Personal Systems Reference
IBM ThinkPad R Series
2001 to 2005 - withdrawn

May 2005 - Version 291
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**SOFTWARE**

Windows 98 models
- Microsoft Windows® 98 Second Edition
  - Disk-To-Disk Recovery
    (in hidden Service Partition)

INCLUDED SOFTWARE (all)

- Preloaded
  - Access ThinkPad
  - Adobe Acrobat
  - ConfigSafe®
  - Mediamatics™ DVD (DVD models)
  - MusicMatch Jukebox
  - PC-Doctor™
  - ThinkPad Assistant™
  - ThinkPad Utilities
  - IBM Update Connector™
  - Veritas RecordNOW (CD-RW mod)

Downloadable
- IBM Rapid Restore PC
- IBM Data Transfer
- Universal Manageability Services™

License
- Lotus® SmartSuite® Millennium

**Type-model**

- **IBM ThinkPad Ultrabay Plus**
- **IBM ThinkPad Ultrabay Plus Carrier**
- **IBM ThinkPad Ultrabay Plus c500 Cradle**
- **IBM ThinkPad Ultrabay Plus Numeric Keypad**

**Dimensions**

- 12.3" x 10.0" x 1.42" with optical drive and battery:
  - CD-ROM models: 5.7 lbs; DVD models: 5.8 lbs; CD-ROM: 5.9 lbs

**Case material**

- Color: black; All: ABS plastic

**Battery - type Battery - life**

- 2.5 hrs to 3.0 hrs depending on model

**Video out**

- S-video out / one industry standard connector

**Audio support**

- SoundBlaster-compatible / Realtek® ALC200 AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / no internal microphone / microphone input jack (3.5 mm) / headphone jack (3.5 mm)

**Security**

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

**Limited warranty**

- 1 year - EasyServ™ on-site pickup and delivery / warranty service upgrades

**Workhouse or Global model**

- Windows 98 models
- IBM Corp. April 2002

**US models withdrawn effective April 2002**

**Table of Specifications**

- IBM ThinkPad R30 (Windows 98)
- IBM Rapid Restore PC
- IBM Data Transfer
- Universal Manageability Services™

**License**

- Lotus® SmartSuite® Millennium
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</table>

Positioning

- Best blend of portability and essential features; two-spindle system

Processor

- Intel® Mobile Celeron™ 900MHz with 100MHz Front Side Bus or Intel Mobile Pentium III 1.0GHz with Speedstep™ Technology with 100MHz Front Side Bus

L2 cache

- Celeron: 128KB / at processor speed; Pentium III: 256 KB / at processor speed

Memory

- 64MB or 128MB standard / 1GB maximum / SDRAM / non-parity / 100MHz / PC 133 / 168-pin SO-DIMM sockets available

Diskette drive

- None standard / use optional Ultrabay™-based or USB-based diskette drive

CD-ROM

- Some: CD-ROM / 24X-10X speed / bootable / removable from Ultrabay™ Plus

CD-RW

- Some: CD-RW / 8X/4X/2X Max / removable from Ultrabay Plus

DVD-ROM

- Some: DVD-ROM / 8X-3X speed / removable from Ultrabay Plus

Ultrabay 2000

- One modular bay for interchangeable devices (right side) / Ultrabay Plus-compatible

Display

- Some: 13.3" (337.8mm) XGA (1024x768) TFT color / Active Matrix
- Some: 14.1" (356.1mm) XGA (1024x768) TFT color / Active Matrix

Graphics controller

- Trident II® CyberBLADE™ Alladin1 2X AGP 3D / 1MB SGRAM / Unified Memory Architecture / controller in M1632M Northbridge

Graphics - external

- External SVGA to various modes such as 16.7 million colors, 85Hz, or 1600x1200

Keyboard

- 87-key / ThinkPad Button / palm rest / TrackPoint® / "Press-to-Select," Internet Scroll Bar / pitch: 19mm; stroke: 2.7mm

ThinkLight™

- Illuminates the keyboard to improve visibility in low-light conditions

UltraPort™

- None

Dimensions

- 12.3" x 10.0" x 1.42"

Approximate weight

- With optical drive and battery: CD-ROM models: 5.7 lbs / with battery and optical drive: CD-ROM models: 5.9 lbs / with optical drive and battery: CD-RW models: 5.9 lbs / with battery and optical drive: CD-RW models: 6.1 lbs

Material

- Color: black / All: ABS plastic

Battery

- Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus

Battery life

- 2.5 hrs to 3.0 hrs depending on model

Architecture

- ALI chipset / M1632M Northbridge (memory, graphics, PCI, Mini PCI) / M1535 Southbridge (IDE, USB, parallel, audio, power management) / PCI 2.1, 32-bit 33MHz / O2 Micro OZ9612 for CardBus

Port Replicator

- Optional ThinkPad Port Replicator (no ThinkPad Dock support)

PC Card Std slots

- Type II or one Type III / CardBus 32-bit / PCMCIA 2.1 / no Zoomed Video

Ports

- Two USB (Version 1.1) / parallel / external DB-15 monitor / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no internal microphone / no Industry standard connector

Video out

- 8-video out / one industry standard connector

Mini PCI

- One Mini PCI IIbs slot (Communications Bay) /  is not customer upgradable

CDC

- Communications Daughter Card (CDC) socket (open or modem) / not accessible

Modem

- Some: 56K V.90 V.92 (capable)® CDC modem card / Lucent® chip set

802.11b/modem

- Some: Mini PCI 802.11b wireless®, Intel® Prism 2.5 chipset, antennas in side of display and base, Wi-Fi-certified / 56K V.90 modems, Lucent® chip set

Ethernet

- 10/100 ethernet on planar / Intel® 82550G chipset

Audio support

- Soft audio / SoundBlaster-compatible / Realtek® ALC200 AC97 codec / stereo speakers / stereo microphone / microphone input jack (3.5 mm) / headphone jack (3.5 mm)

Security

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

Limited warranty

- 1 year - EasyServ 8x25 onsite pickup and delivery / warranty service upgrades

SOFTWARE

Windows XP Home models

- Microsoft® Windows® XP Home
- Disk-to-Desk Recovery
- (in hidden Service Partition)

Windows 2000 models

- Microsoft® Windows 2000
- Professional
- ConfigureSafe®
- Disk-to-Desk Recovery
- (in hidden Service Partition)

INCLUDED SOFTWARE (all)

- Preloaded
- Access ThinkPad
- Access Connections
- Access Audio
- Adobe® Acrobat
- Mediamatics™ DVD (DVD models)
- MusicMatch Jukebox
- PC-Doctor
- ThinkPad Assistant™
- ThinkPad Utilities
- IBM Update Connector™
- Veritas® Rescue & Restore (CD-RW mod)

License

- Lotus® SmartSuite® Millennium

Office XP Small Business models only

- Microsoft® Office XP Small Business™ (Word, Excel, Outlook, Publisher, Small Business Tools)
- Office XP Small Business CD

Ultrabay Plus integrated modular bay supports most Ultrabay 2000 devices including CD-RW/DVD

- Combo drive, diskette drive, or Zip drive; the optional Ultrabay Plus Device Carrier adds potential functionality by supporting the Ultrabay Plus Numeric Keypad and Cradle for the WorkPad® c500 Series

Downloadable

- IBM Rapid Restore PC
- IBM Data Transfer
- Universal Manageability Services™
- Veritas® Rescue & Restore (CD-RW mod)

Universal 72 watt AC adapter

- Wired for Management 2.0
- IBM Image Ultra Services available
- IBM Rapid Restore PC to protect software image and data
- Personalized Web-based support
- International Warranty Service
- 24 hour x 7 day toll-free hardware support during the warranty

* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227

No warranties are expressed or implied in this summary

US models announced October 9, 2001

US models withdrawn effective April 2002

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Positioning

Processor: Intel® Mobile Celeron™ 1.06GHz with 133MHz frontside bus or Intel Pentium™III-M 1.0 or 1.13GHz with SpeedStep™ technology with 133MHz frontside bus cache. Celeron: 256KB at processor speed; Pentium: 512 KB at processor speed.

Memory: 128MB standard / 1GB max / SDRAM / non-parity / 1133MHz / PC133 / 33v / two 144-pin SO-DIMM sockets / std mem in one socket / one socket available.

Diskette drive: None standard / use optional UltraBay™-based or USB-based diskette drive.

CD-ROM: Some: CD-ROM / 24X-10X speed / bootable / removable

CD-RW: Some: CD-RW / 8X/4X/4X Max / removable

DVD-ROM: Some: DVD-ROM / 8X-3X speed / removable

DVD-ROM/C-D-RW: Some: DVD-ROM/C-D-RW combo / 8X/8X/24X/8X speed / removable

UltraBay 2000: One modular bay for interchangeable devices (right side) / UltraBay™ Plus-compatible

Disk: 20, 30, or 40GB (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay Plus

Display

Type: Some: 13.3’’ (337.8mm) XGA (1024x768) TFT color / Active Matrix

Some: 14.1’’ (358.1mm) XGA (1024x768) TFT color / Active Matrix

Graphics controller: IBM 830MG Integrated Direct AGP 3D / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB1 of system memory for graphics

Graphics - external: External SVGA to various modes such as 16.7 million colors, 85Hz, or 1600x1200

Keyboard: 87-key / ThinkPad Button / palm rest / TrackPoint®, “Press-to-Select,” Internet Scroll Bar® / pitch: 19mm; stroke: 2.7mm

It illuminates the keyboard to improve visibility in low-light conditions / no UltraPort

Dimensions: 12.3’’ x 10.0’’ x 1.42’’ / 313mm x 254mm x 36mm

Approximate weight: with battery and: CD-ROM: 5.8 lbs; DVD: 5.8 lbs; CD-RW: 6.1 lbs; DVD/CD-RW: 6.1 lbs

Case material: Black / Gold / White plastic

Battery - type: Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus

Battery - life: Celeron models: 2.4 to 2.6 hrs; Pentium III models: 2.9 to 3.1 hrs

Architecture

IBM 830MG chipset / 82830MG Graphics Memory Controller Hub (GMCH-M) / 82801CAM ICH3-M I/O Controller Hub (ATA-100/66 IDE, EIDE, PCI bus, USB, Low Pin Count bus, ethernet, AC-Link) / PCI bus 32 32-bit, 33MHz (T1) / PCI11410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC87392DV/1G) / PCI/ ISA for (parallel, Infrared)

Port Replicator

Optional ThinkPad Port Replicator (no ThinkPad Dock support)

PC Card Std slots: One Type II or one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door

