# **ThinkPad**<sub>®</sub>

# Product Specifications Reference Lenovo<sup>®</sup> ThinkPad<sup>®</sup> Notebooks 2012 - withdrawn

May 2014 - Version 454 (Western Europe)



lenovo.com







Lenovo ThinkPad Tablet

### ThinkPad<sup>®</sup> Tablet (1838) - TopSeller - withdrawn

|            |           |        | Widescreen |     | d Camera<br>Front/Rea |     | T<br>Kevboard | hinkP<br>Table |          | WLAN                  | PCIe<br>Mini Card |            |     | Blue- |             |
|------------|-----------|--------|------------|-----|-----------------------|-----|---------------|----------------|----------|-----------------------|-------------------|------------|-----|-------|-------------|
| Type-model | Processor | Memory |            | Pen |                       |     | Folio Case    |                |          |                       | WWAN              | Carrier    | GPS | tooth | Preload     |
| 1838-2DG   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 64G |               |                | Ear Buds | 11b/g/n <sup>28</sup> | Ericsson          | selectable | GPS | Blue  | Android 3.1 |
| 1838-2CG   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 32G |               |                | Ear Buds | 11b/g/n               | Ericsson          | selectable | GPS | Blue  | Android 3.1 |
| 1838-2BG   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 16G |               |                | Ear Buds | 11b/g/n               | Ericsson          | selectable | GPS | Blue  | Android 3.1 |
| 1838-28G   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 64G |               | Dock           |          | 11b/g/n               |                   |            | GPS | Blue  | Android 3.1 |
| 1838-27G   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 64G |               |                |          | 11b/g/n               |                   |            | GPS | Blue  | Android 3.1 |
| 1838-26G   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 32G | Keyboard      |                |          | 11b/g/n               |                   |            | GPS | Blue  | Android 3.1 |
| 1838-25G   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 32G |               |                |          | 11b/g/n               |                   |            | GPS | Blue  | Android 3.1 |
| 1838-24G   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 16G | Keyboard      |                |          | 11b/g/n               |                   |            | GPS | Blue  | Android 3.1 |
| 1838-23G   | Cortex-A9 | 1GB    | 10.1" WXGA | Pen | 2.0/5.0               | 16G |               |                |          | 11b/g/n               |                   |            | GPS | Blue  | Android 3.1 |
| 1838-22G   | Cortex-A9 | 1GB    | 10.1" WXGA |     | 2.0/5.0               | 16G |               |                |          | 11b/g/n               |                   |            | GPS | Blue  | Android 3.1 |

• Small and medium business (SMB) model(s), part of the WE TopSeller™ Program

| Positioning   | Touchscreen tablet for on-the-go business  | Preloaded operating system <sup>20</sup>  |
|---|--|---|
| Processor   | Dual-core ARM Cortex™-A9 processor (1.0 GHz per core), 1MB L2 cache  | - Android™ 3.1 (HoneyComb)  |
| Memory  | 1GB / 600MHz LPDDR2, mobile DDR / soldered to systemboard, no sockets  | <b>Preloaded applications</b> <sup>14</sup> (only some  |
| Storage<br>Multicard reader   | 16GB, 32GB, or 64GB / eMMC (embedded Multi Media Card) flash memory on board<br>3-in-1 reader (SD, SDHC, MMC), SD card encryption supported  | <ul> <li>Isted)</li> <li>Lenovo App Shop</li> <li>Documents To Go<sup>®</sup></li> </ul>  |
| Graphics  | NVIDIA <sup>®</sup> ULP (Ultra-low power) GeForce GPU, integrated in Tegra™ 2,   | MyScript Notes Mobile   |
| Display<br>Tablet pen   | supports 1080p video out via mini-HDMI connector, HDCP-compliant<br>10.1" (256.5mm) WXGA (1280x800) TFT color,<br>anti-glare display with glossy infinity Corning® Gorilla® Glass,<br>LED backlight, 400 nits, 16:10 aspect ratio, 500:1 contrast ratio, IPS,<br>WideView (170° viewing), MultiTouch screen supports pen & six-finger gesture<br>Some: ThinkPad Tablet Pen, supports hover, tip, and pressure modes /<br>a button for "long press" function / user replaceable AAAA battery, up to 18 months | <ul> <li>USB Data Transfer Utility</li> <li>User Data and SD Card Encryption</li> <li>Lenovo SocialTouch</li> <li>PrinterShare™ Mobile Print</li> <li>McAfee<sup>®</sup> Mobile Security</li> <li>Google Voice Search</li> <li>Google Talk</li> </ul> |
| Camera<br>Video capture   | <i>Front camera:</i> 2.0-megapixel, fixed focus<br><i>Rear camera:</i> 5.0-megapixel, auto focus, digital zoom<br>720p video capture (back camera)   | <ul> <li>Google Maps</li> <li>Adobe<sup>®</sup> Flash player 10.2</li> <li>Amazon MP3</li> </ul>  |
| Audio support<br>Ear buds   | High Definition (HD) Audio, Wolfson WM8903 codec /<br>monaural speaker, 0.5 watt x 1 / analog monaural microphone, combo audio/microphone jack<br>Some: ThinkPad In-Ear Headphones with microphone   | mSpot Music     Kindle for Android     Zinio Magazine Reader     eBuddy Messenger   |
| Media capable   | Audio formats: MP3, AAC, AAC+, eAAC+, WAV, PCM, WMA<br>Video formats: MPEG-4, H.263, H.264, VC-1, WMV9, Xvid   | <ul> <li>PokeTÁLK Tablet Version</li> <li>ooVoo™ Video Calls</li> </ul>   |
| Control buttons<br>Keyboard folio<br>case<br>ThinkPad tablet<br>dock          | Power button, volume control button, reset switch,<br>4 function buttons (Home, Back, Open Browser, Display Lock)<br>Some: ThinkPad Tablet Keyboard Folio Case, connects with system via USB 2.0,<br>6 row, TrackPoint® pointing device, leather cover, magnetic 3-position landscape stand<br>Some: ThinkPad Tablet Dock,<br>one USB 2.0, one micro-USB 2.0 (not for power supply), microphone input jack,<br>headphone jack, DC-IN connector (supports 65W AC Adapter, RapidCharge)                        | <ul> <li>Angry Birds</li> <li>ArcSoft® PowerMobia® Gallery</li> <li>ArcSoft PowerMobia eBook<br/>Reader and Bookshelf</li> </ul>  |
| Light sensor<br>Proximity sensor<br>G-sensor<br>Gyroscope<br>eCompass         | Ambient Light Sensor<br>Proximity sensor, Azoteq IQS128<br>Accelerometer (G) sensor, supports 3-axis accelerometer<br>3-axis gyroscope<br>3-axis electronic compass, AKM AK8975C   |   |
| Platform<br>Ports   | NVIDIA Tegra 2 T20<br>One USB 2.0, one micro-USB 2.0 (power supply / charging support), one mini-HDMI,<br>headphone/microphone combo jack, one ThinkPad Tablet Dock connector  |   |
| WLAN<br>WWAN  | 11b/g/n wireless <sup>4</sup> , Azurewave AW-NH931 module, WiFi + BT combo chip<br>Some: Wireless WAN, Ericsson <sup>®</sup> F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS  |   |
| Carrier<br>GPS<br>Bluetooth™  | Some: User selectable, contract required with service provider<br>Global Positioning System, Broadcom BCM4751<br>Bluetooth 2.1+EDR wireless, integrated in Azurewave AW-NH931 combo chip, supports BT 3.0  |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case color<br>Case material | 10.25" x 7.15" x 0.57"; 260.4mm x 181.7mm x 14.5mm<br><i>WiFi model:</i> from 1.64 lb (0.74kg); <i>3G model:</i> from 1.67 lb (0.76kg)<br>Black<br>PolyCarbonate/Acrylonitrile-Butadiene-Styrene (PC/ABS) plastic  | 1014/ AQ Adapter (via miero L'OD)   |
| System states<br>Battery - type<br>Battery - life <sup>10</sup>               | Active, Deep Sleep, Off<br>Lithium Polymer 2-cell (24Whr)<br>up to 5 days (suspend); up to 10 hr (idle);<br>up to 9 hr (WiFi browsing); up to 8 hr (3G browsing and video playback)  | 10W AC Adapter (via micro-USB)<br><i>Optional:</i> 65W AC Adapter (via Dock)<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support   |
| Limited warranty <sup>12</sup>  | <sup>2</sup> <b>1-year</b> - depot repair service / service upgrades <sup>22</sup> available   | during the warranty period <sup>12</sup>  |

See footnotes for more detailed information WE model(s) announced August 16, 2011 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> Tablet (1839) - withdrawn

| Type-model | Processor | Memory | Widescreen<br>display |     | d Camera<br>Front/Rea<br>(MP) | ar  | ٦<br>Keyboard<br>Folio Case | hinkPao<br>Tablet<br>Dock | d<br>WLAN<br>802.11   | PCle<br>Mini Card<br>WWAN | l<br>Carrier | GPS | Blue-<br>tooth ( | Glob<br>(G)<br>GMP ( |             |
|------------|-----------|--------|-----------------------|-----|-------------------------------|-----|-----------------------------|---------------------------|-----------------------|---------------------------|--------------|-----|------------------|----------------------|-------------|
| 1839-28G   | Cortex-A9 | 1GB    | 10.1" WXGA            | Pen | 2.0/5.0                       | 64G |                             | Dock                      | 11b/g/n <sup>28</sup> | None                      | None         | GPS | Blue             | G                    | Android 3.1 |
| 1839-27G   | Cortex-A9 | 1GB    | 10.1" WXGA            | Pen | 2.0/5.0                       | 64G |                             |                           | 11b/g/n               | None                      | None         | GPS | Blue             | G                    | Android 3.1 |
| 1839-26G   | Cortex-A9 | 1GB    | 10.1" WXGA            | Pen | 2.0/5.0                       | 32G | Keyboard                    |                           | 11b/g/n               | None                      | None         | GPS | Blue             | G                    | Android 3.1 |
| 1839-25G   | Cortex-A9 | 1GB    | 10.1" WXGA            | Pen | 2.0/5.0                       | 32G | -                           |                           | 11b/g/n               | None                      | None         | GPS | Blue             | G                    | Android 3.1 |
| 1839-24G   | Cortex-A9 | 1GB    | 10.1" WXGA            | Pen | 2.0/5.0                       | 16G | Keyboard                    |                           | 11b/g/n               | None                      | None         | GPS | Blue             | G                    | Android 3.1 |
| 1839-23G   | Cortex-A9 | 1GB    | 10.1" WXGA            | Pen | 2.0/5.0                       | 16G | -                           |                           | 11b/g/n               | None                      | None         | GPS | Blue             | G                    | Android 3.1 |
| 1839-22G   | Cortex-A9 | 1GB    | 10.1" WXGA            |     | 2.0/5.0                       | 16G |                             |                           | 11b/g/n               | None                      | None         | GPS | Blue             | G                    | Android 3.1 |

| Positioning   | Touchscreen tablet for on-the-go business   | Preloaded operating system <sup>20</sup>  |
|---|---|---|
| Processor   | Dual-core ARM Cortex™-A9 processor (1.0 GHz per core), 1MB L2 cache   | - Android™ 3.1 (HoneyComb)  |
| Memory  | 1GB / 600MHz LPDDR2, mobile DDR / soldered to systemboard, no sockets   | <b>Preloaded applications</b> <sup>14</sup> (only some listed)  |
| Storage<br>Multicard reader   | 16GB, 32GB, or 64GB / eMMC (embedded Multi Media Card) flash memory on board<br>3-in-1 reader (SD, SDHC, MMC), SD card encryption supported   | <ul> <li>Lenovo App Shop</li> <li>Documents To Go<sup>®</sup></li> </ul>  |
| Graphics  | NVIDIA <sup>®</sup> ULP (Ultra-low power) GeForce GPU, integrated in Tegra™ 2,  | <ul> <li>MyScript Notes Mobile</li> </ul>   |
| Display<br>Tablet pen   | supports 1080p video out via mini-HDMI connector, HDCP-compliant<br>10.1" (256.5mm) WXGA (1280x800) TFT color,<br>anti-glare display with glossy infinity Corning® Gorilla® Glass,<br>LED backlight, 400 nits, 16:10 aspect ratio, 500:1 contrast ratio, IPS,<br>WideView (170° viewing), MultiTouch screen supports pen & six-finger gesture<br><i>Some:</i> ThinkPad Tablet Pen, supports hover, tip, and pressure modes /<br>a button for "long press" function / user replaceable AAAA battery, up to 18 months | <ul> <li>USB Data Transfer Utility</li> <li>User Data and SD Card Encryption</li> <li>Lenovo SocialTouch</li> <li>PrinterShare™ Mobile Print</li> <li>McAfee<sup>®</sup> Mobile Security</li> <li>Google Voice Search</li> <li>Google Talk</li> </ul> |
| Camera<br>Video capture   | Front camera: 2.0-megapixel, fixed focus<br>Rear camera: 5.0-megapixel, auto focus, digital zoom<br>720p video capture (back camera)  | <ul> <li>Google Maps</li> <li>Adobe<sup>®</sup> Flash player 10.2</li> <li>Amazon MP3</li> </ul>  |
| Audio support   | High Definition (HD) Audio, Wolfson WM8903 codec /  | mSpot Music     Kindle for Android  |
| Ear buds  | monaural speaker, 0.5 watt x 1 / analog monaural microphone, combo audio/microphone jack<br>None  | <ul> <li>Kindle for Android</li> <li>Zinio Magazine Reader</li> <li>eBuddy Messenger</li> </ul>   |
| Media capable   | Audio formats: MP3, AAC, AAC+, eAAC+, WAV, PCM, WMA<br>Video formats: MPEG-4, H.263, H.264, VC-1, WMV9, Xvid  | <ul> <li>PokeTÁLK Tablet Version</li> <li>ooVoo™ Video Calls</li> </ul>   |
| Control buttons<br>Keyboard folio<br>case<br>ThinkPad tablet<br>dock          | Power button, volume control button, reset switch,<br>4 function buttons (Home, Back, Open Browser, Display Lock)<br>Some: ThinkPad Tablet Keyboard Folio Case, connects with system via USB 2.0,<br>6 row, TrackPoint® pointing device, leather cover, magnetic 3-position landscape stand<br>Some: ThinkPad Tablet Dock,<br>one USB 2.0, one micro-USB 2.0 (not for power supply), microphone input jack,<br>headphone jack, DC-IN connector (supports 65W AC Adapter, RapidCharge)                               | <ul> <li>Angry Birds</li> <li>ArcSoft® PowerMobia® Gallery</li> <li>ArcSoft PowerMobia eBook<br/>Reader and Bookshelf</li> </ul>  |
| Light sensor<br>Proximity sensor<br>G-sensor<br>Gyroscope<br>eCompass         | Ambient Light Sensor<br>Proximity sensor, Azoteq IQS128<br>Accelerometer (G) sensor, supports 3-axis accelerometer<br>3-axis gyroscope<br>3-axis electronic compass, AKM AK8975C  |   |
| Platform<br>Ports   | NVIDIA Tegra 2 T20<br>One USB 2.0, one micro-USB 2.0 (power supply / charging support), one mini-HDMI,<br>headphone/microphone combo jack, one ThinkPad Tablet Dock connector   |   |
| WLAN<br>WWAN<br>Carrier<br>GPS<br>Bluetooth™                                  | 11b/g/n wireless <sup>4</sup> , Azurewave AW-NH931 module, WiFi + BT combo chip<br>None<br>None<br>Global Positioning System, Broadcom BCM4751<br>Bluetooth 2.1+EDR wireless, integrated in Azurewave AW-NH931 combo chip, supports BT 3.0  |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case color<br>Case material | 10.25" x 7.15" x 0.57"; 260.4mm x 181.7mm x 14.5mm<br><i>WiFi model:</i> from 1.64 lb (0.74kg); <i>3G model:</i> from 1.67 lb (0.76kg)<br>Black<br>PolyCarbonate/Acrylonitrile-Butadiene-Styrene (PC/ABS) plastic   |   |
| System states<br>Battery - type<br>Battery - life <sup>10</sup>               | Active, Deep Sleep, Off<br>Lithium Polymer 2-cell (24Whr)<br>up to 5 days (suspend); up to 10 hr (idle);<br>up to 9 hr (WiFi browsing); up to 8 hr (3G browsing and video playback)   | 10W AC Adapter (via micro-USB)<br><i>Optional:</i> 65W AC Adapter (via Dock)<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support   |
| Limited warranty <sup>12</sup>  | <sup>2</sup> 1-year - depot repair service / service upgrades <sup>22</sup> available   | during the warranty period <sup>12</sup>  |

See footnotes for more detailed information WE model(s) announced August 16, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad<sub>®</sub>



Lenovo® ThinkPad L420



Lenovo ThinkPad L420



Lenovo ThinkPad L420

Lenovo ThinkPad L420



Lenovo ThinkPad L420

Lenovo ThinkPad L420

### ThinkPad<sup>®</sup> L420 7854 (TopSeller) - withdrawn

| Type-model  | Processor   | Memory  | Wide-<br>screen<br>display   | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm   | PCle<br>Mini Card<br>WLAN   | PCle<br>Mini Card<br>WWAN/mSATA       | Ca        | rrier   | Finger<br>print<br>reader   | Blue-<br>tooth  | Bat-<br>tery<br>cells             | Preload                                |
|---|---|---|--|--|---|---|---------------------------------------|-----------|---|---|---|-----------------------------------|--|
|   | i5-2520M  | 4GBx1   | 14.0" HD   | 720p   | 320G 5400   | Intel 620528  | Ericsson                              | sele      | ctable  | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i5-2410M  | 4GBx1   | 14.0" HD   | 720p   | 320G 5400   | Intel 1000  | WWAN upg                              | 00.0      |   | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i3-2310M  | 2GBx1   | 14.0" HD   | 720p   | 320G 5400   | TP 11b/g/n  | WWAN upg                              |           |   | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i5-2520M  | 4GBx1   | 14.0" HD   | 720p   | 500G 7200   | Intel 6205  | Ericsson                              | sele      | ctable  | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i5-2430M  | 4GBx1   | 14.0" HD   | 720p   | 500G 7200   | Intel 1000  | WWAN upg                              | 00.0      |   | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i3-2350M  | 4GBx1   | 14.0" HD   | 720p   | 500G 7200   | TP 11b/g/n  | WWAN upg                              |           |   | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i5-2450M  | 4GBx1   | 14.0" HD   | 720p   | 500G 7200   | Intel 6205  | Ericsson                              | مام       | ctable  | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i5-2450M  | 4GBx1   | 14.0" HD   | 720p   | 500G 7200   | Intel 1000  | WWAN upg                              | 00100     | Jubic   | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i3-2350M  | 4GBx1   | 14.0" HD   | 720p<br>720p   | 320G 7200   | TP 11b/g/n  | WWAN upg                              |           |   | Finger  | Blue  | 6                                 | Pro 64                                 |
|   | i5-2450M  | 4GBx1   | 14.0" HD   | 720p<br>720p   | 320G 7200   | Intel 6205  | Ericsson                              | oolo      | ctable  | Finger  | Blue  | 6                                 | Pro 64                                 |
| 7004 324  | 13 2430101  | • Small a   | nd medium b  | usiness (  | SMB) model(s),  <br>t Key Ready (O1   | part of the WE T  |                                       |           |   | ringer  | Dide  | 0                                 | 110 04                                 |
| Positioning<br>Processor  | Intel® (<br>DDR3<br>Intel C<br>DDR3<br>Intel C<br>DDR3<br>Intel C<br>DDR3<br>Intel C<br>DDR3<br>Intel C | Core™ i3-23<br>memory con<br>ore i3-23500<br>memory con<br>ore i5-24100<br>memory con<br>ore i5-24300<br>memory con<br>ore i5-24500<br>memory con<br>ore i5-25200 | htroller (up to<br><b>M processon</b><br>htroller (up to | sor (dual<br>1333MHz<br>r (dual-co<br>1333MHz<br>r (dual-co<br>1333MHz<br>r (dual-co<br>1333MHz<br>r (dual-co<br>1333MHz<br>r (dual-co | core, 2.10GHz,<br>z), HT technolog<br>re, 2.30GHz, 3M<br>z), HT technolog<br>re, 2.30GHz, 3M<br>z), Intel Turbo Bc<br>re, 2.40GHz, 3M<br>z), Intel Turbo Bc<br>re, 2.50GHz, 3M<br>z), Intel Turbo Bc<br>re, 2.50GHz, 3M | y<br><b>/B Cache)</b> ,<br>/ost 2.0 (2.90GH<br><b>/B Cache)</b> ,<br>/ost 2.0 (3.0GH;<br><b>/B Cache)</b> ,<br>/ost 2.0 (3.10GH<br><b>/B Cache)</b> , | z), HT technolog<br>Hz), HT technolog | gy<br>ogy | <ul> <li>Ger<br/>Prof</li> <li>Ready<br/>some</li> <li>Res</li> <li>Acc</li> <li>Fing<br/>mod</li> <li>Pas<br/>mod</li> </ul> | aded ope<br>buine Wind<br>fessional (<br><b>/ to insta</b><br>listed)<br>build<br>fess Conn<br>gerprint So<br>dels)<br>sword Ma<br>dels)<br>bkVantage | dows <sup>®</sup> 7<br>54<br>I <b>I applic</b><br>Recover:<br>ections <sup>⊤</sup><br>oftware<br>nager (f | ations<br>y™<br>(finger<br>ingerp | s <sup>14</sup> (only<br>print<br>rint |
| Memory  | 8GB m   | ax <sup>7</sup> / PC3-1   | 0600 1333MH<br>ble, two 204-j  | Iz DDR3,   |   | ost 2.0 (3.20GF   | HZ), HI technolo                      | ogy       | <ul><li>Thir</li><li>Thir</li></ul>   | nkVantage<br>nkVantage<br>ovo Simpl   | Power<br>Toolbox  | Manag                             |  |
| Optical<br>SATA disk  | DVD bi<br>Some:   | urner, 12.7n<br>Solid State   | nm high, fixed<br>Drive (SSD)  | l, not rem<br>/ SATA 3.  | ovable, tray-in<br>0Gb/s, 2.5" wide<br>2.5" wide, 7mm (   |   | movable, upgrad                       | dable     | Preloa<br>listed)   | aded app  | lication  |                                   |  |
| mSATA™ SSD  | None  |   |  |  | otection System™  |   |                                       |           | (30   | ton™ Inte<br>days of vi<br>be® Read   | rus defir   |                                   |  |
| Widescreen  | 14.0" (   | 355mm) <b>HC</b>  | ) (1366x768)   | color. an  | ti-glare, LED bad   | ckliaht.  |                                       |           |   | pe™ for W   |   |                                   |  |
| display<br>Camera   | 220 nit   | s, 16:9 áspe  | ect ratio, 500:  | 1 contrast   |   | 0   |                                       |           | <ul><li>Win</li><li>Mici</li></ul>  | dows Live<br>rosoft Offi  | e™ Esse<br>ce 2010  | preloa                            |  |
| Integrated<br>graphics  | externa<br>digital i<br>suppor<br><i>Maxim</i>  | al analog mo<br>monitor sup<br>ts dual inde<br><i>um external</i>   | port via Displ<br>pendent disp<br><i>resolution:</i> 2   | t via VGA<br>ayPort (su<br>lay;<br>2560x1600   | DB-15 connecto<br>upports single-lir<br>) (DisplayPort)@<br>i0Hz (single-link   | nk DVI-D via opt<br>260Hz;  | ,.                                    |           | <ul> <li>Cor</li> <li>Cor</li> <li>(DV</li> <li>Cor</li> </ul>  | chase pro<br>el® WinDV<br>el Burn.N<br>D±RW)<br>el DVD M<br>ion (DVD  | ′D® (DVÍ<br>ow™ Lei<br>ovieFact   | D±RW<br>novo E                    | )<br>dition                            |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™   | TrackP  | oint® pointin   | g device, Inte   | rnet Scro  | t, multimedia Fn<br>II Bar <sup>13</sup> , magnifyi<br>rd, Tap Zones, so  | ng glass  | label, multi-touc                     | ch        |   |   |   |                                   |  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>4-cell:</i><br>Acrylor<br>Lithium  | ròm 4.94 lb<br>hitrile-Butad<br>I lon 4-cell,   | (2.24kg); <i>6-c</i><br>iene-Styrene<br>6-cell, or 9-ce  | e <i>ll:</i> from 5<br>(ABS) pla<br>ell  | 2"; 344mm x 233<br>.14 lb (2.33kg);<br>Istic<br><i>(hr):</i> up to 6.9 hr;  | 9-cell: from 5.47   | 7 lb (2.48kg)                         |           |   |   |   |                                   |  |
| Chipset<br>ExpressCard<br>Multicard Read<br>Ports   | Mobile<br>One slo<br>der 4-in-1 r<br>Three<br>externa   | e Intel HM65<br>ot (Express)<br>reader (MM0<br>JSB 2.0 (on<br>al monitor <sup>11</sup>  | <b>Express Ch</b><br>Card/34, Expr<br>C, SD, SDHC<br>ie powered),<br>(VGA DB-15,   | ressCard/<br>sDXC)<br>one USB<br>DisplayPo   | · · ·   | oo port,  |                                       |           |   |   |   |                                   |  |
| PCIe Mini Caro<br>PCIe WLAN <sup>4</sup>  | Some:<br>Some:  | 11b/g/n, P<br>11b/g/n, P  | Cle Half Mini  | Card, Thi<br>Card, Inte  | nkPad 11b/g/n, <sup>-</sup><br>I Centrino® Wire<br>Itel Centrino Adv  | less-N 1000, 1x   |                                       |           |   |   |   |                                   |  |
| PCIe WWAN   | Some:   | Wireless W<br>Wireless W  | AN upgradal  | ole<br>I® F5521g   | w Mobile Broad  |   |                                       |           |   |   |   |                                   |  |
| Carrier<br>Modem  | None  | User selec  | table, contrac   | t required   | with service pro  | ovider  |                                       |           |   |   |   |                                   |  |
| Bluetooth™<br>Ethernet  | Realte  |   | ess, LED indi<br>DL Gigabit N  |  | onnection   |   |                                       |           |   | orts Think  |   | ® techr                           | nologies                               |
| Intel AMT<br>Audio support<br>Security<br>Security chip<br>Fingerprint rea  | voľume<br>Power-<br>Trusteo   | up, down, n<br>on passwor<br>I Platform N   | hute buttons /<br>d, hard disk p<br>lodule, TCG 1  | monaural<br>bassword,<br>I.2-compli  | 269Q codec / ste<br>digital mic, mic r<br>supervisor pass<br>ant<br>vipe sensor, LED  | nute button, cor<br>word, security l  | nbo audio/mic ja<br>keyhole           | ack       | EPEA<br>ENER<br>RoHS<br>Interna   | tt AC ada<br>T™ Gold r<br>GY STAR<br>-complian<br>ational Wa<br>ur x 7 day  | ating<br>® 5.0-cc<br>t<br>arranty S   | Service                           | <sup>17</sup>                          |
|   |   | 0 1   |  |  | rades <sup>22</sup> available   |   |                                       |           |   | ng the wa   |   |                                   |  |
|   | ., i your   | aspor iopo  | tion   | 2. 1.00 upt  |   | -   |                                       |           | Guil  |   |   | (                                 |  |

See footnotes for more detailed information WE model(s) announced February 22, March 1, or October 4, 2011, or January 17, January 24, or March 13, 2012 WE model(s) withdrawn effective December 2012

#### ThinkPad<sup>®</sup> L420 7827 - withdrawn

Personal Systems Reference (PSREF)

| Type-model  | Processor  | Memory   | Wide-<br>screen<br>display   | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm   | PCle<br>Mini Card<br>WLAN                                   | PCle<br>Mini Card<br>WWAN/mSATA        | Finger<br>print<br>reader                 | Blue-<br>tooth   | tery  | Workhorse<br>(W)<br>Global (G)                                 |                 |
|---|--|--|--|--|---|---|--|---|--|---|--|-----------------|
| 7827-5QG  | i5-2540M   | 2GBx1  | 14.0" HD   | Camora   | 250G 5400   | Intel 6205 <sup>28</sup>                                    | WWAN upg                               | Finger                                    | Blue   | 6   | alobal (a)   | Pro 64          |
| 7827-5RG  | i5-2520M   | 4GBx1  | 14.0" HD   | 720p   | 320G 5400   | TP 11b/g/n  | WWAN upg                               | i ingoi                                   | Blue   | 6   |  | Pro 64          |
| 7827-5SG  | i5-2520M   | 2GBx1  | 14.0" HD   | 1200   | 250G 5400   | TP 11b/g/n  | in the upg                             |   | Diao   | 6   |  | Pro 64          |
| 7827-34G  | i5-2520M   | 2GBx1  | 14.0" HD   | 720p   | 320G 7200   | Intel 6205  | WWAN upg                               | Finger                                    | Blue   | 6   | WG   | Pro 64          |
| 7827-5CG  | i5-2520M   | 2GBx2  | 14.0" HD   | 720p<br>720p   | 320G 5400   | Intel 6205  | WWAN upg                               |   | Blue   | 6   | wa   | Pro 64          |
|   |  | 2GBx2<br>4GBx1   | 14.0" HD   |  | 320G 5400<br>320G 7200  | Intel 6205  | 10                                     | Finger                                    | Blue   | 6   | W C  |                 |
| 7827-33G  | i5-2540M   |  |  |  |   |   |  | WG  | Pro 64   |   |  |                 |
| 7827-5XG  | i3-2310M   | 4GBX1  | 14.0° HD   | 720p   | 320G 7200   | Intel 6205  | WWAN upg                               | Finger                                    | Blue   | 6   |  | Pro 64          |
|   |  |  |  |  | year limited wa<br>oduct Key Read   |   |  |   |  |   |  |                 |
| Positioning<br>Processor  | Intel® C<br>DDR3 r<br>Intel Co<br>DDR3 r<br>Intel Co             | Core™ i3-231<br>memory cont<br>ore i5-2520M<br>memory cont<br>ore i5-2540M | roller (up to 1<br><b>I processor</b><br>roller (up to 1<br><b>I processor</b> | or (dual-c<br>333MHz),<br>(dual-core<br>333MHz),<br>(dual-core | ore, 2.10GHz, 3<br>HT technology<br>, 2.50GHz, 3M<br>Intel Turbo Boc<br>, 2.60GHz, 3M | <b>B Cache)</b> ,<br>ost 2.0 (3.20GH<br><b>B Cache)</b> ,   | z), HT technology<br>z), HT technology | - Ge<br>Pr<br><b>Read</b><br>some<br>• Re | enuine W<br>ofessiona<br><b>dy to ins</b><br>e listed)<br>escue and      | indow<br>al 64<br><b>tall ap</b><br>d Rece  | oplication:<br>overy™  |                 |
| Memory  | 8GB ma   | ax <sup>7</sup> / PC3-10   | 600 1333MH:<br>le, two 204-pi  | z DDR3, n  | on-parity,  | <u>, (0.00011</u>   | 2), 111 toomlology                     | • Fir                                     | cess Cor<br>ngerprint<br>odels)  |   | ons™<br>are (finger  | print           |
| Optical<br>SATA disk  | Some:  | Solid State  <br>Hard Disk D   | rive / SATA 3  | SATA 3.00<br>.0Gb/s, 2.  | Gb/s, 2.5" wide,<br>5" wide, 7mm o  | r 9.5mm high,   | novable, upgradabl                     | e Pa<br>mo<br>• Th                        | isswórd N<br>odels)<br>iinkVanta   | ge Sy                                       | jer (fingerp<br>stem Upda<br>wer Manag                         | ate             |
| mSATA™ SSD  | removable, upgradable, Active Protection System™<br>IA™ SSD None |  |  |  |   |   |  |   | inkVanta   |   |  | JCI             |
| Widescreen  |  | 355mm) <b>HD</b>   | (13667768) 0   | olor anti-   | glare, LED bacl   | klight  |  | — • Le                                    | novo Sin   | ipleTa                                      | ıp   |                 |
| display   |  |  | t ratio, 500:1   |  |   | kiigint,  |  | Prol                                      | naded ar   | nlica                                       | tions <sup>14</sup> (or  | ly some         |
| Camera  |  |  |  |  |   | sitive, fixed focu  | IS                                     | listed                                    |  | pilou                                       |  | ily bonne       |
| Integrated<br>graphics  | externa<br>digital n<br>support<br><i>Maximu</i>                 | I analog mor<br>nonitor supp<br>ts dual indep<br><i>um external i</i>      | ort via Displa<br>endent displa<br><i>esolution:</i> 25                        | via VGA D<br>yPort (sup<br>y;<br>60x1600 (                     | (DisplayPort)@(   | c DVI-D via opti  | <i>,</i> .                             | (30<br>• Ac<br>• Sk<br>• Wi<br>• Mi       | 0 days of<br>lobe <sup>®</sup> Re<br>type™ for<br>indows Li<br>crosoft C | virus<br>ader®<br>Wind<br>ve™ E<br>vffice 2 | Essentials<br>2010 preloa                                      | )<br>aded;      |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™   | TrackPo  | pint <sup>®</sup> pointing   | device, Interi   | net Scroll I   | multimedia Fn I<br>Bar <sup>13</sup> , magnifyin<br>, Tap Zones, sci                  | ig glass  | abel, multi-touch                      | • Co<br>• Co<br>• Co<br>(D                | orel® Win<br>orel Burn.<br>VD±RW)  | DVD®<br>Now™                                | t key to act<br>(DVD±RW<br><sup>™</sup> Lenovo E<br>Factory® L | )<br>Edition    |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>14.0W"</i><br><i>4-cell:</i> fr<br>Acrylon<br>Lithium         | ròm 4.94 lb (<br>itrile-Butadie<br>Ion 4-cell, 6                           | 2.24kg); <i>6-ce</i><br>ene-Styrene ( <i>l</i><br>-cell, or 9-cell             | <i>ll:</i> from 5.1<br>ABS) plast                              | 4 lb (2.33kg); 9<br>tic   | mm x 32–36mn<br>9- <i>cell:</i> from 5.47<br>9-cell (94Whr, | lb (2.48kg)                            |   | lition (DV   |   |  | enovo           |
| Chipset<br>ExpressCard<br>Multicard Read<br>Ports   | One slo<br>der 4-in-1 ro<br>Three U                              | ot (ExpressC<br>eader (MMC<br>JSB 2.0 (one                                 | e powered), or   | ssCard/54<br>SDXC)<br>ne USB 2.                                | l)<br>0/eSATA combo<br>t), ethernet (RJ-  |   |  |   |  |   |  |                 |
| PCIe Mini Caro<br>WLAN⁴   | Some:  | 11b/g/n, PC  |  |  | Pad 11b/g/n, 1<br>Centrino® Adv   | x1<br>/anced-N 6205,  | 2x2                                    |   |  |   |  |                 |
| WWAN<br>Modem<br>Bluetooth™   | <i>Some:</i><br>None<br><i>Some:</i>                             | Wireless W.<br>Bluetooth 3.  | AN upgradabl<br>0 wireless, Ll   | e<br>ED indicati   | or  |   | -                                      | Supr                                      | oorts Thir   | nkVani                                      | tage® tech   | nologies        |
| Ethernet<br>Intel AMT   |  | " KIL8111L   | L Gigabit Ne   | work Con   | nection   |   |  |   |  |   | 0  |                 |
| Audio support<br>Security<br>Security chip  | volume<br>Power-o<br>Trusted                                     | up, down, mi<br>on password<br>Platform Mo                                 | ute buttons / m<br>, hard disk pa<br>odule, TCG 1.                             | nonaural di<br>Issword, si<br>2-compliai                       | gital mic, mic m<br>upervisor passv<br>nt   | vord, security ke   | bo audio/mic jack<br>eyhole            | EPE<br>ENE<br>RoH<br>Inter                | S-compli<br>national   | d ratin<br>AR® 5.<br>ant<br>Narra           | g<br>.0-complia<br>nty Service                                 | 9 <sup>17</sup> |
| Fingerprint rea   |  |  |  |  | service upgrad  |   |  | 24 n                                      | our x 7 da   | ay™ to                                      | ll-free sup  | port            |

See footnotes for more detailed information WE model(s) announced February 22 or April 19, 2011 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> L420 7829 (Onsite) - withdrawn

| Type-model  | Processor                                 | Memory  | Wide-<br>screen<br>display   | Camera  | Disk<br>SATA<br>GB <sup>®</sup> rpm                                    | PCle<br>Mini Card<br>WLAN          | PCIe<br>Mini Card<br>WWAN/mSATA                         | Carrier                     | Finger<br>print<br>reader   | Blue-<br>tooth                                       | tery                               | Norkhorse<br>Global ((<br>GMP (P                           | G) ´Pre-              |
|---|---|---|--|---|--|------------------------------------|---|-----------------------------|---|--|------------------------------------|--|-----------------------|
| 7829-4WG  | i7-2620M                                  | 4GBx1   | 14.0" HD   | 720p  | 320G 7200  | Intel 620528                       | Ericsson  | selectable                  | Finger  | Blue   | 6                                  |  | Pro 64                |
|   | i5-2540M                                  | 4GBx1   | 14.0" HD   | 720p  | 320G 7200  | Intel 6205                         | Ericsson  | selectable                  | Finger  | Blue   | 6                                  |  | Pro 64                |
|   | i5-2540M<br>i5-2520M                      | 2GBx1<br>2GBx1  | 14.0" HD<br>14.0" HD   | 720p<br>720p                                      | 320G 5400<br>320G 7200   | TP 11b/g/n<br>Intel 6205           | WWAN upg<br>WWAN upg                                    |                             | Finger<br>Finger  | Blue<br>Blue   | 6<br>6                             | WGP  | Pro 64<br>Pro 64      |
|   | i5-2520M                                  | 4GBx1   | 14.0" HD   | 720p<br>720p                                      | 320G 7200  | Intel 6205                         | WWAN upg  |                             | Finger  | Blue   | 6                                  | WGP  | Pro 64                |
|   |   |   |  |   | al Models Plus<br>y Ready (O10F  |                                    | n limited onsite s                                      | service <sup>24</sup> 3-ye  | ar limited  | warran   | ty                                 |  |                       |
| Positioning<br>Processor  |   |   | siness perfor  |   |  | iogHz, 3MB C                       | ache).  |                             | Preload   |  |                                    | g system   | 1 <sup>20</sup>       |
| 110000001   | DDR:<br>Intel                             | B memory<br>Core i5-25  | controller (u<br>540M proce  | ip to 1333<br><b>ssor (du</b> a                   | BMHz), Intel Tu<br>al-core, 2.60G                                      | irbo Boost 2.0<br>Hz, 3MB Cac      | (3.20GHz), HT   | 0,                          | Profe   | ssional  | 64                                 | olications   | s <sup>14</sup> (onlv |
|   | Intel                                     | Core i7-26  | 620M proce   | ssor (dua   | al-core, 2.70G   | Hz, 4MB Cac                        |   | 0,                          | some lis  | sted)<br>ue and                                      | Reco                               | very™  |                       |
| Memory  | dual-                                     | channel ca  | apable, two 2  | 204-pin S   | DR3, non-parit<br>O-DIMM socke   | ets                                |   |                             | <ul> <li>Acces</li> <li>Finge<br/>mode</li> </ul>                     | rprint S   |                                    | ns™<br>ıre (finger   | print                 |
| Optical<br>SATA disk  | Some                                      | e: Solid St<br>e: Hard Di                                       | ate Drive (S<br>sk Drive / S                                       | SD) / SA<br>ATA 3.0G                              |  | 5" wide, 7mm<br>7mm or 9.5m        | high, removable<br>m high,                              | , upgradable                | mode     Think  | ls)<br>Vantag  | e Sys                              | er (fingerp<br>tem Upda<br>ver Manag                       | ate                   |
| mSATA™ SSE  | ) None                                    |   | bio, apgrade   |   |  | yotom                              |   |                             | Think   | Vantag   | e Tool                             | lbox   | 5                     |
| Widescreen<br>display<br>Camera   | 220 r                                     | its, 16:9 á   | spect ratio, {   | 500:1 con   |  | ED backlight,<br>sitive, fixed foo | us  |                             | <ul> <li>Lenov</li> <li>Preload</li> <li>listed)</li> </ul>           |  | •                                  | i <b>ons</b> 14 (on  | nly some              |
| Integrated  |   |   | ics 3000 in  | <u> </u>  | . 0  |                                    |   |                             | <ul> <li>Norto</li> </ul>   |  |                                    | Security 2   |                       |
| graphics  | extern<br>digita<br>suppo<br><i>Maxii</i> | nal analog<br>I monitor s<br>orts dual in<br><i>num exter</i> i | monitor sup<br>support via E<br>idependent<br><i>nal resolutic</i> | oport via \<br>DisplayPo<br>display;<br>on: 2560x | /ĠA DB-15 co<br>rt (supports si<br>1600 (Display                       | ngle-link DVI-[<br>Port)@60Hz;     | ) via optional ca<br>via optional cabl                  | ,-                          | <ul> <li>Àdob</li> <li>Skype</li> <li>Winde</li> <li>Micro</li> </ul> | e <sup>®</sup> Rea<br>e™ for \<br>ows Liv<br>soft Of | der®<br>Vindo<br>'e™ Es<br>fice 20 | lefinitions<br>ws<br>ssentials<br>010 preloa<br>key to act | aded;                 |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™   | Track                                     | Point® poin<br>√av™, wide                                       | nting device,  | Internet  |  | agnifying glas                     | s<br>regions label, m                                   | ulti-touch                  | Corel     Corel     (DVD  | ® WinD<br>Burn.№<br>±RW)                             | VD® (I<br>Iow™                     | DVD±RW<br>Lenovo E<br>Factory® L                           | )<br>dition           |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>4-cell</i><br>Acryl<br>Lithiu          | : fròm 4.94<br>onitrile-But<br>m Ion 4-ce                       | l lb (2.24kg)<br>tadiene-Styr<br>ell, 6-cell, or                   | ; <i>6-cell:</i> fr<br>ene (ABS<br>9-cell         | om 5.14 lb (2.3<br>3) plastic  | 0,1                                | 32–36mm<br>rom 5.47 lb (2.44<br><i>I (94Whr):</i> up to | 0,                          |   | n (DVE   |                                    |  |                       |
| Chipset   |   | ,   | //165 Expres   |   | , ,  | 0.0111, 0-001                      | , (0+111). up to  | 11.011                      | -   |  |                                    |  |                       |
| ExpressCard<br>Multicard Rea<br>Ports   | der 4-in-1<br>Three                       | slot (Expre<br>reader (N<br>USB 2.0                             | ssCard/34,<br>IMC, SD, SI<br>(one powere                           | ExpressC<br>DHC, SDX<br>ed), one l                | ard/54)  |                                    |   |                             |   |  |                                    |  |                       |
| PCIe Mini Car<br>WLAN⁴  | d Two F                                   | PCI Expres  | s Mini Card  | slots<br>Mini Card                                | , ThinkPad 11  | . ,                                | -N 6205 2x2   |                             |   |  |                                    |  |                       |
| WWAN  | Some                                      | e: Wireles:<br>e: Wireles:                                      | s ŴAN upgr   | adable<br>sson® F5                                | 521gw Mobile   |                                    | odule, PCIe Mini  | Card,                       |   |  |                                    |  |                       |
| Carrier   |   | e: User se  |  |   | uired with serv  | /ice provider                      |   |                             |   |  |                                    |  |                       |
| Modem<br>Bluetooth™<br>Ethernet   |   | ooth 3.0 w  | ireless, LED<br>11DL Gigat   |   | rk Connection  |                                    |   |                             |   |  |                                    |  |                       |
| Intel AMT<br>Audio support  | None<br>High                              | Definition (  | (HD) Audio,  | Realtek A   | ALC269Q code   |                                    | eakers, 1.5 watt  |                             |   |  |                                    | age® techr   | nologies              |
| Security<br>Security chip   | Powe<br>Truste                            | r-on passv<br>ed Platform                                       | vord, hard d<br>n Module, To                                       | isk passw<br>CG 1.2-co                            | ord, superviso   | or password, s                     | tton, combo aud<br>ecurity keyhole                      |                             | 65-watt<br>EPEAT  | ™ Gold   | rating                             | -compliar  | nt                    |
| 0 1   |   | 0 1   |  | •   |  |                                    | tor, supports the                                       |                             | RoHS-c  | omplia   | nt                                 |  |                       |
| Limited warra   | public                                    | and natio   | nal holidays   | . Calls re  | e <b>service</b> <sup>24</sup> , 8<br>ceived after 3<br>grades availab | pm will require                    | on - Fri coverage<br>an addtional ne                    | e excluding<br>ext business | 24 hour   | x 7 da   | y <sup>18</sup> toll               | ty Service<br>-free supp<br>y period <sup>12</sup>         | port                  |
| See footnotes   | for more de                               | tailed inforr   | mation   |   |  |                                    |   |                             |   |  |                                    | (  | D Lenov               |

See footnotes for more detailed information WE model(s) announced February 22, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad.



Lenovo® ThinkPad L520



Lenovo ThinkPad L520



Lenovo ThinkPad L520



Lenovo ThinkPad L520



Lenovo ThinkPad L520



Lenovo ThinkPad L520

### ThinkPad® L520 7859 (TopSeller) - withdrawn

| Type-model                                     | Processor    | Memory          | Wide-<br>screen<br>display        | Camera              | Disk<br>SATA<br>GB <sup>®</sup> rpm                  | PCle<br>Mini Card<br>WLAN | PCIe<br>Mini Card<br>WWAN/mSATA | Finger<br>print<br>reader                        | Blue-<br>tooth          | Bat-<br>tery<br>cells | Preload                |
|--|--------------|-----------------|-----------------------------------|---------------------|--|---------------------------|---------------------------------|--|-------------------------|-----------------------|------------------------|
| 7859-52G                                       | i5-2410M     | 4GBx1           | 15.6" HD                          | 720p                | 320G 5400  | Intel 1000                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-53G                                       | i3-2310M     | 2GBx1           | 15.6" HD                          | 720p                | 320G 5400  | Intel 1000                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-4MG                                       | i5-2410M     | 2GBx1           | 15.6" HD+                         | 720p                | 320G 5400  | TP 11b/g/n                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-5BG                                       | i5-2520M     | 4GBx1           | 15.6" HD+                         | 720p                | 500G 7200  | Intel 620528              | WWAN upg                        | Finger   | Blue                    | 9                     | Pro 64                 |
| 7859-5AG                                       | i5-2410M     | 4GBx1           | 15.6" HD+                         | 720p                | 320G 5400  | Intel 6205                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-5SG                                       | i5-2430M     | 4GBx1           | 15.6" HD+                         | 720p                | 500G 7200  | Intel 6205                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-5TG                                       | i5-2430M     | 4GBx1           | 15.6" HD                          | 720p                | 500G 7200  | Intel 1000                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-5UG                                       | i3-2350M     | 4GBx1           | 15.6" HD                          | 720p                | 500G 7200  | Intel 1000                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-6BG                                       | i5-2450M     | 4GBx1           | 15.6" HD+                         | 720p                | 500G 7200  | Intel 6205                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-6CG                                       | i5-2450M     | 4GBx1           | 15.6" HD                          | 720p                | 500G 7200  | Intel 1000                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
| 7859-6KG                                       | i3-2350M     | 4GBx1           | 15.6" HD                          | 720p                | 320G 7200  | Intel 1000                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
|  | i5-2450M     | 4GBx1           | 15.6" HD+                         | 720p                | 320G 7200  | Intel 6205                | WWAN upg                        | Finger   | Blue                    | 6                     | Pro 64                 |
|  |              |                 | edium business<br>fice 2010 Produ |                     | odel(s), part of th<br>adv (O10PKR)                  | e WE TopSeller            | 10                              | Ū  |                         |                       |                        |
| Positioning                                    | Mainst       | ream business   | s performance;                    | two spind           | les  |                           |                                 | Preloaded of                                     | perating                | a syster              | <b>m</b> <sup>20</sup> |
| Processor                                      |              |                 |                                   |                     | e, 2.10GHz, 3MB                                      | Cache),                   |                                 | - Genuine V                                      | Vindows®                | 7                     |                        |
|  |              |                 | oller (up to 133                  |                     |  |                           |                                 | Professior                                       | nal 64                  |                       |                        |
|  |              |                 |                                   |                     | 2.30GHz, 3MB C                                       | ache),                    |                                 | Ready to in                                      | stall ann               | lication              | ns <sup>14</sup> (only |
|  |              |                 | oller (up to 133                  |                     |  | acho)                     |                                 | some listed)                                     |                         | noution               |                        |
|  |              |                 |                                   |                     | 2.30GHz, 3MB Ca<br>tel Turbo Boost 2                 |                           | T technology                    | Rescue ar  |                         | ′erv™                 |                        |
|  |              |                 |                                   |                     | 2.40GHz, 3MB C                                       |                           | i i teennology                  | <ul> <li>Access Co</li> </ul>                    | onnectior               | າຣ™                   |                        |
|  |              |                 |                                   |                     | tel Turbo Boost 2                                    |                           | r technoloav                    | <ul> <li>Fingerprin</li> </ul>                   | t Softwar               | re (finge             | erprint                |
|  |              |                 |                                   |                     | 2.50GHz, 3MB C                                       |                           |                                 | models)  |                         | 10                    |                        |
|  |              |                 |                                   |                     | tel Turbo Boost 2                                    |                           | IT technology                   | Password   | Manage                  | r (finger             | print                  |
|  |              |                 |                                   |                     | 2.50GHz, 3MB C                                       |                           |                                 | models)  | ago Svet                | om Lind               | lata                   |
|  | DDR3         | nemory contr    | oller (up to 133                  | 3MHz), In           | tel Turbo Boost 2                                    | .0 (3.20GHz), F           | IT technology                   | <ul> <li>ThinkVant</li> <li>ThinkVant</li> </ul> |                         |                       |                        |
| Memory   |              |                 | 600 1333MHz D<br>e, two 204-pin § |                     |  |                           |                                 | <ul> <li>ThinkVant</li> <li>Lenovo Si</li> </ul> | ağe Tooll               |                       | igei                   |
| Optical  | DVD bu       | rner. 12.7mm    | high, fixed, no                   | t removab           | le. trav-in  |                           |                                 | 1  | • •                     | <b>n</b> n 14 ( n     | nh como                |
| SATA disk                                      |              |                 |                                   |                     | /s, 2.5" wide, 7m                                    | m high. remova            | ble. upgradable                 | Preloaded a                                      | ipplication             | <b>ons</b> • (0       | niy some               |
|  |              |                 |                                   |                     | wide, 7mm or 9.5                                     |                           |                                 | ∣ listed)<br>  ● Norton™ I                       | ntornot S               | Curity                | 2011                   |
|  |              | removable, u    | pgradable, Acti                   | ve Protect          | ion System™  | •                         |                                 | (30 days d                                       |                         |                       |                        |
| mSATA™ SSD                                     | None         |                 |                                   |                     |  |                           |                                 | Adobe® R   |                         |                       | 0)                     |
| Widescreen                                     | Some:        | 15.6" (396m)    | m) HD (1366x7                     | 68) color           | , anti-glare, LED                                    | backlight,                |                                 | <ul> <li>Skype™ fc</li> </ul>                    |                         | NS                    |                        |
| display  |              | 220 nits, 16:9  | 9 áspect ratio, 5                 | 00:1 cont           | rast ratio   | 0                         |                                 | <ul> <li>Windows</li> </ul>                      |                         |                       |                        |
|  | Some:        |                 |                                   |                     | r, anti-glare, LED                                   | ) backlight,              |                                 | <ul> <li>Microsoft</li> </ul>                    |                         |                       |                        |
| •  |              |                 | 9 aspect ratio, 5                 |                     |  |                           |                                 | purchase   |                         |                       |                        |
| Camera   | HD720        | p resolution, v | vider view angle                  | e, low ligh         | t sensitive, fixed f                                 | rocus                     |                                 | Corel <sup>®</sup> Wir                           | าDVD≝ (L                | DVD±RV                | V)<br>Falitian         |
| Integrated                                     |              |                 | 000 in process                    |                     |  |                           |                                 | <ul> <li>Corel Burr<br/>(DVD±RW)</li> </ul>      |                         | Lenovo                | Edition                |
| graphics                                       |              |                 |                                   |                     | 15 connector and                                     |                           | 1-1- )                          | Corel DVE  |                         | actory®               | lenovo                 |
|  |              |                 |                                   | ort (suppo          | rts single-link DV                                   | I-D via optional          | cable);                         | Edition (D                                       |                         | uotory                | Lonovo                 |
|  |              |                 | endent display;                   | v1600 (Di           | splayPort)@60H                                       | 7.                        |                                 |  | ,                       |                       |                        |
|  | 2048x1       | 536 (VGA)@      | 75Hz·1920x12                      | 1000 (Di<br>10@60Hz | (single-link DVI-l                                   | z,<br>D via ontional c:   | able)                           |  |                         |                       |                        |
| Key de e e vel                                 |              |                 |                                   |                     |  |                           |                                 |  |                         |                       |                        |
| Keyboard<br>TrackPoint®                        |              |                 |                                   |                     | Iltimedia Fn keys<br>r <sup>13</sup> , magnifying gl |                           |                                 |  |                         |                       |                        |
| <b>T</b> 1 1                                   | I litra Na   | M™ wide tour    | chnad bolow ko                    | vhoard Ta           | ap Zones, scrollin                                   | ass<br>Ia regione label   | multi-touch                     |  |                         |                       |                        |
| Touch pad<br>ThinkLight™                       | None         |                 | silpad below ke                   | ybbaiu, ie          | ap 2011es, scroiiii                                  | ig regions label,         | , multi-touch                   |  |                         |                       |                        |
|  |              |                 | " x 0 7" x 1 00                   | 1 40% 000           |  | 00.06mm                   |                                 |  |                         |                       |                        |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup> |              |                 |                                   |                     | 0mm x 247mm x<br>b (2.61kg); <i>9-cel</i>            |                           | 2 75kg)                         |  |                         |                       |                        |
| Case material                                  |              |                 | ne-Styrene (AB                    |                     | ib (2.01kg), 3-cei                                   | . 110111 0.07 10 (2       | 2.7 SKg)                        |  |                         |                       |                        |
| Battery - type                                 |              | Ion 4-cell, 6-o |                                   | e) plaotio          |  |                           |                                 |  |                         |                       |                        |
| Battery - life <sup>10</sup>                   |              |                 |                                   | : (57Whr)           | up to 6.3 hr; 9-                                     | cell (94Whr): up          | o to 10.7 hr                    |  |                         |                       |                        |
| Chipset  | Mohile       | Intel HM65 F    | Express Chips                     | ź                   |  | . , , ,                   |                                 |  |                         |                       |                        |
| ExpressCard                                    | One slo      | t (ExpressCa    | rd/34, Express                    | Card/54)            |  |                           |                                 |  |                         |                       |                        |
| Multicard Read                                 | ler 4-in-1 r | eader (MMC.     | SD, SDHC, SD                      | XC)                 |  |                           |                                 |  |                         |                       |                        |
| Ports  |              |                 |                                   |                     | SATA combo por                                       | rt,                       |                                 |  |                         |                       |                        |
|  |              |                 |                                   |                     | ethernet (RJ-45)                                     |                           |                                 |  |                         |                       |                        |
| PCIe Mini Card                                 |              | I Express Mir   |                                   |                     | ,  |                           |                                 |  |                         |                       |                        |
| PCIe WLAN <sup>4</sup>                         | Some:        | 11b/a/n. PCle   | e Half Mini Car                   | d, ThinkPa          | ad 11b/g/n, 1x1                                      |                           |                                 |  |                         |                       |                        |
|  | Some:        | 11b/g/n, PCle   | e Half Mini Caro                  | d, Intel Ce         | ntrino <sup>®</sup> Wireless-                        |                           |                                 |  |                         |                       |                        |
|  | Some:        | 11a/b/g/n, P0   | Cle Half Mini Ca                  |                     | Centrino Advance                                     |                           |                                 |  |                         |                       |                        |
| PCIe WWAN                                      |              | s WAN upgra     | dable                             |                     |  |                           |                                 |  |                         |                       |                        |
| Carrier  | None         |                 |                                   |                     |  |                           |                                 |  |                         |                       |                        |
| Modem<br>Blueteeth™                            | None         | th 2 0 wind     | o I ED india-t-                   |                     |  |                           |                                 |  |                         |                       |                        |
| Bluetooth™<br>Ethernet                         |              |                 | s, LED indicato                   |                     | ction  |                           |                                 | Supports Th                                      | inkVanta                | ge® tecł              | nnologies              |
| Ethernet<br>Intel AMT                          | None         |                 | _ Gigabit Netwo                   | nk Conne            | GUUII  |                           |                                 |  |                         |                       | 3.0                    |
| Audio support                                  |              | efinition (HD)  | Audio Realtek                     |                     | codec / stereo s                                     | neakers 15 wa             | att x 2 /                       | 65-watt AC a                                     |                         |                       |                        |
| , adio support                                 |              |                 |                                   |                     | al mic, mic mute l                                   |                           |                                 | EPEAT™ Go  |                         | 00 m - 1'             | +                      |
| Security                                       |              |                 |                                   |                     | ervisor password                                     |                           |                                 | ENERGY ST  | IAK® 5.0-               | -complia              | arit                   |
|  |              | l Platform Mod  |                                   |                     |  | , secondy reyrie          |                                 | RoHS-comp<br>International                       | Norrort                 | v Cond-               | 17                     |
|  |              |                 |                                   |                     |  |                           |                                 | unternational                                    | vvarrant                | v Servic              | ;e''                   |
| Security chip                                  |              |                 |                                   |                     | sensor, I FD india                                   | cator, supports t         | the TPM                         |  |                         |                       | anort                  |
| Security chip                                  | der UPEK     | Fingerprint rea | ader on palm re                   | st, swipe           | sensor, LED indi                                     | cator, supports t         | the TPM                         | 24 hour x 7 d<br>during the                      | day <sup>18</sup> toll- | free sup              |                        |

See footnotes for more detailed information

WE model(s) announced February 22, March 1, April 5, or October 4, 2011, or January 17, January 24, or March 13, 2012 WE model(s) withdrawn effective December 2012

### ThinkPad<sup>®</sup> L520 7859 (TopSeller) - DOS - withdrawn

Personal Systems Reference (PSREF)

| Type-model  | Processor  | Memory   | Wide-<br>screen<br>display                                 | Camera  | Disk<br>SATA<br>GB <sup>®</sup> rpm  | PCle<br>Mini Card<br>WLAN | PCle<br>Mini Card<br>WWAN/mSATA | Finger<br>print<br>reader | Blue-<br>tooth | Bat-<br>tery<br>cells | Preload            |
|---|--|--|--|---|--|---------------------------|---------------------------------|---------------------------|----------------|-----------------------|--------------------|
|   | 3-2310M<br>3-2350M                               | 2GBx1<br>4GBx1   | 15.6" HD<br>15.6" HD                                       | 720p<br>720p                                  | 320G 5400<br>500G 7200   | Intel 1000<br>Intel 1000  | WWAN upg<br>WWAN upg            | Finger<br>Finger          | Blue<br>Blue   | 6<br>6                | DOS-Lic<br>DOS-Lic |
|   |  | • Small and  | medium busi  | ness (SMB)                                    | model(s), part c   | of the WE TopSi           | eller™ Program                  |                           |                |                       |                    |
| Positioning<br>Processor  | Intel® C<br>DDR3 n<br>Intel Co                   | ore™ i3-2310<br>nemory contr<br>ore i3-2350M                         | oller (up to 13  | r (dual-cor<br>333MHz), H<br>dual-core, 2     | e, 2.10GHz, 3MB<br>T technology<br>2.30GHz, 3MB C  |                           |                                 | Preloade<br>- DOS-Li      |                | ing sys               | tem <sup>20</sup>  |
| Memory  | 8GB ma<br>dual-cha                               | x <sup>7</sup> / PC3-106<br>annel capable                            | 00 1333MHz<br>e, two 204-pir                               | DDR3, non<br>SO-DIMM                          | -parity,<br>sockets  |                           |                                 |                           |                |                       |                    |
| Optical<br>SATA disk  | Some:  | Solid State D<br>Hard Disk Dr  |  | SATA 3.0Gb<br>)Gb/s, 2.5"                     | /s, 2.5" wide, 7m<br>wide, 7mm or 9.   |                           | able, upgradable                | -                         |                |                       |                    |
| mSATA™ SSD  | None   | removable, u   | pyrauable, At  | LIVE FIDIECI                                  | ion System   |                           |                                 |                           |                |                       |                    |
| Widescreen<br>display<br>Camera   | 220 nits   | , 16:9 aspect  | : ratio, 500:1 c   | contrast ratio                                | are, LED backlig<br>o<br>t sensitive, fixed  |                           |                                 |                           |                |                       |                    |
| Integrated<br>graphics  | externa<br>digital n<br>support<br><i>Maximu</i> | analog mon<br>nonitor suppo<br>s dual indepe<br><i>m external re</i> | rt via Display<br>endent display<br>esolution: 256         | a VGA DB-<br>Port (suppo<br>;;<br>60x1600 (Di | 15 connector an<br>rts single-link D\<br>splayPort)@60H<br>(single-link DVI-   | /I-D via optiona<br>Iz;   | ,.                              |                           |                |                       |                    |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™   | TrackPo  | int <sup>®</sup> pointing  | device, Intern   | et Scroll Ba                                  | ultimedia Fn keys<br>r <sup>13</sup> , magnifying g<br>ap Zones, scrolli   | lass                      | el, multi-touch                 | -                         |                |                       |                    |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>4-cell:</i> fr<br>Acrylon<br>Lithium          | om 5.54 lb (2  | 2.51kg); <i>6-cell</i><br>ne-Styrene (A<br>cell, or 9-cell | from 5.75 BS) plastic                         | Dmm x 247mm x<br>lb (2.61kg); <i>9-ce</i><br>up to 6.3 hr; 9   | <i>ll:</i> from 6.07 lb   |                                 |                           |                |                       |                    |
| Chipset<br>ExpressCard<br>Multicard Read<br>Ports   | One slo<br>er 4-in-1 re<br>Three U               | t (ExpressCa<br>eader (MMC,<br>ISB 2.0 (one                          | powered), on   | sCard/54)<br>DXC)<br>e USB 2.0/e              | eSATA combo po<br>ethernet (RJ-45)   |                           |                                 |                           |                |                       |                    |
| PCIe Mini Card<br>WLAN⁴<br>WWAN<br>Modem  | 11b/g/n<br>Wireles<br>None                       | s WAN upgra  | lini Card, Intel<br>dable                                  |   | Wireless-N 1000  | , 1x2                     |                                 |                           |                |                       |                    |
| Bluetooth™<br>Ethernet  | Realtek  |  | s, LED indica<br>Gigabit Net                               |   | ction  |                           |                                 |                           |                |                       |                    |
| Intel AMT<br>Audio support  |  |  |  |   | codec / stereo   |                           |                                 | Supports                  | ThinkVar       | ntage® te             | echnologies        |
| Security<br>Security chip<br>Fingerprint read   | Power-o<br>Trusted<br>der UPEK F                 | n password,<br>Platform Moo<br>ingerprint rea                        | hard disk pas<br>dule, TCG 1.2<br>ader on palm             |   | <ul> <li>65-watt AC adapter<br/>RoHS-compliant<br/>International Warranty Service<sup>17</sup><br/>24 hour x 7 day<sup>18</sup> toll-free support</li> </ul> |                           |                                 |                           |                |                       |                    |
| Limited warrant   | y <sup>12</sup> 1-year -                         | depot repair   | service / serv   | vice upgrade                                  | es <sup>22</sup> available   |                           |                                 | during t                  | he warra       | nty perio             | od™                |

