mm)**: 0.0976 (H) x 0.2928 (V) mm  
**Brightness**: 250 nits or cd/m² (typical)  
**Contrast ratio**: 1000:1 (typical)  
**Pixel response time**: 7ms (typical)  
**Color gamut**: 72%  
**Viewing angle at 10:1 CR**: 178° horizontal, 178° vertical  
**Stand**: Tilt, swivel, pivot, and height adjustable stand  
**Bezel width**: Sides: 0.68" (17.4mm); top: 0.68" (17.4mm); bottom: 0.68" (17.4mm)  
**Dimensions (HxWxD)**: 14.63" H x 16.18" W x 10.40" D; 371.5mm H x 411.0mm W x 264.2mm D  
**Power supply**: 24 watts typical, 27 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)  
**Weight**: 10.69 lb; 4.85kg  
**Limited warranty**: 3 year (includes backlight)  
**Available date**: April 2015  

### Features

- 19-inch Square IPS LED backlit panel  
- Supports 1280x1024 resolution  
- Supports ThinkCentre Tiny Clamp Bracket  
- Mercury and arsenic free glass  
- Low Halogen  
- Recycled content in plastic material  
- Supports optional soundbar  
- Microsoft® Windows® 7 certified  
- Microsoft Windows 8 / Windows 8.1 certified  
- Microsoft Windows 10 certified  

### Preset resolutions

- VGA: 640x350, 640x480, 720x400  
- SVGA: 800x600, 823x624  
- XGA: 1024x768, 1152x864, 1152x900  
- SXGA: 1280x1024  

### Presets / user settings

- Standard presets: 20;  
- User settings: 20  

### Viewing adjustments

- Tilt: 30° back, -5° forward; Lift: 4.3" (110mm); Swivel: +/- 45°  

### Rotating screen

- Screen pivots 90 degrees from landscape to portrait  

### Control features

- Direct access (buttons on front) for automatic image setup, input switch, and brightness  

### Multiple input

- Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)  
- (1) VGA 15-pin D-shell, analog, blue  
- (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant  

### Signal cables

- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter  
- (2) detachable, DVI-D at each end, digital, 1.8 meter  

### Mounting features

- Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)  

### Security

- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)  

### Ship group

- Monitor, attached stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord  

### Accessories

- Kensington MicroSaver Cable Lock: 73P2582  
- Kensington Twin Head Cable Lock: 45K1620  
- Lenovo Security Cable Lock: 57Y4303  
- Lenovo Easy Reach Monitor Stand: 59Y9258  

- See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)  

- See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)  

---

**Limited Warranty**  
**Name**

T1714 Square Flat Panel Monitor

**Case color**

Black

**Type-model**

60FDHAR1US / 60FDHAT1EU

**Panel**

TFT-LCD, twisted nematic (TN), White LED backlight

**Viewable image size**

17.0” (432mm) diagonal

**Max view area (W x H)**

13.3” x 10.6” (337.9mm x 270.3mm)

**Optimum resolution**

1280x1024

**Aspect ratio**

5:4

**Panel**

Pixel pitch (mm) 0.264mm

**Brightness**

250 nits or cd/m² (typical)

**Contrast ratio**

1000:1 (typical)

**Pixel response time**

5ms (typical)

**Color gamut**

72%

**Viewing angle at 10:1 CR**

170° (+/- 85°) horizontal, 160° (+/- 80°) vertical

**Stand**

Tilt stand

**Bezel width**

Sides: 0.69” (17.5mm)

Dimensions (HxWxD, including stand) 373.9mm H x 374.5mm W x 200mm D

**Power supply**

14.0 watts typical, 18.0 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**

5.75 lb; 2.61kg

**Limited warranty**

3 year (includes backlight)

**Available date**

September 2015

**VESA-compliant**

VESA DDC2B/Ci

**Power management**

ENERGY STAR® 7.0

**Ergonomics**

ISO 9241-307

**Emission standards**

FCC Class B

**Environmental**

TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Silver rating

**Preset resolutions**

VGA: 640x350, 640x480, 720x400

SVGA: 800x600

XGA: 1024x768, 1152x864,

SXGA: 1280x800, 1280x1024

**Presets / user settings**

Standard presets: 17;

user settings: 17

**Viewing adjustments**

Tilt: 22° back, -5° forward

**Rotating screen**

None

**On screen display**

On screen display with digital user controls (8 languages)

**Multiple input**

Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

**Monitor connectors**

(1) VGA 15-pin D-shell, analog, blue

(2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant

**Signal cables**

(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter

(2) detachable, DVI-D at each end, digital, 1.8 meter

**Mounting features**

Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**

Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**

Monitor and stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord

**Limited Warranty**


**Accessories**

Kensington MicroSaver Cable Lock 73P2582

Kensington Twin Head Cable Lock 45K1620

Lenovo Easy Reach Monitor Stand 55Y9258

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

**Features**

- 17-inch Square LCD monitor
- Supports SXGA 1280x1024 resolution
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- Mercury Arsenic free glass
- Supports optional soundbar
- Microsoft Windows® 7 certified
- Microsoft Windows 8 certified
- Microsoft Windows 8.1 certified
- Microsoft Windows 10 certified

---

ThinkVision T1714 Monitor
Lenovo ThinkVision T1714p

**Features**
- 17-inch Square LCD monitor
- Supports SXGA 1280x1024 resolution
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- Mercury Arsenic free glass
- Supports Lenovo Tiny PC and 3rd party thin client via optional Lenovo bracket
- Supports optional soundbar
- Microsoft Windows 8 certified
- Microsoft Windows 8.1 certified
- Microsoft Windows 10 certified

**Product Specifications Reference (PSREF)**

**T1714p Square Flat Panel Monitor**

**Black**

**60FELAR1US / 60FELAT1EU**

- **Type-model**: 60FELAR1US / 60FELAT1EU
- **Panel**: TFT-LCD, twisted nematic (TN), White LED backlight
- **Viewable image size**: 17.0" diagonal (432mm)
- **Max view area (W x H)**: 13.3" x 10.6" (337.9mm x 270.3mm)
- **Optimum resolution**: 1280x1024
- **Aspect ratio**: 5:4
- **Pixel pitch (mm)**: 0.264
- **Brightness**: 250 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 5ms (typical)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**: 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical
- **Stand**: Tilt height adjustable stand
- **Bezel width**: Sides: 0.69" (17.5mm); Top: 0.67" (17.0mm); Bottom: 0.69" (17.5mm); Right: 0.69" (17.5mm)
- **Dimensions (HxWxD, including stand)**: 447.9mm H x 374.5mm W x 244.2mm D
- **Power supply**: 14.0 watts typical, 18.0 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight**: 8.71 lb; 3.95kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: September 2015

**VESA-compliant**: VESA DDC2B/CI

**Power management**: ENERGY STAR 7.0

**Ergonomics**: ISO 9241-307

**Emission standards**: FCC Class B

**Environmental**: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT Silver rating

<table>
<thead>
<tr>
<th>Preset resolutions</th>
<th>VGA: 640x350, 640x480, 720x400</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768, 1152x864</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x800, 1280x1024</td>
</tr>
</tbody>
</table>

| Presets / user settings | Standard presets: 22; user settings: 22 |

**Viewing adjustments**: Tilt: 22° back, -5° forward; lift: 4.3" (110mm)

**Rotating screen**: None

**On screen display**: On screen display with digital user controls (8 languages)

**Control features**: Direct access (buttons on front) for automatic image setup and brightness

**Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

**Monitor connectors**: (1) VGA 15-pin D-shell, analog, blue

**Digital Visual Interface (DVI-D)**: (2) digital, white, HDCP-compliant

**DisplayPort**: (3) digital, black, HDCP-compliant

**Signal cables**: (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter

**Digital Video Interface (DVI-D)**: (2) detachable, DVI-D at each end, digital, 1.8 meter

**Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI (100mm mount)

**Security**: Security keyhole for attachment of optional cable lock (Kensington lock-compatible)

**Ship group**: Monitor and stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord

**Accessories**
- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock
- Lenovo Easy Reach Monitor Stand

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

ThinkVision T1714p Monitor

---

Accessories

- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock
- Lenovo Easy Reach Monitor Stand

---

Lenovo

September 2015
## ThinkVision T2054p Wide Monitor

### Features
- Widescreen 19.5-inch monitor
- Supports 1440x900 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- EPEAT Gold certified
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

### Specifications

#### Name
Lenovo ThinkVision T2054p Wide Flat Panel Monitor

#### Bezel color
Raven black

#### Type-model
60G1MAR2US / 60G1MAT2EU

#### Panel
TFT-LCD, In-Plane Switching (IPS), White LED backlight

#### Viewable image size
19.5" (495mm) diagonal

#### Max view area (W x H)
16.48" x 10.33" (418.6mm x 262.4mm)

#### Native resolution
1440x900

#### Aspect ratio
16:10

#### Pixel pitch (mm)
0.2915 x 0.2915 mm

#### Dot/Pixel per Inch
87 dpi

#### Brightness
250 nits or cd/m² (typical)

#### Contrast ratio
1000:1 (typical)

#### Pixel response time
7ms (typical)

#### Color gamut
72%

#### Viewing angle at 10:1 CR
178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

#### Stand
Tilt, swivel, and height adjustable stand

#### Bezel width
Sides: 0.67" (17.0mm)

#### Dimensions (HxWxD)
13.62" H x 17.88" W x 9.55" D

#### Power supply
14.5 watts typical, 21 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)

#### Weight
8.16 lb; 3.70 kg

#### Limited warranty
3 year (includes backlight)

#### Available date
September 2015

#### VESA-compliant
VESA DDC2B/CI

#### Power management
ENERGY STAR® qualified

#### Ergonomics
ISO 9241-307

#### Emission standards
FCC Class B

#### Environmental
TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Silver rating

#### Power supply

#### Preset resolutions
- VGA: 640x480, 720x400, 720x576
- SVGA: 800x600
- XGA: 1024x768, 1152x864
- SXGA: 1280x800, 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900

#### Presets / user settings
- Standard presets: 22
- User settings: 16

#### Viewing adjustments
Tilt: 22° backward, -5° forward; Lift: 4.3" (110mm); Swivel: +/-45°; detachable stand

#### Rotating screen
None

#### On screen display
On screen display with digital user controls (8 languages)

#### Control features
Direct access (buttons on front) for automatic image setup, dual input and brightness

#### Multiple input
Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

#### Monitor connectors
- (1) VGA 15-pin D-shell, analog, blue
- (2) HDMI (1.4), digital, HDCP-compliant
- (3) DisplayPort, digital, black, HDCP-compliant

#### Signal cables
- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
- (2) detachable, DisplayPort at each end, digital, 1.8 meter

#### Mounting features
Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

#### Security
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

#### Ship group
Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord

### Limited Warranty

### Accessories
<table>
<thead>
<tr>
<th>Kensington MicroSaver Cable Lock</th>
<th>73P2582</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
</tbody>
</table>

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**Lenovo ThinkVision E21 Wide Flat Panel Monitor**

**Features**

- Widescreen 20.7-inch monitor
- Supports 1920x1080 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- EPEAT Gold certified
- Low Blue Light certification
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Product Specifications Reference (PSREF)**

**Name**

E21 Wide Flat Panel Monitor

**Bezel color**

Black

**Type-model**

61B9JAR1US / 61B9JAT1EU

**Panel**

TFT-LCD, twisted nematic (TN), White LED backlight

**Viewable image size**

20.7” (525.78mm) diagonal

**Max view area (W x H)**

18.03” x 10.14” (457.92mm x 257.58mm)

**Native resolution**

1920x1080

**Aspect ratio**

16:9

**Pixel pitch (mm)**

0.2385 x 0.2385 mm

**Dot/Pixel per Inch**

106 dpi

**Brightness**

250 nits or cd/m² (typical)

**Contrast ratio**

1000:1 (typical)

**Pixel response time**

5ms (typical)

**Color gamut**

72%

**Viewing angle at 10:1 CR**

170° (+/- 85°) horizontal, 160° (+/- 80°) vertical

**Stand**

Tilt adjustable stand

**Bezel width**

Sides: 0.6” (15.3mm)

**Dimensions (HxWxD)**

14.6” H x 19.31” W x 8.07” D;
370.9mm H x 490.5mm W x 204.9mm D

**Power supply**

18 watts typical,
23 watts maximum,
<0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**

5.82 lb; 2.64 kg

**Limited warranty**

3 year (includes backlight)

**Available date**

August 2017

**VESA-compliant**

VESADDC2B/C1

**Power management**

ENERGY STAR® qualified

**Ergonomics**

ISO 9241-307

**Emission standards**

FCC Class B

**Environmental**

TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating

**Preset resolutions**

- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600, 832x624
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA+: 1440x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080

**Presets display modes**

Standard presets: 22

**Viewing adjustments**

Tilt: 22° back, -5° forward

**Rotating screen**

None

**On screen display**

Direct access (buttons on front) for power, menu, input source select and brightness

**Control features**

On screen display with digital user controls (8 languages)

**USB hub**

None

**Multiple input**

Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

**Monitor connectors**

- (1) VGA 15-pin D-shell, analog, blue
- (2) DisplayPort (1.2), digital, black, HDCP-compliant

**Signal cables**

- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter

**Mounting features**

Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

**Security**

Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**

Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter black power cord

**Limited Warranty**


**Accessories**

- Kensington MicroSaver Cable Lock
  - 73P2582
- Kensington Twin Head Cable Lock
  - 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

Lenovo
August 2017
**Lenovo ThinkVision E24 Wide Flat Panel Monitor**

**Features**
- Widescreen 23.8-inch monitor
- Supports 1920x1080 resolution
- Supports ThinkCentre Tiny VESA mount
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- Microsoft Windows 7 certified
- Microsoft Windows 10 certified

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>E24 Wide Flat Panel Monitor</td>
</tr>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61B7JAR6US / 61B7JAT6EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>23.8” (604.7mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>20.75” x 11.67” (527.04mm x 296.46mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1080</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.2745 x 0.2745 mm</td>
</tr>
<tr>
<td>Dot/ Pixel per inch</td>
<td>92.5 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>6ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.51” (13mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>15.9” H x 21.81” W x 8.07” D; 403.8mm H x 554mm W x 204.9mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>18 watts typical, &lt;0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>8.2 lb; 3.7 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>August 2017</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td>ISO 9241-307</td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x350, 640x480, 720x400</td>
</tr>
<tr>
<td>SVGA: 800x600, 832x624</td>
<td>XGA: 1024x768, 1152x864</td>
</tr>
<tr>
<td>SXGA: 1280x1024</td>
<td>WXGA: 1366x768</td>
</tr>
<tr>
<td>WXGA+: 1440x900, 1600x900</td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td>Full HD</td>
<td>1920x1080</td>
</tr>
<tr>
<td>Presets display modes</td>
<td>Standard presets: 24; user settings: 20</td>
</tr>
<tr>
<td>View angles</td>
<td>Tilt: 22° back, -5° forward</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access (buttons on front) for power, menu, input source select and brightness</td>
</tr>
<tr>
<td>USB hub</td>
<td>None</td>
</tr>
<tr>
<td>Power supply</td>
<td>Digital input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) VGA 15-pin D-shell, analog, blue</td>
</tr>
<tr>
<td>Signal cables</td>
<td>(2) DisplayPort, digital, black, HDCP-compliant</td>
</tr>
<tr>
<td>Mounting features</td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td>Security</td>
<td>(2) detachable, DisplayPort at each end, digital, 1.8 meter</td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington™ lock-compatible)</td>
</tr>
<tr>
<td>Shipping</td>
<td>Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</td>
</tr>
</tbody>
</table>