Two USB (Version 1.1) / parallel / external DB-15 monitor / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port

Video out

Mini PCI: One Mini PCI type III slot (Communications Bay) / no customer upgradable

Some: Mini PCI Wi-Fi/Imod wireless, Intelsis Prism 2.5 chip, dual antennas (in side of display and in base), Wi-Fi-certified

SDRAM/DIMM: One Communications Daughter Card (CDC) socket (open or modular) / not accessible

Modern: Some: 56K V.90 (V.92-designed™) modem card / Lucent™ chip set

Ethernet: 10/100 ethernet on planar / Intel® 82526ET chip

Audio support: Sound audio / SoundBlaster-compatible / analog Devices AD1819 AC97 codec / speaker/s 1 watt / volume up, down, mute buttons / no internal microphone / microphone input jack (3.5 mm) / headphone jack (3.5 mm)

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

Some: IBM Embedded Security Subsystem™ / hardware and software multi-factor authentication / local file encryption / enhances VPN security

Limited warranty

1 year - EasyServ™ onsite pickup and delivery / service upgrades available

Included software

SOFTWARE

Windows XP Home models: - Microsoft® Windows® XP Home

- Disk-to-Disk Recovery (in hidden Service Partition)

Windows XP Pro models: - Microsoft® Windows® XP Professional

- Disk-to-Disk Recovery (in hidden Service Partition)

Microsoft Office XP Small Business™ models: - Microsoft Office Small Business™ (Word, Excel, Outlook, Publisher, Small Business Tools)

- Office XP Small Business CD

Universal 72 watt AC adapter

PC 2001-compliant

CIM and DMI 2.0-compliant

IBM ImageUltra™ Services available


Universal 24 hour x 7 day toll-free hardware support during the warranty period
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<td>Open</td>
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<td>XP Pro</td>
<td>Apr 2002</td>
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<tr>
<td>2656-L4U</td>
<td>Pentium® III-M</td>
<td>1.0 128MB</td>
<td>14.1&quot; XGA</td>
<td>DVD-ROM</td>
<td>Open</td>
<td>Modern/100</td>
<td>XP Pro</td>
<td>Apr 2002</td>
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</tbody>
</table>

**Positioning**

Best blend of portability and essential features; two-spindle system

**TA-compliant**

Trade Act Agreement-compliant

**Processor**

Intel® Mobile Pentium® III-M 1.0 or 1.13GHz with Speedstep™ technology with 133MHz Front Side Bus

**L2 cache**

512 KB / at processor speed / ECC

**Memory**

128 or 256MB standard / 1GB max / SDRAM / non-parity / 133MHz / PC133 / 3.3v / two 144-pin SO-DIMM sockets / std mem in one socket / one socket available

**Diskette drive**

None standard / use optional Ultrabay™-based or USB-based diskette drive

**CD-ROM**

Some: CD-ROM / 8x/4x/24x Max / removable

**DVD-ROM**

Some: DVD-ROM / 8x/3.3x speed / removable

**DVD-ROM/CDFW**

Some: DVD-ROM/CD-ROM combo / 8x/8x/24x/8x speed / removable

**Ultrabay 2000**

One modular bay for interchangeable devices (right side) / Ultrabay™ Plus-compatible

**Disk**

20, 30, or 40GB (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay

**Display**

14.1" (356.1mm) XGA (1024x768) TFT color / Active Matrix

**Graphics controller**

Intel® 830MCH Integrated Direct AGP 3D / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB of system memory for graphics

**Graphics - external**

External SVGA to various modes such as 16.7 million colors, 85Hz, or 1600x1200

**Keyboard**

87-key / ThinkPad Button / palm rest / TrackPoint®, "Press-to-Select," Internet Scroll Bar® / pitch: 19mm; stroke: 2.7mm

**ThinkLight™**

Illuminates the keyboard to improve visibility in low-light conditions

**UltraPort™**

None

**Dimensions**

12.3" x 10.0" x 1.42" / 317mm x 254mm x 36mm

**Approximate weight**

w/ battery and: DVD-ROM: 5.8 lbs; CD-RW: 6.1 lbs; DVD/CDFW: 6.1 lbs

**Battery - type**

Lithium ion 6-cell / intelligent / no second battery in Ultrabay Plus

**Battery - life**

802.11b models: 2.9 hrs; Others: 3.1 hrs

**Architecture**

Intel® 830M chip set / 82830M Graphics Memory Controller Hub (GMCH-M) / 82801CAM ICH3-M I/O Controller Hub (ATA-100/66 EIDE, PCI bus, USB, Low Pin Count bus, ethernet, AC-Link) / PCI bus 2.2-32 bit, 33MHz (T! PCI1410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC87392VJ Super I/O for parallel, infrared)

**Port Replicator**

One Type II or one Type III / CardBus 32-bit / PCMCIA 2.1 / no Zoomed Video

**PC Card Std slots**

Two USB (Version 1.1) / parallel / external DB-15 monitor / infrared (4Mbps) / RJ-11 (modem) - RJ-45 (ethernet) - no keyboard or mouse or serial port

**Port**

External SVGA to various modes such as 16.7 million colors, 85Hz, or 1600x1200

**Video out**

5-vdeo out port (TV out) / one industry standard connector

**Wi-Fi™/modem**

One Mini PCI type III slot (Communications Bay) / not mother upgradeable

**CDC**

One Communications Daughter Card (CDC) socket (open or modem) / not accessible

**Modem**

Some: 56K/9.6 (V.92-designed2) modem combo. Lucent® chipset

**Ethernet**

10/100 ethernet on planar / Intel® 82562ET chipset

**Audio support**

Soft audio / SoundBlaster-compatible / Analog Devices AD1881A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / no internal microphone / microphone input jack (3.5mm) / headphone jack (3.5mm)

**Security**

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

Some: IBM Embedded Security Subsystem — hardware key storage / multi-factor authentication / local file encryption / enhances VPN security

Limited warranty: 1 year - EasyServ™ onsite pickup and delivery / warranty service upgrades

SOFTWARE

Windows XP Pro models
- Microsoft® Windows® XP Professional
- Disk-to-Drive Recovery (in hidden Service Partition)

Windows 2000 models
- Microsoft Windows 2000 Professional
- ConfigSafe
- Disk-to-Drive Recovery (in hidden Service Partition)

INCLUDED SOFTWARE

- IBM Update Connector®
- Veritas RecordNOW (CD-RW-mod)

Downloadable

IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agent
- IBM Client Security Software (for security chip)

License

Lotus® SmartSuite® Millennium and Lotus Notes® Client 5.0

Microsoft Office XP Small Business™ Models (H6U and H9U)
- Microsoft Office XP Small Business™ (Word, Excel, Outlook, Publisher, Small Business Tools)
- Office XP Small Business CD

Ultrabay Plus integrated modular bay supports most Ultrabay 2000 devices including CD-RW/DVD Combo drive, diskette drive, or Zip drive; the optional Ultrabay Plus Device Carrier adds potential functionality by supporting the Ultrabay Plus Numeric Keypad and Cradle for the WorkPad c500 Series

Universal 72 watt ac adapter

PC 2001-compliant

IBM and DMI 2.0-compliant

IBM ImageUltra Services available

IBM Rapid Restore PC available to protect software image and data. Personalized Web-based support support


24 hour x 7 day toll-free hardware support during the warranty support

See footnotes for important warranty information

US models announced April 2, 2002

US models withdrawn effective October 2002

(R31TAA) © IBM Corp. October 2002
<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
<th>GHz</th>
<th>Memory</th>
<th>Screen</th>
<th>Disk</th>
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<th>Mini PCI Comm Bay</th>
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<th>Security Chip</th>
<th>Preload</th>
<th>Workforce (W) or Global (G) model</th>
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<td>10/100</td>
<td>No</td>
<td>Windows XP Pro</td>
<td>Apr 2002</td>
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</tbody>
</table>

*2657 models have a 3 year limited warranty (other 2656 ThinkPad R31 systems have a 1 year limited warranty)*
*Trade Act Agreement (TAA)-compliant models*

### Positioning
**TAA-Compliant Processor**

- **Best blend of portability and essential features; two-spindle system**
- **Trade Act Agreement-compliant**
- **IBM® Mobile Pentium® III Processor-M 1.13GHz with SpeedStep™ technology® with 133MHz Front Side Bus**

### L2 cache
- 512 KB / at processor speed
- **Memory**
  - 128MB or 256MB standard / 1GB maximum / SDRAM / non-parity / 133MHz / PC133 / 3.3v / two 14-pin SO-DIMM sockets / std mem in one socket / one socket available

### Diskette drive
- **CD-RW Ultrabay 2000**
- **Disk**
  - None standard / use optional Ultrabay™-based or USB-based diskette drive
  - Supports 2nd disk with optional HDD Adapter in Ultrabay

### Display
- **Graphics controller**
  - IBM® 830MG Integrated Direct AGP® 3D / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB® of system memory for graphics
  - External SVGA to various modes such as 16.7 million colors, 85Hz, or 1600x1200
- **Graphics - external**
  - 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix

### Keyboard
- **ThinkLight™ UltraPort™**
  - 8-key / ThinkPad Button / palm rest / TrackPoint®, “Press-to-Select,”
  - Internet Scroll Bar® / pitch: 19mm / stroke: 2.7mm
  - Illuminates the keyboard to improve visibility in low-light conditions

### Dimensions
- 12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
- **Approximate weight**
  - 2.5 to 3.1 hrs
- **Case material**
  - Color: black; All: ABS plastic
- **Battery type**
  - Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
- **Battery life**
  - 82801CAM ICH3-M I/O Controller Hub
  - Intel 830MG
  - 2.5 to 3.1 hrs
  - Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus

### Architecture
- **Intel® 830MG chipset / 82830MG Graphics Memory Controller Hub (GMCH-M) / 82801CAM ICH3-M I/O Controller Hub (ATA-100/66 IDE, PCI bus, USB, Low Pin Count bus, ethernet, AC-Link) / PCI bus 2.332-bit, 33MHz (T1: PCI-1410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC873752/VG SUPER I/O for parallel, infrared)**

### Port Replicator
- **Optional ThinkPad Port Replicator**
  - No ThinkPad Dock support
  - One Type II or one Type III / CardBus 32-bit / PCMCIA 2.1 / no Zoomed Video

### Video out
- **S-video out port (TV out) / one industry standard connector**
  - One Mini PCI type III slot (Communications Bay) / no customer upgradeable