See footnotes for more detailed information WE model(s) announced March 1 or October 4, 2011 WE model(s) withdrawn effective December 2012

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#### ThinkPad<sup>®</sup> L520 5016 - withdrawn

Personal Systems Reference (PSREF)

| Type-model P  | rocessor   | Memory   | Wide-<br>screen<br>display   | Camera  | Disk<br>SATA<br>GB <sup>8</sup> rpm                                  | PCle<br>Mini Card<br>WLAN   | PCle<br>Mini Card<br>WWAN/mSATA | Finger<br>print<br>reader                      | Blue-<br>tooth                               | tery                                | Workhors<br>(W)<br>Global (G                             |                        |
|---|--|--|--|---|--|---|---------------------------------|--|--|-------------------------------------|--|------------------------|
| 5016-5QG is<br>5016-5RG is  | -2540M<br>-2540M                                 | 2GBx1<br>2GBx1   | 15.6" HD<br>15.6" HD   | 720p  | 320G 5400<br>250G 5400   | Intel 1000<br>TP 11b/g/n  | WWAN upg                        | Finger<br>Finger                               | Blue<br>Blue                                 | 6<br>6                              |  | Pro 64<br>Pro 64       |
|   | -2520M<br>-2540M                                 | 2GBx1<br>4GBx1   | 15.6" HD<br>15.6" HD   | 720p  | 250G 5400<br>320G 7200   | TP 11b/g/n<br>Intel 6205 <sup>28</sup>                            | WWAN upg                        | Finger   | Blue   | 6<br>6                              | WG   | Pro 64<br>Pro 64       |
| Positioning<br>Processor  | Intel® C<br>DDR3 n                               | eam busines<br>core™ i5-252<br>nemory cont                           | Microsoft <sup>®</sup> Off<br>as performanc<br>20M processo<br>aroller (up to 13 | <i>ice 2010 Pi</i><br><i>e; two spin</i><br>or (dual-co<br>333MHz), l | re, 2.50GHz, 3<br>Intel Turbo Boos                                   | dy (O10PKR)<br>MB Cache),<br>st 2.0 (3.20GHz                      | ), HT technology                | - Gen  | <b>aded op</b><br>uine Win<br>essional       | ndows                               | g systen<br>◎ 7  | <b>n</b> <sup>20</sup> |
| Memory  | DDR3 n<br>8GB ma                                 | nemory cont<br>ax <sup>7</sup> / PC3-10                              | roller (up to 1<br>600 1333MHz   | 333MHz), İ<br>DDR3, no  | n-parity,  |   | ), HT technology                | some l   | listed)<br>cue and                           | Recov                               |  | s <sup>14</sup> (only  |
| Optical<br>SATA disk  | DVD bu<br>Some:<br>Some:                         | rner, 12.7m<br>Solid State<br>Hard Disk D                            | rive / SATA 3.   | not remova<br>SATA 3.0G<br>0Gb/s, 2.5                                 | ble, tray-in   |   | ovable, upgradable              | Fing     mod                                   | lelṡ)<br>sword M                             | Softwa                              | ns™<br>re (fingei<br>r (fingerp                          |                        |
| mSATA™ SSD  | None   | removable,   | upgradable, A  | clive Prote   | clion System ····  |   |                                 | Thin   | kVántag                                      |                                     | tem Upda   |                        |
| Widescreen<br>display<br>Camera   | 220 nits   | , 16:9 áspec   | ct ratio, 500:1  | contrast ra   |  | light,<br>itive, fixed focus                                      | 5                               | • Thin   | ikVantag<br>ikVantag<br>ovo Sim              | ie Tool                             | er Mana<br>box   | ger                    |
| Integrated<br>graphics  | externa<br>digital m<br>support<br><i>Maximu</i> | l analog mor<br>nonitor supp<br>s dual indep<br><i>im external i</i> | ort via Display<br>endent display<br>resolution: 25                              | ia VGA DB<br>Port (supp<br>y;<br>60x1600 ([                           | o<br>DisplayPort)@6  | DVI-D via optio   | , -                             | listed)<br>• Nort<br>(30 (<br>• Adol<br>• Skyr | ton™ Inte<br>days of<br>be® Rea<br>be™ for ' | ernet S<br>/irus d<br>der®<br>Nindo |  | 2011<br>S)             |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touch pad<br>ThinkLight™   | TrackPo  | int <sup>®</sup> pointing  | device, Intern   | et Scroll B   | nultimedia Fn ke<br>ar <sup>13</sup> , magnifying<br>Tap Zones, scro | glass   | bel, multi-touch                | Micr<br>purc     Core                          | osoft Of<br>hase pr<br>el® WinD              | fice 20<br>oduct l<br>VD® (I        | sentials<br>010 prelo<br>key to ac<br>DVD±RW<br>Lenovo E | aded;<br>tivate<br>/)  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>4-cell:</i> fr<br>Acrylon<br>Lithium          | òm 5.54 lb (<br>itrile-Butadie<br>Ion 4-cell, 6                      | 2.51kg); <i>6-cel</i><br>ene-Styrene ( <i>A</i><br>-cell, or 9-cell              | l: from 5.75<br>ABS) plasti   | C  | n x 32–36mm<br><i>cell:</i> from 6.07 ll<br><i>9-cell (94Whr)</i> | ( U)                            | Core   | D±RW)<br>el DVD M<br>ion (DVI                |                                     | actory® I  | _enovo                 |
| Chipset<br>ExpressCard<br>Multicard Reade<br>Ports  | One slo<br>r 4-in-1 re<br>Three U                | t (ExpressC<br>eader (MMC<br>JSB 2.0 (one                            | powered), or   | ssCard/54)<br>SDXC)<br>ie USB 2.0                                     | /eSATA combo<br>, ethernet (RJ-4                                     |   |                                 |  |  |                                     |  |                        |
| PCIe Mini Card<br>WLAN⁴<br>WWAN<br>Modem  | Some:<br>Some:<br>Some:                          | 11b/g/n, PC<br>11b/g/n, PC<br>11a/b/g/n, P                           | le Half Mini Ca  | ard, Intel C<br>Card, Intel   | Pad 11b/g/n, 1x<br>entrino <sup>®</sup> Wireles<br>Centrino Advar    |   | x2                              |  |  |                                     |  |                        |
| Bluetooth™<br>Ethernet  | Some:  |  | 0 wireless, LE<br>L Gigabit Net  |   |  |   |                                 | Suppo  | rts Thinl                                    | Vanta                               | ge® tech   | nologies               |
| Intel AMT<br>Audio support<br>Security<br>Security chip   | None<br>High De<br>volume<br>Power-c<br>Trusted  | efinition (HD)<br>up, down, mu<br>on password<br>Platform Mo         | ) Audio, Realte<br>ute buttons / m<br>, hard disk pas<br>odule, TCG 1.2          | ek ALC269<br>onaural dig<br>ssword, su<br>2-complian                  | Q codec / stere<br>ital mic, mic mu<br>pervisor passwo<br>t          | ord, security ke  | o audio/mic jack                | EPEAT<br>ENER<br>RoHS-                         | -complia                                     | rating<br>R® 5.0<br>nt<br>/arrant   | -complia<br>ty Servic                                    | <b>e</b> <sup>17</sup> |

See footnotes for more detailed information WE model(s) announced February 22, 2011 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> L520 5017 (Onsite) - withdrawn

| Type-model F  | Processor   | Memory   | Wide-<br>screen<br>display  | Camera  | SA  | sk<br>TA<br>rpm                                   | PCle<br>Mini Card<br>WLAN                                | PCle<br>Mini Card<br>WWAN/mSATA                         | Carrier                   | Finger<br>print<br>reader                        | Blue-<br>tooth  | tery  | Vorkhorse<br>Global ((<br>GMP (P                                 | G) Pre-          |
|---|---|--|---|---|---|---|--|---|---------------------------|--|---|---|--|------------------|
| 5017-4JG i  | 7-2620M   | 4GBx1  | 15.6" HD+   | 720p  | 320G  | 7200  | Intel 6205 <sup>28</sup>                                 | WWAN upg  |                           | Finger   | Blue  | 6   |  | Pro 64           |
|   | 5-2520M<br>5-2520M  | 4GBx1<br>2GBx1   | 15.6" HD+<br>15.6" HD   | 720p<br>720p  |   | 5400<br>5400                                      | Intel 6205<br>Intel 1000                                 | Ericsson<br>WWAN upg                                    | selectable                | Finger<br>Finger                                 | Blue<br>Blue  | 6<br>6  |  | Pro 64<br>Pro 64 |
|   | 5-2540M   | 4GBx1  | 15.6" HD  | 720p<br>720p  |   | 7200  | Intel 6205   | WWAN upg  |                           | Finger   | Blue  | 6   | W G P  |                  |
|   |   |  | are part of th<br>ce 2010 Prod  |   |   |   |  | imited onsite se  | ervice <sup>24</sup> 3-ye | ar limited                                       | warrai  | nty   |  |                  |
| Positioning<br>Processor  | Intel® (<br>DDR3<br>Intel C<br>DDR3<br>Intel C  | Core™ i5-2<br>memory co<br>ore i5-254<br>memory co<br>ore i7-262 | ontroller (up to<br>OM processo<br>ontroller (up to<br>OM processo      | ssor (dua<br>o 1333Mi<br>or (dual-o<br>o 1333Mi<br>or (dual-o | al-core<br>Hz), Inte<br>core, 2.<br>Hz), Inte<br>core, 2. | , 2.50G<br>el Turbo<br>60GHz<br>el Turbo<br>70GHz | , <b>3MB Cache</b><br>Boost 2.0 (3<br>, <b>4MB Cache</b> | .20GHz), HT te<br>),<br>.30GHz), HT te                  | chnology                  | - Genu<br>Profe<br>Ready t<br>some lis<br>• Resc | ine Wir<br>ssional<br>t <b>o insta</b><br>sted)<br>ue and | ndows <sup>∉</sup><br>64<br><b>all app</b><br>Recov | olications<br>very™  |                  |
| Memory  | 8GB m<br>dual-ch  | ax <sup>7</sup> / PC3- <sup>-</sup><br>nannel capa               | 10600 1333N<br>able, two 204  | 1Hz DDR<br>-pin SO-I  | 3, non-<br>DIMM s   | parity,<br>ockets                                 |  |   |                           | mode   | rprint S<br>Is)   | Softwar   | re (finger   |                  |
| Optical<br>SATA disk  | Some:   | Solid Stat<br>Hard Disk  |   | ) / SATA<br>3.0Gb/s   | 3.0Gb/s<br>, 2.5" w                                       | s, 2.5" \<br>vide, 7n                             | wide, 7mm hig<br>nm or 9.5mm                             | gh, removable,<br>high,                                 | upgradable                | mode<br>Think<br>Think                           | ls)<br>Vantag<br>Vantag                                   | e Syst<br>e Pow                                     | r (fingerp<br>em Upda<br>er Manag                                | te               |
| mSATA™ SSD  | None  |  |   |   |   |   |  |   |                           | <ul> <li>Think</li> <li>Lenov</li> </ul>         |   |   |  |                  |
| Widescreen<br>display   |   | 220 nits, 15.6" (39)   | 16:9 aspect r<br>6mm) <b>HD+ (</b> 1                                    | atio, 500:<br>600x900   | 1 contra<br>) color                                       | ast ratio<br>. anti-a                             | lare. LED bac  | -   |                           | Preload<br>listed)                               | led ap  | olicati   | ons <sup>14</sup> (on  |                  |
| Camera  | HD720   |  | 6:9 áspect r  |   |   |   |  |   |                           |  |   |   | Security 2<br>efinitions)  |                  |
| Integrated<br>graphics  | HD720p resolution, wider view angle, low light sensitive, fixed focus         Intel HD Graphics 3000 in processor,         s       external analog monitor support via VGA DB-15 connector and         digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);         supports dual independent display;         Maximum external resolution: 2560x1600 (DisplayPort)@60Hz;         2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable) |  |   |   |   |   |  |   |                           |  |   | fice 20<br>oduct k<br>VD® ([                        | ws<br>sentials<br>10 preloa<br>(ey to act<br>DVD±RW)<br>Lenovo E | ivate            |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™   | TrackP  | oint® pointiı  | ng device, Int  | ernet Scr   | oll Bar <sup>1</sup>                                      | <sup>3</sup> , magi                               | nifying glass  | gions label, mul  | ti-touch                  | (DVD)<br>• Corel                                 | ±RW)  | lovieF  | actory® L  |                  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>4-cell:</i><br>Acrylor<br>Lithium  | rom 5.54 ll<br>nitrile-Buta<br>1 lon 4-cell,                     | o (2.51kg); <i>6</i> -<br>diene-Styren<br>6-cell, or 9-c                | <i>cell:</i> from<br>e (ABS) p<br>cell                        | 5.75 lb<br>lastic   | ) (2.61k  |  | 86mm<br>n 6.07 lb (2.75k<br>(94Whr): up to <sup>-</sup> | -                         |  |   |   |  |                  |
| Chipset<br>ExpressCard<br>Multicard Read<br>Ports   | One slo<br>er 4-in-1 i<br>Three   | ot (Express<br>reader (MN<br>JSB 2.0 (o                          | 5 Express C<br>Card/34, Exp<br>IC, SD, SDH<br>ne powered)<br>(VGA DB-15 | oressCaro<br>C, SDXC)<br>one USE                              | 3 2.0/es  |   |  |   |                           |  |   |   |  |                  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | Some:<br>Some:<br>Some:   | 11b/g/n, F<br>11a/b/g/n<br>Wireless<br>Wireless                  | PCIe Half N   | i Card, In<br>lini Card,<br>able<br>on® F5521                 | Intel Ce<br>gw Mo   | entrino®  | Vireless-N 10<br><sup>®</sup> Advanced-N<br>badband Mod  | 00, 1x2<br>6205, 2x2<br>ule, PCle Mini (                | Card,                     |  |   |   |  |                  |
| Carrier<br>Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT   | None<br>Blueto  | oth 3.0 wire   | ctable, contra<br>eless, LED in<br>1DL Gigabit I                        | dicator   |   |   | e provider   |   |                           |  |   |   |  |                  |
| Audio support<br>Security<br>Security chip<br>Fingerprint read  | High D<br>volume<br>Power-<br>Trustec<br>der UPEK   | up, down,<br>on passwo<br>I Platform I<br>Fingerprint            | mute buttons<br>rd, hard disk<br>Vodule, TCG<br>reader on pa            | / monaura<br>passwore<br>1.2-com<br>alm rest, s               | al digita<br>d, supe<br>pliant<br>swipe s                 | l mic, m<br>rvisor p<br>ensor, l                  | nic mute butto<br>bassword, sec<br>LED indicator         | , supports the T  | /mic jack<br>PM           | 65-watt<br>EPEAT                                 | AC ada<br>™ Gold<br>Y STAI                                | apter<br>rating<br>R® 5.0                           | ge® techr<br>-compliar   |                  |
| Limited warrant   | public a  | and nationa  | ittery, <b>limitec</b><br>al holidays. C<br>spatch / servi              | alls recei  | ved afte  | er 3 pm   | ı - 5 pm, Mon<br>will require a                          | - Fri coverage<br>n addtional nex                       | excluding<br>t business   | Internat<br>24 hour                              | ional W<br>x 7 day  | /arrant<br>y <sup>18</sup> toll-                    | y Service<br>free supp<br>/ period <sup>12</sup>                 |                  |

See footnotes for more detailed information WE model(s) announced February 22, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad<sub>®</sub>



Lenovo® ThinkPad T420



Lenovo ThinkPad T420



Lenovo ThinkPad T420



Lenovo ThinkPad T420



ThinkPad triple external monitor configuration using NVIDIA's Optimus technology



Lenovo ThinkPad T420

#### ThinkPad® T420 4177 (TopSeller) - withdrawn

| Type-model | Processor | Memory | Wide-<br>screen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN | PCIe Mini<br>Card WWAN/<br>mSATA | Modem | Finger<br>print<br>reader | Blue-<br>tooth | Bat-<br>tery<br>cells | Intel<br>vPro | Preload | Ann<br>Date<br>(mm/yy) |
|------------|-----------|--------|----------------------------|--------|-------------------------------------|---------------------------|----------------------------------|-------|---------------------------|----------------|-----------------------|---------------|---------|------------------------|
| 4177-25G   | i5-2410M  | 2GBx1  | 14.0" HD                   | 720p   | 320G 5400                           | TP 11b/g/n                | WWAN upg                         | Modem | None                      | BT             | 6                     | No            | Pro 64  | 02/11                  |

Small and medium business (SMB) model(s), part of the WE TopSeller™ Program
 Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Positioning<br>Processor  | Premiere performance; two spindles<br>Intel <sup>®</sup> Core™ i5-2410M processor (dual-core, 2.30GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (2.90GHz), HT technology   | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64   |
|---|--|---|
| Memory  | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets  | <b>Ready to install applications</b> <sup>14</sup> (only some listed)   |
| Optical<br>Ultrabay<br>Disk   | DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br><i>Some:</i> Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br><i>Some:</i> Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System <sup>™</sup><br><i>All:</i> removable, upgradable, supports the second disk, Shock Mounted Hard Drive | <ul> <li>Rescue and Recovery<sup>™</sup></li> <li>Access Connections<sup>™</sup></li> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint models)</li> </ul>                       |
| mSATA™ SSD  | None   | ThinkVantage <sup>®</sup> System Update   |
| Display<br>Camera   | <ul> <li>Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight, 200 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>HD720p resolution, wider view angle, low light sensitive, fixed focus</li> </ul>   | <ul> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> <li>Lenovo<sup>®</sup> SimpleTap</li> <li>Preloaded applications<sup>14</sup> (only some</li> </ul>  |
| Graphics  | Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort <sup>™</sup> (supports single-link DVI-D via cable 45J7915);<br>supports dual independent display;<br><i>Max external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915)                         | listed)<br>● Norton <sup>™</sup> Internet Security 2011<br>(30 days of virus definitions)<br>● Adobe <sup>®</sup> Reader <sup>®</sup><br>● Skype <sup>™</sup> for Windows<br>● Windows Live <sup>™</sup> Essentials |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™                    | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions  | <ul> <li>Microsoft<sup>®</sup> Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now™ Lenovo Edition<br/>(DVD±RW)</li> </ul>   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type | 14.0W" (WxDxH): 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm<br>4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)<br>Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Carbon-Fiber Reinforced Plastic<br>Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery  | <ul> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul>  |
| Battery - life <sup>10</sup>  | 6-cell (57Whr): up to 9.0 hr; 9-cell (94Whr): up to 15.0 hr; 9-cell plus Slice battery: up to 30 hr  |   |
| Chipset   | Mobile Intel QM67 Express Chipset  |   |
| ExpressCard<br>Smart Card read<br>Multicard reader<br>Ports                       | One slot (ExpressCard/34)<br>None<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)  |   |
| PCIe Mini Card<br>PCIe WLAN <sup>4</sup><br>PCIe WWAN<br>Carrier                  | Two PCI Express <sup>®</sup> Mini Card slots<br>11b/g/n, PCIe Half Mini Card, ThinkPad 11b/g/n, 1x1<br>Wireless WAN upgradable<br>None   |   |
| Modem   | 56K V.92 modem   | Supports ThinkVantage technologies  |
| IEEE 1394<br>Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support                 | None<br>Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>None<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack  | Integrated model: 65W AC Adapter<br>Optimus™ model: 90W AC Adapter<br>ThinkPad Roll Cage (one-piece<br>magnesium frame)<br>EPEAT™ Gold rating   |
| Security<br>Security chip<br>Fingerprint reader<br>Limited Warranty <sup>12</sup> | Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant   | ENERGY STAR® 5.0-compliant<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup>                         |

See footnotes for more detailed information WE model(s) announced February 22, 2011 WE model(s) withdrawn effective December 2012

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#### ThinkPad® T420 4178 (TopSeller) - withdrawn

Personal Systems Reference (PSREF)

| Processor In<br>In<br>In<br>In<br>In<br>In<br>In<br>In<br>In<br>In  | 0M 2GBx2<br>50M 4GBx1<br>0M 2GBx2<br>50M 4GBx1<br>• Sn<br>• Min<br>• Min<br>Premiere perform<br>Intel <sup>®</sup> Core™ i3-<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>BGB max <sup>7</sup> / PC3-<br>dual-channel cap<br>DVD burner, 12.7<br>One bay for remo<br>Some: Solid Sta<br>Some: Hard Dis   | 14.0" HD<br>14.0" HD<br>14.0" HD<br>14.0" HD<br>mall and me<br>crosoff® Of<br>mance; two<br>2310M proce<br>controller (u<br>50M p           | 720p<br>720p<br>720p<br>edium b<br>ffice 201<br>spindle<br>ocessor<br>up to 133<br>ssor (d<br>up to 133<br>ssor (d | 10 Product Ke<br>25<br>(dual-core,<br>33MHz), HT<br>ual-core, 2.3<br>33MHz), Inte<br>ual-core, 2.4<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>DDR3, non-p  | Intel 1000<br>Intel 1000<br>Intel 1000<br>B) model(s),<br>ey Ready (O<br>2.10GHz, 3I<br>technology<br>30GHz, 3MB<br>I Turbo Boos<br>30GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>arity,                   | MB Cache),<br>Cache),<br>t Cache),<br>t 2.0 (2.90GHz)<br>Cache),<br>t 2.0 (3.0GHz)<br>Cache),   | :), HT tec<br>, HT tech                        | hnology                                  | Finger<br>Finger<br>Finger<br>M<br>Preload<br>Genuin<br>Profess<br>Ready<br>some li<br>• Resc<br>• Acces<br>• Acces<br>• Finge<br>mode<br>• Passs<br>mode | BT<br>BT<br>BT<br>BT<br>ded o<br>e Win-<br>stoinal<br>to ins<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>erprint<br>els)  | dows<br>64<br>s <b>tall a</b><br>d Re<br>nnec<br>Soft                       | s <sup>®</sup> 7<br>applic<br>cover<br>tions <sup>T</sup><br>ware                   | ™<br>(fingerpr  | 03/1<br>10/1<br>03/1<br>01/12               |
|---|---|---|--|---|--|---|--|--|---|--|---|---|---|---|
| 4178-BAG i3-2350<br>4178-84G i3-2310<br>4178-CJG i5-2450<br>Positioning F<br>Processor II<br>II<br>II<br>II<br>Memory 8<br>Memory 8<br>Optical D<br>Ultrabay C<br>Disk 5<br>A | 50M 4GBx1<br>50M 2GBx2<br>50M 4GBx1<br>• Sn<br>• Min<br>• Min<br>• Min<br>• DR3 memory co<br>Intel Core i5-24:<br>DDR3 memory co<br>BGB max <sup>7</sup> / PC3-<br>dual-channel cap<br>DVD burner, 12.7<br>One bay for remo<br>Some: Solid State<br>Some: Solid State<br>Some: Hard Dis   | 14.0" HD<br>14.0" HD<br>14.0" HD<br>14.0" HD<br>mall and me<br>crosoff® Of<br>mance; two<br>2310M proce<br>controller (u<br>50M p           | 720p<br>720p<br>720p<br>720p<br>720p<br>720p<br>720p<br>720p   | 320G 7200<br>320G 7200<br>500G 7200<br><i>usiness (SM.</i><br><i>10 Product Ke</i><br><b>33</b> MHz), HT<br><b>ual-core, 2.</b><br>33MHz), Inte<br><b>ual-core, 2.</b><br>33MHz), Inte<br><b>ual-core, 2.</b><br>33MHz), Inte<br><b>ual-core, 2.</b><br>33MHz), Inte<br><b>DDR3</b> , non-p | Intel 1000<br>Intel 1000<br>Intel 1000<br>B) model(s),<br>ey Ready (O<br>2.10GHz, 3I<br>technology<br>30GHz, 3MB<br>I Turbo Boos<br>30GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>arity,                   | WWAN upg<br>WWAN upg<br>WWAN upg<br><i>part of the WE</i><br>10PKR)<br>WB Cache),<br>Cache),<br>st 2.0 (2.90GHz)<br>Cache),<br>st 2.0 (3.0GHz)<br>Cache), | None<br>None<br><i>TopSelle</i><br>c), HT tech | None<br>Modem<br>None<br>er™ Progra      | Finger<br>Finger<br>Finger<br>m<br>Preload<br>Genuin<br>Profess<br>Ready<br>some lii<br>• Resc<br>• Acces<br>• Finge<br>mode<br>• Passw                   | BT<br>BT<br>BT<br>BT<br>ded o<br>e Win-<br>stoinal<br>to ins<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>ue and<br>sted)<br>erprint<br>els)  | 6<br>6<br>6<br><b>pera</b><br>dows<br>64<br>stall a<br>d Re<br>nnec<br>Soft | No<br>No<br>No<br>s <sup>®</sup> 7<br>applic<br>cover<br>tions <sup>™</sup><br>ware | Pro 64<br>Pro 64<br>Pro 64                                      | 10/1<br>03/1<br>01/12                       |
| 4178-84G i3-2310<br>4178-CJG i5-2450<br>Positioning F<br>Processor II<br>II<br>II<br>Memory 8<br>Memory 8<br>Optical II<br>Ultrabay C<br>Disk 5<br>A                          | 0M 2GBx2<br>50M 4GBx1<br>● Sn<br>● Min<br>Premiere perform<br>Intel <sup>®</sup> Core <sup>™</sup> i3-<br>DDR3 memory co<br>Intel Core i3-233<br>DDR3 memory co<br>Intel Core i5-243<br>DDR3 memory | 14.0" HD<br>14.0" HD<br>14.0" HD<br>mall and me<br>crosoft <sup>®</sup> Of<br>mance; two<br>2310M proce<br>controller (u<br>50M proce<br>controller (u<br>30M proce<br>controller (u<br>50M proce<br>co | 720p<br>720p<br>720p<br>edium b<br>ffice 201<br>spindle<br>ocessor<br>up to 133<br>ssor (d<br>up to 133<br>ssor (d | 320G 7200<br>500G 7200<br>usiness (SM<br>0 Product Ko<br>33MHz), HT<br>ual-core, 2.3<br>33MHz), Inte<br>ual-core, 2.4<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>DDR3, non-p                                     | Intel 1000<br>Intel 1000<br>B) model(s),<br>ey Ready (O<br>2.10GHz, 3I<br>technology<br>30GHz, 3MB<br>technology<br>30GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB | WWAN upg<br>wWAN upg<br>part of the WE<br>10PKR)<br>WB Cache),<br>Cache),<br>t 2.0 (2.90GHz)<br>Cache),<br>st 2.0 (3.0GHz),<br>Cache),                    | None<br>None<br><i>TopSelle</i><br>c), HT tech | Modem<br>None<br>er™ Progra              | Finger<br>Finger<br>Finger<br>M<br>Preload<br>Genuin<br>Profess<br>Ready<br>some li<br>• Resc<br>• Acces<br>• Acces<br>• Finge<br>mode<br>• Passs<br>mode | BT<br>BT<br>ded o<br>e Win-<br>sional<br>to ins<br>sted)<br>ue and<br>ss Col<br>erprint<br>els)<br>word N<br>els)  | 6<br>6<br><b>pera</b><br>dows<br>64<br>stall a<br>d Re<br>nnec<br>Soft      | No<br>No<br>s <sup>®</sup> 7<br>applic<br>cover<br>tions <sup>™</sup><br>ware       | Pro 64<br>Pro 64  | 03/1<br>01/1:<br>•<br>•<br>•<br>•<br>•<br>• |
| 4178-CJG i5-2450<br>Positioning F<br>Processor II<br>II<br>II<br>Memory 8<br>Optical C<br>Ultrabay C<br>Disk 5<br>A   | iom 4GBx1<br>● Sn<br>● Min<br>Premiere perform<br>Intel <sup>®</sup> Core <sup>™</sup> i3-<br>DDR3 memory c<br>Intel Core i3-233<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>BGB max <sup>7</sup> / PC3-<br>dual-channel cap<br>DVD burner, 12.77<br>One bay for remo<br>Some: Solid Stäc<br>Some: Hard Dis   | 14.0" HD<br>nall and me<br>crosoft <sup>®</sup> Of<br>2310M pro<br>controller (u<br>50M proce<br>controller (u<br>30M proce<br>controller (u<br>30M proce<br>controller (u<br>50M proce<br>controlle    | 720p<br>edium b<br>ffice 201<br>ospindle<br>ocessor<br>up to 133<br>ssor (d<br>up to 135<br>ssor (d<br>up to 13    | 500G 7200<br>usiness (SM<br>0 Product Ko<br>33MHz), HT<br>ual-core, 2.3<br>33MHz), Inte<br>ual-core, 2.4<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>DDR3, non-p   | Intel 1000<br>B) model(s),<br>ey Ready (O<br>2.10GHz, 3I<br>technology<br>30GHz, 3MB<br>technology<br>30GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB               | WWAN upg<br>part of the WE<br>10PKR)<br>MB Cache),<br>Cache),<br>t 2.0 (2.90GHz)<br>Cache),<br>st 2.0 (3.0GHz)<br>Cache),                                 | None<br>TopSelle<br>:), HT tech                | None<br>er™ Progra<br>chnology<br>nology | Finger<br>Finger<br>Preload<br>Genuin<br>Profess<br>Ready<br>some li<br>• Resc<br>• Acces<br>• Finger<br>mode<br>• Passy<br>mode                          | BT<br>ded o<br>e Win-<br>sional<br>to ins<br>sted)<br>ue and<br>ss Col<br>ess | 6<br>pera<br>dows<br>64<br>stall a<br>d Re<br>nnec<br>Soft                  | No<br>ting s<br>s <sup>®</sup> 7<br>applic<br>cover<br>tions                        | Pro 64  | 01/1  |
| Positioning F<br>Processor II<br>II<br>II<br>D<br>Memory 8<br>Optical D<br>Ultrabay C<br>Disk S   | ● Sn<br>● Min<br>Intel <sup>®</sup> Core™ i3-<br>DDR3 memory c<br>Intel Core i3-233<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>Intel Core i5-243<br>DDR3 memory c<br>BGB max <sup>7</sup> / PC3<br>dual-channel cap<br>DVD burner, 12.7<br>One bay for remo<br>Some: Solid Sta<br>Some: Hard Dis   | mall and me<br>crosoft <sup>®</sup> Of<br>2310M proce<br>controller (u<br>50M proce<br>controller (u<br>30M proce<br>controller (u<br>30M proce<br>controller (u<br>50M proce<br>controller (u<br>50    | edium b<br>ffice 201<br>spindle<br>ocessor<br>up to 13<br>ssor (d<br>up to 13<br>ssor (d<br>up to 13<br>ssor (d<br>up to 13<br>ssor (d<br>up to 13<br>33MHz I<br>204-pin   | usiness (SM.<br>10 Product Ko<br>25<br>(dual-core,<br>33MHz), HT<br>ual-core, 2.3<br>33MHz), Inte<br>ual-core, 2.4<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>DDR3, non-p  | B) model(s),<br>ey Ready (O<br>2.10GHz, 3I<br>technology<br>30GHz, 3MB<br>technology<br>30GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB                             | part of the WE<br>10PKR)<br>MB Cache),<br>Cache),<br>t 2.0 (2.90GHz)<br>Cache),<br>t 2.0 (3.0GHz)<br>Cache),  | : TopSelle<br>:), HT tech                      | er™ Progra                               | Preload<br>Genuin<br>Profess<br>Ready<br>some li<br>• Resc<br>• Acces<br>• Finge<br>mode<br>• Passy<br>mode   | ded o<br>e Win-<br>sional<br>to ins<br>sted)<br>ue and<br>ss Col<br>erprint<br>ls)<br>word N<br>els)   | pera<br>dows<br>64<br>stall a<br>d Re<br>nnec<br>Soft                       | ting s<br>s <sup>®</sup> 7<br>applic<br>cover:<br>tions™<br>ware                    | system <sup>20</sup><br>cations <sup>1</sup><br>y™<br>(fingerpr | o<br>⁴ (only<br>'int                        |
| Processor In<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D   | Intel <sup>®</sup> Core <sup>™</sup> i3-<br>DDR3 memory c<br>Intel Core i3-23<br>DDR3 memory c<br>Intel Core i5-24<br>DDR3 memory c<br>Intel Core i5-24<br>DDR3 memory c<br>Intel Core i5-24<br>DDR3 memory c<br>8GB max <sup>7</sup> / PC3<br>dual-channel cap<br>DVD burner, 12.7<br>One bay for remo<br>Some: Solid Sta<br>Some: Hard Dis  | 2310M pro<br>controller (u<br>50M proce<br>controller (u<br>10M proce<br>controller (u<br>30M proce<br>controller (u<br>50M proce<br>controller (u<br>-10600 133<br>pable, two 2<br>7mm Ultrab<br>povable devi  | Dicessor<br>up to 133<br>essor (d<br>up to 133<br>33MHz I<br>204-pin   | (dual-core,<br>33MHz), HT<br>ual-core, 2.3<br>33MHz), HT<br>ual-core, 2.3<br>33MHz), Inte<br>ual-core, 2.4<br>33MHz), Inte<br>ual-core, 2.5<br>33MHz), Inte<br>DDR3, non-p  | technology<br>30GHz, 3MB<br>technology<br>30GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>50GHz, 3MB<br>I Turbo Boos<br>parity,  | <b>Cache)</b> ,<br><b>Cache)</b> ,<br>t 2.0 (2.90GHz<br><b>Cache)</b> ,<br>st 2.0 (3.0GHz)<br><b>Cache)</b> ,   | , HT tech                                      | inology                                  | Genuin<br>Profess<br>Ready<br>some li<br>• Resc<br>• Acces<br>• Finge<br>mode<br>• Passy<br>mode  | e Wing<br>sional<br>sted)<br>ue and<br>ss Cor<br>erprint<br>els)<br>word N<br>els)   | dows<br>64<br>s <b>tall a</b><br>d Re<br>nnec<br>Soft                       | s <sup>®</sup> 7<br>applic<br>cover<br>tions <sup>T</sup><br>ware                   | cations¹<br>y™<br>(fingerpr                                     | ⁴ (only<br>'int                             |
| Memory 8<br>d<br>Optical D<br>Ultrabay C<br>Disk 5<br>A   | 8GB max <sup>7</sup> / PC3<br>dual-channel cap<br>DVD burner, 12.7<br>One bay for remo<br><i>Some:</i> Solid Sta<br><i>Some:</i> Hard Dis   | -10600 133<br>bable, two 2<br>7mm Ultrab<br>ovable devi   | 33MHz I<br>204-pin   | DDR3, non-p   | arity,   | st 2.0 (3.10GHz   | :), HT tec                                     | hnology                                  |   |  |   |   | ingerprii   | II.   |
| Optical D<br>Ultrabay C<br>Disk S<br>A  | DVD burner, 12.7<br>One bay for remo<br><i>Some:</i> Solid Sta<br><i>Some:</i> Hard Dis   | 7mm Ultrab<br>ovable devi   |  | SO-DIMM so  | alkata   |   |  |  |   | Vánta  |   |   | m Updat   |   |
| Uİtrabay C<br>Disk S<br>A   | One bay for remo<br><i>Some:</i> Solid Sta<br><i>Some:</i> Hard Dis   | ovable devi   | yay Enh  |   |  |   |  |  | ● Think<br>- ● Think  |  |   |   | Manage<br>x   | 1   |
| Disk S  | Some: Solid Sta<br>Some: Hard Dis   |   |  |   |  | 0.7mm bigh b  | ottom oo                                       |  | • Lenov   |  |   |   |   |   |
|   | <i>All:</i> removab   | sk Drive / S  | SSD) / S<br>ATA 3.0  | ATA 3.0Gb/s<br>Gb/s, 2.5" w   | , 2.5" wide,<br>ide, 9.5mm h   | 7mm high  | tection S                                      | System™                                  | listed)   |  | •••   |   | <b>is</b> <sup>14</sup> (only                                   |   |
| mSATA™ SSD N  | None  | ne, upgraud   | able, su   | pports the se   |  |   | Tialu Di                                       | ve                                       |   |  |   |   | curity 20 <sup>-</sup><br>nitions)                              | 11  |
| S   | Some: 14.0" (38<br>250 nits,  | 16:9 aspe<br>55mm) <b>HD</b><br>16:9 aspe   | ct ratio,<br>+ (1600<br>ct ratio,  | 300:1 contra<br>x900) color,<br>300:1 contra  | ist ratio<br>anti-glare, L<br>ist ratio  | ED backlight,   |  |  | <ul> <li>Adob</li> <li>Skype</li> <li>Winde</li> <li>Micro</li> </ul>   | e <sup>®</sup> Re<br>e™ for<br>ows Li<br>soft <sup>®</sup> (   | ader<br>Win<br>ive™<br>Offic  | ®<br>dows<br>Esse<br>e 201  | ntials<br>0 preloa  |   |
|   | HD720p resolutio  |   |  |   | sensitive, fixe  | ed focus  |  |  | _ purch<br>● Corel  |  |   |   | to activ  | ate   |
| . e<br>d<br>s<br>M<br>2<br>Keyboard 7   | Intel HD Graphic<br>external analog r<br>digital monitor su<br>supports dual inc<br><i>Max external res</i><br>2048x1536 (VGA<br>7 row, 89-key, Th<br>TrackPoint pointin  | monitor sup<br>upport via E<br>dependent<br>colution: 25<br>A)@75Hz;<br>hinkVantage   | oport via<br>DisplayF<br>display;<br>560x160<br>1920x12<br>e <sup>®</sup> butto  | a VGA DB-15<br>Port™ (suppo<br>00 (DisplayPo<br>200@60Hz (s<br>n, spill-resist  | rts single-lin<br>ort)@60Hz;<br>single-link D\<br>ant, multime   | k DVI-D via cał<br>/I-D via cable 4<br>dia Fin keys   | 45J7915)                                       |  | Corel     (DVD     Corel  | Burn.<br>±RW)  | .Now<br>Mov   | /™ Ler<br>ieFact  | tory <sup>®</sup> Ler   |   |
| Touchpad L<br>ThinkLight™ II  | UltraNav™, wide<br>Illuminates the ke   | touchpad l<br>eyboard to  | below ke<br>improve  | eyboard, Tap<br>e visibility in I   | Zones, scro<br>ow-light con  | olling regions la<br>ditions  | bel, mult                                      | -touch                                   |   |  |   |   |   |   |
| Weight <sup>2</sup> 4<br>Case material 2<br>Battery - type L  | 14.0W" (WxDxH,<br>4-cell: from 4.65<br>Display cover: (<br>Bottom: (<br>Lithium Ion 4-cel<br>6-cell (57Whr): u  | b (2.11kg<br>Carbon-fibe<br>Carbon-Fib<br>I, 6-cell, or   | ); 6-ce<br>er / Glas<br>er Reint<br>9-cell, s  | ell: from 4.84<br>s-fiber hybrid<br>forced Plastic<br>supports opti   | 4 lb (2.20kg);<br>d;<br>c<br>onal Slice ba   | ; <i>9-cell:</i> from<br>attery as 2nd b  | 5.22 lb (<br>attery                            | 0,                                       | r   |  |   |   |   |   |
|   | Mobile Intel QM   |   | •  | · / /   | 10 10.0 11, 0  |   | ballery.                                       |  |   |  |   |   |   |   |
| ExpressCard C   | One slot (Expres  | sCard/34)   |  |   |  |   |  |  |   |  |   |   |   |   |
| Multicard reader 4<br>Ports T<br>e  | None<br>4-in-1 reader (MI<br>Three USB 2.0 (<br>external monitor  | one powere<br>(VGA DB-  | ed), one<br>15, Disp   | e USB 2.0/eS  |  |   |  |  |   |  |   |   |   |   |
| PCIe WLAN <sup>4</sup> 1<br>PCIe WWAN W<br>Carrier N<br>Modem S   | Two PCI Express<br>11b/g/n wireless,<br>Wireless WAN up<br>None<br>Some: 56K V.92   | , PCIe Half<br>pgradable  |  | ard, Intel Cer  | ntrino <sup>®</sup> Wirele   | ess-N 1000, 1x  | 2  |  |   |  |   |   |   |   |
|   | None<br>Bluetooth 3.0 wir   | alace I Er  | ) indicat  | or  |  |   |  |  | Suppor  | ts Thi   | nkVa  | Intage  | e technol   | ogies                                       |
|   | Intel 82579LM G   |   |  |   | wisville). PH  | Y. PCle x1  |  |  | Integra   | ted m  | odel:   | 65W   | AC Ada  | pter  |
| Intel AMT N<br>Audio support  | None<br>High Definition (H<br>volume up, down   | HD) Audio,  | Conexa   | ant 20672 co  | dec / stereo   | speakers, 1 wa  |  | iack                                     | Optimu<br>ThinkPa<br>magn   | <i>s</i> ™ <i>m</i><br>ad Ro<br>lesium   | odel:<br>Il Ca<br>1 fran  | 90W<br>ge (or<br>ne)  | / AC Ada<br>ne-piece  | ipter                                       |
|   | Power-on passw  |   |  |   |  |   |  | juon                                     | EPEĂT   | ™ Gol  | d rat   | ing   |   |   |
| Security chip T<br>Fingerprint reader U   | Trusted Platform  | Module, To<br>t reader or   | CG 1.2-<br>n palm r  | compliant<br>est, swipe se  | ensor, LED ir  |   | ,  |  | ROHS-<br>Interna  | compl<br>tional  | liant<br>Warr   | ranty S   | ompliant<br>Service <sup>17</sup>                               | 7   |
| Limited Warranty <sup>12</sup> 3  |   |   |  |   |  | e <sup>22</sup> available   |  |  | _ 24 houi   | r x 7 d  | ay <sup>18</sup>  | toll-fre  | eriod <sup>12</sup>   | ort   |

See footnotes for more detailed information WE model(s) announced March 1 or October 4, 2011, or January 17, 2012 WE model(s) withdrawn effective December 2012

#### ThinkPad® T420 4178 (Optimus) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

| Type-model | Processor | Memory | Wide-<br>screen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN | PCle Mini<br>Card WWAN/<br>mSATA |        | Modem | Smart<br>Card<br>Reader | Finger<br>print<br>reader | tery | Intel |        | Ann<br>Date<br>mm/yy) |
|------------|-----------|--------|----------------------------|--------|-------------------------------------|---------------------------|----------------------------------|--------|-------|-------------------------|---------------------------|------|-------|--------|-----------------------|
|            | i5-2410M  | 4GBx1  | 14.0" HD+                  | 720p   | 500G 7200<br>500G 7200<br>500G 7200 | Intel 1000                | Ericsson                         | select | Modem |                         | Finger                    | 6    | No    | Pro 64 | 03/11                 |

Small and medium business (SMB) model(s), part of the WE TopSeller™ Program
 Microsoft® Office 2010 Product Key Ready (O10PKR)

| Positioning<br>Processor  | Premiere performance; two spindles<br>Intel <sup>®</sup> Core <sup>™</sup> i5-2410M processor (dual-core, 2.30GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (2.90GHz), HT technology<br>Intel Core i5-2430M processor (dual-core, 2.40GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.0GHz), HT technology<br>Intel Core i5-2450M processor (dual-core, 2.50GHz, 3MB Cache),  | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64<br>Ready to install applications <sup>14</sup> (only<br>some listed)<br>● Rescue and Recovery <sup>™</sup>  |
|---|--|---|
|   | DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.10GHz), HT technology   | Access Connections <sup>™</sup> Eingerprint Coffuers (fingerprint)  |
| Memory  | 8GB max <sup>′</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets  | <ul> <li>Fingerprint Software (fingerprint<br/>models)</li> <li>Password Manager (fingerprint</li> </ul>  |
| Optical<br>Ultrabay<br>Disk   | DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br><i>Some:</i> Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br><i>Some:</i> Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System <sup>™</sup><br><i>All:</i> removable, upgradable, supports the second disk, Shock Mounted Hard Drive   | models)<br>• ThinkVantage <sup>®</sup> System Update<br>• ThinkVantage Power Manager<br>• ThinkVantage Toolbox  |
| mSATA™ SSD  | None   | • Lenovo <sup>®</sup> SimpleTap   |
| Display<br>Camera   | <ul> <li>Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight,<br/>200 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight,<br/>250 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>HD720p resolution, wider view angle, low light sensitive, fixed focus</li> </ul>   | Preloaded applications <sup>14</sup> (only some<br>listed)<br>● Norton <sup>™</sup> Internet Security 2011<br>(30 days of virus definitions)<br>● Adobe <sup>®</sup> Reader <sup>®</sup>  |
| Graphics  | NVIDIA® Optimus™ technology, auto-switch between discrete and integrated graphics,<br>Intel HD Graphics 3000 in processor, and<br>NVIDIA NVS™ 4200M, PCI Express® x16, 1GB memory,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort™ (supports single-link DVI-D via cable 45J7915);<br>supports three independent displays;<br><i>Max external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915) | <ul> <li>Skype<sup>™</sup> for Windows</li> <li>Windows Live<sup>™</sup> Essentials</li> <li>Microsoft<sup>®</sup> Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo</li> </ul> |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions  | Edition (DVD±RW)  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | 14.0W" (WxDxH): 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm<br>4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)<br>Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Carbon-Fiber Reinforced Plastic<br>Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery<br>6-cell (57Whr): up to 8.8 h; 9-cell (94Whr): up to 14.7 hr; 9-cell plus Slice battery: up to 29.5 hr  |   |
| Chipset   | Mobile Intel QM67 Express Chipset  |   |
| ExpressCard<br>Smart Card read<br>Multicard reader<br>Ports   | One slot (ExpressCard/34)<br>Some: Smart Card reader<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)   |   |
| PCIe Mini Card<br>PCIe WLAN <sup>4</sup><br>PCIe WWAN   | Two PCI Express Mini Card slots<br>11b/g/n wireless, PCIe Half Mini Card, Intel Centrino <sup>®</sup> Wireless-N 1000, 1x2<br>Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS  |   |
| Carrier<br>Modem<br>IEEE 1394   | User selectable, contract required with service provider<br>Some: 56K V.92 modem<br>None   | Supports ThinkVantage technologies  |
| Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support  | Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>None<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack  | Integrated model: 65W AC Adapter<br>Optimus™ model: 90W AC Adapter<br>ThinkPad Roll Cage (one-piece<br>magnesium frame)   |
|   | Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant<br>UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip  | EPEĀT™ Gold rating<br>ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support   |
| Limited Warrantv <sup>12</sup>  | 3-years/1-yr battery - depot repair service / service upgrades <sup>22</sup> available   | during the warranty period <sup>12</sup>  |

See footnotes for more detailed information

WE model(s) announced March 1 or October 4, 2011, or January 17, 2012 WE model(s) withdrawn effective December 2012

©Lenovo (G-NZ3-3) February 2013

#### ThinkPad<sup>®</sup> T420 4179 - withdrawn

Personal Systems Reference (PSREF)

| Type-model | Processor | Memory | Wide-<br>screen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN | PCle Mini<br>Card WWAN/<br>mSATA | Carrier | IEEE<br>1394 |      | Blue-<br>tooth |   |    | Preload | Ann<br>Date<br>(mm/yy) |
|------------|-----------|--------|----------------------------|--------|-------------------------------------|---------------------------|----------------------------------|---------|--------------|------|----------------|---|----|---------|------------------------|
| 4179-GEG   | i5-2520M  | 2GBx2  | 14.0" HD                   | No     | 320G 7200                           | Intel 1000                | WWAN upg                         | None    | 1394         | None | BT             | 6 | No | Pro 64  | 03/11                  |

• Microsoft® Office 2010 Product Key Ready (O10PKR)

|   | Intel <sup>®</sup> Core <sup>™</sup> i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology  | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64  |
|---|---|--|
|   | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets   | Ready to install applications <sup>14</sup> (only some listed)   |
| Ultrabay O<br>Disk                                  | DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System <sup>™</sup><br>All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive<br>None | <ul> <li>Rescue and Recovery™</li> <li>Access Connections™</li> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint models)</li> <li>Thieldente ag<sup>®</sup> Custom Unders</li> </ul>   |
| Display 8   | <ul> <li>Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight,<br/>200 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight,<br/>250 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> </ul>   | <ul> <li>ThinkVantage<sup>®</sup> System Update</li> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> <li>Lenovo<sup>®</sup> SimpleTap</li> </ul>   |
| Camera N  | None  | <b>Preloaded applications</b> <sup>14</sup> (only some   |
|   | Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort™ (supports single-link DVI-D via cable 45J7915);<br>supports dual independent display;<br>Max external resolution: 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915)                               | listed)<br>• Norton <sup>™</sup> Internet Security 2011<br>(30 days of virus definitions)<br>• Adobe <sup>®</sup> Reader <sup>®</sup><br>• Skype <sup>™</sup> for Windows<br>• Windows Live <sup>™</sup> Essentials<br>• Microsoft <sup>®</sup> Office 2010 preloaded; |
| TrackPoint <sup>®</sup> Touchpad                    | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions   | purchase product key to activate<br>• Corel <sup>®</sup> WinDVD <sup>®</sup> (DVD±RW)<br>• Corel Burn.Now <sup>™</sup> Lenovo Edition<br>(DVD±RW)  |
| Weight <sup>2</sup> Case material<br>Battery - type | 14.0W" (WxDxH): 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm<br>4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)<br>Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Carbon-Fiber Reinforced Plastic<br>Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery   | Corel DVD MovieFactory <sup>®</sup> Lenovo<br>Edition (DVD±RW)   |
|   | 6-cell (57Whr): up to 9.0 hr; 9-cell (94Whr): up to 15.0 hr; 9-cell plus Slice battery: up to 30 hr   |  |
|   | Mobile Intel QM67 Express Chipset   |  |
| Smart Card read Multicard reader Ports              | One slot (ExpressCard/34)<br>None<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)   |  |
| PCIe WLAN <sup>4</sup> PCIe WWAN W<br>Carrier       | Two PCI Express <sup>®</sup> Mini Card slots<br>11b/g/n wireless, PCIe Half Mini Card, Intel Centrino <sup>®</sup> Wireless-N 1000, 1x2<br>Wireless WAN upgradable<br>None  |  |
| IEEE 1394 I<br>Bluetooth™ E<br>Ethernet I           | None<br>IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)<br>Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>None   | Supports ThinkVantage technologies<br>Integrated model: 65W AC Adapter<br>Optimus™ model: 90W AC Adapter<br>ThinkPad Roll Cage (one-piece  |
| Audio support H<br>Security F                       | High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack Power-on password, hard disk password, supervisor password, security keyhole Trusted Platform Module, TCG 1.2-compliant  | magnesium frame)<br>EPEAT™ Gold rating<br>ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant<br>International Warranty Service <sup>17</sup>   |
|   | <b>1-year</b> - depot repair service / service upgrades <sup>22</sup> available   | 24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup>  |

See footnotes for more detailed information

WE model(s) announced March 1, 2011 WE model(s) withdrawn effective December 2012

 $\odot$ Lenovo (G-NZ3-4) February 2013

#### ThinkPad<sup>®</sup> T420 4180 - withdrawn

Personal Systems Reference (PSREF)

|   |  | B.I. B.I.  |
|---|--|--|
| Type-model Proces                                     | screen SATA Mini Card Card WWAN/ IEEE Card p   | nger Bat- Global Ann<br>rint Blue- tery Intel (G) Pre- Date<br>ader toothcells vPro GMP (P)load (mm/yy)  |
| 4180-PCG i5-252                                       | 0M 4GBx1 14.0" HD 720p 320G 7200 Intel 6205 WWAN upg None 1394 Smart F   | inger BT 6 vPro Pro 64 04/11   |
|   |  | inger BT 6 vPro Pro 64 04/11   |
|   |  | inger BT 6 vPro G Pro 64 04/11   |
|   |  | inger BT 6 vPro G Pro 64 02/11   |
|   |  | inger BT 6 vPro G Pro 64 02/11   |
|   |  | one BT 6 vPro Pro 64 02/11   |
|   |  | inger BT 6 vPro G Pro 64 02/11<br>one BT 6 vPro G Pro 64 02/11   |
|   |  | inger BT 6 vPro G Pro 64 01/12   |
|   | A depot repair service 3-year limited warranty     Microsoft <sup>®</sup> Office 2010 Product Key Ready (O10PKR)   |  |
|   | Premiere performance; two spindles<br>Intel <sup>®</sup> Core™ i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology       | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64<br>Ready to install applications <sup>14</sup> (only<br>some listed)   |
|   | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets  | Rescue and Recovery <sup>™</sup> Access Connections <sup>™</sup>   |
|   | DVD burner, 12.7mm Ultrabay Enhanced, removable  | <ul> <li>Fingerprint Software (fingerprint models)</li> </ul>  |
| Ultrabay  | One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access  | <ul> <li>Password Manager (fingerprint</li> </ul>  |
| Disk  | Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System™  | models)<br>• ThinkVantage <sup>®</sup> System Update   |
| mSATA™ SSD  | All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive None  | <ul> <li>ThinkVantage Power Manager</li> </ul>   |
| Display   | Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight,  | <ul> <li>↓ ThinkVantage Toolbox</li> <li>↓ Lenovo<sup>®</sup> SimpleTap</li> </ul>   |
| 2.00.00   | 200 nits, 16:9 aspect ratio, 300:1 contrast ratio<br>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight,  | Preloaded applications <sup>14</sup> (only some  |
| 0.000   | 250 nits, 16:9 aspect ratio, 300:1 contrast ratio  | listed)  |
| Camera<br>Graphics                                    | HD720p resolution, wider view angle, low light sensitive, fixed focus Intel HD Graphics 3000 in processor,   | Norton <sup>™</sup> Internet Security 2011     (30 days of virus definitions)  |
|   | external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort™ (supports single-link DVI-D via cable 45J7915);<br>supports dual independent display;<br><i>Max external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915)                                   | <ul> <li>Adobe<sup>™</sup> Reader<sup>™</sup></li> <li>Skype<sup>™</sup> for Windows</li> <li>Windows Live<sup>™</sup> Essentials</li> <li>Microsoft<sup>®</sup> Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> </ul> |
| TrackPoint <sup>®</sup><br>Touchpad                   | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav <sup>™</sup> , wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions | <ul> <li>Corel Burn.Now™ Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul>  |
| Dimensions <sup>3</sup>                               | 14.0W" (WxDxH): 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm<br>4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)<br>Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Carbon-Fiber Reinforced Plastic   |  |
| Battery - type<br>Battery - life <sup>10</sup>        | Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery 6-cell (57Whr): up to 9.0 hr; 9-cell (94Whr): up to 15.0 hr; 9-cell plus Slice battery: up to 30 h   | nr   |
| Chipset   | Mobile Intel QM67 Express Chipset  |  |
| ExpressCard   | One slot (ExpressCard/34)  |  |
| Ports   | Some: Smart Card reader<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)  |  |
| PCIe Mini Card<br>PCIe WLAN <sup>4</sup><br>PCIe WWAN | Two PCI Express <sup>®</sup> Mini Card slots<br>11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2<br>Some: Wireless WAN pgradable<br>Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS   |  |
| Carrier   | Some: User selectable, contract required with service provider   |  |
| Modem   | Some: 56K V.92 modem   |  |
| IEEE 1394   | Some: IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)  | Cupporto Think / anto no to share to st  |
|   | Bluetooth 3.0 wireless, LED indicator  | Supports ThinkVantage technologies   |
|   | Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1  | Integrated model: 65W AC Adapter   |
|   | Intel Active Management Technology (iAMT)<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /  | <i>Optimus</i> ™ <i>model:</i> 90W AC Adapter ThinkPad Roll Cage (one-piece  |
|   | volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack  | magnesium frame)   |
| Security  | Power-on password, hard disk password, supervisor password, security keyhole   | EPEĀT™ Gold rating<br>ENERGY STAR® 5.0-compliant   |
|   | Trusted Platform Module, TCG 1.2-compliant   | ROHS-compliant   |
| - ·   | Some: UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip  | International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support  |
| Limited Warranty'                                     | 3-years/1-yr battery - depot repair service / service upgrades <sup>22</sup> available   | during the warranty period <sup>12</sup>   |

See footnotes for more detailed information

WE model(s) announced February 22, April 5, or April 19, 2011, or January 3, 2012 WE model(s) withdrawn effective December 2012 ©Lenovo (G-NZ3-5) February 2013

#### ThinkPad® T420 4180 (Optimus) - withdrawn

Personal Systems Reference (PSREF)

| Type-model | Processor | Memory | Wide-<br>screen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN | PCIe Mini<br>Card WWAN/<br>mSATA | Carrier | IEEE<br>1394 |      | Blue- |   | Intel |   | Pre-   | Ann<br>Date<br>(mm/yy) |
|------------|-----------|--------|----------------------------|--------|-------------------------------------|---------------------------|----------------------------------|---------|--------------|------|-------|---|-------|---|--------|------------------------|
|            |           |        |                            |        |                                     |                           | WWAN upg                         |         |              |      |       |   |       |   |        |                        |
| 4180-64G   | i5-2520M  | 2GBx2  | 14.0" HD                   | 720p   | 320G 7200                           | Intel 6205                | WWAN upg                         | None    | 1394         | None | ΒT    | 6 | vPro  | G | Pro 64 | 02/11                  |

A depot repair service 3-year limited warranty
Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Positioning<br>Processor  | Premiere performance; two spindles<br>Intel <sup>®</sup> Core <sup>™</sup> i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology   | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64<br>Ready to install applications <sup>14</sup> (only<br>some listed)  |
|---|--|---|
| Memory  | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets  | <ul> <li>Rescue and Recovery<sup>™</sup></li> <li>Access Connections<sup>™</sup></li> </ul>   |
| Optical<br>Ultrabay<br>Disk<br>mSATA™ SSD   | DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br><i>Some:</i> Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br><i>Some:</i> Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System <sup>™</sup><br><i>All:</i> removable, upgradable, supports the second disk, Shock Mounted Hard Drive<br>None   | <ul> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint models)</li> <li>ThinkVantage<sup>®</sup> System Update</li> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Togleor</li> </ul>  |
| Display   | <ul> <li>Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight, 200 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>HD720p resolution, wider view angle, low light sensitive, fixed focus</li> </ul>   | <ul> <li>ThinkVantage Toolbox</li> <li>Lenovo<sup>®</sup> SimpleTap</li> <li>Preloaded applications<sup>14</sup> (only some listed)</li> <li>Norton<sup>™</sup> Internet Security 2011</li> </ul>   |
| Graphics  | NVIDIA <sup>®</sup> Optimus <sup>™</sup> technology, auto-switch between discrete and integrated graphics,<br>Intel HD Graphics 3000 in processor, and<br>NVIDIA NVS <sup>™</sup> 4200M, PCI Express <sup>®</sup> x16, 1GB memory,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort <sup>™</sup> (supports single-link DVI-D via cable 45J7915);<br>supports three independent displays;<br><i>Max external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915) | <ul> <li>(30 days of virus definitions)</li> <li>Adobe<sup>®</sup> Reader<sup>®</sup></li> <li>Skype<sup>™</sup> for Windows</li> <li>Windows Live<sup>™</sup> Essentials</li> <li>Microsoft<sup>®</sup> Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition</li> </ul> |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions  | (DVD±RW)<br>● Corel DVD MovieFactory <sup>®</sup> Lenovo<br>Edition (DVD±RW)  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | 14.0W" (WxDxH): 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm<br>4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)<br>Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Carbon-Fiber Reinforced Plastic<br>Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery<br>6-cell (57Whr): up to 8.8 hr; 9-cell (94Whr): up to 14.7 hr; 9-cell plus Slice battery: up to 29.5 hr   |   |
| Chipset   | Mobile Intel QM67 Express Chipset  |   |
| ExpressCard<br>Smart Card read<br>Multicard reader<br>Ports   | One slot (ExpressCard/34)<br>None<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)  |   |
| PCIe Mini Card<br>PCIe WLAN <sup>4</sup><br>PCIe WWAN<br>Carrier<br>Modem   | Two PCI Express Mini Card slots<br>11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2<br>Wireless WAN upgradable<br>None<br>None  |   |
| IEEE 1394   | IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)<br>Bluetooth 3.0 wireless, LED indicator   | Supports ThinkVantage technologies  |
| Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support  | Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>Intel Active Management Technology (iAMT)<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack  | Integrated model: 65W AC Adapter<br>Optimus™ model: 90W AC Adapter<br>ThinkPad Roll Cage (one-piece<br>magnesium frame)   |
|   | Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant<br>Some: UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip  | EPEĂT™ Gold rating<br>ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support   |
| Limited Warranty <sup>12</sup>  | <b>3-years</b> /1-yr battery - depot repair service / service upgrades <sup>22</sup> available   | during the warranty period <sup>12</sup>  |