**Limited Warranty**


**Accessories**

- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

Lenovo
August 2017
### Lenovo ThinkVision P24h Wide Flat Panel Monitor

**Features**
- Widescreen 23.8-inch monitor
- Supports 2560x1440 resolution
- Supports optional soundbar
- Supports ThinkCentre Tiny Clamp Bracket
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Product Specifications Reference (PSREF)**
- **Name**: ThinkVision P24h Wide Monitor
- **Bezel color**: Black
- **Type-model**: 61AEGAR3US / 61AEGAT3EU
- **Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight
- **Viewable image size**: 23.8” (604.7mm) diagonal
- **Max view area (W x H)**: 20.74” x 11.67” (526.9mm x 296.4mm)
- **Native resolution**: 2560x1440
- **Aspect ratio**: 16:9
- **Pixel pitch (mm)**: 0.2058x 0.2058 mm
- **Dot/Pixel per Inch**: 124 dpi
- **Brightness**: 300 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 4ms (extreme) / 6ms (typical)
- **Color gamut**: 99% sRGB
- **Viewing angle at 10:1 CR**: 178° (+/-89°) horizontal, 178° (+/-89°) vertical
- **Stand**: Tilt, swivel, pivot, and height adjustable stand
- **Bezel width**: Sides: 0.08” (2.0mm)
- **Dimensions (HxWxD)**: 14.7” x 21.26” W x 10.3” D;
  373.4mm H x 540.2mm W x 261.75mm D
- **Power supply**: 24 watts typical,
  120 watts maximum (with USB 3.0 hub),
  <0.5 watts standby/suspend, universal,
  integrated (no external brick-like power supply)
- **Weight**: 12.54 lb; 5.69 kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: April 2017
- **VESA-compliant**: VESA DDC2B/CI
- **Power management**: ENERGY STAR® qualified
- **Ergonomics**: ISO 9241-307
- **Emission standards**: FCC Class B
- **Environmental**: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT Silver rating
- **Preset resolutions**:
  - VGA: 640x480, 720x400
  - SVGA: 800x600
  - XGA: 1024x768
  - SXGA: 1280x1024
  - WXGA: 1366x768
  - WXGA+: 1440x900, 1680x900
  - WSXGA+: 1680x1050
  - Full HD: 1920x1080, 1920x1200
  - QHD: 2560x1440
- **Presets display modes**:
  - HDMI: 22; DP: 14
- **Viewing adjustments**:
  - Tilt: 30° back, -5° forward; lift: 4.3° (110mm); swivel: +/-45°; detachable stand
- **Rotating screen**:
  - Screen pivots 90 degrees from landscape to portrait
- **On screen display**:
  - On screen display with digital user controls (8 languages)
- **Control features**:
  - Direct access (buttons on front) for power, menu, input source select and brightness
- **USB hub**:
  - USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports
- **Multimedia**:
  - Audio-out, optional sound bar supported
- **Camera**:
  - None
- **Multiple input**:
  - Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out
- **Monitor connectors**:
  - (1) 2*HDMI (1.4), digital, HDCP-compliant
  - (2) DisplayPort (1.2), digital, HDCP-compliant
  - (3) DisplayPort-out, digital
  - (4) USB 3.1 Type-C
- **Signal cables**:
  - (1) USB 3.1 Type-C cable, 1.8 meter
- **Mounting features**:
  - Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
- **Security**:
  - Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)
- **Ship group**:
  - Monitor with stand, Safety and Warranty Information, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord

### Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**Lenovo ThinkVision P24q**

**Name**: P24q Wide Flat Panel Monitor  
**Case color**: Black  
**Type-model**: 61A5GAR3US / 61A5GAT3EU  
**Panel**: TFT-LCD, IPS (In-Plane Switching), White LED backlight  
**Viewable image size**: 23.8” (604.5mm) diagonal  
**Max view area (W x H)**: 20.74” x 11.67” (526.85mm x 296.35mm)  
**Optimum resolution**: 2560x1440  
**Max pixel rate**: 300Mhz  
**Aspect ratio**: 16:9  
**Pixel pitch (mm)**: 0.2058 x 0.2058mm  
**Brightness**: 250 nits or cd/m² (typical)  
**Contrast ratio**: 1000:1 (typical)  
**Pixel response time**: 4ms  
**Color gamut**: 99% sRGB  
**Viewing angle at 10:1 CR**: 178° horizontal, 178° vertical  
**Stand**: Tilt, swivel, pivot, and height adjustable stand  
**Bezel width (Sides)**: 0.08” (2mm)  
**Dimensions (HxWxD, including stand)**: 373.4mm H x 540.2mm W x 261.75mm D  
**Power supply**: 24 watts typical, 67 watts maximum (with USB), <0.5 watts sleep/off, <0.5 watts switch off integrated (no external brick-like power supply)  
**Weight**: 12.35 lb; 5.6kg (including stand)  
**Limited warranty**: 3 year  
**Available date**: January 2017  

**Features**  
- 23.8-inch IPS LED backlit monitor  
- Supports 2560x1440 resolution  
- 5-Ports USB hub, support USB 3.0  
- Support ThinkCentre Tiny  
- Supports optional soundbar  
- Microsoft® Windows™ 7 certified  
- Microsoft Windows 10 certified  

**Presets / user settings**: Standard presets: 20; user settings: 24  

**Viewing adjustments**: Tilt: 30° back, -5° forward; lift: 4.33” (110mm); swivel: +/-45°  
**Rotating screen**: Screen pivots 90 degrees from landscape to portrait  
**On screen display**: On screen display with digital user controls (8 languages)  
**Control features**: Direct access for menu, source switch, and brightness  
**USB hub**: USB Hub: one USB 3.0 upstream port, four USB 3.0 downstream ports  
**Multimedia**: Audio-out, optional sound bar supported  
**Camera**: None  
**Multiple input**: Support HDMI, DisplayPort, mini DisplayPort, DisplayPort-out  
**Monitor connectors**: (1) 2*HDMI (1.4), digital, HDCP-compliant  
(2) DisplayPort (1.2), digital, HDCP-compliant  
(3) Mini DisplayPort, digital, HDCP-compliant  
**Signal cables**: (1) detachable, mini DisplayPort to DisplayPort, digital, 1.8 meter  
**Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPM® (100mm mount)  
**Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)  

**Ship group**: Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.0 cable, 1.8 meter mini DP to DP cable, 1.8 meter black power cord  

**Limited Warranty**  

**Accessories**  
Kensington MicroSaver Cable Lock 73P2582  
Kensington Twin Head Cable Lock 45K1620  
Lenovo Security Cable Lock 57Y4303  

See details at [www.lenovo.com/support/monitoraccessories](www.lenovo.com/support/monitoraccessories)  
See all monitors at [www.lenovo.com/thinkvision](www.lenovo.com/thinkvision)  

---  

**Product Specifications Reference (PSREF)**

**VESA-compliant**: VESA DDC2B/C1  
**Power management**: ENERGY STAR® 7.0  
**Ergonomics**: ISO 9241-307  
**Emission standards**: FCC Class B, TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold  

**Preset resolutions**:  
- VGA: 640x480, 720x400  
- SVGA: 800x600  
- XGA: 1024x768  
- SXGA: 1280x1024  
- WXGA: 1366x768  
- WXGA+: 1440x900, 1600x900  
- WSXGA+: 1680x1050  
- Full HD: 1920x1080, 1920x1200  
- QHD: 2560x1440  

**Preset settings**: Standard presets: 20; user settings: 24  

---  

**Lenovo ThinkVision P24q Monitor**
## ThinkVision® S22e-19

### DISPLAY
- **Panel Size**: 21.5 inch
- **Screen Dimensions (H x V) (mm)**: 476.06 (H) × 267.79 (V)
- **Panel Type**: VA
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 1920 x 1080
- **Pixel Pitch (H x V) (mm)**: 0.2480 × 0.2480
- **Viewing Angle (H x V)**: 178°/178°
- **Response Time (gray to gray)**: 4 ms (extreme mode)
  6 ms (normal mode)
- **Contrast Ratio (typical)**: 3000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Color Gamut NTSC (CIE 1931)**: 72%
- **Color Support (typical)**: 16.7M

### CONNECTIVITY
- **Video Input Signals**: VGA + HDMI1.4
- **Video Cable Length**: 1.8 m
- **Audio Out**: Yes (3.5 mm)

### MULTI-MEDIA
- **Optional Soundbar Support**: Yes

### DIMENSIONS
- **Size Packed (D x H x W) (mm/inch)**: 120 x 350 x 582 mm / 4.7 x 13.7 x 22.9 inch
- **Size Unpacked w/stand (D x H x W) (mm/inch)**:
  - Lowest Position: 200.0 x 373.8 x 489.3 mm / 7.87 x 14.71 x 19.26 inch
  - Highest Position: 200.0 x 373.8 x 489.3 mm / 7.87 x 14.71 x 19.26 inch
- **Size Unpacked w/o stand (D x H x W) (mm/inch)**:
  - Head Only: 41.5 x 296.8 x 489.3 mm / 1.63 x 11.68 x 19.26 inch
- **Weight Packed (kg/lbs.)**: 4.07kg / 8.97 lbs.
- **Weight Unpacked (kg/lbs.)**: 2.75kg / 6.06 lbs.
- **Weight (Monitor Head Only) (kg/lbs.)**: 2.46kg / 5.42 lbs.

### SPECIAL FEATURES
- **Anti-Glare**: Yes
- **Thin Client Support (Tiny)**: Yes (by VESA mount PN:4XF0N03161)
- **MECHANICAL**
  - **Tilt Angle (front / back)**: -5°/22°
  - **VESAMount**: Yes (100 mm)
  - **Kensington™ Lock Slot**: Yes
  - **Cable Management**: Yes
  - **Bezel Color**: Raven Black
  - **Bezel Width (side)**: 2.0 mm
  - **Bezel Width (top / bottom)**: 2.0 mm / 21.2 mm

### WHAT’S IN THE BOX
- Monitor with stand
- 1 x HDMI Cable
- 1 x Power Cable
- Quick setup guide

### CERTIFICATIONS
- **ENERGY STAR Rating**: 7.0
- **CCC**: Yes
- **TCO**: TCO 7.0/TCO Edge 2.0
- **EPEAT™**: Gold
- **RoHS**: Yes
- **Windows Certification**: Windows 7, Windows 10
- **China Energy Efficiency Standard**: Tier 2
- **Ambient Operating Temperature**: 0°C to 40°C
- **Low Blue Light**: Yes

Specifications may vary depending upon region.
## ThinkVision® S24e-10

### DISPLAY
- **Panel Size**: 23.8"
- **Screen Dimensions (H x V) (mm)**: 527.04 (H) × 296.46 (V)
- **Panel Type**: VA
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 1920 × 1080
- **Pixel Pitch (H x V) (mm)**: 0.2745 × 0.2745
- **Viewing Angle (H x V)**: 178°/178°
- **Response Time (gray to gray)**:
  - 4 ms (extreme mode)
  - 6 ms (normal mode)
- **Contrast Ratio (typical)**: 3000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Color Gamut NTSC (CIE 1931)**: 72%
- **Color Support**: 16.7M

### CONNECTIVITY
- **Video Input Signals**: VGA + HDMI 1.4
- **Video Cable Length**: 1.8 m
- **Audio Out**: Yes (3.5 mm)

### MULTI-MEDIA
- **Optional Soundbar Support**: Yes

### DIMENSIONS
- **Size Packed (D x H x W) (mm/inch)**:
  - 122 x 405 x 639 mm / 4.80 x 15.94 x 25.16 inch
- **Size Unpacked w/stand (D x H x W) (mm/inch)**:
  - (Lowest Position) 200.0 x 402.7 x 539.5 mm / 7.87 x 15.85 x 21.24 inch
  - (Highest Position) 200.0 x 402.7 x 539.5 mm / 7.87 x 15.85 x 21.24 inch
- **Size Unpacked w/o stand (D x H x W) (mm/inch)**:
  - (Head Only) 41.5 x 325.7 x 539.5 mm / 1.63 x 12.82 x 21.24 inch
- **Weight Packed (kg/lbs.)**: 4.84kg / 10.67 lbs.
- **Weight Unpacked (kg/lbs.)**: 3.36kg / 7.41 lbs.
- **Weight (Monitor Head Only) (kg/lbs.)**: 3.07kg / 6.77 lbs.

### SPECIAL FEATURES
- **Anti-Glare**: Yes
- **Thin Client Support (Tiny)**
  - Yes (by VESA mount PN:4XF0N03161)
- **MECHANICAL
  - Tilt Angle (front/back)**:
    - -5º / 22º
  - **VESA Mount**
    - Yes (100 mm)
  - **Kensington™ Lock Slot**: Yes
  - **Bezel Color**: Raven Black
  - **Bezel Width (Side)**: 2.0 mm
  - **Bezel Width (top / bottom)**: 2.0 mm / 22 mm

### WHAT’S IN THE BOX
- Monitor with stand
- 1 x HDMI Cable
- 1 x Power Cable
- Quick setup guide

### CERTIFICATIONS
- **ENERGY STAR Rating**: 7.0
- **CCC**: Yes
- **EPEAT™**: Gold
- **ULE**: Gold
- **RoHS**: Yes
- **Windows Certification**: Windows 7, Windows 10
- **China Energy Efficiency Standard**: Tier 2
- **Ambient Operating Temperature**: 0 to 40°C
- **Low Blue Light**: Yes
# Lenovo ThinkVision T2224d Wide Monitor

## Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>T2224d Wide Flat Panel Monitor</td>
</tr>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61B1JR1US / 61B1JAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>21.5&quot; (546mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>18.74&quot; x 10.54&quot; (476.1mm x 267.8mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1080</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.248 x 0.248 mm</td>
</tr>
<tr>
<td>Dot/Pixel per Inch</td>
<td>102 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>7ms (typical); 4ms (extreme mode)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>View angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.69&quot; (17.6mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>15.02&quot; H x 20.19&quot; W x 8.06&quot; D; 381.4mm H x 512.9mm W x 204.9mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>20 watts typical; 25 watts maximum; &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>6.48 lb; 2.94 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>March 2017</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR®, qualified</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT Silver rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x350, 640x480, 720x1200; SVGA: 800x600; XGA: 1024x768, 1152x864; SXGA: 1280x1024; WXGA: 1280x768, 1280x800, 1366x768; WXGA+: 1440x900; WSXGA+: 1680x1050; Full HD: 1920x1080</td>
</tr>
<tr>
<td>Presets / user settings</td>
<td>Standard presets: 22; user settings: 22</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 22° back, -5° forward</td>
</tr>
<tr>
<td>Rotating screen</td>
<td>None</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access (buttons on front) for automatic image setup, dual input and brightness</td>
</tr>
<tr>
<td>USB hub</td>
<td>None</td>
</tr>
<tr>
<td>Multiple input</td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) VGA 15-pin D-shell, analog, blue</td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>(2) DisplayPort, digital, black, HDCP-compliant</td>
</tr>
<tr>
<td>Security</td>
<td>(2) detachable, DisplayPort at each end, digital, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington lock-compatible)</td>
</tr>
<tr>
<td>Ship group</td>
<td>Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</td>
</tr>
</tbody>
</table>

## Limited Warranty


## Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kensington MicroSaver Cable Lock</td>
<td>73P2582</td>
</tr>
<tr>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
</tbody>
</table>

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

Lenovo
March 2017
### Features
- Widescreen 22.0-inch monitor
- Supports 1680x1050 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- EPEAT Gold certified
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

### Preset resolutions
- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA: 1280x768, 1280x800, 1366x768
- WXGA+: 1440x900
- WSXGA+: 1600x900, 1680x1050