### Security
- **Power-on password / hard disk password / supervisor password / security keyhole**

### Limited warranty
- **3 years**

### Workforce (W) or Global (G) model
- **Windows® XP Pro models**
  - Microsoft® Windows® XP Professional³
  - Disk-to-Desk Recovery
  - (in hidden Service Partition)

### Windows 2000 models
- Microsoft Windows 2000 Professional²
- ConfigSafe⁴

### Software (Ⅲ)
- **ThinkPad Utilities**
- **IBM Update Connector™, TAA**

### Downloadable
- IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agent
- IBM Client Security Software (for security chip)

### License
- Lotus® SmartSuite® Millennium and Lotus Notes® Client 5.0

### Ultrabay Plus
- Integrated modular bay supports most Ultrabay 2000 devices including CD-RW/DVD Combo drive, diskette drive, or Zip drive; the optional Ultrabay Plus Device Carrier adds potential functionality by supporting the Ultrabay Plus Numeric Keypad and Cradle for the WorkPad® c500 Series

### Other options at ibm.com/pc/us/accessories
- Universal 72 watt AC adapter
- CIM and DMI 2.0-compliant
- IBM ImageUltra Services available
- IBM Rapid Restore PC available to protect software image and data
- Personalized Web-based support⁵
- International Warranty Service⁶
- 24 hour x 7 day 24-hour toll-free hardware support during the warranty⁷

See footnotes for important warranty information
US models announced April 2, 2002
US models withdrawn effective October 2002

(R31TAA3) © IBM Corp. October 2002
### Type-model | Processor | GHz | Memory/MB | Screen | Disk | Optical | Mini PCI | Comm Bay | w/Modem | ethernet | Modem | Security Chip | Workhorse (W) | Workhorse (G) | Available date
---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---
2656-A4U | Celeron™ | 1.06 | 128MB | 13.3" XGA | 20GB | CD-ROM | No Modem | 10/100 | Windows® | Feb 2002
2656-AEU | Celeron™ | 1.06 | 128MB | 13.3" XGA | 20GB | CD-ROM | Modem | 10/100 | Windows® | Feb 2002
2656-FFU | Pentium™ III-M | 1.00 | 128MB | 14.1" XGA | 20GB | CD-ROM | None | 10/100 | Windows® | Feb 2002
2656-HEU | Pentium™ III-M | 1.13 | 128MB | 13.3" XGA | 30GB | CD-RW | None | 10/100 | Windows® | Feb 2002

- **Positioning**
  - Best blend of portability and essential features; two-spindle system
- **Security**
  - IBM Client Security Software (for IBM Update Connector
  - IBM Client Security Software (for Windows 2000)
  - IBM Client Security Software (for Windows XP)
  - IBM Client Security Software (for Windows Vista)
  - IBM Client Security Software (for Windows 7)
- **Audio support**
  - Software: IBM Sound Manager
  - Hardware: Analog Devices AD1881A AC97 codec
  - Features: Soft audio
  - Options: SoundBlaster-compatible
- **Ethernet**
  - Ports: 10/100 ethernet on planar
  - Options: Intel 830MG Integrated Direct AGP 3D
  - Additional: 82801CAM ICH3-M I/O Controller Hub
  - Features: 133MHz Front Side Bus

- **Software**
  - Preloaded: Access TmPak
  - Access Connections
  - Access Help
  - Access Support
  - Adobe Acrobat
  - InterVideo WinDVD (DVD models)
  - Norton AntiVirus
  - PC-Doctor™
  - Thinkpad Utilities
  - IBM Update Connector™
  - Veritas RecordNOW (CD-RW mod)
  - Included: Lotus SmartSuite® Millennium and Lotus Notes® Client 5.0

- **Limited warranty**
  - Years: 1 year
  - Types: EasyServ™

- **See footnotes for important warranty information**

**US models announced January 22 or March 19, 2002**

**US models withdrawn effective July 2002 or January 2003**

**Notes:**
- See footnotes for important warranty information
- US models announced January 22 or March 19, 2002
- US models withdrawn effective July 2002 or January 2003
- IBM Corp. December 2002

**Software**
- Windows 2000 models
  - Microsoft Windows 2000
  - Professional
  - ConfigSafe
  - Disk-to-Disk Recovery (in hidden Service Partition)

**Included Software**
- Preloaded
  - Access TmPak
  - Access Connections
  - Access Help
  - Access Support
  - Adobe Acrobat
  - InterVideo WinDVD (DVD models)
  - Norton AntiVirus
  - PC-Doctor™
  - Thinkpad Utilities
  - IBM Update Connector™
  - Veritas RecordNOW (CD-RW mod)

**Downloadable**
- IBM Rapid Restore™
- IBM Data Transfer
- Universal Manageability Services™
- IBM Client Security Software (for security chip)

**License**
- IBM Client Security Software (for Windows 2000)
- IBM Client Security Software (for Windows XP)
- IBM Client Security Software (for Windows Vista)
- IBM Client Security Software (for Windows 7)

**Optional Features**
- USB 2.0/1.1 (no ThinkPad Dock support)
- Ethernet: 10/100 or Gigabit Ethernet
- Ports: 1394a, serial, USB
- Audio: stereo speakers, microphone input jack, headphone jack
- Optical Drive: DVD-ROM, CD-RW, CD-ROM

**Video out**
- S-video out port (TV out)
- Optional: V.90 modem combo, Lucent

**Limited warranty**
- Years: 1 year
- Types: EasyServ™

**See footnotes for important warranty information**

**Notes:**
- See footnotes for important warranty information
- US models announced January 22 or March 19, 2002
- US models withdrawn effective July 2002 or January 2003
<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Speed (MHz)</th>
<th>Memory (GB)</th>
<th>Hard Drive (GB)</th>
<th>Optical Disk Drive</th>
<th>Display</th>
<th>Ethernet</th>
<th>Security Chip</th>
<th>Preload</th>
<th>Limited warranty</th>
<th>Availability</th>
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<td>168 MB</td>
<td>128 MB</td>
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<td>13.3 XGA</td>
<td>Wi-Fi/Modem</td>
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<td>No</td>
<td>Windows XP Pro 1 yr Apr 2002</td>
<td>No</td>
</tr>
</tbody>
</table>

These educational models of the ThinkPad R31 notebook must be sold only to qualified education customers. Qualified institution/customer is a public or private K-12 (or higher) accredited school organized and operated exclusively for educational purposes for use by Qualified Students and/or Qualified Teachers. This model for education is for sale direct from IBM or through an Authorized Education Reseller. The model or models for education are not available for resale to any other organization or individual.

**Specs:**
- **Processor:** Intel Mobile Pentium III-M 1.06GHz with SpeedStep technology
- **Memory:** 128MB standard / 168 MB max / SDRAM / non-parity / 133MHz / PCI133-compliant
- **Display:** 13.3" (337.8mm) XGA (1024x768) TFT color / Active Matrix
- **Graphics:** 10/100 ethernet on board / Intel 82562ET chipset (physical layer)
- **Security:** Power-on password / hard disk password / supervisor password / security keyhole
- **Limited warranty:** 2656: 1 year / EasyServ on site pickup and delivery / service upgrades available
  - 2657: 3 years / 1 year battery / EasyServ on site pickup and delivery / service upgrades available

**Included Software**
- Access Connections
- Access Help
- Access Support
- Adobe Acrobat
- InterVideo WinDVD (DVDM models)
- Norton AntiVirus
- PC-Doctor
- ThinkPad Utilities
- IBM Update Connector
- Veritas RecordNOW

**Downloadable Software**
- IBM Rapid Restore
- IBM Data Transfer
- IBM Director Agent

**License**
- Lotus SmartSuite Millennium and Lotus Notes Client 5.0

**Ultrabay Plus** integrated modular bay supports most Ultrabay 2000 devices including CD-RW/DVD Combo drive, diskette drive, or Zip drive; the optional Ultrabay Plus Device Carrier adds potential functionality by supporting the Ultrabay Plus Numeric Keypad and Cradle for the WorkPad c500 Series

See footnotes for important warranty information

US models announced 30 August 2002

US models withdrawn from marketing effective October 2002 or January 2003

(R31E) © IBM Corp. December 2002
IBM® ThinkPad® R31 (June 2002) - withdrawn

<table>
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<th>Type-model</th>
<th>Processor</th>
<th>Speed / Memory</th>
<th>Screen</th>
<th>Mini PCI Comm Bay</th>
<th>CDC modem</th>
<th>Ethernet on planar</th>
<th>IEEE 1394</th>
<th>Workload or Global (G) model</th>
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</thead>
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<td>256KB / 133MHz</td>
<td>XGA</td>
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<td>1394</td>
<td>Windows® XP Pro</td>
<td>Nov 2002</td>
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<td>1394</td>
<td>Windows® XP Home</td>
<td>Nov 2002</td>
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</table>

Positioning
Processor
L2 cache
Memory
Diskette drive
CD-ROM
CD-RW
DVD-ROM
Ultrabay 2000
Disk
Display
Graphics controller
Graphics - external
Keyboard
ThinkLight™ UltraPort™
Dimensions
Approximate weight
Case material
Battery - type
Battery - life
Architecture
Port Replicator
PC Card Std slots
Ports
Video out
IEEE 1394 (FireWire)
Mini PCI
Wi-Fi/modem
C/D C
Modern
Ethernet
Audio support
Security
Limited warranty

SOFTWARE
Windows XP Home models
- Microsoft® Windows® XP Home
- Disk-to-Disk Recovery (in hidden Service Partition)

Windows XP Pro models
- Microsoft® Windows® XP Professional
- Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE (all)
- Preloaded
- Access ThinkPad
- Access Connections
- Access Help
- Access Support
- Adobe® Acrobat Reader
- InterVideo WinDVD (DVD models)
- Norton AntiVirus
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™
- Veritas RecordNOW (CD-ROM mod)

DOWNLOADABLE
- IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agent

License (CD not included)
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand Alone Client
- IBM USB 2.0 Memory Key
- IBM USB Portable Diskette Drive
- IBM USB 2.0 CardBus Adapter
- IBM USB Serial Parallel Adapter

Ultrabay Plus integral modular bay supports most Ultrabay 2000 devices including CD-R/DVD Combo drive, diskette drive or Zip drive, the optional Ultrabay Plus Device Carrier adds potential functionality by supporting the Ultrabay Plus Numeric Keypad and Cradle for the WorkPad® c500 Series

See footnotes for important warranty information
US models announced June 4 or August 13, 2002
US models withdrawn from marketing effective October 2002 or January 2003
IBM ThinkPad R31 (2657) - withdrawn

2657 models have a 3 year limited warranty (other 2656 ThinkPad R31 systems have a 1 year limited warranty)