See footnotes for more detailed information

WE model(s) announced February 22, 2011 WE model(s) withdrawn effective December 2012

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#### ThinkPad® T420 4236 (Onsite) - withdrawn

| Type-model Proce                    | screen SATA Mini Card Card WWAN/ IEEE Card   | rt Finger Bat- Global Ann<br>I print tery Intel (G) Pre- Date<br>er reader cells vPro GMP (P) load (mm/yy)  |
|-------------------------------------|--|---|
| 4236-PAG i5-25                      | 20M 4GBx1 14.0" HD 720p 128G SSD Intel 6205 upg None None None None  | e Finger 6 vPro GP Pro 64 04/11   |
| 4236-P3G i5-25                      | 20M 2GBx2 14.0" HD 720p 320G 7200 Intel 6205 Ericsson select Modem None None   |   |
|                                     | 20M 4GBx1 14.0" HD 720p 500G 7200 Intel 6205 upg None None 1394 None   |   |
|                                     | 40M 4GBx1 14.0" HD+ 720p 320G 7200 Intel 6205 upg None Modern None None  | 0   |
|                                     | 40M 4GBx1 14.0" HD+ 720p 320G 7200 Intel 6205 upg None Modem None None<br>40M 2GBx2 14.0" HD+ 720p 320G 7200 Intel 6205 upg None None 1394 None  |   |
|                                     | 40M 2GBx2 14.0" HD+ 720p 320G 7200 Intel 6205 upg   None None 1394 Non<br>20M 2GBx2 14.0" HD 720p 320G 7200 Intel 6205 upg   None None 1394 Non  |   |
|                                     | 40M 4GBx1 14.0" HD 720p 250G 5400 Intel 6205 upg None Moder None None  |   |
|                                     | 20M 4GBx1 14.0" HD No 320G 7200 Intel 6205 upg None Modern None Sma  | 5   |
|                                     | 40M 4GBx1 14.0" HD 720p 320G 5400 Intel 6205 Ericsson select Modem None None   | 0   |
|                                     |  | e Finger 6 vPro GP Pro 64 01/12   |
| 4236-PGG i7-26                      | 40M 4GBx1 14.0" HD+ 720p 500G 7200 Intel 6300 Ericsson select None None None   | e Finger 6 vPro Pro 64 08/11  |
| Positioning<br>Processor            | Premiere performance; two spindles<br>Intel <sup>®</sup> Core™ i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology   | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64               |
|                                     | Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology<br>Intel Core i7.2640M processor (dual-core, 2.80GHz, 4MB Cache)  | Ready to install applications <sup>14</sup> (only some listed)  |
|                                     | Intel Core i7-2640M processor (dual-core, 2.80GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology   | <ul> <li>Rescue and Recovery<sup>™</sup></li> <li>Access Connections<sup>™</sup></li> </ul>                 |
| Memory                              | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,   | • Fingerprint Software (fingerprint   |
| Optical                             | dual-channel capable, two 204-pin SO-DÍMM sockéts<br>DVD burner, 12.7mm Ultrabay Enhanced, removable   | <ul> <li>models)</li> <li>Password Manager (fingerprint</li> </ul>  |
| Ultrabay                            | One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access  | models)<br>ThinkVantage <sup>®</sup> System Update  |
| Disk                                | Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high  | ThinkVantage Power Manager  |
| mSATA™ SSD                          | Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System™<br>All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive<br>None   | <ul> <li>ThinkVantage Toolbox</li> <li>Lenovo<sup>®</sup> SimpleTap</li> </ul>                              |
| Display                             |  | Preloaded applications <sup>14</sup> (only some   |
| Display                             | <ul> <li>Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight, 200 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight, 200 nits, 100 /li></ul> | listed)<br>● Norton™ Internet Security 2011   |
| Camera                              | 250 nits, 16:9 aspect ratio, 300:1 contrast ratio<br>Some: HD720p resolution, wider view angle, low light sensitive, fixed focus   | (30 days of virus definitions)<br>• Adobe <sup>®</sup> Reader <sup>®</sup>                                  |
| Graphics                            | Intel HD Graphics 3000 in processor,   | Skype™ for Windows  |
| arapinoo                            | external analog monitor support via VGA DB-15 connector and  | <ul> <li>Windows Live<sup>™</sup> Essentials</li> </ul>   |
|                                     | digital monitor support via DisplayPort™ (supports single-link DVI-D via cable 45J7915);   | Microsoft <sup>®</sup> Office 2010 preloaded;   |
|                                     | supports dual independent display;   | <ul> <li>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> </ul> |
|                                     | <i>Max external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915)  | Corel Burn.Now™ Lenovo Edition  |
| Keyboard<br>Track Daint®            | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys   | <ul> <li>(DVD±RW)</li> <li>● Corel DVD MovieFactory<sup>®</sup> Lenovo</li> </ul>                           |
| TrackPoint <sup>®</sup><br>Touchpad | TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch  | Edition (DVD±RW)  |
| ThinkLight™                         | Illuminates the keyboard to improve visibility in low-light conditions   |   |
| Dimensions <sup>3</sup>             | 14.0W" (WxDxH): 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm  |   |
| Weight <sup>2</sup>                 | 4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)  |   |
| Case material                       | Display cover: Carbon-fiber / Glass-fiber hybrid;  |   |
| Battery - type                      | Bottom: Carbon-Fiber Reinforced Plastic<br>Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery   |   |
| Battery - life <sup>10</sup>        | 6-cell (57Whr): up to 9.0 hr; 9-cell (94Whr): up to 15.0 hr; 9-cell plus Slice battery: up to 30 h   | r   |
| Chipset                             | Mobile Intel QM67 Express Chipset  | -   |
| ExpressCard<br>Smart Card read      | One slot (ExpressCard/34) <i>Some:</i> Smart Card reader   |   |
| Multicard reader                    | 4-in-1 reader (MMC, SD, SDHC, SDXC)  |   |
| Ports                               | Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,   |   |
|                                     | external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)  |   |
| PCIe Mini Card                      | Two PCI Express <sup>®</sup> Mini Card slots   |   |
| PCIe WLAN <sup>4</sup>              | Some: 11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2  |   |
| PCIe WWAN                           | Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3<br>Some: Wireless WAN upgradable   |   |
|                                     | Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+. GPS   |   |
| Carrier                             | GPRS/WCDMA/HSPA/HSPA+, GPS<br>Some: User selectable, contract required with service provider   |   |
| Modem                               | Some: 56K V.92 modem   |   |
| IEEE 1394                           | Some: IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)  |   |
| Bluetooth™                          | Bluetooth 3.0 wireless, LED indicator  |   |
| Ethernet<br>Intel AMT               | Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>Intel Active Management Technology (iAMT)   | Supports ThinkVantage technologies  |
| Audio support                       | High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /   | Integrated model: 65W AC Adapter  |
|                                     | volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack  | Optimus™ model: 90W AC Adapter  |
| Security                            | Power-on password, hard disk password, supervisor password, security keyhole   | ThinkPad Roll Cage (one-piece magnesium frame)  |
| Security chip                       | Trusted Platform Module, TCG 1.2-compliant   | EPEAT™ Gold rating  |
| ⊢ingerprint reade                   | r Some: UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip  | ENERGY STAR <sup>®</sup> 5.0-compliant  |
|                                     |  | ROHS-compliant  |
| Limited Warranty'                   | <sup>2</sup> 3-years/1-year battery, limited onsite service <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business  | International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support             |
|                                     | day for service dispatch / service upgrades <sup>22</sup> available  | during the warranty period <sup>12</sup>  |
| Coo footratas fam                   |  |   |
|                                     | more detailed information  | ©Lenovo<br>(G-NZ3-7) Eebruary 2013  |

WE model(s) announced February 22, March 1, April 5 or August 2, 2011, or January 3, 2012 WE model(s) withdrawn effective December 2012

#### ThinkPad® T420 4236 (Onsite) - November 2012 - withdrawn

Personal Systems Reference (PSREF)

| Type-model | Processor | Memory | Wide-<br>screen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN | PCIe Mini Card<br>WWAN/<br>mSATA |        | Modem | IEEE<br>1394 | Finger<br>print<br>reader o | tery | Intel | Preload( | Ann<br>Date<br>mm/yy) |
|------------|-----------|--------|----------------------------|--------|-------------------------------------|---------------------------|----------------------------------|--------|-------|--------------|-----------------------------|------|-------|----------|-----------------------|
| 4236-QPG   | i7-2640M  | 4GBx1  | 14.0" HD+                  | None   | 500G 7200                           | Intel 6205                | Ericsson                         | select | None  | 1394         | Finger                      | 6    | vPro  | Pro 64   | 11/12                 |
| 4236-QNG   | i5-2540M  | 4GBx1  | 14.0" HD+                  | None   | 500G 7200                           | Intel 6205                | WWAN upg                         | None   | None  | 1394         | Finger                      | 6    | vPro  | Pro 64   | 11/12                 |
| 4236-QMG   | i5-2520M  | 4GBx1  | 14.0" HD+                  | None   | 500G 7200                           | Intel 6205                | WWAN upg                         | None   | None  | 1394         | Finger                      | 6    | vPro  | Pro 64   | 11/12                 |

Microsoft® Office 2010 Product Key Ready (O10PKR)

|  | DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology<br>Intel Core i7-2640M processor (dual-core, 2.80GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology | Genuine Windows <sup>®</sup> 7<br>Professional 64<br><b>Ready to install applications</b> <sup>14</sup> (only<br>some listed)<br>● Rescue and Recovery™<br>● Access Connections™   |
|--|--|--|
| Memory   | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets  | Fingerprint Software (fingerprint models)  |
| Optical  | DVD burner, 12.7mm Ultrabay Enhanced, removable  | <ul> <li>Password Manager (fingerprint models)</li> </ul>  |
| Ultrabay<br>Disk                               | One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System <sup>™</sup><br>All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive   | ThinkVantage <sup>®</sup> System Update     ThinkVantage Power Manager     ThinkVantage Toolbox     Lenovo <sup>®</sup> SimpleTap  |
| mSATA™ SSD                                     | None   |  |
| Display  | <ul> <li>Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight,<br/>200 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight,<br/>250 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> </ul>  | <ul> <li>Preloaded applications<sup>14</sup> (only some listed)</li> <li>Norton™ Internet Security 2011 (30 days of virus definitions)</li> </ul>  |
| Camera   | None   | Adobe <sup>®</sup> Reader <sup>®</sup>   |
| Graphics                                       | Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort™ (supports single-link DVI-D via cable 45J7915);<br>supports dual independent display;<br>Max external resolution: 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915)                                  | <ul> <li>Skype<sup>™</sup> for Windows</li> <li>Windows Live<sup>™</sup> Essentials</li> <li>Microsoft<sup>®</sup> Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD = DWD</li> </ul> |
| Keyboard                                       | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys   | (DVD±RW)<br>• Corel DVD MovieFactory <sup>®</sup> Lenovo   |
| TrackPoint <sup>®</sup>                        | TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass  | Edition (DVD±RW)   |
| Touchpad<br>ThinkLight™                        | UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch Illuminates the keyboard to improve visibility in low-light conditions  |  |
| Dimensions <sup>3</sup>                        | <i>14.0W" (WxDxH):</i> 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm   |  |
| Weight <sup>2</sup><br>Case material           | 4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)<br>Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Carbon-Fiber Reinforced Plastic  |  |
| Battery - type<br>Battery - life <sup>10</sup> | Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery 6-cell (57Whr): up to 9.0 hr; 9-cell (94Whr): up to 15.0 hr; 9-cell plus Slice battery: up to 30 hr  |  |
| Chipset  | Mobile Intel QM67 Express Chipset  |  |
| ExpressCard                                    | One slot (ExpressCard/34)  |  |
| Smart Card read                                | None   |  |
| Multicard reader<br>Ports                      | 4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)   |  |
| PCIe Mini Card<br>PCIe WLAN⁴                   | Two PCI Express <sup>®</sup> Mini Card slots<br>11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2  |  |
| PCIe WWAN                                      | Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS   |  |
| Carrier  | Some: User selectable, contract required with service provider   |  |
| Modem  |  |  |
| IEEE 1394<br>Bluetooth™                        | IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)  |  |
| Bluetooth™<br>Ethernet                         | Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1   | Supports ThinkVantage technologies   |
| Intel AMT                                      | Intel Active Management Technology (iAMT)  | Integrated model: 65W AC Adapter   |
| Audio support                                  | High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack   | <i>Optimus™ model:</i> 90W AC Adapter<br>ThinkPad Roll Cage (one-piece   |
| Security<br>Security chip                      | Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant   | magnesium frame)   |
|  | r UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip  | EPEAT™ Gold rating<br>ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant   |
| Limited Warranty <sup>12</sup>                 | <sup>2</sup> 3-years/1-year battery, limited onsite service <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business day for service dispatch / service upgrades <sup>22</sup> available   | International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup>  |

See footnotes for more detailed information WE model(s) announced November 20, 2012 WE model(s) withdrawn effective December 2012

## ThinkPad® T420 4236 (Optimus) - Onsite - withdrawn

| Type-model Proc  | essor Memory  | Wide-<br>screen<br>display  | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm   | PCle<br>Mini Card<br>WLAN                                     | PCIe Mini<br>Card WWAN/<br>mSATA   | Carrier              | IEEE<br>1394          | Finger<br>print<br>reader | Blue-   | Bat-<br>tery<br>cells                                      | Intel<br>vPro   | Global<br>(G)<br>GMP (P                             | Pre-   | Ann<br>Date<br>(mm/yy |
|--|---|---|--|---|---|--|----------------------|-----------------------|---------------------------|---|--|---|---|--|-----------------------|
| 4236-PRG i7-26   | 640M 4GBx1  | 14.0" HD+   | 720p   | 500G 7200   | Intel 6205  | WWAN upg   | None                 | 1394                  | Finger                    |   |  | vPro  | GΡ  | Pro 64   | 11/11                 |
|  |   | 14.0" HD+   |  | 500G 7200   |   | WWAN upg   | None                 | 1394                  | None                      | BT  |  | vPro  | GP  |  | 02/11                 |
|  | 520M 2GBx2<br>640M 4GBx1  | 14.0" HD<br>14.0" HD+   | 720p<br>720p   | 320G 7200<br>500G 7200  | Intel 6205<br>Intel 6300                                      | WWAN upg<br>Ericsson   | None<br>select       | 1394<br>None          | None<br>Finger            | BT<br>BT  |  | vPro<br>vPro  | GΡ  | Pro 64<br>Pro 64   | 02/11<br>08/11        |
|  |   |   |  |   |   |  |                      |                       | -                         |   |  |   |   | 110 01   | 00,11                 |
|  |   | models are p<br>off <sup>®</sup> Office 20  |  |   |   | ogram with lim<br>R)   | ited ons             | ite serv              | 'ICE" 3-j                 | year III  | mitec  | d warn  | anty  |  |                       |
| Positioning<br>Processor                                       | Premiere perfe<br>Intel <sup>®</sup> Core™<br>DDR3 memor<br>Intel Core i5-<br>DDR3 memor<br>Intel Core i7-<br>DDR3 memor            | i5-2520M pro<br>y controller (<br>2540M proce<br>y controller (<br>2640M proce                | ocessor<br>up to 13<br>essor (c<br>up to 13<br>essor (c              | r <b>(dual-core</b><br>33MHz), Inte<br><b>lual-core</b> , <b>2</b> .<br>33MHz), Inte<br><b>lual-core, 2</b> . | el Turbo Boo<br>60GHz, 3MI<br>el Turbo Boo<br>80GHz, 4MI      | st 2.0 (3.20Ĝ⊦<br><b>B Cache)</b> ,<br>st 2.0 (3.30G⊦<br><b>B Cache)</b> , | lz), HT t            | echnolo               | ogy  <br>ogy              | Genuii<br>Profes<br><b>Ready</b><br>some  | ne W<br>siona<br><b>to i</b> i<br>listed<br>cue a          | /indow<br>al 64<br><b>nstall</b><br>1)<br>and Re        | /s <sup>®</sup> 7                                   |  |                       |
| Memory   | 8GB max <sup>7</sup> / P0<br>dual-channel o   | C3-10600 13   | 33MHz  | DDR3, non-  | oarity,   |  |                      |                       |                           | <ul> <li>Fing mod</li> </ul>  | erpri<br>els)  | nt Sof  | tware   | (fingerpr  |                       |
| Optical  | DVD burner, 1   | 2.7mm Ultra   | bay Enh  | anced, remo   | ovable  |  |                      |                       |                           | mod   |  | l wan   | ager (i   | ingerprir  | IL                    |
| Ultrabay<br>Disk   | One bay for re<br>Some: Solid   |   |  |   |   |  | bottom a             | access                |                           |   |  |   |   | m Updat  |                       |
| DISK   | Some: Hard I  | Disk Drive / S  | Sata 3.0   | )Gb/s, 2.5" w   | /ide, 9.5mm   | high, Active P   |                      |                       | n™  ,                     | <ul> <li>Thin</li> </ul>  | kVan   | itağe <sup>-</sup>                                      | Toolbox   | Manage   | ſ                     |
| mSATA™ SSD   | None  | able, upgrau  | iable, su  | pports the s  |   | Shock Mounte   | unaiu                | Diive                 | '                         | <ul> <li>Lend</li> </ul>  | ovo  | Simpl   | еТар  |  |                       |
| Display  | <i>Some:</i> <b>14.0</b> "<br>250 ni  | its, 16:9 áspe<br>(355mm) <b>HE</b><br>its, 16:9 aspe   | ect ratio,<br><b>)+ (1600</b><br>ect ratio,                          | 300:1 contr<br>300) color<br>300:1 contr  | ast ratio<br>, anti-glare,<br>ast ratio                       | LED backlight  | ,                    |                       |                           | <ul><li>isted)</li><li>Nort</li></ul>   | on™  | Interr  | net Sec   | s <sup>14</sup> (only)<br>curity 201<br>nitions)                     |                       |
| Camera<br>Graphics   | HD720p resol<br>NVIDIA <sup>®</sup> Optir   |   |  |   |   |  |                      |                       |                           | Adol  |  |   | r®<br>ndows   |  |                       |
|  | Intel HD Grap<br>NVIDIA NVS <sup>TM</sup><br>external analo<br>digital monitor<br>supports three<br>Max external in<br>2048x1536 (V | 4200M, PC<br>og monitor su<br>support via<br>independer<br><i>resolution:</i> 2<br>(GA)@75Hz; | l Expres<br>pport via<br>DisplayI<br>t display<br>560x160<br>1920x12 | ss <sup>®</sup> x16, <b>1GE</b><br>a VGA DB-1<br>Port™ (suppo<br>ys;<br>00 (DisplayP<br>200@60Hz (            | 5 connector<br>orts single-lir<br>ort)@60Hz;<br>single-link D | nk DVI-D via ca<br>VI-D via cable  |                      |                       |                           | <ul> <li>Micr<br/>purc</li> <li>Core</li> <li>Core</li> <li>(DVI</li> <li>Core</li> </ul> | osoft<br>hase<br>에 <sup>®</sup> W<br>에 Bui<br>D±RV<br>에 DV | <sup>®</sup> Office<br>produce<br>inDVE<br>rn.Nov<br>V) | uct key<br>D <sup>®</sup> (DVI<br>w™ Ler<br>vieFact | 0 preload<br>to activa<br>D±RW)<br>novo Edi<br>tory <sup>®</sup> Ler | ate<br>tion           |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™ | 7 row, 89-key,<br>TrackPoint poi<br>UltraNav™, wi<br>Illuminates the  | nting device,<br>de touchpad  | "Press-<br>below k   | to-Select," In<br>eyboard, Tap  | nternet Scrol<br>Zones, scr                                   | II Bar <sup>13</sup> , magnit<br>olling regions I                          | fying gla<br>abel, m | iss<br>ulti-touc      | h                         | Lan   | 011 (1   |   | ,   |  |                       |
| Dimensions <sup>3</sup>  |   | ,   |  | ,   | <u> </u>  | 0mm x 30.1–3   | 0.5mm                |                       |                           |   |  |   |   |  |                       |
| Weight <sup>2</sup><br>Case material                           | 4-cell: from 4.<br>Display cover:<br>Bottom:  | Carbon-fib  | er / Glas  |   | d;  | ); 9-cell: fror  | n 5.22 ll            | b (2.37k              | (g)                       |   |  |   |   |  |                       |
| Battery - type<br>Battery - life <sup>10</sup>                 | Lithium Ion 4-0<br>6-cell (57Whr)   | cell, 6-cell, o   | r 9-cell,  | supports opt  | ional Slice b   |  |                      | up to 2               | 9.5 hr                    |   |  |   |   |  |                       |
| Chipset  | Mobile Intel O  |   |  |   |   |  |                      |                       |                           |   |  |   |   |  |                       |
| ExpressCard<br>Smart Card read                                 | One slot (Exp<br>None   | ressCard/34)  |  |   |   |  |                      |                       |                           |   |  |   |   |  |                       |
| Multicard reader   | 4-in-1 reader (   |   |  |   |   |  |                      |                       |                           |   |  |   |   |  |                       |
| Ports  | Three USB 2.0<br>external monit   | 0 (one power<br>tor (VGA DB-  | ed), one<br>15. Dist   | e USB 2.0/es<br>plavPort), eth  | SATA combo<br>hernet (RJ-4                                    | port,<br>5)  |                      |                       |                           |   |  |   |   |  |                       |
| PCIe Mini Card<br>PCIe WLAN <sup>4</sup>                       | Two PCI Expression<br>Some: 11a/b/  | ess Mini Car<br>/g/n <sup>28</sup> , PCIe ł   | d slots<br>Half Min  | i Card, Intel   | Centrino <sup>®</sup> Ac                                      | dvanced-N 620  | )5, 2x2              |                       |                           |   |  |   |   |  |                       |
| PCIe WWAN  | Some: 11a/b/<br>Some: Wirele<br>Some: Wirele  | ess WAN upg<br>ess WAN, Eri   | radable<br>csson F   | 5521gw Mol  |   |  |                      | Card,                 |                           |   |  |   |   |  |                       |
| Carrier<br>Modem<br>IEEE 1394                                  | GPRS<br>Some: Users<br>None<br>Some: IEEE   |   | ontract r  | equired with  |   |  |                      |                       |                           |   |  |   |   |  |                       |
| Bluetooth™   | Bluetooth 3.0   |   |  |   | 1004a-2   |  |                      |                       |                           |   |  |   |   |  |                       |
| Ethernet   | Intel 82579LM   | I Gigabit Net   | work Co  | nnection (Le  | wisville), PH   | IY, PCle x1  |                      |                       | :                         | Suppo   | rts T  | hinkV   | antage  | technol  | ogies                 |
| Intel AMT<br>Audio support                                     | Intel Active Ma<br>High Definition  |   |  |   | dec / stereo  | speakers 1 w   | vatt x 2             | 1                     |                           |   |  |   |   | AC Ada   |                       |
|  | volume up, do   | wn, mute but  | ttons / d  | ual array mic   | c, mic mute b   | putton, combo  | audio/m              |                       | -                         | <i>Optim</i><br>ThinkF  | <i>us</i> ™ i<br>Pad F                                     | <i>mode</i><br>Roll Ca                                  | <i>I:</i> 90W<br>age (or                            | / AC Ada<br>ne-piece   | lpter                 |
| Security<br>Security chip                                      | Power-on pase<br>Trusted Platfor  |   |  |   | rvisor passw  | ord, security k  | eyhole               |                       |                           | mag   | nesiu  | um fra  | me)   | 1  |                       |
| Fingerprint reade  | r Some: UPEK  | Fingerprint   | reader c   | on paİm rest,   | swipe sense   | or, LED indicat  | tor,                 |                       |                           | EPEĂ<br>ENER  | r™G<br>GYS   | iold ra   | iting<br>5.0-co                                     | ompliant   |                       |
| Limited Warranty <sup>1</sup>                                  | Power<br><sup>2</sup> 3-years/1-yea<br>public and nat   | r On Authent<br>Ir battery, <b>lim</b><br>ional holiday                                       | ication, :<br>i <b>ted on</b> :<br>s. Calls                          | supports the<br>site service<br>received afte   | security chi<br><sup>24</sup> , 8 am - 5 p<br>er 3 pm will r  | p<br>om, Mon - Fri c   | overage              | e exclud<br>ext busir | ling                      | ROHS<br>Interna<br>24 hou   | -com<br>ationa<br>ur x 7                                   | npliant<br>al War<br>' day <sup>18</sup>                | rranty S<br>toll-fre                                | Service <sup>17</sup><br>ee suppo                                    | ,                     |
|  | day for service   | e dispatch / s  | ervice u   | pgrades <sup>22</sup> av  | vailable  |  |                      |                       |                           | durir   | ng the   | e warı  | ranty p   | eriod <sup>12</sup>  |                       |

#### ThinkPad® T420i 4178 (TopSeller) - withdrawn

| Type-model | Processor | Memory | Wide-<br>screen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN | PCIe Mini<br>Card WWAN/<br>mSATA | Carrier | Modem |        | Blue-<br>tooth |   | Intel | Preload ( | Ann<br>Date<br>mm/yy) |
|------------|-----------|--------|----------------------------|--------|-------------------------------------|---------------------------|----------------------------------|---------|-------|--------|----------------|---|-------|-----------|-----------------------|
| 4178-D6G   | i3-2350M  | 4GBx1  | 14.0" HD                   | 720p   | 500G 7200                           | Intel 1000                | WWAN upg                         | None    | None  | Finger | BT             | 6 | No    | Pro 64    | 12/11                 |

Small and medium business (SMB) model(s), part of the WE TopSeller™ Program
 Microsoft® Office 2010 Product Key Ready (O10PKR)

| Positioning<br>Processor  | Premiere performance; two spindles<br>Intel <sup>®</sup> Core™ i3-2350M processor (dual-core, 2.30GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), HT technology   | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64  |
|---|---|--|
| Memory  | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets   | Ready to install applications <sup>14</sup> (only some listed)<br>● Rescue and Recovery <sup>™</sup>   |
| Optical<br>Ultrabay<br>Disk   | DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 9.5mm high, Active Protection System <sup>™</sup><br>All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive | <ul> <li>Access Connections™</li> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint models)</li> </ul>  |
| mSATA™ SSD  | None  | ThinkVantage <sup>®</sup> System Update  |
| Display   | <ul> <li>Some: 14.0" (355mm) HD (1366x768) color, anti-glare, LED backlight, 200 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>Some: 14.0" (355mm) HD+ (1600x900) color, anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 300:1 contrast ratio</li> <li>HD720p resolution, wider view angle, low light sensitive, fixed focus</li> </ul>  | <ul> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> <li>Lenovo<sup>®</sup> SimpleTap</li> <li>Preloaded applications<sup>14</sup> (only some</li> </ul>   |
| Graphics  | Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort™ (supports single-link DVI-D via cable 45J7915);<br>supports dual independent display;<br>Max external resolution: 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915)                       | listed)<br>● Norton <sup>™</sup> Internet Security 2011<br>(30 days of virus definitions)<br>● Adobe <sup>®</sup> Reader <sup>®</sup><br>● Skype <sup>™</sup> for Windows<br>● Windows Live <sup>™</sup> Essentials          |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™            | 7 row, 89-key, ThinkVantage <sup>®</sup> button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions                                   | <ul> <li>Microsoft<sup>®</sup> Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD±RW)</li> </ul> |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material           | 14.0W" (WxDxH): 13.4" x 9.17" x 1.18–1.20"; 340.5 x 233.0mm x 30.1–30.5mm<br>4-cell: from 4.65 lb (2.11kg); 6-cell: from 4.84 lb (2.20kg); 9-cell: from 5.22 lb (2.37kg)<br>Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Carbon-Fiber Reinforced Plastic  | Corel DVD MovieFactory <sup>®</sup> Lenovo<br>Edition (DVD±RW)   |
| Battery - type<br>Battery - life <sup>10</sup>                            | Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional Slice battery as 2nd battery<br>6-cell (57Whr): up to 9.0 hr; 9-cell (94Whr): up to 15.0 hr; 9-cell plus Slice battery: up to 30 hr  |  |
| Chipset   | Mobile Intel QM67 Express Chipset   |  |
| ExpressCard<br>Smart Card read<br>Multicard reader<br>Ports               | One slot (ExpressCard/34)<br>None<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)   |  |
| PCIe Mini Card<br>PCIe WLAN <sup>4</sup><br>PCIe WWAN<br>Carrier<br>Modem | Two PCI Express <sup>®</sup> Mini Card slots<br>11b/g/n wireless, PCIe Half Mini Card, Intel Centrino <sup>®</sup> Wireless-N 1000, 1x2<br>Wireless WAN upgradable<br>None<br>None  |  |
| IEEE 1394   | None  | Supports ThinkVantage technologies   |
| Bluetooth™<br>Ethernet  | Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1  | Integrated model: 65W AC Adapter   |
| Intel AMT<br>Audio support  | None<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack   | Optimus <sup>™</sup> model: 90W AC Adapter<br>ThinkPad Roll Cage (one-piece<br>magnesium frame)  |
|   |   | EPEAT <sup>™</sup> Gold rating   |
| Security<br>Security chip<br>Fingerprint reader                           | Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant<br>UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip   | ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support  |

See footnotes for more detailed information

WE model(s) announced December 20, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad.



Lenovo® ThinkPad T420s



Lenovo ThinkPad T420s



Lenovo ThinkPad T420s



Lenovo ThinkPad T420s



ThinkPad triple external monitor configuration using NVIDIA's Optimus technology



Lenovo ThinkPad T420s

### ThinkPad<sup>®</sup> T420s 4170 (TopSeller) - withdrawn

Personal Systems Reference (PSREF)

| Type-model Pro  | cessor   | Memory   | Wide-<br>screen<br>display                               | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm                             | Optical<br>or<br>battery                                | PCle<br>Mini Card<br>WLAN                                      | PCle<br>Mini Card<br>WWAN/mSATA | Finger<br>print<br>reader  | Blue-<br>tooth   | Intel<br>AMT  | Intel<br>vPro                                    | Preload                                  |
|---|--|--|--|--|---|---|--|---------------------------------|--|--|---|--|--|
|   | 2540M<br>2520M   | 4GBx1<br>2GBx1   | 14.0" HD+<br>14.0" HD+                                   |  | 128G SSD<br>128G SSD  | DVD±RW<br>DVD±RW  | Intel 6205 <sup>28</sup><br>Intel 6205                         | WWAN upg<br>WWAN upg            | Finger<br>Finger   | Blue<br>Blue   | iAMT<br>iAMT  | vPro<br>vPro                                     | Pro 64<br>Pro 64                         |
| Positioning<br>Processor  | Intel®<br>DDR<br>Intel   | • M<br>niere perfo<br><sup>®</sup> Core™ i5<br>3 memory<br>Core i5-2 | rmance and<br>-2520M pro<br>controller (u<br>540M proce: | ultraporta<br>cessor (<br>p to 1333<br>ssor (du      | ability; two s<br>dual-core, 2<br>BMHz), Intel<br>al-core, 2.66 | Dindles<br>2.50GHz, 3ME<br>Turbo Boost 2<br>0GHz, 3MB C | <b>8 Cache)</b> ,<br>0 (3.20GHz),<br>ache),                    | HT technology                   | - Ger<br>Prot  | iuine Wi<br>fessiona   |   | 7  | n <sup>20</sup><br>s <sup>14</sup> (only |
| Memory  |  |  | controller (u<br>3-10600 133                             | •  | ,   |   | 2.0 (3.30GHz),   | HT technology                   | _ some   | listed)  | Recove  |  | o (only                                  |
| Optical<br>Bay battery<br>Ultrabay<br>SATA disk<br>mSATA™ SSD   | DVD<br>None<br>One<br><i>Som</i>   | burner, 9.8<br>modular ba<br>e: Solid S<br>e: Hard D<br>remova       | táte Drive (S<br>sk Drive / S/                           | y slim, re<br>angeable<br>SD) / SA<br>ATA 3.0G       | movable<br>e devices (riu<br>TA 3.0Gb/s,<br>b/s, 2.5" wid       | ght side), 9.5r<br>2.5" wide, 7m<br>le, 7mm high,       | nm high, bottor<br>m high<br>Active Protectio<br>ck Mounted Ha | on System™                      | <ul> <li>Acc</li> <li>Fing<br/>mod</li> <li>Pas<br/>mod</li> <li>Thir</li> <li>Thir</li> </ul> | ess Con<br>gerprint :<br>dels)<br>sword N<br>dels)<br>nkVantag<br>nkVantag | Inections<br>Software<br>lanager<br>ge Syste<br>ge Powe<br>ge Toolb | s™<br>e (finger<br>(fingerp<br>em Upda<br>r Mana | orint                                    |
| Widescreen  | 14.0'  | ' (355mm)  |  |  |   | e, LED backlig  | ght,   |                                 | Preloa   | aded ap  | ,<br>,  |  | nly some                                 |
| display<br>Camera   |  |  | spect ratio, 3<br>tion, wider vi                         |  |   | ensitive, fixed   | focus  |                                 | listed)<br>• Nor   |  | ernet Se  | ecurity 2  | 2011                                     |
| Graphics  | exter<br>digita<br>supp<br><i>Maxi</i>   | nal analog<br>Il monitor s<br>orts dual ir<br><i>mum exter</i>       | support via È<br>ndependent (<br><i>mal resolutio</i>    | port via V<br>isplayPo<br>display;<br><i>n:</i> 2560 | /GA DB-15<br>rt (supports<br>(1600 (Displ                       | ayPort)@60H   | 'I-D via optiona   | ,.                              | Àdo     Sky     Win     Mici   | be <sup>®</sup> Rea<br>pe™ for<br>dows Li<br>rosoft O<br>chase pr          | Window<br>ve™ Ess<br>ffice 201<br>oduct ke                          | s<br>entials<br>0 prelo<br>ey to ac              | aded;<br>tivate                          |
| Keyboard<br>TrackPoint®<br>Touchpad<br>ThinkLight™  | Track<br>Ultral  | Point® poir<br>Nav™, wid   | nting device,<br>e touchpad b                            | "Press-to<br>below key                               | -Select," In<br>board, Tap 2                                    |   | Bar <sup>13</sup> , magnifyin<br>ng regions labe               |                                 | <ul> <li>Cor<br/>(DV</li> <li>Cor</li> </ul>   | el Burn.l<br>D±RW)   | OVD® (D'<br>Now™ L<br>MovieFa<br>D±RW)                              | enovo E  | Edition                                  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>6-cel</i><br>Displ<br>Lithiu  | <i>I:</i> starting<br><i>lay cover:</i><br>Im lon 6-ce               | at 3.68 lb (1.<br>Hybrid Carb<br>ell, supports           | .67kg)<br>on-fiber r<br>unique 2                     | einforced pland<br>nd battery ir                                |   |  |                                 |  | - (  | ,   |  |  |
| Chipset<br>ExpressCard<br>Smart Card Read<br>Multicard Read<br>Ports  | One<br>ad None<br>er 4-in-1<br>Two I   | slot (Expre<br>)<br>1 reader (N<br>USB 2.0 (c                        | ne powered   | )HC, SD)<br>), one US                                | (C)<br>8B 3.0,  | rnet (RJ-45)  |  |                                 |  |  |   |  |  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | 11a/b<br>Wirel   | o/g/n, PCle<br>ess WAN   | ss Mini Card<br>Half Mini Ca<br>upgradable               | slots<br>ard, Intel                                  | Centrino <sup>®</sup> A   | dvanced-N 62  | 05, 2x2  |                                 |  |  |   |  |  |
| Modem<br>Bluetooth™   |  | ooth 3.0 w   | ireless, LED   |  |   |   |  |                                 | Suppo  | orts Thin  | kVantag   | e® tech  | nologies                                 |
| Ethernet<br>Intel AMT<br>Audio support<br>Security<br>Security chip<br>Fingerprint read                           | IT Intel Active Management Technology (iAMT)<br>upport High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jac<br>Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant<br>rint reader UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip |  |  |  |   |   |  |                                 |  | gnesium<br>T™ Gold<br>GY STA<br>-complia<br>ational V                      | Ċage (o<br>frame)<br>I rating<br>R® 5.0-o                           | complia<br>Servic                                | nt<br>e <sup>17</sup>                    |
| Limited warrant   |  |  | ,  |  | ,   |   |  |                                 | duri   | ng the w   | varranty  | period <sup>1</sup>                              | 2  |

See footnotes for more detailed information WE model(s) announced February 22, 2011 WE model(s) withdrawn effective December 2012

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#### ThinkPad<sup>®</sup> T420s 4173 - withdrawn

|   |  |   |   |  |                                  |            |   |   |  |                                      |                          | -                                       |
|---|--|---|---|--|----------------------------------|------------|---|---|--|--------------------------------------|--------------------------|---|
|   | Wide-<br>screen  | Disk<br>SATA  | Optical<br>or                                 | PCle<br>Mini Card                              | PCle<br>Mini Card                |            | Card  | Finger<br>print   | Blue-  | Intel                                | obal (<br>GMP            |   |
| Type-model Proces   |  | amera GB <sup>8</sup> rpm   | battery                                       | WLAN   | WWAN/mSATA                       | Carrier    | Reader  | reader  |  |                                      |                          |   |
| 4173-L8G i5-252   | 0M 4GBx1 14.0" HD+ 7<br>0M 4GBx1 14.0" HD+ 7   |   | DVD±RW<br>DVD±RW                              | Intel 6205 <sup>20</sup><br>Intel 6205         | WWAN upg<br>Ericsson             | selectable | Smart   | 0   |  |                                      |                          | Pro 64<br>Pro 64                        |
|   | 0M 2GBx2 14.0" HD+ 7   |   |   |  | WWAN upg                         | Selectable | Smart   | Finger  |  |                                      |                          | Pro 64                                  |
|   | 0M 2GBx1 14.0" HD+ 7   |   |   | Intel 6205                                     | WWAN upg                         |            |   | Finger  |  |                                      |                          | Pro 64                                  |
|   | 0M 4GBx1 14.0" HD+   | 320G 7200   |   | Intel 6205                                     | WWAN upg                         |            |   | Finger  |  |                                      |                          |   |
|   | 0M 4GBx1 14.0" HD+ 7   |   |   | Intel 6205                                     | WWAN upg                         |            |   |   |  |                                      |                          | Pro 64                                  |
|   | 0M 4GBx1 14.0" HD+ 7<br>0M 4GBx1 14.0" HD+ 7   |   |   | Intel 6205<br>Intel 6205                       | WWAN upg<br>WWAN upg             |            |   | Finger  |  |                                      |                          | Pro 64                                  |
| 4175-200 15-252   |  | 720p 100G 33D   |   | III.el 0205                                    | www.aiv.upg                      |            |   | ringei  | Diue   | VEIU                                 | a                        | F10 04                                  |
|   |  | A depot repair ser     Microsoft® Office 2  |   |  |                                  |            |   |   |  |                                      |                          |   |
| Positioning<br>Processor  | Premiere performance a<br>Intel <sup>®</sup> Core™ i5-2520M µ<br>DDR3 memory controller<br>Intel Core i5-2540M pro<br>DDR3 memory controller                           | processor (dual-c<br>r (up to 1333MHz),<br>ocessor (dual-core                       | ore, 2.50GH<br>Intel Turbo E<br>e, 2.60GHz, 3 | Boost 2.0 (3.2<br>BMB Cache),                  | 20GHz), HT teo                   | 0,         | - Ger<br>Pro<br><b>Read</b>                     | aded op<br>nuine W<br>ifessiona<br>y to ins   | indow<br>al 64                                 | s® 7                                 | _                        |   |
| Memory  | 8GB max7 / PC3-10600   | 1333MHz DDR3, n   | on-parity,                                    |  | ,                                |            |   | listed)<br>scue an  | d Reco   | overv™                               | Л                        |   |
|   | dual-channel capable, tw   | vo 204-pin SO-DIN   | M sockets                                     |  |                                  |            | <ul> <li>Acc</li> </ul>                         | ess Co  | nnectio  | ons™                                 |                          |   |
| Optical<br>Box bottom   | Some: DVD burner, 9.5r   | mm Ultrabay slim,   | removable                                     |  |                                  |            |   | gerprint<br>dels)   | Softw  | are (fir                             | ngerp                    | orint                                   |
| Bay battery<br>Ultrabay   | None<br>One modular bay for inte   | erchangeable devic  | es (riaht side                                | ). 9.5mm hig                                   | h. bottom acce                   | ess        |   | sword I   | Manag  | er (fing                             | gerpr                    | int                                     |
| SATA disk   | Some: Solid State Drive  | e (SSD) / SATA 3.0  | Gb/s, 2.5" wid                                | de, 7mm higľ                                   | 1                                |            |   | dels)   |  |                                      |                          |   |
|   | Some: Hard Disk Drive  | / SATA 3.0Gb/s, 2.<br>adable, supports th   |   |  |                                  |            | • Thi   | nkVanta<br>nkVanta  | ige Sy   | stem L<br>wer M                      | Jpdat                    | er                                      |
| mSATA™ SSD  | None None  | adable, supports ti   |   | R, OHOCK MO                                    | unted hard Di                    | ive        | • Thi   | nkVanta   | ige Too  | olbox                                | anag                     | 01                                      |
| Widescreen  | 14.0" (355mm) HD+ (16  | 00x900) color, and  | i-glare, LED                                  | backlight,                                     |                                  |            | Prelo   | aded a  | oplica   | tions <sup>1</sup>                   | ⁴ (onl                   | y some                                  |
| display   | 250 nits, 16:9 aspect rati   |   |   |  |                                  |            | listed  |   |  | 0                                    |                          |   |
| Camera<br>Graphics  | Some: HD720p resolution  |   | ie, iow light s                               | ensitive, fixed                                | a tocus                          |            |   | rton™ In<br>days of   |  |                                      |                          | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
|   | Intel HD Graphics 3000<br>external analog monitor si<br>digital monitor support vi<br>supports dual independe<br><i>Maximum external resolu</i><br>2048x1536 (VGA)@75H | support via VGA D<br>ia DisplayPort (sup<br>ent display;<br><i>ution:</i> 2560x1600 | ports single-l<br>(DisplayPort)               | ink DVI-D via<br>@60Hz;                        |                                  | e);        | Àdo     Sky     Wir     Mic     pur             | obe <sup>®</sup> Re<br>/pe™ for<br>ndows L<br>rosoft C<br>chase p<br>rel <sup>®</sup> Win | ader®<br>Winde<br>ive™ E<br>Office 2<br>roduct | ows<br>Essenti<br>2010 p<br>: key to | ials<br>reloa<br>o actir |   |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  | 7 row, 89-key, ThinkVanta<br>TrackPoint® pointing devi<br>UltraNav™, wide touchpa<br>Illuminates the keyboard  | ice, "Press-to-Sele<br>ad below keyboard  | ct," Internet S<br>, Tap Zones, s             | scroll Bar <sup>13</sup> , n<br>scrolling regi | nagnifying glas                  |            | <ul> <li>Corr<br/>(DV)</li> <li>Corr</li> </ul> | rel Burn<br>(D±RW)<br>rel DVD<br>tion (DV   | .Now™<br>Movie                                 | <sup>i</sup> Leno<br>Factor          | vo Éc                    |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | 14.0W" (WxDxH): 13.5" :<br>6-cell: starting at 3.68 lb<br>Display cover: Hybrid Ca<br>Lithium Ion 6-cell, suppo<br>6-cell (43.2Whr): up to 5.                          | ) (1.67kg)<br>arbon-fiber reinforc<br>prts unique 2nd bat                           | ed plastic;<br>tery in Ultrab                 | <i>Bottom:</i> Mag<br>ay Slim                  | gnesium alloy                    |            |   |   |  |                                      |                          |   |
| Chipset   | Mobile Intel QM67 Expr   |   |   | 7  |                                  |            | -   |   |  |                                      |                          |   |
| ExpressCard<br>Smart Card Read<br>Multicard Reader<br>Ports   | One slot (ExpressCard/3<br>Some: Smart Card read<br>4-in-1 reader (MMC, SD,<br>Two USB 2.0 (one power<br>external monitor (VGA D                                       | ler<br>, SDHC, SDXC)<br>red), one USB 3.0,  | . ethernet (R                                 | J-45)  |                                  |            |   |   |  |                                      |                          |   |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | Two PCI Express Mini Ca<br>11a/b/g/n, PCIe Half Min<br>Some: Wireless WAN u<br>Some: Wireless WAN, E   | ard slots<br>ii Card, Intel Centri<br>pgradable                                     | no® Advanced<br>Mobile Broad                  | d-N 6205, 2x                                   |                                  | ard,       |   |   |  |                                      |                          |   |
| Carrier   | Some: User selectable,   |   |   | rovider  |                                  |            |   |   |  |                                      |                          |   |
| Modem<br>Bluetooth™   | None<br>Bluetooth 3.0 wireless, L  | ED indicator  |   |  |                                  |            | Supp  | orts Thir   | hkVant   | ade® t                               | echn                     | ologies                                 |
| Ethernet  | Intel 82579LM Gigabit N  | etwork Connection   | (Lewisville).                                 | PHY, PCle x                                    | :1                               |            |   | att AC a  |  | -                                    |                          | 3.55                                    |
| Intel AMT   | Intel Active Management  | t Technology (iAM1  | -)  |  |                                  |            |   | Pad Rol   |  |                                      | piece                    | e                                       |
| Audio support   | High Definition (HD) Aud volume up, down, mute b   | uo, Conexant 2067   | z codec / ste<br>mic. mic mu                  | reo speakers                                   | s, 1 watt x 2 /<br>mbo audio/mic | iack       | ma  | gnesium   | n frame  | ∋) ́                                 |                          |   |
| Security  | Power-on password, har   | d disk password, s  | upervisor pas                                 |  |                                  | Jaon       |   | λT™ Gol<br>RGY ST/  | a ratin<br>AR® 5                               | у<br>0-сот                           | plian                    | t I                                     |
| Security chip   | Trusted Platform Module  | e, TCG 1.2-complia  | nt  |  |                                  |            | RoHS  | S-compli  | ant  |                                      |                          |   |
| Fingerprint reader  | Some: UPEK Fingerprin<br>Power On Authen   | nt reader on paim r<br>intication, supports   | the security of                               | nsor, LED In<br>chip                           | uicator,                         |            |   | ational<br>ur x 7 d   |  |                                      |                          |   |
| Limited warranty <sup>12</sup>  | 3-years/1-yr battery - de  | · · · · · ·   |   |  | ble                              |            |   | ing the   |  |                                      |                          |   |
| ··· ·· · · · · · · · · · · · · · · · ·  | ,, ,, ao   |   |   |  |                                  |            | 1   | 0.1   |  | 1.1.1.1                              |                          |   |

See footnotes for more detailed information WE model(s) announced February 22, April 19, or May 3, 2011, or January 3, 2012 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> T420s 4173 (Optimus) - withdrawn

Personal Systems Reference (PSREF)

| Type-model Pro  | cessor Memory  | Wide-<br>screen<br>display  | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm  | Optical<br>or<br>battery  | PCle<br>Mini Card<br>WLAN                                     | PCle<br>Mini Card<br>WWAN/mSATA | Card         | Finger<br>print<br>reader   |  |   | Global<br>(G)<br>GMP (F                | Pre-                |
|---|--|---|--|--|---|---|---------------------------------|--------------|---|--|---|--|---------------------|
| 173-LUG i7-2  | 2640M 4GBx1  | 14.0" HD+   | 720p   | 320G 7200  | DVD±RW  | Intel 6205 <sup>28</sup>                                      | WWAN upg                        | None         | None  | Blue   | vPro  | G                                      | Pro 64              |
|   |  |   |  | service 3-year<br>e 2010 Produ   |   |   |                                 |              |   |  |   |  |                     |
| Positioning<br>Processor  | Intel <sup>®</sup> Core™   | i7-2640M p  | rocessor   |  | 2.80GHz, 4M   |   | ), HT technolog                 | - (          | <b>eloaded</b><br>Genuine<br>Professio  | Windo  | ws®7  | /stem <sup>2</sup>                     | 20                  |
| Memory  | 8GB max <sup>7</sup> / F<br>dual-channel   |   |  | DDR3, non-p<br>SO-DIMM so  |   |   |                                 |              | ady to i<br>me listed   |  | applica                                     | ations                                 | <sup>14</sup> (only |
| Optical<br>Bay battery<br>Ultrabay<br>SATA disk<br>mSATA™ SSD   | DVD burner,<br>None<br>One modular<br><i>Some:</i> Solid<br><i>Some:</i> Hard  | 9.5mm Ultral<br>bay for inter<br>State Drive<br>Disk Drive /  | bay slim,<br>changeal<br>(SSD) / S<br>SATA 3.0                                     | removable<br>ble devices (ri<br>SATA 3.0Gb/s,<br>9Gb/s, 2.5" wie                                   | ight side), 9.5<br>, 2.5" wide, 7r<br>de, 7mm high                      | omm high, bott<br>mm high<br>I, Active Protec<br>Iock Mounted | tion System™                    | •            | Rescue :<br>Access (<br>Fingerpr<br>models)<br>Passwor<br>models)<br>ThinkVal       | and Re<br>Connec<br>int Soft<br>d Mana<br>ntage S              | tions™<br>ware (†<br>ager (fi<br>System     | fingerp<br>ngerpr<br>Updat             | rint<br>te          |
| Widescreen<br>display<br>Camera   | <b>14.0</b> " (355mr<br>250 nits, 16:9<br>HD720p reso  | aspect ratio  | , 300:1 c  | ontrast ratio  |   | -   |                                 | •<br>Pre     | ThinkVaı<br>ThinkVaı<br><b>eloaded</b>  | ntağe T  | oolbox                                      | 0                                      |                     |
| Graphics  | Intel HD Gra<br>NVIDIA NVS<br>external anal<br>digital monito<br>supports thre<br>Maximum ext  | phics 3000 i<br>M 4200M, PC<br>og monitor s<br>or support via<br>the independe<br>ternal resolution | n process<br>I Express<br>upport via<br>DisplayF<br>nt display<br><i>tion:</i> 256 | sor, and<br>s <sup>®</sup> x16, <b>1GB</b><br>a VGA DB-15<br>Port (supports<br>/s;<br>0x1600 (Disp | memory,<br>connector ar<br>s single-link D<br>layPort)@60l              | VI-D via option   | nal cable);                     | •            | ed)<br>Norton™<br>(30 days<br>Adobe® ∣<br>Skype™<br>Windows<br>Microsof<br>purchase | of viru<br>Reader<br>for Win<br>s Live™<br>t Office<br>e produ | s defin<br>dows<br>Esser<br>2010<br>ict key | itions)<br>ntials<br>preloa<br>to acti | ded;<br>vate        |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  |  | ointing devic<br>vide touchpac  | e, "Press<br>below k   | -to-Select," Ir<br>eyboard, Tap  | ternet Scroll<br>Zones, scroll  | Bar <sup>13</sup> , magnify<br>ing regions lab                | ing glass<br>bel, multi-touch   |              | Corel® W<br>Corel Bu<br>(DVD±R'<br>Corel D\<br>Edition (                            | irn.Nov<br>W)<br>/D Mov  | /™ Len<br>ieFacto                           | ovo Éc                                 | dition              |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>6-cell:</i> startin<br><i>Display cover</i><br>Lithium lon 6  | ig at 3.68 lb (<br>r: Hybrid Ca<br>-cell, support   | 1.67kg)<br>rbon-fibe<br>s unique   | r reinforced p   | lastic; <i>Botto</i><br>n Ultrabay Sl                                   |   |                                 |              |   |  | ,   |  |                     |
| Chipset<br>ExpressCard<br>Smart Card Rea<br>Multicard Reade<br>Ports  | Mobile Intel<br>One slot (Exp<br>ad None<br>er 4-in-1 reader<br>Two USB 2.0<br>external mon  | oressCard/34<br>(MMC, SD, \$<br>(one powere   | )<br>SDHC, SI<br>ed), one l  | DXC)<br>JSB 3.0,   | ernet (RJ-45)   |   |                                 |              |   |  |   |  |                     |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | 11a/b/g/n, PC<br>Wireless WAI  | Cle Half Mini   | Card, Inte   | el Centrino® A   | dvanced-N 6   | 205, 2x2  |                                 |              | pports T  |  | ntaga®                                      | tooba                                  |                     |
| Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support<br>Security<br>Security chip<br>Fingerprint read    | None<br>Bluetooth 3.0<br>Intel 82579LN<br>Intel Active N<br>High Definitic<br>volume up, d<br>Power-on pas<br>Trusted Platfo<br>der None | udio/mic jack   | 90<br>Th<br>EP<br>EN<br>Ro<br>Int  | -watt AC<br>inkPad F<br>magnesi<br>PEAT™ C<br>IERGY S<br>HS-com<br>ernation<br>hour x 7            | adapte<br>Roll Ca<br>um fran<br>Gold rat<br>STAR®<br>Ipliant<br>al Warr | er<br>ge (one<br>ne)<br>ing<br>5.0-coi<br>anty S              | e-piece<br>mplian<br>ervice     | e<br>t<br>17 |   |  |   |  |                     |
| 0 1   | y <sup>12</sup> 3-years/1-yr   | battery - dep   | ot repair :  | service / serv   | ice upgrades  | 22 available  |                                 | 24           | hour x 7<br>during th   | oay.<br>e warra  | anty pe                                     | eriod <sup>12</sup>                    | ort                 |

See footnotes for more detailed information

WE model(s) announced November 1, 2011 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> T420s 4174 (Onsite) - withdrawn

|  |                                       | Wide-<br>screen                 |          | Dis       |   | Optical<br>or     | PCle<br>Mini Card            | PCle<br>Mini Card   |                           | Smart<br>Card | Finger<br>print    | Blue-                |                     | obal (<br>GMP     | G)                                      |
|--|---------------------------------------|---------------------------------|----------|-----------|---|-------------------|------------------------------|---------------------|---------------------------|---------------|--------------------|----------------------|---------------------|-------------------|---|
| Type-model Proce                               | ssor Memory                           |                                 | Camera   |           |   | battery           | WLAN                         | WWAN/mSAT           | A Carrier                 | Reader        | reader             | tooth                | vPro                | (P)               | Preload                                 |
| 4174-L8G i5-252                                | 20M 4GBx1                             | 14.0" HD+                       | 720p     | 128G      | SSD                                     | <b>DVD</b> ±RW    | Intel 620528                 | WWAN upg            |                           |               | Finger             | Blue                 | vPro                | GΡ                | Pro 64                                  |
| 4174-P5G i5-252                                |                                       |                                 |          |           |   |                   | Intel 6205                   | Ericsson            | selectable                |               | Finger             |                      |                     |                   | Pro 64                                  |
| 4174-NGG i5-252                                | 20M 2GBx2                             | 14.0" HD+                       | 720p     | 250G      | 5400                                    | <b>DVD</b> ±RW    | Intel 6205                   | Ericsson            | selectable                | Smart         | Finger             | Blue                 | vPro                |                   | Pro 64                                  |
| 4174-NFG i5-252                                |                                       |                                 |          |           |   |                   | Intel 6205                   | WWAN upg            |                           | Smart         | Finger             | Blue                 | vPro                |                   | Pro 64                                  |
| 4174-NEG i5-254                                |                                       |                                 | 720p     |           |   |                   | Intel 630028                 |                     | selectable                | Smart         |                    |                      |                     |                   | Pro 64                                  |
| 4174-29G i5-252                                |                                       |                                 |          |           |   | DVD±RW            | Intel 6205                   | WWAN upg            |                           |               | Finger             |                      |                     |                   | Pro 64                                  |
| 4174-2AG i5-252                                |                                       |                                 |          |           |   |                   | Intel 6205                   | WWAN upg            |                           |               |                    |                      |                     |                   | Pro 64                                  |
| 4174-2BG i5-252                                |                                       |                                 |          |           |   |                   | Intel 6205                   | WWAN upg            |                           |               | <b>-</b> :         |                      |                     |                   | Pro 64                                  |
| 4174-LVG i5-252                                | 20M 4GBX1                             | 14.0" HD+                       | 720p     | 160G      | 55D                                     | DVD±RW            | Intel 6205                   | WWAN upg            |                           |               | Finger             | Blue                 | vPro                | GΡ                | Pro 64                                  |
|  |                                       | ome models a<br>icrosoft® Offic |          |           |   |                   |                              | n limited onsite    | service <sup>24</sup> 3-y | /ear limit    | ed warra           | anty                 |                     |                   |   |
| Positioning                                    | Premiere pe                           |                                 |          |           |   |                   |                              |                     |                           | Prelo         | aded o             | perati               | ng sys              | stem <sup>2</sup> | 20                                      |
| Processor                                      |                                       |                                 |          |           |   |                   | Iz, 3MB Cacl                 |                     |                           | - Ge          | nuine W            | İindow               |                     |                   |   |
|  |                                       |                                 |          |           |   |                   |                              | 20GHz), HT te       | echnology                 | Pro           | fession            | al 64                |                     |                   |   |
|  | DDB3 mem                              | ory controlle                   | ocesso   | or (aua   | MHZ)                                    | Intel Turbo       | 3MB Cache)<br>Boost 2.0 (3.1 | ',<br>30GHz), HT t€ | chnology                  | Read          | y to ins           | stall a              | pplicat             | tions             | <sup>14</sup> (only                     |
| Mamanu   |                                       |                                 |          |           | _                                       |                   | D0031 2.0 (0.                | 500112), 111 te     | chilology                 |               | listed)            |                      |                     |                   |   |
| Memory   | 8GB max <sup>7</sup> /<br>dual-channe |                                 |          |           |   |                   |                              |                     |                           |               | scue an            |                      |                     | М                 |   |
| Optical  |                                       | · · ·                           |          |           |   |                   |                              |                     |                           |               | ess Co<br>gerprin  |                      |                     | naerr             | nrint                                   |
| Bay battery                                    | DVD burner,<br>None                   | , ə.əmm ulti                    | avay Sl  | iiii, rei | novad                                   | IC                |                              |                     |                           |               | dels)              | COILW                | aie (11             | ngerþ             |   |
| Ultrabay                                       |                                       | r bav for inte                  | erchand  | peable    | device                                  | es (riaht sid     | e). 9.5mm hid                | gh, bottom acc      | ess                       |               | sword              | Manag                | ger (fin            | gerpr             | int                                     |
| SATA disk                                      | Some: Solid                           | d State Drive                   | e (SSD   | ) / SAT   | A 3.00                                  | ab/s, 2.5" w      | ide, 7mm hig                 | h                   |                           |               | dels)              |                      |                     |                   |   |
|  |                                       |                                 |          |           |   |                   |                              | Protection Sy       |                           |               | nkVanta            |                      |                     |                   |   |
|  |                                       | ovable, upgr                    | adable   | , supp    | orts th                                 | e second di       | sk, Shock Mo                 | ounted Hard D       | rive                      |               | nkVanta            |                      |                     | anag              | er                                      |
| mSATA™ SSD                                     | None                                  |                                 |          |           |   |                   |                              |                     |                           | -             | nkVanta            | 0                    |                     |                   |   |
| Widescreen                                     | 14.0" (355m                           |                                 |          |           |   |                   | backlight,                   |                     |                           |               |                    | pplica               | tions               | ⁴ (onl            | y some                                  |
| display<br>Camera                              | 250 nits, 16:                         | 9 aspect rai                    | ion wic  | I CON     | rast ra                                 | atio<br>low light | sensitive, fixe              | d focus             |                           |               | )<br>'ton™ Ir      | ntornot              | t Secu              | rity 20           | 111                                     |
|  |                                       | -                               |          |           |   | e, iow light      | sensitive, ince              |                     |                           |               | days o             |                      |                     |                   | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
| Graphics                                       | Intel HD Gra<br>external ana          |                                 |          |           |   | 3-15 conner       | stor and                     |                     |                           |               | be® Re             |                      |                     |                   |   |
|  |                                       |                                 |          |           |   |                   |                              | a optional cab      | le):                      |               | vpe™ fo            |                      |                     |                   |   |
|  | supports du                           |                                 |          |           | (00.p)                                  | serie eingle      |                              | a optional out      | ,,                        |               | ndows L            |                      |                     |                   |   |
|  | Maximum ex                            | xternaİ resol                   | lution:  | 2560x     | 1600 (                                  | DisplayPort       | )@60Hz;                      |                     |                           |               | rosoft (           |                      |                     |                   |   |
|  | 2048x1536                             | (VGA)@75⊦                       | lz; 1920 | 0x1200    | 0@60                                    | Iz (single-li     | nk DVI-D via                 | optional cable      | )                         |               | chase p<br>el® Wir |                      |                     |                   |   |
| Keyboard                                       |                                       |                                 |          |           |   |                   | imedia Fn ke                 |                     |                           |               | el Burr            |                      |                     |                   |   |
| TrackPoint®                                    |                                       |                                 |          |           |   |                   |                              | nagnifying gla      |                           |               | D±RW               |                      |                     |                   |   |
| Touchpad                                       | UltraNav™, v                          | wide touchp                     | ad belo  | w key     | board,                                  | lap Zones,        | scrolling reg                | ions label, mu      | lti-touch                 |               | el DVD             |                      |                     | ry® Le            | enovo                                   |
| ThinkLight™                                    | Illuminates t                         |                                 |          |           |   |                   |                              |                     |                           | _ Edi         | tion (D\           | /D±RV                | V)                  |                   |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup> | 14.0W" (Wx<br>6-cell: starti          | <i>DxH):</i> 13.5               | x 9.1" x | x 0.83-   | -1.02"                                  | ; 343 x 230.      | 1mm x 21.2-                  | -26.0mm             |                           |               |                    |                      |                     |                   |   |
| Case material                                  |                                       |                                 |          |           | inforc                                  | ed plastic:       | Bottom: Ma                   | gnesium alloy       |                           |               |                    |                      |                     |                   |   |
| Battery - type                                 | Lithium Ion 6                         |                                 |          |           |   |                   |                              | igneoium alloy      |                           |               |                    |                      |                     |                   |   |
| Battery - life <sup>10</sup>                   | 6-cell (43.2V                         | Nhr): up to 5                   | 5.5 hr;  | 6-cel     | l plus                                  | Ultrabay ba       | ttery: up to 9.              | 3 hr                |                           |               |                    |                      |                     |                   |   |
| Chipset  | Mobile Intel                          | I QM67 Exp                      | ress C   | hipset    | t                                       |                   |                              |                     |                           | 1             |                    |                      |                     |                   |   |
| ExpressCard                                    | One slot (Ex                          | (pressCard)                     | 34)      |           |   |                   |                              |                     |                           |               |                    |                      |                     |                   |   |
| Smart Card Read                                |                                       |                                 |          |           |   |                   |                              |                     |                           |               |                    |                      |                     |                   |   |
| Multicard Reader                               |                                       |                                 |          |           |   |                   |                              |                     |                           |               |                    |                      |                     |                   |   |
| Ports  | Two USB 2.0<br>external more          |                                 |          |           |   | othernot (F       | 8  -45)                      |                     |                           |               |                    |                      |                     |                   |   |
| PCIe Mini Card                                 | Two PCI Exp                           | (                               | ,        |           | ,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |                   | io +0)                       |                     |                           | -             |                    |                      |                     |                   |   |
| WLAN <sup>4</sup>                              |                                       |                                 |          |           | rd Inte                                 | Centrino®         | Advanced-N                   | 6205 2v2            |                           |               |                    |                      |                     |                   |   |
| **   |                                       |                                 |          |           |   |                   | Jltimate-N 63                |                     |                           |               |                    |                      |                     |                   |   |
| WWAN   | Some: Wire                            | eless WAN I                     | upgrada  | able      |   |                   |                              |                     |                           |               |                    |                      |                     |                   |   |
|  | Some: Wire                            | eless WAN,                      | Ericsso  | n® F5     | 521gw                                   | Mobile Bro        | adband Modu                  | ule, PCIe Mini      | Card,                     |               |                    |                      |                     |                   |   |
| Corrige  |                                       | RS/WCDMA                        |          |           |   |                   | n rou dele c                 |                     |                           |               |                    |                      |                     |                   |   |
| Carrier<br>Modem                               | Some: Use<br>None                     | er selectable                   | , contra | act req   | uired                                   | vith service      | proviaer                     |                     |                           |               |                    |                      |                     |                   |   |
| Bluetooth™                                     | Bluetooth 3.                          | () wireless I                   | FD inc   | licator   |   |                   |                              |                     |                           |               |                    |                      |                     |                   |   |
| Ethernet                                       |                                       |                                 |          |           |   | (Lewisville)      | , PHY, PCIe :                | x1                  |                           |               |                    |                      | 1 « ·               |                   | .1                                      |
| Intel AMT                                      | Intel Active I                        | Managemer                       | nt Techr | nology    | (iAMT                                   | )`´´              |                              |                     |                           | Supp          | orts Thi           | nkvan                | tage <sup>™</sup> I | iechn             | ologies                                 |
| Audio support                                  | High Definiti                         | ion (HĎ) Au                     | dio, Coi | nexant    | 20672                                   | 2 codec / ste     | ereo speaker                 | s, 1 watt x 2 /     |                           |               | att AC a           |                      |                     |                   |   |
| Coourity                                       |                                       |                                 |          |           |   |                   |                              | mbo audio/mi        | c jack                    | Think         | Pad Ro             | II Ċag               | e (one-             | -piece            | Э                                       |
| Security<br>Security chip                      | Power-on pa<br>Trusted Plat           |                                 |          |           |   |                   | issword, seci                | urity keyhole       |                           | ma            | gnesiur            | n fram               | e)                  |                   |   |
| Fingerprint reader                             |                                       |                                 |          |           |   |                   | ensor I FD in                | dicator             |                           |               | T™ Gol<br>RGY ST   | a ratin              | ig<br>0.00m         | nlian             | +                                       |
| i ingerprint reader                            |                                       | er On Authe                     |          |           |   |                   |                              |                     |                           |               | Gr Si<br>Grompl    |                      | .u-com              | iplian            | ι                                       |
| Limited warranty <sup>12</sup>                 |                                       |                                 |          | · ·       |   | ,                 |                              | - Fri coverage      | excluding                 |               | ational            |                      | nty Se              | rvice             | 17                                      |
| inco Mananty                                   | public and n                          | ational holic                   | lays. Ca | alls red  | ceived                                  | after 3 pm v      | will require ar              | addtional nex       | t business                | 24 ho         | ur x 7 c           | lay <sup>18</sup> to | oll-free            | supp              | ort                                     |
|  | day for servi                         |                                 |          |           |   |                   | 1-1-1-0                      |                     |                           |               | ing the            |                      |                     |                   |   |
| See footnotes for m                            |                                       | · ·                             |          | . 0       |   |                   |                              |                     |                           | 1             |                    |                      |                     |                   | Lenovo                                  |