### Presets / user settings
- Standard presets: 26;
- user settings: 20

### Viewing adjustments
- Tilt: 30° back, -5° forward; lift: 4.3° (110mm)

### Rotating screen
- None

### On screen display
- On screen display with digital user controls (8 languages)
- Direct access (buttons on front) for automatic image setup, dual input and brightness

### USB hub
- None

### Multiple input
- Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

### Monitor connectors
- (1) VGA 15-pin D-shell, analog, blue
- (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant
- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
- (2) detachable, DVI-D at each end, digital, 1.8 meter

### Mounting features
- Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Ship group
- Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord

### Limited Warranty

### Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)
- See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

### Lenovo ThinkVision T2254 Wide Flat Panel Monitor

#### Specifications
- **Panel:** TFT-LCD, twisted nematic (TN), White LED backlight
- **Viewable image size:** 22.0" (559mm) diagonal
- **Max view area (W x H):** 18.70" x 11.70" (473.8mm x 296.1mm)
- **Native resolution:** 1680x1050
- **Aspect ratio:** 16:10
- **Pixel pitch (mm):** 0.282 x 0.282 mm
- **Brightness:** 250 nits or cd/m² (typical)
- **Contrast ratio:** 1000:1 (typical)
- **Pixel response time:** 5ms (typical)
- **Color gamut:** 72%
- **Viewing angle at 10:1 CR:** 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical
- **Stand:** Tilt and height adjustable stand
- **Bezel width:** Sides: 0.67" (17mm)
- **Dimensions (HxWxD):** 380.2mm H x 509.3mm W x 244.2mm D
- **Power supply:** 16 watts typical, 22 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight:** 10.38 lb; 4.71 kg
- **Limited warranty:** 3 year (includes backlight)

#### VESA-compliant
- VESA DDC2B/CI

#### Power management
- ENERGY STAR® qualified

#### Emission standards
- ISO 9241-307
- TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating

#### Environmental
- TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating

#### Preset resolutions
- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA: 1280x768, 1280x800, 1366x768
- WXGA+: 1440x900
- WSXGA+: 1600x900, 1680x1050

#### Presets / user settings
- Standard presets: 26;
- user settings: 20

#### Viewing adjustments
- Tilt: 30° back, -5° forward; lift: 4.3° (110mm)

#### Rotating screen
- None

#### On screen display
- On screen display with digital user controls (8 languages)
- Direct access (buttons on front) for automatic image setup, dual input and brightness

#### USB hub
- None

#### Multiple input
- Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

#### Monitor connectors
- (1) VGA 15-pin D-shell, analog, blue
- (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant
- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
- (2) detachable, DVI-D at each end, digital, 1.8 meter

#### Mounting features
- Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

#### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

#### Ship group
- Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord

#### Limited Warranty

#### Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)
- See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

© Lenovo
(T2254) November 2016
Lenovo ThinkVision T2254p Wide Flat Panel Monitor

Features
- Widescreen 22.0-inch monitor
- Supports 1680x1050 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

T2254p Wide Flat Panel Monitor
Raven black
61BAMAR2US / 60E1MAR2US / 60CCMAR2US / 60CCMAT2EU / 61BAMAT2EU
TFT-LCD, twisted nematic (TN), White LED backlight
22.0” (559mm) diagonal
Max view area (W x H) 18.70” x 11.70” (473.8mm x 296.1mm)
Native resolution 1680x1050
Aspect ratio 16:10
Panel Viewable image size Max view area (W x H)
Native resolution 1680x1050
Aspect ratio 16:10
Viewing angle at 10:1 CR 180° (+/- 85°) horizontal, 160° (+/- 80°) vertical
Bezel color Raven black
Type-model 61BAMAR2US / 60E1MAR2US / 60CCMAR2US / 60CCMAT2EU / 60BAMAT2EU
Panel TFT-LCD, twisted nematic (TN), White LED backlight
Viewable image size 22.0” (559mm) diagonal
Max view area (W x H) 18.70” x 11.70” (473.8mm x 296.1mm)
Native resolution 1680x1050
Aspect ratio 16:10
Pixel pitch (mm) 0.282 x 0.282 mm
Dot/Pixel per Inch 90 dpi
Brightness 250 nits or cd/m² (typical)
Contrast ratio 1000:1 (typical)
Pixel response time 5ms (typical)
Color gamut 72%
Viewing angle at 10:1 CR 180° (+/- 85°) horizontal, 160° (+/- 80°) vertical
Stand Tilt, swivel, pivot, and height adjustable stand
Bezel width Sides: 0.67” (17.1mm)
Dimensions (HxWxD) 14.63” H x 20.01” W x 9.55” D:
371.7mm H x 509.3mm W x 242.7mm D
Power supply 20 watts typical,
25 watts maximum,
<0.5 watts standby/suspend, universal,
integrated (no external brick-like power supply)
Weight 10.14 lb; 4.60 kg
Limited warranty 3 year (includes backlight)
Available date March 2015

VESA-compliant VESA DDC2B/CI
Power management ENERGY STAR® qualified
ISO 9241-307
Emission standards FCC Class B
Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE,
RoHS, EPEAT™ Gold rating

Preset resolutions VGA: 640x350, 640x480, 720x400
SVGA: 800x600
XGA: 1024x768, 1152x864
SXGA: 1280x1024
WXGA: 1280x768, 1280x800, 1366x768
WXGA+: 1440x900
WUXGA+: 1600x900, 1680x1050

Presets / user settings Standard presets: 28;
user settings: 20

Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3” (110mm); swivel: +/-45°; detachable stand
Rotating screen Screen pivots 90 degrees from landscape to portrait
On screen display On screen display with digital user controls (8 languages)
Control features Direct access (buttons on front) for automatic image setup, dual input and brightness
USB hub None
Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
Monitor connectors (1) VGA 15-pin D-shell, analog, blue
(2) HDMI (1.4), digital, HDCP-compliant
(3) DisplayPort, digital, black, HDCP-compliant
Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
(2) detachable, DisplayPort at each end, digital, 1.8 meter
Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord

Limited Warranty

Accessories
Kensington MicroSaver Cable Lock 73P2582
Kensington Twin Head Cable Lock 45K1620

See details at www.lenovo.com/support/monitoraccessories
See all monitors at www.lenovo.com/thinkvision

Lenovo
November 2016
<table>
<thead>
<tr>
<th>Features</th>
<th>Lenovo ThinkVision T22i Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Widescreen 21.5-inch monitor</td>
<td>Supports 1920x1080 resolution</td>
</tr>
<tr>
<td>2. Supports ThinkCentre Tiny via VESA back mount</td>
<td>Includes dual input connection for attachment to two systems concurrently</td>
</tr>
<tr>
<td>3. EPEAT Gold certified</td>
<td>Microsoft® Windows® 7 certified</td>
</tr>
<tr>
<td>4. Microsoft Windows 10 certified</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>5. ENERGY STAR® qualified</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>6. FCC Class B</td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating</td>
</tr>
<tr>
<td>7. Viewable image size</td>
<td>Preset resolutions:</td>
</tr>
<tr>
<td>8. Max view area (W x H)</td>
<td>VGA: 640x350, 640x480, 720x400</td>
</tr>
<tr>
<td>9. Native resolution</td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td>10. Aspect ratio</td>
<td>XGA: 1024x768, 1152x864</td>
</tr>
<tr>
<td>11. Pixel pitch (mm)</td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td>12. Dot/Pixel per inch</td>
<td>WXGA: 1280x768, 1366x768</td>
</tr>
<tr>
<td>13. Brightness</td>
<td>WXGA+: 1440x900, 1680x900</td>
</tr>
<tr>
<td>14. Contrast ratio</td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td>15. Color gamut</td>
<td>Full HD: 1920x1080</td>
</tr>
<tr>
<td>16. Viewing angle at 10:1 CR</td>
<td>Presets display modes:</td>
</tr>
<tr>
<td>17. Stand</td>
<td>HDMI: 17; DP: 17</td>
</tr>
<tr>
<td>18. Bezel width</td>
<td>Tilt: 30° back, -5° forward; lift: 4.3° (110mm); swivel: +/-45°; detachable stand</td>
</tr>
<tr>
<td>19. Dimensions (HxWxD)</td>
<td>Rotating screen: Screen pivots 90 degrees from landscape to portrait</td>
</tr>
<tr>
<td>20. Power supply</td>
<td>On screen display: On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>21. Power management</td>
<td>Control features: Direct access (buttons on front) for power, menu, input source select and brightness</td>
</tr>
<tr>
<td>22. VESA-compliant</td>
<td>USB hub: USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)</td>
</tr>
<tr>
<td>23. Power management</td>
<td>Multiple input: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
<tr>
<td>24. Environmental</td>
<td>Monitor connectors: (1) VGA 15-pin D-shell, analog, blue</td>
</tr>
<tr>
<td>25. Emission standards</td>
<td>(2) HDMI (1.4), digital, HDCP-compliant</td>
</tr>
<tr>
<td>26. Environmental</td>
<td>(3) DisplayPort, digital, black, HDCP-compliant</td>
</tr>
<tr>
<td>27. Temperature</td>
<td>Signal cables: (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td>28. Environmental</td>
<td>(2) detachable, DisplayPort at each end, digital, 1.8 meter</td>
</tr>
<tr>
<td>29. Presets display modes</td>
<td>Mounting features: Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td>30. Presets display modes</td>
<td>Security: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
<tr>
<td>31. Presets display modes</td>
<td>Ship group: Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord</td>
</tr>
</tbody>
</table>

---

**T22i Wide Flat Panel Monitor**

- **Name**: T22i Wide Flat Panel Monitor
- **Bezel color**: Black
- **Type-model**: 61A9MAR1US / 61A9MAT1EU
- **Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight
- **Viewable image size**: 21.5” (546mm) diagonal
- **Max view area (W x H)**: 18.74” x 10.54” (476.1mm x 267.8mm)
- **Native resolution**: 1920x1080
- **Aspect ratio**: 16:9
- **Pixel pitch (mm)**: 0.248 x 0.248 mm
- **Dot/Pixel per inch**: 102 dpi
- **Brightness**: 250 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 6ms (typical); 4ms (extreme mode)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
- **Stand**: Tilt, swivel, pivot, and height adjustable stand
- **Bezel width**: Sides: 0.08” (2.0mm)
- **Dimensions (HxWxD)**: 14.08” H x 19.28” W x 9.92” D; 357.6mm H x 489.7mm W x 251.9mm D
- **Power supply**: 16.5 watts typical, 55 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight**: 10.85 lb; 4.92 kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: April 2017
- **VESA-compliant**: VESA DDC2B/CI
- **Power management**: ENERGY STAR® qualified
- **Ergonomics**: ISO 9241-307
- **Emission standards**: FCC Class B
- **Environmental**: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating
- **Preset resolutions**: VGA: 640x350, 640x480, 720x400, SVGA: 800x600, XGA: 1024x768, 1152x864, SXGA: 1280x1024, WXGA: 1280x768, 1366x768, WXGA+: 1440x900, 1680x900, WSXGA+: 1680x1050, Full HD: 1920x1080
- **Presets display modes**: HDMI: 17; DP: 17
- **Viewing adjustments**: Tilt: 30° back, -5° forward; lift: 4.3° (110mm); swivel: +/-45°; detachable stand
- **Rotating screen**: Screen pivots 90 degrees from landscape to portrait
- **On screen display**: On screen display with digital user controls (8 languages)
- **USB hub**: USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)
- **Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
- **Monitor connectors**: (1) VGA 15-pin D-shell, analog, blue, (2) HDMI (1.4), digital, HDCP-compliant, (3) DisplayPort, digital, black, HDCP-compliant
- **Signal cables**: (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter, (2) detachable, DisplayPort at each end, digital, 1.8 meter
- **Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
- **Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)
- **Ship group**: Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord

---

**Accessories**

<table>
<thead>
<tr>
<th>Name</th>
<th>Lenovo MicroSaver Cable Lock</th>
<th>73P2582</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
</tbody>
</table>

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
## Product Specifications Reference (PSREF)

### Lenovo ThinkVision T22v Wide Flat Panel Monitor

- **Bezel color**: Black
- **Type-model**: 61BBMAR6US / 61BBMAT6EU
- **Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight
- **Viewable image size**: 21.5" (546mm) diagonal
- **Max view area (W x H)**: 18.74" x 10.54" (476.1mm x 267.8mm)
- **Native resolution**: 1920x1080
- **Aspect ratio**: 16:9
- **Pixel pitch (mm)**: 0.248 x 0.248 mm
- **Dot/Pixel per Inch**: 102 dpi
- **Brightness**: 250 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 6ms (typical); 4ms (extreme mode)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**:
  - Horizontal: 178° (+/- 89°)
  - Vertical: 178° (+/- 89°)
- **Stand**:
  - Tilt: 30° back, 5° forward
  - Swivel: +/- 45°
  - Lift: 4.3" (110mm)
  - Pivot: 90 degrees from landscape to portrait
- **Dimensions (HxWxD)**: 19.14" H x 19.28" W x 9.92" D; 485.8mm H x 489.7mm W x 251.9mm D
- **Power supply**:
  - 18 watts typical
  - 43 watts maximum (with USB 3.0 hub)
- **Weight**: 10.16 lb; 4.61 kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: October 2017
- **VESA-compliant**: VESA DDC2B/CI
- **Power management**: ENERGY STAR® qualified
- **Emission standards**:
  - FCC Class B
  - TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, **EPEAT® Silver rating**
- **Preset resolutions**:
  - VGA: 640x480, 720x480
  - SVGA: 800x600, 832x624
  - XGA: 1024x768, 1152x864
  - SXGA: 1280x1024
  - WXGA+: 1440x900, 1600x900
  - WSXGA+: 1680x1050
  - Full HD: 1920x1080
- **Presets display modes**:
  - Presets: 24; user modes: 20
- **Viewing adjustments**:
  - Tilt: 30° back, -5° forward
  - Swivel: +/- 45°
- **Rotating screen**: 90 degrees from landscape to portrait
- **On screen display**: On-screen display with digital user controls (8 languages)
- **Control features**: Direct access for power, menu, input source select, volume up / down, speaker mute and microphone mute
- **USB hub**: USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0)
- **Multimedia**:
  - Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported
- **Camera**: Integrated FHD camera with IR
- **Multiple input**:
  - Support HDMI, DisplayPort, VGA
- **Monitor connectors**:
  - (1) VGA 15-pin D-shell, analog, blue
  - (2) HDMI (1.4), digital, **HDCP-compliant**
  - (3) DisplayPort, digital, black, **HDCP-compliant**
- **Signal cables**:
  - (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
  - (2) detachable, DisplayPort at each end, digital, 1.8 meter
- **Mounting features**:
  - Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
  - Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)
- **Ship group**:
  - Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)

---

### Features
- Widescreen 21.5-inch monitor
- Supports 1920x1080 resolution
- Supports optional soundbar
- Supports ThinkCentre Tiny via VESA back mount
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

---

### Accessories
<table>
<thead>
<tr>
<th>Accessories</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kensington MicroSaver Cable Lock</td>
<td>73P2582</td>
</tr>
<tr>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
</tbody>
</table>

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**Lenovo ThinkVision T2324d Wide**