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<th>Type-model</th>
<th>Processor</th>
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<th>Screen</th>
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<th>Security Chip</th>
<th>Preload</th>
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<td>10/100</td>
<td>No</td>
<td>Windows XP Pro 2002 Mar 2002</td>
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</table>

LIMITED WARRANTY

IBM Optical 3-Button Travel Wheel Mouse 31P7410
IBM 1GB Microdrive 07N5574
ThinkPad Portable 20GB Hard Disk Drive 10K0177
ThinkPad R30/R31 Li-Ion Battery 02K6821
ThinkPad Port Replicator 02K8667
IBM ImageUltra

INCLUDED SOFTWARE™ (all)

System software: Windows® XP Pro, Access Connections, Norton AntiVirus, PC-Doctor™

Included Applications:
- Microsoft® Windows® XP Professional
- ThinkPad Utilities
- InterVideo WinDVD (DVD models)
- Veritas ReinstallNOW
- IC Client Security Software (for security chip)

Software License:
- Lotus® SmartSuite® Millennium and Lotus Notes® Client 5.0

SOFTWART™

Preloaded:
- Access ThinkPad
- Access Connections
- Access Help
- Access Support
- Adobe Acrobat
- InterVideo WinDVD (DVD models)
- Norton AntiVirus
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™
- Veritas ReinstallNOW

Downloadable:
- IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agent
- IBM Client Security Software (for security chip)

License:
- Lotus® SmartSuite® Millennium and Lotus Notes® Client 5.0

Ultrabay Plus integrated modular bay supports most Ultrabay 2000 devices including CD-RW/DVD Combo drive, diskette drive, or Zip drive; the optional Ultrabay Plus Device Carrier adds potential functionality by supporting the Ultrabay Plus Numeric Keypad and Cradle for the WorkPad® c500 Series

Included Softwares:
- Windows XP Pro models
- IBM Update Connector™
- Disk-to-Drive Recovery
- (in hidden Service Partition)

Windows 2000 models:
- Microsoft Windows 2000 Professional
- Disk-to-Drive Recovery
- (in hidden Service Partition)

See footnotes for important warranty information

US models announced March 5 or 19, 2002

Due to withdrawn effective January 2003 or April 2003

(R313) © IBM Corp. March 2003
<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
<th>Memory</th>
<th>Disk Capacity (GB)</th>
<th>Optical Drive</th>
<th>Mini PCI</th>
<th>CD/DVD Drive</th>
<th>Ethernet</th>
<th>Workstation</th>
<th>Availability</th>
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<tbody>
<tr>
<td>2656-L2U</td>
<td>Celeron 1.2</td>
<td>256MB</td>
<td>20GB</td>
<td>CD-ROM</td>
<td>3Com 100</td>
<td>10/100</td>
<td>I394</td>
<td>Windows XP Pro</td>
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<td>CD-ROM</td>
<td>Wi-Fi®/modem</td>
<td>10/100</td>
<td>1394</td>
<td>Windows XP Pro</td>
<td>Sept 2002</td>
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<td>20GB</td>
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<td>Windows XP Pro</td>
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<td>10/100</td>
<td>1394</td>
<td>Windows XP Pro</td>
<td>Sept 2002</td>
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</table>

**Positioning**

- **Processors**
  - Intel® Mobile Celeron® 1.2GHz with 133MHz frontside bus
  - Mini PCI
  - IEEE 1394
  - PC Card Std slots
  - Port Replicator
  - Architecture
    - Intel® 830GM Direct Integrated AGP 3D Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB of system memory for graphics
    - Graphics controller Intel® 830GM chipset / 82801GM ICH3-M I/O Controller Hub (GMCH-M)
    - Graphics - external SVGA to various modes such as 16.7 million colors, 85Hz, or 1600x1200
  - Graphics controller Intel® 830GM chipset / 82801GM ICH3-M I/O Controller Hub (GMCH-M)
  - Display
    - Some: 13.3" (337.8mm) XGA (1024x768) TFT color / Active Matrix
    - Some: 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix

**Software**

- Windows XP Home models
  - Microsoft® Windows® XP Home
  - Disk-to-Disk Recovery (in hidden Service Partition)
- Windows XP Pro models
  - Microsoft® Windows® XP Professional
  - Disk-to-Disk Recovery (in hidden Service Partition)

**Included Software**

- INCLUDED SOFTWARE
  - Preloaded
  - IBM Rapid Restore®
  - IBM ImageUltra™
  - IBM® RecordNOW and DLA
  - IBM® System Migration Assistant
  - License (CD not included)
  - Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client

**UltraBay Plus**

- Integrated modular bay supports most UltraBay 2000 devices including CD-RW/DVD combo drive, diskette drive, or Zip drive; the optional UltraBay Plus Device Carrier adds potential functionality by supporting the UltraBay Plus Numeric Keypad and Cradle for the Workpad® c500 Series

**Limited Warranty**

- 1 year - EasyServ™ on-site pickup and delivery / service upgrades available

---

See footnotes for important warranty information

US models withdrawn effective April 2003

(R315) © IBM Corp. March 2003
### Type-model Processor

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor Type</th>
<th>Clock Speed</th>
<th>Cache Size</th>
<th>Bus Speed</th>
<th>Features</th>
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<tr>
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<td>128MB</td>
<td>14.1&quot; XGA</td>
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<td>266MHz DDR-SGRAM</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Graphics

- **ATI Mobility Radeon 7000**: AGP 4X / 16MB DDR-SGRAM
- **IBM ThinkPad Port Replicator**: Optional (no ThinkPad Dock support)
- **IBM ThinkPad Port Replicator**: Ports: One Type II or one Type III / CardBus 32-bit / PCMCIA 2.1 / no Zoomed Video
- **IBM ThinkPad Port Replicator**: Ports: Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4 Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port

### Display

- **IBM ThinkPad Display**: 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits / Easy-open cover to unstack and open with one hand

### Software

- **Microsoft Windows XP Pro models**: - Access ThinkPad
- **Microsoft Windows XP Professional**: - Access Connections
- **Microsoft Windows XP Professional**: - Access Help
- **Microsoft Windows XP Professional**: - Additional Support
- **Microsoft Windows XP Professional**: - Adobe Acrobat Reader
- **Microsoft Windows XP Professional**: - InterVideo WinDVD (DVD models)
- **Microsoft Windows XP Professional**: - Norton AntiVirus (OEM edition)
- **Microsoft Windows XP Professional**: - PC-Doctor
- **Microsoft Windows XP Professional**: - ThinkPad Utilities
- **Microsoft Windows XP Professional**: - Veritas RecordNOW (CD-RW mod)
- **Microsoft Windows XP Professional**: - IBM Update Connector

### Office XP Small Business model (only)

- **IBM ThinPad Administrator**: Microsoft Office XP Small Business (Word, Excel, Outlook, Publisher, Small Business Tools)
- **IBM ThinPad Administrator**: Office XP Small Business CD

### Limited warranty

- **1 year - EasyServ**: onsite pickup / delivery / service upgrades / all available
- **2 years - EasyServ**: onsite pickup / delivery / service upgrades / all available
- **3 years - EasyServ**: desktop / tower / laptop / flat panel / handheld / mobile / portable / mini / micro / compact / subcompact / submini / submicro / micro\n
---

See footnotes for important warranty information

US models announced June 4, 2002

US models withdrawn effective January 2003

(R32TAA © IBM Corp. December 2002)
IBM® ThinkPad® R32 - withdrawn

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<th>Type-model</th>
<th>Processor</th>
<th>Speed MHz</th>
<th>Memory</th>
<th>Screen</th>
<th>Disk</th>
<th>Mini PCI Comm Bay</th>
<th>Net_Access (wireless/modem)</th>
<th>CD/DVD</th>
<th>Ethernet on planar</th>
<th>IEEE 1394</th>
<th>Preload</th>
<th>Small business</th>
<th>Workload (W)</th>
<th>Worldwide (G)</th>
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<td>Yes</td>
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<td>Jun 2002</td>
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<td>None</td>
<td>Yes</td>
<td>XP Pro</td>
<td>Jun 2002</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Positioning

Mobile Intel® Pentium® 4 Processor-M 1.6 or 1.8GHz with enhanced Intel SpeedStep™ technology and 400MHz frontside bus

L2 cache 512KB / on die (at processor speed) / ECC

Memory 128 or 256MB std / 1GB max / PC2100 266MHz DDR-SDRAM / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available

Diskette drive None standard / use optional Ultrabay™-based or USB-based diskette drive

CD-ROM Some: CD-ROM / 24X/10X speed / bootable / removable from Ultrabay 2000


DVD Some: DVD-ROM / 8X/3X-3.3X speed / bootable / removable from Ultrabay 2000

Ultrabay 2000 One modular bay for interchangeable devices (right side) / Ultrabay Plus-compatible

Display 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits / Easy-open cover to unlatch and open with one hand

Graphics controller ATI® Mobility™ RADEON® 7000 4X / 16MB DRR-SDRAM

Graphics - external External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC/2B

Keyboard 87-key / ThinkPad Button / palm rest / pitch: 19mm; stroke: 2.7mm (standard-size keys)

TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar13, magnifying glass enables the keyboard to improve visibility in low-light conditions / no UltraPort

Dimensions Approximate: 12.3" x 10.0" x 1.5", 313mm x 254mm x 38mm

Approximate weight with optical drive and battery: 5.3 to 6.2 lbs (2.4 to 2.7 kg) depending on model

Battery - type Lithium Ion battery / intelligent / supports unique 2nd battery in Ultrabay 2000

Battery - life (without modems) Wireless models: 3.0 hrs; Others: 3.1 hrs / EasyServ

Audio support Soft audio / ICH AC97 controller / SoundBlaster Pro

- compatible / AD1881A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / no internal mic / microphone input jack (3.5mm) / headphone jack (3.5mm) / no line in jack

Security Power-on password / hard disk password / supervisor password / security keyhole / some: 3DES-encrypted Security Subsystem 2.0 / intelligent hard key storage / multifactor authentication / local file encryption / enhances VPN security16 / TCPA-compliant

Limited warranty 1 year - EasyServ™10 on-site pickup and delivery / service upgrades available16

128 MB PC2100 DDR-SDRAM CL2.5 SOD 100K008 ThinkPad Port Replicator 02K8667

526 MB PC2100 DDR-SDRAM CL2.5 SOD 100K0030 Portable Drive Bay 2000 (accepts Ultrabay)

512 MB DDR-SDRAM CL2.5 SOD 100K0032 IBM ThinkPad Ultrabay Plus Card 2257337

IBM ThinkPad Ultrabay Plus 400 Caddy 225P7538 IBM ThinkPad Ultrabay Plus 400 Caddy 225P7533 ThinkPad Ultrabay Plus Numeric Keypad 22P7330