See footnotes for more detailed information

WE model(s) announced February 22, March 1, or May 3, 2011, or January 3, 2012 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> T420s 4174 (Optimus) - Onsite - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proc  | cessor Memor   | Wide-<br>screen<br>y display   | Camera   | Dis<br>SA1<br>GB <sup>®</sup> ۱   | A  | Optical<br>or<br>battery   | PCle<br>Mini Card<br>WLAN                                      | PCIe<br>Mini Card<br>WWAN/mSATA   | Carrier   | Finger<br>print<br>reader  | Blue-<br>tooth  | Intel  | obal<br>GMF<br>(P)             |                     |  |
|--|--|--|--|---|--|--|--|-----------------------------------|---|--|---|--|--------------------------------|---------------------|--|
| 4174-PEG i7-20<br>4174-PPG i7-20   | 640M 4GBx <sup>-</sup>   | I 14.0" HD+  | 720p<br>720p   | 160G<br>320G  |  | DVD±RW<br>DVD±RW   | Intel 6300 <sup>28</sup><br>Intel 6205 <sup>28</sup>           | Ericsson                          | selectable  | Finger   | Blue  | vPro   |                                | Pro 64<br>Pro 64    |  |
| Positioning  | Premiere po  | Micros   | oft <sup>®</sup> Office  | e 2010 P  | two si   | r limited warı<br>Key Ready (<br>pindles                                     | '010PKR)   |                                   | Prei  | oaded c  | operati   | na svs   | stem                           | 20                  |  |
| Processor  | DDR3 mem   | · ·  | (up to 13  | 33MHz)  | , Intel  | Turbo Boost  |  | z), HT technolo                   | ogy - G<br>Pi   | enuine V<br>rofession  | Vindow<br>Ial 64  | s® 7   |                                |                     |  |
| Memory   |  | PC3-10600 13<br>el capable, two  |  |   |  |  |  |                                   | som   | dy to inside listed)   |   | -  |                                | <sup>14</sup> (only |  |
| Optical<br>Bay battery<br>Ultrabay<br>SATA disk  | None<br>One modula<br><i>Some:</i> Soli<br><i>Some:</i> Har  | , 9.5mm Ultrat<br>ar bay for inter<br>d State Drive (<br>d Disk Drive /<br>ovable, upgrad  | changeal<br>SSD) / S<br>SATA 3.0   | ole devid<br>ATA 3.0<br>Gb/s, 2.  | ces (rių<br>Gb/s,<br>5" wid  | 2.5" wide, 7<br>le, 7mm high   | mm high<br>1, Active Prote                                     | ection System™                    | • A<br>• Fi<br>m<br>• Pa  | escue ar<br>ccess Co<br>ngerprin<br>odels)<br>assword<br>odels)                | onnection<br>t Softw  | ons™<br>are (fir                                       | ngerp                          |                     |  |
| mSATA™ SSD   | None   | ovabio, apgra  |  |   | 10 000   |  |  |                                   | • TI  | ninkVant   |   |  |                                |                     |  |
| Widescreen<br>display<br>Camera  | 250 nits, 16   | nm) <b>HD+ (160</b><br>:9 aspect ratio<br>solution, wider  | , 300:1 c  | ontrást r   | atio   | ,  | 0  |                                   | • TI  | ninkVanta<br>ninkVanta<br>I <b>oaded a</b>                                     | age Too   | olbox  | 0                              |                     |  |
| Graphics   | NVIDIA® Op<br>Intel HD Gr<br>NVIDIA NV3<br>external and<br>digital moni<br>supports the<br>Maximum e   | otimus™ techn<br>aphics 3000 i<br>3™ 4200M, PC<br>alog monitor sup<br>tor support via<br>ree independe<br><i>xternal resolut</i><br>(VGA)@75Hz                     | ology, au<br>n process<br>Di Expres<br>DisplayF<br>nt display<br>ion: 256                                      | to-switch<br>sor, and<br>s <sup>®</sup> x16,<br>a VGA D<br>Port (sup<br>/s;<br>0x1600                     | n betw<br>1GB n<br>B-15 o<br>ports<br>(Displa                        | een discrete<br>nemory,<br>connector ar<br>single-link E<br>ayPort)@60       | and integrate<br>nd<br>WI-D via optic<br>Hz;                   | onal cable);                      | liste<br>• N<br>(3<br>• A<br>• S<br>• S<br>• W<br>• M<br>• M  |  | nternet<br>f virus<br>eader®<br>r Winde<br>_ive™ E<br>Office 2<br>product | Secur<br>definiti<br>ows<br>ssenti<br>010 pi<br>key to | ity 20<br>ons)<br>als<br>reloa | )11<br>ded;         |  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™   | TrackPoint®<br>UltraNav™,  | ey, ThinkVanta<br>pointing device<br>wide touchpac<br>the keyboard t   | e, "Press<br>I below k   | -to-Sele<br>eyboard   | ct," Int<br>, Tap 2  | ernet Scroll<br>Zones, scrol   | Bar <sup>13</sup> , magnif<br>ling regions la                  | ying glass<br>abel, multi-touc    | h - C   | orel Burr<br>)VD±RW<br>orel DVD  | n.Now™<br>)<br>) Movie  | <sup>i</sup> Leno <sup>.</sup><br>Factor               | vo Éc                          |                     |  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup>          | <i>6-cell:</i> start<br><i>Display cov</i><br>Lithium lon  | <i>(DxH):</i> 13.5" x<br>ing at 3.68 lb (<br><i>er:</i> Hybrid Ca<br>6-cell, support<br><i>Whr):</i> up to 6.1   | 1.67kg)<br>bon-fibe<br>s unique  | r reinforo<br>2nd bat   | ced pla<br>tery ir   | astic; <i>Botte</i><br>i Ultrabay Sl   | o <i>m:</i> Magnesiu<br>im                                     |                                   |   | Edition (DVD±RW)   |   |  |                                |                     |  |
| Chipset<br>ExpressCard<br>Smart Card Read<br>Multicard Reader<br>Ports   | One slot (E:<br>d None<br>r 4-in-1 reade<br>Two USB 2.   | I QM67 Expre<br>kpressCard/34<br>er (MMC, SD, 5<br>0 (one powere<br>nitor (VGA DE  | )<br>SDHC, SI<br>d), one l   | DXC)<br>JSB 3.0,  | , ethe   | rnet (RJ-45)   |  |                                   |   |  |   |  |                                |                     |  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN  | Some: 11a<br>Some: 11a<br>Some: Wird<br>Some: Wird   | press Mini Cal<br>/b/g/n, PCIe H<br>/b/g/n, PCIe H<br>eless WAN up<br>eless WAN, Er<br>3S/WCDMA/H  | alf Mini C<br>alf Mini C<br>gradable<br>icsson® F  | ard, Inte<br>5521gw   | el Cen<br>Mobi   | trino Ultimat  | e-N 6300, 3x3  | 3                                 |   |  |   |  |                                |                     |  |
| Carrier<br>Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support<br>Security<br>Security chip<br>Fingerprint reade | Some: Use<br>None<br>Bluetooth 3<br>Intel 825791<br>Intel Active<br>High Definit<br>volume up,<br>Power-on p<br>Trusted Plat<br>er Some: UPE | RS/WCDMA/H<br>r selectable, c<br>M Gigabit Ne<br>Management<br>ion (HD) Audio<br>down, mute bu<br>assword, hard<br>form Module,<br>EK Fingerprint<br>ver On Authen | ontract re<br>D indicat<br>twork Co<br>Fechnolog<br>, Conexa<br>ttons / di<br>disk pas<br>TCG 1.2-<br>reader o | equired v<br>nnectior<br>gy (iAM <sup>-</sup><br>ant 2067<br>ual array<br>sword, s<br>complia<br>n palm r | with se<br>(Lew<br>F)<br>2 cod<br>2 mic,<br>superv<br>nt<br>rest, so | isville), PHY<br>ec / stereo s<br>mic mute bu<br>isor passwo<br>wipe sensor, | , PCle x1<br>peakers, 1 wa<br>tton, combo a<br>rd, security ke | audio/mic jack<br>eyhole          | 90-v<br>Thin<br>m<br>EPE<br>ENE   | ports Thi<br>vatt AC a<br>kPad Rci<br>agnesiur<br>AT™ Go<br>ERGY S1<br>IS-comp | dapter<br>oll Cage<br>n frame<br>Id ratin<br>TAR® 5.                      | e (one-<br>e)<br>g                                     | piece                          |                     |  |
| Limited warranty   | public and r   | ear battery, <b>lin</b><br>ational holida<br>ice dispatch /  | /s. Calls  | received  | l after  | 3 pm will red  | n, Mon - Fri co<br>quire an addti                              | overage exclud<br>onal next busir | RoHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup> |  |   |  |                                |                     |  |

See footnotes for more detailed information WE model(s) announced August 2 or November 1, 2011

WE model(s) withdrawn effective December 2012

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# ThinkPad<sub>®</sub>



Lenovo® ThinkPad T520

Lenovo ThinkPad T520



Lenovo ThinkPad T520



ThinkPad triple external monitor configuration using NVIDIA's Optimus technology



Lenovo ThinkPad T520

## ThinkPad® T520 4240 (TopSeller) - withdrawn

| Type-model P   | rocessor  | Memory   | Wide-<br>screen<br>display  | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm  | PCle<br>Mini Card<br>WLAN                                       | PCIe<br>Mini Card<br>WWAN/mSATA   | Modem        | Finger<br>print<br>reader          | Blue-<br>tooth  | Bat-<br>tery<br>cells   | Intel<br>AMT                                    | Intel<br>vPro                         | Preload  |
|--|---|--|---|--|--|---|---|--------------|------------------------------------|---|---|---|---------------------------------------|--|
| 4240-5CG i5  | -2430M<br>-2450M  | 4GBx1<br>4GBx1   | 15.6" HD<br>15.6" HD  | 720p<br>720p   | 500G 7200<br>500G 7200   | Intel 1000<br>Intel 1000  | WWAN upg<br>WWAN upg  | None<br>None | Finger<br>Finger                   | Blue<br>Blue  | 6<br>6  | None<br>None                                    | No<br>No                              | Pro 64<br>Pro 64                                       |
| Positioning<br>Processor   | Intel®<br>DDR3<br>Intel (   | A depo<br>Micros<br>fere perform<br>Core™ i5<br>memory o<br>Core i5-24 | ot repair ser<br>soft <sup>®</sup> Office 2<br>mance; two<br>-2430M pro-<br>controller (u<br>50M proces | spindles<br>cessor (d<br>sor (dua  | ur limited warra<br>uct Key Ready<br>ual-core, 2.40<br>MHz), Intel Turl<br>I-core, 2.50GH      | anty<br>(O10PKR)<br>OGHz, 3MB C<br>bo Boost 2.0<br>Hz, 3MB Cacl | (3.0GHz), HT te   | echnology    | Pre<br>- (<br>F<br>v Re            | eloaded<br>Genuine<br>Professi<br>ady to i<br>ne lister                             | Wind<br>onal 6<br>i <b>nstal</b>                                      | ows® 7<br>4                                     |                                       | <b>1</b> <sup>20</sup><br><b>s</b> <sup>14</sup> (only |
| Memory   |   |  |   |  | R3, non-parity<br>D-DIMM socket  |   |   |              | • F                                | Rescue  | and R   |   |                                       |  |
| Optical<br>Ultrabay<br>SATA disk<br>mSATA™ SSD   | One b<br><i>Some</i>  | ay for rem<br>Solid Star<br>HDD / S                                    | ovable devid<br>ate Drive (S<br>ATA 3.0Gb/s   | ces, Ultrat<br>SD) / SAT<br>s, 2.5" wid                                  | A 3.0Gb/s, 2.5<br>e, 7mm or 9.5  | atible, 12.7m<br>" wide, 7mm  <br>mm high, Act                  | m high, bottom<br>high<br>ive Protection S<br>Mounted Hard                                | /stem™       | • F<br>r<br>• F<br>r<br>• T<br>• T | Fingerpr<br>nodels)<br>Passwor<br>nodels)<br>ThinkVa<br>ThinkVa                     | rint Sc<br>rd Mar<br>ntage<br>ntage                                   | ftware<br>nager (f<br>Systen<br>Power           | (finger<br>fingerp<br>n Upda<br>Manag | orint<br>ate   |
| Widescreen<br>display<br>Camera  | 220 n   | its, 16:9 ás   | spect ratio, 5  | 500:1 cont   | , anti-glare, LE<br>rast ratio, 60%<br>low light sensi   | Gamut   | us  |              | • L                                | hinkVa<br>enovo<br><b>loaded</b>  | Simple  | eTap  |                                       | nly some   |
| Graphics   | exterr<br>digital<br>suppo<br><i>Maxin</i>  | al analog<br>monitor s<br>orts dual in<br>num exteri                   | upport via D<br>dependent o<br>nal resolutio  | port via V<br>pisplayPort<br>display;<br><i>n:</i> 2560x1                | GA DB-15 con<br>(supports sin<br>600 (DisplayP   | gle-link DVI-E<br>Port)@60Hz;                                   | ) via optional ca<br>/ia optional cabl  | ,.           | (<br>• 4<br>• 9<br>• V             | ed)<br>Jorton™<br>30 days<br>Adobe®<br>Skype™<br>Vindows<br>Aicrosof                | of vir<br>Reade<br>for W<br>s Live                                    | us defii<br>er <sup>®</sup><br>indows<br>™ Esse | nitions<br>entials                    | )  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™   | Trackl<br>UltraN  | Point® poin<br>Iav™, wide  | ting device,<br>touchpad b  | "Press-to-<br>below keyt   |  | et Scroll Bar   | <sup>13</sup> , magnifying gl<br>regions label, m   |              | р<br>• ()<br>• ()                  | Corel® V<br>Corel Bu<br>DVD±R   | e proc<br>VinDV<br>urn.Nc   | luct key<br>D® (DV                              | / to ac<br>D±RW                       | tivate<br>')   |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | <i>Displa</i><br><i>Bottor</i><br>Lithiu  | starting a<br><i>ay cover:</i><br>n:<br>n lon 6-ce                     | 14.68" x 9<br>t 5.54 lb (2.5<br>Carbon-fik<br>Glass-fibe<br>Il or 9-cell, s                             | 0.65" x 1.25<br>51kg); 9-co<br>per / Glass<br>er reinforce<br>support op | 9-1.44"; 372.8r<br>ell: starting at 5<br>-fiber hybrid;<br>ed plastic witho<br>tional Slice ba | mm x 245.1m<br>5.89 lb (2.67k<br>out paint<br>ttery as 2nd l    | im x 31.8-35.6m<br>im x 32.8-36.6m<br>g)<br>pattery at bottor<br><i>lus slice battery</i> | ım<br>n      | E                                  | Corel D<br>Edition (  |   |   | tory® L                               | enovo  |
| Chipset<br>ExpressCard<br>Smart Card Re<br>Multicard Reac<br>Ports   | One s<br>ad None<br>er 4-in-1<br>Integr<br>Optim<br>extern  | lot (Expres<br>reader (M<br>ated mode<br>us model:<br>al monitor       | el: Four USE<br>Three US<br>VGA DB-1 (  | HC, SDX<br>3 2.0 (one<br>B 2.0 (on<br>5, Display                         | C)<br>powered),  | t (RJ-45),  | SATA combo po   | rt,          |                                    |   |   |   |                                       |  |
| PCIe Mini Carc<br>WLAN⁴<br>WWAN  | 11b/g<br>Wirele   | /n, PCİe H   | s Mini Card<br>alf Mini Card<br>Ipgradable  |  | ntrino <sup>®</sup> Wireles  | s-N 1000, 1x  | 2   |              |                                    |   |   |   |                                       |  |
| Modem<br>Bluetooth™  |   |  | reless, LED   |  |  |   |   |              | Su                                 | oports 7  | ⁻hinkV  | 'antage   | ® tech                                | nologies   |
| Ethernet<br>Intel AMT<br>Audio support<br>Security<br>Security chip<br>Fingerprint rea                                       | el AMT       None         dio support       High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jac         curity       Power-on password, hard disk password, supervisor password, security keyhole         curity chip       Trusted Platform Module, TCG 1.2-compliant         gerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator, Power On Authentication, supports the security chip |  |   |  |  |   |   |              |                                    | watt AC<br>nkPad I<br>nagnesi<br>EAT™ C<br>ERGY S<br>HS-com<br>ernation<br>hour x 5 | Roll Ċ<br>ium fra<br>àold ra<br>STAR <sup>®</sup><br>npliant<br>al Wa | age (or<br>ame)<br>ating<br>5.0-cc<br>rranty S  | omplia<br>Service                     | nt<br>e <sup>17</sup>                                  |
| Limited warran   |   |  |   |  |  | upgrades <sup>22</sup> av                                       | ailable   |              |                                    | luring th   | ne wai  | ranty p   | eriod                                 | 2  |

See footnotes for more detailed information WE model(s) announced October 4, 2011 or January 17, 2012 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> T520 4240 (Optimus) - TopSeller - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proces  | sor Memory   | Wide-<br>screen<br>display   | Camera  | Disk<br>SATA<br>GB <sup>®</sup> rpm   | PCle<br>Mini Card<br>WLAN  | PCIe<br>Mini Card<br>WWAN/mSAT                | A Carrier                    | Modem                | Smart<br>Card<br>Reader                              | Finger<br>print<br>reader  | Ba<br>Blue- ter<br>tooth cel   | y Intel                     |                  |
|--|--|--|---|---|--|---|------------------------------|----------------------|--|--|--|-----------------------------|------------------|
| 4240-5BG i5-243<br>4240-6AG i5-245   |  | 15.6" HD+<br>15.6" HD+   | 720p<br>720p  | 500G 7200<br>500G 7200  | Intel 1000<br>Intel 1000   |   | selectable<br>selectable     | None<br>None         | Smart  | Finger<br>Finger   | Blue 6<br>Blue 6   |                             | Pro 64<br>Pro 64 |
|  | • A  | mall and me<br>depot repai<br>licrosoft® Of  | r service   | 3-year limite   | ed warranty  |   | E TopSeller™                 | <sup>™</sup> Program | n  |  |  |                             |                  |
| Positioning<br>Processor   | Premiere perfi<br>Intel <sup>®</sup> Core™<br>DDR3 memor<br>Intel Core i5-<br>DDR3 memor   | i5-2430M province in the second secon | ocessor<br>(up to 13)<br>essor (d   | (dual-core,<br>33MHz), Inte<br>ual-core, 2.   | el Turbo Bóo<br>50GHz, 3MI   | st 2.0 (3.0Ǵ⊦<br><b>B Cache)</b> ,            | ,.                           | 0,                   | - Ge<br>Pro<br><b>Read</b>                           | nuine Wi<br>ofessiona  | perating s<br>indows® 7<br>al 64<br>tall applic  |                             |                  |
| Memory   | 8GB max <sup>7</sup> / P<br>dual-channel   |  |   |   |  |   |                              |                      | Res     Acc  | scue áno<br>cess Cor   | d Recover  | м                           |                  |
| Optical<br>Ultrabay<br>SATA disk   |  | emovable de<br>State Drive (<br>SATA 3.0G  | vices, Ult<br>SSD) / S<br>o/s, 2.5" \   | rabay Slim-c<br>ATA 3.0Gb/s<br>wide, 7mm o  | compatible,<br>5, 2.5" wide,<br>1 9.5mm hig                          | 7mm high                                      | tection Syste                | em™                  | mo<br>• Pas<br>mo<br>• Thi                           | dels)<br>ssword M<br>dels)<br>nkVanta  | Software<br>/anager (f<br>ge System  | ingerpi<br>n Upda           | rint<br>te       |
| mSATA™ SSD<br>Widescreen<br>display<br>Camera  | None<br>15.6" (396mm<br>220 nits, 16:9<br>HD720p resol   | aspect ratio   | , 500:1 c   | ontrast ratio,  | 60% Gamu   | t   |                              |                      | • Thi<br>• Ler                                       | nkVanta<br>10vo Sim  | ge Power<br>ge Toolbox<br>pleTap<br><b>plication</b>   | <<br>                       |                  |
| Graphics   | NVIDIA® Optin<br>Intel HD Grap<br>NVIDIA NVS™<br>external analo<br>digital monitor<br>supports three<br>Maximum exter<br>2048x1536 (V  | bhics 3000 i<br>4200M, PC<br>bg monitor support via<br>e independe<br>ernal resolut  | n process<br>I Express<br>Ipport via<br>DisplayF<br>nt display<br><i>ion:</i> 256 | sor, and<br>s <sup>®</sup> x16, <b>1GB</b><br>a VGA DB-15<br>Port (support<br>/s;<br>0x1600 (Disp | memory,<br>5 connector<br>s single-link<br>playPort)@6               | and<br>: DVI-D via op<br>60Hz;                | otional cable                |                      | (30<br>• Ado<br>• Sky<br>• Wir<br>• Mic<br>pur       | rton™ Int<br>days of<br>obe® Rea<br>/pe™ for<br>ndows Li<br>crosoft O<br>chase p   | ternet Sec<br>virus defir<br>ader <sup>®</sup><br>Windows<br>ive™ Esse<br>iffice 2010<br>roduct key<br>DVD <sup>®</sup> (DVI | ntials<br>preloa<br>to acti | aded;<br>ivate   |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™   | 7 row, 89-key,<br>TrackPoint <sup>®</sup> po<br>UltraNav <sup>™</sup> , wi<br>Illuminates the  | ointing device   | é, "Press<br>I below k  | to-Select," I evboard, Tap  | nternet Scro<br>Zones, scr   | oll Bar <sup>13</sup> , mag<br>olling regions | nifying glass<br>abel, multi | s<br>-touch          | <ul> <li>Control (D)</li> <li>Control (D)</li> </ul> | rel Burn.<br>/D±RW)  | Now™ Lei<br>MovieFact  | novo E                      | dition           |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | HD & HD+:<br>FHD:<br>6-cell: starting<br>Display cover.<br>Bottom:<br>Lithium Ion 6-<br>6-cell (57Whr,   | 14.68"<br>at 5.67 lb (2<br>Carbon<br>Glass-f<br>cell or 9-cell   | x 9.65" x<br>2.57kg); 9<br>-fiber / G<br>iber reinfe<br>, support                 | 1.29-1.44";<br><i>G-cell:</i> starting<br>lass-fiber hy<br>prced plastic<br>optional Slice        | 372.8mm x :<br>g at 6.02 lb<br>brid;<br>without pai<br>ce battery as | nt<br>s 2nd battery                           | 2.8-36.6mm<br>at bottom      | I                    |  |  | ,  |                             |                  |
| Chipset<br>ExpressCard<br>Smart Card Read<br>Multicard Reader<br>Ports   | Mobile Intel (<br>One slot (Exp<br>Some: Smart   | Card reade<br>t Card reade<br>(MMC, SD, S<br>del: Four US<br>el: Three U<br>tor (VGA DB  | ss Chips<br>r<br>SDHC, SI<br>SB 2.0 (o<br>JSB 2.0 (<br>-15, Disp                  | DXC)<br>ne powered)<br>one powered<br>layPort), eth   | ),<br>d), one USE<br>ernet (RJ-4                                     | 3 2.0/eSATA c<br>5),                          |                              |                      |  |  |  |                             |                  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN<br>Carrier   | Two PCI Expr<br>11b/g/n, PCIe<br>Wireless WAN<br>GPRS/WCDM<br>User selectab  | Half Mini Ca<br>I, Ericsson®<br>1A/HSPA/HS   | ard, Intel<br>F5521gw<br>PA+, GP  | Mobile Broa<br>S  | adband Mod   | 000, 1x2<br>ule, PCIe Mir                     | ni Card,                     |                      |  |  |  |                             |                  |
| Modem<br>Bluetooth™  | None<br>Bluetooth 3.0  | wireless I F   | D indicat   | or  |  |   |                              |                      | Supp   | orts Thir  | kVantage   | ® techr                     | nologies         |
| Ethernet<br>Intel AMT<br>Audio support<br>Security<br>Security chip  | et     Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCle x1     90-w       MT     None     None       hupport     High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack     90-w       y     Power-on password, hard disk password, supervisor password, security keyhole     EPE, ENE       y chip     Trusted Platform Module, TCG 1.2-compliant     RoHS       print reader     UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,     Interr |  |   |   |  |   |                              |                      |  | att AC ac<br>Pad Roll<br>gnesium<br>AT™ Gold<br>RGY STA<br>S-complia<br>national \ | dapter<br>I Cage (or<br>I frame)<br>d rating<br>AR® 5.0-cc<br>ant<br>Warranty S  | e-piec<br>mplian<br>Service | e<br>nt          |
|  |  |  |   | the security<br>service / serv  |  |   |                              |                      | 24 ho  | ur x 7 da  | ay¹8 toll-fre<br>varranty p  | e supp                      | oort             |

See footnotes for more detailed information WE model(s) announced October 4, 2011 or January 17, 2012 WE model(s) withdrawn effective December 2012

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#### ThinkPad® T520 4241 - withdrawn

Personal Systems Reference (PSREF)

|            |           |        | Wide-<br>screen |        | Disk<br>SATA        | PCle<br>Mini Card | PCIe<br>Mini Card |       | Finger<br>print | Blue- | Bat-<br>tery | Intel |         |
|------------|-----------|--------|-----------------|--------|---------------------|-------------------|-------------------|-------|-----------------|-------|--------------|-------|---------|
| Type-model | Processor | Memory | display         | Camera | GB <sup>®</sup> rpm | WLAN              | WWAN/mSATA        | Modem | reader          | tooth | celÍs        | vPro  | Preload |
| 4241-48G   | i5-2520M  | 2GBx2  | 15.6" HD        | None   | 320G 7200           | Intel 1000        | WWAN upg          | Modem | None            | Blue  | 6            | None  | Pro 64  |

Microsoft® Office 2010 Product Key Ready (O10PKR)

| Premiere performance; two spindles<br>Intel <sup>®</sup> Core™ i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology  | <ul> <li>Preloaded operating system<sup>20</sup></li> <li>Genuine Windows<sup>®</sup> 7</li> <li>Professional 64</li> </ul>  |
|---|--|
| 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets   | Ready to install applications <sup>14</sup> (only some listed)   |
| DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br><i>Some:</i> Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br><i>Some:</i> HDD / SATA 3.0Gb/s, 2.5" wide, 7mm or 9.5mm high, Active Protection System <sup>™</sup><br><i>All:</i> removable, upgradable, supports the second disk, Shock Mounted Hard Drive<br>None   | <ul> <li>Rescue and Recovery<sup>™</sup></li> <li>Access Connections<sup>™</sup></li> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint models)</li> </ul>  |
| <b>15.6</b> " (396mm) <b>HD (1366x768) color</b> , anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut None   | <ul> <li>ThinkVantage System Update</li> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> <li>Lenovo SimpleTap</li> </ul>   |
| Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br>Maximum external resolution: 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)  | <ul> <li>Preloaded applications<sup>14</sup> (only some<br/>listed)</li> <li>Norton™ Internet Security 2011<br/>(30 days of virus definitions)</li> <li>Adobe<sup>®</sup> Reader<sup>®</sup></li> <li>Skype<sup>™</sup> for Windows</li> </ul>   |
| 7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys<br>TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar¹³, magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions  | <ul> <li>Windows Live™ Essentials</li> <li>Microsoft Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> </ul>   |
| HD & HD+: $14.68" \times 9.65" \times 1.25 \cdot 1.40"$ ; $372.8mm \times 245.1mm \times 31.8 \cdot 35.6mm$ FHD: $14.68" \times 9.65" \times 1.29 \cdot 1.44"$ ; $372.8mm \times 245.1mm \times 32.8 \cdot 36.6mm$ 6-cell: starting at 5.54 lb (2.51kg); $9$ -cell: starting at 5.89 lb (2.67kg)Display cover:Carbon-fiber / Glass-fiber hybrid;Bottom:Glass-fiber reinforced plastic without paintLithium Ion 6-cell or 9-cell, support optional Slice battery as 2nd battery at bottom6-cell (52Whr):up to 7.7 br: 9-cell (94Whr):Utilize battery at bottom | <ul> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul>   |
| Mobile Intel QM67 Express Chipset<br>One slot (ExpressCard/34)<br>None<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Integrated model: Four USB 2.0 (one powered),<br>Optimus model: Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45),<br>IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)  |  |
| Two PCI Express Mini Card slots<br>11b/g/n, PCIe Half Mini Card, Intel Centrino® Wireless-N 1000, 1x2<br>Wireless WAN upgradable  |  |
| 56K V.92 <sup>6</sup> modem   | Supports ThinkVantage® technologies  |
| Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>None<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack<br>Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant<br>None   | 65-watt AC adapter<br>ThinkPad Roll Cage (one-piece<br>magnesium frame)<br>EPEAT™ Gold rating<br>ENERGY STAR <sup>®</sup> 5.0-compliant<br>RoHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support   |
|   | Intel® Core™ I5-2520M processor (dual-core, 2.50GHz, 3MB Cache).<br>DDR3 memory controller (up to 1333MHz). Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets<br>DVD burner, 12.7mm Uitrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Sim-compatible, 12.7mm high, bottom access<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5° wide, 7mm high, Active Protection System™<br><i>All</i> : removable, upgradable, supports the second disk, Shock Mounted Hard Drive<br>None<br>15.6° (396mm) HD (1366x768) color, anti-glare, LED backlight,<br>220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut<br>None<br>Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br>Maximum external resolution: 2560x1600 (DisplayPort)@ 60Hz;<br>2048x1536 (VGA)@ 75Hz; 1920x1200@ 60Hz (single-link DVI-D via optional cable)<br>7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys<br>TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar³, magnifying glass<br>UltraNa <sup>™</sup> , wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Iltumiates the keyboard to improve visibility in low-light conditions<br><i>HD &amp; HD+</i> : 14.68° x 9.65° x 1.29-1.40°; 372.8mm x 245.1mm x 31.8-35.6mm<br><i>FHD</i> : 14.68° x 9.65° x 1.29-1.40°; 372.8mm x 245.1mm x 32.8-36.6mm<br><i>6-cell</i> : starting at 5.54 lb (2.51kg); <i>9-cell</i> : starting at 5.89 lb (2.67kg)<br><i>Display cover</i> : Carbon-fiber / Glass-fiber hybrid;<br><i>Bottom</i> : Glass-fiber reinforced plastic without paint<br>Lithium Ion 6-cell sypect optional Silce battery as 2nd battery at bottom<br><i>6-cell</i> ( <i>57Whr</i> ): up to 7.7 hr; <i>9-cell</i> ( <i>94Whr</i> ): up to 12.8 hr; <i>9-cell plus Silce battery</i> : up to 25.6 hr<br><b>Mobile Intel QM67 Express Chipset</b><br><b>Mose</b><br>None (Lither express Mini Card, Intel Centrino® Wireless-N 1000, 1x2<br>Wireless WAU upgradab |

See footnotes for more detailed information WE model(s) announced March 1, 2011 WE model(s) withdrawn effective December 2012

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#### ThinkPad® T520 4242 - withdrawn

| Type-model I  | Processor  | Memory  | Wide-<br>screen<br>display  | Disk<br>SATA<br>GB <sup>®</sup> rpm  | PCle<br>Mini Card<br>WLAN               | PCle<br>Mini Card<br>WWAN/mSATA      | Carrier       | Modem   | Smart<br>Card<br>Reader   | Finger<br>print<br>reader  | tery    | Intel   |                  | Pre-                |  |
|---|--|---|---|--|---|--------------------------------------|---------------|---|---|--|---------|---------|------------------|---------------------|--|
| 4242-5AG i  | 5-2520M  | 4GBx1   | 15.6" HD+   | 320G 7200  | Intel 620528                            | Ericsson                             | selectable    | Modem   | Smart   | Finger   | 6       | vPro    |                  | Pro 64              |  |
|   | 5-2520M  | 4GBx1   | 15.6" HD  | 500G 7200  | Intel 6205                              | WWAN upg                             | 0010010010    | Modem   | omart   | Finger   | 6       |         | G                | Pro 64              |  |
| 4242-3MG i  |  | 2GBx1   | 15.6" HD  | 320G 7200  | Intel 6205                              | WWAN upg                             |               | Modem   |   | gei  | 6       | vPro    | 0.               | Pro 64              |  |
|   | 5-2520M  | 2GBx2   | 15.6" HD  | 320G 7200  | Intel 6205                              | WWAN upg                             |               | Wiedenn   |   |  | 6       |         | G                | Pro 64              |  |
|   | 5-2520M  | 4GBx1   | 15.6" HD  | 160G SSD   | Intel 6205                              | WWAN upg                             |               |   |   | Finger   | 6       |         |                  | Pro 64              |  |
| -2-12-320   | 5 2520W  | FODAT   | • A depot re  | pair service 3   | -year limited                           |                                      |               |   |   | ringer   | 0       | VIIO    | u                | 11004               |  |
| Positioning<br>Processor  | Inte   | l® Core™ i  | ormance; two<br>5-2520M pro   | cessor (dual-  | core, 2.50GH                            | Iz, 3MB Cache)                       |               |   | - Gen   | ded ope  | dows    |         | tem <sup>2</sup> | 0                   |  |
| Memory  | 8GE  | max <sup>7</sup> / PC   | C3-10600 133  | 3MHz DDR3,   | non-parity,                             | Boost 2.0 (3.200                     | iHz), HI teci | nnology   | -   | essional<br>to insta   |         | plicat  | ions             | <sup>14</sup> (only |  |
|   | dual   | -channel c  | apable, two 2   | 204-pin SO-DII   | MM sockets                              |                                      |               |   | some l  |  |         |         |                  | (- )                |  |
| Optical<br>Ultrabay<br>SATA disk  | trabay One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access |   |   |  |   |                                      |               |   |   | <ul> <li>Rescue and Recovery™</li> <li>Access Connections™</li> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint</li> </ul>  |         |         |                  |                     |  |
| mSATA™ SSI  | ) Non  | е   |   |  |   |                                      |               |   | mod   |  | ~       |         |                  |                     |  |
| Widescreen<br>display<br>Some: 15.6" (396mm) HD (1366x768) color, anti-glare, LED backlight,<br>220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut<br>Some: 15.6" (396mm) HD+ (1600x900) color, anti-glare, LED backlight,<br>220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut  |  |   |   |  |   |                                      |               | ThinkVantage System Update     ThinkVantage Power Manager     ThinkVantage Toolbox     Lenovo SimpleTap     Preloaded applications <sup>14</sup> (only som  |   |  |         |         |                  |                     |  |
| Camera  | HD7  | 20p resolu  | ution, wider vi   | ew angle, low  | light sensitive                         | e, fixed focus                       |               |   | Preloa<br>  listed)   | ded app  | olicat  | ions    | (only            | y some              |  |
| Graphics Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br>Maximum external resolution: 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable) |  |   |   |  |   |                                      | );            | <ul> <li>Norton™ Internet Security 2011<br/>(30 days of virus definitions)</li> <li>Adobe® Reader®</li> <li>Skype™ for Windows</li> <li>Windows Live™ Essentials</li> <li>Microsoft Office 2010 preloaded;</li> </ul> |   |  |         |         |                  |                     |  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  | Trac<br>Ultra  | 7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys<br>TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions   |   |  |   |                                      |               |   |   | <ul> <li>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now™ Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul> |         |         |                  |                     |  |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case materia<br>Battery - type<br>Battery - life <sup>10</sup>   | FHL<br>6-ce<br>I Disp<br>Bott<br>Lithi   | HD & HD+:       14.68" x 9.65" x 1.25-1.40"; 372.8mm x 245.1mm x 31.8-35.6mm         FHD:       14.68" x 9.65" x 1.29-1.44"; 372.8mm x 245.1mm x 32.8-36.6mm         6-cell: starting at 5.54 lb (2.51kg); 9-cell: starting at 5.89 lb (2.67kg)         Display cover:       Carbon-fiber / Glass-fiber hybrid;         Bottom:       Glass-fiber reinforced plastic without paint         Lithium Ion 6-cell of 9-cell, support optional Slice battery as 2nd battery at bottom         6-cell (57Whr): up to 7.7 hr; 9-cell (94Whr): up to 12.8 hr; 9-cell plus slice battery: up to 25.6 |   |  |   |                                      |               |   |   |  |         |         |                  |                     |  |
| Chipset   |  |   | M67 Expres  |  |   | ,                                    |               |   | 7   |  |         |         |                  |                     |  |
| ExpressCard<br>Smart Card F<br>Multicard Rea<br>Ports   | One<br>lead Son<br>ader 4-in-<br>Inte<br>Opti<br>exte<br>IEEI                              | slot (Expr<br>ne: Smart<br>1 reader (<br>grated mode<br>mus mode<br>rnal monite<br>1394 Fire  | essCard/34)<br>Card reader<br>MMC, SD, SE<br>del: Four USE<br>del: Three USE<br>or (VGA DB-1<br>eWire 400 (4- | DHC, SDXC)<br>3 2.0 (one pow<br>B 2.0 (one po<br>5, DisplayPort<br>pin connector | wered), one l<br>t), ethernet (F        |                                      | combo port,   |   |   |  |         |         |                  |                     |  |
| PCIe Mini Ca<br>WLAN⁴<br>WWAN   | 11a/<br>Son<br>Son   | b/g/n, PCI<br>ne: Wirele<br>ne: Wirele<br>GPRS  | ss WAN upgr<br>ss WAN, Eric:<br>/WCDMA/HS   | ard, Intel Centr<br>adable<br>sson® F5521gv<br>PA/HSPA+, GI                      | w Mobile Broa<br>PS                     | ed-N 6205, 2x2<br>adband Module,     | PCIe Mini Ca  | ard,  |   |  |         |         |                  |                     |  |
| Carrier   |  |   |   | ntract required  | with service                            | provider                             |               |   |   |  |         |         |                  |                     |  |
| Modem<br>Bluetooth™   |  |   | 92 <sup>6</sup> modem<br>wireless, LED  | indicator  |   |                                      |               |   | Suppo   | rts Think  | Vanta   | age® te | echno            | ologies             |  |
| Ethernet  |  |   |   |  | n (Lewisville)                          | , PHY, PCle x1                       |               |   |   |  |         | -       |                  |                     |  |
| Intel AMT<br>Audio suppor   | Intel<br>t High<br>volu  | Active Ma<br>Definition<br>me up. dov   | nagement Te<br>(HD) Audio,<br>wn. mute butt   | chnology (iAN<br>Conexant 206<br>ons / dual arra                                 | 1T)<br>72 codec / ste<br>av mic. mic mi | ereo speakers, 1<br>ute button, comb | o audio/mic   | iack  | ThinkP<br>mag   | t AC ada<br>ad Roll<br>nesium f<br>™ Gold  | irame   | e) (    | piece            | 9                   |  |
| Security  | Pow  | er-on pass  | sword, hard d   | isk password.  | supervisor pa                           | ssword, security                     | / keyhole     |   |   |  |         | )-com   | nliant           | •                   |  |
| Security chip   | Trus   | Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant<br>Some: UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip   |   |  |   |                                      |               |   | ENERGY STAR <sup>®</sup> 5.0-compliant<br>RoHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support |  |         |         |                  |                     |  |
| 1.1   | - <b>L</b> .12 •   |   |   | 11   | ,                                       | 1                                    |               |   | _ 24 hou  | r x 7 day  | /18 tol | I-free  | supp             | ort                 |  |
| i imited warra  | nty 🖆 🛛 - ye   | ars/1-yr ba   | allery - depot  | repair service   | / service upg                           | rades <sup>22</sup> available        | ;             |   | aurir   | ng the wa  | arran   | ıy peri | 00' <u>^</u>     |                     |  |

See footnotes for more detailed information WE model(s) announced February 22 or April 19, 2011, or January 3, 2012 WE model(s) withdrawn effective December 2012

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### ThinkPad<sup>®</sup> T520 4242 (Optimus) - withdrawn

| Type-model I   | Processor  | Memory   | Wide-<br>screen<br>display  | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm  | PCle<br>Mini Card<br>WLAN   | PCle<br>Mini Card<br>WWAN/mSATA   | Modem  | Finger<br>print<br>reader     | Blue-<br>tooth  | Bat-<br>tery<br>cells | Intel<br>vPro | Globa<br>(G)<br>GMP (I | l<br>Pre-<br>P) load |  |
|--|--|--|---|--|--|---|---|--|-------------------------------|---|-----------------------|---------------|------------------------|----------------------|--|
|  | 5-2520M  | 4GBx1  | 15.6" HD  | 720p   | 500G 7200  | Intel 620528  | WWAN upg  | Modem  | Finger                        | Blue  | 9                     | vPro          | G                      | Pro 64               |  |
|  | 5-2520M  | 2GBx1  | 15.6" HD  | 720p   | 320G 7200  | Intel 6205  | WWAN upg  |  |                               | -   | 9                     | vPro          | G                      | Pro 64               |  |
|  | 5-2540M<br>7-2640M   | 2GBx2<br>4GBx1   | 15.6" HD+<br>15.6" HD+  | 720p<br>720p   | 500G 7200<br>500G 7200   | Intel 6205<br>Intel 6205  | WWAN upg<br>WWAN upg  | Modem  | Finger<br>Finger              | Blue<br>Blue  | 9<br>9                | vPro<br>vPro  | G<br>G                 | Pro 64<br>Pro 64     |  |
| 4242-500   | 7-2040101  | 46071  | • Depot re  | pair serv  | ice 3-year limi  | ited warranty   | 10  | Modern   | ringer                        | Diue  | 9                     | VEIO          | G                      | F10 04               |  |
|  |  |  | <ul> <li>Microsof</li> </ul>  | t® Office :  | 2010 Product   | Key Ready (O  | 10PKR)  |  |                               |   |                       |               |                        |                      |  |
| Positioning<br>Processor   | Premiere performance; two spindles<br>Intel <sup>®</sup> Core <sup>™</sup> i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology<br>Intel Core i7-2640M processor (dual-core, 2.80GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology |  |   |  |  |   |   |  |                               | Preloaded operating system <sup>20</sup> - Genuine Windows® 7         Professional 64         Ready to install applications <sup>14</sup> (only some listed)         • Rescue and Recovery <sup>™</sup> • Access Connections <sup>™</sup> |                       |               |                        |                      |  |
| Memory   | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets  |  |   |  |  |   |   |  | • Fin                         | gerprir<br>dels)  |                       |               |                        | orint                |  |
| Optical<br>Ultrabay<br>SATA disk   | DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br><i>Some:</i> Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br><i>Some:</i> HDD / SATA 3.0Gb/s, 2.5" wide, 7mm or 9.5mm high, Active Protection System <sup>™</sup><br>All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive   |  |   |  |  |   |   |  | mc<br>• Thi<br>• Thi<br>• Thi | <ul> <li>Password Manager (fingerprint<br/>models)</li> <li>ThinkVantage System Update</li> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> <li>Lenovo SimpleTap</li> </ul>   |                       |               |                        |                      |  |
| mSATA™ SSE   |  |  |   |  | <b>a)</b>  |   |   |  | _                             |   | •                     | •             | 14 4                   |                      |  |
| display  | Videscreen<br>display<br>Some: 15.6" (396mm) HD (1366x768) color, anti-glare, LED backlight,<br>220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut<br>Some: 15.6" (396mm) HD+ (160x900) color, anti-glare, LED backlight,<br>220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut  |  |   |  |  |   |   | <ul> <li>Preloaded applications<sup>14</sup> (only some<br/>listed)</li> <li>Norton<sup>™</sup> Internet Security 2011<br/>(30 days of virus definitions)</li> </ul>   |                               |   |                       |               |                        |                      |  |
| Camera   | HD72   | 0p resolut   | ion, wider vi   | ew angle,  | low light sense  | sitive, fixed for   | cus   |  |                               | obe <sup>®</sup> R<br>ype™ fo   |                       |               | ,                      |                      |  |
| Kada and   | Intel HD Graphics 3000 in processor, and<br>NVIDIA NVS™ 4200M, PCI Express® x16, 1GB memory,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports three independent displays;<br><i>Maximum external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@85Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)  |  |   |  |  |   |   | <ul> <li>Microsoft Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul> |                               |   |                       |               |                        |                      |  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™   | Track<br>Ultral  | Point® poin<br>√av™, wide  | iting device,<br>e touchpad b   | "Press-to<br>elow keyl   | -Select," Inter<br>board, Tap Zo   |   | <sup>13</sup> , magnifying gla<br>regions label, magnifying gla                       |  |                               |   |                       |               |                        |                      |  |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | FHD:<br>6-cell<br>Displ<br>Botto<br>Lithiu   | : starting a<br>ay cover:<br>m:<br>m lon 6-ce  | 14.68" x 9<br>t 5.67 lb (2.5<br>Carbon-fi<br>Glass-fibe<br>ell or 9-cell, s | 9.65" x 1.2<br>57kg); <i>9-c</i><br>ber / Glas<br>er reinford<br>upport op | 29-1.44"; 372.<br><i>cell:</i> starting at<br>ss-fiber hybrid<br>ced plastic wit<br>otional Slice ba | .8mm x 245.1<br>6.02 lb (2.73<br>;<br>hout paint<br>attery as 2nd | mm x 31.8-35.6n<br>mm x 32.8-36.6n<br>(g)<br>battery at botton<br>blus slice battery. | าทา  | hr                            |   |                       |               |                        |                      |  |
| Chipset<br>ExpressCard   | Mobi<br>One s  | le Intel QN  | <b>/167 Express</b><br>ssCard/34)   |  | / 1  | , ,   |   | •  |                               |   |                       |               |                        |                      |  |
| Smart Card R<br>Multicard Rea<br>Ports   | der 4-in-1<br>Integr<br>Optin<br>extern  | <ul> <li>4-in-1 reader (MMC, SD, SDHC, SDXC)</li> <li>Integrated model: Four USB 2.0 (one powered),</li> <li>Optimus model: Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,</li> <li>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45),</li> <li>IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)</li> </ul> |   |  |  |   |   |  |                               |   |                       |               |                        |                      |  |
| PCIe Mini Car<br>WLAN⁴<br>WWAN<br>Carrier  | 11a/b<br>Wirel<br>None   | /g/n, ΡĊle<br>ess WAN ι  | ıpgradable  |  | Centrino <sup>®</sup> Adva   | anced-N 6205  | , 2x2   |  |                               |   |                       |               |                        |                      |  |
| Modem<br>Bluetooth™  |  | e: 56K V.9   | 2 <sup>6</sup> modem<br>th 3.0 wirele                                       | ss I FD ii   | ndicator   |   |   |  | Supp                          | orts Th   | inkVa                 | ntage®        | techr                  | ologies              |  |
| Ethernet   | Intel 8  | 32579LM (  | Gigabit Netw  | ork Conn   | ection (Lewisv   | ville), PHY, PC   | le x1   |  | 90-w                          | att AC a  | adapte                | er            |                        | -                    |  |
| Intel AMT<br>Audio support   | : High   | Definition (   | (HD) Audio,   | Conexant   | 20672 codec  | / stereo spea   | kers, 1 watt x 2 /  |  | Think                         | Pad Ro<br>gnesiu  | oll Ċag               | ge (one       | e-piec                 | е                    |  |
| Security   |  |  |   |  |  |   | , combo audio/m<br>ecurity keyhole  | iic jack   | EPE                           | ۹́T™ Go   | old rati              | na            |                        |                      |  |
| Security chip<br>Fingerprint rea   | Truste   | ed Platform<br>e: UPEK F   | n Module, TO  | G 1.2-co<br>ader on p  | mpliant  | pe sensor, LEI  |   |  | RoHS<br>Interr                | RGY S<br>S-comp<br>nationa<br>our x 7   | liant<br>I Warr       | anty S        | ervice                 | 17                   |  |
| l imited warra   | ntv <sup>12</sup> 3-vea  |  |   |  | •  | upgrades <sup>22</sup> av   | vailable  |  |                               | ring the  |                       |               |                        | JUL                  |  |

See footnotes for more detailed information WE model(s) announced February 22 or October 11, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad<sup>®</sup> T520 4243 (Onsite) - withdrawn

Personal Systems Reference (PSREF)

|   |  | mart Finger Bat- Power Global (G)<br>Card print tery Adapter Intel GMP Pre-  |
|---|--|--|
| Type-model Proces   |  | eader reader cells (watt) vPro (P) load  |
| 4243-4YG i5-252   | 0M 2GBx2 15.6" HD 720p 320G 7200 Intel 6205 <sup>28</sup> Ericsson selectable Modem  | Finger 6 65W vPro Pro 64   |
| 4243-3WG i5-252   | 10   | mart Finger 6 65W vPro Pro 64  |
| 4243-3RG i5-254   |  | Finger 6 65W vPro Pro 64   |
| 4243-4WG i5-252   | 1 10   | Finger 6 65W vPro G P Pro 64   |
| 4243-29G i5-252   |  | 6 65W vPro G P Pro 64  |
| 4243-5JG i7-264   | 0M 4GBx1 15.6" HD+ 720p 500G 7200 Intel 630028 Ericsson selectable   | Finger 6 90W vPro Pro 64   |
| 4243-5ZG i5-252   | 0M 4GBx1 15.6" HD 720p 160G SSD Intel 6205 upg   | Finger 6 65W vPro G P Pro 64   |
|   | <ul> <li>Some models are part of the Global Models Plus program with limited onsite service<sup>24</sup></li> <li>Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)</li> </ul>  | 3-year limited warranty  |
| Positioning<br>Processor                                    | Premiere performance; two spindles<br>Intel <sup>®</sup> Core <sup>™</sup> i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technolog<br>Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technolog<br>Intel Core i7-2640M processor (dual-core, 2.80GHz, 4MB Cache),<br>DR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technolog | , Ready to install applications <sup>14</sup> (only some listed)   |
| Memory  | DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technolog<br>8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,  | <ul> <li>Access Connections™</li> <li>Fingerprint Software (fingerprint</li> </ul>   |
|   | dual-channel capable, two 204-pin SO-DIMM sockets  | models)  |
| Optical<br>Ultrabay<br>SATA disk                            | DVD burner, 12.7mm Ultrabay Enhanced, removable<br>One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br><i>Some:</i> Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br><i>Some:</i> HDD / SATA 3.0Gb/s, 2.5" wide, 7mm or 9.5mm high, Active Protection System <sup>™</sup>   | <ul> <li>Password Manager (fingerprint<br/>models)</li> <li>ThinkVantage System Update</li> <li>ThinkVantage Power Manager</li> </ul>  |
| mSATA™ SSD  | All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive None  | <ul> <li>ThinkVantage Toolbox</li> <li>Lenovo SimpleTap</li> </ul>   |
| Widescreen<br>display                                       | Some:         15.6" (396mm) HD (1366x768) color, anti-glare, LED backlight,<br>220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut           Some:         15.6" (396mm) HD+ (1600x900) color, anti-glare, LED backlight,<br>220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut           Some:         15.6" (396mm) FHD (1920x1080) color, anti-glare, LED backlight,<br>270 nits, 16:9 aspect ratio, 500:1 contrast ratio, 95% Gamut   | <ul> <li>Preloaded applications<sup>14</sup> (only some listed)</li> <li>Norton<sup>™</sup> Internet Security 2011 (30 days of virus definitions)</li> <li>Adobe<sup>®</sup> Reader<sup>®</sup></li> <li>Skype<sup>™</sup> for Windows</li> </ul>  |
| Camera  | Some: HD720p resolution, wider view angle, low light sensitive, fixed focus  | <ul> <li>Windows Live<sup>™</sup> Essentials</li> </ul>  |
| Graphics  | Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br>Maximum external resolution: 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)   | <ul> <li>Microsoft Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul> |
| TrackPoint <sup>®</sup>                                     | 7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys<br>TrackPoint <sup>®</sup> pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav <sup>™</sup> , wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions   |  |
| Case material   | HD & HD+:       14.68" x 9.65" x 1.25-1.40"; 372.8mm x 245.1mm x 31.8-35.6mm         FHD:       14.68" x 9.65" x 1.29-1.44"; 372.8mm x 245.1mm x 32.8-36.6mm         6-cell: starting at 5.54 lb (2.51kg); 9-cell: starting at 5.89 lb (2.67kg)         Display cover:       Carbon-fiber / Glass-fiber hybrid;         Bottom:       Glass-fiber reinforced plastic without paint         Lithium Ion 6-cell or 9-cell, support optional Slice battery as 2nd battery at bottom   |  |
| Battery - life <sup>10</sup>                                | 6-cell (57Whr): up to 7.7 hr; 9-cell (94Whr): up to 12.8 hr; 9-cell plus slice battery: up to 25.  | <u>6 hr</u>  |
| ExpressCard<br>Smart Card Read<br>Multicard Reader<br>Ports | Mobile Intel QM67 Express Chipset<br>One slot (ExpressCard/34)<br>Some: Smart Card reader<br>4-in-1 reader (MMC, SD, SDHC, SDXC)<br>Integrated model: Four USB 2.0 (one powered),<br>Optimus model: Three USB 2.0 (one powered), one USB 2.0/eSATA combo port,<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45),<br>IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)  |  |
| PCIe Mini Card<br>WLAN⁴                                     | Two PCI Express Mini Card slots<br>Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino® Advanced-N 6205, 2x2  |  |
| WWAN  | Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3<br>Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson® F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS   |  |
| Carrier<br>Modem  | <i>Some:</i> User selectable, contract required with service provider<br><i>Some:</i> 56K V.92 <sup>6</sup> modem  |  |
| Bluetooth™  | Bluetooth 3.0 wireless, LED indicator  |  |
| Ethernet  | Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1  | Supports ThinkVantage® technologies  |
| Audio support   | Intel Active Management Technology (iAMT)<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /  | 65-watt or 90-watt AC adapter  |
|   | volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack<br>Power-on password, hard disk password, supervisor password, security keyhole  | ThinkPad Roll Cage (one-piece  |
| Security chip   | Trusted Platform Module, TCG 1.2-compliant<br>Some: UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,   | magnesium frame)<br>EPEAT™ Gold rating<br>ENERGY STAR <sup>®</sup> 5.0-compliant   |
|   | Power On Authentication, supports the security chip<br><b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excludin<br>public and national holidays. Calls received after 3 pm will require an additional next busine<br>day for service dispatch / service upgrades available   | RoHS-compliant<br>International Warranty Service <sup>17</sup>   |
| See footnotes for m   | ore detailed information   | © Lenovo   |