### Name
T2324d Wide Flat Panel Monitor

**Bezel color**
Black

**Type-model**
60F3JAR2US / 60F3JAT2EU

**Panel**
TFT-LCD, twisted nematic (TN), White LED backlight

**Viewable image size**
23.0” (584mm) diagonal

**Max view area (W x H)**
20.07” x 11.29” (509.8mm x 286.7mm)

**Native resolution**
1920 x 1080

**Aspect ratio**
16:9

**Pixel pitch (mm)**
0.2655 x 0.2655 mm

**Dot/Pixel per Inch**
96 dpi

**Brightness**
250 nits or cd/m² (typical)

**Contrast ratio**
1000:1 (typical)

**Pixel response time**
5ms (typical)

**Color gamut**
72%

**Viewing angle at 10:1 CR**
170° (+/- 85°) horizontal, 160° (+/- 80°) vertical

**Stand**
Tilt stand

**Bezel width**
Sides: 0.68” (17.3mm)

**Dimensions (HxWxD)**
15.75” H x 21.48” W x 8.06” D;
400.3mm H x 545.8mm W x 204.9mm D

**Power supply**
20 watts typical,
27 watts maximum

**Weight**
7.06 lb; 3.20 kg

**Limited warranty**
3 year (includes backlight)

**Available date**
June 2016

**VESA-compliant**
VESADDC2B/Ci

**Power management**
ENERGY STAR® qualified

**Ergonomics**
ISO 9241-307

**Emission standards**
FCC Class B

**Environmental**
TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating

**Preset resolutions**
- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA: 1280x768, 1280x800, 1366x768
- WXGA+: 1440x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080

**Presets / user settings**
- Standard presets: 26; user settings: 16

**Viewing adjustments**
- Tilt: 22° back, -5°

**Rotating screen**
None

**Control features**
On screen display with digital user controls (8 languages)

**USB hub**
None

**Multiple input**
Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

**Monitor connectors**
- (1) VGA 15-pin D-shell, analog, blue
- (2) DisplayPort, digital, black, HDCP-compliant

**Signal cables**
- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
- (2) detachable, DisplayPort at each end, digital, 1.8 meter

**Mounting features**
Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

**Security**
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord

**Features**
- Widescreen 23.0-inch monitor
- Supports 1920x1080 resolution
- Supports optional soundbar
- Supports ThinkCentre Tiny via VESA back mount
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Accessories**
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

**Limited Warranty**


**Kensington MicroSaver Cable Lock**
73P2582

**Kensington Twin Head Cable Lock**
45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**Lenovo ThinkVision T23d-10 Wide Flat Panel Monitor**

<table>
<thead>
<tr>
<th>Name</th>
<th>T23d-10 Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61C3MAR6US / 61C3MAT6EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>22.5” (571.5mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>19.5” x 12.4” (496.2mm x 313.9mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1200</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:10</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.25 x 0.25 mm</td>
</tr>
<tr>
<td>Dot/ Pixel per Inch</td>
<td>100.6 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>6ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>19.37” H x 19.73” W x 9.9” D; 491.9mm H x 501.2mm W x 251.9mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>15 watts typical, 18 watts maximum, &lt;0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>10.67 lb; 4.85 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>June 2018</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA: 1366x768</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900</td>
</tr>
<tr>
<td></td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td></td>
<td>Full HD: 1920x1080</td>
</tr>
<tr>
<td></td>
<td>WUXGA: 1920x1200</td>
</tr>
<tr>
<td>Presets display modes</td>
<td>Standard presets: 27; user settings: 20</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 30° back, -5° forward; lift: 4.3° (110mm); swivel: +/-45°; detachable stand</td>
</tr>
<tr>
<td>Rotating screen</td>
<td>Screen pivots 90 degrees from landscape to portrait</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access (buttons on front) for power, menu, input source select and brightness</td>
</tr>
<tr>
<td>USB hub</td>
<td>None</td>
</tr>
<tr>
<td>Multiple input</td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) VGA 15-pin D-shell, analog, blue</td>
</tr>
<tr>
<td></td>
<td>(2) HDMI (1.4), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(3) DisplayPort, digital, black, HDCP-compliant</td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td></td>
<td>(2) detachable, DisplayPort at each end, digital, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
<tr>
<td>Ship group</td>
<td>Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)</td>
</tr>
</tbody>
</table>

**Features**

- Widescreen 22.5-inch monitor
- Supports 1920x1200 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Accessories**

| Kensington MicroSaver Cable Lock          | 73P2582 |
| Kensington Twin Head Cable Lock           | 45K1620 |

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

**Note:** The specifications above may not be available in all regions.
## Lenovo ThinkVision T23i

### Features
- Widescreen 23-inch monitor
- Supports 1920x1080 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

### T23i Wide Flat Panel Monitor
- **Bezel color**: Black
- **Type-model**: 61ABMAR1US / 61ABMAT1EU
- **Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight
- **Viewable image size**: 23" (584.2mm) diagonal
- **Max view area (W x H)**: 20.36" x 11.92" (517.2mm x 302.8mm)
- **Native resolution**: 1920x1080
- **Aspect ratio**: 16:9
- **Pixel pitch (mm)**: 0.2652 x 0.2652 mm
- **Brightness**: 250 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 6ms (typical)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
- **Stand**: Tilt, swivel, pivot, and height adjustable stand
- **Bezel width**: Sides: 0.08" (2.0mm)
- **Dimensions (HxWxD)**: 13.3" H x 20.56" W x 10.4" D; 337.7mm H x 522.2mm W x 264.2mm D
- **Power supply**: 16 watts typical, 45 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight**: 10.65 lb; 4.92 kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: April 2017

### Preset resolutions
- VGA: 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA+: 1440x900
- WUXGA+: 1680x1050
- Full HD: 1920x1080

### Viewing adjustments
- **Tilt**: 30° back, -5° forward; **lift**: 4.3° (110mm); **swivel**: +/-45°; detachable stand
- **Screen pivots 90 degrees from landscape to portrait**

### Control features
- **On screen display**: On screen display with digital user controls (8 languages)
- **Direct access (buttons on front)** for power, menu, input source select and brightness and automatic image setup
- **USB hub**: USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)
- **Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
- **Monitor connectors**
  - (1) VGA 15-pin D-shell, analog, blue
  - (2) HDMI (1.4), digital, HDCP-compliant
  - (3) DisplayPort, digital, black, HDCP-compliant
- **Signal cables**
  - (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
  - (2) detachable, DisplayPort at each end, digital, 1.8 meter
- **Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
- **Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Ship group
- Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord

### Accessories
- **Kensington MicroSaver Cable Lock**: 73P2582
- **Kensington Twin Head Cable Lock**: 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

**Limited Warranty**


---

**ThinkVision T23i Wide Monitor**

---

**Product Specifications Reference (PSREF)**

---

Lenovo

July 2017
<table>
<thead>
<tr>
<th>Name</th>
<th>T2454p Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Raven black</td>
</tr>
<tr>
<td>Type-model</td>
<td>60F9MAR1US / 60F9MAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED Backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>24.0” (609.6mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>20.41” x 12.76” (518.4mm x 324.0mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1200</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:10</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.270 x 0.270 mm</td>
</tr>
<tr>
<td>Brightness</td>
<td>300 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>7ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>77.4%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (±89°) horizontal, 178° (±89°) vertical</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.74” (18.8mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>15.85” H x 21.94” W x 10.39” D; 402.5mm H x 557.4mm W x 264.2mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>24 watts typical, 27 watts maximum (without USB 3.0 hub), 54 watts maximum (with USB 3.0 hub), &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>13.60 lb; 6.15 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>March 2015</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x350, 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA: 1280x720, 1280x768, 1280x800</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900</td>
</tr>
<tr>
<td></td>
<td>WSXGA+: 1680x1050, 1600x1200</td>
</tr>
<tr>
<td>Full HD</td>
<td>1920x1080, 1920x1200</td>
</tr>
<tr>
<td>Presets / user settings</td>
<td>Standard presets: 21; user settings: 20</td>
</tr>
</tbody>
</table>

### Features

- Widescreen 24.0-inch monitor
- Supports 1920x1200 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

**Image:** ThinkVision T2454p Wide Monitor

**Accessories**

- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

**Limited Warranty**

Lenovo ThinkVision T24d

Product Specifications Reference (PSREF)

**Name**
T24d Wide Flat Panel Monitor

**Bezel color**
Black

**Type-model**
61B4MAR1US / 61B4MAT1EU

**Panel**
TFT-LCD, In-Plane Switching (IPS), White LED-Backlight

**Viewable image size**
24" (609.6mm) diagonal

**Max view area (W x H)**
20.41" x 12.75" (518.4mm x 324mm)

**Native resolution**
1920x1200

**Aspect ratio**
16:10

**Pixel pitch (mm)**
0.27 x 0.27 mm

**Brightness**
94 dpi

**Contrast ratio**
300 nits or cd/m² (typical)

**Pixel response time**
7ms (typical)

**Color gamut**
99%

**Viewing angle at 10:1 CR**
178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Stand**
Tilt, swivel, pivot, and height adjustable stand

**Dimensions (HxWxD)**
19.58" H x 20.99" W x 10.25" D;
497.4mm H x 533.2mm W x 260.4mm D

**Power supply**
22 watts typical,
64 watts maximum (with USB 3.0 hub),
<0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**
12.41 lb; 5.63 kg

**Limited warranty**
3 year (includes backlight)

**Available date**
June 2017

**VESA-compliant**
VESA DDC2B/CI

**Power management**
ENERGY STAR® qualified

**Ergonomics**
ISO 9241-307

**Emission standards**
FCC Class B

**Environmental**
TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating

**Preset resolutions**
VGA: 640x480, 720x400
SVGA: 800x600
XGA: 1024x768
SXGA: 1280x1024
WXGA: 1366x768
WXGA+: 1440x900
WSXGA+: 1680x1050
Full HD: 1920x1080
WUXGA: 1920x1200

**Presets display modes**
Standard presets: 22; user settings: 20

**Viewing adjustments**
Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand

**Rotating screen**
Screen pivots 90 degrees from landscape to portrait

**On screen display**
On screen display with digital user controls (8 languages)

**Control features**
Direct access (buttons on front) for power, menu, input source select and brightness

**USB hub**
USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)

**Multiple input**
Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

**Monitor connectors**
(1) VGA 15-pin D-shell, analog, blue
(2) HDMI (1.4), digital, HDCP-compliant
(3) DisplayPort, digital, black, HDCP-compliant

**Signal cables**
(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
(2) detachable, DisplayPort at each end, digital, 1.8 meter

**Mounting features**
Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

**Security**
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)

---

**Features**

- Widescreen 24-inch monitor
- Supports 1920x1200 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Accessories**

- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

Lenovo

July 2017
### SPECIFICATIONS

#### DISPLAY
- **Panel Size**: 23.8” Wide
- **Panel Type**: In-Plane Switching (IPS) WLED
- **Aspect Ratio**: 16:9
- **Anti-Glare**: Yes
- **Near Edgeless Screen**: Yes
- **Maximum Brightness (Typical)**: 250 cd/m²
- **Viewing Angle (H/V at CR 10:1)**: 178°/178°
- **Contrast Ratio (Typical)**: 1000:1
- **Dynamic Contrast Ratio**: 3:1
- **Response Time**: 4 ms (Gray to Gray)
- **Pixel Pitch**: 0.2745 x 0.2745 mm
- **Color Support (Typical)**: 16.7 Million Colors
- **Color Gamut (CIE 1931)**: 0.2745 x 0.2745
- **Pixel Pitch (mm)**: 0.2745 x 0.2745
- **Dynamic Contrast Ratio**: 3:1
- **Response Time (gray to gray)**: 4 ms (Extreme mode)
- **OSD Controls**: 5 buttons
- **Languages**: English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

#### CONNECTIVITY
- **Video Input Signals**: VGA, HDMI™ 1.4, DisplayPort™ 1.2
- **Video Cables Supplied (Length)**: 1.8 m
- **USB Hub**: 1 x USB 3.0 (Upstream), 4 x USB 3.0 (Downstream, Incl. 1 BC)
- **Audio Out**: Yes (3.5 mm)
- **Buttons**: 5
- **Certifications**: TÜV Eye Comfort Certification

#### MECHANICAL
- **Tilt Angle (Front / Back)**: -5° / 30°
- **Swivel Angle (Left / Right)**: +/-45°
- **Lift Range (mm)**: 110
- **Pivot**: +/-90°
- **Kensington® Lock**: Yes
- **VESA® Mount (mm x mm)**: Yes (100 x 100)
- **Bezel Color**: Raven Black
- **Bezel Width**: 2 / 0.08”
- **Top (mm / inches)**: 2 / 0.08”
- **Sides (mm / inches)**: 2 / 0.08”

#### POWER CONSUMPTION
- **Typical**: 16.5 W
- **Maximum**: 55 W
- **Sleep-Mode**: <0.5 W
- **Switch Off-Mode**: <0.3 W
- **Power Supply**: Internal
- **Power Voltage**: 90 VAC – 264 VAC

#### WHAT’S IN THE BOX
- **Quick Setup Guide**: Monitor with Stand
  - 1 x DisplayPort™ - DisplayPort™ Cable
  - 1 x VGA Cable
  - 1 x HDMI™ Cable (NA Only)
  - Monitor Cable (NA Only)
  - Quick Setup Guide

#### CERTIFICATIONS
- **EPEAT™**: Gold
- **ENERGY STAR® Rating**: 7.1
- **TCO Edge**: 7.0
- **TCO Energy Efficiency Standard**: 2.0
- **RoHS (EU 2002/95/EC)**: Tier 2
- **China Energy Efficiency Standard**: Windows 7 / Windows 10
- **TÜV Eye Comfort Certification**: Yes

---

1. Depending on many factors such as the processing capability of peripheral devices. File attributes, and other factors related to system configuration and operating environments, the actual transfer rate may be slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.
### SPECIFICATIONS

#### DISPLAY
- **Panel Size**: 23.8" Wide
- **Panel Type**: In-Plane-Switching
- **Backlight**: WLED
- **Resolution**: FHD (1920 x 1080)
- **Aspect Ratio**: 16:9
- **Anti-Glare**: Yes
- **Near Edgeless Screen**: Yes
- **Screen Dimensions (W x H) (mm)**: 527.04 x 296.46
- **Brightness**: 250 nits
- **Viewing Angle (H/V at CR 10:1)**: 178° / 178°
- **Contrast Ratio (Typical)**: 1000:1
- **Dynamic Contrast Ratio**: 3M1
- **Speakers**: 2 x 2W
- **Pixel Pitch (mm)**: 0.2745 x 0.2745
- **Color Gamut (CIE 1931)**: 72% NTSC
- **Color Depth**: 8 bit
- **Color Support (Typical)**: 16.7 Million
- **Response Time (GTG)**: 4 ms / 6 ms
- **OSD Controls**: 5
- **Languages**: English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

#### CONNECTIVITY
- **Video Input Signals**: VGA + HDMI™ + DisplayPort™
- **Video Cables Supplied**: VGA, DisplayPort™, USB, Power, HDMI™ (for NA only)
- **USB Hub**: USB 3.0 (4 x down, 1 x BC)
- **Audio Out**: Yes (3.5 mm)
- **Power**: Internal

#### MECHANICAL
- **Tilt Angle (Front / Back)**: 5' / 30'
- **Swivel Angle (Left / Right)**: +/- 45°
- **Lift Range (mm)**: 110
- **Pivot**: +/- 90°
- **Stand**: LTPS
- **Cable Management**: Yes
- **Kensington® Lock**: Yes
- **VESA® Mount (mm x mm)**: Yes (100 X 100)
- **Bezel Color**: Raven Black
- **Bezel Width Top (mm / inches)**: 2 / 0.08"
- **Sides (mm / inches)**: 2 / 0.08"