Travel Bezel for Ultrabay 2000 08K6070 ThinkPad Ultrabay 2000 DC Adapter 02K8669

Zip 250MB Ultrabay 2000 00N8253 Multi-Purpose Media Storage Battery 02K7671

CD-RW / DVD Combo Drive 2000 08K9233 Ultrabay 8X Max DVD Drive 22P9102

Ultralight 8X Max DVD Drive 2000 08K9233 40GB HS Hard Disk 9.5mm (5400 rpm) 08K9816

ThinkPad Removable Diskette Drive 08K9603 Other options at ibm.com/us/us/services

SOFTWARE®

Windows XP Pro models

- Microsoft Windows® XP Professional
- Disk-to-Disk Recovery (in hidden Service Partition)

Windows 2000 models

- Microsoft Windows 2000
- Professional39
- Snap-In Setup
- Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE** (all)

Preloaded

- Access ThinkPad
- Access Connections
- Access Support
- Adobe Acrobat Reader
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- Veritas RecordNOW (CD-ROM mod)
- IBM Update Connector™

Downloadable

- IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agent
- Client Security Software (models with security chip)

License (CD not included)

- Lotus “SmartSuite” Millennium and Lotus Notes® Stand-alone Client

Office XP Small Business model only (2658-A9U/BKU)

- Microsoft Office XP Small Business Edition (Word, Excel, Outlook, Publisher, Small Business Tools)
- Office XP Small Business CD

International Warranty Service

Universal 72 watt AC adapter
- IBM Asset ID (system-specific info in chip accessed over network)

PC2001-compliant

ACPI 1.0b and 2.0-compliant

CM and DMI 2.0-compliant

PKX 2.0-compliant

IBM Rapid Restore PC available to protect software image and data

Personalized Web-based support31

Proactive e-mail updates31

24 hour x 7 day18 toll-free hardware support during the warranty18

See footnotes for important warranty information

US models announced: June 4, 2002

US models withdrawn effective: January 2003 or April 2003

(R32) © IBM Corp. March 2003
### IBM ThinkPad R32 (2659) - withdrawn

#### 2659 models have a 3 year limited warranty (other 2658 ThinkPad R32 systems have a 1 year limited warranty)

<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
<th>Speed/Hz</th>
<th>Memory</th>
<th>Screen</th>
<th>Mini PCI Comm Bay</th>
<th>Optical wireless/modem</th>
<th>CDC modem</th>
<th>Ethernet on planar</th>
<th>IEEE 1394 port</th>
<th>Security Chip</th>
<th>Preload</th>
<th>Workhorse (W)</th>
<th>Limited or Global (G) Available date</th>
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<tr>
<td>2659-BPU</td>
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<td>3 yr</td>
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<td>3 yr</td>
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<td>XP Pro</td>
<td>3 yr</td>
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<td>Modem</td>
<td>10/100</td>
<td>No</td>
<td>2000</td>
<td>3 yr</td>
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</table>

#### Positioning
- **Best blend of portability and essential features; two-spiral system**
- **Mobile Intel Pentium 4-Processor M 1.6 or 1.8 GHz** with enhanced Intel SpeedStep™ technology and 400MHz frontside bus
- **IBM TrackPoint® Pointing device, “Press-to-Select,” Internet Scroll Bar™,” “TrackPoint Cap Collection 73P2698**

#### L2 cache Memory
- **512KB** on / off (at processor speed) / ECC

#### Disk drive
- None standard / use optional Ultrabay™-based or USB-based diskette drive

#### DVD
- None standard / use optional Ultrabay™-based or USB-based diskette drive

#### Ultrabay 2000
- None standard / use optional Ultrabay™-based or USB-based diskette drive

#### Display
- **14.1"** (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits / Easy-open cover to unlatch and open with one hand

#### Graphics controller
- ATI Mobility™ RADEON™ 7000 / AGP 4X / 16MB DDR-SRAM

#### Architecture
- **Intel 845MP chipset / 82845MP Memory Controller Hub (MCH-M) / 82801 CAM ICH-M3 / I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count (LPC) interface, USB, Firmware Hub) / PCI bus 2.2 32-bit, 33MHz (TTE, PCI/PC1410A Cardbus controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip) (some) / PC87392 Super I/O for diskette, parallel, infrared)

#### Video out
- **S-video out port (TV out) / one industry standard connector**

#### IEEE 1394 Ports
- **10/100 ethernet on motherboard / Intel 82562Z Ethernet Chipset (physical layer) / Intel 82550 Chipset (physical layer) / Intel 82550 Chipset (physical layer) / Intel 82550 Chipset (physical layer)**

#### Security
- **IBM Embedded Security Subsystem 2.0** / **IBM Update Connector™/IBM International Warranty Service** / **IBM Update Connector™/IBM International Warranty Service** / **IBM Update Connector™/IBM International Warranty Service**

#### Preloaded Services
- **Access ThinkPad**, **Access Connections**, **Access Help**, **Access Support**

#### Includen Software
- **IBM Update Connector™/IBM International Warranty Service** / **IBM Update Connector™/IBM International Warranty Service** / **IBM Update Connector™/IBM International Warranty Service**

#### Limited warranty
- **3 years** / **1 year** battery - EasyServ™ onsite pickup and delivery

#### Service options
- **Service upgrades** provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

#### Limited warranty on batteries
- **3 years** / **1 year** battery - EasyServ™ onsite pickup and delivery

<table>
<thead>
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<th>Part number</th>
<th>Description</th>
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<td>IBM 128MB USB 2.0 Memory Key</td>
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<tr>
<td>08K9681</td>
<td>IBM 64MB USB 2.0 Memory Key</td>
<td>22P8998</td>
</tr>
<tr>
<td>08K9682</td>
<td>IBM 32MB USB 2.0 Memory Key</td>
<td>22P8998</td>
</tr>
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<td>08K9683</td>
<td>IBM 16MB USB 2.0 Memory Key</td>
<td>22P8998</td>
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<td>08K9684</td>
<td>IBM 8MB USB 2.0 Memory Key</td>
<td>22P8998</td>
</tr>
</tbody>
</table>

See footnotes for important warranty information

US models announced June 4, 2002

US models withdrawn effective January 2003 or April 2003

(R323) © IBM Corp. March 2003

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**IMPORTANT:**

- **Windows XP Pro models**
  - Microsoft Windows XP Professional
  - Disk-to-Disk Recovery (in hidden Service Partition)

- **Windows 2000 models**
  - Microsoft Windows 2000 Professional
  - Disk-to-Disk Recovery (in hidden Service Partition)

---

**INCLUDED SOFTWARE**

**Preloaded**
- Access ThinkPad
- Access Connections
- Access Help
- Access Support
- Adobe Acrobat Reader
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OE/EM edition)
- PC-Doctor®
- ThinkPad Utilities
- Veritas RecordNOW (CD-RW mod)
- IBM Update Connector™/IBM International Warranty Service

**Downloadable**
- IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agent
- Client Security Software (models with security chip)

**License** (CD not included)
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client
### IBM ThinkPad R32 - TAA (2659) - withdrawn

#### Type-model | Processor | Speed GHz | Memory | Screen | Disk | Optical | Comm Bay | CDC modem | Ethernet on | IEEE 1394 | Security Chip | Preload | Workload (W) | Limited or Global (G) | Available
2659-DPU | Pentium®-M 1.6 | 256MB | 14.1″ XGA | 20GB | DVD | 11b/11a Wi-Fi®/mod | Modem | 10/100 | No | XP Pro | 3 yr | W | Jun 2002
2659-DOU | Pentium®-M 1.6 | 256MB | 14.1″ XGA | 20GB | DVD | 11b Wi-Fi®/mod | Modem | 10/100 | No | Yes | XP Pro | 3 yr | W | Jun 2002
2659-EFU | Pentium®-M 1.8 | 256MB | 14.1″ XGA | 30GB | DVD | Open | Modem | 10/100 | No | XP Pro | 3 yr | W | Jun 2002
2659-EGU | Pentium®-M 1.8 | 256MB | 14.1″ XGA | 30GB | DVD | 11b-Wi-Fi®/mod | None | 10/100 | No | Yes | XP Pro | 3 yr | W | Jun 2002
2659-DMU | Pentium®-M 1.6 | 256MB | 14.1″ XGA | 20GB | DVD | Open | Modem | 10/100 | No | Yes | XP Pro | 3 yr | W | Jun 2002
2659-DNU | Pentium®-M 1.6 | 256MB | 14.1″ XGA | 20GB | DVD | 11b-Wi-Fi®/mod | None | 10/100 | No | Yes | XP Pro | 3 yr | W | Jun 2002

*2659 models have a 3 year limited warranty (other 2658 ThinkPad R32 systems have a 1 year limited warranty).