# ThinkPad® T520 4243 (Optimus) - Onsite - withdrawn

|  |  | Wide-<br>screen  | Disk<br>SATA  | PCle<br>Mini Card  | PCle<br>Mini Card   |  |                        | Finger<br>print | Blue-   | Bat- Pow tery Adap  |  | Global<br>(G)       | l<br>Pre- |
|--|--|--|---|--|---|--|------------------------|-----------------|---|---|--|---------------------|-----------|
| Type-model Proce   |  | display  | GB <sup>8</sup> rpm   | WLAN   | WWAN/mSATA  | Carrier  | Modem                  | reader          | tooth   | cells (wa   | tt) vPro   | GMP (F              |           |
| 4243-4VG i5-25   |  | 15.6" HD   | 500G 7200   | Intel 620528   | WWAN upg  |  | Modem                  | Finger          |   | <b>9</b> 90V  |  | GP                  |           |
| 4243-28G i5-25   |  | 15.6" HD+  | 500G 7200   | Intel 6205   | WWAN upg  |  |                        |                 | Blue  | <b>9</b> 90V  |  | GP                  |           |
| 4243-27G i5-25<br>4243-3UG i7-27   |  |  | 320G 7200<br>500G 7200  | Intel 6205<br>Intel 6300 <sup>28</sup>   | WWAN upg<br>Ericsson  | selectable   | Modem                  | Finger          | Blue  | 9 90V<br>9 135  |  | GΡ                  | Pro 64    |
| 4243-300 17-27   | Some mod   | dels are part  |   | I Models Plus  | s program with  |  |                        | 0               |   |   |  |                     | F10 0-    |
| Positioning<br>Processor   | Premiere perfo<br>Intel <sup>®</sup> Core™ i5<br>DDR3 memory<br>Intel Core i5-2<br>DDR3 memory<br>Intel Core i7-2<br>DDR3 memory       | 5-2520Μ pro<br>controller (ι<br>540M proce<br>controller (ι<br>720QM proc                | pcessor (dua<br>ip to 1333MH<br>ssor (dual-c<br>ip to 1333MH<br>cessor (quad                        | z), Intel Turb<br>ore, 2.60GH<br>z), Intel Turb<br>-core, 2.20G                    | b Boost 2.0 (3<br>z, <b>3MB Cache</b><br>b Boost 2.0 (3<br>i <b>Hz, 6MB Cac</b> | .20ĠHz), H<br><b>)</b> ,<br>.30GHz), H<br><b>he)</b> , | T technol              | ogy             | <ul> <li>Genu<br/>Profe</li> <li>Ready<br/>some li</li> <li>Resc</li> </ul> | ue and F  | lows <sup>®</sup> 7<br><sup>34</sup><br>I <b>applica</b><br>lecovery | ations <sup>1</sup> |           |
| Memory   | 8GB max <sup>7</sup> / PC<br>dual-channel ca   | 3-10600 133  | 33MHz DDR3  | , non-parity,  | ,   |  |                        |                 |   | ss Conne<br>erprint Sc<br>els)                                      |  |                     | rint      |
| Optical  | DVD burner, 12   | .7mm Ultrat  | av Enhanced   | I, removable   |   |  |                        |                 |   | word Mai  | nager (fil   | ngerpri             | int       |
| Uİtrabay<br>SATA disk  | One bay for ren<br>Some: Solid S<br>Some: HDD / S<br>All: remova   | novable devi<br>tate Drive (S<br>SATA 3.0Gb/   | ices, Ultrabay<br>SSD) / SATA 3<br>/s, 2.5" wide,   | Slim-compa<br>.0Gb/s, 2.5"<br>7mm or 9.5m  | wide, 7mm hig   | h<br>Protection  | System™                |                 | <ul><li>Think</li><li>Think</li></ul>                                       | <ul> <li>Vántage</li> <li>Vantage</li> <li>Vantage</li> </ul>       | Power N<br>Toolbox   | Лa'nage             |           |
| mSATA™ SSD   | None   |  |   |  |   |  |                        |                 | <ul> <li>Leno</li> </ul>  | vo Simple   | elap   |                     |           |
| Widescreen<br>display  | Some: 15.6" (3<br>220 nits<br>Some: 15.6" (3   | s, 16:9 áspe<br>396mm) <b>HD</b><br>s, 16:9 aspe<br>396mm) <b>FHI</b>                    | ct ratio, 500:1<br>+ <b>(1600x900)</b><br>ct ratio, 500:1<br><b>D (1920x1080</b>                    | contrast rati<br>color, anti-c<br>contrast rati<br>) color, anti                   | o, 60% Gamu<br>lare, LED bac<br>o, 60% Gamu                                     | klight,<br>icklight,                                   |                        |                 | <ul> <li>Norto<br/>(30 d)</li> <li>Adob</li> </ul>                          | ded appl<br>on™ Inter<br>ays of vir<br>oe® Reade<br>e™ for W        | net Secu<br>rus defin<br>er®   | urity 20            |           |
| Camera   | HD720p resolu  |  |   |  |   |  |                        |                 | • Wind  | ows Live<br>soft Offic  | ™ Esser  | ntials              |           |
|  | Intel HD Graph<br>NVIDIA NVS <sup>TM</sup><br>external analog<br>digital monitor s<br>supports three<br>Maximum exter<br>2048x1536 (VG | 4200M, PCI<br>monitor sup<br>support via E<br>independent<br>mal resolution<br>(A)@85Hz; | Express® x16<br>pport via VGA<br>DisplayPort (s<br>t displays;<br><i>on:</i> 2560x160<br>1920x1200@ | 6, <b>1GB</b> memo<br>DB-15 conn<br>upports sing<br>0 (DisplayPo<br>60Hz (single   | ector and<br>e-link DVI-D v<br>rt)@60Hz;<br>link DVI-D via                      | optional ca  | ,.                     |                 | <ul> <li>Core</li> <li>Core</li> <li>(DVD)</li> <li>Core</li> </ul>         | nase proc<br>l® WinDV<br>I Burn.Nc<br>9±RW)<br>I DVD Mc<br>on (DVD± | D® (DVD<br>w™ Len<br>ovieFacto                                       | )±RW)<br>ovo Ed     | lition    |
| Keyboard<br>TrackPoint®<br>Touchpad<br>ThinkLight™   | 7 row, 89-key, T<br>TrackPoint <sup>®</sup> poir<br>UltraNav™, wid<br>Illuminates the  | nting device,<br>e touchpad  | "Press-to-Se<br>below keyboa  | lect," Interne<br>rd, Tap Zone   | t Scroll Bar <sup>13</sup> ,<br>s, scrolling reg                                | magnifying   |                        | ch              |   |   |  |                     |           |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | HD & HD+:<br>FHD:<br>6-cell: starting a<br>Display cover:<br>Bottom:<br>Lithium lon 6-ce<br>6-cell (57Whr):                            | 14.68" x<br>at 5.67 lb (2.<br>Carbon-f<br>Glass-fib<br>ell or 9-cell, s                  | 9.65" x 1.29-<br>57kg); <i>9-cell:</i><br>fiber / Glass-fiper reinforced<br>support option          | 1.44"; 372.8r<br>starting at 6.<br>iber hybrid;<br>plastic witho<br>nal Slice batt | ut paint<br>ery as 2nd ba   | n x 32.8-36<br>ttery at bott                           | .6mm<br>.om            | 25.3 hr         |   |   |  |                     |           |
| Chipset  | Mobile Intel Q   |  |   |  | •   |  |                        |                 |   |   |  |                     |           |
| ExpressCard<br>Smart Card Read<br>Multicard Reader<br>Ports  |  | /MC, SD, SI<br>/el: Four US<br>/: Three US<br>or (VGA DB-                                | B 2.0 (one po<br>SB 2.0 (one p<br>15, DisplayPo   | owered), one<br>rt), ethernet  | (RJ-45),  | ATA combo  | port,                  |                 |   |   |  |                     |           |
| PCIe Mini Card<br>WLAN⁴<br>WWAN  | Two PCI Expres<br>Some: 11a/b/g<br>Some: 11a/b/g<br>Some: Wireles<br>Some: Wireles<br>GPBS/  | /n, PCIe Ha<br>/n, PCIe Ha<br>s WAN upgr<br>s WAN, Eric                                  | If Mini Card, I<br>If Mini Card, I<br>adable  | ntel Centrino<br>gw Mobile Br  | Ultimate-N 63   | 00, 3x3  | lini Card,             |                 |   |   |  |                     |           |
| Carrier  | Some: User se  |  |   |  | e provider  |  |                        |                 |   |   |  |                     |           |
| Modem  | Some: 56K V.9  | 2 <sup>6</sup> modem   |   |  |   |  |                        |                 |   |   |  |                     |           |
| Bluetooth™<br>Ethernet   | Some: Bluetoc<br>Intel 82579LM   |  |   |  |   | v1   |                        | ŀ               |   |   |  |                     |           |
| Intel AMT  | Intel Active Mar   |  |   |  | с, і і і, гою   | A I  |                        |                 | Suppor  | ts Think∖   | antage®  | techno              | ologies   |
| Audio support  | High Definition  | (HD) Audio,  | Conexant 20   | 67Ź codec / s  |   |  |                        | Γ               | 90-watt   | or 135-v  | att AC a   | adapter             | r         |
| Security<br>Security chip<br>Fingerprint reade   | volume up, dow<br>Power-on pass<br>Trusted Platforr<br>r Some: UPEK I  | word, hard d<br>n Module, T<br>Fingerprint r   | lisk password<br>CG 1.2-comp<br>eader on paln   | , supervisor  <br>liant<br>n rest, swipe   | bassword, sec<br>sensor, LED i  | urity keyho  | o/mic jack<br>le       |                 | ThinkPa<br>magr<br>EPEAT<br>ENERG   | ad Roll C<br>nesium fr<br>™ Gold ra<br>GY STAR                      | age (one<br>ame)<br>ating<br>® 5.0-cor                               | e-piece             | )         |
| Limited  |  |  | cation, suppor  |  | , ,   | E.J J  |                        | alia ::         |   | compliant   |  | onde-1              | 7         |
| Limited warranty <sup>12</sup>   | <sup>2</sup> 3-years/1-year<br>public and national<br>day for service  | onal holidays  | a. Calls receiv   | ed after 3 pr  | n - 5 pm, Mon<br>1 will require a   | - Fri covera<br>n addtional                            | age exclu<br>next busi | ding<br>iness   | 24 hour   | tional Wa<br>r x 7 day <sup>1</sup><br>g the wa                     | <sup>8</sup> toll-free   | e suppo             |           |
| See footnotes for n  | nore detailed infor  | mation   |   |  |   |  |                        |                 |   |   |  | ©                   | Lenov     |

# ThinkPad® T520 4243 (Optimus) - Onsite (October 2011) - withdrawn

Personal Systems Reference (PSREF)

| Type-model  | Processor  | Memorv   | Wide-<br>screen<br>display  | Disk<br>SATA<br>GB <sup>ଃ</sup> rpm  | PCle<br>Mini Card<br>WLAN   | PCIe<br>Mini Card<br>WWAN/mSATA  | Carrier                        | Modem                   |               | tery   | Power<br>Adapter<br>(watt)                                      |  |   | Global<br>(G)<br>GMP (P)    | Pre-                |
|---|--|--|---|--|---|--|--------------------------------|-------------------------|---------------|--|---|--|---|-----------------------------|---------------------|
| 4243-5UG i  |  | 4GBx1  | 15.6" HD+   | 500G 7200  | Intel 620528  |  |                                | Modem                   | Finger        |  | 90W   |  | vPro                                      |                             |                     |
| 4243-5HG i  | 7-2670QM   | 4GBx1  | 15.6" HD+   | 500G 7200  | Intel 630028  | 10   | selectable                     |                         | Finger        |  |   |  |   |                             | Pro 64              |
| 4243-5GG iī   |  | -  |   |  | Intel 6300  | Ericsson<br>J <b>us program wi</b>   | selectable                     | nsite serv              | Finger        |  |   | arrant   | V   |                             | Pro 64              |
|   |  |  |   | 0 Product Ke   |   |  | in minited of                  | isite serv              | ice 5-y       |  |   |  |   |                             |                     |
| Positioning<br>Processor  | Intel®<br>DDR<br>Intel                             | <sup>®</sup> Core™<br>3 memor<br>Core i7-                                | y controller (<br>2670QM pro  | ocessor (du<br>up to 1333M<br>ocessor (qua                                       | Hz), Intél Tur<br>d-core, 2.20                                      | OGHz, 4MB Ca<br>bo Boost 2.0 (<br>OGHz, 6MB Ca   | 3.50̈́ĠHz), ⊦<br><b>:he)</b> , |                         |               | - Ge<br>Pr   | <b>baded d</b><br>enuine V<br>ofessior<br><b>dy to in</b>       | Vindov<br>1al 64                               | vs® 7                                     |                             |                     |
| Memory  | 8GB  | max <sup>7</sup> / P   | C3-10600 13   | 333MHz DDR   | 3, non-parity   |  | 3.10GHz), F                    | 11 techno               | logy          | some<br>• Re   | e listed)<br>escue ai   | nd Rec   | <br>covery⊤                               |                             | (eniy               |
| Ontinal   |  |  | 1 1   | 204-pin SO-  |   |  |                                |                         |               |  | cess Co   |  |   | naorn                       | rint                |
| Optical<br>Ultrabay<br>SATA disk  | One<br>Som   | bay for re<br>e: Solid   | emovable de<br>State Drive (  | SSD) / SATA  | y Slim-comp<br>3.0Gb/s, 2.5   | e<br>batible, 12.7mm<br>5" wide, 7mm h<br>5mm high, Activ                                | gh                             |                         |               | • Pa   | ngerprin<br>odels)<br>Issword<br>odels)                         | Mana   | ger (fin                                  | gerpri                      | nt                  |
| mSATA™ SSI  | All:   | remov  |   |  |   | d disk, Shock N  |                                |                         |               | • Th   | inkVant<br>inkVant  | age Po   | ower M                                    |                             |                     |
| Widescreen  | Som  |  |   |  |   | i-glare, LED ba  |                                |                         |               |  | inkVant<br>novo Si  |  |   |                             |                     |
| display   |  | e: <b>15.6"</b><br>270 n   | (396mm) <b>FH</b><br>its, 16:9 aspe                                       | ID (1920x108<br>ect ratio, 500:  | 30) color, an<br>1 contrast ra                                      | atio, 60% Gamu<br>nti-glare, LED b<br>atio, 95% Gamu                                     | acklight,<br>It                |                         |               | Prel<br>listed   | baded a   | applica  | ations                                    |                             |                     |
| Camera  |  |  |   |  |   | itive, fixed focu  |                                |                         |               |  | orton™ I<br>) days c  |  |   |                             | 11                  |
| Graphics  | Intel<br>NVID<br>exter<br>digita<br>supp           | HD Grap<br>IA NVS <sup>TH</sup><br>nal analo<br>Il monitor<br>orts three | hics 3000 in<br>4200M, PC<br>og monitor su<br>support via<br>e independer | n processor, a<br>I Express® x<br>upport via VG<br>DisplayPort (<br>nt displays; | and<br>16, <b>1GB</b> mer<br>A DB-15 cor<br>supports sin            | nnector and<br>Igle-link DVI-D   | 0 0                            |                         |               | <ul> <li>Àc</li> <li>Sk</li> <li>Wi</li> <li>Mi</li> <li>pu</li> </ul> | lobe® R<br>sype™ fo<br>indows<br>crosoft<br>rchase<br>orel® Wii | eader®<br>or Wind<br>Live™<br>Office<br>produc | ®<br>dows<br>Essent<br>2010 p<br>ct key t | tials<br>preloac<br>o activ |                     |
|   | <i>Maxi</i><br>2048                                | <i>mum ext</i> e<br>x1536 (V   | ernal resolut<br>GA)@85Hz;  | <i>ion:</i> 2560x16<br>1920x1200@  | 00 (Display⊦<br>⊉60Hz (singl  | Port)@60Hz;<br>le-link DVI-D vi  | a optional c                   | able)                   |               | • Co   | orel Buri   | 1.Now  |   |                             | ition               |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™            | 7 row<br>Track<br>Ultral                           | v, 89-key,<br>Point®po<br>Nav™, wi                                       | ThinkVantage<br>inting device<br>de touchpad                              | ge button, spi<br>e, "Press-to-S<br>l below keybo                                | II-resistant, r<br>Select," Interr<br>Dard, Tap Zor                 | nultimedia Fn I<br>net Scroll Bar <sup>13</sup><br>nes, scrolling re<br>light conditions | eys<br>magnifying              | g glass                 | ich           | • Čo   | VD±RW<br>orel DVE<br>lition (D                                  | Ó Movi   |   | ry® Le⊧                     | novo                |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case materia | HD 8<br>FHD<br>6-cel                               | HD+:<br>I: starting<br>ay cover  | 14.68" x<br>14.68" x<br>14.68" x<br>at 5.67 lb (2<br>Carbon               | x 9.65" x 1.25<br>x 9.65" x 1.29   | 5-1.40"; 372.8<br>5-1.44"; 372.8<br>7: starting at<br>fiber hybrid; | 8mm x 245.1m<br>8mm x 245.1m<br>6.02 lb (2.73kg  | m x 32.8-36                    |                         |               |  |   |  |   |                             |                     |
| Battery - type<br>Battery - life <sup>10</sup>                            | e Lithiu   | m Ion 6-   | cell or 9-cell,   | support opti   | onal Slice ba   | attery as 2nd ba<br>2.6 hr; <i>9-cell plu</i>  |                                |                         | 25.3 hr       |  |   |  |   |                             |                     |
| Chipset<br>ExpressCard  | One  | slot (Exp  | M67 Expre<br>ressCard/34  |  |   |  |                                |                         |               |  |   |  |   |                             |                     |
| Smart Card F<br>Multicard Rea<br>Ports                                    | ader 4-in- <sup>-</sup><br>Integ<br>Optin<br>exter | l reader<br><i>rated mo</i><br>nus moden<br>al moni                      | del: Four US<br>el: Three L<br>tor (VGA DB                                | SB 2.0 (one p<br>JSB 2.0 (one<br>-15, DisplayP                                   | owered),<br>powered), o<br>ort), etherne                            | ne USB 2.0/eS<br>et (RJ-45),<br>000 standard)  | ATA combo                      | port,                   |               |  |   |  |   |                             |                     |
| PCIe Mini Ca<br>WLAN⁴   | rd Two I   | PCI Expr   | ess Mini Car  | d slots  | ,   | no® Advanced-N   | l 6205, 2x2                    |                         |               |  |   |  |   |                             |                     |
| WWAN  | Som<br>Som   | e: 11a/b/<br>e: Wirele<br>e: Wirele                                      | /ğ/n, PCle Ha<br>ess WAN upg<br>ess WAN, Eri                              | alf Mini Card,<br>gradable<br>csson® F552  | Intel Centrir<br>1gw Mobile E                                       | o Ultimate-N 6<br>Broadband Mod  | 300, 3x3                       |                         |               |  |   |  |   |                             |                     |
| Carrier<br>Modem  | Som  | e: Users<br>e: 56K V   | selectable, co<br>.926 modem  | SPA/HSPA+,<br>ontract requir   |   | ice provider   |                                |                         |               |  |   |  |   |                             |                     |
| Bluetooth™<br>Ethernet<br>Intel AMT                                       | Intel  | 82579LN  |   | D indicator<br>work Connec<br>jement Techn                                       |   | ille), PHY, PCle   | e x1                           |                         |               | Supp   | oorts Th  | inkVar   | ntage®                                    | techno                      | logies              |
| Audio suppor  | rt High<br>volun                                   | Definition<br>ne up, do  | n (HD) Audio<br>wn, mute bu   | , Conexant 2<br>ttons / dual a   | 0672 codec<br>rray mic, mic   | / stereo speake<br>c mute button, o  | combo audi                     | o/mic jack              | ۲ ا           |  | att or 13<br>kPad Ro  |  |   |                             |                     |
| Security<br>Security chip<br>Fingerprint re                               | Powe<br>Trust                                      | er-on pas<br>ed Platfo   | sword, hard<br>rm Module,   | disk passwor<br>FCG 1.2-com  | d, superviso<br>pliant  | r password, se<br>r, LED indicato  | curity keyho                   |                         |               | ma<br>EPE  | agnesiu<br>AT™ Go   | m fram<br>Id ratir                             | ng)<br>ng                                 |                             |                     |
|   | Powe   | er On Aut  | hentication,  | supports the   | security chip   |  | ·                              |                         |               | RoH  | RGY S <sup>-</sup><br>S-comp                                    | liant  |   | •                           |                     |
| Limited warra   | public   | c and nat  | ional holiday   | <b>nited onsite</b><br>s. Calls receiservice upgra                               | ived after 3 p  | am - 5 pm, Moi<br>om will require :<br>e   | n - Fri cover<br>an addtiona   | age exclu<br>I next bus | ding<br>iness | Inter<br>24 h  | national<br>our x 7 (<br>ring the                               | Warra<br>day <sup>18</sup> to                  | oll-free                                  | suppo                       | <sup>7</sup><br>ort |

See footnotes for more detailed information WE model(s) announced August 2 or October 11, 2011

WE model(s) withdrawn effective December 2012

© Lenovo (G-KN3-8) February 2013

# ThinkPad® T520i 4240 (TopSeller) - withdrawn

| Type-model   | Processor   | Memory   | Wide-<br>screen<br>display   | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm   | PCle<br>Mini Card<br>WLAN   | PCle<br>Mini Card<br>WWAN/mSATA  | Finger<br>print<br>reader | Blue-<br>tooth | Bat-<br>tery<br>cells                                     | Intel<br>AMT  | Intel<br>vPro                                    | Preload  | Ann<br>Date<br>(mm/yy |
|--|---|--|--|--|---|---|--|---------------------------|----------------|---|---|--|--|-----------------------|
|  | i3-2350M<br>i3-2350M  | 4GBx1<br>4GBx1   | 15.6" HD<br>15.6" HD   | 720p<br>720p   | 320G 7200<br>500G 7200  | Intel 1000<br>Intel 1000  | WWAN upg<br>WWAN upg   | Finger<br>Finger          | Blue<br>Blue   | 6<br>6  | None<br>None  | No<br>No   | Pro 64<br>Pro 64                                       |                       |
|  |   | <ul> <li>A dep</li> </ul>  | ot repair ser  | vice 3-yea   | s (SMB) model<br>ar limited warr<br>uct Key Ready   | anty  | e WE TopSeller™  | Program                   | n              |   |   |  |  |                       |
| Positioning<br>Processor   | Intel <sup>®</sup>  | Core™ i3   |  | c'essor (d   | l <b>ual-core, 2.30</b><br>MHz), HT tech  |   | ache),   |                           |                | Genu  | <b>led ope</b><br>ine Wir<br>ssional                  | ldows®   | 7<br>7   | 20                    |
| Memory   | 8GB r<br>dual-c   | nax <sup>7</sup> / PC3<br>channel ca   | 3-10600 133<br>pable, two 2  | 3MHz DD<br>04-pin SC   | R3, non-parity<br>D-DIMM socke  | /,<br>ts  |  |                           |                | eady<br>ome lis   |   | ill app  | lications  | <sup>14</sup> (only   |
| Optical<br>Ultrabay<br>SATA disk<br>mSATA™ SSD<br>Widescreen<br>display  | One b<br>Some<br>Some<br>All:<br>None<br><b>15.6</b> "<br>220 n                             | bay for rem<br>2: Solid St<br>2: HDD / S<br>removal<br>(396mm)<br>its. 16:9 as                 | hovable devid<br>ate Drive (S<br>SATA 3.0Gb/s<br>ble, upgrada<br>HD (1366x7<br>spect ratio, 5              | cés, Ultral<br>SD) / SAT<br>s, 2.5" wic<br>ble, suppo<br>68) color<br>600:1 cont | A 3.0Gb/s, 2.5<br>le, 7mm or 9.5<br>orts the second<br>, anti-glare, LE<br>rast ratio, 60%            | atible, 12.7m<br>" wide, 7mm<br>imm high, Act<br>d disk, Shock<br>D backlight,<br>Gamut | ive Protection Sy<br>Mounted Hard E  | stem™                     | •              | Acces<br>Finge<br>mode<br>Passy<br>mode<br>Think<br>Think | ls)<br>vord Ma<br>ls)<br>Vantag<br>Vantag             | nection<br>oftwar<br>anager<br>e Syste<br>e Powe | s™<br>e (fingerp<br>r (fingerpi<br>em Upda<br>er Manag | rint<br>.te           |
| Camera   | HD72  | 0p resolut   | ion, wider vi  | ew angle,  | low light sens  | itive, fixed foc  | us   |                           |                |   | Vantag<br>/o Simp                                     |  | OX   |                       |
| Graphics   | exterr<br>digital<br>suppo<br>Maxir<br>2048><br>7 row                                       | nal analog<br>monitor s<br>orts dual in<br>num exter<br>(1536 (VG<br>89-key, T                 | upport via D<br>dependent o<br><i>nal resolutio</i><br>A)@75Hz; 1<br>hinkVantage                           | port via V<br>isplayPor<br>display;<br>n: 2560x<br>920x1200<br>button, s         | GA DB-15 con<br>t (supports sin<br>1600 (DisplayF<br>)@60Hz (singl<br>pill-resistant, n               | gle-link DVI-D<br>Port)@60Hz;<br>e-link DVI-D ע<br>nultimedia Fn                        |  | e)                        | lis<br>•<br>•  | ted)<br>Norto<br>(30 d<br>Adob<br>Skype<br>Wind           | n™ Inte<br>ays of v<br>e® Reae<br>e™ for V<br>ows Liv | ernet S<br>irus de<br>der®<br>Vindov<br>e™ Es    | sentials   | 011                   |
| TrackPoint®<br>Touchpad<br>ThinkLight™   | UltraN  | lav™, wide   | e touchpad b   | elow keyl  |   | nes, scrolling i  | <sup>13</sup> , magnifying gla<br>regions label, mu<br>s                                     |                           | •              | purch<br>Corel  | ase pro<br><sup>®</sup> WinD                          | oduct k<br>VD® (E                                | 10 preloa<br>ey to acti<br>VD±RW)                      | ivate<br>)            |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | FHD:<br>6-cell<br>Displa<br>Botto<br>Lithiu   | ay <i>cover:</i><br>m:<br>m lon 6-ce   | 14.68" x 9<br>at 5.54 lb (2.5<br>Carbon-fik<br>Glass-fibe<br>all or 9-cell, s                              | .65" x 1.2<br>51kg); <i>9-c</i><br>oer / Glass<br>r reinforce<br>upport op       | 9-1.44"; 372.8<br><i>ell:</i> starting at s<br>s-fiber hybrid;<br>ed plastic witho<br>tional Slice ba | mm x 245.1m<br>5.89 lb (2.67k<br>out paint<br>attery as 2nd l                           | im x 31.8-35.6mi<br>im x 32.8-36.6mi<br>g)<br>pattery at bottom<br><i>lus slice battery:</i> | m                         | •              | (DVD<br>Corel   | ±RW)  | lovieFa  | Lenovo É<br>actory® Lo                                 |                       |
| Chipset<br>ExpressCard<br>Smart Card R<br>Multicard Rea<br>Ports   | Mobil<br>One s<br>ead None<br>der 4-in-1<br><i>Integr</i><br><i>Optim</i><br>exterr<br>IEEE | e Intel QM<br>slot (Expre<br>reader (N<br>rated model<br>nus model:<br>nal monito<br>1394 Fire | <b>A67 Express</b><br>ssCard/34)<br>IMC, SD, SD<br>el: Four USE<br>Three US<br>r (VGA DB-1<br>Wire 400 (4- | HC, SDX<br>2.0 (one<br>B 2.0 (on<br>5, Display<br>pin conne                      | C)<br>powered),   | ne USB 2.0/e<br>et (RJ-45),   | SATA combo por   | ·                         |                |   |   |  |  |                       |
| PCIe Mini Car<br>WLAN⁴<br>WWAN   | 11b/g<br>Wirele   | /n, PCle Η<br>ess WAN ι  | ss Mini Card<br>Ialf Mini Card<br>Ipgradable   |  | ntrino <sup>®</sup> Wireles   | ss-N 1000, 1x   | 2  |                           |                |   |   |  |  |                       |
| Modem<br>Bluetooth™  | None<br>Blueto  | ooth 3.0 w   | ireless, LED   | indicator  |   |   |  |                           | S              | uppor   | s Think   | Vanta  | ge® techr  | nologies              |
| Ethernet<br>Intel AMT<br>Audio support<br>Security<br>Security chip<br>Fingerprint rea                                       | None<br>High I<br>volum<br>Powe<br>Truste<br>ader UPEK                                      | Definition (<br>le up, dow<br>r-on passv<br>ed Platforn<br>( Fingerpri                         | (HD) Audio,<br>n, mute butto<br>vord, hard di<br>n Module, TC<br>nt reader on                              | Conexant<br>ons / dual<br>sk passw<br>CG 1.2-co<br>palm res                      | array mic, mic<br>ord, superviso<br>mpliant<br>t, swipe senso   | / stereo speal<br>c mute button,<br>r password, s<br>r, LED indicat                     | kers, 1 watt x 2 /<br>combo audio/m<br>ecurity keyhole                                       |                           | E<br>E<br>R    | hinkPa<br>magr<br>PEAT<br>NERG<br>oHS-c                   | esium f<br>™ Gold<br>Y STAF<br>omplia                 | Ċage (<br>irame)<br>rating<br>R® 5.0-<br>nt      | one-piec<br>complian<br>/ Service                      | nt                    |
| l imited warra   |   |  | ,  |  | e security chip<br>vice / service i   |   | ailable  |                           |                | 4 hour  | x 7 day   | /18 toll-  | free supp<br>period <sup>12</sup>                      | oort                  |

See footnotes for more detailed information WE model(s) announced October 4 or December 20, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad<sub>®</sub>





Lenovo ThinkPad W520



Lenovo ThinkPad W520



Lenovo ThinkPad W520



Lenovo ThinkPad W520



# ThinkPad<sup>®</sup> W520 4282 (Optimus) - withdrawn

| Type-model Proce   | essor Memory  | Wide-<br>screen<br>display  | Discrete graphics  | Disk<br>SATA<br>GB <sup>®</sup> rpm   | RAID                                 | SATA<br>optical                             | PCle<br>Mini Card<br>WLAN               | PCle<br>Mini Card<br>WWAN/mSA |  | tery  |  | Global<br>(G)<br>GMP (P               | Pre-                |
|--|---|---|--|---|--------------------------------------|---|---|-------------------------------|--|---|--|---------------------------------------|---------------------|
| 4282-25G i5-254  | 10M 2GBx2   | 15.6" HD+   | 1000M  | 1x320G 7200   | )                                    | <b>DVD</b> ±RW                              | Intel 620528                            | WWAN up                       | bg   | 9   | vPro   | G                                     | Pro 64              |
| 4282-3CG i5-254  | 40M 2GBx2   | 15.6" HD+   | 1000M  | 1x320G 7200   | )                                    | <b>DVD</b> ±RW                              | Intel 6205                              | WWAN up                       | g Finger   | 6   | vPro   |                                       | Pro 64              |
| 4282-4ZG i7-276  | 60QM 4GBx1  | 15.6" FHD   | 2000M  | 1x500G 7200   | )                                    | DVD±RW                                      | Intel 630028                            | WWAN up                       | bg   | 9   | vPro   | G                                     | Pro 64              |
| 4282-4YG i7-286  | 60QM 4GBx2  | 15.6" FHD   | 2000M  | 1x500G 7200   | )                                    | <b>DVD</b> ±RW                              | Intel 6300                              | WWAN up                       | og Finger  | 9   | vPro   | G                                     | Pro 64              |
| 4282-5CG i7-276  | 60QM 4GBx1  | 15.6" FHD   | 1000M  | 2x500G 7200   | ) 1                                  |   | Intel 6205                              | WWAN up                       | og Finger  | 9   | vPro   | G                                     | Pro 64              |
| 4282-5BG i7-276  | 60QM 4GBx1  | 15.6" FHD   | 1000M  | 2x500G 7200   | 0 (                                  |   | Intel 6205                              | WWAN up                       | g Finger   | 9   | vPro   | G                                     | Pro 64              |
|  | •   | Power-packed  | d engineer   | ing with Open   | GL gr                                | aphics and                                  | ISV certificat                          | ions                          |  |   |  |                                       |                     |
| Positioning<br>Processor   | Mobile worksta<br>Intel <sup>®</sup> Core™ is<br>DDR3 memory  | 5-2540M proc  | essor (du  | al-core, 2.600  | iHz, 3                               | MB Cache                                    | ),<br>GHz) HT tec                       | hnology                       | Preloaded<br>- Genuine<br>Professio  | Windo   | ows® 7   | system                                | 20                  |
|  | Intel Core i7-2<br>DDR3 memory<br>Intel Core i7-2   | 760QM proce<br>controller (up<br>860QM proce  | essor (qua<br>to 1600M<br>essor (qua                             | d-core, 2.40G<br>Hz), Intel Turb<br>id-core, 2.50G  | Hz, 61<br>5 Boos<br>i <b>Hz, 8</b> 1 | MB Cache)<br>st 2.0 (3.50<br>MB Cache)      | ,<br>GHz), HT tec<br>,                  | hnology                       | <ul> <li>Ready to in some listed</li> <li>Rescue a</li> </ul>  | nstall<br>)                                       | applic   |                                       | <sup>14</sup> (only |
| Memory   | DDR3 memory<br>dual-core mode   | el: 16GB ma   | ax <sup>7</sup> , two 20   | 4-pin SO-DIM  | VI socl                              | kets  | GHZ), HI tec                            | nnology                       | <ul><li>Access C</li><li>Fingerpri</li></ul>   | onne  | ctions™  | м                                     | orint               |
|  | quad-core mod<br>All:   |   |  | Hz DDR3, non  |                                      |   | nel capable                             |                               | <ul><li>models)</li><li>Password</li></ul>   | d Man   | ager (f  | ingerpi                               | rint                |
| Optical  | Some: DVD bu  |   |  |   |                                      |   | L L                                     |                               | <ul><li>models)</li><li>ThinkVan</li></ul>   | togo  | Cuoton   |                                       | ło                  |
| Ultrabay<br>SATA disk  | One bay for rer<br>Some: Solid S<br>Some: HDD / 3   | tate Drive (SS  | SDÍ / SATA   | 3.0Gb/s. 2.5"   | wide.                                | 7mm hiah                                    | ,                                       |                               | <ul><li>ThinkVan</li><li>ThinkVan</li></ul>  | itağe I   | Power  | Manag                                 |                     |
| mSATA™ SSD   | All: remova<br>None   | ible, upgradab  | ole, suppor  | ts the second   | disk, S                              | Shock Mour                                  | nted Hard Driv                          | ve                            | Preloaded<br>listed)   | appli   | cation   | <b>s</b> <sup>14</sup> (on            | y some              |
| Widescreen   | Some: 15.6" (3  |   |  |   |                                      |   | jht,                                    |                               | <ul> <li>Norton<sup>™</sup></li> </ul>   |   |  |                                       |                     |
| display  | Some: 15.6" (3  | 396mm) <b>FHD</b>   | (1920x10   |   | glare,                               | , LED backl                                 | ight,                                   |                               | <ul> <li>(30 days</li> <li>Adobe<sup>®</sup> F</li> </ul>  | Reade   | e <b>r</b> ®                                   | ,                                     |                     |
| Color calibration<br>Camera  | None<br>HD720p resolu   |   | ·  | :1 contrast rations in the sensition of | ·                                    |   |   |                               | <ul> <li>Skype™ f</li> <li>Windows</li> <li>Microsoft</li> </ul>   | Live⊤   | <sup>™</sup> Esse                              | ntials                                | ded:                |
| Graphics   | NVIDIA® Optim   |   |  | <u> </u>  |                                      |   | arated graphic                          | 20                            | purchase   |   |  |                                       |                     |
|  | Intel HD Graph<br>NVIDIA Quadra<br>external analog<br>digital monitor<br>supports three<br>Maximum exter<br>2048x1536 (VC | o <sup>®</sup> <b>1000M</b> or <b>2</b><br>monitor supp<br>support via Di<br>independent<br>rnal resolution | 2000M, PC<br>port via VG<br>splayPort<br>displays;<br>a: 2560x16 | I Express <sup>®</sup> x16<br>A DB-15 conn<br>(supports singl<br>600 (DisplayPo   | ector<br>e-link<br>rt)@6             | and<br>DVI-D via o<br>60Hz;                 |   |                               | <ul> <li>Corel<sup>®</sup> W</li> <li>Corel Bui<br/>(DVD±RW</li> <li>Corel DV<br/>Edition (E</li> <li>huey™PF<br/>Correctio<br/>(color cal</li> </ul>  | rn.Nov<br>V)<br>D Mov<br>DVD±F<br>RO Mc<br>n by F | w™ Lei<br>vieFact<br>RW)<br>onitor C<br>Panton | novo É<br>tory® Le<br>Color<br>e®/X-R | dition<br>enovo     |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™             | 7 row, 89-key, 1<br>TrackPoint® poin<br>UltraNav™, wid<br>Illuminates the   | nting device, "<br>le touchpad be   | Press-to-S   | Select," Interne<br>bard, Tap Zone  | t Scro<br>s, scro                    | oll Bar <sup>13</sup> , ma<br>olling regior | gnifying glass                          | s<br>-touch                   |  | branc   |  |                                       |                     |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case material | HD & HD+:<br>FHD:<br>6-cell: starting a<br>Display cover:   | 14.68" x 9.<br>at 5.40 lb (2.4<br>Carbon-fib  | .65" x 1.29<br>5kg); <i>9-</i> 6<br>er / Glass-                  | fiber hybrid;   | im x 2<br>5.75 l                     | 245.1mm x 3<br>lb (2.61kg)                  | 31.8-35.6mm<br>32.8-36.6mm              |                               |  |   |  |                                       |                     |
| Battery - type<br>Battery - life <sup>10</sup>                             | Bottom:<br>Lithium Ion 6-c<br>6-cell (57Whr):   | ell or 9-cell, si<br>up to 6.6 hr; s  | upports op<br><i>9-cell (94V</i>                                 | d plastic withou<br>tional Slice ba<br><i>Vhr):</i> up to 10.9  | ttery a                              | as 2nd batte                                | ery at bottom<br><i>ice battery:</i> up | o to 21.9 hr                  |  |   |  |                                       |                     |
| Chipset<br>ExpressCard<br>Smart Card Read                                  | Mobile Intel Q<br>One slot (Expre<br>None   |   | Chipset  |   |                                      |   |   |                               |  |   |  |                                       |                     |
| Multicard Reader<br>Ports  | 4-in-1 reader (N<br>Two USB 3.0 (k<br>external monito<br>IEEE 1394 Fire   | olue), one Pov<br>or (VGA DB-18   | vered USB<br>5, DisplayF   | 2.0 (yellow), c<br>Port), ethernet  | (RJ-4                                | 5),   | TA combo po                             | rt,                           |  |   |  |                                       |                     |
| PCIe Mini Card<br>WLAN⁴<br>WWAN  | Two PCI Expre<br>Some: 11a/b/g<br>Some: 11a/b/g<br>Wireless WAN   | /n, PCIe Half<br>/n, PCIe Half  | Mini Card,   |   |                                      |   |   |                               |  |   |  |                                       |                     |
| Carrier<br>Modem   | None<br>56K V.92 <sup>6</sup> mode  | 10  |  |   |                                      |   |   | -                             |  |   |  |                                       |                     |
| Bluetooth™   | Bluetooth 3.0 w   | vireless, LED i   |  |   |                                      |   |   |                               | Supports T   | hinkVa  | antage   | ® techn                               | ologies             |
| Ethernet   | Intel 82579LM   | Gigabit Netwo   | ork Conned   |   | e), PH                               | IY, PCle x1                                 |   | Γ                             | 170-watt A   | Cada  | pter   |                                       |                     |
| ntel AMT<br>Audio support  | Intel Active Ma<br>High Definition  | (HD) Audio, C   | Conexant 2   | :0672 codec / s   |                                      |   |   |                               | ThinkPad R<br>magnesii   | loll Ca   | age (or  | ne-piec                               | Э                   |
| Coourity   | volume up, dov  | vn, mute butto  | ons / dual a   | rray mic, mic r   | nute b                               | outton, com                                 | bo audio/mic                            | jack                          | EPEAT™ G   | old ra  | ting   |                                       |                     |
| Security<br>Security chip  | Power-on pass<br>Trusted Platform   |   |  |   | bassw                                | ora, securit                                | y keyhole                               |                               | ENERGY S   | <b>TAR®</b>                                       |  | omplian                               | t                   |
| Fingerprint reader   | Some: UPEK  | Fingerprint rea   | ader on pa   |   |                                      |   | cator,                                  |                               | RoHS-complete Ro | al War  |  |                                       |                     |
| Limited warranty <sup>12</sup>   |   |   |  |   | · ·                                  |   | e                                       |                               | during the   |   |  |                                       |                     |
|  | - <b>j</b> -uio, i yi bo  |   | - 100 1001   |   | 9.444                                | aranabi                                     | -                                       |                               |  |   |  |                                       |                     |

See footnotes for more detailed information WE model(s) announced February 22 or November 1, 2011, or May 1, 2012 WE model(s) withdrawn effective December 2012

# ThinkPad<sup>®</sup> W520 4284 (Optimus) - Onsite - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proce             | Wide- Disk PCIe PCIe<br>screen Discrete SATA Mini Card Mini Card<br>ssor Memory display graphics GB <sup>®</sup> rpm WLAN WWAN/mSATA Carrier Modem              | Smart Bat-<br>Card Color tery Intel Intel Pre<br>Reader calib cells AMT vPro Ioad                                    |
|------------------------------|---|--|
| 1284-4MG i7-28               |   | X-Rite <b>9</b> iAMT vPro Pro 6  |
|                              |   | Smart X-Rite 9 iAMT vPro Pro 6   |
|                              | 70QM 4GBx1 15.6" HD+ 1000M 500G 7200 Intel 6300 WWAN upg  | <i>9</i> Pro 6   |
| 284-4AG i5-252               |   | <i>9</i> iAMT vPro Pro 6   |
|                              | Power-packed engineering with Open GL graphics and ISV certifications   |  |
| Positioning                  | Mobile workstation; two spindles  | Preloaded operating system <sup>20</sup>   |
| Processor                    | Intel® Core™ i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),  | - Genuine Windows® 7   |
|                              | DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i7-2670QM processor (quad-core, 2.20GHz, 6MB Cache),       | Professional 64  |
|                              | DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.10GHz), HT technology  | Ready to install applications <sup>14</sup> (onl   |
|                              | Intel Core i7-2760QM processor (quad-core, 2.40GHz, 6MB Cache),   | some listed)<br>● Rescue and Recovery™   |
|                              | DDR3 memory controller (up to 1600MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology<br>Intel Core i7-2860QM processor (quad-core, 2.50GHz, 8MB Cache),       | <ul> <li>Access Connections™</li> </ul>  |
|                              | DDR3 memory controller (up to 1600MHz), Intel Turbo Boost 2.0 (3.60GHz), HT technology  | Fingerprint Software (fingerprint  |
| /lemory                      | dual-core model: 16GB max <sup>7</sup> , two 204-pin SO-DIMM sockets  | <ul><li>models)</li><li>Password Manager (fingerprint</li></ul>  |
| lioniory                     | <i>quad-core model:</i> 32GB max, four 204-pin SO-DIMM sockets  | models)  |
|                              | All: PC3-10600 1333MHz DDR3, non-parity, dual-channel capable   | ThinkVantage System Update   |
| Optical                      | DVD burner, 12.7mm Ultrabay Enhanced, removable   | ThinkVantage Power Manager   |
| Jltrabay<br>SATA disk        | One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high        | ThinkVantage Toolbox   |
| SATA UISK                    | Some: HDD / SATA 3.0Gb/s, 2.5" wide, 7mm or 9.5mm high, Active Protection System™   | Preloaded applications <sup>14</sup> (only som   |
|                              | All: removable, upgradable, supports the second disk, Shock Mounted Hard Drive  | listed)<br>● Norton™ Internet Security 2011  |
| nSATA™ SSD                   | None  | (30 days of virus definitions)   |
| Videscreen                   | Some: 15.6" (396mm) HD+ (1600x900) color, anti-glare, LED backlight,  | Adobe <sup>®</sup> Reader <sup>®</sup>   |
| display                      | 220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut<br>Some: 15.6" (396mm) FHD (1920x1080) color, anti-glare, LED backlight,                           | <ul> <li>Skype<sup>™</sup> for Windows</li> <li>Windows Live<sup>™</sup> Essentials</li> </ul>                       |
|                              | 270 nits, 16:9 aspect ratio, 500:1 contrast ratio, 95% Gamut  | Microsoft Office 2010 preloaded;   |
| Color calibration            | Some: huey™PRO Colorimeter by X-Rite <sup>®</sup> color calibration sensor in palm rest   | purchase product key to activate   |
| Camera                       | HD720p resolution, wider view angle, low light sensitive, fixed focus   | <ul> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition</li> </ul> |
| Graphics                     | NVIDIA <sup>®</sup> Optimus™ technology, auto-switch between discrete and integrated graphics,  | (DVD±RW)   |
|                              | Intel HD Graphics 3000 in processor, and<br>NVIDIA Quadro <sup>®</sup> 1000M or 2000M, PCI Express <sup>®</sup> x16, 2GB memory,                                | <ul> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo</li> </ul>  |
|                              | external analog monitor support via VGA DB-15 connector and   | Edition (DVD±RW)   |
|                              | digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);  | <ul> <li>huey™PRO Monitor Color<br/>Correction by Pantone<sup>®</sup>/X-Rite<sup>®</sup></li> </ul>                  |
|                              | supports three independent displays;<br>Maximum external resolution: 2560x1600 (DisplayPort)@60Hz;  | (color calibration models)   |
|                              | 2048x1536 (VGA)@85Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)   |  |
| Keyboard                     | 7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys   |  |
| FrackPoint®                  | TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass  |  |
| Fouchpad<br>FhinkLight™      | UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch Illuminates the keyboard to improve visibility in low-light conditions |  |
| Dimensions                   | HD & HD+: 14.68" x 9.65" x 1.25-1.40"; 372.8mm x 245.1mm x 31.8-35.6mm  |  |
| (WxDxH) <sup>3</sup>         | FHD: 14.68" x 9.65" x 1.29-1.44"; 372.8mm x 245.1mm x 32.8-36.6mm   |  |
| Veight <sup>2</sup>          | 6-cell: starting at 5.40 lb (2.45kg); 9-cell: starting at 5.75 lb (2.61kg)  |  |
| Case material                | Display cover: Carbon-fiber / Glass-fiber hybrid;<br>Bottom: Glass-fiber reinforced plastic without paint   |  |
| Battery - type               | Lithium Ion 6-cell or 9-cell, supports optional Slice battery as 2nd battery at bottom  |  |
| Battery - life <sup>10</sup> | 6-cell (57Whr): up to 6.6 hr; 9-cell (94Whr): up to 10.9 hr; 9-cell plus slice battery: up to 21.9 hr   |  |
| Chipset                      | Mobile Intel QM67 Express Chipset   |  |
| ExpressCard                  | One slot (ExpressCard/34)<br>Some: Smart Card reader  |  |
|                              | 4-in-1 reader (MMC, SD, SDHC, SDXC)   |  |
| Ports                        | Two USB 3.0 (blue), one Powered USB 2.0 (yellow), one USB 2.0/eSATA combo port,   |  |
|                              | external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45),  |  |
| Cle Mini Card                | IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)<br>Two PCI Express Mini Card slots  |  |
| WLAN <sup>4</sup>            | 11a/b/g/n, PCIe Half Mini Card, Intel Centrino <sup>®</sup> Ultimate-N 6300, 3x3  |  |
| WWAN                         | Some: Wireless WAN upgradable   |  |
|                              | Some: Wireless WAN, Ericsson® F5521gw Mobile Broadband Module, PCIe Mini Card,  |  |
| Carrier                      | GPRS/WCDMA/HSPA/HSPA+, GPS<br>Some: User selectable, contract required with service provider  |  |
| /lodem                       | Some: 56K V.92 <sup>6</sup> modem   |  |
| luetooth™                    | Bluetooth 3.0 wireless, LED indicator   |  |
| thernet                      | Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>Some: Intel Active Management Technology (iAMT)  | Supports ThinkVantage® technologie   |
| udio support                 | High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /  | 170-watt AC adapter  |
|                              | volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack   | ThinkPad Roll Cage (one-piece  |
| Security<br>Security chip    | Power-on password, hard disk password, supervisor password, security keyhole<br>Trusted Platform Module, TCG 1.2-compliant                                      | magnesium frame)   |
|                              | <sup>r</sup> UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,   | EPEAT™ Gold rating<br>ENERGY STAR <sup>®</sup> 5.0-compliant   |
|                              | Power On Authentication, supports the security chip   | RoHS-compliant   |
| imited warranty <sup>1</sup> | <sup>2</sup> 3-years/1-year battery, limited onsite service <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding   | International Warranty Service <sup>17</sup>   |
|                              | public and national holidays. Calls received after 3 pm will require an additional next business  | 24 hour x 7 day <sup>18</sup> toll-free support  |
|                              | day for service dispatch / service upgrades available   | during the warranty period <sup>12</sup>   |

WE model(s) announced March 1 or August 2, 2011 WE model(s) withdrawn effective December 2012

### ThinkPad® W520 4284 (Optimus) - Onsite (September 2011) - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proce   | Wide-<br>screen<br>sor Memory display  | Disk<br>Discrete SATA<br>graphics GB <sup>8</sup> rpm RAID   | PCI<br>SATA Mini C<br>optical WLA   | Card Mini Card  | Finger Bat- Global<br>print Color tery Intel (G) Pre-<br>reader calib cells vPro GMP (P) load  |
|--|--|--|---|---|--|
| 4284-25G i5-254<br>4284-4YG i7-286<br>4284-4ZG i7-276<br>4284-5DG i7-276   | 0M 2GBx2 15.6" HD+<br>0QM 4GBx2 15.6" FHD<br>0QM 4GBx1 15.6" FHD<br>0QM 4GBx1 15.6" FHD<br>0QM 4GBx1 15.6" FHD<br>0QM 4GBx1 15.6" FHD                                      | 1000M         1x320G 7200           2000M         1x500G 7200           2000M         1x500G 7200           1000M         2x500G 7200         1  | DVD±RW Intel 6:<br>DVD±RW Intel 6:<br>DVD±RW Intel 6:<br>Intel 6:<br>Intel 6:               | 20528WWAN upg30028WWAN upg300WWAN upg205WWAN upg205WWAN upg | None         9         vPro         G P         Pro         64           None         9         vPro         G P         Pro         64           None         9         vPro         G P         Pro         64           Finger         None         9         vPro         G P         Pro         64           Finger         None         9         vPro         G P         Pro         64           Finger         None         9         vPro         G P         Pro         64 |
|  | <ul> <li>Power-packed engin</li> </ul>   | neering with Open GL graphi<br>10 Product Key Ready (O10F  | cs and ISV certifica  |   |  |
| Positioning<br>Processor   | DDR3 memory controller (i<br>Intel Core i7-2760QM pro<br>DDR3 memory controller (i<br>Intel Core i7-2860QM pro   | indles<br>ocessor (dual-core, 2.60GH<br>up to 1333MHz), Intel Turbo E<br>cessor (quad-core, 2.40GH<br>up to 1600MHz), Intel Turbo E<br>cessor (quad-core, 2.50GH<br>up to 1600MHz), Intel Turbo E  | Boost 2.0 (3.30ĜH;<br><b>z, 6MB Cache),</b><br>Boost 2.0 (3.50GH;<br><b>z, 8MB Cache)</b> , | z), HT technology   | Preloaded operating system <sup>20</sup> - Genuine Windows® 7         Professional 64         Ready to install applications <sup>14</sup> (only some listed)         • Rescue and Recovery™  |
| Memory   | dual-core model: 16GB r<br>quad-core model: 32GB r   | nax <sup>7</sup> , two 204-pin SO-DIMM s<br>nax, four 204-pin SO-DIMM s<br>0600 1333MHz DDR3, non-pa   | sockets   | <u>,,                                   </u>                | <ul> <li>Access Connections™</li> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint</li> </ul>  |
| Optical<br>Ultrabay<br>SATA disk   | One bay for removable dev<br>Some: Solid State Drive (<br>Some: HDD / SATA 3.0Gb<br>All: removable, upgrad   | Im Ultrabay Enhanced, remo<br>rices, Ultrabay Slim-compatib<br>SSD) / SATA 3.0Gb/s, 2.5" wi<br>/s, 2.5" wide, 7mm or 9.5mm<br>able, supports the second dis  | le, 12.7mm high, b<br>de, 7mm high<br>high, Active Protec                                   | ction System™   | models)<br>• ThinkVantage System Update<br>• ThinkVantage Power Manager<br>• ThinkVantage Toolbox<br>Preloaded applications <sup>14</sup> (only some   |
| mSATA™ SSD<br>Widescreen<br>display  | 220 nits, 16:9 áspe<br>Some: <b>15.6</b> " (396mm) <b>FH</b>   | + (1600x900) color, anti-gla<br>ct ratio, 500:1 contrast ratio,<br>D (1920x1080) color, anti-gl<br>ct ratio, 500:1 contrast ratio,   | 60% Gamut<br>are, LED backlight   | ,   | Iisted)<br>• Norton™ Internet Security 2011<br>(30 days of virus definitions)<br>• Adobe <sup>®</sup> Reader <sup>®</sup><br>• Skype <sup>™</sup> for Windows  |
| Color calibration<br>Camera  | None   | view angle, low light sensitive  |   |   | <ul> <li>Windows Live™ Essentials</li> <li>Microsoft Office 2010 preloaded;</li> </ul>   |
| Graphics   | Intel HD Graphics 3000 in<br>NVIDIA Quadro® 1000M o<br>external analog monitor su<br>digital monitor support via<br>supports three independer<br>Maximum external resoluti | r <b>2000M</b> , PCI Express® x16, 2<br>pport via VGA DB-15 connec<br>DisplayPort (supports single-  | 2GB memory,<br>etor and<br>link DVI-D via optic<br>@60Hz;                                   | onal cable);  | <ul> <li>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> <li>huey<sup>™</sup>PRO Monitor Color<br/>Correction by Pantone<sup>®</sup>/X-Rite<sup>®</sup><br/>(color calibration models)</li> </ul>   |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™   | TrackPoint <sup>®</sup> pointing device<br>UltraNav™, wide touchpad  | e button, spill-resistant, multi<br>, "Press-to-Select," Internet S<br>below keyboard, Tap Zones,<br>improve visibility in low-light   | Scroll Bar <sup>13</sup> , magnif<br>scrolling regions la                                   |   |  |
| Dimensions<br>(WxDxH) <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Battery - life <sup>10</sup> | FHD: 14.68" x<br>6-cell: starting at 5.40 lb (2<br>Display cover: Carbon-1<br>Bottom: Glass-fib<br>Lithium lon 6-cell or 9-cell,   | 9.65" x 1.25-1.40"; 372.8mm<br>9.65" x 1.29-1.44"; 372.8mm<br>.45kg); <i>9-cell:</i> starting at 5.<br>iiber / Glass-fiber hybrid;<br>ver reinforced plastic without  <br>supports optional Slice battle<br><i>c; 9-cell (94Whr):</i> up to 10.9 h | x 245.1mm x 32.8<br>75 lb (2.61kg)<br>paint<br>ry as 2nd battery a                          | -36.6mm<br>at bottom  | r  |
| Chipset<br>ExpressCard<br>Smart Card Read<br>Multicard Reader<br>Ports   | 4-in-1 reader (MMC, SD, S<br>Two USB 3.0 (blue), one P   | DHC, SDXC)<br>owered USB 2.0 (yellow), one   |   | combo port,   |  |
| PCIe Mini Card   |  | 15, DisplayPort), ethernet (R<br>-pin connector; 1394a-2000<br>d slots   |   |   | -  |
| WLAN⁴<br>WWAN<br>Carrier<br>Modem<br>Bluetooth™  | Some: 11a/b/g/n, PCIe Ha<br>Some: 11a/b/g/n, PCIe Ha<br>Wireless WAN upgradable<br>None<br>56K V.92 <sup>6</sup> modem<br>Bluetooth 3.0 wireless, LEI                      | If Mini Card, Intel Centrino® A<br>If Mini Card, Intel Centrino U  | Advanced-N 6205,<br>Itimate-N 6300, 3x3   | 2x2<br>3  |  |
| Ethernet<br>ntel AMT   |  | work Connection (Lewisville),  | PHY, PCle x1  |   | Supports ThinkVantage® technologies  |
| Audio support<br>Security<br>Security chip   | High Definition (HD) Audio,<br>volume up, down, mute but<br>Power-on password, hard o<br>Trusted Platform Module, T  | , Conexant 20672 codec / ste<br>ttons / dual array mic, mic mu<br>disk password, supervisor pa   | ite button, combo a ssword, security ke   | audio/mic jack<br>eyhole                                    | 170-watt AC adapter<br>ThinkPad Roll Cage (one-piece<br>magnesium frame)<br>EPEAT™ Gold rating<br>ENERGY STAR® 5.0-compliant   |
|  | Power On Authenti<br>3-vears/1-vear battery. lim   | cation, supports the security<br>ited onsite service <sup>24</sup> , 8 am -<br>s. Calls received after 3 pm w  | chip<br>· 5 pm. Mon - Fri co  | overage excluding   | - RoHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup>  |

See footnotes for more detailed information WE model(s) announced February 22 or November 1, 2011, or May 1, 2012 WE model(s) withdrawn effective December 2012

# ThinkPad<sub>®</sub>



Lenovo® ThinkPad X121e



Lenovo ThinkPad X121e



Lenovo ThinkPad X121e

Lenovo ThinkPad X121e



Lenovo ThinkPad X121e

Lenovo ThinkPad X121e

# ThinkPad<sup>®</sup> X121e 3045 (Intel) - TopSeller - withdrawn

|   |                                      |                                     | Wide-<br>screen                             |                                   | Dis<br>SA                      | TA                                | PCle<br>Mini Card   | PCle<br>Mini Card                         |              |  | Finger<br>print                 | Blue- te                         |                   |               |
|---|--------------------------------------|-------------------------------------|---|-----------------------------------|--------------------------------|-----------------------------------|---|---|--------------|--|---------------------------------|----------------------------------|-------------------|---------------|
| Type-model Proce  |                                      |                                     |   | Camera                            | GB <sup>8</sup>                | •                                 | WLAN  | WWAN                                      | Carrier      | Top color  | reader                          | tooth ce                         |                   |               |
| 3045-6XG i3-235<br>3045-6WG i3-235  |                                      |                                     | 11.6" HD                                    | 0.3M<br>0.3M                      |                                |                                   | TP 11a/b/g/n<br>TP 11a/b/g/n  | WWAN upg<br>WWAN upg                      |              | Matte black<br>Matte black   |                                 | Blue (                           |                   | o 64<br>em 64 |
| 3045-6UG i3-235   |                                      |                                     |   | 0.3M                              |                                |                                   | Intel 1000  | Ericsson                                  | selectable   | Matte black  |                                 | Blue                             |                   | o 64          |
| 3045-6TG i3-235   |                                      |                                     |   |                                   |                                |                                   | Intel 1000  | WWAN upg                                  |              | Matte black  |                                 |                                  |                   | o 64          |
| 3045-6SG i3-235   |                                      |                                     |   | 0.3M                              |                                |                                   | Intel 1000  | WWAN upg                                  |              | Matte black  |                                 | Blue                             |                   | em 64         |
| 3045-7AG i3-236   |                                      |                                     |   |                                   |                                |                                   | Intel 1000  | WWAN upg                                  | aalaatabla   | Matte black  |                                 | Blue                             |                   | 0 64          |
| 3045-79G i3-236<br>3045-7KG i3-236  | 67M 1.40<br>67M 1.40                 |                                     |   |                                   |                                |                                   | Intel 1000<br>TP 11a/b/g/n  | Ericsson<br>WWAN upg                      | selectable   | Matte black<br>Matte black   |                                 | Blue (                           |                   | o 64<br>o 64  |
|   | 67M 1.40                             | -                                   |   |                                   |                                |                                   | Intel 1000  | Ericsson                                  | selectable   | Matte black  |                                 | Blue                             |                   | o 64          |
|   |                                      |                                     |   |                                   |                                |                                   | model(s), part<br>Ready (O10Pl  |   | Seller™ Prog | gram   |                                 |                                  |                   |               |
| Positioning<br>Processor  | Intel® Co<br>DDR3 me<br>Intel Cor    | ere™ i3-23<br>emory co<br>e i3-2367 | 357M proc<br>ntroller (up<br>7M proces      | to 1333<br>sor (dua               | dual-co<br>BMHz), I<br>al-core | ore, 1.<br>Hyper<br>, <b>1.40</b> | bility; one spind<br>30GHz, 3MB C<br>-Threading tec<br>GHz, 3MB Cac<br>-Threading tec | <b>ache)</b> ,<br>hnology<br><b>he)</b> , |              | - Some:  | Genuine<br>Home P               | e Window<br>remium (<br>e Window | /s® 7<br>64       |               |
| Memory  |                                      |                                     | 0600 1333<br>ble, two 20                    |                                   |                                |                                   |   |   |              | Ready to<br>some liste   | ed)                             | ••                               | ons <sup>14</sup> | (only         |
| Optical<br>SATA disk  | Some: Some: H                        | olid State<br>lard Disk             |   | SD) / SA<br>TA 3.0G               | TA 3.0G                        | ib/s, 2                           | 2.5" wide, 7mm,<br>e, 7mm, upgrada  |   |              | <ul> <li>Rescue</li> <li>Access</li> <li>Fingerp<br/>models</li> </ul> | Connec<br>orint Soft            | tions™<br>ware (fin              |                   |               |
| Widescreen<br>display   | 200 nits,                            | 16:9 ásp                            | ect ratio, 3                                | 00:1 con                          | itrast ra                      | tio                               | are, LED backli   |   | diaatar      | <ul><li>ThinkVa</li><li>ThinkVa</li></ul>                              | antage F<br>antage T            |                                  | nage              | r             |
| Camera  |                                      |                                     | s 3000 in p                                 | 01                                |                                | eu ioc                            | us, low light se  | Insilive, LED III                         | IUICALUI     | Norton <sup>T</sup> (20 day)   |                                 | et Securi<br>s definitio         |                   | 1             |
| Graphics  | external a<br>digital mo<br>supports | analog m<br>onitor sup<br>dual inde | onitor sup<br>port via H<br>pendent d       | oort via \<br>DMI™ (s<br>lisplay; | /GA DE<br>supporti             | ing HE                            | onnector and<br>DCP to output p<br>975Hz; 2560x10                                     |   | ,.           | Preloade<br>listed)<br>• Adobe®  | d applic                        | ations <sup>14</sup>             | ,                 | some          |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™                           | TrackPoir                            | nt pointing                         | oill-resistar<br>g device, lı<br>less touch | nternet S                         | Scroll Ba                      | ar <sup>13</sup>                  | s<br>multi-touch  |   |              | <ul> <li>Window</li> <li>Microsometric</li> </ul>                      | vs Live™<br>oft Office          | Essentia                         | eload             |               |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case color<br>Case material |                                      | om 3.09<br>ck (top)                 | lb (1.4kg);                                 | 6-cell:                           | from 3.4                       | 42 lb (                           | n x 208mm x 23<br>(1.55kg)<br>ityrene (PC/AB  |   |              |  |                                 |                                  |                   |               |
| Battery - type<br>Battery - life <sup>10</sup>                                | Bottom:<br>Lithium Io<br>3-cell (31  | on 3-cell o                         |   | r; 6-cell                         | (62.4W                         | <i>'hr):</i> up                   | o to 9.3 hr   | , ,                                       |              |  |                                 |                                  |                   |               |
| Chipset   | Mobile Ir                            | ntel HM6                            | 5 Express                                   | Chipse                            | t                              |                                   |   |   |              |  |                                 |                                  |                   |               |
| Multicard reader<br>ExpressCard<br>Ports                                      | None                                 |                                     | C, SD, SD                                   | ·                                 | ,                              | nitor (\                          | /ga db-15, he   | OMI), ethernet                            | (RJ-45)      |  |                                 |                                  |                   |               |
| PCIe Mini Card<br>WLAN <sup>₄</sup>   | Two PCI<br>Some: 1                   | Express I<br>1 a/b/g/n,             | Mini Card<br>PCIe Half                      | slots<br>Mini Car                 | d, Thinl                       | kPad a                            | a/b/g/n, 2x2<br>o® Wireless-N   |   | X /          |  |                                 |                                  |                   |               |
| WWAN  | Some: W<br>Some: W                   | /ireless W<br>/ireless W            | AN upgra                                    | dable<br>son® F55                 | 521gw N                        |                                   | Broadband Mc  | ,   | ni Card,     |  |                                 |                                  |                   |               |
| Carrier<br>Modem<br>Bluetooth™  | <i>Some:</i> U<br>None               | ser selec                           | table, cont                                 | ract requ                         | uired wit                      |                                   | vice provider<br>ver support)   |   |              |  |                                 |                                  |                   |               |
| Ethernet  | Realtek F                            |                                     |   |                                   |                                |                                   | , PHY, PCle x1  |   |              | Supports   |                                 | 0                                | chno              | logies        |
| Intel AMT<br>Audio support  | stereo sp                            | eakers, 2                           | D) Audio, (<br>2 watt x 2 /                 | digital m                         | ono mic                        | cropho                            | odec /<br>ne, combo audi<br>sor password, s   | o/mic jack                                | 0            | 65-watt A<br>EPEAT™<br>ENERGY  | Gold rat<br>STAR®               | ing                              | oliant            |               |
| Security<br>Security chip<br>Fingerprint reader                               | Trusted F<br>None                    | latform N                           | Iodule, TC                                  | G 1.2-co                          | omplian                        | t                                 |   | есинцу кеупон                             | e            | ROHS-co<br>Internation<br>24 hour x                                    | nal Warr<br>7 day <sup>18</sup> | toll-free s                      | uppo              |               |
| Limited warranty <sup>12</sup>  |                                      |                                     |   | / service                         | e upgra                        | des <sup>22</sup> a               | available   |   |              | during t   | ne warra                        | anty perio                       | 0d <sup>12</sup>  |               |