#### DIMENSIONS (W x D)
- **Size Packed (mm)**: 422 x 622 x 190
- **Size Packed (inches)**: 16.61" x 24.48" x 7.48"
- **Size Unpacked with Stand (mm)**: 540.2 x 261.75 x 373.4
- **Size Unpacked with Stand (inches)**: 21.26" x 10.3" x 14.7"
- **Highest Position (mm)**: 540.2 x 261.75 x 483.4
- **Highest Position (inches)**: 21.26" x 10.3" x 19"
- **Stand Base Footprint Area (mm)**: 250 x 250
- **Stand Base Footprint Area (inches)**: 9.84" x 9.84"
- **Weight**: Starting at 16.39 lbs (7.45 kg)

#### POWER CONSUMPTION
- **Typical**: 16.5 W
- **Maximum**: 59 W
- **Sleep-Mode**: <0.5 W
- **Switch Off-Mode**: <0.3 W
- **Power Supply**: Internal
- **Power Voltage**: 90 VAC - 264 VAC
- **ENERGY STAR® (Pon)**: 13.67 W
- **ENERGY STAR® (Etec)**: 43.51 kWh

#### WHAT'S IN THE BOX
- **Monitor with Stand**
- **1 x Power Cable**
- **1 x VGA Cable**
- **1 x DisplayPort™ - DisplayPort™ Cable**
- **1 x HDMI Cable (NA Only)**
- **Quick Setup Guide**

#### CERTIFICATIONS
- **EPEAT™**: Gold
- **ENERGY STAR® Rating**: 7.1
- **TCO**: 7.0
- **TCO Edge**: 2.0
- **ULE**: Yes
- **RoHS (EU 2002/95/EC)**: Yes
- **China Energy Efficiency Standard**: Tier 2
- **Windows Certification**: Windows 7 / Windows 10
- **TG Eye Comfort Certification**: Yes
- **TINY Support**: Yes
- **Soundbar Support***: Yes
- **Package**: EPS Cushion

---

**WWW.LENOVO.COM**

Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo makes every effort to ensure accuracy of all information but is not liable or responsible for any editorial, photographic or typographic errors. All images are for illustration purposes only. For full Lenovo product, service and warranty specifications visit www.lenovo.com. Lenovo makes no representations or warranties regarding third party products or services.
## Lenovo ThinkVision T24m

**Name:** T24m Wide Flat Panel Monitor  
**Bezel color:** Black  
**Type-model:** 61B8RA3US / 61B8RAT3EU  
**Panel:** TFT-LCD, In-Plane Switching (IPS), White LED backlight  
**Viewable image size:** 23.8" (604.7mm) diagonal  
**Max view area (W x H):** 20.75" x 11.67" (527.04mm x 296.46mm)  
**Native resolution:** 1920x1080  
**Aspect ratio:** 16:9  
**Pixel pitch (mm):** 0.2745 x 0.2745 mm  
**Dot/ Pixel per Inch:** 92 dpi  
**Brightness:** 250 nits or cd/m² (typical)  
**Contrast ratio:** 1000:1 (typical)  
**Pixel response time:** 6ms (typical)  
**Color gamut:** 99% sRGB  
**Viewing angle at 10:1 CR:** 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical  
**Stand:** Tilt, swivel, pivot, and height adjustable stand  
**Bezel width:** Sides: 0.08" (2.0mm)  
**Dimensions (HxWxD):** 19.03" H x 21.26" W x 10.3" D; 483.4mm H x 540.2mm W x 261.75mm D  
**Power supply:** 17 watts typical, 110 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)  
**Weight:** 12.34 lb; 5.6 kg  
**Limited warranty:** 3 year (includes backlight)  
**Available date:** August 2017  

### Features
- Widescreen 23.8-inch monitor  
- Supports 1920x1080 resolution  
- Supports ThinkCentre Tiny Clamp Bracket  
- Supports optional soundbar  
- EPEAT Gold certified  
- Microsoft Windows 7 certified  
- Microsoft Windows 10 certified  

### Presets display modes
- VGA: 640x480  
- SVGA: 800x600  
- XGA: 1024x768  
- SXGA: 1280x1024  
- WXGA: 1366x768  
- WXGA+: 1440x900, 1600x900  
- WSXGA+: 1680x1050  
- Full HD: 1920x1080, 1920x1200  

### Viewing adjustments
- Tilt: 30° back, -5° forward; lift: 4.3° (110mm); swivel: +/-45°; detachable stand  

### Multimedia
- Audio-out, optional sound bar supported  

### USB hub
- USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)  

### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)  

### Ship group
- Monitor with stand, Safety and Warranty Information, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter black power cord  

## Accessories
- Kensington MicroSaver Cable Lock  
- Kensington Twin Head Cable Lock  

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)  
See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
## Lenovo ThinkVision T24v

**T24v Wide Flat Panel Monitor**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Black</td>
</tr>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61BCM6R6US / 61BCM6T6EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>23.8&quot; (604.5mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>20.75&quot; x 11.67&quot; (527.04mm x 296.46mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1080</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.2745 ± 0.2745 mm</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>6ms (typical); 4ms (extreme mode)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.08&quot; (2.0mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>19.72&quot; H x 21.28&quot; W x 10.32&quot; D; 500.5mm H x 540.2mm W x 261.9mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>20 watts typical, 45 watts maximum (with USB 3.0 hub), &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>11.18 lb; 5.07 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>October 2017</td>
</tr>
<tr>
<td>Power management</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>Energy STAR qualified</td>
<td>ENERGY STAR qualified</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400; SVGA: 800x600, 832x624; XGA: 1024x768, 1152x864; SXGA: 1280x1024; WXGA+: 1440x900, 1600x900; WUXGA+: 1680x1050; Full HD: 1920x1080</td>
</tr>
<tr>
<td>Presets display modes</td>
<td>Presets: 24; user modes: 20</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 30° back, -5° forward; lift: 4.3&quot; (110mm); swivel: +/-45°; detachable stand</td>
</tr>
<tr>
<td>Rotating screen</td>
<td>Screen pivots 90 degrees from landscape to portrait</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access for power, menu, input source select, volume up / down, speaker mute and microphone mute</td>
</tr>
<tr>
<td>USB hub</td>
<td>USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0)</td>
</tr>
<tr>
<td>Multimedia</td>
<td>Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported</td>
</tr>
<tr>
<td>Camera</td>
<td>Integrated FHD camera with IR</td>
</tr>
<tr>
<td>Multiple input</td>
<td>Support HDMI, DisplayPort, VGA</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) VGA 15-pin D-shell, analog, blue</td>
</tr>
<tr>
<td>(2) HDMI (1.4), digital, HDCP-compliant</td>
<td>(3) DisplayPort, digital, black, HDCP-compliant</td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td>Security</td>
<td>(2) detachable, HDMI at each end, digital, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
<td>Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)</td>
</tr>
</tbody>
</table>

### Accessories
- Kensington MicroSaver Cable Lock - 73P2582
- Kensington Twin Head Cable Lock - 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
## Lenovo ThinkVision X24 Pro Wide

### Features
- Widescreen 23.8-inch monitor
- Supports 1920x1080 resolution
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Silver certified
- Intel RealSense 3D camera
- Stereo speakers 3 watts x 2
- One cable docking through USB 3.1 Type C with power delivery
- Windows Hello certified
- Microsoft® Windows® 10 certified

### X24 Pro Wide Flat Panel Monitor

- **Name:** Lenovo ThinkVision X24 Pro Wide Flat Panel Monitor
- **Bezel color:** Black
- **Type-model:** 60E4ECR1US / 60E4ECT1US / 60E4ECT1EU
- **Panel:** TFT-LCD, AH-IPS (In-Plane Switching), White LED backlight
- **Viewable image size:** 23.8” (604.5mm) diagonal
- **Max view area (W x H):** 20.75” x 11.67” (527.0mm x 296.5mm)
- **Native resolution:** 1920x1080
- **Aspect ratio:** 16:9
- **Pixel pitch (mm):** 0.2745 x 0.2745 mm
- **Brightness:** 250 nits or cd/m² (typical)
- **Pixel response time:** 7ms (typical)
- **Color gamut:** 72%
- **Viewing angle at 10:1 CR:** 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
- **Stand:** Tilt stand
- **Bezel width:** Sides: 0.09” (2.3mm)
- **Dimensions (HxWxD):** 17.61” H x 21.30” W x 9.39” D
- **Power supply:** 20 watts typical, 90 watts maximum, <0.5 watts standby/suspend, universal, external power supply
- **Weight:** 9.26 lb; 4.20 kg
- **Limited warranty:** 1 year (includes backlight)
- **Available date:** July 2016
- **Power management:** ENERGY STAR® qualified
- **Ergonomics:** ISO 9241-307
- **Emission standards:** FCC Class B
- **Environmental:** TCO Displays 6.0, WEEE, RoHS, EPEAT® Silver rating
- **Presets / user settings:** Standard presets: 16; user settings: 20

### Viewing adjustments
- **Tilt:** 22° back, -5° forward

### Rotating screen
- None

### On screen display
- On screen display with digital user controls

### Control features
- Direct access (buttons on side bezel) for dual input and brightness

### USB hub
- USB Hub: two USB 3.1 Type-C and one micro USB 3.0 ports

### Multimedia
- Integrated stereo speakers (3 watts x 2), built-in microphone

### Camera
- RealSense 3D camera SR300

### Multiple input
- Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

### Monitor connectors
- (1) mDP, Mini DisplayPort, digital, HDCP-compliant
- (2) USB Type-C, digital

### Signal cables
- (1) detachable, mDP to DP, digital, 2.0 meter
- (2) to mDP adapter
- (3) Micro USB 3.0 cable

### Mounting features
- None

### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Ship group
- Monitor with stand, Safety and Warranty Information, ThinkPad 90W Square tip power adaptor, 2.0 meter Mini DisplayPort to DisplayPort signal cable (with DP to mDP adapter), Micro USB 3.0 cable (for using camera)

### Limited Warranty

### Accessories
- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock
- 73P2582
- 45K1620

- See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

- See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
Lenovo ThinkVision X24-20

Features

- Widescreen 23.8-inch monitor
- Supports 1920x1080 resolution
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Silver certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

X24-20 Flat Panel Monitor
Raven black
61BDGAR3US / 61BDGAT3EU
TFT-LCD, IPS (In-Plane Switching), White LED backlight
23.8" (604.5mm) diagonal
20.75" x 11.67" (527.0mm x 296.5mm)
1920x1080
16:9
0.2745 x 0.2745 mm
92 dpi
250 nits or cd/m² (typical)
1000:1 (typical)
6ms (typical)
72% (NTSC)
178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
Tilt stand
Sides: 0.04" (1.1mm)
12.85" H x 21.16" W x 8.66" D; 326.4mm H x 537.4mm W x 220mm D
20 watts typical, <0.5 watts standby/suspend, universal, external power supply
7.3 lb; 3.3 kg
3 year (includes backlight)

Power management
ENERGY STAR® qualified
ISO 9241-307
FCC Class B
TCO Displays 7.0, TCO Certified Edge 2.0, WEEEEE, RoHS, EPEAT™ Silver rating

Preset resolutions
VGA: 640x350, 640x480, 720x400
SVGA: 800x600
XGA: 1024x768
SXGA: 1280x1024
WXGA: 1366x768
WXGA+: 1440x900, 1600x900
WSXGA+: 1680x1050
Full HD: 1920x1080

Preset resolutions
Standard presets: 18;
user settings: 0

Viewing adjustments
Tilt: 30° back, -5° forward
On screen display
None
Control features
Direct access (buttons on side bezel) for power, dual input and brightness
USB hub
None
Multiple input
Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
Monitor connectors
(1) HDMI (1.4a), digital, HDCP-compliant
(2) DisplayPort, digital, black, HDCP-compliant
Signal cables
(1) detachable, HDMI at each end, digital, 1.8 meter
Mounting features
None
Security
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

Ship group
Monitor with stand, Safety and Warranty Information, 1.8 meter HDMI signal cable, 1.8 meter black power cord

Limited Warranty

Accessories
Kensington MicroSaver Cable Lock 73P2582
Kensington Twin Head Cable Lock 45K1620

See details at www.lenovo.com/support/monitoraccessories

See all monitors at www.lenovo.com/thinkvision

Lenovo
December 2017
### Lenovo ThinkVision P27h

#### Name
P27h Wide Flat Panel Monitor

#### Features
- 27-inch IPS LED backlit monitor
- Supports 2560x1440 resolution
- 5-Ports USB hub, support USB 3.0
- Supports optional soundbar
- Support ThinkCentre Tiny
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

#### Specifications

<table>
<thead>
<tr>
<th>Name</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61AFGAR1US / 61AFGAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, IPS (In-Plane Switching), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>27&quot; (685.8mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>23.49&quot; x 13.21&quot; (596.7mm x 335.7mm)</td>
</tr>
<tr>
<td>Optimum resolution</td>
<td>2560x1440</td>
</tr>
<tr>
<td>Max pixel rate</td>
<td>300MHz</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.2331 x 0.2331mm</td>
</tr>
<tr>
<td>Dot/Pixel per inch</td>
<td>109 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>350 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>4ms (extreme) / 6ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>99% sRGB</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° horizontal, 178° vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.08&quot; (2mm)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>20.21&quot; H x 24.08&quot; W x 10.62&quot; D:</td>
</tr>
<tr>
<td>(HxWxD, including stand)</td>
<td>513mm H x 611.6mm W x 269.8mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>38 watts typical,</td>
</tr>
<tr>
<td></td>
<td>140 watts maximum (with USB),</td>
</tr>
<tr>
<td></td>
<td>&lt;0.5 watts sleep/stand,</td>
</tr>
<tr>
<td></td>
<td>&lt;0.5 watts switch off, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>15.43 lb; 7.0kg (including stand)</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year</td>
</tr>
<tr>
<td>Available date</td>
<td>April 2017</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® 7.0</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA: 1366x768</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900, 1680x900</td>
</tr>
<tr>
<td></td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td></td>
<td>Full HD: 1920x1080, 1920x1200</td>
</tr>
<tr>
<td></td>
<td>QHD: 2560x1440</td>
</tr>
<tr>
<td>Presets display modes</td>
<td>HDMI: 22; DP: 14</td>
</tr>
</tbody>
</table>

#### Viewing adjustments
- Tilt: 30° back, -5° forward; lift: 4.33° (110mm); swivel: +/-45°

#### Rotating screen
- Screen pivots 90 degrees from landscape to portrait

#### Control features
- Direct access (buttons on front) for power, menu, input source select and brightness
- On screen display with digital user controls (8 languages)

#### USB hub
- USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports

#### Multimedia
- Audio-out, optional sound bar supported

#### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

#### Mounting features
- Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

#### Multiple input
- Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out

#### Signal cables
- (1) USB 3.1 Type-C cable, 1.8 meter

#### Monitor connectors
- (1) 2*HDMI (1.4), digital, HDCP-compliant
- (2) DisplayPort (1.2), digital, HDCP-compliant
- (3) DisplayPort-out, digital
- (4) USB 3.1 Type-C

#### Presets display modes
- HDMI: 22; DP: 14

#### Preset resolutions
- VGA: 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1680x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- QHD: 2560x1440

#### Limited Warranty

#### Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- Lenovo Security Cable Lock 57Y4303
- See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)
- See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