#### Trade Act Agreement (TAA)-compliant models

### Positioning and Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Pentium® 4 Processor-M 1.6 or 1.8GHz with enhanced Intel SpeedStep™ technology and 400MHz frontside bus</td>
</tr>
<tr>
<td><strong>L2 cache</strong></td>
<td>512KB / on (at processor speed) / ECC</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>128 or 256MB std / 1GB max / PC2100 266MHz DDR-SDRAM / non-parity / CL2.5 / two 200-pin SO DIMM sockets / std memory in one socket / one socket available</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>14.1″ (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits / easy-open cover to unlatch and open with one hand</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>12.3″ x 10.0″ x 1.5″; 313mm x 254mm x 38mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>6.3 lbs (2.9kg)</td>
</tr>
<tr>
<td><strong>Graphics controller</strong></td>
<td>ATI® Mobility™ RADEON™ 7000 / AGP 4X / 16MB DDR-SDRAM</td>
</tr>
<tr>
<td><strong>Keyboard</strong></td>
<td>TrackPoint® pointing device, &quot;Press-to-Select,&quot; Internet Scroll Bar®31, magnifying glass illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000</td>
</tr>
</tbody>
</table>

#### Included Software

- **Access Help**
- **Access Support**
- **IBM Acrobat Reader**
- **叹了, Stand-alone Client**
- **Norton AntiVirus (OEM edition)**
- **PC-Doctor®**
- **ThinkPad Utilities**
- **Veritas RecordNOW (CD-RW modem)**
- **IBM Update Connector®**

### Limited warranty

- **3 years** / 1 year battery - EasyServ® / 150 nits / data protection device / service upgrades® available
- **9 years** / 1 year battery - EasyServ® / 150 nits / data protection device / service upgrades® available

---

* See footnotes for important warranty information

(R32T3AA) © IBM Corp. March 2003

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**SOFTWARE**

- **Windows XP Pro models**
  - Microsoft® Windows® XP Professional®
  - Disk-to-Disk Recovery (in hidden Service Partition)

- **Windows 2000 models**
  - Microsoft® Windows 2000 Professional®
  - ConfiqSafe®
  - Disk-to-Disk Recovery (in hidden Service Partition)

**INCLUDED SOFTWARE**

- **Preloaded**
  - Access ThinkPad
  - Access Connections
  - Access Help
  - Access Support
  - IBM Update Connector®

- **Downloadable**
  - IBM Rapid Restore™ PC
  - IBM Data Transfer
  - IBM Director Agent
  - Client Security Software (models with security chip)
  - IBM Rapid Restore PC available to protect software image and data

- **License** (CD not included)
  - Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client

---

**Universal 72 watt AC adapter**

- **Asset ID** (system-specific info in chip accessed over network)
- **ACPI 1.0b and 2.0-compliant**
- **CIM and DMI 2.0-compliant**
- **PXEm 2.0-compliant**
- **IBM ImageUltra® Services available**
- **IBM Rapid Restore PC available to protect software image and data**
- **International Warranty Service**
- **Personalized Web-based support**
- **Proactive e-mail updates**

---

**ServicePac®**

- **2yr IOR 9x5 NBD**

- **ServicePac 3yr IOR 9x5 NBD**

---

**IBM models announced June 4, 2002**

**IBM models withdrawn effective January 2003 or April 2003**
**IBM ThinkPad R32 (July 2002) - withdrawn**

**SOFTWARE**

- Windows XP Pro models
  - Microsoft Windows XP Professional
  - Disk-to-Disk Recovery
    - (in hidden Service Partition)

**INCLUDED SOFTWARE**

- (all)
  - Preloaded
    - ThinkPad
      - Access Connections
      - Access Help
      - Access Support
      - InterVideo WinDVD (DVD models)
      - Norton AntiVirus ( OEM edition)
      - PC-Doctor™
      - ThinkPad Utilities
      - IBM Update Connector™

- Downloadable
  - IBM Rapid Restore™ PC
  - IBM Data Transfer System
  - IBM Director Agent
  - Client Security Software (models with security chip)

- License
  - (CD not included)
  - Lotus Smartsuite™ Millennium and Lotus Notes™ Stand-alone Client

**Type-model**

<table>
<thead>
<tr>
<th>Speed of Memory</th>
<th>Processor</th>
<th>Optical</th>
<th>Comm Bay</th>
<th>Modem</th>
<th>Ethernet</th>
<th>Chipset</th>
<th>Preload</th>
<th>Warranty</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 MB CD-ROM</td>
<td>Pentium III 4-M 1.6</td>
<td>14.1</td>
<td>XGA 30GB DVD</td>
<td>Modem</td>
<td>10/100</td>
<td>IBM Rapid Restore</td>
<td>1 year</td>
<td>W G Jul 2002</td>
<td></td>
</tr>
<tr>
<td>512 MB CD-ROM</td>
<td>Pentium III 4-M 2.5</td>
<td>14.1</td>
<td>XGA 30GB DVD</td>
<td>Modem</td>
<td>10/100</td>
<td>IBM Rapid Restore</td>
<td>1 year</td>
<td>W G Jul 2002</td>
<td></td>
</tr>
</tbody>
</table>

**Graphics controller**

- ATI Mobility™ RADEON™ 7000 / AGP 4X / 16MB DDR-SDRAM

**Graphics - external**

- ATI Mobility™ RADEON™ 7000 / AGP 4X / 16MB DDR-SDRAM
  - External monitor support via analog DB-15 connector up to 1600x1200 at 85Hz / DDC2B

**Keyboard**

- 87-key / ThinkPad Button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)

**TrackPoint**

- TrackPoint™ pointing device, “Press-to-Select,” Internet Scroll Bar™, magnifying glass

**TouchPad**

- Illuminated touchpad to improve visibility in low-light conditions / no UltraPort™

**Diskette drive**

- None / standard / use optional Ultabay™-based or USB-based diskette drive

**UltraBay 2000 Disk**

- One modular bay for interchangeable devices (right side) / Ultabay Plus™-compatible

**Display**

- 14.1” (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits / easy-open cover to unlatch and open with one hand (two latches)

**Graphics**

- Video out
  - IEEE 1394
  - Mini PCI
  - 802.11b

**Limited warranty**

- 1 year - EasyServ™ onsite pickup and delivery
  - Service upgrades provide up to five years of onsite or depot service coverage from date of ThinkPad purchase (including warranty period)

See footnotes for important warranty information

US announced: June 17, 2002

US withdrawn effective April or July 2003

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**IBM ThinkPad R32 (2659) - July 2002 - withdrawn**

<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
<th>Memory</th>
<th>Screen</th>
<th>Mini PCI Comm</th>
<th>Optical</th>
<th>CDC</th>
<th>Ethernet</th>
<th>Security</th>
<th>Chip</th>
<th>Preload</th>
<th>Limited warranty</th>
<th>Workhouse (W) or Global (G)</th>
<th>Avail. date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2659-BZU</td>
<td>Pentium® 4-M 1.6 265MB 14.1&quot; XGA 20GB DVD/VCD/DVD (wireless upgr.)</td>
<td>100/100</td>
<td>2000 Modem</td>
<td>10/100</td>
<td>XP Pro</td>
<td>3 years</td>
<td>W G</td>
<td>Jul 2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2659-CHU</td>
<td>Pentium® 4-M 1.8 265MB 14.1&quot; XGA 30GB DVD/CD-R/CD-RW (wireless upgr.)</td>
<td>100/100</td>
<td>2001 Modem</td>
<td>10/100</td>
<td>Yes XP Pro</td>
<td>3 years</td>
<td>W</td>
<td>Jul 2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*2659 models have a 3 year limited warranty (other 2658 ThinkPad R32 systems have a 1 year limited warranty)*

#### Positioning
- **Processor**: Best blend of portability and essential features; two-module system
  - **Mobile Intel® Pentium® 4 Processor-1.6 or 1.8GHz** with enhanced Intel SpeedStep™ technology and 400MHz front-side bus
  - **L2 cache**: 512KB / on (at processor speed) / ECC
  - **Memory**: 256MB std / 1GB max / PC2100 266MHz DDR-SDRAM / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available
  - **Diskette drive**: None standard / use optional Ultrabay™-based or USB-based diskette drive
  - **CD-ROM**: DVD-ROM / 8X 3.3X speed / bootable / removable from Ultrabay 2000
  - **IEEE 1394**: Dual antennas / (in side of display and in base)

**Note**: *IBM intends to announce Mini PCI Wi-Fi wireless communication options*  
- **Display**: 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits / easy-open cover to un latch and open with one hand (two latches)
  - **Graphics controller**: ATI® Mobility™ RADEON™ 7000 / AGP 4X / 16MB DDR-SDRAM
  - **Graphics - external**: External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B

**Note**: *IBM is developing graphics controller technology that integrates graphics and sound functions on a single chip (previously separate chips)*

- **Keyboard**: IBM TrackPoint® / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
- **TrackPoint® pointing device**, "Press-to-Select," Internet Scroll Bar 13, magnifying glass
- **IBM Embedded Security Subsystem 2.0**
  - **CHU**: ThinkPad Button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
  - **IBM Director Agent**
  - **IBM ImageUltra**
  - **Lotus® SmartSuite**
  - **Lotus Notes® Stand-alone Client**

**Software**: Windows XP Pro models
- **Microsoft Windows® XP Professional**
- **Disk-to-Disks Recovery**
  - (in hidden Service Partition)

**INCLUDED SOFTWARE**

<table>
<thead>
<tr>
<th>Preloaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Access ThinkPad Support</td>
</tr>
<tr>
<td>- Access Connections</td>
</tr>
<tr>
<td>- Access Help</td>
</tr>
<tr>
<td>- Access Support</td>
</tr>
<tr>
<td>- Adobe Acrobat Reader</td>
</tr>
<tr>
<td>- InterVideo WinDVD/DVD (models)</td>
</tr>
<tr>
<td>- Norton AntiVirus (OEM edition)</td>
</tr>
<tr>
<td>- PC-Doctor™</td>
</tr>
<tr>
<td>- ThinkPad Utilities</td>
</tr>
<tr>
<td>- IBM Update Connector™</td>
</tr>
</tbody>
</table>

**Downloadable**
- IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agent
- Client Security Software (models with security chip)

**License (CD not included)**
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client

**Notes**
- **Limitations**: US models withdrawn effective April or July 2003
- **See footnotes for important warranty information**
- **US models announced July 16, 2002**
- **US models withdrawn effective April or July 2003**

(R323J) © IBM Corp. July 2003
### Specifications

**IBM® ThinkPad® R32 (September 2002) - withdrawn**

**Positioning**
- Best blend of portability and essential features; two-spindle system

**Processor**
- Mobile Intel® Celeron® 1.5GHz with 400MHz frontside bus or Mobile Intel Pentium® Processor-M 1.7, 1.8, or 2.0GHz with enhanced Intel SpeedStep™ technology and 400MHz frontside bus

**L2 cache Memory**
- Celeron: 256KB; Pentium 4-M: 512KB; All: on die (at processor speed) / ECC
- 128 or 256MB SDRAM / 1 GB max / PC2100 DDR-SDRAM / non-parity / CL2.5 / two or four 168-pin SO-DIMM sockets / one socket available

**Disk drive**
- Standard drive: none / standard drive: 40GB HS Hard Disk 9.5mm (5400 rpm) / 08K9816
- DVD drive: 5-speed Speed (D103) / 24X/8X/24X/8X speed / removable from Ultrabay 2000

**Display**
- 12.1" x 10.0" x 1.5"; 313mm x 254mm x 38mm
- 20GB, 30GB, or 40GB / 4200 rpm / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000

**Graphics controller**
- ATI Mobility™ RAIDMAX™ 7000 / 400MHz frontside bus or 16MB DDR-SDRAM
- External analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B

**Keyboard**
- 87-key / ThinkPad Button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
- TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar13, magnifying glass

**Dimensions**
- 12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
- with optical drive and battery: 5.9 to 6.2 lbs (2.6 to 2.7 kg) depending on model