See footnotes for more detailed information

WE model(s) announced July 5, October 4, or December 13, 2011 WE model(s) withdrawn effective November 2012

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# ThinkPad<sup>®</sup> X121e 3045 (Intel) - TopSeller (DOS) - withdrawn

Personal Systems Reference (PSREF)

| Type-model   | Processor                       | GHz                                      | Memory  | Wide-<br>screen<br>display                             | Camera                           | Disk<br>SATA<br>GB <sup>®</sup> rpm  | PCle<br>Mini Card<br>WLAN                  | PCle<br>Mini Card<br>WWAN      | Carrier      | Top color                  | Finger<br>print<br>reader | Blue-<br>tooth | Bat-<br>tery<br>cells | Preload                |
|--|---------------------------------|--|---|--|----------------------------------|--|--|--------------------------------|--------------|----------------------------|---------------------------|----------------|-----------------------|------------------------|
|  | 3-2357M<br>3-2367M              | 1.30<br>1.40                             | 4GBx1<br>4GBx1                                    | 11.6" HD<br>11.6" HD                                   | 0.3M<br>0.3M                     | 320G 7200<br>320G 7200   | Intel 1000<br>Intel 1000                   | WWAN upg<br>WWAN upg           | None<br>None | Matte black<br>Matte black | None<br>None              | Blue<br>Blue   | 6<br>6                | DOS-Lic<br>DOS-Lic     |
|  | • Si                            | mall ar                                  | nd mediur   | n business   | (SMB) n                          | nodel(s), part (   | of the WE Top                              | oSeller™ Progr                 | ram          |                            |                           |                |                       |                        |
| Positioning<br>Processor   | Intel<br>DDR<br>Intel           | í® <b>Core</b><br>3 men<br>I <b>Core</b> | e™ <b>i3-235</b><br>nory contr<br><b>i3-2367M</b> | 7M proces<br>roller (up to<br>I processo               | sor (dua<br>1333MF<br>or (dual-o | / and reliability<br>al-core, 1.30G<br>Iz), Hyper-Thr<br>core, 1.40GHz<br>Iz), Hyper-Thr | Hz, 3MB Cae<br>eading techn<br>, 3MB Cache | c <b>he)</b> ,<br>ology<br>e), |              | Preload<br>- DOS-          |                           | rating         | syste                 | <b>m</b> <sup>20</sup> |
| Memory   |                                 |  |   |  |                                  | 3, non-parity,<br>DIMM sockets   |  |                                |              |                            |                           |                |                       |                        |
| Optical<br>SATA disk   | Som                             | <i>ne:</i> Sol<br>ne: Ha                 | lid State I<br>rd Disk D                          | JSB-based<br>Drive (SSD<br>rive / SATA<br>ction Syster | ) / SATA :<br>3.0Gb/s            | drive)<br>3.0Gb/s, 2.5" v<br>, 2.5" wide, 7m   | wide, 7mm, u<br>nm, upgradab               | ogradable<br>le,               |              |                            |                           |                |                       |                        |
| Widescreen<br>display<br>Camera  | 200                             | nits, 16                                 | 5:9 aspec   | t ratio, 300   | :1 contra                        |  | -  | it,<br>itive, LED indi         | cator        |                            |                           |                |                       |                        |
| Graphics   | exter<br>digita<br>supp         | rnal an<br>al mon<br>ports di            | alog mon<br>itor suppo<br>ual indepe              | ort via HDN<br>endent disc                             | 't via VG/<br>/I™ (supp<br>blav: | 0  | to output pro                              | tected content                 |              |                            |                           |                |                       |                        |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™                          | Full-<br>Tracl                  | size, 6<br>kPoint<br>เNav™,              | -row, spill<br>pointing c                         | -resistant,<br>levice, Inte                            | multimec<br>rnet Scro            | lia Fn keys  |  |                                |              |                            |                           |                |                       |                        |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case color<br>Case materia | 3-ce<br>Matt<br>I Top:<br>Botto | II: İror<br>e black<br>F<br>om: N        | m 3.09 lb<br>( (top)<br>PolyCarbo<br>/lagnesiur   | (1.4kg);<br>nate/Acryle<br>n alloy                     | 6-cell: fr                       | 289.6mm x 2<br>om 3.42 lb (1.5<br>utadiene-Styre   | 55kg)                                      |                                |              |                            |                           |                |                       |                        |
| Battery - type<br>Battery - life <sup>10</sup>                               |                                 |  | 3-cell or<br>?Whr): up                            |  | 6-cell (62                       | 2.4Whr): up to   | 9.3 hr                                     |                                |              |                            |                           |                |                       |                        |
| Chipset<br>Multicard read  |                                 |  |   | Express C<br>SD, SDHC                                  |                                  |  |  |                                |              |                            |                           |                |                       |                        |
| ExpressCard<br>Ports   | None                            | е  |   | ,  | , ,                              |  | DB-15, HDN                                 | II), ethernet (R               | J-45)        |                            |                           |                |                       |                        |
| PCIe Mini Ca<br>WLAN <sup>₄</sup><br>WWAN<br>Carrier<br>Modem                | 11b/                            | g/n, P0<br>less W<br>e                   |   |  |                                  | rino® Wireless   | -N 1000, 1x2                               |                                |              |                            |                           |                |                       |                        |
| Bluetooth™<br>Ethernet   | Blue                            | tooth 3                                  |   |  |                                  | oth 3.0 driver s   |  |                                |              |                            |                           |                |                       |                        |
| Intel AMT<br>Audio suppor<br>Security<br>Security chip                       | stere<br>Powe                   | Defini<br>eo spea<br>er-on p             | akers, 2 w<br>assword,                            | /att x 2 / dig   | gital mono<br>passworo           | X20582 codec<br>o microphone, o<br>d, supervisor p<br>oliant                             | combo audio/i                              | nic jack<br>curity keyhole     |              | 65-watt<br>ROHS-o          | AC Ada                    | pter<br>nt     |                       | hnologies              |
| Fingerprint re   | ader None                       | е  |   |  |                                  | ogrades <sup>22</sup> avail  | able                                       |                                |              | Internat<br>24 hour        | x 7 day<br>the wa         | 18 toll-fr     | ee su                 | pport                  |

See footnotes for more detailed information WE model(s) announced July 5 or October 4, 2011 WE model(s) withdrawn effective November 2012

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# ThinkPad<sup>®</sup> X121e 3051 (AMD) - TopSeller - withdrawn

| Type-model Process  | sor GH7  | Memory  | Wide-<br>screen<br>display   | Camera  | Integrated graphics   | Disk<br>SATA<br>GB <sup>®</sup> rpm  | PCle<br>Mini Card<br>WLAN  | PCle<br>Mini Card<br>WWAN  | Carrier  | Top color   | Blue-<br>tooth   | Bat-<br>tery<br>cells                        | Preload  |
|---|--|---|--|---|---|--|--|--|--|---|--|--|--|
| 3051-5RG         E-350           3051-5PG         C-50           3051-5NG         C-50           3051-62G         E-300           3051-5XG         E-450           3051-66G         E-450 | 0 1.60<br>1.00   | 4GBx1<br>4GBx1<br>2GBx1<br>4GBx1<br>4GBx1<br>4GBx1<br>4GBx1<br>• Small  | 11.6" HD<br>11.6" HD<br>11.6" HD<br>11.6" HD<br>11.6" HD<br>11.6" HD<br>11.6" HD<br>11.6" HD   | 0.3M<br>0.3M<br>0.3M<br>0.3M<br>0.3M<br>0.3M<br>0.3M<br>0.3M  | HD 6310<br>HD 6250<br>HD 6250<br>HD 6310<br>HD 6320<br>HD 6320<br>HD 6310<br>ess (SMB) r  | 320G 5400<br>320G 5400<br>320G 5400<br>320G 7200<br>320G 7200<br>320G 5400<br>320G 5400<br>320G 5400<br>model(s), part | TP 11b/g/n<br>TP 11a/b/g/n<br>TP 11b/g/n<br>TP 11a/b/g/n<br>TP 11b/g/n<br>TP 11b/g/n<br>TP 11a/b/g/n<br>of the WE TopS | WWAN upg<br>WWAN upg<br>WWAN upg<br>WWAN upg<br>WWAN upg<br>WWAN upg | None<br>None<br>None<br>None<br>None<br>None                       | Matte red<br>Matte black<br>Matte black<br>Matte black<br>Matte red<br>Matte red<br>Matte black                                     | Blue<br>Blue<br>Blue<br>Blue<br>Blue<br>Blue   | 6<br>6<br>6<br>6<br>6                        | Prenoad<br>Prem 64<br>Prem 64<br>Prem 64<br>Prem 64<br>Prem 64<br>Pro 64 |
| Positioning<br>Processor  | AMĎ A<br>virtualiz<br>AMD A<br>virtualiz<br>AMD A<br>virtualiz<br>AMD A<br>virtualiz | Itraportation<br>ccelerate<br>zation tec<br>ccelerate<br>zation tec<br>ccelerate<br>zation tec<br>ccelerate<br>zation tec | ole for exce<br>ed Process<br>hnology, inf<br>ed Process<br>hnology, inf<br>ed Process<br>hnology, inf<br>ed Process<br>hnology, inf | Ilent usa<br>sor C-50<br>tegrated<br>sor E-30<br>tegrated<br>sor E-35<br>tegrated<br>sor E-45<br>tegrated | bility and re<br>with dual-<br>1066MHz I<br>0 with dual-<br>1066MHz I<br>0 with dual-<br>1066MHz I<br>0 with dual-<br>1333MHz I | DDR3 memory<br>-core,<br>DDR3 memory<br>-core,<br>DDR3 memory<br>-core,<br>DDR3 memory                                 | <i>pindle</i><br>/ controller, and<br>/ controller, and<br>/ controller, and<br>/ controller, and                      | 1MB L2 cache<br>1MB L2 cache<br>1MB L2 cache                         | - 5<br>- 5<br>- 5<br>- 5<br>- 5<br>- 5<br>- 5<br>- 5<br>- 5<br>- 5 | eloaded opera<br>Some: Genuin<br>Home I<br>Some: Genuin<br>Profess<br>ady to install<br>ne listed)<br>Rescue and Re<br>Access Conne | e Wind<br>Premit<br>e Wind<br>sional (<br><b>applic</b><br>ecover<br>ctions <sup>1</sup> | dows®<br>Im 64<br>dows<br>64<br>cation<br>y™ | <sup>∞</sup> 7<br>7<br>I <b>s</b> <sup>14</sup> (only                    |
| Memory<br>Optical<br>SATA disk  | * Syste<br>None (i<br><i>Some:</i>   | m automa<br>use optior<br>Solid Sta<br>Hard Dis   | atically cloc<br>nal USB-ba<br>ate Drive (S  | ks down<br>sed opti<br>SD) / SA<br>ATA 3.00   | for process<br>cal drive)<br>ATA 3.0Gb/s  | sors with 1066   | -pin SO-DIMM s<br>MHz DDR3 me<br>mm high, upgrad<br>, upgradable,  | mory controlle   | r • 1<br>• 1<br>• N<br>(   | FhinkVantage S<br>FhinkVantage I<br>FhinkVantage<br>Norton™ Intern<br>30 days of viru<br>eloaded appli                              | Power<br>Toolbo<br>let Sec<br>us defi  | Mana<br>x<br>curity :<br>nitions             | lger<br>2011<br>s)   |
| Widescreen<br>display<br>Camera   | 200 nit  | 295mm) <b>I</b><br>s, 16:9 as   | HD (1366x7<br>pect ratio, 3  | 7 <b>68) TFT</b><br>300:1 co  | ntrast ratio  | -glare, LED ba<br>focus, low ligh  | acklight,<br>It sensitive, LED   | ) indicator  | list<br>• <i>A</i><br>• 5  |   | r®<br>ndows  |  |  |
| Graphics  |  | external<br>digital m<br>supports<br>Maximul<br>AMD Ra<br>external<br>digital m<br>supports                               | analog mo<br>onitor supp<br>s dual indep<br><i>m external</i><br>adeon HD (<br>analog mo<br>onitor supp<br>s dual indep              | nitor sup<br>port via H<br>pendent<br>resolutic<br>5310 or (<br>nitor sup<br>port via H<br>pendent        | IDMI™ (sup<br>display;<br>bn: 1920x12<br>5 <b>320 graph</b><br>pport via VG<br>IDMI (supp<br>display;                           | A DB-15 con<br>oporting HDCF<br>200 (VGA); 192<br>ics in process<br>A DB-15 con<br>orting HDCP t                       | o to output prote<br>20x1200 (HDMI)<br>sor,  | )<br>ted content);   | • 1  | licrosoft Offic<br>burchase prod  | e 2010   | prelo  | aded;  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touch pad<br>ThinkLight™   | TrackPo  | oint pointi   | ng device,   | Internet  | media Fn k<br>Scroll Bar <sup>13</sup><br>ow keyboai  |  |  |  |  |   |  |  |  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case color<br>Case material<br>Battery - type   | 3-cell:<br>Matte b<br>Top:<br>Bottom   | from 3.0<br>lack or M<br>Poly(<br>: Magr  | 9 lb (1.4kg)<br>latte red (to  | ; <i>6-cel</i><br>p)<br>Acrylonii   | <i>l:</i> from 3.42   | mm x 208mm<br>Ib (1.55kg)<br>ene-Styrene (F  | x 23.5mm<br>PC/ABS) plastic  | ;  |  |   |  |  |  |
| Battery - life <sup>10</sup>  |  |   |  | nr; <i>6-cel</i>  | l (62.4Whr)   | <i>:</i> up to 9.4 hr  |  |  |  |   |  |  |  |
| Chipset<br>Multicard reader<br>ExpressCard<br>Ports   | 4-in-1 r<br>None   | eader (M  | I Chipset<br>MC, SD, SI<br>one powere  |   | ,   | r (VGA DB-15   | , HDMI), ethern  | et (RJ-45)   |  |   |  |  |  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | Two PC<br>Some:<br>Some:   | CI Express<br>11b/g/n,<br>11a/b/g/  | s Mini Card<br>PCIe Half   | slots<br>Mini Car   | d, ThinkPa  | d b/g/n, 1x1<br>Pad a/b/g/n, 2x  | · ,·   | . ,  |  |   |  |  |  |
| Carrier<br>Modem<br>Bluetooth™<br>Ethernet<br>Audio support<br>Security<br>Security chip<br>Fingerprint reader  | None<br>Bluetoc<br>Realtek<br>High Do<br>stereo s<br>Power-<br>None<br>None          | ( RTL811<br>efinition (l<br>speakers,<br>on passw   | 1DL Gigabi<br>HD) Audio,<br>2 watt x 2<br>ord, hard d  | it Networ<br>Conexa<br>/ digital r<br>isk pass  | rk Connecti<br>nt CX20582<br>nono microp<br>word, supe  | phone, combo<br>rvisor passwo  | e x1   | nole   | 65-<br>EP<br>EN<br>RC<br>Inte<br>24                                | pports ThinkVa<br>watt AC Adap<br>EAT™ Gold ra<br>ERGY STAR®<br>HS-compliant<br>ernational War<br>hour x 7 day <sup>®</sup>         | ter<br>ting<br>5.0-co<br>ranty toll-fre  | omplia<br>Servic<br>Se sup                   | int<br>e <sup>17</sup><br>oport  |
| Limited warranty <sup>12</sup>  |  | <ul> <li>depot re<br/>led inform</li> </ul>   |  | e / servio  | ce upgrades   | <sup>22</sup> available  |  |  | C  | luring the war  | anty p   | eriod  | © Lenov  |

See footnotes for more detailed information WE model(s) announced July 5, October 4, or December 13, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad<sup>®</sup> X121e 3051 (AMD) - TopSeller (DOS) - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proces   | sor GHz                                   | Memory                                   | Wide-<br>screen<br>display               | Camera                           | Integrated graphics                     | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN              | PCle<br>Mini Card<br>WWAN        | Carrie               | r Top color  | Blue-<br>tooth        | Bat-<br>tery<br>cells | Preload                       |
|---|---|--|--|----------------------------------|---|-------------------------------------|--|----------------------------------|----------------------|--|-----------------------|-----------------------|-------------------------------|
| 3051-5QG E-350<br>3051-5YG E-450<br>3051-67G E-450                            | 0 1.65                                    | 4GBx1<br>4GBx1<br>4GBx1                  | 11.6" HD<br>11.6" HD<br>11.6" HD         | 0.3M<br>0.3M<br>0.3M             | HD 6310<br>HD 6320<br>HD 6320           | 320G 7200<br>320G 7200<br>320G 5400 | TP 11b/g/n<br>TP 11b/g/n<br>TP 11b/g/n | WWAN upg<br>WWAN upg<br>WWAN upg | None<br>None<br>None | Matte black  | Blue<br>Blue<br>Blue  | 6<br>6<br>6           | DOS-Lic<br>DOS-Lic<br>DOS-Lic |
|   | • 5                                       | Small and                                | medium b                                 | usiness                          | (SMB) mod                               | lel(s), part of                     | the WE TopSe                           | ller™ Program                    |                      |  |                       |                       |                               |
| Positioning<br>Processor  | AMÓ Ac<br>virtualiza<br>AMD Ac            | celerated<br>ation techr<br>celerated    | I Processo<br>nology, inte<br>I Processo | or E-350<br>grated 1<br>or E-450 | with dual-<br>066MHz D<br>with dual-    | DR3 memory<br>core,                 | controller, and                        | d 1MB L2 cacl<br>d 1MB L2 cacl   | he -                 | Preloaded oper<br>DOS-Lic.   | ating                 | syste                 | <b>m</b> <sup>20</sup>        |
| Memory  | two 204-                                  | pin SO-D                                 | IMM socke                                | ts                               | R3, non-pa                              |                                     | MHz DDR3 m                             | emory controll                   | er                   |  |                       |                       |                               |
| Optical<br>SATA disk  | Some: Some: H                             | Solid State<br>Hard Disk                 |  | SD) / SAT<br>TA 3.0GI            | TA 3.0Gb/s,                             | 2.5" wide, 7r<br>de, 7mm high       | nm high, upgra<br>, upgradable,        | adable                           |                      |  |                       |                       |                               |
| Widescreen<br>display<br>Camera   | 200 nits,                                 | 16:9 ásp                                 | ect ratio, 3                             | 00:1 con                         | trast ratio                             | glare, LED ba<br>ocus, low ligh     | icklight,<br>t sensitive, LE           | D indicator                      |                      |  |                       |                       |                               |
| Graphics  | external<br>digital m<br>supports         | analog m<br>onitor sup<br>dual inde      | onitor supp<br>port via HI<br>ependent d | oort via \<br>DMI™ (s<br>isplay; | upporting H                             | connector ar                        | ut protected co                        | ontent);                         |                      |  |                       |                       |                               |
| Keyboard<br>TrackPoint®<br>Touch pad<br>ThinkLight™                           | TrackPoi                                  | nt pointing                              | g device, Ir                             | iternet S                        |   | ys<br>I, multi-touch                | · · · ·                                |                                  |                      |  |                       |                       |                               |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case color<br>Case material | 3-cell: f<br>Matte bla<br>Top:<br>Bottom: | rom 3.09<br>ack (top)<br>PolyCa<br>Magne | lb (1.4kg);<br>arbonate/A<br>esium alloy | <i>6-cell:</i><br>crylonitri     | from 3.42                               | ( 0,                                | x 23.5mm<br>C/ABS) plastic             | с;                               |                      |  |                       |                       |                               |
| Battery - type<br>Battery - life <sup>10</sup>                                |   | on 3-cell (<br>1 <i>.2Whr):</i> ι        |  | ; 6-cell                         | (62.4Whr):                              | up to 9.4 hr                        |  |                                  |                      |  |                       |                       |                               |
| Chipset   | -   | OM FCH                                   |  |                                  |   |                                     |  |                                  |                      |  |                       |                       |                               |
| Multicard reader<br>ExpressCard<br>Ports                                      | None                                      | ,  | C, SD, SD                                |                                  | ,                                       | (VGA DB-15                          | , HDMI), ether                         | net (RJ-45)                      |                      |  |                       |                       |                               |
| PCIe Mini Card<br>WLAN⁴<br>WWAN<br>Carrier                                    | 11b/g/n,                                  |  |  |                                  | ad b/g/n, 1                             | x1                                  |  |                                  |                      |  |                       |                       |                               |
| Modem<br>Bluetooth™<br>Ethernet   | None<br>Bluetootl<br>Realtek              | RTL8111I                                 | DL Gigabit                               | Network                          | Connectio                               | river support)<br>n, PHY, PCIe      |  |                                  |                      | Supports ThinkV  | antage                | <sup>®</sup> tec      | hnologies                     |
| Audio support<br>Security<br>Security chip<br>Fingerprint reader              | stereo sp<br>Power-oi<br>None             | beakers. 2                               | 2 watt x 2 /                             | digital m                        | t CX20582<br>ono micropl<br>ord, superv | hone, combo a                       | audio/mic jack<br>d, security key      | /hole                            | 6<br>F<br>II         | 55-watt AC Adap<br>ROHS-complian<br>International Wa<br>A hour x 7 day <sup>11</sup> | oter<br>t<br>rranty : | Servi                 | Ce <sup>17</sup>              |
| Limited warranty <sup>12</sup>  |   | depot rep                                | air service                              | / service                        | upgrades <sup>2</sup>                   | <sup>2</sup> available              |  |                                  |                      | during the war   | ranty p               | period                | 12                            |

See footnotes for more detailed information WE model(s) announced July 5 or October 4, 2011, or January 3, 2012 WE model(s) withdrawn effective December 2012

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# ThinkPad.



Lenovo® ThinkPad X220



Lenovo ThinkPad X220



Lenovo® ThinkPad X220



Lenovo ThinkPad X220



Lenovo ThinkPad X220



Lenovo ThinkPad X220

# ThinkPad<sup>®</sup> X220 (4290) - November 2011 - I - withdrawn

Personal Systems Reference (PSREF)

| Type-modelProcessorMemorydisplayCameraGB®rpmUltraBaseSeries 3WLANWWANCarrierreader cellsvProcessor4290-4XGi7-2640M4GBx112.5" HD Prem720p320G7200OptionalOptIntel 6205 <sup>28</sup> WWAN upgFing9vProcessor4290-48Gi7-2620M4GBx112.5" HD Prem160GSSDOptionalOptIntel 6300 <sup>28</sup> WWAN upgFing9vProcessor4290-47Gi7-2620M4GBx112.5" HD Prem320G7200OptionalOptIntel 6300WWAN upgFing6vProcessor4290-46Gi5-2520M4GBx112.5" HD320G7200OptionalOptIntel 6300WWAN upgFing6vProcessor4290-46Gi5-2520M4GBx112.5" HD320G7200OptionalOptIntel 6300WWAN upgFing6vProcessor   | GPr                             | load  |
|---|---------------------------------|-------|
| 4290-48G         i7-2620M         4GBx1         12.5" HD Prem         160G SSD         Optional         Opt         Intel 6300 <sup>28</sup> WWAN upg         Fing         9         vPro           4290-47G         i7-2620M         4GBx1         12.5" HD Prem         320G 7200         Optional         Opt         Intel 6300         WWAN upg         Fing         6         vPro           4290-46G         i5-2520M         4GBx1         12.5" HD         320G 7200         Optional         Opt         Intel 6300         WWAN upg         Fing         6         vPro  |                                 |       |
| 4290-47G         i7-2620M         4GBx1         12.5" HD Prem         320G 7200         Optional         Opt         Intel 6300         WWAN upg         Fing         6         vPro           4290-46G         i5-2520M         4GBx1         12.5" HD         320G 7200         Optional         Opt         Intel 6300         WWAN upg         Fing         6         vPro  | GPI                             |       |
| 4290-46G i5-2520M 4GBx1 12.5" HD 320G 7200 Optional Opt Intel 6300 WWAN upg Fing 6 vPro   | GP                              |       |
|   |                                 |       |
| 4290-45G i7-2620M 4GBx1 12.5" HD 320G 7200 Optional Opt Intel 6300 WWAN upg Fing 9 vPro   |                                 |       |
| 4290-44G i5-2520M 4GBx1 12.5" HD 720p 320G 7200 Optional Opt Intel 6205 WWAN upg Fing 6 vPro  | GPr                             | ro 64 |
| 4290-43G i5-2520M 4GBx1 12.5" HD 720p 128G SSD Optional Opt Intel 6205 WWAN upg Fing 6 vPro   |                                 |       |
| 4290-42G i5-2540M 4GBx1 12.5" HD Prem 128G SSD Optional Opt Intel 6300 WWAN upg Fing 6 vPro   |                                 |       |
| 4290-3WG i5-2520M 4GBx1 12.5" HD 720p 320G 7200 Optional Opt Intel 6205 Ericsson select Fing 6 vPro   |                                 | ro 64 |
| 4290-3SG i5-2540M 4GBx1 12.5" HD 720p 320G 7200 Optional Opt Intel 6205 Ericsson select Fing 6 vPro   | Pr Pr                           | ro 64 |
| Positioning<br>Processor       An ultraportable for the executive on the move; one spindle       Preloaded operating sy         Processor       Intel® Core™ i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology<br>Intel Core i7-2620M processor (dual-core, 2.70GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.40GHz), HT technology<br>Intel Core i7-2640M processor (dual-core, 2.80GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology       Ready to install applica<br>some listed)         Rescue and RecoveryT       Access Connections™         DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology       Fingerprint Software (fi<br>madale) | tions¹⁴ (<br>™                  |       |
| Memory 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets models)  | gerprint                        |       |
| Optical Option for ThinkPad Ultrabase Series 3 • ThinkVantage System  |                                 |       |
| Ultrabay Supports Ultrabay Slim devices in optional or standard ThinkPad Ultrabase Series 3 • ThinkVantage Power M  | lanager                         |       |
| SATA dísk Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high • ThinkVantage Toolbox<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ • <b>Preloaded applications</b>  | 14 ( a la la la la la           |       |
| All: removable, upgradable, Shock Mounted Hard Drive, supports the second disk listed)  | 4 (only s                       | some  |
| in optional or standard ThinkPad Ultrabase Series 3 ● Norton™ Internet Secu   | rity 2011                       | ı     |
| mSATA™ SSD None (30 days of virus defini  |                                 |       |
| Widescreen Some: 12.5" (317.5mm) HD (1366x768) TFT color, anti-glare, LED backlight, Adobe® Reader®   |                                 |       |
| display 200 nits, 16:9 aspect ratio, 300:1 contrast ratio Some: (Premium) <b>12.5</b> " (317.5mm) <b>HD (1366x768) TFT color</b> , anti-glare, LED backlight, ● Skype™ for Windows ● Microsoft Office 2010 p  | reloaded                        | d.    |
| 300 nits, 16:9 aspect ratio, 500:1 contrast ratio, IPS, WideView (170° viewing) purchase product key t  |                                 |       |
| Camera Some: HD720p resolution, wider view angle, low light sensitive, fixed focus • Corel® WinDVD® (DVD  | ±RW)                            |       |
| Graphics       Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br>Maximum external resolution: 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)       • Corel Burn.Now™ Lend<br>(DVD±RW)  |                                 |       |
| Keyboard7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keysTrackPoint®TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar13, magnifying glassTouchpadUltraNav™, buttonless touchpad below keyboard, multi-touchThinkLight™Illuminates the keyboard to improve visibility in low-light conditions   |                                 |       |
| Dimensions <sup>3</sup> without UltraBase; 4/6-cell: 12.0" x 8.13" x 0.75-1.36"; 305mm x 206.5mm x 19.0-34.6mm  |                                 |       |
| Weight <sup>2</sup> 4-cell: from 2.97 lb (1.35kg); 6-cell: from 3.31 lb (1.50kg); 9-cell: from 3.67 lb (1.67kg)         Case material       Display cover: Magnesium + PCABS; Bottom: Magnesium alloy         Standard Battery       Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional external battery as 2nd battery   |                                 |       |
| External Battery<br>Battery - life <sup>10</sup> None<br>4-cell (28Whr): up to 4.1 hr; 6-cell (62.4Whr): up to 9.2 hr; 9-cell (99.9Whr): up to 13.8 hr;<br>external battery (64Whr): up to 9.4 hr; 9-cell plus external battery: up to 23.2 hr<br>ThinkPad Ultrabase  |                                 | -     |
| Chipset Mobile Intel QM67 Express Chipset   • Provides desktop expansion  |                                 |       |
| Ultrabase Option: ThinkPad Ultrabase Series 3 (see right side) cable management for   |                                 |       |
| Multicard reader 4-in-1 reader (SD, SDHC, SDXC, MMC) X220 Tablet<br>ExpressCard One slot (ExpressCard/34, ExpressCard/54) Easily connects to the bo   | ttom of t                       | ho    |
| ExpressCard One slot (ExpressCard/34, ExpressCard/54)<br>Ports <i>i7 model:</i> One USB 3.0, two USB 2.0 (one powered) • Easily connects to the of X220 or X220 Tablet for  |                                 |       |
| <i>other model:</i> Three USB 2.0 (one powered) • Converts ThinkPad to a  | two-spi                         | ndle  |
| external monitor (VGA DB-15 DisplayPort) ethernet (B.I-45) system with optional U   | trabay S                        | lim   |
| PCle Mini Card<br>WLAN <sup>4</sup> Two PCle Half Mini Card slots<br>WLAN <sup>4</sup> Some: 11a/b/g/n, PCle Half Mini Card, Intel Centrino® Advanced-N 6205, 2x2<br>Some: 11a/b/g/n, PCle Half Mini Card, Intel Centrino® Advanced-N 6300, 3x3<br>• Power button (front)   | e                               |       |
| WWAN Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson® F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS  | nitor por<br>ingle-linl         | t     |
| Carrier Some: User selectable, contract required with service provider DVI-D via optional cable   | e)                              |       |
| Modem None • Four USB 2:0 ports   | i) nort                         |       |
| Ethernet Intel 82579I M Gigabit Network Connection (Lewisville), PHY, PCIe x1     Microphone in and hea   | dphone (                        |       |
|   |                                 |       |
|   |                                 |       |
| Audio support High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 / • 1.39 lb; 630g  |                                 |       |
| Audio support       High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 / volume up, down, mute buttons / dual array microphone, combo audio/mic jack       • 1.39 lb; 630g         Socurity       Bower on possword bard dick possword suppry/set possword socurity kowhole       65-watt AC Adapter  |                                 |       |
| Audio support<br>Audio support<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array microphone, combo audio/mic jack<br>Security chin<br>Tructed Plotferm Medula TCG 1.2 compriser   | npliant                         |       |
| Audio support High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array microphone, combo audio/mic jack<br>Security chip Trusted Platform Module, TCG 1.2-compliant<br>Fingerprint reader UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,  |                                 |       |
| Audio support High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array microphone, combo audio/mic jack<br>Security chip Trusted Platform Module, TCG 1.2-compliant   | ervice <sup>17</sup><br>support | t     |

See footnotes for more detailed information WE model(s) announced April 19, May 3, or October 4, 2011 WE model(s) withdrawn effective December 2012

# ThinkPad<sup>®</sup> X220 (4290) - November 2011 - II - withdrawn

|   | Widescreen SATA in Ultrabase Mini Card Mini Card  | inger Bat- Ext Global (G)<br>print Blue- tery Battery Intel GMP Pre-   |
|---|---|--|
| Type-model Proces   | sor Memory display Camera GB <sup>8</sup> rpm UltraBase Series 3 WLAN WWAN Carrier r  | eader tooth cells cells vPro (P) load  |
|   |   | Fing BT 9 vPro G Pro 64  |
|   | 0M 4GBx1 12.5" HD 720p 320G 7200 Optional Opt Intel 6205 upg  | 6 vPro G Pro 64  |
|   | DM 4GBx1 12.5" HD720p 160G SSD DVD±RW UltraB Intel 6205Ericsson selectDM 4GBx1 12.5" HD720p 320G 7200Optional OptIntel 6205Ericsson select  |  |
|   |   | Fing BT 6 VPro Pro 64  |
|   | OM 2GBx1 12.5" HD 720p 250G 5400 Optional Opt Intel 6205 upg  | BT 6 vPro Pro 64   |
|   |   | Fing BT 9 6 vPro G Pro 64  |
|   |   | Fing BT 6 6 vPro G Pro 64  |
|   | <ul> <li>A depot repair service 3-year limited warranty</li> <li>Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)</li> </ul>  |  |
| Positioning<br>Processor  | An ultraportable for the executive on the move; one spindle<br>Intel <sup>®</sup> Core <sup>™</sup> i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology<br>Intel Core i7-2620M processor (dual-core, 2.70GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.40GHz), HT technology | <ul> <li>Preloaded operating system<sup>20</sup></li> <li>Genuine Windows<sup>®</sup> 7<br/>Professional 64</li> <li>Ready to install applications<sup>14</sup> (only<br/>some listed)</li> <li>Rescue and Recovery<sup>™</sup></li> <li>Access Connections<sup>™</sup></li> </ul> |
| Memory  | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets   | Fingerprint Software (fingerprint models)  |
| Optical<br>Ultrabay<br>SATA disk                                | <ul> <li>Some: DVD burner, removable from ThinkPad Ultrabase Series 3</li> <li>Supports Ultrabay Slim devices in optional or standard ThinkPad Ultrabase Series 3</li> <li>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high</li> <li>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 7mm high, Active Protection System<sup>™</sup></li> <li>All: removable, upgradable, Shock Mounted Hard Drive, supports the second disk in optional or standard ThinkPad Ultrabase Series 3</li> </ul>  | <ul> <li>Password Manager (fingerprint<br/>models)</li> <li>ThinkVantage System Update</li> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> </ul>  |
| mSATA™ SSD  | None  | Preloaded applications <sup>14</sup> (only some listed)  |
| Widescreen  | Some: 12.5" (317.5mm) HD (1366x768) TFT color, anti-glare, LED backlight,   | <ul> <li>Norton™ Internet Security 2011</li> </ul>   |
| display   | 200 nits, 16:9 aspect ratio, 300:1 contrast ratio<br>Some: (Premium) <b>12.5</b> " (317.5mm) <b>HD (1366x768) TFT color</b> , anti-glare, LED backlight,<br>300 nits, 16:9 aspect ratio, 500:1 contrast ratio, IPS, WideView (170° viewing)<br>Some: HD720p resolution, wider view angle, low light sensitive, fixed focus  | <ul> <li>(30 days of virus definitions)</li> <li>Adobe<sup>®</sup> Reader<sup>®</sup></li> <li>Skype<sup>™</sup> for Windows</li> <li>Microsoft Office 2010 preloaded;</li> </ul>  |
| Graphics  | Intel HD Graphics 3000 in processor,  | purchase product key to activate   |
|   | external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br><i>Maximum external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)   | <ul> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now<sup>™</sup> Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul>  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  | 7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, buttonless touchpad below keyboard, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions  |  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material | <i>without UltraBase; 4/6-cell:</i> 12.0" x 8.13" x 0.75-1.36"; 305mm x 206.5mm x 19.0-34.6mm<br><i>4-cell:</i> from 2.97 lb (1.35kg); <i>6-cell:</i> from 3.31 lb (1.50kg); <i>9-cell:</i> from 3.67 lb (1.67kg)<br><i>Display cover:</i> Magnesium + PCABS; <i>Bottom:</i> Magnesium alloy  |  |
| Standard Battery  | Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional external battery as 2nd battery  | Supports ThinkVantage® technologies  |
| External Battery<br>Battery - life <sup>10</sup>                | <i>Some:</i> Slim external Lithium Ion 6-cell battery (ThinkPad Battery 19+)<br><i>4-cell (28Whr):</i> up to 4.1 hr; <i>6-cell (62.4Whr):</i> up to 9.2 hr; <i>9-cell (99.9Whr):</i> up to 13.8 hr;<br><i>external battery (64Whr):</i> up to 9.4 hr; <i>9-cell plus external battery:</i> up to 23.2 hr  | ThinkPad Ultrabase Series 3  |
| Chipset   | Mobile Intel QM67 Express Chipset   | <ul> <li>Provides desktop expansion and<br/>cable management for X220 and</li> </ul>   |
| Ultrabase<br>Multicard reader<br>ExpressCard<br>Ports           | Some: ThinkPad Ultrabase Series 3 (see right side)<br>4-in-1 reader (SD, SDHC, SDXC, MMC)<br>One slot (ExpressCard/34, ExpressCard/54)<br><i>i7 model:</i> One USB 3.0, two USB 2.0 (one powered)<br><i>other model:</i> Three USB 2.0 (one powered)<br>external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)   | X220 Tablet<br>• Easily connects to the bottom of the<br>X220 or X220 Tablet for traveling<br>• Converts ThinkPad to a two-spindle<br>system with optional Ultrabay Slim<br>accessories in right side  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN                                 | Two PCI Express Mini Card slots<br>11a/b/g/n, PCIe Half Mini Card, Intel Centrino® Advanced-N 6205, 2x2<br>Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson® F5521gw Mobile Broadband Module, PCIe Mini Card,  | Other features:<br>• Power button (front)<br>• Security key lock, security keyhole<br>• Analog VGA DB-15 monitor port  |
|   | GPRS/WCDMA/HSPA/HSPA+, GPS  | <ul> <li>DisplayPort (supports single-link</li> </ul>  |
| Carrier   | Some: User selectable, contract required with service provider  | DVI-D via optional cable)  |
| Modem<br>Bluetoeth™   | None<br>Some: Plusteeth 2.0 wireless LED indicator  | <ul> <li>Four USB 2.0 ports</li> <li>Gigabit ethernet (RJ-45) port</li> </ul>  |
| Bluetooth™<br>Ethernet  | Some: Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1  | Microphone in and headphone out  |
| Intel AMT   | Intel Active Management Technology (iAMT)   | Requires 65W or 90W AC adapter   |
| Audio support   | High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /  | • 1.39 lb; 630g  |
| Security  | volume up, down, mute buttons / dual array microphone, combo audio/mic jack<br>Power-on password, hard disk password, supervisor password, security keyhole   | 65-watt AC Adapter   |
| Security chip   | Trusted Platform Module, TCG 1.2-compliant  | ENERGY STAR® 5.0-compliant   |
| Fingerprint reader  | Some: UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip   | ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support  |
| Limited warranty <sup>12</sup>                                  | 3-years/1-yr battery - depot repair service / service upgrades <sup>22</sup> available  | during the warranty period <sup>12</sup>   |

# ThinkPad® X220 (4291) - Onsite (November 2011) - I - withdrawn

|  | Widescreen  | Disk<br>SATA   | 'in   | ThinkPad PCle<br>Ultrabase Mini Card  | PCle<br>Mini Card        | Bat- Global<br>tery Intel Intel (G) Pre-  |
|--|---|--|---|---|--------------------------|---|
| Type-model Proce   |   | era GB <sup>®</sup> rpm  | UltraBase   |   | WWAN                     | Carrier cells AMT vPro GMP (P) load   |
| 4291-4XG i7-264  |   |  |   | Intel 6205 <sup>28</sup>  | WWAN upg                 | 9 iAMT vPro GP Pro 64   |
|  | 0M 4GBx1 12.5" HD Prem 72   |  | DVD±RW  | UltraB Intel 6205<br>Intel 6205   | Ericsson                 | select 9 iAMT vPro Pro 64<br>select 9 iAMT vPro Pro 64  |
|  | 0M 4GBx1 12.5" HD Prem 72<br>0M 4GBx1 12.5" HD Prem 72  |  |   | Intel 6205  | Ericsson<br>Ericsson     | select 9 iAMT vPro Pro 64<br>select 9 iAMT vPro Pro 64  |
|  | 0M 4GBx1 12.5" HD Prem 72<br>0M 4GBx1 12.5" HD Prem   | 160G SSD   |   | Intel 6205  |                          | <i>9</i> iAMT vPro GP Pro 64  |
|  | 0M 4GBx1 12.5 HD Frem<br>0M 4GBx1 12.5" HD Prem   | 320G 7200  |   |   | 10                       |   |
|  | 0M 4GBx1 12.5 HD FIEIT  | 320G 7200  |   | Intel 6300<br>Intel 6300  | WWAN upg                 | 6 iAMT vPro GP Pro 64<br>6 iAMT vPro GP Pro 64  |
|  |   |  |   | UltraB Intel 6205   | WWAN upg<br>Ericsson     |   |
|  | 0M 4GBx1 12.5 HD 72   | •  |   | UltraB Intel 6205   | Ericsson                 | select 6 Pro 64<br>select 6 Pro 64  |
|  |   |  |   |   |                          |   |
| Positioning<br>Processor   | An ultraportable for the executive<br>Intel® Core™ i5-2450M processo<br>DDR3 memory controller (up to 13<br>Intel Core i5-2520M processor (<br>DDR3 memory controller (up to 13<br>Intel Core i7-2620M processor (<br>DDR3 memory controller (up to 13<br>Intel Core i7-2640M processor (<br>DDR3 memory controller (up to 13 | r (dual-core, 2.<br>333MHz), Intel T<br>dual-core, 2.500<br>333MHz), Intel T<br>dual-core, 2.700<br>333MHz), Intel T<br>dual-core, 2.800 | 50GHz, 3M<br>urbo Boost<br>GHz, 3MB<br>urbo Boost<br>GHz, 4MB<br>urbo Boost<br>GHz, 4MB | 2.0 (3.10GHz), HT te<br>Cache),<br>2.0 (3.20GHz), HT te<br>Cache),<br>2.0 (3.40GHz), HT te<br>Cache), | echnology                | <ul> <li>Preloaded operating system<sup>20</sup></li> <li>Genuine Windows<sup>®</sup> 7<br/>Professional 64</li> <li>Ready to install applications<sup>14</sup> (only<br/>some listed)</li> <li>Rescue and Recovery<sup>™</sup></li> <li>Access Connections<sup>™</sup></li> <li>Fingerprint Software (fingerprint</li> </ul> |
| Memory   | 8GB max <sup>7</sup> / PC3-10600 1333MHz  | ,  |   | 2.0 (3.50GHZ), HT le  | echnology                | <ul><li>models)</li><li>Password Manager (fingerprint</li></ul>   |
| -  | dual-channel capable, two 204-pir   |  |   |   |                          | models)   |
| Optical  | Some: DVD burner, removable fro   |  |   |   | 、                        | <ul><li>ThinkVantage System Update</li><li>ThinkVantage Power Manager</li></ul>   |
| Ultrabay<br>SATA disk  | Supports Ultrabay Slim devices in (<br>Some: Solid State Drive (SSD) /<br>Some: Hard Disk Drive / SATA 3.<br>All: removable, upgradable, S<br>in optional or standard Thi   | SATA 3.0Gb/s, 2<br>0Gb/s, 2.5" wide<br>hock Mounted H  | .5" wide, 7i<br>, 7mm high<br>ard Drive, s  | mm high<br>n, Active Protection S   | ystem™                   | <ul> <li>ThinkVantage Fower Manager</li> <li>ThinkVantage Toolbox</li> <li>Preloaded applications<sup>14</sup> (only some listed)</li> <li>Norton™ Internet Security 2011</li> </ul>  |
| mSATA™ SSD   | None  |  |   |   |                          | (30 days of virus definitions)  |
| Widescreen   | Some: 12.5" (317.5mm) HD (136   |  |   | re, LED backlight,  |                          | Adobe <sup>®</sup> Reader <sup>®</sup>  |
| display  | 200 nits, 16:9 aspect ratio   |  |   |   | م ما دا نمام ۸           | <ul> <li>Skype™ for Windows</li> <li>Windows Live™ Ecceptials</li> </ul>  |
|  | Some: (Premium) <b>12.5</b> " (317.5m   |  |   |   |                          | <ul> <li>Windows Live™ Essentials</li> <li>Microsoft Office 2010 preloaded;</li> </ul>  |
| Camera   | 300 nits, 16:9 aspect ratio<br>Some: HD720p resolution, wider   |  |   |   | ing)                     | <ul> <li>Microsoft Office 2010 preloaded;<br/>purchase product key to activate</li> </ul>   |
| Graphics   | Intel HD Graphics 3000 in proces  | 0  | ngin sensil   |   |                          | <ul> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> </ul>   |
|  | external analog monitor support v<br>digital monitor support via Display<br>supports dual independent display<br><i>Maximum external resolution:</i> 25<br>2048x1536 (VGA)@75Hz; 1920x1   | ia VGA DB-15 cd<br>Port (supports s<br>/;<br>60x1600 (Displa   | ingle-link D<br>yPort)@60   | WI-D via optional cab<br>Hz;  |                          | <ul> <li>Corel Burn.Now™ Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory<sup>®</sup> Lenovo<br/>Edition (DVD±RW)</li> </ul>   |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™   | 7 row, 89-key, ThinkVantage butto<br>TrackPoint pointing device, "Press<br>UltraNav™, buttonless touchpad b<br>Illuminates the keyboard to improv   | -to-Select," Inter<br>elow keyboard,   | net Scroll I multi-touch  | Bar <sup>13</sup> , magnifying glas   | 58                       |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Standard Battery<br>External Battery<br>Battery | without UltraBase; 4/6-cell: 12.0"<br>4-cell: from 2.97 lb (1.35kg); 6-<br>Display cover: Magnesium + PC<br>Lithium Ion 4-cell, 6-cell, or 9-cell,<br>None<br>4-cell (28Whr): up to 4.1 hr; 6-cell  | <i>cell:</i> from 3.31<br>ABS; <i>Bottol</i><br>supports option  | b (1.50kg);<br>m: Magne<br>al external  | <i>9-cell:</i> from 3.67<br>esium alloy<br>battery as 2nd batter                                      | lb (1.67kg)<br>′y        |   |
| Battery - life <sup>10</sup>   | external battery (64Whr): up to 9.4   | 1 hr; <i>9-cell plu</i>  |   |   | 10 13.8 m;               | Supports ThinkVantage® technologies   |
| Chipset  | Mobile Intel QM67 Express Chip  |  |   |   |                          | ThinkPad Ultrabase Series 3   |
| Ultrabase<br>Multicard reader<br>ExpressCard<br>Ports  | Some: ThinkPad Ultrabase Serie<br>4-in-1 reader (SD, SDHC, SDXC,<br>One slot (ExpressCard/34, Expres<br><i>i7 model:</i> One USB 3.0, two l<br>other model: Three USB 2.0 (on<br>external monitor (VGA DB-15, Dis   | MMC)<br>ssCard/54)<br>JSB 2.0 (one po<br>e powered)  | wered)  |   |                          | <ul> <li>Provides desktop expansion and<br/>cable management for X220 and<br/>X220 Tablet</li> <li>Easily connects to the bottom of the<br/>X220 or X220 Tablet for traveling</li> </ul>  |
| PCIe Mini Card<br>WLAN <sup>4</sup>  | Two PCI Express Mini Card slots<br>Some: 11a/b/g/n, PCIe Half Mini  | Card, Intel Centr  | ino® Advar  | nced-N 6205, 2x2  |                          | <ul> <li>Converts ThinkPad to a two-spindle<br/>system with optional Ultrabay Slim<br/>accessories in right side</li> </ul>   |
| WWAN   | Some: 11a/b/g/n, PCIe Half Mini<br>Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson®   | e<br>F5521gw Mobile  |   |   | Card,                    | Other features:<br>• Power button (front)   |
| Questia  | GPRS/WCDMA/HSPA/HS  | PA+, GPS   |   |   |                          | <ul> <li>Security key lock, security keyhole</li> <li>Analog VGA DB-15 monitor port</li> </ul>  |
| Carrier  | Some: User selectable, contract   | equired with ser   | vice provid   | er  |                          | <ul> <li>DisplayPort (supports single-link</li> </ul>   |
| Modem<br>Bluetooth™  | None<br>Bluetooth 3.0 wireless, LED indica  | tor  |   |   |                          | DVI-D via optional cable)   |
| Ethernet   | Intel 82579LM Gigabit Network Co  |  | ville) PHV  | PCle x1   |                          | Four USB 2.0 ports  |
| Intel AMT  | Some: Intel Active Management   |  |   |   |                          | <ul> <li>Gigabit ethernet (RJ-45) port</li> </ul>   |
| Audio support  | High Definition (HD) Audio, Cone>   | ant 20672 code   | c / stereo s  |   |                          | Microphone in and headphone out   |
|  | volume up, down, mute buttons / du  |  |   |   |                          | Requires 65W or 90W AC adapter  |
| Security   | Power-on password, hard disk pas  |  | or passwo   | rd, security keyhole  |                          | • 1.39 lb; 630g   |
| Security chip<br>Fingerprint reader  | Trusted Platform Module, TCG 1.2<br>UPEK Fingerprint reader on palm   |  | or, LED inc   | dicator.  |                          | 65-watt AC Adapter  |
|  | Power On Authentication, support  |  |   |   |                          | ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant  |
| Limited warranty <sup>12</sup>   | 3-years/1-year battery, limited or public and national holidays. Calls day for service dispatch / service   | received after 3   | 3 am - 5 pm<br>pm will rec  | n, Mon - Fri coverage<br>quire an addtional ne  | excluding<br>xt business | International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup>   |
| See footnotes for m  | ore detailed information  |  |   |   |                          | © Lenovo  |

See footnotes for more detailed information WE model(s) announced May 3, May 31, October 4, or December 13, 2011, or January 17, 2012 WE model(s) withdrawn effective December 2012

### ThinkPad<sup>®</sup> X220 (4291) - Onsite (November 2011) - II - withdrawn

Personal Systems Reference (PSREF)

| Type-model | Processor | Memory | Widescreen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm |               |        | e Mini Card              | PCle<br>Mini Card<br>WWAN | Carrier | Finger<br>print<br>reader | tery | Intel | Globa<br>(G)<br>GMP (F | Pre-   |
|------------|-----------|--------|-----------------------|--------|-------------------------------------|---------------|--------|--------------------------|---------------------------|---------|---------------------------|------|-------|------------------------|--------|
| 4291-45G   | i7-2620M  | 4GBx1  | 12.5" HD              |        | 320G 7200                           |               |        | Intel 630028             | WWAN upg                  |         | Fing                      | 9    | vPro  | GΡ                     | Pro 64 |
| 4291-43G   | i5-2520M  | 4GBx1  | 12.5" HD              | 720p   | 128G SSD                            |               |        | Intel 6205 <sup>28</sup> | WWAN upg                  |         | Fing                      | 6    | vPro  | GΡ                     | Pro 64 |
| 4291-44G   | i5-2520M  | 4GBx1  | 12.5" HD              | 720p   | 320G 7200                           |               |        | Intel 6205               | WWAN upg                  |         | Fing                      | 6    | vPro  | GΡ                     | Pro 64 |
| 4291-42G   | i5-2540M  | 4GBx1  | 12.5" HD Prem         |        | 128G SSD                            |               |        | Intel 6300               | WWAN upg                  |         | Fing                      | 6    | vPro  | GΡ                     | Pro 64 |
| 4291-37G   | i5-2520M  | 4GBx1  | 12.5" HD              | 720p   | 320G 7200                           |               |        | Intel 6205               | Ericsson                  | select  | Fing                      | 6    | vPro  |                        | Pro 64 |
| 4291-36G   | i7-2620M  | 4GBx1  | 12.5" HD              | 720p   | 320G 7200                           | <b>DVD±RW</b> | UltraB | Intel 6205               | Ericsson                  | select  | Fing                      | 9    | vPro  |                        | Pro 64 |
| 4291-35G   | i7-2620M  | 4GBx1  | 12.5" HD              | 720p   | 160G SSD                            |               |        | Intel 6205               | Ericsson                  | select  | Fing                      | 9    | vPro  |                        | Pro 64 |

Some models are part of the Global Models Plus program with limited onsite service<sup>24</sup> 3-year limited warranty
 Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Positioning<br>Processor  | An ultraportable for the executive on the move; one spindle<br>Intel <sup>®</sup> Core™ i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology   | Preloaded operating system <sup>20</sup><br>- Genuine Windows <sup>®</sup> 7<br>Professional 64   |
|---|---|---|
|   | Intel Core i5-2540M processor (dual-core, 2.60GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology<br>Intel Core i7-2620M processor (dual-core, 2.70GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.40GHz), HT technology  | Ready to install applications <sup>14</sup> (only some listed)<br>■ Rescue and Recovery <sup>TM</sup>   |
| Memory  | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets   | <ul> <li>Access Connections™</li> <li>Fingerprint Software (fingerprint models)</li> </ul>  |
| Optical<br>Ultrabay<br>SATA disk  | Some:       DVD burner, removable from ThinkPad Ultrabase Series 3         Supports Ultrabay Slim devices in optional or standard ThinkPad Ultrabase Series 3         Some:       Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high         Some:       Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 7mm high, Active Protection System™         All:       removable, upgradable, Shock Mounted Hard Drive, supports the second disk in optional or standard ThinkPad Ultrabase Series 3                       | <ul> <li>Password Manager (fingerprint<br/>models)</li> <li>ThinkVantage System Update</li> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> </ul>   |
| mSATA™ SSD  | None  | Preloaded applications <sup>14</sup> (only some listed)   |
| Widescreen<br>display   | Some:       12.5" (317.5mm) HD (1366x768) TFT color, anti-glare, LED backlight,<br>200 nits, 16:9 aspect ratio, 300:1 contrast ratio         Some:       (Premium) 12.5" (317.5mm) HD (1366x768) TFT color, anti-glare, LED backlight,<br>300 nits, 16:9 aspect ratio, 500:1 contrast ratio, IPS, WideView (170° viewing)   | <ul> <li>Norton™ Internet Security 2011<br/>(30 days of virus definitions)</li> <li>Adobe<sup>®</sup> Reader<sup>®</sup></li> <li>Skype<sup>™</sup> for Windows</li> </ul>  |
| Camera  | Some: HD720p resolution, wider view angle, low light sensitive, fixed focus   | <ul> <li>Windows Live™ Essentials</li> <li>Microsoft Office 2010 preloaded;</li> </ul>  |
| Graphics  | Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br><i>Maximum external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)   | <ul> <li>Microsoft Office of the product key to activate</li> <li>Corel® WinDVD® (DVD±RW)</li> <li>Corel Burn.Now™ Lenovo Edition<br/>(DVD±RW)</li> <li>Corel DVD MovieFactory® Lenovo<br/>Edition (DVD±RW)</li> </ul>  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  | 7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup> , magnifying glass<br>UltraNav™, buttonless touchpad below keyboard, multi-touch<br>Illuminates the keyboard to improve visibility in low-light conditions  |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Standard Battery<br>External Battery<br>Battery - life <sup>10</sup> | <i>without UltraBase; 4/6-cell:</i> 12.0" x 8.13" x 0.75-1.36"; 305mm x 206.5mm x 19.0-34.6mm<br><i>4-cell:</i> from 2.97 lb (1.35kg); <i>6-cell:</i> from 3.31 lb (1.50kg); <i>9-cell:</i> from 3.67 lb (1.67kg)<br><i>Display cover:</i> Magnesium + PCABS; <i>Bottom:</i> Magnesium alloy<br>Lithium Ion 4-cell, 6-cell, or 9-cell, supports optional external battery as 2nd battery<br>None<br><i>4-cell (28Whr):</i> up to 4.1 hr; <i>6-cell (62.4Whr):</i> up to 9.2 hr; <i>9-cell (99.9Whr):</i> up to 13.8 hr; | -   |
| Chinaat   | external battery (64Whr): up to 9.4 hr; 9-cell plus external battery: up to 23.2 hr   | Supports ThinkVantage® technologies   |
| Chipset<br>Ultrabase  | Mobile Intel QM67 Express Chipset   | ThinkPad Ultrabase Series 3   |
| Multicard reader<br>ExpressCard<br>Ports  | Some:       ThinkPad Ultrabase Series 3 (see right side)         4-in-1       reader (SD, SDHC, SDXC, MMC)         One slot (ExpressCard/34, ExpressCard/54)  | <ul> <li>Provides desktop expansion and<br/>cable management for X220 and<br/>X220 Tablet</li> <li>Easily connects to the bottom of the<br/>X220 or X220 Tablet for traveling</li> <li>Converts ThinkPad to a two-spindle</li> </ul>  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | Two PCI Express Mini Card slots<br>Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino® Advanced-N 6205, 2x2<br>Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3<br>Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson® F5521gw Mobile Broadband Module, PCIe Mini Card,   | <ul> <li>Solver is finite at the average of the spinale system with optional Ultrabay Slim accessories in right side</li> <li>Other features:</li> <li>Power button (front)</li> <li>Security key lock, security keyhole</li> </ul>   |
| Carrier<br>Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support<br>Security  | GPRS/WCDMA/HSPA/HSPA+, GPS<br>Some: User selectable, contract required with service provider<br>None<br>Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>Intel Active Management Technology (iAMT)<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /<br>volume up, down, mute buttons / dual array microphone, combo audio/mic jack<br>Power-on password, hard disk password, supervisor password, security keyhole    | <ul> <li>Security key lock, security key lock</li> <li>Analog VGA DB-15 monitor port</li> <li>DisplayPort (supports single-link<br/>DVI-D via optional cable)</li> <li>Four USB 2.0 ports</li> <li>Gigabit ethernet (RJ-45) port</li> <li>Microphone in and headphone out</li> <li>Requires 65W or 90W AC adapter</li> <li>1.39 lb; 630g</li> </ul> |
| Security chip   | Trusted Platform Module, TCG 1.2-compliant<br>UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip   | 65-watt AC Adapter<br>ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant  |
| Limited warranty <sup>12</sup>  | <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business day for service dispatch / service upgrades available  | International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup>   |

See footnotes for more detailed information

WE model(s) announced April 5 or May 3, 2011 WE model(s) withdrawn effective December 2012