*Lenovo  
July 2017*
**Lenovo ThinkVision P27q**

**Features**
- 27-inch IPS LED backlit monitor
- Supports 2560x1440 resolution
- 5-Ports USB hub, support USB 3.0
- Support ThinkCentre Tiny
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>P27q Wide Flat Panel Monitor</td>
</tr>
<tr>
<td>Case color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61A8GAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, IPS (In-Plane Switching), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>27&quot; (685.8mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>23.49&quot; x 13.21&quot; (596.7mm x 335.7mm)</td>
</tr>
<tr>
<td>Optimum resolution</td>
<td>2560x1440</td>
</tr>
<tr>
<td>Max pixel rate</td>
<td>350MHz</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.2331 x 0.2331mm</td>
</tr>
<tr>
<td>Dot/ Pixel per inch</td>
<td>109 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>350 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>4ms</td>
</tr>
<tr>
<td>Color gamut</td>
<td>99% sRGB</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° horizontal, 178° vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.08&quot; (2mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD, including stand)</td>
<td>513mm H x 614mm W x 269.8mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>38 watts typical</td>
</tr>
<tr>
<td>Weight</td>
<td>15.43 lb; 7.0kg (including stand)</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year</td>
</tr>
<tr>
<td>Available date</td>
<td>January 2017</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® 7.0</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA: 1366x768</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900, 1600x900</td>
</tr>
<tr>
<td></td>
<td>WUXGA+: 1800x1050</td>
</tr>
<tr>
<td></td>
<td>Full HD: 1920x1080, 1920x1200</td>
</tr>
<tr>
<td></td>
<td>QHD: 2560x1440</td>
</tr>
<tr>
<td>Presets / user settings</td>
<td>Standard presets: 20; user settings: 24</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 30° back, -5° forward; lift: 4.33&quot; (110mm); swivel: +/-45°</td>
</tr>
<tr>
<td>Rotating screen</td>
<td>Screen pivots 90 degrees from landscape to portrait</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access for menu, source switch, and brightness</td>
</tr>
<tr>
<td>USB hub</td>
<td>USB Hub: one USB 3.0 upstream port, four USB 3.0 downstream ports</td>
</tr>
<tr>
<td>Multimedia</td>
<td>Audio-out, optional sound bar supported</td>
</tr>
<tr>
<td>Camera</td>
<td>None</td>
</tr>
<tr>
<td>Multiple input</td>
<td>Support HDMI, DisplayPort, mini DisplayPort, DisplayPort-out</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) 2*HDMI (1.4), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(2) DisplayPort (1.2), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(3) Mini DisplayPort, digital, HDCP-compliant</td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, mini DisplayPort to DisplayPort, digital, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMi® (100mm mount)</td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
</tbody>
</table>

**Viewing adjustments**
- Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45°

**Ship group**
- Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.0 cable, 1.8 meter mini DP to DP cable, 1.8 meter black power cord

**Limited Warranty**


<table>
<thead>
<tr>
<th>Accessories</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kensington MicroSaver Cable Lock</td>
<td>73P2582</td>
</tr>
<tr>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
<tr>
<td>Lenovo Security Cable Lock</td>
<td>57Y4303</td>
</tr>
</tbody>
</table>

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

**Lenovo**

July 2017
Lenovo ThinkVision P27u

P27u Wide Flat Panel Monitor

- **Name**: Lenovo ThinkVision P27u
- **Case color**: Black
- **Type-model**: 61CBGAR1US / 61CBGAT1EU / 61CBGAR1EU / 61B0GAR1US / 61B0GAT1EU
- **Panel**: TFT-LCD, IPS (In-Plane Switching), White LED backlight
- **Viewable image size**: 27" (684.7mm) diagonal
- **Max view area (W x H)**: 23.49" x 13.21" (596.74mm x 335.66mm)
- **Optimum resolution**: 3840x2160
- **Max pixel rate**: 600MHz
- **Aspect ratio**: 16:9
- **Pixel pitch (mm)**: 0.1554 x 0.1554mm
- **Brightness**: 350 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 6ms (typical)
- **Color gamut**: 1.457 sRGB
- **Viewing angle at 10:1 CR**: 178° horizontal, 178° vertical
- **Dimensions**: 20.21" H x 24.08" W x 10.62" D; 513.3mm H x 611.6mm W x 269.8mm D
- **Power supply**: 50 watts typical, 160 watts maximum (with USB), <0.5 watts sleep/off; <0.3 watts switch off integrated (no external brick-like power supply)
- **Weight**: 15.32 lb; 6.95kg (including stand)
- **Limited warranty**: 3 year
- **Available date**: August 2017

**Features**

- 27-inch IPS LED backlit monitor
- Supports 3840x2160 resolution
- 5-Ports USB hub, support USB 3.0
- Support ThinkCentre Tiny
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Presets / user settings**

- Standard presets: 27;
- User settings: 20

**Viewing adjustments**

- Tilt: 30° back, -5° forward; Lift: 4.33" (110mm); Swivel: +/-45°

**Preset resolutions**

- VGA: 640x480, 720x400, 720x480, 720x576
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x720, 1280x800, 1280x1024
- WXGA: 1440x900, 1600x900
- WXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- QHD: 2560x1440
- UHD: 3840x2160

**Ship group**

- Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter DP to DP cable, 1.8 meter HDMI to HDMI cable (NA only), 1.8 meter black power cord, 1.8 meter USB Type-C to USB Type-A cable

**Limited Warranty**


**Accessories**

- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock
- Lenovo Security Cable Lock

See all monitors at [www.lenovo.com/thinkvision](www.lenovo.com/thinkvision)
## SPECIFICATIONS

### DISPLAY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>32”</td>
</tr>
<tr>
<td>Panel Type</td>
<td>In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Brand Color</td>
<td>Yes</td>
</tr>
<tr>
<td>Screen Dimensions (W x H3) (mm)</td>
<td>708.48 (H) x 398.52 (V)</td>
</tr>
<tr>
<td>Maximum Brightness (Typical)</td>
<td>300 cd/m²</td>
</tr>
<tr>
<td>Viewing Angle (H/V at CR 10:1)</td>
<td>178°/178°</td>
</tr>
<tr>
<td>Contrast Ratio (Typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio</td>
<td>3M:1</td>
</tr>
<tr>
<td>Pixel Pitch (W x H) (mm)</td>
<td>0.1845 (H) x 0.1845 (V)</td>
</tr>
<tr>
<td>Dot/ Pixel Per Inch (DP/ PPI)</td>
<td>137</td>
</tr>
<tr>
<td>Color Gamut (1931)</td>
<td>99.5% AdobeRGB</td>
</tr>
<tr>
<td>Response Time (Typical)</td>
<td>6 ms</td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0°C - 40°C</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>-20°C - 60°C</td>
</tr>
<tr>
<td>Humidity</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>8% - 80%</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>5% - 95%</td>
</tr>
<tr>
<td>Altitude</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0 ft - 5000 ft</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>0 ft - 40,000 ft</td>
</tr>
<tr>
<td>Arsenic-Free Glass</td>
<td>Yes</td>
</tr>
<tr>
<td>PVC-Free</td>
<td>Yes</td>
</tr>
<tr>
<td>Mercury-Free</td>
<td>Yes</td>
</tr>
<tr>
<td>PCC % of Plastic Resins</td>
<td>85% with &gt;25 g Plastic Parts</td>
</tr>
</tbody>
</table>

### POWER CONSUMPTION

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical</td>
<td>70 W</td>
</tr>
<tr>
<td>Maximum</td>
<td>200 W</td>
</tr>
<tr>
<td>Sleep-Mode</td>
<td>≤0.5 W</td>
</tr>
<tr>
<td>Switch Off-Mode</td>
<td>≤0.5 W</td>
</tr>
<tr>
<td>Power Supply</td>
<td>External</td>
</tr>
<tr>
<td>Power Voltage</td>
<td>90 VAC - 264 VAC</td>
</tr>
<tr>
<td>Voltage Dynamic Frequency</td>
<td>47 Hz - 63 Hz</td>
</tr>
</tbody>
</table>

### SIGNAL INPUT

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Input Signals</td>
<td>2 x HDMI™ 2.0 + DisplayPort™</td>
</tr>
<tr>
<td></td>
<td>1.2 + Thunderbolt™ 3.0-In +</td>
</tr>
<tr>
<td></td>
<td>Thunderbolt™ 3.0-Out</td>
</tr>
<tr>
<td>Video Cables Supplied</td>
<td>HDMI™, DisplayPort™,</td>
</tr>
<tr>
<td></td>
<td>Thunderbolt™ 3.0</td>
</tr>
<tr>
<td>Video Cable Length</td>
<td>2 m for Thunderbolt™, 1.8 m for</td>
</tr>
<tr>
<td></td>
<td>HDMI™ and DisplayPort™</td>
</tr>
<tr>
<td>USB Hub</td>
<td>Yes (4 x Downstream, 1 x BC)</td>
</tr>
<tr>
<td>USB Cable Supplied</td>
<td>Yes (USB Type-A to Type-B)</td>
</tr>
<tr>
<td>Audio-Out</td>
<td>Yes (3.5 mm)</td>
</tr>
</tbody>
</table>

### SIGNAL INTERFACE / PERFORMANCE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Frequency</td>
<td>30 kHz - 160 kHz</td>
</tr>
<tr>
<td>Vertical Frequency</td>
<td>23 Hz - 80 Hz</td>
</tr>
<tr>
<td>Native Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Maximum Pixel Clock Speed /</td>
<td>HDMI™</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>Display Port™, 5.4 Gbps</td>
</tr>
<tr>
<td></td>
<td>Thunderbolt™, 10 Gbps</td>
</tr>
<tr>
<td>Preset / User</td>
<td>28 / 20</td>
</tr>
<tr>
<td>OSD Buttons</td>
<td>5 Buttons</td>
</tr>
<tr>
<td>OSD Languages</td>
<td>English, French, German,</td>
</tr>
<tr>
<td></td>
<td>Spanish, Italian, Japanese,</td>
</tr>
<tr>
<td></td>
<td>Simplified Chinese, Russian</td>
</tr>
</tbody>
</table>

### MECHANICAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt Angle (Front / Back)</td>
<td>-5° / 22°</td>
</tr>
<tr>
<td>Swivel Angle (Left / Right)</td>
<td>45° / 45°</td>
</tr>
<tr>
<td>Lift (mm)</td>
<td>110</td>
</tr>
<tr>
<td>(CW / CCW)</td>
<td>90° / 90°</td>
</tr>
<tr>
<td>VESA® Mount</td>
<td>100 x 100</td>
</tr>
<tr>
<td>Kensington® Lock Slot</td>
<td>Yes</td>
</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
</tr>
<tr>
<td>Bezel Color</td>
<td>Raven Black</td>
</tr>
<tr>
<td>Bezel Width</td>
<td></td>
</tr>
<tr>
<td>Top (mm / inches)</td>
<td>2 / 0.08”</td>
</tr>
<tr>
<td>Bottom (mm / inches)</td>
<td>23.8 / 0.94”</td>
</tr>
<tr>
<td>Sides (mm / inches)</td>
<td>2 / 0.08”</td>
</tr>
</tbody>
</table>

### DIMENSIONS (W x D x H)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size Packed</td>
<td>844 x 228 x 528</td>
</tr>
<tr>
<td>(inches)</td>
<td>33.23&quot; x 8.98&quot; x 20.79”</td>
</tr>
<tr>
<td>Size Unpacked with Stand</td>
<td></td>
</tr>
<tr>
<td>Lowest Position</td>
<td>726.7 x 350 x 497.8</td>
</tr>
<tr>
<td>(mm)</td>
<td>28.61&quot; x 13.78&quot; x 19.6&quot;</td>
</tr>
<tr>
<td>Highest Position</td>
<td>726.7 x 350 x 606.8</td>
</tr>
<tr>
<td>(mm)</td>
<td>28.61&quot; x 13.78&quot; x 23.89”</td>
</tr>
<tr>
<td>Size Unpacked without Stand</td>
<td></td>
</tr>
<tr>
<td>(Monitor Head Only)</td>
<td>726.7 x 63.3 x 431.5</td>
</tr>
<tr>
<td>(mm)</td>
<td>28.61&quot; x 2.49&quot; x 16.99”</td>
</tr>
<tr>
<td>Distance from Table to Panel</td>
<td></td>
</tr>
<tr>
<td>Lowest Pixel at Bottom of Screen</td>
<td>90.9 / 3.58”</td>
</tr>
<tr>
<td>(mm / inches)</td>
<td>489.4 / 19.27”</td>
</tr>
<tr>
<td>Highest Pixel at Top of Screen</td>
<td>350 x 350 / 13.78” x 13.78”</td>
</tr>
<tr>
<td>(mm / inches)</td>
<td>8% – 80%</td>
</tr>
<tr>
<td>Stand Base Footprint Area</td>
<td>8% – 80%</td>
</tr>
<tr>
<td>(mm / inches)</td>
<td>8% – 80%</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Packed</td>
<td>Starting at 29.32 lbs (13.3 kg)</td>
</tr>
<tr>
<td>Unpacked</td>
<td>Starting at 22.05 lbs (10 kg)</td>
</tr>
</tbody>
</table>

### MECHANICAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLIANCE</td>
<td></td>
</tr>
<tr>
<td>EPEAT™</td>
<td>Gold</td>
</tr>
<tr>
<td>ENERGY STAR® Rating</td>
<td>7.0</td>
</tr>
<tr>
<td>TCO</td>
<td>TCO 7.0 / TCO Edge 2.0</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>Windows 7 / Windows 10</td>
</tr>
<tr>
<td>China Energy Efficiency Standard</td>
<td>Tier 2</td>
</tr>
</tbody>
</table>

### WARRANTY AND AVAILABILITY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warranty</td>
<td>3 Years</td>
</tr>
<tr>
<td>Geography Availability</td>
<td>WW</td>
</tr>
</tbody>
</table>
## Specifications

**ThinkVision P44w-10**

### Visual Experience
- **Resolution**: 3840 x 1200 pixels
- **Aspect Ratio**: 32:10
- **Panel Type**: WLED, anti-glare, VA NearEdgeless
- **Screen Dimensions (H x V)**: 269.8 x 591.1 x 1058.3mm

### Connectivity
- **Ports**: 4 x USB 3.1 Gen1 (1 BC), 1 x USB Type-C Gen2, 1 x USB Type-C Gen1 (DP1.2 Alt Mode), 2 x HDMI 2.0
- **Audio Out**: Yes (3.5mm), Yes (100 x 100mm)
- **Video Cable Length**: 1.5m for USB Type-C Gen2, 1.8m for others

### Power Consumption
- **Typical/Max**: 70W/250W
- **Switch-off Mode**: <0.5W

### Mechnical
- **Weight Packed**: 18.59kg/40.98lbs.
- **Dimensions Unpacked w/o stand**: 10.62 x 18.15 x 41.67 inches (269.8 x 461.1 x 1058.3mm)
- **Position (D x H x W) (Lowest Position)**: 10.62 x 23.27 x 41.67 inches
- **Size Unpacked w/stand**: 47.99 x 19.68 x 14.80 inches
- **Weight (Monitor Head Only)**: 9.35kg/20.61lbs.
- **Bezel Width (top/bottom)**: 2.4/25.6mm
- **Bezel Width (side)**: 2.4mm

### Included Resources
- Quick setup guide
- Monitor with stand
- 1 x Power cable
- 1 x DP cable
- 1 x 1 x USB Type-C to Type-A cable

**Windows 7, Windows 10**

### Energy Efficiency
- **China Energy Efficiency Standard**: Tier 2
- **Ambient Operating Temperature**: 0°C to 45°C
- **TÜV Eye Comfort**: Yes

### Software
- **ThinkColor**: Yes
- **Anti-Glare**: Yes

### Hardware
- **Panel Size**: Panel Size
- **Backlight**: 1800R
- **Curvature**: 1800R
- **Refresh Rate**: Max. 144Hz
- **Color Gamut**: 1.07B, 3M:1, 3000:1
- **Max. Brightness**: 450 nits (peak)
- **Color Accuracy**: D65 8.0, 93% NTSC, 99% Adobe RGB
- **Speakers**: Harman Kardon certified speaker
- **DPI**: 99dpi
- **Screen Size** 43.4-inch 32:10 monitor
- **Picture Mode**: Picture-by-picture (PBP) and picture-in-picture (PIP)

**Experience Superior Connectivity**

- **USB Hub**: Yes (3.5mm)
- **USB Ports**: 2 x USB 3.1 Type-C
- **USB Upstream**: Yes
- **USB Downstream**: Yes
- **Internal Power**: Yes
- **Height Adjustable**: ±30°
- **Tilt Angle (front/back)**: -5°/22°
- **Lift, Tilt, Swivel**: Yes

**The Canvas You Deserve**

- **Redefine Productivity.**
- **Reimagine Creativity.**
- **Enhanced User Experience.**
- **Smarter Power Function.**

**WHAT'S IN THE BOX**

- Quick setup guide
- Monitor with stand
- 1 x Power cable
- 1 x DP cable
- 1 x 1 x USB Type-C to Type-A cable

**Certification**

- **UAE**: Yes
- **BFR/PVC-free**: Yes
- **Internal Power**: Yes
- **EPEAT Gold**: Yes
- **TCO**: Yes
- **1800R**: Yes
- **VESA**: Yes

### Additional Ports
- **Audio Out**: Yes (3.5mm)
- **Video Out**: Yes (100 x 100mm)

**Display With a Perspective**

- **Tilt, and swivel functionality allows you to position the monitor in a way that suits your working style.**
- **One is Better than Two**
- **43.4-inch 32:10 monitor.** The picture-by-picture (PBP) and picture-in-picture (PIP) are made for your visual experience.