**Architecture**
- Intel 845MP chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M/H Controller Hub (ATA-100 IDE, PCI bus, ethernet MAC, Low Pin Count (LPC) interface) / 22-bit/32-bit, 33MHz (TI) PIC11410A Cardbus controller, TS43A8219 (394, mini), PCI external expansion)
- LPC bus 33MHz (security chip; chips9732 Super I/O for diskette, parallel, infrared)

**Port Replicator**
- Optional ThinkPad Port Replicator (no ThinkPad Dock support)
- One Type II or one Type III / Cardbus 32-bit / PCMCIA 2.1 / integrated door

**Video out**
- IEEE 1394 (FireWire) port / 4-pin connector
- One Mini PCI type III slot (Communications Bay)

**Carry case**
- Color: Black / ABS plastic

**Battery**
- Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
- 313mm x 254mm x 38mm

**Memory**
- 1GB max / PC2100 DDR-SDRAM / PC-2001 and PXE 2.0-compliant
- One Mini PCI type III slot (Communications Bay)

**Software**
- Preloaded software: IBM RecordNOW and DLA by Avanquest
- • Adobe Acrobat Reader
- • InterVideo WinDVD (DVD models)
- • Client Security Software (models with security chip)
- • IBM Update Connectortm, 15
- • IBM Rapid Restore™ PC

**Office XP Small Business model (only) (2658-K8U/KCU/LHU)**
- Microsoft Office XP Small Business™ (Word, Excel, Outlook, Publisher, Small Business Tools)

**Limited warranty**
- 1 year / EasyServ™ on site pickup and delivery / service upgrades available

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See footnotes for important warranty information

US models announced September 17, 2002

US models withdrawn effective April, July, or October 2003
### IBM® ThinkPad® R32 (2659) - September 2002 - withdrawn

#### 2659 models have a 3 year limited warranty (other 2658 ThinkPad R32 systems have a 1 year limited warranty)

<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor/Gr</th>
<th>Memory</th>
<th>Disk Drive</th>
<th>Video Interface</th>
<th>Audio Interface</th>
<th>Security Feature</th>
<th>Preloaded</th>
<th>Workhorse (W)</th>
<th>Limited or Global (G) Warranty Avail date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2659-J3U</td>
<td>Pentium® 4-M 1.8</td>
<td>256MB</td>
<td>14.1&quot; XGA DVD</td>
<td>Integrated AGP/SDRAM</td>
<td>Modem 10/100</td>
<td>XP Pro</td>
<td>3 years</td>
<td>W</td>
<td>Sep 2002</td>
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<tr>
<td>2659-J1U</td>
<td>Pentium® 4-M 2.0</td>
<td>256MB</td>
<td>14.1&quot; XGA DVD</td>
<td>Integrated AGP/SDRAM</td>
<td>Modem 10/100</td>
<td>XP Pro</td>
<td>3 years</td>
<td>W</td>
<td>Sep 2002</td>
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<tr>
<td>2659-N4U</td>
<td>Pentium® 4-M 2.0</td>
<td>256MB</td>
<td>14.1&quot; XGA DVD</td>
<td>Integrated AGP/SDRAM</td>
<td>Modem 10/100</td>
<td>XP Pro</td>
<td>3 years</td>
<td>W</td>
<td>Sep 2002</td>
</tr>
<tr>
<td>2659-N5U</td>
<td>Pentium® 4-M 2.0</td>
<td>256MB</td>
<td>14.1&quot; XGA DVD</td>
<td>Integrated AGP/SDRAM</td>
<td>Modem 10/100</td>
<td>XP Pro</td>
<td>3 years</td>
<td>W</td>
<td>Sep 2002</td>
</tr>
</tbody>
</table>

#### SOFTWARE

- Windows XP Pro models
  - Microsoft® Windows® XP Professional
  - Disk-to-Disk Recovery (in hidden Service Partition)

#### INCLUDED SOFTWARE*(all)

Preloaded
- Access ThinkPad
- Access Connections
- Access Help
- Access Support
- Adobe Acrobat Reader
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor®
- ThinkPad Utilities
- IBM Update Connector™
- IBM Rapid Restore™

License (CD not included)
- Lotus® “SmartSuite” Millennium
- Lotus Notes® Stand-alone Client

#### Ultrabay Plus

Integrated modular bay supports most Ultrabay 2000 devices including CD-ROM/DVD combo drive, diskette drive, or 2nd drive; the optional Ultrabay Plus Device Carrier adds potential functionality by supporting the Ultrabay Plus Numeric Keypad and Cradle for the WorkPad® c500 Series

### Software Product References

- IBM Director Agent
- Access Connections
- Access Help
- Access Support
- Adobe Acrobat Reader
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor®
- ThinkPad Utilities
- IBM Update Connector™
- IBM Rapid Restore™

#### License

- Lotus® “SmartSuite” Millennium
- Lotus Notes® Stand-alone Client

#### Hardware Features

- IBM Embedded Security Subsystem 2.0
- Client Security Software
- System Migration Assistant
- Access Connections
- Access Help
- Access Support
- Adobe Acrobat Reader
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor®
- ThinkPad Utilities
- IBM Update Connector™
- IBM Rapid Restore™

#### Limited Warranty

- 3 years/1 year battery - EasyServ™
- 3 years/1 year battery - service upgrades

#### Security

- IBM Director Agent
- Access Connections
- Access Help
- Access Support
- Adobe Acrobat Reader
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor®
- ThinkPad Utilities
- IBM Update Connector™
- IBM Rapid Restore™

#### See footnotes for important warranty information

US models announced September 17, 2002
US models withdrawn effective July or October 2003

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<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
<th>Memory (GB)</th>
<th>Screen</th>
<th>Mini PCI</th>
<th>Comm Bay</th>
<th>CDC</th>
<th>Ethernet on board</th>
<th>Security chip</th>
<th>Windows XP Pro</th>
<th>Windows XP Home</th>
<th>Avail date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2684-H8U</td>
<td>Celeron® 2.0</td>
<td>128MB</td>
<td>14.1&quot; XGA</td>
<td>None</td>
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<td>10/100</td>
<td>No</td>
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<td>10/100</td>
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<td>Oct 2003</td>
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<td>2684-H4U</td>
<td>Celeron® 2.0</td>
<td>128MB</td>
<td>14.1&quot; XGA</td>
<td>Combo</td>
<td>Modem</td>
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<td>No</td>
<td>None</td>
<td>No</td>
<td>No</td>
<td>Oct 2003</td>
</tr>
</tbody>
</table>

### Diskette drive
- CD: None, standard / use optional USB-based diskette drive
- Combo: None, standard / use optional USB-based COMBO drive

### Ultrabay™2000
- Ultrabay™2000: 20 or 30GB, 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradeable / 9.5mm high bay

### Display
- 14.1" (358.1mm) XGA, CTFT color / Active Matrix / 150 nits / easy-on cover to unlatch and open with one hand (two latches)

### Graphics controller
- ATI RADEON™ IGP 330M, integrated in northbridge / 16MB DDR-SDRAM
  - ATI RADEON™ IGP 330M, integrated in northbridge / 16MB DDR-SDRAM
  - ATI RADEON™ IGP 330M, integrated in northbridge / 16MB DDR-SDRAM

### Keyboard
- 87-key / Access IBM button / palm rest / pitch: 19mm; strike: 2.7mm (std-size keys)

### Touchpad
- None

### Configuration
- 128MB std / 1GB max / PC2100 266MHz DDR-SDRAM / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available

### Graphics controller
- ATI RADEON™ IGP 330M chipset / IGP 330M northbridge (memory controller, graphics controller, PCI bus) / ALI® M1535+ southbridge (ATNA-100 IDE)

### Cabling
- 56K6 V.90 (V.92-designed) modem in CDC / Agere

### Power supply
- Lithium Ion 6-cell / intelligent battery / removable and upgradeable / on die (at processor speed) / ECC

### Memory
- 256MB USB 2.0 Memory Key
- IBM 128MB USB 2.0 Memory Key

### Disk
- IBM 256MB USB 2.0 Memory Key
- IBM USB Portable Diskette Drive
- IBM USB Portable CD-ROM
- IBM USB 2.0 Portable CD-RW Drive
- IBM USB Serial Parallel Adapter

### Batteries
- IBM Turbo 16/4 Token-Ring PC Card 2
- IBM Express™ GC-BE EDGE PC Card Wireless
- IBM Express™ GC-68 EDGE PC Card Wireless

### Support Software
- IBM Rapid Restore
- Adobe Acrobat Reader
- InterVideo WinDVD (combo model)
- Norton® AntiVirus (OEM edition)
- PC-Doctor®

### Service Options
- EasyServ™, IBM Update Connector™, ThinkPad Utilities
- IBM ThinkPad® Utility Suite

### License
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client
- Universal 72 watt AC adapter

### Additional Information
- IBM 11a/b/g Wireless CardBus Adapter
- IBM USB Keyboard with UltraNav
- ThinkPad 72W AC/DC Combo Adapter
- ThinkPad R40e Li-Ion Battery (6-cell)

### Accessories
- Nylon Carrying Case
- IBM iLV200 Value Data/Video Projector
- IBM 256MB USB 2.0 Memory Key
- IBM 8GB USB 2.0 Memory Key
SOFTWARE

- Windows XP Home models
  - Microsoft® Windows® XP Home Edition
  - Disk-to-Disk Recovery
- Windows XP Pro models
  - Microsoft Windows XP Professional
  - Disk-to-Disk Recovery

Preloaded (all)
  - Access IBM
  - Access Connections
  - Adobe Acrobat Reader
  - IBM Rapid Restore™ PC
  - IBM RecordNOW and Drive Letter Access powered by Sonic products (combo model)
  - InterVideo WinDVD (combo model)
  - Norton® AntiVirus (OEM edition)
  - PC-Doctor™
  - ThinkPad Utilities
  - IBM Update Connector™

Downloadable
  - IBM Director Agent
  - Software Delivery Assistant
  - System Migration Assistant

License (CD not included)
  - Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client

Universal 72 watt AC adapter
PC 2001 and PXE 2.0-compliant
ACPI 1.0b and 2.0-compliant
CIM and DMI 2.0-compliant
IBM Rapid Restore PC available to protect software image and data
International Warranty Service
24 hour x 7 day10 toll-free warranty support during the warranty12

- ServicePac 1yr IOR 9x5 NBD
- ServicePac 2 yr IOR 9x5 NBD
- ServicePac 3 yr IOR 9x5 NBD
- ServicePac 4 yr IOR 9x5 NBD
- ServicePac 5 yr IOR 9x5 NBD

- ServicePac 2 yr P&L Depot
- ServicePac 3 yr P&L Depot
- ServicePac 4 yr P&L Depot
- ServicePac 5 yr P&L Depot

- Other ServicePac options at ibm.com/services/its/us/source/wamomxeu.pdf
- Post-warranty annual maintenance agreements at ibm.com/services/its/us/source/maspelle.pdf
These educational models of the ThinkPad R40e notebook are available only to public or private K-12 (or higher) accredited schools organized and operated exclusively for educational purposes for use by qualified students and/or teachers.