# ThinkPad<sup>®</sup> X220 (4291) - Onsite (November 2011) - III - withdrawn

| Type-model Proces   | ssor Memory   | Widescreen<br>display  | Camera   | Dis<br>SA<br>GB <sup>8</sup>                                     | TA  | Optical<br>in<br>UltraBase   | Ultrabas  | e Mini Card  | PCle<br>Mini Card<br>WWAN                                    |                  | Finger<br>print I<br>reader1   | Blue- ter  | t- Ext<br>V Batte<br>s cells                                       | rv Intel   | lobal<br>GMP<br>(P)         | (G)<br>Pre-<br>load  |
|---|---|--|--|--|---|--|---|--|--|------------------|--|--|--|--|-----------------------------|--|
| 4291-2XG i5-254<br>4291-2WG i5-254<br>4291-2BG i7-262<br>4291-2AG i5-254<br>4291-29G i5-252<br>4291-29G i5-252<br>4291-26G i5-252<br>4291-27G i7-262<br>4291-5CG i5-252 | 00M         4GBx1           00M         4GBx1           00M         4GBx1           00M         2GBx2           00M         2GBx2           00M         2GBx1           00M         2GBx2           00M         2GBx1           00M         2GBx2           00M         2GBx2           00M         2GBx2           00M         2GBx2 | 12.5" HD Prem<br>12.5" HD<br>12.5" HD<br>12.5" HD<br>12.5" HD<br>12.5" HD<br>12.5" HD<br>12.5" HD  | 720p<br>720p<br>720p<br>720p<br>720p                           | 320G<br>160G<br>320G<br>320G<br>250G<br>250G<br>320G<br>320G     | 7200<br>SSD<br>5400<br>7200<br>5400<br>5400<br>7200<br>5400 | DVD±RW   | UltraB<br>UltraB  | Intel 6205<br>Intel 6205<br>Intel 6205<br>Intel 6205<br>Intel 6205<br>Intel 6205<br>Intel 6205 | upg<br>Ericsson<br>Ericsson<br>upg<br>upg<br>upg<br>Ericsson | select<br>select | Fing<br>Fing<br>Fing<br>Fing<br>Fing   | 6<br>BT 9<br>BT 6<br>BT 6<br>BT 6<br>BT 6<br>BT 6<br>BT 9<br>BT 6                            | 6<br>6<br>6  | vPro<br>vPro<br>vPro<br>vPro<br>vPro<br>vPro<br>vPro | G P<br>G P<br>G P           | Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64<br>Pro 64 |
|   |   | t <sup>®</sup> Office 2010 Pr  |  |  |   |  | jiani wit   | n minited on   | Sile Seivio  | .e J-ye          | ai iiiiii  | eu warr  | anty   |  |                             |  |
| Positioning<br>Processor  | Intel <sup>®</sup> Core <sup>®</sup><br>DDR3 mem<br>Intel Core i<br>DDR3 mem<br>Intel Core i  | able for the exect<br>™ <b>i5-2520M pro</b><br>ory controller (u<br><b>5-2540M proce</b> :<br>ory controller (u<br><b>7-2620M proce</b> :<br>ory controller (u | cessor<br>p to 133<br>ssor (d<br>p to 133<br>ssor (d           | <b>(dual</b><br>33MH;<br><b>ual-co</b><br>33MH;<br><b>ual-co</b> | -core<br>z), Inte<br><b>pre, 2</b> .<br>z), Inte<br>pre, 2. | , <b>2.50ĠHz</b><br>el Turbo Bo<br>. <b>60GHz, 3</b><br>el Turbo Bo<br>. <b>70GHz, 4</b> | , 3MB C<br>bost 2.0<br>MB Cac<br>bost 2.0<br>MB Cac     | (3.20GHz),<br>he),<br>(3.30GHz),<br>he),   | HT techno  | ology            | - Ger<br>Pro<br><b>Read</b><br>some<br>• Res   | aded op<br>nuine W<br>fessiona<br>y to ins<br>listed)<br>scue and<br>ess Cor                 | ndows<br>il 64<br>t <b>all ap</b><br>il Reco                       | s® 7<br><b>plicat</b> i<br>very™                     | ons <sup>1</sup>            |  |
| Memory  |   | PC3-10600 133<br>el capable, two 2   |  |  |   |  |   |  |  |                  |  | gerprint<br>dels)  | Softwa   | are (fir   | gerpi                       | rint   |
| Optical<br>Ultrabay<br>SATA disk  | Supports Ult<br>Some: Soli<br>Some: Hard<br>All: rem<br>in op   | D burner, remova<br>trabay Slim devic<br>d State Drive (S<br>d Disk Drive / S/<br>ovable, upgrada<br>otional or standa   | es in oj<br>SD) / S<br>ATA 3.0<br>ble, Sh                      | ptional<br>ATA 3<br>Gb/s, 3<br>ock M                             | or sta<br>0Gb/9<br>2.5" w<br>ounte                          | andard Thi<br>s, 2.5" wid<br>vide, 7mm<br>d Hard Dri                                     | nkPad U<br>e, 7mm<br>high, Ac<br>ve, supp               | Itrabase Se<br>high<br>tive Protect  | ion Systen   | ז™               | <ul> <li>Pas<br/>mode</li> <li>Thin</li> <li>Thin</li> <li>Thin</li> </ul>                           | sword N<br>dels)<br>nkVanta<br>nkVanta<br>nkVanta<br><b>aded a</b>                           | ge Sys<br>ge Pov<br>ge Too   | stem U<br>ver Ma<br>Ibox                             | pdate<br>inage              | ə<br>ər  |
| mSATA™ SSD<br>Widescreen  | None  | <b>5</b> " (317.5mm) <b>H</b> l  | ) (1366  | (v768)   | TET   | color anti   | -alaro I  | ED backligh  | ht.  |                  | listed)  | ton™ In  | ernet  | Securi   | tv 20                       | 11   |
| Camera  | 200<br>Some: (Pre<br>300  | nits, 16:9 aspec<br>emium) <b>12.5</b> " (3<br>nits, 16:9 aspec<br>720p resolution,  | et ratio,<br>17.5mm<br>et ratio,                               | 300:1<br>1) <b>HD</b> (<br>500:1                                 | contra<br>(1366<br>contra                                   | ast ratio<br><b>x768) TFT</b><br>ast ratio, II   | <b>color</b> , a<br>PS, Wide                            | anti-glare, Ll<br>View (170°   | ED backlig   | ht,              | (30<br>• Ado<br>• Sky<br>• Wir   | days of<br>bbe® Rea<br>pe™ for<br>dows Li  | virus o<br>ader®<br>Windo<br>ve™ E                                 | definiti<br>ows<br>ssenti                            | ons)<br>als                 |  |
| Graphics  | external ana<br>digital monif<br>supports du<br>Maximum e   | aphics 3000 in<br>alog monitor sup<br>tor support via D<br>al independent (<br>xternal resolutio<br>(VGA)@75Hz; 1  | port via<br>DisplayF<br>display;<br>n: 256                     | a VGA<br>Port (si<br>0x160                                       | uppor<br>0 (Dis   | ts single-li<br>playPort)@   | nk DVI-E<br>⊉60Hz;                                      |  |  |                  | <ul> <li>pur</li> <li>Cor</li> <li>Cor</li> <li>(DV)</li> <li>Cor</li> </ul>                         | rosoft O<br>chase p<br>rel® Winl<br>rel Burn.<br>(D±RW)<br>rel DVD                           | roduct<br>DVD® (<br>Now™<br>Moviel                                 | key to<br>DVD±<br>Lenov<br>=actor                    | activ<br>RW)<br>/o Ed       | ition  |
| Keyboard<br>TrackPoint®<br>Touchpad<br>ThinkLight™  | TrackPoint p<br>UltraNav™,  | ey, ThinkVantage<br>pointing device, '<br>buttonless touch<br>the keyboard to  | Press-   | to-Sele<br>low ke  | ect," li<br>eyboa   | nternet Sc<br>rd, multi-to   | roll Bar <sup>13</sup><br>uch                           | , magnifying   | g glass  |                  |  | tion (DV   | DTUA   | )  |                             |  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Standard Battery<br>External Battery<br>Battery - life <sup>10</sup>                                 | 4-cell: from<br>Display cove<br>Lithium Ion<br>Some: Slim<br>4-cell (28W)   | aBase; 4/6-cell:<br>2.97 lb (1.35kg<br>er: Magnesium<br>4-cell, 6-cell, or<br>n external Lithiur<br>hr): up to 4.1 hr;<br>tery (64Whr): up                     | ); 6-c<br>+ PCA<br>9-cell, s<br>n Ion 6-<br><i>6-cel</i>       | <i>ell:</i> fro<br>BS;<br>suppor<br>-cell ba<br><i>ll (62.4</i>  | om 3.<br>Bo<br>ts opt<br>attery<br>Whr):                    | 31 lb (1.50<br>ottom: Ma<br>tional exte<br>(ThinkPac<br>up to 9.2                        | kg); 9<br>agnesiur<br>rnal batt<br>I Battery<br>hr; 9-0 | <i>⊢cell:</i> from<br>n alloy<br>ery as 2nd l<br>19+)<br>eell (99.9Wh                          | 3.67 lb (1.9<br>pattery<br><i>r):</i> up to 13               | 67kg)            | Suppo  | orts Thir  | kVanta   | age® te  | echno                       | ologies  |
| Chipset   |   | I QM67 Expres  |  | ,  | g-cen   | plus exieli  | iai Dalle   | <i>iy.</i> up to 23  | .2 111   |                  | ТІ   | hinkPad  | Ultra  | base \$  | Serie                       | s 3  |
| Ultrabase<br>Multicard reader<br>ExpressCard<br>Ports   | Some: Thir<br>4-in-1 reade<br>One slot (Ex<br><i>i7 model:</i><br>other model   | kPad Ultrabase<br>er (SD, SDHC, S<br>(pressCard/34, I<br>One USB 3.0<br>/: Three USB 2<br>nitor (VGA DB-1  | Series<br>DXC, M<br>Express<br>, two U<br>.0 (one              | 3 (see<br>IMC)<br>sCard/<br>SB 2.0<br>power                      | 54)<br>) (one<br>red)                                       | powered)   |   |  |  |                  | cab<br>X22<br>• Eas<br>X22<br>• Cor  | vides de<br>le mana<br>0 Tablet<br>ily conne<br>0 or X22<br>iverts Th<br>cem with            | gemer<br>ects to<br>20 Tab<br>iinkPa                               | the bot<br>let for<br>d to a                         | tom o<br>travel<br>two-s    | and<br>of the<br>ling<br>pindle  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | 11a/b/g/n, P<br>Some: Wire<br>Some: Wire<br>GPF   | press Mini Card<br>Cle Half Mini Ca<br>eless WAN upgra<br>eless WAN, Erica<br>RS/WCDMA/HS  | ard, Inte<br>adable<br>sson® F<br>PA/HSF                       | 5521g<br>A+, G   | w Mo<br>PS  | bile Broad   | band Mo   |  | Mini Card,   |                  | other<br>• Pow<br>• Sec  | essories<br>features<br>er butto<br>urity key  | in rigi<br>s:<br>n (fror<br>/ lock,                                | nt side<br>it)<br>securi                             | ty key                      | vhole  |
| Carrier<br>Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support<br>Security  | None<br>Some: Blue<br>Intel 82579L<br>Intel Active<br>High Definit<br>volume up, c<br>Power-on pa   | r selectable, cor<br>etooth 3.0 wirele<br>M Gigabit Netw<br>Management Te<br>ion (HD) Audio,<br>lown, mute butto<br>assword, hard di<br>form Module, TC        | ss, LEE<br>ork Col<br>chnolog<br>Conexa<br>ns / dua<br>sk pass | D indic<br>nnectio<br>gy (iAN<br>ant 206<br>Il array<br>sword,   | ator<br>on (Le<br>MT)<br>572 co<br>micro<br>supe            | ewisville), l<br>odec / ster<br>ophone, co   | PHY, PC<br>eo speal<br>nbo aud                          | kers, 1 watt<br>io/mic jack  |  |                  | <ul> <li>Disp<br/>DVI</li> <li>Fou</li> <li>Giga</li> <li>Mici</li> <li>Rec</li> <li>1.39</li> </ul> | log VGA<br>blayPort<br>-D via o<br>r USB 2<br>abit ethe<br>rophone<br>juires 65<br>9 lb; 630 | (suppo<br>otional<br>.0 port<br>ernet (l<br>in and<br>SW or 9<br>g | orts si<br>cable<br>s<br>RJ-45)<br>head<br>90W A     | ngle-l<br>)<br>port<br>phon | ink<br>e out   |
| Security chip<br>Fingerprint reader<br>Limited warranty <sup>12</sup>   | Some: UPE<br>Pow<br>3-years/1-ye  | K Fingerprint rever On Authentic   | ader o<br>ation, s<br>ted ons                                  | n palm<br>suppor<br><b>site se</b>                               | n rest,<br>ts the<br><b>rvice</b>                           | security c<br><sup>24</sup> , 8 am -   | hip<br>5 pm, Mo   | on - Fri cove  | erage exclu  | uding            | ENEF<br>ROHS   | Itt AC A<br>GY STA<br>S-compli<br>ational \<br>ur x 7 da                                     | AR <sup>i®</sup> 5.0<br>ant<br>Varrar                              | )-comj<br>ity Ser                                    | vice13                      | 7  |
| Saa faataataa far m   | day for serv  | ice dispatch / se  |  |  |   |  |   |  |  |                  | dur  | ing the v  | varran   | ty peri  | od <sup>12</sup>            | Lonova   |

See footnotes for more detailed information WE model(s) announced March 1, May 3, July 19, or December 13, 2011 WE model(s) withdrawn effective December 2012

# ThinkPad<sup>®</sup> X220i (4287) - TopSeller - withdrawn

|  |   | Wi da  |  | Diala   | Outleal                                  | ThisleDed  | DOIs   | DOI:                      | Finner  | Det  |  |                                 | A                     |
|--|---|--|--|---|--|--|--|---------------------------|---|--|--|---------------------------------|-----------------------|
| Type-model Proce   | essor Memory  | Wide-<br>screen<br>display (   | Camera   | Disk<br>SATA<br>GB <sup>®</sup> rpm                 | Optical<br>in<br>UltraBase               | ThinkPad<br>Ultrabase<br>Series 3                | PCle<br>Mini Card<br>WLAN                    | PCle<br>Mini Card<br>WWAN | Finger<br>print<br>reader   | Bat-<br>Blue- tery li<br>tooth cells v   |  | )E                              | Ann<br>Date<br>\m/yy) |
| 4287-3YG i3-23   | -   |  | 720p   | 320G 7200   | Optional                                 | Optional   | Intel 620528                                 | WWAN upg                  | Fing  |  |  |                                 | 04/1 <sup>-</sup>     |
| 4287-37G i3-23<br>4287-66G i3-23   |   |  | 720p<br>720p   | 320G 5400<br>320G 5400                              | Optional<br>Optional                     | Optional<br>Optional                             | Intel 6205<br>Intel 6205                     | WWAN upg<br>WWAN upg      | Fing<br>Fing  |  | No Pro<br>No Pro   |                                 |                       |
| 4207-000 13-23   | 30IM 40DX1  | 12.5 110   | 720p   | 3200 5400   | Optional                                 | Optional   | IIII.el 0203                                 | www.Aiv upg               | ring  | Dide 0 I   | NU FIU   | 04                              | 12/11                 |
|  | • A c   | lepot repair   | service  | siness (SMB)<br>3-year limite<br>Product Key        | d warranty                               |  | VE TopSeller™                                | <sup>∥</sup> Program      |   |  |  |                                 |                       |
| Positioning<br>Processor   | An ultraportal<br>Intel <sup>®</sup> Core™<br>DDR3 memor<br>Intel Core i3-<br>DDR3 memor                | i3-2310M p<br>ry controller<br>2350M pro   | orocess<br>(up to<br>cessor                          | or (dual-cor<br>1333MHz), H<br>(dual-core, 2        | é, 2.10GHz<br>T technolog<br>2.30GHz, 31 | , 3MB Cach<br><sub>Jy</sub><br>MB Cache),        |  |                           | - Genu<br>Profe   | ded operatir<br>uine Windows<br>essional 64<br>to install ap   | ® 7  |                                 | (only                 |
| Memory   | 8GB max <sup>7</sup> / P<br>dual-channel  |  |  |   |  |  |  |                           | <ul><li>Resc</li><li>Acce</li></ul>   | cue and Reco<br>ess Connectio  | ns™  |                                 |                       |
| Optical<br>Ultrabay<br>SATA disk   |   | abay Slim de<br>State Drive<br>Disk Drive /<br>vable, upgra  | evices in<br>(SSD)/<br>SATA 3<br>adable, 9           | optional or s<br>SATA 3.0Gb<br>0.0Gb/s, 2.5         | /s, 2.5" wid<br>wide, 7mm<br>ed Hard Dri | e, 7mm high<br>high, Active<br>ve, supports      | า  | ystem™                    | <ul> <li>mode</li> <li>Pass</li> <li>mode</li> <li>Think</li> </ul>   | word Manage  | er (finge<br>tem Up  | rprint<br>date                  | t                     |
| mSATA™ SSD   | None  | ional of star  |  |   |  | ,          |  |                           |   | kVantage Too   |  | Ū                               |                       |
| Widescreen<br>display<br>Camera  | <b>12.5"</b> (317.5n<br>200 nits, 16:9<br>HD720p reso   | aspect ratio   | o, 300:1   | contrast ratio                                      | D C                                      | 0  | nt,  |                           | listed)<br>• Norto  | <b>ded applicat</b><br>on™ Internet  | Security   | 201                             |                       |
| Graphics   | Intel HD Gra<br>external analo<br>digital monito<br>supports dual<br><i>Maximum ext</i><br>2048x1536 (N | og monitor s<br>r support via<br>independe<br><i>ernal resolu</i>  | support<br>a Displa<br>nt displa<br><i>ition:</i> 25 | via VGA DB-<br>tyPort (suppo<br>ay;<br>560x1600 (Di | rts single-lin<br>splayPort)@            | nk DVI-D via<br>⊉60Hz;                           |  | ,.                        |   | lays of virus o<br>e™ for Windo  |  | IS)                             |                       |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™   | 7 row, 89-key<br>TrackPoint po<br>UltraNav™, bu<br>Illuminates th                                       | inting device  | e, "Pres<br>uchpad                                   | s-to-Select,"<br>below keyboa                       | Internet Sc<br>ard, multi-to             | roll Bar <sup>13</sup> , m<br>buch               |  | SS                        | 0   |  |  |                                 |                       |
| Dimensions <sup>3</sup>  | without Ultra   |  |  |   |  |  |  |                           |   | ts ThinkVant   | 0  |                                 | 0                     |
| Weight <sup>2</sup><br>Case material<br>Standard Battery<br>External Battery<br>Battery - life <sup>10</sup> | 4-cell: from 2<br>Display cover<br>Lithium Ion 4-<br>None<br>4-cell (28Whr<br>external batte            | Contractions of the second | um + P(<br>or 9-cel<br>hr; 6-c                       | CABS; E<br>I, supports op<br>cell (62.4Whr          | ottom:` Ma<br>otional extent): up to 9.2 | agnesium al<br>rnal battery<br>hr; <i>9-cell</i> | loy<br>as 2nd batter<br><i>(99.9Whr):</i> up | ту                        | <ul> <li>Provi cable X220</li> <li>Easily</li> </ul>  | inkPad Ultra<br>des desktop<br>managemer<br>Tablet<br>y connects to<br>or X220 Tab                                 | expansi<br>It for X2<br>he botto                             | on ar<br>20 ar<br>m of t        | nd<br>nd<br>the       |
| Chipset  | Mobile Intel  | QM67 Expr  | ess Ch   | ipset   |  |  |  |                           | <ul> <li>Conv</li> </ul>  | erts ThinkPa   | d to a tw  | o-spi                           | indle                 |
| Ultrabase<br>Multicard reader<br>ExpressCard<br>Ports  | Option: Think<br>4-in-1 reader<br>One slot (Exp<br>other model:<br>external moni                        | (SD, SDHC<br>ressCard/3<br>Three USE   | , SDXC<br>4, Expre<br>3 2.0 (or                      | , MMC)<br>essCard/54)<br>ne powered)                | ,  | -45)   |  |                           | acces<br>Other fe<br>• Powe<br>• Secu   | m with optior<br>ssories in rigl<br>eatures:<br>er button (fror<br>rity key lock,                                  | nt side<br>t)<br>security                                    | keyh                            | nole                  |
| PCIe Mini Card<br>WLAN⁴<br>WWAN<br>Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT                              | Two PCI Expr<br>11a/b/g/n, PC<br>Wireless WAN<br>None<br>Bluetooth 3.0<br>Intel 82579LN<br>None         | ress Mini Ca<br>le Half Mini<br>V upgradabl<br>wireless, Ll  | ard slots<br>Card, I<br>e<br>ED indic                | ntel Centrino                                       | <sup>®</sup> Advanced                    | -N 6205, 2x                                      |  |                           | <ul> <li>Analo</li> <li>Displ</li> <li>DVI-E</li> <li>Four</li> <li>Gigal</li> <li>Micro</li> <li>Required</li> </ul> | bg VGA DB-1<br>ayPort (supp<br>O via optional<br>USB 2.0 port<br>bit ethernet (lo<br>phone in and<br>ires 65W or 9 | 5 monito<br>orts sing<br>cable)<br>s<br>RJ-45) p<br>I headpl | or poi<br>le-lin<br>ort<br>none | rt<br>nk<br>out       |
| Audio support<br>Security<br>Security chip   | High Definitio<br>volume up, do<br>Power-on pas<br>Trusted Platfo                                       | wn, múte bu<br>ssword, harc<br>orm Module,   | ttons / d<br>d disk pa<br>TCG 1                      | lual array micr<br>assword, sup<br>.2-compliant     | ophone, coi<br>ervisor pas               | mbo audio/r<br>sword, secu                       | nic jack                                     |                           | 65-watt<br>ENERC<br>ROHS-   | lb; 630g<br>t AC Adapter<br>GY STAR® 5.0<br>compliant  |  |                                 |                       |
| Fingerprint reader   | Power On Au   | thentication   | , suppoi   | rts the securi                                      | y chip                                   | ,  | hla  |                           | 24 hou  | tional Warrar<br>r x 7 day <sup>18</sup> tol<br>g the warran   | -free su   | ppor                            | ť                     |
|  | J-years/1-yr  | Juliery - uep  | Joriepa  |   | a vice upyla                             | acco availa                                      | 510  |                           | uuilli  | iy ine wanan   | y penot  | 4                               |                       |

See footnotes for more detailed information WE model(s) announced April 5, October 4, or December 13, 2011 WE model(s) withdrawn effective December 2012

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# ThinkPad<sub>®</sub>



Lenovo® ThinkPad X220 Tablet



Lenovo ThinkPad X220 Tablet



Lenovo ThinkPad X220 Tablet

Lenovo ThinkPad X220 Tablet



Lenovo ThinkPad X220 Tablet

Lenovo ThinkPad X220 Tablet

### ThinkPad® X220 Tablet (4298) - November 2011 - I - withdrawn

| Type-model Proce  | Disk Optical ThinkPad PCle PCle F<br>Widescreen SATA in Ultrabase Mini Card Mini Card p<br>ssor Memory display Camera GB <sup>®</sup> rpm UltraBase Series 3 WLAN WWAN re   | inger Bat-Ext Global<br>print Blue-tery Battery Intel (G) Pre-<br>ader tooth cells cells vPro GMP (P) load  |
|---|---|---|
| 4298-4BG i5-252<br>4298-42G i5-252<br>4298-3ZG i5-252<br>4298-3YG i7-262<br>4298-3XG i7-262<br>4298-3UG i7-262                        | 20M         4GBx1         12.5" HD         Outdoor         720p         128G SSD         Intel 6205         upg         F           20M         4GBx1         12.5" HD         Multi         720p         128G SSD         Intel 6205         upg         F           20M         4GBx1         12.5" HD         Multi         720p         320G 7200         DVD±RW         UltraB         Intel 6205         upg         F           20M         4GBx1         12.5" HD         Outdoor         720p         320G 7200         DVD±RW         UltraB         Intel 6205         upg         F           20M         4GBx1         12.5" HD         Outdoor         720p         320G 7200         DVD±RW         UltraB         Intel 6205         upg         F           20M         4GBx1         12.5" HD         Multi         720p         128G SSD         Intel 6205         upg         F           20M         4GBx1         12.5" HD         Multi         720p         128G SSD         Intel 6205         upg         F           20M         4GBx1         12.5" HD         Multi         720p         320G 7200         Intel 6205         upg         F           20M         4GBx1         1 | Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         vPro         G         Pro         64           Fing         Blue         6         6         vPro         G         Pro         64           Fing         Blue         6         6         vPro         G         Pro         64           Fing         Blue         6         6         vPro         G         Pro         64 |
|   |   | Fing Blue 6 vPro G Pro 64   |
|   | <ul> <li>A depot repair service 3-year limited warranty</li> <li>Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)</li> </ul>  |   |
| Positioning<br>Processor  | Convertible tablet ultraportable; one spindle<br>Intel <sup>®</sup> Core <sup>™</sup> i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology<br>Intel Core i7-2620M processor (dual-core, 2.70GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.40GHz), HT technology<br>Intel Core i7-2640M processor (dual-core, 2.80GHz, 4MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology   | Preloaded operating system <sup>20</sup> - Genuine Windows <sup>®</sup> 7         Professional 64         Ready to install applications <sup>14</sup> (only some listed)         • Rescue and Recovery <sup>™</sup> • Access Connections <sup>™</sup>   |
| Memory  | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity,<br>dual-channel capable, two 204-pin SO-DIMM sockets   | <ul> <li>Fingerprint Software (fingerprint models)</li> </ul>   |
| Optical<br>Ultrabay<br>SATA disk  | Some: DVD burner, removable from ThinkPad Ultrabase Series 3<br>Supports Ultrabay Slim devices in optional or standard ThinkPad Ultrabase Series 3<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 7mm high, Active Protection System <sup>™</sup><br>All: removable, upgradable, Shock Mounted Hard Drive, supports the second disk<br>in optional or standard ThinkPad Ultrabase Series 3  | <ul> <li>Password Manager (fingerprint models)</li> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> <li>Lenovo SimpleTap</li> <li>Preloaded applications<sup>14</sup> (only some</li> </ul>   |
| mSATA™ SSD<br>Widescreen  | None           Outdoor:         12.5" (317.5mm) HD (1366x768) TFT color,  | <ul> <li>Isted)</li> <li>Norton™ Internet Security 2011</li> </ul>  |
| display   | anti-glare display with scratch resistant Corning <sup>®</sup> Gorilla <sup>®</sup> Glass,<br>LED backlight, 300 nits, 16:9 aspect ratio, 500:1 contrast ratio,<br>1.2% reflectivity, multiple anti-reflectivity layers, IPS<br>MultiTouch: <b>12.5</b> " (317.5mm) <b>HD (1366x768) TFT color</b> , anti-glare, LED backlight,<br>300 nits, 16:9 aspect ratio, 500:1 contrast ratio, IPS,<br>MultiTouch screen supports pen & five-finger gesture<br><b>VideView</b> (170° viewing), anti-reflective and anti-glare protective coatings,<br>write on screen with standard digitizer pen, pen holder in side base (right),<br>rotate and swivel hinge, power, reset, and rotation buttons on display bottom   | <ul> <li>(30 days of virus definitions)</li> <li>Skypa™ for Windows</li> <li>Microsoft Office 2010 preloaded;<br/>purchase product key to activate</li> <li>Corel<sup>®</sup> WinDVD<sup>®</sup> (DVD±RW)</li> <li>Corel Burn.Now™ Lenovo Edition<br/>(DVD±RW)</li> </ul>   |
| Camera  | HD720p resolution, wider view angle, low light sensitive, fixed focus   | _   |
| Graphics  | Intel HD Graphics 3000 in processor,<br>external analog monitor support via VGA DB-15 connector and<br>digital monitor support via DisplayPort (supports single-link DVI-D via optional cable);<br>supports dual independent display;<br><i>Maximum external resolution:</i> 2560x1600 (DisplayPort)@60Hz;<br>2048x1536 (VGA)@75Hz; 1920x1200@60Hz (single-link DVI-D via optional cable)   |   |
| Keyboard<br>TrackPoint®<br>Touchpad<br>ThinkLight™  | 7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar¹³, magnifying glass<br>UltraNav™, buttonless touchpad below keyboard, multi-touch<br>None   |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material<br>Battery - type<br>Extended Battery<br>Battery - life <sup>10</sup> | without UltraBase; 3-cell: 12.0" x 9" x 1.1-1.23"; 305mm x 228.7mm x 27-31.3mm<br>3-cell: from 3.67 lb (1.66kg); 6-cell: from 3.97 lb (1.80kg)<br>Display cover: Magnesium + PCABS; Bottom: Magnesium alloy<br>Lithium Ion 3-cell or 6-cell, supports optional external battery as 2nd battery<br>Some: Slim external Lithium Ion 6-cell battery (ThinkPad Battery 19+)<br>3-cell (30Whr): up to 4.0 hr; 6-cell (66Whr): up to 8.8 hr;<br>external battery (64Whr): up to 9.0 hr; 6-cell plus external battery: up to 17.8 hr   | <ul> <li>Supports ThinkVantage<sup>®</sup> technologies</li> <li>ThinkPad Ultrabase Series 3</li> <li>Provides desktop expansion and cable management for X220 and X220 Tablet</li> <li>Easily connects to the bottom of the X220 or X220 Tablet for traveling</li> </ul>   |
| Chipset   | Mobile Intel QM67 Express Chipset   | Converts ThinkPad to a two-spindle<br>system with optional Ultrabay Slim  |
| Ultrabase<br>Multicard Reader<br>ExpressCard<br>Ports   | Some: ThinkPad Ultrabase Series 3 (see right side)<br>4-in-1 reader (SD, SDHC, SDXC, MMC)<br>One slot (ExpressCard/34, ExpressCard/54)<br>Three USB 2.0 (one powered), external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45)  | accessories in right side<br>Other features:<br>• Power button (front)  |
| PCIe Mini Card<br>WLAN <sup>4</sup><br>WWAN<br>Carrier<br>Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support               | Two PCI Express Mini Card slots<br>11a/b/g/n, PCIe Half Mini Card, Intel Centrino® Advanced-N 6205, 2x2<br>Wireless WAN upgradable<br>None<br>Bluetooth 3.0 wireless, LED indicator<br>Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>Intel Active Management Technology (iAMT)<br>High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 /   | <ul> <li>Security key lock, security keyhole</li> <li>Analog VGA DB-15 monitor port</li> <li>DisplayPort (supports single-link<br/>DVI-D via optional cable)</li> <li>Four USB 2.0 ports</li> <li>Gigabit ethernet (RJ-45) port</li> <li>Microphone in and headphone out</li> <li>Requires 65W or 90W AC adapter</li> <li>1.39 lb; 630g</li> </ul>  |
| Security<br>Security chip<br>Fingerprint reader   | <ul> <li>Volume up, down, mute buttons / dual array microphone, combo audio/mic jack</li> <li>Power-on password, hard disk password, supervisor password, security keyhole</li> <li>Trusted Platform Module, TCG 1.2-compliant</li> <li>UPEK Fingerprint reader (right base of display), used in tablet/notebook mode,</li> <li>LED indicator, Power On Authentication, supports the security chip</li> <li>3-years/1-yr battery - depot repair service / service upgrades<sup>22</sup> available</li> </ul>  | 65-watt AC Adapter<br>ENERGY STAR <sup>®</sup> 5.0-compliant<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support<br>during the warranty period <sup>12</sup>   |

See footnotes for more detailed information WE model(s) announced May 3, May 10, August 2, or October 4, 2011, or January 3, 2012 WE model(s) withdrawn effective December 2012

# ThinkPad® X220 Tablet (4298) - November 2011 - II - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proce                                   | essor Memory   | Widescreen<br>display Carr   | Disk<br>SATA<br>era GB <sup>®</sup> rpm  | Optical<br>in l<br>UltraBase   | Jltraba  | se Mini Card                            | PCle<br>Mini Card<br>WWAN | Carrier   | Bat- Ex<br>tery Batte<br>cells cell                             | erv Intel  | Glob<br>(G)<br>GMP                       | ) Pre-              |
|--|--|--|--|--|--|---|---------------------------|---|---|--|--|---------------------|
|  |  | 12.5" HD Outdoor 72  |  |  | •  | Intel 620528                            |                           | selectable  |   | vPro   |  | Pro 64              |
|  |  | 12.5" HD Outdoor 72  |  |  | •  | Intel 6205                              | WWAN upg                  |   | 6 6   | vPro   |  | Pro 64              |
| 4298-2YG i7-26<br>4298-2XG i5-25                   |  |  | 0p 320G 7200   |  | •  | Intel 6205                              | WWAN upg                  |   | 6   | vPro<br>vPro   |  | Pro 64<br>Pro 64    |
| 4298-26G i7-26                                     |  |  | 0p 250G 5400<br>320G 7200  |  |  | Intel 6205                              | WWAN upg<br>WWAN upg      |   | 6<br>6 6  |  | G  | Pro 64              |
|  |  | 12.5" HD Outdoor   | 320G 7200  |  | •  | Intel 6205                              | WWAN upg                  |   | 6   | vPro   |  | Pro 64              |
|  |  | <ul> <li>A depot repair s</li> <li>Microsoft<sup>®</sup> Offic</li> </ul>  |  | nited warr   | anty   |   | 10                        |   |   |  |  |                     |
| Positioning<br>Processor                           | Intel <sup>®</sup> Core™<br>DDR3 memo<br>Intel Core i7           | tablet ultraportable; one<br><b>i5-2520M processor</b> (<br>pry controller (up to 133:<br><b>7-2620M processor (du</b><br>pry controller (up to 133:   | dual-core, 2.50<br>3MHz), Intel Turl<br>al-core, 2.70GH  | bo Boost 2<br><b>Iz, 4MB C</b> a   | .0 (3.2<br><b>ache)</b> ,                      | loGHz), HT t                            | 0,                        | Ready to  | e Window<br>sional 64<br>install a                              | vs®7   |  |                     |
| Memory   | 8GB max <sup>7</sup> / I   | PC3-10600 1333MHz D<br>I capable, two 204-pin S  | DR3, non-parity  | ,  |  | ,,,                                     |                           | <ul> <li>some liste</li> <li>Rescue</li> <li>Access</li> </ul>                                | e and Red   |  | 1  |                     |
| Optical  |  | ninkPad Ultrabase Serie  |  |  |  |   |                           | <ul> <li>Fingerp</li> </ul>   | orint Soft  |  | ngerp                                    | rint                |
| Uİtrabay<br>SATA disk                              | Supports Ultr<br>Some: Solic<br>Some: Hard<br>All: remo<br>in op | rabay Slim devices in opi<br>I State Drive (SSD) / SA<br>I Disk Drive / SATA 3.00<br>ovable, upgradable, Sho<br>tional or standard Think   | tional or standard<br>TA 3.0Gb/s, 2.5<br>ab/s, 2.5" wide, 7<br>ck Mounted Har  | " wide, 7m<br>7mm high,<br>rd Drive, su  | m high<br>Active                               | Protection S                            | system™                   | <ul> <li>models</li> <li>Passwo<br/>models</li> <li>ThinkVa</li> <li>ThinkVa</li> </ul>       | ord Mana<br>)<br>antage Po<br>antage To                         | ower Ma  |  |                     |
| mSATA™ SSD   | None   |  |  |  |  |   |                           | Lenovo  | •   | •  |  |                     |
| Widescreen<br>display                              | a<br>L<br>MultiTouch: 1<br>S<br>All: Wide                        | [2.5" (317.5mm) HD (13<br>anti-glare display with sc<br>ED backlight, 300 nits,<br>1.2% reflectivity, multiple<br>[2.5" (317.5mm) HD (13<br>300 nits, 16:9 aspect rat<br>MultiTouch screen suppo<br>View (170° viewing), and<br>on screen with stand | cratch resistant (<br>16:9 aspect ratio<br>anti-reflectivity<br>366x768) TFT co<br>io, 500:1 contras<br>orts pen & five-fi<br>nti-reflective and | Corning <sup>®</sup> G<br>o, 500:1 cc<br>layers, IPS<br><b>olor</b> , anti-g<br>st ratio, IPS<br>inger gestu<br>l anti-glare | ontrast<br>S<br>Iare, L<br>S,<br>Ire<br>protec | ratio,<br>ED backligh<br>ctive coatings | 5,                        | <ul> <li>Škype<sup>†</sup></li> <li>Microso<br/>purchas</li> <li>Corel<sup>®</sup></li> </ul> | M Interne<br>vs of virus<br>for Wind<br>oft Office<br>se produc | t Secur<br>definiti<br>dows<br>2010 pi<br>ct key to<br>(DVD± | ity 20<br>ons)<br>reload<br>activ<br>RW) | )11<br>ded;<br>vate |
| Camera   | rotat  | e and swivel hinge, po<br>20p resolution, wider vie  | wer, reset, and  | rotation bu  | ttons c  | on display bo                           |                           | (DVD±F  |   |  |  |                     |
| Graphics   | external ana<br>digital monito<br>supports dua<br>Maximum ex     | aphics 3000 in processo<br>log monitor support via<br>or support via DisplayPc<br>al independent display;<br><i>ternal resolution:</i> 2560:<br>VGA)@75Hz; 1920x120  | VGA DB-15 con<br>ort (supports sing<br>x1600 (DisplayP   | gle-link DV<br>Port)@60H2  | I-D via<br>z;                                  | ·                                       | ,.                        |   |   |  |  |                     |
| Keyboard<br>TrackPoint®<br>Touchpad<br>ThinkLight™ | TrackPoint p   | y, ThinkVantage button,<br>ointing device, "Press-to<br>outtonless touchpad belo   | -Select," Interne  | et Scroll Ba   |  |   | SS                        |   |   |  |  |                     |
| Dimensions <sup>3</sup>                            |  | Base; 3-cell: 12.0" x 9  |  |  | 3.7mm  | x 27-31.3m                              | n                         |   |   |  |  |                     |
| Weight <sup>2</sup><br>Case material               | J-Cell: from   | 3.67 lb (1.66kg); 6-c<br>er: Magnesium + PCAE  | ell: from 3.97 lb  | Magnes   | ium all  | ov                                      |                           |   |   |  |  |                     |
| Battery - type                                     | Lithium Ion 3  | B-cell or 6-cell, supports   | optional externa   | al battery a   | s 2nd  | battery                                 |                           | Supports  | ThinkVar  | itage <sup>®</sup> t   | echno                                    | ologies             |
|  | Some: Slim   | external Lithium Ion 6-c   | ell battery (Thin  | kPad Batte   | ery 19-  | +)                                      |                           | Think   | Pad Ultr  | abase  | Serie                                    | s 3                 |
| Battery - life <sup>10</sup>                       |  | <i>nr):</i> up to 4.0 hr; 6- <i>cell</i><br><i>ery (64Whr):</i> up to 9.0 h  |  |  | atterv <sup>.</sup>                            | up to 17.8 h                            | ·                         | <ul> <li>Provide</li> </ul>   |   |  |  |                     |
| Chipset  |  | QM67 Express Chipse  |  |  |  |   |                           | Cable m<br>X220 Ta  | nanagem<br>ablet  | in tor )   | 220                                      | ana                 |
| Ultrabase  |  | kPad Ultrabase Series 3  |  | )  |  |   |                           | <ul> <li>Easily c</li> </ul>  | onnects t   |  |  |                     |
|  | 4-in-1 reader<br>One slot (Ex                                    | r (SD, SDHC, SDXC, MI<br>pressCard/34, Express(<br>2.0 (one powered), exter  | MČ)<br>Card/54)  |  | Display  | /Port), etherr                          | net (RJ-45)               | <ul> <li>Converting system</li> </ul>   | r X220 Ta<br>ts ThinkP<br>with optio<br>ories in ri             | ad to a<br>onal Ult  | two-s<br>rabay                           | spindle             |
| PCIe Mini Card<br>WLAN⁴                            | Some: 11a/   | press Mini Card slots<br>b/g/n, PCIe Half Mini Ca  |  |  |  |   |                           | Other fea<br>• Power b  | tures:  |  | ,  |                     |
| WWAN   | Some: Wire<br>Some: Wire   | b/g/n, PCIe Half Mini Ca<br>less WAN upgradable<br>less WAN, Ericsson® F5<br>IS/WCDMA/HSPA/HSP4  | 521gw Mobile B   |  |  | ,                                       | Card,                     | <ul><li>Security</li><li>Analog</li><li>Display</li></ul>                                     | y key lòcł<br>VGA DB∙<br>Port (sup                              | , sécuri<br>15 mor<br>ports si                               | itor p<br>ngle-                          | óort                |
| Carrier  | Some: User   | selectable, contract rec   |  | ce providei  | r  |   |                           | <ul> <li>DVI-D v</li> <li>Four US</li> </ul>  | via option  |  | )  |                     |
|  | None<br>Divisionation O (  |  |  |  |  |   |                           | <ul> <li>Four Us</li> <li>Gigabit</li> </ul>  |   |  | nort                                     |                     |
| Bluetooth™<br>Ethernet                             |  | 0 wireless, LED indicato<br>M Gigabit Network Con  |  | IIe) PHV I   |  | 1                                       |                           | <ul> <li>Microph</li> </ul>   | none in ai  | nd head  | lphon                                    | ie out              |
| Intel AMT  |  | Anagement Technology   |  | <i>,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,   |  | 1                                       |                           | <ul> <li>Require</li> </ul>   | es 65W o  |  |  |                     |
| Audio support                                      | High Definition  | on (HD) Audio, Conexar   | nt 20672 codec /   |  |  |   |                           | • 1.39 lb;  | 630g  |  |  |                     |
| Security   |  | lown, mute buttons / dua   |  |  |  |   |                           | 65-watt A   |   |  |  |                     |
| Security<br>Security chip                          |  | ssword, hard disk passv<br>orm Module, TCG 1.2-c   |  | password   | , secul  | пту кеупоне                             |                           | ENERGY  |   | .0-com   | pliant                                   | [                   |
| Fingerprint reade                                  | r UPEK Finge<br>LED indicato                                     | rprint reader (right base<br>or, Power On Authentica   | of display), use tion, supports th   | e security   | chip   |   |                           | ROHS-co<br>Internatio<br>24 hour x  | nal Warra   |  |  |                     |
| imited warrantv <sup>1</sup>                       | <sup>2</sup> 3-years/1-yr  | battery - depot repair se  | ervice / service ι   | upgrades <sup>22</sup>   | availal  | ole                                     |                           | during  | the warra   | nty peri   | od <sup>12</sup>                         |                     |

See footnotes for more detailed information WE model(s) announced March 22, April 5, or July 12, 2011 WE model(s) withdrawn effective December 2012

# ThinkPad<sup>®</sup> X220 Tablet (4299) - Onsite (November 2011) - I - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proces   | Widescreen<br>sor Memory display   | Disk<br>SATA<br>GB <sup>®</sup> rpm                         | Optical<br>in<br>UltraBase          |                          | PCle<br>Mini Card<br>WLAN                            | PCle<br>Mini Card<br>WWAN | Carrie | Finger<br>print<br>reader                                     | tery                       | Batter                    | y Intel            | Globa<br>(G)<br>GMP ( | Pre-                       |
|---|--|---|-------------------------------------|--------------------------|--|---------------------------|--------|---|----------------------------|---------------------------|--------------------|-----------------------|----------------------------|
| 4299-36G i5-252<br>4299-35G i5-252                              |  | or 320G 7200<br>320G 7200                                   |                                     | UltraB                   | Intel 6205 <sup>28</sup><br>Intel 6205<br>Intel 6205 | upg                       |        | Fing<br>Fing<br>Fing  | 6<br>6<br>6                |                           | vPro<br>vPro       | G P<br>G P            | Pro 64<br>Pro 64<br>Pro 64 |
|   | 0M 4GBx1 12.5 HD Outdoc  | 128G SSD  |                                     |                          | Intel 6205   | upg<br>upg                |        | Fing  | 6                          |                           |                    |                       | Pro 64                     |
|   | 0M 4GBx1 12.5" HD Outdoo   |   |                                     |                          | Intel 6205   | upg                       |        | Fing  | 6                          |                           |                    | -                     | Pro 64                     |
|   | 0M 4GBx1 12.5" HD Multi  | 320G 7200   |                                     |                          | Intel 6205   | upg                       |        | Fing  | 6                          | 6                         |                    | GΡ                    | Pro 64                     |
|   | 0M 4GBx1 12.5" HD Multi  | 320G 7200   |                                     |                          | Intel 6205   | Ericsson                  |        |   | 6                          |                           | vPro               |                       | Pro 64                     |
|   | 0M 4GBx1 12.5" HD Multi  | 160G SSD  |                                     |                          | Intel 6205   | Ericsson                  |        |   | 6                          |                           | vPro               |                       | Pro 64                     |
|   | 0M 2GBx2 12.5" HD Outdoo<br>0M 2GBx2 12.5" HD Outdoo   |   |                                     |                          | Intel 6205<br>Intel 6205                             | Ericsson<br>upg           | select | Fing  | 6<br>6                     |                           | vPro<br>vPro       |                       | Pro 64<br>Pro 64           |
| Positioning   | Convertible tablet ultraportable   | ; one spindle   |                                     |                          |  | apg                       | 1      | Preload   | led o                      | perat                     | ing sy             | /stem                 |                            |
| Processor   | Intel <sup>®</sup> Core <sup>™</sup> i5-2520M proce<br>DDR3 memory controller (up t<br>Intel Core i7-2620M process<br>DDR3 memory controller (up t                     | o 1333MHz), In<br>or (dual-core, 2                          | tel Turbo B<br>2.70GHz, 4           | oost 2.0 (<br>MB Cach    | 3.20GHz), F<br><b>e),</b>                            |                           |        | Genu<br>Profe<br>Ready 1                                      | ssion<br>t <b>o ins</b>    | al 64                     |                    | ations                | <sup>14</sup> (only        |
| Memory  | 8GB max <sup>7</sup> / PC3-10600 1333N<br>dual-channel capable, two 204  | 1Hz DDR3, nor   | -parity,                            | 0001 2.0 (               | <u>0.400112), 1</u>                                  |                           |        | some lis <ul> <li>Resci <ul> <li>Acces</li> </ul> </li> </ul> | ue án<br>ss Co             | nnect                     | ions™              |                       |                            |
| Optical   | Some: DVD burner, removabl   |   |                                     |                          |  |                           |        | <ul> <li>Finge</li> </ul>                                     |                            | Softv                     | vare (f            | ingerp                | orint                      |
| Ultrabay<br>SATA disk   | Supports Ultrabay Slim devices<br>Some: Solid State Drive (SSE<br>Some: Hard Disk Drive / SATA<br>All: removable, upgradable   | 0) / SATA 3.0Gb<br>A 3.0Gb/s, 2.5"                          | /s, 2.5" wid<br>wide, 7mm           | e, 7mm h<br>high, Act    | igh<br>ive Protectic                                 | n System™                 | ' .    |   | vórd I<br>Is)<br>Vanta     | ige Po                    | ower N             | /anag                 |                            |
| Widescreen  | in optional or standard<br>Outdoor: <b>12.5</b> " (317.5mm)  | ID (1366x768)   | TFT color,                          |                          |  |                           |        | <ul><li>Think</li><li>Lenov</li></ul>                         | /o Sir                     | npleTa                    | ар                 |                       |                            |
| display   | anti-glare display v<br>LED backlight, 300<br>1.2% reflectivity, m<br><i>MultiTouch:</i> <b>12.5</b> " (317.5mm) <b>I</b>  | ) nits, 16:9 aspe<br>ultiple anti-refle                     | ect ratio, 50<br>ectivity laye      | 0:1 contra<br>rs, IPS    | ast ratio,   | ight,                     |        |   | n™ Ir<br>ays of            | terne<br>virus            | t Secu<br>defin    | urity 20              | )<br>)11                   |
|   | 300 nits, 16:9 aspe<br>MultiTouch screen<br><i>All:</i> <b>WideView</b> (170° viewin   | ect ratio, 500:1<br>supports pen &                          | contrast rat                        | io, IPŠ,<br>gesture      |  | 0                         |        |   | soft C<br>ase p            | Office<br>produc          | 2010  <br>ct key   | to acti               | vate                       |
| Camera  | write on screen with<br>rotate and swivel hin<br>HD720p resolution, wider view   | standard digiti<br>ge, power, rese                          | <b>zer pen</b> , pe<br>t, and rotat | en holder<br>ion buttor  | in side base<br>is on display                        | e (right),                |        | Corel<br>Corel<br>(DVD:                                       | Burn                       | .Now <sup>1</sup>         | ° (DVD<br>™ Len    | ±RW)<br>ovo Eo        | dition                     |
| Graphics  | Intel HD Graphics 3000 in pro  | 0   | t sensitive,                        |                          | 15   |                           |        | (010)   | ,                          |                           |                    |                       |                            |
|   | external analog monitor suppor<br>digital monitor support via Dis<br>supports dual independent dis<br><i>Maximum external resolution:</i><br>2048x1536 (VGA)@75Hz; 192 | rt via VGA DB-<br>blayPort (suppo<br>play;<br>2560x1600 (Di | rts single-li<br>splayPort)         | nk DVI-D<br>⊉60Hz;       |  | ,.<br>                    |        |   |                            |                           |                    |                       |                            |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™  | 7 row, 89-key, ThinkVantage b<br>TrackPoint pointing device, "Pr<br>UltraNav™, buttonless touchpa<br>None  | ess-to-Select,"   | Internet Sc                         | roll Bar <sup>13</sup> , |  | glass                     |        |   |                            |                           |                    |                       |                            |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup><br>Case material | without UltraBase; 3-cell: 12.<br>3-cell: from 3.67 lb (1.66kg);<br>Display cover: Magnesium +   | 6-cell: from  |                                     | 80kg)                    |  | 3mm                       |        |   |                            |                           |                    |                       |                            |
| Battery - type  | Lithium Ion 3-cell or 6-cell, sup  |   |                                     |                          |  |                           | H      |   | - <b>-</b>                 |                           | @                  | 4 1                   | -1                         |
| Extended Battery<br>Battery - life <sup>10</sup>                | <i>Some:</i> Slim external Lithium 1<br><i>3-cell (30Whr):</i> up to 4.0 hr;   | on 6-cell batter<br>6-cell (66Whr):                         | y (ThinkPao<br>up to 8.8 h          | d Battery<br>r;          | 19+)   | 0 hr                      |        | Support<br>Thir   |                            |                           | abase              |                       | <u> </u>                   |
| Chipset   | external battery (64Whr): up to<br>Mobile Intel QM67 Express 0   |   | n pius exte                         | mai datte                | <i>ry:</i> up to 17.                                 | 0                         | ·      | <ul> <li>Provid<br/>cable</li> </ul>                          | des de<br>mana             | esktop<br>ageme           | o expa<br>ent for  | nsion<br>X220         | and<br>and                 |
| Ultrabase   | Some: ThinkPad Ultrabase Se  |   | nt side)                            |                          |  |                           |        | X220  | Table                      | t                         |                    |                       |                            |
| Multicard Reader<br>ExpressCard<br>Ports                        | 4-in-1 reader (SD, SDHC, SD)<br>One slot (ExpressCard/34, Ex<br>Three USB 2.0 (one powered)  | (C, MMC)<br>pressCard/54)<br>, external monit               |                                     | 3-15, Disp               | olayPort), et  | nernet (RJ-               |        | <ul> <li>Easily<br/>X220</li> <li>Conve<br/>system</li> </ul> | or X2<br>erts T            | 20 Ta<br>hinkP            | blet fo<br>ad to a | or trave<br>a two-:   | eling                      |
| PCIe Mini Card<br>WLAN⁴<br>WWAN                                 | Two PCI Express Mini Card slo<br>11a/b/g/n, PCIe Half Mini Card<br>Some: Wireless WAN upgrad<br>Some: Wireless WAN, Ericsso  | l, Intel Centrino <sup>®</sup><br>able                      |                                     | ,                        |  | 1ini Card.                |        | acces<br>Other fe<br>Power                                    | sorie:<br>ature<br>r butto | s in rig<br>s:<br>on (fro | ght sic<br>ont)    | le                    |                            |
| Carrier<br>Modem  | GPRS/WCDMA/HSPA<br>Some: User selectable, contra<br>None   | /HSPA+, GPS   |                                     |                          |  | - ,                       |        | <ul> <li>Secur</li> <li>Analo</li> <li>Displa</li> </ul>      | g VG                       | A DB-                     | 15 mc              | nitor p               | oort                       |
| Bluetooth™  | Bluetooth 3.0 wireless, LED in   | dicator   |                                     |                          |  |                           |        | DVİ-D   | via c                      | ptiona                    | al cabl            |                       |                            |
| Ethernet  | Intel 82579LM Gigabit Networ   | k Connection (L   | .ewisville),                        | PHY, PCI                 | e x1   |                           |        | Four l  |                            |                           |                    |                       |                            |
| Intel AMT<br>Audio support                                      | Intel Active Management Tech<br>High Definition (HD) Audio, Co   | nexant 20672 (  |                                     |                          |  | 2 /                       |        | <ul> <li>Gigab</li> <li>Microp</li> </ul>                     | phone                      | e in ar                   | nd hea             | idphoi                | ne out                     |
|   | volume up, down, mute button<br>Power-on password, hard disk   |   |                                     |                          |  |                           |        | <ul> <li>Requi</li> <li>1.39 II</li> </ul>                    |                            |                           | 3000               | AO a(                 | apier                      |
| Security  | i ower-on passworu, naru ulsk  |   | ci visui pas                        | 3woru, 58                |  |                           |        | 65-watt   | -                          | 0                         |                    |                       |                            |
| Security chip   | Trusted Platform Module, TCG   |   | () used in                          | tablet/not               | hook mode  |                           |        |   |                            |                           |                    |                       |                            |
| Security<br>Security chip<br>Fingerprint reader                 | Trusted Platform Module, TCG<br>UPEK Fingerprint reader (righ<br>LED indicator, Power On Author  | t base of displa  |                                     |                          |  | ,                         |        | ENERG   | Y ST                       | AR <sup>'®</sup> 5        |                    | nplian                | t                          |

WE model(s) announced March 22, April 5, May 3, or May 10, 2011 WE model(s) withdrawn effective December 2012

# ThinkPad® X220 Tablet (4299) - Onsite (November 2011) - II - withdrawn

Personal Systems Reference (PSREF)

| Type-model Proce  | ssor Memo  |  | Videscre<br>display                               |   | Camera  | Dis<br>SA<br>GB <sup>8</sup>                            | TA   | Optical<br>in<br>UltraBas                              | Ultral                                 | base         | Mini Card                                  | PCle<br>Mini Ca<br>WWA  | ard   | Bat-<br>tery <u>e</u><br>cells             | Battery  | / Intel<br>vPro                        | Global<br>(G)<br>GMP (P                             | Pre              |
|---|--|--|---|---|---|---|--|--|--|--------------|--|-------------------------|---|--|--|--|---|------------------|
| 4299-4TG i7-264   | IOM 4GB  | x1 12.8  | 5" HD A   | 1ulti   | 720p  | 128G  |  | Optiona  | u Op                                   | ot           | Intel 620528                               | WWAN                    |   | 6  |  | vPro                                   | GP  | Pro 64           |
| 4299-4CG i5-252   |  |  |   |   |   | 128G  |  | Optiona  |  |              | Intel 6205                                 | WWAN                    |   | 6  |  | vPro                                   | GP  | Pro 6            |
| 4299-4BG i5-252   |  |  |   |   | 720p  | 128G  |  | Optiona  |  |              | Intel 6205                                 | WWAN                    |   | 6  |  | vPro                                   | G P   |                  |
| 4299-29G i7-262<br>4299-28G i5-252  |  |  |   |   | 720p  | 320G<br>250G  |  | Optiona  |  |              | Intel 6205                                 | WWAN                    | 10  | 6  |  | vPro                                   |   | Pro 64           |
| 4299-26G i7-262   |  |  |   |   | 720p  | 250G<br>320G  |  | Optiona<br>Optiona                                     |  |              | Intel 6205<br>Intel 6300 <sup>28</sup>     | WWAN<br>WWAN            |   | 6<br>6                                     | 6  | vPro<br>vPro                           | GP  | Pro 64<br>Pro 64 |
| 4299-20G 17-202<br>4299-27G i5-252  |  |  |   |   |   | 320G  |  | Optiona  |  |              | Intel 6205                                 | WWAN                    |   | 6  | 0  | vPro                                   | GP  | Pro 64           |
|   |  | e model<br>osoft® O                                      |   |   |   |   |  |  | with I                                 | imit         | ed onsite se                               | rvice <sup>24</sup> 3-y | ear lin   | nited                                      | warra  | nty                                    |   |                  |
| Positioning<br>Processor  | Intel Core<br>DDR3 me<br>Intel Core  | re™ i5-2<br>emory co<br>e i7-262<br>emory co<br>e i7-264 | 2520M pontroller<br>OM pro<br>Ontroller<br>OM pro | up to<br>cessor<br>(up to<br>cessor<br>(up to<br>cessor | or (dua<br>1333MH<br>(dual-c<br>1333MH<br>(dual-c     | I-core,<br>Iz), Inte<br>ore, 2.<br>Iz), Inte<br>ore, 2. | el Turbo<br>70GHz<br>el Turbo<br>80GHz         | Boost 2<br>, <b>4MB C</b><br>Boost 2<br>, <b>4MB C</b> | .0 (3.2<br>ache),<br>.0 (3.4<br>ache), | 0Ĝł<br>0Gł   | Hz), HT tech                               | nology                  | - Ge<br>Pro<br><b>Reac</b><br>some              | enuin<br>ofess<br><b>dy to</b><br>e liste  | e Win<br>ional<br><b>insta</b><br>ed)          | dows®<br>64                            | ications  |                  |
| Memory  | 8GB max  | 7 / PC3-   | 10600 1   | 333MF   | Iz DDR3   | , non-p   | oarity,  | Boost 2  | .0 (3.5                                | 0GI          | Hz), HT tech                               | nology                  | <ul><li>Ac</li><li>Fir</li></ul>                | cess                                       | Conn<br>rint S                                 | ections                                |   | orint            |
| Ontinal   | dual-chan  |  |   |   |   | TIVIIVI S   | ockets   |  |  |              |  |                         |   | odels                                      |  | nanar                                  | (fingerpi   | rint             |
| Optical<br>Ultrabay   | Option for<br>Supports   |  |   |   |   | l or eta  | ndard <sup>-</sup>                             | ThinkPac   | Illtrak                                | 1200         | Sorios 3                                   |                         |   | bdels                                      |  | nagei                                  | (ingerpi  | iiii             |
| SATA disk   | Some: Some: H<br>All: re   | olid Stat  | te Drive<br>c Drive /<br>e, upgra                 | (SSD)<br>SATA 3<br>dable,                               | / SATA 3<br>3.0Gb/s,<br>Shock M                       | 8.0Gb/s<br>2.5" w<br>lounted                            | s, 2.5" \<br>ide, 7n<br>d Hard                 | vide, 7m<br>nm high,<br>Drive, su                      | m high<br>Active                       | Pro          | tection Syste<br>second disl               |                         | <ul><li>Th</li><li>Th</li><li>Le</li></ul>      | inkVa<br>inkVa<br>novo                     | antage<br>antage<br>Simp                       | e Toolb<br>leTap                       |   |                  |
| mSATA™ SSD  | None   | i optiona  | 1 01 3141   |   | iiiiki au   | Unitable  | 130 00   | 1163 0   |  |              |  |                         | listed  |  | a app  | licatio                                | <b>ns</b> <sup>14</sup> (on                         | ly some          |
| Widescreen  | Outdoor:   |  |   |   | ) (1366x  |   |  |  | متنالم®                                |              | ~~~  |                         | <ul> <li>No</li> </ul>                          | rton                                       |  |  | ecurity 20<br>finitions)                            |                  |
| display   |  | LED Ĭ<br>1.2%  | backligh<br>reflectiv                             | it, 300 r<br>/ity, mul                                  | its, 16:9<br>tiple ant                                | aspec   | t ratio,<br>tivity la                          | orning® G<br>500:1 cc<br>iyers, IPS                    | ntrast<br>S                            | ratio        | 0,   |                         | <ul> <li>Šk</li> <li>Mie</li> </ul>             | ype <sup>™</sup><br>crosc                  | <sup>₄</sup> for W                             | /indow<br>ce 201                       | s<br>0 preloa                                       | ided;            |
|   | MultiTouc  | 300 n<br>Multi⊺  | iits, 16:9<br>Touch se                            | aspec<br>creen si                                       | t ratio, 5<br>upports                                 | 00:1 cc<br>pen & 1                                      | ontrast<br>ive-fine                            | ratio, IPS<br>per destu                                | s,<br>re                               |              |  |                         | • Co  | orel® \                                    | WinD\  | /D® (D'                                | ey to acti<br>VD±RW)<br>enovo E                     |                  |
|   | W  | /ideViev   | v (170°<br>screen                                 | viewing<br><b>with st</b> a                             | ), anti-re<br><b>andard</b>                           | flective<br>digitize                                    | e and a<br>er pen                              | inti-glare<br>, pen hol                                | protec<br>der in s                     | side         | coatings,<br>base (right)<br>isplay botton |                         | (D'   | VD±F                                       | RW)  |  |   |                  |
| Camera  | Some: H  |  |   |   |   |   |  |  |  |              |  |                         |   |  |  |  |   |                  |
| Graphics  | Intel HD (<br>external a<br>digital mo<br>supports (<br><i>Maximum</i><br>2048x153 | analog n<br>onitor su<br>dual ind<br>n <i>externa</i>    | nonitor s<br>pport via<br>epende<br>al resolu     | support<br>a Displa<br>nt displ<br><i>ition:</i> 2      | via VGA<br>ayPort (s<br>ay;<br>560x160                | upport<br>00 (Disp                                      | s single<br>playPo                             | e-link DV<br>rt)@60H:                                  | I-D via<br>z;                          | ·            | tional cable);<br>nal cable)               |                         |   |  |  |  |   |                  |
| Keyboard<br>TrackPoint <sup>®</sup><br>Touchpad<br>ThinkLight™                      | UltraNav <sup>⊤</sup><br>None  | nt pointin<br>™, buttor                                  | ng devic<br>nless to                              | e, "Pres<br>uchpad                                      | s-to-Sel<br>below k                                   | lect," Ir<br>eyboar                                     | iternet<br>d, mult                             | Scroll Ba<br>i-touch                                   | ur <sup>13</sup> , ma                  | agni         | fying glass                                |                         |   |  |  |  |   |                  |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup>                                      | without U<br>3-cell: fro   | IltraBase  | e; 3-cell:  | 12.0"   |   |   |  | mm x 228<br>1.80kg)                                    | 3.7mm                                  | x 2          | 7-31.3mm                                   |                         |   |  |  |  |   |                  |
| Case material<br>Battery - type<br>Extended Battery<br>Battery - life <sup>10</sup> | Display co<br>Lithium lo<br>Some: Si<br>3-cell (30<br>external b                   | over: Non 3-cell<br>Slim exte<br>Whr): up                | lagnesi<br>or 6-ce<br>rnal Lith<br>to 4.0         | um + Po<br>II, suppo<br>ium Ior<br>hr; 6-               | CABS;<br>orts option<br>6-cell b<br><i>cell (66</i> 1 | <i>Bo</i><br>onal ex<br>attery<br><i>Nhr):</i> u        | <i>ttom:</i><br>tternal<br>(Thinkl<br>p to 8.8 | Magnes<br>battery a<br>Pad Batte<br>3 hr;              | s 2nd<br>ery 19-                       | bátt<br>+)   | ery<br>to 17.8 hr                          |                         | • Pro   | <b>hink</b>                                | s desl<br>anage                                | JItraba                                | e® techn<br><b>ise Serie</b><br>pansion<br>for X220 | es 3<br>and      |
| Chipset   | Mobile In  | ntel QM6   | 67 Expr   | ess Ch  | ipset   |   |  |  |  |              |  |                         | • Ea  | sily co                                    | onnec  |  | e bottom  |                  |
| Ultrabase<br>Multicard Reader<br>ExpressCard<br>Ports                               | <i>Option:</i> T<br>4-in-1 rea<br>One slot (<br>Three US                           | ader (SD<br>(Express                                     | , SDHC<br>sCard/3                                 | , SDXC<br>4, Expr                                       | , MMC)<br>essCard                                     | /54)  | ,  | DB-15,   | Display                                | /Por         | rt), ethernet (                            | (RJ-45)                 | <ul> <li>Co<br/>sys<br/>acc</li> </ul>          | nvert<br>stem<br>cesso                     | s Thir<br>with c<br>pries in                   | kPad t                                 | t for trave<br>to a two-<br>I Ultraba<br>side       | spindle          |
| PCIe Mini Card<br>WLAN⁴<br>WWAN   | Two PCI E<br>Some: 1<br>Some: 1<br>Wireless  | 1aˈ/b/g/n<br>1a/b/g/n                                    | , PCle H<br>, PCle H                              | -Ialf Min<br>-Ialf Min                                  | i Card, I   |   |  |  |  |              |  |                         | <ul> <li>Por</li> <li>Se</li> <li>An</li> </ul> | wer b<br>curity<br>alog                    | / key l<br>VGA [                               | DB-15                                  | ecurity ke<br>monitor  <br>ts single                | port             |
| Modem<br>Bluetooth™<br>Ethernet<br>Intel AMT<br>Audio support                       | None<br>Bluetooth<br>Intel 8257<br>Intel Activ<br>High Defin<br>volume up          | 79LM Gi<br>/e Mana<br>nition (H                          | gabit Ne<br>gement<br>ID) Aud                     | etwork (<br>Techno<br>io, Cone                          | Connect<br>logy (iA<br>exant 20                       | MT)<br>672 co   | dec / s  | tereo sp   | eakers                                 | ,1 v         | watt x 2 /                                 |                         | DV<br>• For<br>• Gig<br>• Mid<br>• Re           | 'I-D v<br>ur US<br>gabit<br>croph<br>quire | ia opt<br>SB 2.0<br>etheri<br>ione ii<br>s 65V | ional c<br>ports<br>net (RJ<br>n and h |   | t<br>ne out      |
| Security<br>Security chip<br>Fingerprint reader                                     | Power-on<br>Trusted P  | passwo<br>latform<br>ngerprin                            | ord, hard<br>Module,<br>t reader                  | d disk p<br>TCG 1<br>(right b                           | assword<br>.2-comp<br>ase of c                        | , super<br>liant<br>lisplay)                            | visor p<br>, used                              | in tablet/   | , secui<br>notebo                      | rity l       | kéyhole                                    |                         | 65-w<br>ENE<br>ROH                              | att A<br>RGY<br>IS-co                      | mplia  | l <sup>'®</sup> 5.0-α<br>∩t            | complian  |                  |
| Limited warranty <sup>12</sup>  | 3-years/1<br>public and<br>day for se  | d nation   | al holida   | ays. Cal  | ls receiv   | ed afte   | r 3 pm   | n - 5 pm,<br>will requ                                 | Mon -<br>ire an                        | Fri o<br>add | coverage exe<br>Itional next b             | cluding<br>usiness      | Interi<br>24 ho                                 | natio<br>our x                             | nal Wa<br>7 day                                | arranty<br>18 toll-f                   | Service<br>ree supp<br>period <sup>12</sup>         |                  |