**Reinvented for Productivity and Creativity**

- **3840 x 1200 pixels**
- **VESA Certified DisplayHDR™ 400**
- **3000:1**
- **178°/178°**
- **8.0**
- **TCO Gold**
- **ULE**

- **Supports for up to 90W power for devices such as smartphones, data, video/audio, and manage up to 90W power for devices such as smartphones,**

**Expanded your device capabilities by enabling easy connection to other peripherals.**

| Display  | Refresh Rate | Bezel Width (top/bottom) | Bezel Width (side) | Panel Size | Backlight | Curvature | Resolution | Aspect Ratio | Color Gamut | Max. Brightness | Color Accuracy | Height Adjustable | Tilt Angle (front/back) | Lift, Tilt, Swivel | USB Hub | USB Ports | USB Upstream | USB Downstream | Internal Power | Energy Efficiency | Software | Hardware | WHAT'S IN THE BOX | Certification | Display With a Perspective | Additional Ports | Display With a Perspective | Reimvented for Productivity and Creativity |
## ThinkVision® S27i-10

### DISPLAY
- **Panel Size**: 27 inch
- **Screen Dimensions (H x V) (mm)**: 597.89 (H) × 336.31 (V)
- **Panel Type**: In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 1920 x 1080
- **Pixel Pitch (H x V) (mm)**: 0.3110 × 0.3110
- **Viewing angle (H x V)**: 178°/ 178°
- **Response Time (gray to gray)**: 4 ms (extreme mode), 6 ms (normal mode)
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Color Gamut NTSC (CIE 1931)**: 72%
- **Color Support**: 16.7M

### CONNECTIVITY
- **Video Input Signals**: VGA + HDMI 1.4
- **Video Cable Length**: 1.8 m
- **Audio Out**: Yes (3.5 mm)

### MULTI-MEDIA
- **Optional Soundbar Support**: Yes

### DIMENSIONS
- **Size Packed (D x H x W) (mm/inch)**: 132 x 455 x 715 mm / 5.20 x 17.91 x 28.15 inch
- **Size Unpacked w/stand (D x H x W) (mm/inch)**
  - **(Lowest Position)**: 220.0 x 443.5 x 611.9 mm / 8.66 x 17.46 x 24.10 inch
  - **(Highest Position)**: 220.0 x 443.5 x 611.9 mm / 8.66 x 17.46 x 24.10 inch
- **Size Unpacked w/o stand (D x H x W) (mm/inch)**
  - **(Head Only)**: 46.2 x 366.5 x 611.9 mm / 1.82 x 14.43 x 24.10 inch
- **Weight Packed (kg/lbs.)**: 6.80kg / 14.99 lbs.
- **Weight Unpacked (kg/lbs.)**: 4.76kg / 10.49 lbs.
- **Weight (Monitor Head Only) (kg/lbs.)**: 4.22kg / 9.30 lbs.

### SPECIAL FEATURES
- **Anti-Glare**: Yes
- **Thin Client Support (Tiny)**: Yes
  - *(by VESA mount PN: 4XF0N03161)*

### MECHANICAL
- **Tilt Angle (front/back)**: -5° / 22°
- **VESA Mount**: Yes (100 mm)
- **Kensington™ Lock Slot**: Yes
- **Bezel Color**: Raven Black
- **Bezel Width (Side)**: 2.0 mm
- **Bezel Width (top / bottom)**: 2.0 mm / 21.68 mm

### WHAT’S IN THE BOX
- Monitor with stand
- 1 x HDMI Cable
- 1 x VGA Cable (AP, EMEA only)
- 1 x Power Cable
- Quick setup guide

### CERTIFICATIONS
- **ENERGY STAR Rating**: 7.0
- **TCO**: 7.0
- **EPEAT™ Gold**: Gold
- **ULE**: Gold
- **RoHS**: Yes
- **Windows Certification**: Windows 7, Windows 10
- **China Energy Efficiency Standard**: Tier 2
- **Ambient Operating Temperature**: 0°C to 40°C
- **TÜV Eye Confort Certification**: Yes
**ThinkVision T25d-10**

**DISPLAY**
- Panel Size: 25.0 inches
- Screen Dimensions (H x V): 533.45 x 338.76mm
- Panel Type: In-Plane Switching
- Backlight: WLED
- Aspect Ratio: 16:10
- Resolution: 1920 x 1200 pixels
- Refresh Rate: 60Hz
- Pixel Pitch (H x V): 0.2789 x 0.2823mm
- Viewing Angle (H x V): 178°/178°
- Response Time (gray to gray): 4ms (extreme mode) 6ms (normal mode)
- Contrast Ratio (typical): 1000:1
- Dynamic Contrast Ratio (typical): 3M:1
- Brightness (typical): 300 cd/m²
- Color Gamut sRGB (CIE 1931): 99%

**CONNECTIVITY**
- Video Input Signals: HDMI 1.4 + DP 1.2 + VGA
- Video Cables Supplied: DP + HDMI*
- Video Cable Length: 1.8m
- USB Hub: Yes
- USB Upstream: 1 x USB 3.1 Gen1
- USB Downstream: 4 x USB 3.1 Gen1 (with 1 BC)
- Audio Out: Yes (3.5mm)

**POWER**
- Power Consumption (Typical/Max): 25W/66W
- Power Consumption Sleep/Off Mode: <0.5W
- Power Consumption Switch Off-Mode: <0.3W
- Power Supply: Internal
- ENERGY STAR® (Pₚₚ) 16.54W

**ENERGY STAR® (Eₚₚ) 52.06kWh**

**DIMENSIONS**
- Size Packed (D x H x W): 706 x 450 x 160mm/
  27.79 x 17.72 x 6.30 inches
- Size Unpacked w/stand (D x H x W)(mm/inch)
  Lowest position: 760.4 x 399.5 x 548.7mm/
  29.95 x 15.73 x 21.60 inches
- Size Unpacked w/stand (D x H x W)(mm/inch)
  Highest position: 760.4 x 509.5 x 548.7mm/
  29.95 x 20.06 x 21.60 inches
- Size Unpacked w/o stand (D x H x W)(mm/inch)
  (Head Only): 43.0 x 369.1 x 548.7mm/
  1.69 x 14.53 x 21.60 inches
- Weight Packed: 7.8kg/17.20lbs.
- Weight Unpacked: 5.5kg/12.13lbs.
- Weight (Monitor Head Only): 3.58kg/7.89lbs.

**SPECIAL FEATURES**
- Anti-glare: Yes
- Optional Soundbar Support: Yes
- ThinkCentre Tiny Support: Yes
- MECHANICAL
  - Tilt Angle (front/back): -5°/+30°
  - Swivel Angle (left/right): +/-45°
  - Lift: Yes (110mm)
  - Pivot: +/-90°
  - VESA Mount Capability: Yes (100 x 100mm)
  - Kensington™ Lock Slot: Yes
  - Bezel Width (Side): 2.0mm
  - Bezel Width (top/bottom): 2.0/22.2mm

**WHAT’S IN THE BOX**
- Monitor with stand
- 1 × Power Cable
- 1 × USB 3.1 Gen1 Cable
- 1 × HDMI™ Cable*
- 1 × DP Cable
- Quick Setup Guide

**CERTIFICATIONS**
- ENERGY STAR® Rating: Tier 2
- EU RoHS: Yes
- CCC: Yes
- TCO: TCO 8.0/TCO Edge 2.0
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 2
- TÜV Eye Comfort: Yes
- ULE: Gold

*For NA and LA only

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

© 2019 Lenovo. All rights reserved. These products are available while supplies last. Prices shown are subject to change without notice. For any questions concerning price, please contact your Lenovo Account Executive. Lenovo is not responsible for photographic or typographic errors. Warranty: For a copy of applicable warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC 27709, Attn: Dept. ZPYA/B600. Lenovo makes no representation or warranty regarding third-party products or services. Trademarks: Lenovo, the Lenovo logo, Rescue and Recovery, ThinkPad, ThinkCentre, ThinkStation, ThinkVantage, and ThinkVision are trademarks or registered trademarks of Lenovo. Microsoft, Windows, and Vista are registered trademarks of Microsoft Corporation. Intel, the Intel logo, Intel Inside, Intel Core, and Core Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product, and service names may be trademarks or service marks of others.

Specifications may vary depending upon region.
ThinkVision T25m-10

**DISPLAY**
- Panel Size: 25.0 inches
- Screen Dimensions (H x V): 535.45 x 338.76mm
- Panel Type: In-Plane Switching
- Backlight: WLED
- Aspect Ratio: 16:10
- Resolution: 1920 x 1200 pixels
- Pixel Pitch (H x V): 0.2789 x 0.2823mm
- Viewing Angle (H x V): 178°/178°
- Response Time (gray to gray): 4ms (extreme mode) 6ms (normal mode)
- Contrast Ratio (typical): 1000:1
- Dynamic Contrast Ratio (typical): 3M:1
- Brightness (typical): 300 cd/m²
- Color Gamut sRGB (CIE 1931): 99%
- Color Support: 16.7M

**CONNECTIVITY**
- Video Input Signals:
  - HDMI 1.4 + DP 1.2 + USB 3.1 Type-C™ (DP 1.2 Alt Mode)
- Video Cables Supplied:
  - USB 3.1 Type-C™
- Video Cable Length: 1.8m
- USB Hub: Yes
- USB Upstream:
  - 1 x USB 3.1 Gen1 (by USB Type-C™)
- USB Downstream:
  - 4 x USB 3.1 Gen1 (with 1 BC)
- Audio Out: Yes (3.5mm)

**ENERGY STAR® Rating**
- 63.12kWh
- Power Voltage: 100-240VAC (50/60Hz)

**DIMENSIONS**
- Size Packed (D x H x W):
  - 706 x 450 x 160mm/
  - 27.79 x 17.72 x 6.30 inches
- Size Unpacked w/stand (D x H x W) (mm/ inch):
  - 260.4 x 399.5 x 548.7mm/ 10.25 x 15.73 x 21.60 inches
- Size Unpacked w/stand (D x H x W) (mm/ inch) (Lowest position):
  - 260.4 x 509.5 x 548.7mm/ 10.25 x 20.06 x 21.60 inches
- Size Unpacked w/o stand (D x H x W) (mm/ inch) (Head Only):
  - 43.0 x 369.1 x 548.7mm/ 1.69 x 14.53 x 21.60 inches
- Weight Packed:
  - 7.8kg/17.20lbs.
- Weight Unpacked:
  - 5.5kg/12.13lbs.
- Weight (Monitor Head Only):
  - 3.58kg/7.89lbs.

**SPECIAL FEATURES**
- Anti-glare: Yes

**CERTIFICATIONS**
- ENERGY STAR® Rating: 7.1
- EU RoHS: Yes
- CCC: Yes
- TCO: TCO 8.0/TCO Edge 2.0
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 2
- TÜV Eye Comfort: Yes
- ULE: Gold

**WHAT’S IN THE BOX**
- Quick Setup Guide
- 1 × USB Type-C™ to Type-C™ cable
- 1 × Power Cable
- Monitor with stand

---

*The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to other devices. 75W power delivery by USB Type-C can be achieved when downstream USB ports are not connected and OSD brightness setting is <31.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

© 2019 Lenovo. All rights reserved. These products are available while supplies last. Prices shown are subject to change without notice. For any questions concerning price, please contact your Lenovo Account Executive. Lenovo is not responsible for photographic or typographic errors. Warranty: For a copy of applicable warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC 27709, Attn: Dept. ZPYA/B600. Lenovo makes no representation or warranty regarding third-party products or services. Trademarks: Lenovo, the Lenovo logo, Rescue and Recovery, ThinkPad, ThinkCentre, ThinkStation, ThinkVantage, and ThinkVision are trademarks or registered trademarks of Lenovo. Microsoft, Windows, and Vista are registered trademarks of Microsoft Corporation. Intel, the Intel logo, Intel Inside, Intel Core, and Core Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product, and service names may be trademarks or service marks of others.

Specifications may vary depending upon region.
## DISPLAY

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>27 inch</td>
</tr>
<tr>
<td>Screen Dimensions (H x V) (mm)</td>
<td>597.89 (H) × 336.31 (V)</td>
</tr>
<tr>
<td>Panel Type</td>
<td>In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Resolution</td>
<td>1920 x 1080</td>
</tr>
<tr>
<td>Pixel Pitch (H x V) (mm)</td>
<td>0.3110 × 0.3110</td>
</tr>
<tr>
<td>Viewing angle (H x V)</td>
<td>178°/178°</td>
</tr>
<tr>
<td>Response Time (gray to gray)</td>
<td>4 ms (extreme mode)</td>
</tr>
<tr>
<td></td>
<td>6 ms (normal mode)</td>
</tr>
<tr>
<td>Contrast Ratio (typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio (typical)</td>
<td>3M:1</td>
</tr>
<tr>
<td>Color Gamut NTSC (CIE 1931)</td>
<td>72%</td>
</tr>
<tr>
<td>Color Support</td>
<td>16.7M</td>
</tr>
</tbody>
</table>

## USB Hub

- Yes
- 1 x USB 3.0 (Upstream)
- 4 x USB 3.0 (Downstream, incl. 1BC)

## Cable Length

- 1.8 m

## Audio Out

- Yes (3.5 mm)

## Power Consumption

- 22W (Typical) / 58W (max) at On mode;
- <0.5W at Sleep mode; <0.3W at Switch off mode

## SPECIAL FEATURES

- Anti-Glare
  - Yes
- Thin Client Support (Tiny)
  - Yes
  - (by Tiny Clamp Bracket Kit+VESA mount PN:4XF0N82412+ PN:4XF0N03161)

## MECHANICAL

- Tilt Angle (front/back)
  - -5°/30°
- Swivel Angle (left/right)
  - -45°/+45°
- Lift (Max range)
  - 110 mm
- Pivot
  - -90°/90°
- VESA Mount
  - Yes (100 mm)
- Kensington™ Lock Slot
  - Yes
- Cable Management
  - Yes
- Bezel Color
  - Raven Black
- Bezel Width (Side)
  - 2.0 mm

## WHAT'S IN THE BOX

- Monitor with stand
- 1 x Power cable
- 1 x DP-DP cable
- 1 x HDMI cable (NA only)
- 1 x USB 3.0 cable
- Quick setup guide

## CERTIFICATIONS

- ENERGY STAR Rating
  - 7.0
- CCC
  - Yes
- TCO
  - 7.0
- EPEAT™
  - Gold
- ULE
  - Gold
- Windows Certification
  - Windows 7, Windows 10
- China Energy Efficiency Standard
  - Tier 2
- Ambient Operating Temperature
  - 0°C to 40°C
- Eye Comfort Certification
  - Yes

Specifications may vary depending upon region.
## ThinkVision T27p-10

### DISPLAY

| Panel Size | 27.0 inches |
| Screen Dimensions (H x V) | 596.74 x 335.66mm |
| Panel Type | In-Plane Switching |
| Backlight | WLED |
| Aspect Ratio | 16:9 |
| Resolution | 3840 x 2160 pixels |
| Pixel Pitch (H x V) | 0.1554 x 0.1554mm |
| Viewing Angle (H x V) | 178°/178° |
| Response Time (gray to gray) | 4ms (extreme mode) 6ms (normal mode) |
| Refresh Rate | 60Hz |
| Contrast Ratio (typical) | 1000:1 |
| Dynamic Contrast Ratio (typical) | 3M:1 |
| Brightness (typical) | 350 cd/m² |
| Color Gamut sRGB (CIE 1931) | 99% |
| Color Support | 1.07 Billion |

### POWER

| Power Consumption (Typical/Max) | 50W/140W |
| Power Consumption Sleep/Off Mode | <0.5W |
| Power Consumption Switch Off-Mode | <0.3W |
| Power Supply | Internal |
| ENERGY STAR® (Pmen) | 23.40W |
| ENERGY STAR® (Emen) | 101.94kWh |
| Voltage Required | 100-240VAC (50/60Hz) |

### CONNECTIVITY

| Video Input Signals | HDMI 2.0 + DP 1.2 + USB 3.1 Type-C™ (DP 1.2 Alt Mode) |
| Video Cable Length | 1.8m |
| USB Hub | Yes |
| USB Upstream | Yes |
| USB Downstream | 1 x USB 3.1 Gen1 (by USB Type-C™) 4 x USB 3.1 Gen1 (with 1 BC) |
| Internal Power Supply | <0.3W |
| Switch Off-Mode Power Consumption | <0.5W |
| Sleep/Off Mode Power Consumption | 23.40W |
| Typical Power Consumption | 50W/140W |
| Max Power Consumption | 101.94kWh |

### MECHANICAL

| Tilt Angle (front/back) | -5°/30° |
| Swivel Angle (left/right) | +/-45° |
| Lift | Yes (110mm) |
| Pivot | +/-90° |
| VESA Mount Capability | Yes (100 x 100mm) |
| Kensington™ Lock Slot | Yes |
| Bezel Width (Side) | 2.0mm |
| Bezel Width (top/bottom) | 2.0/24.5mm |

### SPECIAL FEATURES

| Smart Power* | Yes |
| Anti-glare | Yes |
| ThinkCentre Tiny Support | Yes |
| Optional Soundbar Support | Yes |

### WHAT’S IN THE BOX

- Monitor with stand
- 1 x Power Cable
- 1 x HDMI Cable
- 1 x USB Type-C™ to Type-C™ cable
- Quick Setup Guide

### CERTIFICATIONS

- ENERGY STAR® Rating 7.1
- EU RoHS Yes
- CCC Yes
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 2
- TÜV Eye Comfort: Yes
- TCO: TCO 8.0/TCO Edge 2.0
- ULE: Gold

---

*The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to each device. 75W power delivery can be achieved when downstream USB ports are not connected and the OSD brightness setting is 46. Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

© 2019 Lenovo. All rights reserved. These products are available while supplies last. Prices shown are subject to change without notice. For any questions concerning price, please contact your Lenovo Account Executive. Lenovo is not responsible for photographic or typographic errors. Warranty: For a copy of applicable warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC 27709, Attn: Dept. ZPYA/B600. Lenovo makes no representation or warranty regarding third-party products or services. Trademarks: Lenovo, the Lenovo logo, Rescue and Recovery, ThinkPad, ThinkCentre, ThinkStation, ThinkVantage, and ThinkVision are trademarks or registered trademarks of Lenovo. Microsoft, Windows, and Vista are registered trademarks of Microsoft Corporation. Intel, the Intel logo, Intel Inside, Intel Core, and Core Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product, and service names may be trademarks or service marks of others.

Specifications may vary depending upon region.
Lenovo ThinkVision X1

### Name
X1 Wide Flat Panel Monitor

### Case color
Black

### Type-model
60E2GAR1US / 60E2GAT1US / 60E2GAT1EU

### Panel
TFT-LCD, IPS (In-Plane Switching), White LED backlight

### Viewable image size
27" (684.7mm) diagonal

### Max view area (W x H)
23.49" x 13.21" (596.7mm x 335.7mm)

### Optimum resolution
3840x2160

### Max pixel rate
600MHz

### Aspect ratio
16:9

### Pixel pitch (mm)
0.16 x 0.16mm

### Brightness
300 nits or cd/m² (typical)

### Contrast ratio
1300:1 (typical)

### Pixel response time
6ms

### Color gamut
99%

### Viewing angle at 10:1 CR
178° horizontal, 178° vertical

### Stand
Tilt stand

### Bezel width (HxWxD, including stand)
491.4mm H x 614.5mm W x 270.0mm D

### Power supply
40 watts typical, 130 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off

### Weight
14.11 lb; 6.40kg (including stand)

### Limited warranty
3 year

### Available date
March 2016

### VESA-compliant
VESA DDC2B/CI

### Power management
ENERGY STAR® 7.0

### Ergonomics
ISO 9241-307

### Emission standards
FCC Class B

### Environmental
TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold

### Preset resolutions
- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA: 1280x720, 1280x768, 1280x800, 1360x768
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- UHD: 3840x2160

### Presets / user settings
Standard presets: 20; user settings: 20

### Viewing adjustments
Tilt: 22° back, -5° forward;

### Rotating screen
None

### On screen display
On screen display with digital user controls (8 languages)

### Control features
Direct access (touch buttons on front) for menu, mute, volume up/down, and brightness

### USB hub
USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports

### Multimedia
Integrated stereo speakers (3 watts x 2), built-in microphone

### Camera
Full HD camera with LED light

### Multiple input
Support HDMI, DisplayPort

### Monitor connectors
1. HDMI (1.4), digital, HDCP-compliant
2. DisplayPort (1.2), digital, HDCP-compliant

### Signal cables
1. detachable, HDMI at each end, digital, 1.8 meter
2. detachable, DisplayPort at each end, digital, 1.8 meter

### Mounting features
Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

### Security
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Ship group
Monitor, detachable stand, Quick start and safety poster, 1.8 meter DisplayPort cable, 1.8 meter HDMI cable, 1.8 meter USB Type-C cable, 1.8 meter USB Type-C to Type-A cable, 1.8 meter black power cord, mini DP to DP adapter, power adapter (135W)

### Limited Warranty

### Accessories
Kensington MicroSaver Cable Lock 73P2582
Kensington Twin Head Cable Lock 45K1620
Lenovo Security Cable Lock 57Y4303

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)
See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

© Lenovo
(X1) March 2016
The Lenovo ThinkVision X1 (2nd GEN) monitor is best suited for:

1. The Executives and CXO of company.
2. SOHO and Gold Collars with high income.
3. Trendsetters who pursue an extreme and forefront monitor.

**Why You Should Buy the Lenovo ThinkVision X1 (2nd GEN) Monitor**

- **Full-screen appearance**
  - With world’s slimmest (4.7 mm) 27” 4K TBT monitor, you will experience full-screen 4-side Near-Edgeless display with the screen ratio of approximately 93%. The monitor also comes with a metal stand and a base.

- **Brilliant performance**
  - The 4K UHD IPS screen displays 3840 x 2160 resolution at 60 Hz, 99% sRGB color gamut, 10-bit depth, with 1.07 billion color support assures you stunning visuals and superb color experience.

- **Convenient user experience**
  - Total versatility with Thunderbolt™ 3 interface supporting 4K + USB 3.0 & 45W PD + motor-camera with dual-array microphone. A Think RedDot tracking button is integrated in the back cover.

**The Milestone of X-Series, 27” Full-screen, 4K, Thunderbolt™ 3 Monitor.**

Pushing the limit of screen share ratio with innovative technology, the 27” Lenovo™ ThinkVision® X1 (2nd GEN) display brings full-screen and ultra-slim appearance in elegant design. With 4K resolution and >99% sRGB color gamut, you will be assured of excellent watching experience and Thunderbolt™ 3 interface will bring the best user experience. "Motor" camera is first used on monitor, which will move up and down automatically and with it you will own standard VoIP system.
### SPECIFICATIONS

#### DISPLAY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>27&quot;</td>
</tr>
<tr>
<td>Panel Type</td>
<td>IPS</td>
</tr>
<tr>
<td>Backlight</td>
<td>Y27ED</td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 (H) x 2160 (V)</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Anti-Glare</td>
<td>Yes</td>
</tr>
<tr>
<td>Screen Dimensions (W x H) (mm)</td>
<td>596.7 (H) x 335.7 (V)</td>
</tr>
<tr>
<td>Maximum Brightness (Typical)</td>
<td>350 cd/m²</td>
</tr>
<tr>
<td>Viewing Angle (H/V at CR 10:1)</td>
<td>178°/178°</td>
</tr>
<tr>
<td>Contrast Ratio (Typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio</td>
<td>3M1</td>
</tr>
<tr>
<td>Pixel Pitch (W x H) (mm)</td>
<td>0.1554 x 0.1554</td>
</tr>
<tr>
<td>Dot/Pixel Per Inch (DP/PPi)</td>
<td>163</td>
</tr>
<tr>
<td>Color Gamut (CIE 1931)</td>
<td>99% sRGB</td>
</tr>
<tr>
<td>Response Time (Extreme/Typical/Off)</td>
<td>4/6/14 ms (G-to-G)</td>
</tr>
</tbody>
</table>

#### ENVIRONMENTAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0°C – 45°C</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>-20°C – 60°C</td>
</tr>
<tr>
<td>Humidity</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>8% – 80%</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>5% – 95%</td>
</tr>
<tr>
<td>Altitude</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>16,000 ft</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>40,000 ft</td>
</tr>
<tr>
<td>Arsenic-Free Glass</td>
<td>Yes</td>
</tr>
<tr>
<td>PVC-Free</td>
<td>Yes (W/O cable)</td>
</tr>
<tr>
<td>Mercury-Free</td>
<td>Yes</td>
</tr>
<tr>
<td>PCC % of Plastic Resins</td>
<td>25%</td>
</tr>
</tbody>
</table>

#### POWER CONSUMPTION

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical</td>
<td>65 W</td>
</tr>
<tr>
<td>Maximum</td>
<td>135 W</td>
</tr>
<tr>
<td>Sleep-Mode</td>
<td>0.5 W</td>
</tr>
<tr>
<td>Switch Off-Mode</td>
<td>0.5 W</td>
</tr>
<tr>
<td>Power Supply</td>
<td>External</td>
</tr>
<tr>
<td>Power Voltage</td>
<td>100 VAC - 240 VAC</td>
</tr>
<tr>
<td>Voltage Dynamic Frequency</td>
<td>50 Hz - 60 Hz</td>
</tr>
</tbody>
</table>

#### SIGNAL INPUT

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Input Signals</td>
<td>DisplayPort™ 1.2 + HDMI™ 2.0 + Thunderbolt™ 3</td>
</tr>
<tr>
<td>Video Cables Supplied</td>
<td>HDMI™ + Thunderbolt™ 3</td>
</tr>
<tr>
<td>Video Cable Length</td>
<td>1.8 m</td>
</tr>
<tr>
<td>USB Hub</td>
<td>Yes (4 x USB 3.0)</td>
</tr>
<tr>
<td>USB Cable Supplied</td>
<td>N/A</td>
</tr>
<tr>
<td>Audio-Jack</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### SIGNAL INTERFACE / PERFORMANCE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Frequency</td>
<td>30 kHz - 136 kHz</td>
</tr>
<tr>
<td>Vertical Frequency</td>
<td>30 Hz - 60 Hz</td>
</tr>
<tr>
<td>Native Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Maximum Pixel Clock Speed/ Bandwidth</td>
<td>20 Gbps</td>
</tr>
<tr>
<td>Default Color Temperature</td>
<td>6500K</td>
</tr>
<tr>
<td>Preset Modes</td>
<td>24</td>
</tr>
<tr>
<td>OSD Buttons</td>
<td>2 Buttons + Tracking Point</td>
</tr>
<tr>
<td>OSD Languages</td>
<td>English, French, Italian, German, Spanish, Japanese, Chinese, Russian</td>
</tr>
</tbody>
</table>

#### MECHANICAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt Angle (Front / Back)</td>
<td>~5° / 30°</td>
</tr>
<tr>
<td>Swivel Angle (Left / Right)</td>
<td>N/A</td>
</tr>
<tr>
<td>Lift (mm)</td>
<td>N/A</td>
</tr>
<tr>
<td>Pivot</td>
<td>N/A</td>
</tr>
<tr>
<td>VESA® Mount (mm)</td>
<td>N/A</td>
</tr>
<tr>
<td>Kensington® Lock Slot</td>
<td>Yes</td>
</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
</tr>
<tr>
<td>Bezel Color</td>
<td>N/A</td>
</tr>
<tr>
<td>Bezel Width</td>
<td>N/A</td>
</tr>
<tr>
<td>Top (mm / inches)</td>
<td>1.2 / 0.05&quot;</td>
</tr>
<tr>
<td>Bottom (mm / inches)</td>
<td>1.2 / 0.05&quot;</td>
</tr>
</tbody>
</table>

#### COMPLIANCE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENERGY STAR® Rating</td>
<td>7.0</td>
</tr>
<tr>
<td>EPEAT™</td>
<td>Silver</td>
</tr>
<tr>
<td>ULE</td>
<td>Silver</td>
</tr>
<tr>
<td>TCO®</td>
<td>7.0</td>
</tr>
<tr>
<td>RoHS</td>
<td>Yes</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>Windows 10</td>
</tr>
<tr>
<td>China Energy Label</td>
<td>Grade 2</td>
</tr>
</tbody>
</table>

#### WARRANTY AND AVAILABILITY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warranty</td>
<td>3 Years</td>
</tr>
<tr>
<td>Geography Availability</td>
<td>WW</td>
</tr>
</tbody>
</table>

---

Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo makes every effort to ensure accuracy of all information but is not liable or responsible for any editorial, photographic or typographic errors. All images are for illustration purposes only. For full Lenovo product, service and warranty specifications visit www.lenovo.com. Lenovo makes no representations or warranties regarding third party products or services. 

[Trademarks]

The following are trademarks or registered trademarks of Lenovo: Lenovo, the Lenovo logo, Rescue and Recovery, ThinkPad, ThinkCentre, ThinkStation, ThinkServer, ThinkVantage and ThinkSmart. Microsoft, Windows and Vista are registered trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Pentium, Pentium Inside, Pentium Inside Logo, Xeon, Xeon Phi and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product and service names may be trademarks or service marks of others.
This publication was developed for products and services offered in the United States and E.M.E.A countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors. LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

**Availability:** All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographical errors.

**General:** Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

**Trademarks:** Lenovo, ThinkPad, ThinkCentre, ThinkStation and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

**Warranty:** For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

**Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.

**Lenovo Services:**

- **Carry-in or Mail-in Service:** Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.
- **Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business. If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


© Lenovo, 2018. All rights reserved. Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.