# ThinkPad<sub>®</sub>



Lenovo® ThinkPad X1 with ThinkPad Battery 39+ (6-cell slice) 0A36279





Lenovo ThinkPad X1



Lenovo ThinkPad X1





Lenovo ThinkPad X1

#### ThinkPad<sup>®</sup> X1 1293 - withdrawn

Personal Systems Reference (PSREF)

| Type-model | Processor | Memory | Widescreen<br>display | Camera | Disk<br>SATA<br>GB <sup>®</sup> rpm | PCle<br>Mini Card<br>WLAN | PCle<br>Mini Card<br>WWAN | Carrier | Finger<br>print<br>reader |    |    | / Intel |   |        | Ann<br>Date<br>mm/yy) |
|------------|-----------|--------|-----------------------|--------|-------------------------------------|---------------------------|---------------------------|---------|---------------------------|----|----|---------|---|--------|-----------------------|
| 1293-3DG   | i5-2520M  | 4GBx1  | 13.3" HD Prem         | 720p   | 160G SSD                            | Intel 6300                | WWAN upg                  | None    | Finger                    | BT | No | vPro    | G | Pro 64 | 05/11                 |
| 1293-2CG   | i5-2520M  | 4GBx1  | 13.3" HD Prem         | 720p   | 320G 7200                           | Intel 6205                | WWAN upg                  | None    | Finger                    | BT | No | vPro    | G | Pro 64 | 05/11                 |
| 1293-2BG   | i5-2520M  | 4GBx1  | 13.3" HD Prem         | 720p   | 128G SSD                            | Intel 6205                | WWAN upg                  | None    | Finger                    | BT | No | vPro    | G | Pro 64 | 05/11                 |
| 1293-23G   | i5-2520M  | 4GBx1  | 13.3" HD Prem         | 720p   | 320G 7200                           | Intel 6205                | WWAN upg                  | None    | Finger                    | BT | 6  | vPro    | G | Pro 64 | 05/11                 |
| 1293-22G   | i5-2520M  | 8GBx1  | 13.3" HD Prem         | 720p   | 128G SSD                            | Intel 6205                | WWAN upg                  | None    | Finger                    | BT | 6  | vPro    | G | Pro 64 | 05/11                 |

A depot repair service 3-year limited warranty
 Microsoft<sup>®</sup> Office 2010 Product Key Ready (O10PKR)

| Positioning<br>Processor                       | Premiere mobility, performance, and style; one spindle<br>Intel <sup>®</sup> Core™ i5-2520M processor (dual-core, 2.50GHz, 3MB Cache),<br>DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.20GHz), HT technology  | Preloaded operating system <sup>20</sup><br>Genuine Windows <sup>®</sup> 7<br>Professional 64   |
|--|---|---|
| Memory   | 8GB max <sup>7</sup> / PC3-10600 1333MHz DDR3, non-parity, one 204-pin SO-DIMM socket<br>(8GB is maximum memory for Lenovo® installed only, and 4GB is maximum memory when<br>customer installed using 4GB PC3-10600 DDR3 L-H SODIMM 55Y3711)   | Ready to install applications <sup>14</sup> (only some listed)<br>● Rescue and Recovery <sup>™</sup>  |
| Optical<br>Disk                                | None<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5" wide, 7mm high, Active Protection System™<br>All: removable, upgradable, Shock Mounted Hard Drive   | <ul> <li>Access Connections™</li> <li>Fingerprint Software (fingerprint models)</li> <li>Password Manager (fingerprint models)</li> </ul>   |
| mSATA™ SSD                                     | None  | o ThinkVantage <sup>®</sup> System Update   |
| Display  | (Premium) <b>13.3</b> " (338mm) <b>HD (1366x768) TFT color</b> ,<br>anti-glare display with glossy infinity Corning <sup>®</sup> Gorilla <sup>®</sup> Glass<br>LED backlight, 350 nits, 16:9 aspect ratio, 300:1 contrast ratio   | <ul> <li>ThinkVantage Power Manager</li> <li>ThinkVantage Toolbox</li> <li>Lenovo<sup>®</sup> SimpleTap</li> </ul>  |
| Camera   | HD720p resolution, wider view angle, low light sensitive, fixed focus   | Preloaded applications <sup>14</sup> (only some   |
| Graphics                                       | Intel HD Graphics 3000 in processor,<br>external digital monitor support via HDMI™ or Mini DisplayPort™<br>(supports VGA analog monitor via Mini DisplayPort to VGA Monitor Cable 0A36536);<br>supports dual independent display;<br><i>Max external resolution:</i> 2560x1600 (Mini-DisplayPort)@60Hz; 1920x1200 (HDMI)@60Hz | <ul> <li>Isted)</li> <li>Norton<sup>™</sup> Internet Security 2011<br/>(30 days of virus definitions)</li> <li>Adobe<sup>®</sup> Reader<sup>®</sup></li> <li>Skype<sup>™</sup> for Windows</li> </ul> |
| Keyboard<br>TrackPoint <sup>®</sup>            | 6 row, ThinkVantage <sup>®</sup> button, LED backlit, spill-resistant, multimedia Fn keys<br>TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar <sup>13</sup>   | Windows Live™ Essentials     Microsoft <sup>®</sup> Office 2010 preloaded;  |
| Touchpad                                       | UltraNav™, buttonless touchpad below keyboard, multi-touch  | purchase product key to activate  |
| ThinkLight™                                    | None  |   |
| Dimensions <sup>3</sup><br>Weight <sup>2</sup> | <i>13.3W"</i> ( <i>WxDxH</i> ): 13.26" x 9.1" x 0.65-0.84"; 337mm x 231.1mm x 16.5-21.3mm<br>Integrated battery: from 3.73 lb (1.69kg); integrated plus slice battery: from 4.52 lb (2.05kg)  |   |
| Case material                                  | Display cover: Magnesium/Aluminum + PC/ABS; Bottom: Magnesium/Aluminum  |   |
| Standard Battery                               | Integrated Lithium Ion 4-cell RapidCharge battery, 1000 cycle,<br>supports standard or optional external 6-cell slice battery (0A36279) as 2nd battery  |   |
| Extended Battery                               | Some: Slim external Lithium Ion 6-cell battery (ThinkPad Battery 19+, 0A36280)  |   |
| Battery - life <sup>10</sup>                   | Integrated battery (38.4Whr): up to 5.2 hr; integrated plus slice battery (35.5Whr): up to 10 hr  | _   |
| Chipset  | Mobile Intel QM67 Express Chipset   | _   |
| Multicard reader<br>ExpressCard                | 4-in-1 reader (SD, SDHC, SDXC, MMC)<br>None   |   |
| Ports  | One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port,<br>external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)  | _   |
| PCIe Mini Card<br>PCIe WLAN <sup>4</sup>       | Two PCI Express <sup>®</sup> Mini Card slots<br><i>Some:</i> 11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2<br><i>Some:</i> 11a/b/g/n, PCIe Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3  |   |
| PCIe WWAN                                      | Wireless WAN upgradable   |   |
| Carrier  | None  |   |
| Modem  | None  |   |
| Bluetooth™                                     | Bluetooth 3.0 wireless, LED indicator   |   |
| Ethernet                                       | Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1   | Supports ThinkVantage technologies  |
| Intel AMT                                      | Intel Active Management Technology (iAMT)   | 90-watt AC Adapter (RapidCharge)  |
| Audio support                                  | HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack Power-on password, hard disk password, supervisor password, security keyhole, reset switch                               | ThinkPad Roll Cage (one-piece<br>magnesium frame)<br>EPEAT™ Gold rating   |
| Security<br>Security chip                      | Trusted Platform Module, TCG 1.2-compliant  | ENERGY STAR <sup>®</sup> 5.0-compliant  |
|  | UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,  | ROHS-compliant  |
|  | Power On Authentication, supports the security chip   | International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support   |
| Linited warranty                               | <b>3-years</b> /1-yr battery - depot repair service / service upgrades <sup>22</sup> available  | during the warranty period <sup>12</sup>  |

See footnotes for more detailed information

WE model(s) announced May 17 or May 24, 2011

WE model(s) withdrawn effective December 2012

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# ThinkPad<sup>®</sup> X1 1294 (Onsite) - withdrawn

| Type-modelProcessorMemoryWidescreen<br>displaySATA<br>CameraMini Card<br>GB® rpmMini Card<br>WLANMini Card<br>WWANprint<br>readerBlue-<br>bothBattery Intel<br>cells(G)<br>vProPre-<br>loadDar<br>(mm1294-3QGi7-2640M8GBx113.3" HD Prem720p160G SSDIntel 6300EricssonselectFingerBTNoVProPro 64101294-3LGi7-2620M8GBx113.3" HD Prem720p160G SSDIntel 6300EricssonselectFingerBTNoVProPro 64071294-2PGi5-2520M4GBx113.3" HD Prem720p160G SSDIntel 6300EricssonselectFingerBTNoVProPro 64051294-2PGi5-2520M4GBx113.3" HD Prem720p160G SSDIntel 6300EricssonselectFingerBTNoVProPro 64051294-2PGi5-2520M4GBx113.3" HD Prem720p160G SSDIntel 6300WWAN upgNoneFingerBTNoVProPro 64051294-2PGi5-2520M4GBx113.3" HD Prem720p320G 7200Intel 6205WWAN upgNoneFingerBTNoVProGPPro 64051294-2PGi5-2520M4GBx113.3" HD Prem720p320G 7200Intel 6205WWAN upgNoneFingerBTNoVProGPPro 64051294-2PG   |                  |   |  |  | Disk   | PCle   | PCle   |                         | Finger            |                                 | Ext  |   | Global                              |                     | Ann                   |
|---|------------------|---|--|--|--|--|--|-------------------------|-------------------|---------------------------------|--|---|-------------------------------------|---------------------|-----------------------|
| 1284-3L0       IC-3620M       6GR1       13.3 °H D Frem       7200 °H00 °F00 °F00 °F00 °F00 °F00 °F00 °F  | Type-model Proc  | cessor Memo                                     |  | Camera                                     | SATA   | Mini Card  | Mini Card  | Carrier                 |                   | Blue-<br>tooth                  | Battery  | v Intel<br>vPro                                 | (G)                                 |                     | Ann<br>Date<br>mm/yy) |
| Part Processor         Procesor         Processor   |                  |   |  |  |  |  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| <ul> <li>1284-2001 6-2520M 40Ext 13.3*HD Prem 720p 160G SSD Intel 6300 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 240G 7200 Intel 6305 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 240G SSD Intel 6205 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 128G SSD Intel 6205 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 128G SSD Intel 6205 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 128G SSD Intel 6205 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 128G SSD Intel 6205 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 128G SSD Intel 6205 WWAN upg None Finger BT No VPro GP Pro44 05 1284-25G is 2520M 40Ext 13.3*HD Prem 720p 128G SSD Intel 6205 WWAN upg None Finger BT No VPro GP Pro44 05 1286 (320Hz) HT lethology Intel Corp* (5x000 pro40x KW Ready (2010PKR))</li> <li>Poslationing Premier andling system a</li></ul>   |                  |   |  |  |  |  |  |                         | 0                 |                                 |  |   |                                     |                     |                       |
| 1284-300       I-S220M       4GB+ 13.3" HD Prem       720       16/0 SSD       Intel 6300       WWM upg       None       Figure       BT       No. Pro. 6 Q       Pro. 4 Q         1284-206       I-S220M       4GB+ 13.3" HD Prem       720       1280 SSD       Intel 6205       WWM upg       No. Pro. 6 Q       Pro. 4 Q         1284-206       I-S220M       4GB+ 13.3" HD Prem       720       1280 SSD       Intel 6205       WWM upg       No. Pro. 6 Q       Pro. 4 Q         1284-206       I-S20M       4GB+ 13.3" HD Prem       720       1280 SSD       Intel 6205       WWM upg       No. Pro. 6 Q       Pro. 4 Q         1284-206       I-S20M       AGB+ 13.3" HD Prem       720       1280 SSD       No. Pro. 6 Q       Pro. 4 Q         1284-206       I-S20M       AGB+ 10.3." HD Pro. 720       1280 SSD       No. Pro. 6 Q       Pro. 4 Q         1284-206       I-S20M       AGB+ 10.3." HD Prem 720       1280 SSD       No. Pro. 6 Q       Pro. 4 Q         1284-206       I-S20M       AGB+ 10.3." HD Prem 720       1280 SSD       No. Pro. 6 Q       Pro. 4 Q         1284       Common       None       Intel 100 SSD       No. 10.5.       Pro. 10.5.       No. 10.5.       Pro. 10.5.       Pro. 10.5.       Pro. 10.5.       P   |                  |   |  |  |  |  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| <ul> <li>1284-260 is 5-2520M 4Gkt 13.3* HD Prem 720 126G SD Intel 6205 WWAN upg None Finger BT No VPro G P Pro 64 05 1284-260 is 5-2520M 4Gkt 13.3* HD Prem 720 126G SD Intel 6205 WWAN upg None Finger BT 6 VPro G P Pro 64 05 1284-260 is 5-2520M 4Gkt 13.3* HD Prem 720 126G SD Intel 6205 WWAN upg None Finger BT 6 VPro G P Pro 64 05 1284-260 is 5-2520M 4Gkt 13.3* HD Prem 720 126G SD Intel 6205 WWAN upg None Finger BT 6 VPro G P Pro 64 05 1284-260 is 5-2520M 4Gkt 13.3* HD Prem 720 126G SD Intel 6205 WWAN upg None Finger BT 6 VPro G P Pro 64 05 1284-260 is 5-2520M 4Gkt 13.3* HD Prem 720 126G SD Intel 6205 WWAN upg None Finger BT 6 VPro G P Pro 64 05 1284-260 is 5-2520M 4Gkt 13.5* HD Prem 720 (VILa Cort, 2.60GHz, 3MB Cache), DDPS memory controller (up to 135MHz), Intel Turbs Boost 2 0 (3.20GHz), HT technology HTME Core HS-2500 Mprocessor (dual-core, 2.80GHz, 4MB Cache), DDPS memory controller (up to 135MHz), Intel Turbs Boost 2 0 (3.20GHz), HT technology HTME Core HS-2500 Mprocessor (dual-core, 2.80GHz, 4MB Cache), DDPS memory controller (up to 135MHz), Intel Turbs Boost 2 0 (3.20GHz), HT technology HTME Core HS-2500 Mprocessor (dual-core, 2.80GHz, 4MB Cache), DDPS memory controller (up to 135MHz), Intel Turbs Boost 2 0 (3.20GHz), HT technology HTME Core HS-2500 Mprocessor (dual-core, 2.80GHz, 4MB Cache), DDPS memory controller (up to 135MHz), Intel Turbs Boost 2 0 (3.20GHz), HT technology HTME Core HS-2500 Mprocessor (dual-core, 2.80GHz, 4MB Cache), DDPS memory controller (up to 135MHz), Intel Turbs Boost 2 0 (3.20GHz), HT technology HTME Core HS-2500 Mprocessor (dual-core, 2.80GHz, 4MB Cache), DDIM Socket MDP MTME Core HS AND MPRO HS MD MTC CORE HS Core HS MS MD MS MD MS MD MS MD MS MD MS MD MS MD MS MD MS MD MS MS MS MS MS MS MS MS MS MS MS MS MS</li></ul>  |                  |   |  |  |  |  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| 1284-280       I-S220M       4G84:1       13.3" HD Prem       720       220 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>  |                  |   |  |  |  |  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| 1294-326 ii 5-8230M       4GBx1 13.3" HD Prem 7200 126G SD Intel 6205 WWAN upg None Finger BT 6 VPro G P ro 64 00         1294-326 ii 5-8230M       4GBx1 3.3" HD Prem 7200 126G SD Intel 6205 WWAN upg None Finger BT 6 VPro G P ro 64 00         Periationing Premiese mobility performance, and style core spindle       - Some models are part of the Global Models Plus program with limited onsite service <sup>4*</sup> Syear limited warranty         Processor       Intel Core IF 3520M processor (dual-ore, 2.300Hz, MB Cache), DDP3 memory controller (up to 133MHz), Intel Turbo Boat 2 0 (330GHz), HT technology Intel Core IF 3540M processor (dual-ore, 2.300Hz, 4MB Cache), DDP3 memory controller (up to 133MHz), Intel Turbo Boat 2 0 (330GHz), HT technology Intel Core IF 3540M processor (dual-ore, 2.300Hz, 4MB Cache), DDP3 memory controller (up to 133MHz), Intel Turbo Boat 2 0 (330GHz), HT technology Intel Core IF 3540M processor (dual-ore, 2.300Hz, 4MB Cache), DDP3 memory controller (up to 133MHz), Intel Turbo Boat 2 0 (330GHz), HT technology Intel Core IF 3540M processor (dual-ore, 2.300Hz, 4MB Cache), DDP3 memory controller (up to 133MHz), Intel Turbo Boat 2 0 (330GHz), HT technology Intel Core IF 3540M processor (dual-ore, 2.400Hz, 4MB Cache), DDP3 memory controller (up to 1374 3.00hz, 2.5° wide, 7mm high, Aelve Protection System <sup>11</sup> , Mariange Topolax, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Turbo, Mariange I Mari  |                  |   |  |  |  |  |  |                         | 0                 |                                 |  |   |                                     |                     |                       |
| 1284-22G       IS-2520M       80Bx1       13.3"HD Prem       72b)       1286 22G       Image: Second Secon   |                  |   |  |  |  |  |  |                         | 0                 |                                 |  |   |                                     |                     |                       |
| <ul> <li>Some made are part of the Global Models Play program with limited onsite service<sup>11</sup> 3-year limited warranty - Microsoft Office 2010 Product Key Ready (O10PKR)</li> <li>Previnere mobility, performance, and style, one spindle Intel<sup>12</sup> Core<sup>11</sup> 15-2520M processor (dual-core, 2.050CHz, AMB Cache), IT technology Intel Core 17-2520M processor (dual-core, 2.050CHz, AMB Cache), DDR3 memory controller (up to 1333MHz), Intel Turbo Boat 2.0 (3.50GHz), HT technology Intel Core 17-2520M processor (dual-core, 2.050CHz, AMB Cache), DDR3 memory controller (up to 1333MHz), Intel Turbo Boat 2.0 (3.50GHz), HT technology Intel Core 17-2520M processor (dual-core, 2.050CHz, AMB Cache), DDR3 memory controller (up to 1333MHz), Intel Turbo Boat 2.0 (3.50GHz), HT technology Intel Core 17-2520M processor (dual-core, 2.050CHz, AMB Cache), DDR3 memory controller (up to 1333MHz), Intel Turbo Boat 2.0 (3.50GHz), HT technology Intel Core 17-2520M processor (dual-core, 2.050CHZ, AMB Cache), DDR3 memory controller (up to 1333MHz), Intel Turbo Boat 2.0 (3.50GHz), HT technology Intel Core 17-2520M processor (dual-core, 2.00CHZ, AMB Cache), Boat 2.0 (3.50GHz), AMB Cache), HT technology Intel Core 17-2530MHz, DDR3 memory on tobie (up to 1333MHz), Intel Turbo Boat 2.0 (3.50GHz), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), AMB Cache), Boat 2.0 (3.50GHZ), Boat 2.0 (3.50</li></ul>   |                  |   |  |  |  |  |  |                         | 0                 |                                 |  |   |                                     |                     |                       |
| Pediationing<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processor<br>Processo  |                  |   | • Some models are  |  |  | odels Plus pi  | rogram with lin                                    | nited ons               | •                 |                                 |  |   |                                     |                     |                       |
| DDR3 memory controller (up to 133MHz), Initial Turbo Boost 2.0 (3:20GHz), HT technology         Professional 64           Memory         GGB max' / PC3-10800 1333MHz, DDR3, non-parity, one 204-pin SC-DIMM socket         Socket PC           Memory         GGB max' / PC3-10800 1333MHz, DDR3, non-parity, one 204-pin SC-DIMM socket         Findeprint           Optical         None         Findeprint         Findeprint           Optical         Socket PC3         Socket PC3         Findeprint           Memory         GG max' / PC3-10800 1333MHz, DDR3, non-parity, one 204-pin SC-DIMM socket         Findeprint         Findeprint           Optical         None         Socket PC3         Socket PC3         Findeprint         Findeprint           Optical         None         Findeprint         Findepri   | Positioning      |   |  |  |  |  |  |                         |                   | Pre                             | loade  | d oper  | rating s                            | ystem <sup>20</sup> | )                     |
| (BQB) is maximum memory for Lencov <sup>®</sup> , 'nstalled only, and 4GB is maximum memory when<br>customer installed using 4GB PC3-10600 DDR3 L-H SODIMM 55V3711)       "models)         Optical<br>Disk       None       Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: White Manager (fingerprint)       "models)         Disk       Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: Hard Disk Drive / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: Wandbe, upgradatels, Shock Mounted Hard Drive<br>(Explored Hard Drive)       "models)         Optical<br>Display       None       Disk Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5' wide, 7mm high,<br>Some: LED backlight, SSD hith, 159 aspect ratio, 300-1 contrast ratio<br>(Supports VQA analog monitor via MID isplayPort*<br>(supports VQA analog monitor via MID isplayPort*<br>(supports VQA analog monitor via MID isplayPort)       Some: Some: Some: Some Solid State Of (DAM) (MID - Solid Port)       Some: Some: Some Solid State Of (DAM) (MID - Solid Port)         TackPoint       Dishay Lore* Manager (finkrape battery to SA minitor Control SA Minitor Cable 0A35536);<br>supports State attery: Tom 3.73 b (1.6%K); internet Scrult 92.0 (AA36279) as 2.nd battery<br>Some: Sime external Linhum ion 6-cell Bapid Charge battery (DA36279) as 2.nd battery<br>Some: Wirejees VAN upgrade dateral 6-cell battery (ThinKrad Battery 16+, 0.4525 Wir); up to 10 hr<br>Chigatard Linhum ion 6-cell BapidCharge battery (DA36279) as 2.nd battery<br>Some: Wire   | Processor        | DDR3 me<br>Intel Core<br>DDR3 me<br>Intel Core  | emory controller (up<br>e i7-2620M process<br>emory controller (up<br>e i7-2640M process | to 1333<br>sor (dua<br>to 1333<br>sor (dua | MHz), Intel Tu<br>I <b>l-core, 2.700</b><br>MHz), Intel Tu<br>I <b>l-core, 2.800</b> | urbo Boost 2<br>GHz, 4MB Ca<br>urbo Boost 2<br>GHz, 4MB Ca | .0 (3.20ĜHz),<br>ache),<br>.0 (3.40GHz),<br>ache), | HT techn                | ology             | Pro<br>Rea<br>son<br>• R<br>• A | ofession<br>ady to<br>ne liste<br>Rescue<br>Access | nal 64<br><b>instal</b><br>d)<br>and R<br>Conne | l applic<br>Recovery                | / <sup>тм</sup>     |                       |
| Optical<br>Disk         None         Some: Solid State Drive (SSD) / ATA 3.0Gb/s, 2.5" wide, "mm high<br>Some: Solid State Drive (SSD) / ATA 3.0Gb/s, 2.5" wide, "mm high<br>Some: Solid State Drive (SSD) / ATA 3.0Gb/s, 2.5" wide, "mm high<br>Some: Solid State Drive (SSD) / ATA 3.0Gb/s, 2.5" wide, "mm high<br>Some: Solid State Drive (SSD) / ATA 3.0Gb/s, 2.5" wide, "mm high<br>Solid State Drive (SSD) / ATA 3.0Gb/s, 2.5" wide, "mm high<br>Solid State Drive (SSD) / Solid State Drive (SSD) / ATA 3.0Gb/s, 2.5" wide, "mm high<br>Solid State Drive (SSD) / Solid State Drive (S   | Memory           | (8GB is m                                       | naximum memory fo  | or Lenovo                                  | o <sup>®</sup> installed or  | nly, and 4GB   | is maximum r                                       |                         | vhen              | rr<br>● P                       | nodels)<br>asswo                                   |   |                                     |                     |                       |
| Disk         Some:         Solid State Unive (SSU)/ SAIA 30.05/s, 25° wide, 7mm high, Active Protection System''         • ThinkVantage Power Manager           mSATarw SSD         None         emovable, upgradable, Bhock Mounted Hard Drive         • ThinkVantage Toblex         • Enovable, upgradable, Bhock Mounted Hard Drive         • Adobe, Reader "         • Skipper         • Adobe, Reader '         • Skipper         • Skipper         • Skipper         • Skipper         • Skipper         • Skipper         • Skipper         • Skipper         • Skipper   |                  |   |  |  |  |  |  |                         |                   |                                 |  | ntage   | <sup>®</sup> Svster                 | n Updat             | te                    |
| <ul> <li>Indext4 &gt; SD</li> <li>Norie</li> <li>Display</li> <li>(Premium) <b>13.3</b>" (338mm) HD (1366x768) TFT color,<br/>anti-glare display with glossy infinity Corning" Gonila" Glass</li> <li>LED backlight, SD nits, 156 aspect ratio 300:1 contrast ratio</li> <li>(a) days of virus definitions)</li> <li>Adobe TRackFord</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(a) days of virus definitions)</li> <li>(b) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus definitions)</li> <li>(c) days of virus d</li></ul>   |                  | Some: H   | ard Disk Drive / SA  | ta 3.0Gb                                   | o/s, 2.5" wide   | , 7mm high,  | m high<br>Active Protect                           | ion Syste               | m™                | • T<br>• T                      | hinkVa<br>hinkVa                                   | ntage<br>ntage                                  | Power I<br>Toolbox                  | Manage              |                       |
| anit-glare display with glossy infinity Corning" Gorlla" Glass       Isted)         Camera       HD720p resolution, wider view angle, low light sensitive, fixed focus       • Norton™ Internet Security 2011<br>(30 days of virus definitions)         Graphics       Intel HD Graphics 3000 in processor,<br>external digital monitor va Mini DisplayPort V VGA Monitor Cable 0A36536);<br>supports dual independent display:<br>Max external resolution: 2560x 1600 (Mini-DisplayPort)@60Hz; 1920x1200 (HDMI)@60Hz       • Norton™ Internet Security 2010 peloaded<br>purchase         Keyboard<br>TrackPoint*       Forw, ThinkVantage* button, LED backlit, spill-resistant, multimedia Fn keys<br>TrackPoint*       • Nore         Dimensions*       13.3Wr (WrDxH):       13.26* x 91* x 0.65-0.84*; 337mm x 231 Imm x 16.5-21.3mm<br>Integrated battery; to 1.37 lb (1.68%); integrated plus slice battery; from 4.52 lb (2.05kg)       • Windows         Standard Battery       Display cover: MagnesiumAluminum + PC/ABS; 6btom: Magnesium/Aluminum       • Lol RapidChange battery; 1000 cycls,<br>supplay cover: MagnesiumAluminum + PC/ABS; 6btom: Magnesium/Aluminum         Standard Battery       Integrated battery (0.84,027.9) as 2nd battery<br>integrated cliftery (28.4Whr): up to 5.2 hr, integrated plus slice battery (0.35.5Whr): up to 10 hr         Chipset       Mobile Intel OM67 Express fully card slots<br>some: Wireless WAN, upgradable       • Styper* fully fully for expression<br>None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port,<br>external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)       Supports ThinkVantage technologic<br>90-wart AC Adapter (RapidCharge) <td>mSATA™ SSD</td> <td>None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>omp</td> <td>alap</td> <td></td> <td></td>   | mSATA™ SSD       | None  |  |  |  |  |  |                         |                   |                                 |  | omp   | alap                                |                     |                       |
| Camera         HD720p resolution, wider view angle, low light sensitive, fixed focus         (30 days of virus definitions)           Graphics         Intel HD Graphics 3000 in processor,<br>supports dual independent display.         (30 days of virus definitions)           Keyboard         6 row, ThinkVantage* button, LED backlit, spil-resistant, multimedia Fn keys<br>TrackPoint*         (30 days of virus definitions)           Touchpad         0 row, ThinkVantage* button, LED backlit, spil-resistant, multimedia Fn keys<br>TrackPoint*         (30 days of virus definitions)           Touchpad         0 row, ThinkVantage* button, LED backlit, spil-resistant, multimedia Fn keys<br>TrackPoint*         (30 days of virus definitions)           Touchpad         0 row, ThinkVantage*         (30 days of virus definitions)           None         0 linespiaco*         (30 days of virus definitions)           Display cover: Magnesium/Aluminum P C/ABS, Bottom: Magnesium/Aluminum         (30 days of virus definitions)           Standard Battery         Integrated battery: from 3.73 lb (1.68kg); <i>integrated plus slice battery</i> (35.5Whr); up to 10 hr           Chipset         Mobile Intel OM67 Express Chipset           Multicard reader         4-n-1 reader (S3.0, one USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port,<br>external monitor (Mini DisplayPort, HDM), etheremet (RJ-45)           PCle WILAN*         Some: User selectable, contract required with service provider           Modem         None         Some: User   | Display          | anti-glare                                      | display with glossy  | infinity C                                 | Corning <sup>®</sup> Gori  | lla <sup>™</sup> Glass                                     |  |                         |                   | liste                           | ed)  |   |                                     |                     |                       |
| <ul> <li>Skype<sup>m</sup> for Windows (supports Via HDMI<sup>m</sup> or Mini DisplayPort<sup>™</sup><br/>(supports dual independent display.<br/><i>Max external resolution:</i> 2560x1600 (Mini-DisplayPort) @ 60Hz; 1920x1200 (HDMI)@ 60Hz</li> <li>Keyboard 6 row, ThinkVantage<sup>®</sup> button, LED backlit, spill-resistant, multimedia Fn keys<br/>TrackPoint<sup>®</sup> TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar<sup>18</sup><br/>TrackPoint<sup>®</sup> TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar<sup>18</sup><br/>TrackPoint<sup>®</sup> TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar<sup>18</sup><br/>TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar<sup>18</sup><br/><i>TrackPoint<sup>®</sup></i> TrackPoint<sup>®</sup> TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar<sup>18</sup><br/><i>TrackPoint<sup>®</sup></i> TrackPoint<sup>®</sup> TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar<sup>18</sup><br/><i>TrackPoint<sup>®</sup></i> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> Advectored TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> Advectored TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> Advectored TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> Advectored TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> Advectored Presson TrackPoint<sup>®</sup> Advectored Presson Trac</li></ul> | Camera           |   |  |  |  |  | ocus   |                         |                   |                                 |  |   |                                     |                     | ••                    |
| <ul> <li>external digital monitor support via HDMI<sup>m</sup> or Mini DisplayPort<sup>114</sup><br/>(supports UGA analog monitor via Mini DisplayPort)<sup>10</sup> @ 60Hz; 1920x1200 (HDMI)@ 60Hz</li> <li>Windows Live<sup>114</sup> Essentials</li> <li>Microsoft<sup>11</sup> Office 2010 preloaded<br/>max external resolution: 2560x1600 (Mini-DisplayPort)@ 60Hz; 1920x1200 (HDMI)@ 60Hz</li> <li>Keyboard</li> <li>Grow, ThinkVantage<sup>1</sup> button, LED backlit, spill-resistant, multimedia Fn keys<br/>TrackPoint<sup>15</sup></li> <li>TrackPoint<sup>15</sup></li> <li>TrackPoint<sup>16</sup></li> /ul>   | Graphics         | Intel HD (                                      | Graphics 3000 in p   | rocessor                                   | ſ,   |  |  |                         |                   |                                 |  |   |                                     | ,                   |                       |
| TrackPoint <sup>®</sup> TrackPoint <sup>®</sup> ("Press-to-Select," Internet Scroll Bar <sup>13</sup> Durbpad       UltraNav <sup>m</sup> , buttonless touchpad below keyboard, multi-touch         ThinkLight <sup>™</sup> None         Dimensions <sup>3</sup> 13.3W <sup>P</sup> (WxDxH): 13.26° x 9.1° x 0.65-0.84°; 337mm x 231.1mm x 16.5-21.3mm         Dimensions <sup>3</sup> 13.3W <sup>P</sup> (WxDxH): 13.26° x 9.1° x 0.65-0.84°; 337mm x 231.1mm x 16.5-21.3mm         Dimensions <sup>3</sup> 15.3W <sup>P</sup> (WxDxH): 13.26° x 9.1° x 0.65-0.84°; 337mm x 231.1mm x 16.5-21.3mm         Display cover: Magnesium/Aluminum + PC/ABS; Bottom: Magnesium/Aluminum       Standard battery         Standard Battery       Integrated battery (16.69kg): integrated plus slice battery (0A36229) as 2nd battery         Extery - Life <sup>®</sup> Some: Slim external Lithium Ion 6-cell battery (CA36279) as 2nd battery       Some 10.68 (S.5.Whr): up to 10 hr         Chipset       Mobile Intel OM67 Express Chipset         Multicard reader       4.in-1 reader (SD, SDHC, SDXC, MMC)         None       None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port, external monitor (Mini DisplayPort, HDM), ethernet (RJ-45)         PCle WLAN'       Two PCl Express <sup>®</sup> Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2 Some: 11ab/g(n, PCle Half Mini Card, Intel Centrino Utimate-N 6300, 3x3 Some: Wireless WAN upgradable         Some: Wireless WAN, upgradable       Some: Wireless WAN, upgradable         Some: User selectable, contract required with service provi   |                  | (supports<br>supports<br><i>Max exter</i>       | VGA analog monito<br>dual independent di<br>rnal resolution: 256                         | or via Mir<br>splay;<br>0x1600             | ni DisplayPor<br>(Mini-Display   | t to VGA Moi<br>Port)@60Hz                                 | nitor Cable 0A<br>; 1920x1200 (l                   | , ·                     | 60Hz              | • V<br>• N                      | Vindow<br>licroso                                  | s Live <sup>®</sup><br>ft <sup>®</sup> Off      | ™ Essei<br>ice 2010                 | ) preloa            |                       |
| ThinkLight™       None         Dimensions <sup>3</sup> 13.3W" (WxDxH): 13.26" x 9.1" x 0.65-0.84"; 337mm x 231.1mm x 16.5-21.3mm         Dimensions <sup>3</sup> 17.3W" (WxDxH): 13.26" x 9.1" x 0.65-0.84"; 337mm x 231.1mm x 16.5-21.3mm         Veight <sup>3</sup> Display cover: Magnesium/Aluminum + PC/ABS; Bottom: Magnesium/Aluminum         Standard Battery       Integrated battery: from 3.73 b (1.69kg); integrated plus slice battery (0.0436279) as 2nd battery         Standard Battery       Some: Slim external Cithium Ion 6-cell battery (ThinkPad Battery 19+, 0.036280)         Integrated battery (38.4Whr): up to 5.2 hr; integrated plus slice battery (0.0436279) as 2nd battery       Some: 10 hr         Chipset       Mobile Intel QM67 Express Chipset         Multicard reader       4-in-1 reader (SD, SDHC, SDXC, MMC)         None       None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port, external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)         PCle WUAN       Some: 11ab/g/m, PCle Hall Mini Card, Intel Centrino® Advanced-N 6205, 2x2         Some: User ses <sup>1</sup> Multicard reader       Some: User selectable, contract required with service provider         Modem       None         Bluetooth™       Bluetooth™         Bluetooth™       Bluetooth 3.0 wireless, LED indicator         Ethernet       Intel 8Z579LM Gigabit Network Connection (Lewisville), PHY, PCle x1         Intel   |                  | 6 row, Thi<br>TrackPoin                         | nkVantage <sup>®</sup> button,<br>t pointing device, "F                                  | LED bao<br>Press-to-                       | cklit, spill-resi<br>Select," Inter  | istant, multin<br>net Scroll Ba                            | nedia Fn keys<br>Ir <sup>13</sup>                  |                         |                   |                                 |  |   |                                     |                     |                       |
| Weight <sup>2</sup> Integrated battery: from 3.73 lb (1.69kg); integrated plus slice battery: from 4.52 lb (2.05kg)         Case material       Display cover: Magnesium/Aluminum + PC/ABS; Bottom: Magnesium/Aluminum         Standard Battery       Integrated Lithium Ion 4-cell RapidCharge battery, 1000 cycle, supports standard or optional external 6-cell slice battery (0A36279) as 2nd battery         Extended Battery       Some: Slim external Lithium Ion 6-cell battery (ThinkPad Battery 19+, 0A36280)         Battery - life <sup>10</sup> Integrated Lithium Ion 6-cell battery (ThinkPad Battery 19+, 0A36280)         Battery - life <sup>10</sup> Mobile Intel QM67 Express Chipset         Multicard reader       4-in-1 reader (SD, SDHC, SDXC, MMC)         ExpressCard       None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port, external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)         PCIe WLAN <sup>4</sup> Some: 11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2 Some: Wireless WAN, Errosson F5521gw Mobile Broadband Module, PCIe Mini Card, GPRS/WCDMA/HSPA/HSPA+, GPS         Carrier       Some: User selectable, contract required with service provider         Modem       None         Bluetooth <sup>3-M</sup> Bluetooth 3.0 wireless, LED indicator         Intel Active Management Technology (AMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby <sup>8</sup> Home Theater <sup>8</sup> v4 / stereo speaker, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mut  |                  |   | M, buttonless touchp   | ad belov                                   | w keyboard, r  | nulti-touch  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| Standard Battery       Integrated Lithium Ion 4-cell RapidCharge battery, 1000 cycle, supports standard or optional external 6-cell slice battery (0x82c79) as 2nd battery         Extended Battery       Some: Slim external Lithium Ion 6-cell battery (1kRPad Battery 19+, 0x36280)         Battery - life <sup>10</sup> Integrated battery (38.4Whr): up to 5.2 hr; integrated plus slice battery (35.5Whr): up to 10 hr         Chipset       Mobile Intel QM67 Express Chipset         Multicard reader       -in-1 reader (SD, SDHC, SDXC, MMC)         None       None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port, external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)         PCIe Mini Card       Two PCI Express <sup>®</sup> Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2 Some: 11a/b/g/n <sup>®</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6300, 3x3         PCIe WUAN       Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card, GPRS/WCDMA/HSPA/HSPA+, GPS         Carrier       Some: User selectable, contract required with service provider         Modem       None         Bluetooth™       Bluetooth 3.0 wireless, LED indicator         Ethernet       Intel Active Management Technology (iAMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack         Fingerprint reader       Frest Fingerprint reader on palm   | 0                |   |  |  |  |  |  |                         | 2.05kg)           |                                 |  |   |                                     |                     |                       |
| supports standard or optional external G-cell slicé battery (0436279) as 2nd battery<br><i>Some</i> : Slim external Lithium Ion 6-cell battery (ThinkPad Battery 19+, 0A36280)<br>Battery - life <sup>10</sup> <i>Integrated battery (38.4Whr)</i> : up to 5.2 hr; <i>integrated plus slice battery (35.5Whr)</i> : up to 10 hr<br>Chipset Mobile Intel QM67 Express Chipset<br>4-in-1 reader (SD, SDHC, SDXC, MMC)<br>ExpressCard None<br>Ports One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port,<br>external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)<br>PCIe MLN <sup>4</sup> <i>Some</i> : 11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2<br><i>Some</i> : 11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino Utimate-N 6300, 3x3<br>PCIe WLAN <sup>4</sup> <i>Some</i> : Wireless WAN ugradable<br><i>Some</i> : Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS<br>Carrier <i>Some</i> : User selectable, contract required with service provider<br>Modem None<br>Bluetooth™ Bluetooth 3.0 wireless, LED indicator<br>Ethernet Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>Intel AMT Intel Active Management Technology (iAMT)<br>Audio support<br>Audio support HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 /<br>volume up, down, mute buttors / dual array mic, mic mute button, combo audio/mic jack<br>Security chip<br>Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Fingerprint reader DPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Fingerprint reader Divest the security chip<br>Limited Warranty <sup>12</sup> <b>3-years</b> battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>PDEK Fingerprint reader on palm rest systere an additional next business  | Case material    | Display co                                      | over: Magnesium/A  | luminum                                    | + PC/ABS;  | Bottom: Mag  | gnesium/Alumi                                      | inum                    |                   |                                 |  |   |                                     |                     |                       |
| Battery - life <sup>10</sup> Integrated battery (38.4Whr): up to 5.2 hr; integrated plus slice battery (35.5Whr): up to 10 hr         Chipset       Mobile Intel QM67 Express Chipset         Multicard reader       4-in-1 reader (SD, SDHC, SDXC, MMC)         ExpressCard       None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port,<br>external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)         PCIe Mini Card       Two PCI Express <sup>®</sup> Mini Card slots         PCIe WLAN <sup>4</sup> Some: 11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2<br>Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3         PCIe WWAN       Some: Wireless WAN upradable<br>Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRSWCDMA/HSPA/HSPA+, GPS         Carrier       Some:       User selectable, contract required with service provider         Modem       None         Bluetooth™       Bluetooth 3.0 wireless, LED indicator         Ethernet       Intel Active Management Technology (iAMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> V4 / stereo speaker, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack       Supports ThinkVantage technologie         Security chip       Trusted Platform Module, TCG 1.2-compliant       Sume sensor, LED indicator,<br>Power on Authentication, supports the security chip       EEAT <sup>N®</sup> Gold rating<br>ENERGY STAR <sup>®</sup> 5.0  |                  | supports s                                      | standard or optiona  | l externa                                  | l 6-cell slice l   | battery (0A3   |  |                         |                   |                                 |  |   |                                     |                     |                       |
| Multicard reader       4-in-1 reader (SD, SDHC, SDXC, MMC)         ExpressCard       None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port,<br>external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)         PCIe Mini Card       Two PCI Express <sup>®</sup> Mini Card slots         PCIe WLAN <sup>4</sup> Some: 11a/b/g/n <sup>a</sup> , PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2<br>Some: 11a/b/g/n <sup>a</sup> , PCIe Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3         PCIe WWAN       Some: Wireless WAN, upgradable<br>Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS         Carrier       Some: User selectable, contract required with service provider         Modem       None         Bluetooth™       Bluetooth 3.0 wireless, LED indicator         Ethernet       Intel Active Management Technology (iAMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack         Security       Power-on password, hard disk password, supervisor password, security keyhole, reset switch         Security chip       Trusted Platform Module, TCG 1.2-compliant         Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip         Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, limited <b>Onsite service</b> <sup>44</sup> , 8 am ·5 pm, Mon -  |                  | Integrated                                      | d battery (38.4Whr):   | up to 5.                                   | 2 hr; integrat   |  |  |                         | o 10 hr           |                                 |  |   |                                     |                     |                       |
| ExpressCard       None         Ports       One USB 3.0, one USB 2.0, one powered USB 2.0/eSATA combo port,<br>external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)         PCIe Mini Card       Two PCI Express® Mini Card slots         PCIe WLAN <sup>4</sup> Some: 11a/b/g/n <sup>28</sup> , PCIe Half Mini Card, Intel Centrino® Advanced-N 6205, 2x2<br>Some: Wireless WAN, upgradable         PCIe WWAN       Some: Wireless WAN, upgradable         Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS         Carrier       Some: User selectable, contract required with service provider         Modem       None         Bluetooth™       Bluetooth 3.0 wireless, LED indicator         Ethernet       Intel Active Management Technology (iAMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby® Home Theater® v4 / stereo speaker, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack         Security chip       Trusted Platform Module, TCG 1.2-compliant         Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip         Limited Warranty <sup>12</sup> 3-years/1-year battery, limited onsite service <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business   | · ·              |   |  |  |  |  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| external monitor (Mini DisplayPort, HDMI), ethernet (RJ-45)         PCIe Mini Card       Two PCI Express <sup>®</sup> Mini Card slots         PCIe WLAN <sup>4</sup> Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2         Some: 11a/b/g/n, PCIe Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3         PCIe WWAN       Some: Wireless WAN upgradable<br>Some: Wireless WAN upgradable, contract, required with service provider         Modem       None         Bluetooth™       Bluetooth 3.0 wireless, LED indicator         Ethernet       Intel Active Management Technology (iAMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack         Security       Power-on password, hard disk password, security keyhole, reset switch         Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip         Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip         Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business   | ExpressCard      | None  | <b>, , , ,</b>   | -  | ,  |  | he next  |                         |                   |                                 |  |   |                                     |                     |                       |
| PCle WLAN <sup>4</sup> Some: 11a/b/g/n <sup>28</sup> , PCle Half Mini Card, Intel Centrino <sup>®</sup> Advanced-N 6205, 2x2<br>Some: 11a/b/g/n, PCle Half Mini Card, Intel Centrino Ultimate-N 6300, 3x3<br>PCle WWAN Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCle Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS<br>Carrier Some: User selectable, contract required with service provider<br>Modem None<br>Bluetooth™ Bluetooth 3.0 wireless, LED indicator<br>Ethernet Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCle x1<br>Intel AMT Intel Active Management Technology (iAMT)<br>Audio support HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack<br>Security chip Trusted Platform Module, TCG 1.2-compliant<br>Fingerprint reader UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security c <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business  |                  | external n                                      | nonitor (Mini Display  | yPorṫ, HI                                  |  |  |  |                         |                   | _                               |  |   |                                     |                     |                       |
| PCIe WWAN Some: Wireless WAN upgradable<br>Some: Wireless WAN, Ericsson F5521gw Mobile Broadband Module, PCIe Mini Card,<br>GPRS/WCDMA/HSPA/HSPA+, GPS<br>Carrier Some: User selectable, contract required with service provider<br>Modem None<br>Bluetooth™ Bluetooth 3.0 wireless, LED indicator<br>Ethernet Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1<br>Intel AMT Intel Active Management Technology (iAMT)<br>Audio support HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 /<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack<br>Security Power-on password, hard disk password, supervisor password, security keyhole, reset switch<br>Security chip Trusted Platform Module, TCG 1.2-compliant<br>Fingerprint reader UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip<br>Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business   |                  | Some: 1   | 1a/b/g/n <sup>28</sup> , PCIe Hal<br>1a/b/g/n_PCIe Half                                  | lf Mini Ca<br>Mini Car                     | ard, Intel Cer<br>rd, Intel Centi  | ntrino® Advar<br>rino Ultimate                             | nced-N 6205, 2<br>-N 6300, 3x3                     | 2x2                     |                   |                                 |  |   |                                     |                     |                       |
| Carrier       Some:       User selectable, contract required with service provider         Modem       None         Bluetooth™       Bluetooth 3.0 wireless, LED indicator         Ethernet       Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1         Intel AMT       Intel Active Management Technology (iAMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby® Home Theater® v4 / stereo speaker, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack         Security       Power-on password, hard disk password, supervisor password, security keyhole, reset switch         Security chip       Trusted Platform Module, TCG 1.2-compliant         Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator, Power On Authentication, supports the security chip         Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business   | PCIe WWAN        | Some: W<br>Some: W                              | /ireless WAN upgra<br>/ireless WAN, Erics  | dable<br>son F55                           | 21gw Mobile  | Broadband I  | Module, PCIe                                       | Mini Caro               | l,                |                                 |  |   |                                     |                     |                       |
| Ethernet       Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCle x1         Intel AMT       Intel Active Management Technology (iAMT)         Audio support       HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack         Security       Power-on password, hard disk password, supervisor password, security keyhole, reset switch         Security chip       Trusted Platform Module, TCG 1.2-compliant         Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator, Power On Authentication, supports the security chip         Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business  |                  | Some: U   |  |  |  | vice provide   | r  |                         |                   |                                 |  |   |                                     |                     |                       |
| Intel AMT Intel Active Management Technology (iAMT)<br>Audio support HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack Power-on password, hard disk password, supervisor password, security keyhole, reset switch Trusted Platform Module, TCG 1.2-compliant Fingerprint reader on palm rest, swipe sensor, LED indicator, Power On Authentication, supports the security chip Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business   | Bluetooth™       |   |  |  |  |  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| Audio support HD Audio, Conexant 20672 codec, Dolby <sup>®</sup> Home Theater <sup>®</sup> v4 / stereo speaker, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack Power-on password, hard disk password, supervisor password, security keyhole, reset switch Trusted Platform Module, TCG 1.2-compliant UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator, Power On Authentication, supports the security chip Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business   | Ethernet         | Intel 8257                                      | '9LM Gigabit Netwo   | rk Conn                                    | ection (Lewis  | ville), PHY, F   | PCle x1  |                         |                   |                                 |  |   |                                     |                     |                       |
| Addio support and Addio, Conexant 20672 codec, Doiby Home Theater V47 stereo speaker, 1 Watt X 27<br>volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack<br>Power-on password, hard disk password, supervisor password, security keyhole, reset switch<br>Security chip Trusted Platform Module, TCG 1.2-compliant<br>Fingerprint reader UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip<br>Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business  | ntel AMT         |   |  |  |  |  |  |                         |                   | C                               | anorta .   | Think   | lantaga                             | toohnel             | ogiaa                 |
| Security Power-on password, hard disk password, supervisor password, security keyhole, reset switch<br>Security chip<br>Fingerprint reader<br>Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip<br>Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business  | Audio support    |   |  |  |  |  |  |                         |                   | ·                               |  |   | <u> </u>                            |                     | <u> </u>              |
| Security chip       Trusted Platform Module, TCG 1.2-compliant       magnesium frame)         Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator, Power On Authentication, supports the security chip       magnesium frame)         Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business       magnesium frame)   | <b>.</b> .       | volume up                                       | o, down, mute butto  | ns / dual                                  | array mic, m   | ic mute butto  | on, combo aud                                      | lio/mic ja              | ck                |                                 |  |   |                                     |                     |                       |
| Fingerprint reader on Pall norm would, FCG 1.2-compliant<br>Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip<br>Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business  |                  |   |  |  |  | or password  | , security keyh                                    | iole, rese              | t switch          |                                 |  |   |                                     | ie-hiece            |                       |
| Fingerprint reader       UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator,<br>Power On Authentication, supports the security chip       ENERGY STAR® 5.0-compliant<br>ROHS-compliant<br>International Warranty <sup>12</sup> Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding<br>public and national holidays. Calls received after 3 pm will require an additional next business       ENERGY STAR® 5.0-compliant<br>ROHS-compliant<br>International Warranty Service <sup>17</sup><br>24 hour x 7 day <sup>18</sup> toll-free support  |                  |   |  |  | •  |  |  |                         |                   |                                 |  |   |                                     |                     |                       |
| Limited Warranty <sup>12</sup> <b>3-years</b> /1-year battery, <b>limited onsite service</b> <sup>24</sup> , 8 am - 5 pm, Mon - Fri coverage excluding public and national holidays. Calls received after 3 pm will require an additional next business 24 hour x 7 day <sup>18</sup> toll-free support   | Fingerprint read |   |  |  |  |  | cator,   |                         |                   | EN                              | ERGY   | STAR  | ® 5.0-cc                            | mpliant             |                       |
| day for service dispatent, service upgrades available during the waitality period   | Limited Warrant  | y <sup>12</sup> <b>3-years</b> /1<br>public and | -year battery, <b>limite</b><br>d national holidays.                                     | ed onsite<br>Calls rec                     | e service <sup>24</sup> , 8<br>eived after 3   | am - 5 pm,<br>pm will requ                                 | Mon - Fri cove<br>ire an addtion                   | erage exc<br>al next bu | luding<br>Isiness | Inte<br>24                      | ernatior<br>hour x                                 | nal Wa<br>7 day¹                                | arranty S<br><sup>18</sup> toll-fre | e suppo             |                       |
| See footnotes for more detailed information ©Len  |                  | -   |  | noo upy                                    | audo avalla  |  |  |                         |                   | 1 4                             | anny ii  |   | .any p                              |                     | Lenovo                |

See footnotes for more detailed information WE model(s) announced May 17, May 24, July 5, or October 4, 2011 WE model(s) withdrawn effective December 2012 **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.

**Warranty:** For a copy of applicable product warranties, go to http://support. lenovo.com/en\_US/product-service/ warranty-status/WarrantyPolicies.page. Lenovo makes no representation or warranty regarding third party products or services.

#### Footnotes:

- Power management, including Intel® SpeedStep® Technology, reduces processor speed when in battery mode.
- <sup>2</sup> Weight includes battery and standard optical drive; weight may vary due to vendor components, manufacturing process and options.
- <sup>3</sup> **Thinness** may vary at certain points on the system.
- <sup>4</sup> Wireless capability: Requires compatible wireless-enabled options sold separately.
- <sup>5</sup> TAA: ThinkPad notebook is compliant with the U.S. Federal Government's country-of-origin requirements prescribed in 48 C.F.R. Subpart 25.4; Trade Act Agreement (TAA) model.
- <sup>6</sup> Public network download modem speeds are limited to 53Kbps. Upload speeds are limited to 48Kbps for V.92 modems. Actual speeds depend on many factors and are often less than the maximum possible. V.92 functions and speeds require compatible phone line and server equipment. Check with your telephone and ISP service providers for availability.
- <sup>7</sup> Maximum memory capacity may require the replacement of standard component with largest supported component available. On ThinkPad systems, even though it is possible to physically install 4GB of memory, the actual amount of memory addressable by a 32-bit operating system will be limited to 3GB. This limitation does not exist with 64-bit operating systems.
- <sup>8</sup> Hard drive: GB = billion bytes, TB = trillion bytes. Accessible capacity is less; up to 4GB is service partition.

- <sup>9</sup> CD/DVD drive speeds list maximum rates; rates are variable and are often less than the maximum.
- <sup>10</sup> Battery: These model numbers achieved the battery life based on MobileMark® 2007 during testing. For the ThinkPad X300, battery life is based on Business Winstone Battery Mark 2002. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.
- <sup>11</sup> External monitor: This system supports a maximum of two external monitors. The integrated display(s) must be disabled to support two external monitors.
- <sup>12</sup> Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

#### <sup>13</sup> Internet access not included.

- <sup>14</sup> 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.
- <sup>16</sup> Activating Verizon Wireless Service: Lenovo customers will be contacted after purchase to activate service; requires separate agreement with Verizon Wireless and is subject to the Customer Agreement, Calling Plan, and credit approval. Service, airtime, and early termination charges may apply. Verizon Wireless, not Lenovo, is solely responsible for service. Service not available in all areas; purchaser is responsible for verifying that service is available for the intended location before purchasing a computer equipped with WAN card. Network details, coverage limitations, and maps at www.verizonwireless.com.
- <sup>17</sup> **International Warranty Service** is available in any country in which this product is sold and serviced. Service delivery methods and parts availability vary by country, may be different from that in the country of purchase, and are subject to change without notice. Fees and restrictions may apply in some countries.

- <sup>18</sup> Telephone support may be subject to additional charges, even during the limited warranty period. Response times may vary. May exclude some holidays. If a machine is listed as having "On-site service for select repairs", this means that onsite service is available only for the replacement of select parts. For all other warranty repairs, Lenovo will provide the customer a replacement part for customer installation. The parts for which onsite service is available varies by machine, but may include the processor, power supply, heat sink, system board, or base cover. For ThinkPad notebooks with Depot or Courier service, Lenovo will attempt to diagnose and resolve the problem remotely before sending a courier.
- <sup>19</sup> Depot repair service: The customer may be asked certain diagnostic questions before a courier is sent. Your ThinkPad purchase includes this depot repair service, available in the U.S. during the limited warranty period.
- <sup>20</sup> Operating System: Level of support varies by operating system. Operating systems not preloaded on the system may not provide full feature functionality. Refer to lenovo.com/pc/support and enter your machine type and model number for more information.
- <sup>21</sup> For combination drives, maximum possible speeds only are given in the following order: CD write, CD rewrite, CD read, DVD read.

- <sup>22</sup> Lenovo Services: These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. For Think-Pad notebooks requiring LCD or other component replacement, Lenovo may choose to perform service at the depot repair center. Calls must be received by 5 pm local time in order to qualify for Next Business Day service. P&L means parts and labor. P/U means pick-up. See Lenovo Warranty Services terms and conditions for complete details and restrictions.
- <sup>23</sup> Activating AT&T Wireless Service: Requires separate agreement with AT&T, subject to service agreement, rate plan and coverage maps. AT&T, not Lenovo, is solely responsible for service. Coverage not available in all areas; AT&T BroadbandConnect available in select metropolitan markets. Special credit and tenure restrictions and additional charges may apply to international roaming. A network connection, thirdparty software, additional hardware, and/ or subscription to a third-party service may be required for certain solutions/ applications. Additional restrictions apply, including early termination fee; see www.wireless.att.com for details. To activate call Lenovo Wireless Activation Hot Line at 1-877-299-4710.

- <sup>24</sup> Limited onsite service systems are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. Support unrelated to a warranty issue may be subject to additional charges. Lenovo onsite repair (LOR), 8 am to 5 pm, Monday through Friday coverage excluding holidays, next business day (NBD) response time.
- <sup>26</sup> Full-size keyboard: As defined by ISO/ IEC 15412.
- <sup>27</sup> **Based on IEEE 802.11a and 802.11b.** A customer can not upgrade to a different wireless Mini PCI adapter due to FCC regulations. Security screws prevent removal of this adapter. This wireless LAN product has been designed to permit legal operation world-wide in regions which it is approved. This product has been tested and certified to be interoperable by the Wireless Ethernet Compatibility Alliance and is authorized to carry the Wi-Fi logo.

- <sup>28</sup> The IEEE 802.11n specification (MIMO) has been finalized and is currently in IEEE 802.11n-2009 release. The maximum speed depends on the access point device and the number of integrated antenna used for connection. An adapter with 11a/b, 11a/b/g, 11b/g/n, or 11a/b/g/n can communicate on any of its supported formats.
- <sup>30</sup> Measures only maximum data transfer rate, not application performance. Many factors affect application performance.

- <sup>32</sup> **Wireless:** Based on IEEE 802.11a, 802.11b, and 802.11g respectively. An adapter with 11a/b, 11b/g, or 11a/b/g can communicate on either/any of these listed formats respectively, the actual connection will be based on the access point to which it connects.
- <sup>36</sup> Wireless upgradable allows the system to be wireless-enabled with an optional wireless Mini PCI or Mini PCI Express card. Designed to operate only with Lenovo options.
- <sup>37</sup> Optimus graphics Optimus only switches in Windows 7 environment. It performs as discrete graphics in Windows Vista or Windows XP Professional environment.

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# **ThinkPad**

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