These models for education are for sale direct from IBM or through an Authorized Education Reseller. The models for education are not available for resale to any other organization or individual.

**Software**

- Microsoft Windows XP Professional
- Disk-to-Drive Recovery (in hidden protected area)

**Preloaded**

- Access IBM
- Norton AntiVirus (OEM edition)
- PC-Docor
- ThinkPad Utilities
- IBM Update Connector

**Downloadable**

- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant

**License** (CD not included)

- Lotus SmartSuite Millennium and Lotus Notes Stand-alone Client

### Type-model

- **2684-4YU**: Celeron® 1.7 128MB 14.1" XGA 2GB CD 11b Wi-Fi®
- **2684-HYU**: Celeron® 2.0 128MB 14.1" XGA 2GB CD 11b Wi-Fi®

### 2684-4YU

- Processor: IBM® Celeron® 1.7 or 2.0GHz with 400MHz system bus
- Memory: 256KB / on die (at processor speed) / ECC
- Display: 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits
- Graphics controller: ATI® RADEON™ IGP 330M
- Sound: Soft audio / ICH AC97 controller / DirectSound
- modem: 56K6 V.90 (V.92-designed)
- PC Card: One Mini PCI type III slot (Communications Bay) / customer upgradable
- Ultrabay: None standard / use optional USB-based diskette drive
- USB: Two USB (Version 1.1) / parallel / external monitor (DB-15) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial or infrared port

### 2684-HYU

- Processor: IBM® Celeron® 2.0GHz with 400MHz system bus
- Memory: 128MB std / 1GB max / PC2100 266MHz DDR-SDRAM / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available
- Display: None standard / use optional USB-based diskette drive
- Sound: Soft audio / ICH AC97 controller / DirectSound
- modem: 56K6 V.90 (V.92-designed)
- PC Card: One Mini PCI type III slot (Communications Bay) / customer upgradable
- Ultrabay: None standard / use optional USB-based diskette drive
- USB: Two USB (Version 1.1) / parallel / external monitor (DB-15) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial or infrared port

**Limited warranty**

- 1 year - EasyServ™ onsite pickup and delivery courier service
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**Software**

Windows XP Pro models:
- Microsoft® Windows® XP Professional®
- Disk-to-Disk Recovery
  (in hidden protected area)

Preloaded:
- Access IBM
- Adobe Acrobat Reader
- IBM Rapid Restore PC available
- IBM RecordNOW and DLA by Veritas (combo models)
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™

Downloadable:
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (models with security features)

License (CD not included):
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client

Universal 72 watt AC adapter
Asset ID (system-specific info in chip accessible over network)
PC 2001 and PXE 2.0-compliant
ACPI 1.0b and 2.0-compliant
CIM and DMI 2.0-compliant
PC 2001 and PXE 2.0-compliant

ServicePack™
- 1 yr IOR 9x5 NBD
- 30L9188
- 3 yr IOR 9x5 NBD
- 30L9195
- 3 yr IOR 9x5 NBD
- 30L9196
- 5 year IOR 9x5 NBD
- 30L9197

Other ServicePac options at ibm.com/services/its.ussource/wamomexu.pdf

IBM 1GB Microdrive™
- 70N5574
- Cisco Aironet Wireless 802.11b Mini PCI
- 31P8301
- IBM 11a/b/g Wireless Mini PCI Adapter
- 31P9701
- IBM 11a/b Wireless CardBus Adapter
- 31P9702
- ThinkPad T30 AC Adapter
- 02K6699
- ThinkPad Port Replicator II 74P6733
- ThinkPad Mini Dock 287810U
- Optical 3-Button Travel Wheel Mouse
- 31P7410
- Other options at ibm.com/computer/ accessories

See footnotes for important warranty information

US models announced January 28, 2003

US models withdrawn effective October 2003 or January 2004
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**Operating System:**
- Microsoft® Windows® XP Professional
- IBM Rapid Restore™ PC

**Preloaded Software:**
- Adobe Acrobat Reader
- IBM Update Connector™

**License:**
- Lotus® SmarSuite™ Millennium
- Lotus® Notes™ Stand-alone Client
### IBM ThinkPad R40 (May 2003) - withdrawn

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<td>2681-JKV</td>
<td>Pentium® 4 M-2</td>
<td>2.2 256MB 14.1&quot; XGA</td>
<td>40G Combo</td>
<td>11a/b Wi-Fi®F</td>
<td>Modem</td>
<td>10/100</td>
<td>Yes XP Pro</td>
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<td>11a/b Wi-Fi®F</td>
<td>Modem</td>
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<td>Yes XP Pro</td>
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<td>No May 2003</td>
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</table>

### Preloaded Software

- **Windows XP Pro models**
  - Microsoft® Windows® XP Professional
  - Double Disk-to-Disk Recovery (in hidden protected area)

### Preloaded Applications

- Access IBM
- Adobe Acrobat Reader
- IBM Rapid Restore®
- PC-Doctor® for Windows
- ThinkPad Utilities
- IBM Update Connector™

### Downgradable Applications

- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (models with security chip)

### License (CD not included)

- Lotus® SmartSuite® Millennium
- Lotus® Notes® Stand-alone Client

### Universal 72 watt ac adapter

- Asset ID (system-specific info in chip accessed over network)
- PC 2001 and PXE 2.0-compliant
- ACPI 1.0a and 2.0-compliant
- CIM and DMI 2.0-compliant
- IBM Rapid Restore PC available to protect software image and data
- IBM Enhanced Warranty (24 hour x 7 day) toll-free hardware support during the warranty

---

See notes for important warranty information

US models announced May 21, 2003

US models withdrawn effective January 2004

(R40Y) © IBM Corp. January 2004
The document contains detailed specifications for a range of ThinkPad R40 models, including processor details, memory sizes, disk types, and other hardware configurations. It also includes information on warranty, software features, and other technical specifications. The text is rich with technical details and is presented in a structured format, typical of a technical manual or specifications sheet.
These small and medium business (SMB) models are part of the IBM US ThinkPad Express Program

<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
<th>Speed GHz</th>
<th>Memory</th>
<th>Graphics</th>
<th>Disk</th>
<th>Mini PCI</th>
<th>Ethernet on motherboard</th>
<th>IEEE Security Chip</th>
<th>Preload business</th>
<th>Avail date</th>
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<td>Modem 10/100</td>
<td>Yes</td>
<td>XP Pro</td>
<td>May 2003</td>
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</table>

**Positioning Processor**

Best blend of portability and essential features; two-spindle system

**Mobile Intel® Celeron® 1.8GHz with 400MHz frontside bus or Mobile Intel Pentium 4 Processor-M 2.0GHz with enhanced Intel SpeedStep® technology and 400MHz frontside bus**

**L2 cache**

Celeron: 256KB; Pentium 4-M: 4-MB; All: on die (at processor speed) / ECC

**Memory**

256MB std / 1GB max / PC2100 266MHz DDR-SDRAM / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available

**Diskette drive**

None standard / use optional Ultrabay™-based or USB-based diskette drive

**Ultrabay 2000**

One modular bay for interchangeable devices / Ultrabay Plus-compatible / 12.7 mm high / 20GB®, 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradeable / 9.5mm high bay / supports 2nd disk with optional HDD Adapter in Ultrabay 2000

**Display**

Some: 14.1” (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits

Some: 15.0” (381mm) XGA (1024x768) TFT color / Active Matrix / 150 nits

All: Easy-open cover to unlatch and open with one hand (two latches)

**Software**

- Windows XP Pro models
  - Microsoft® Windows® XP Professional
  - Disk-to-Disk Recovery (in hidden protected area)

**Downloadable**

- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (for security chip)

**License**

(CD not included)

- Lotus® SmartSuite® Millennium
- Lotus Notes® Stand-alone Client

**Universal 72 watt AC adapter**

Asset ID (system-specific info in chip accessed over network)

PC 2001 and PXE 2.0-compliant

ACPI 1.0b and 2.0-compliant

CIM and DMI 2.0-compliant

IBM Rapid Restore PC available to protect software image and data

International Warranty Service17

24 hour x 7 day18 toll-free hardware support during the warranty12

**Limited warranty**

1 year - EasyServ®/on-site pickup and delivery / software upgrades2 available

**Post-warranty annual maintenance agreements**

at ibm.com/services/its/us/source/warranty.pdf

**IBM® ThinkPad R40 (2896) - SMB - withdrawn**

See footnotes for important warning information

US models announced April 22, 2003

US models withdrawn effective October 2003
**Type-model** | **Processor** | **Speed (MHz) Memory** | **Screen** | **Graphics** | **Disk (GB)** | **Optical** | **Mini PCI** | **Comm Bay** | **CDC modem** | **Ethernet on board** | **1994 Security chip** | **Preload** | **Availability**
---|---|---|---|---|---|---|---|---|---|---|---|---|---|
2896-72U Celeron® | 2.0 256MB 15.0" XGA | 16MB 30GB | Combo Open; wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-J2U Pentium® 4-M | 2.2 256MB 14.1" XGA | 32MB 30GB | CD | Wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-J3U Pentium® 4-M | 2.2 256MB 14.1" XGA | 32MB 40GB | Combo Open; wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-J4U Pentium® 4-M | 2.4 256MB 14.1" XGA | 60GB | Combo 11a/b-Wi-Fi® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-N2U Pentium® 4-M | 2.4 256MB 14.1" XGA | 40GB | Combo Open; wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-N3U Pentium® 4-M | 2.4 256MB 14.1" XGA | 40GB | CD | Wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-N4U Pentium® 4-M | 2.4 256MB 14.1" XGA | 40GB | Combo 11a/b-Wi-Fi® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-Q3U Pentium® 4-M | 2.4 256MB 15.0" SXGA+ | 32MB | Combo Open; wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-Q4U Pentium® 4-M | 2.4 256MB 15.0" SXGA+ | 32MB | CD | Wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-P2U Pentium® 4-M | 2.4 256MB 15.0" XGA | 32MB  CD | Wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003
2896-P3U Pentium® 4-M | 2.4 256MB 15.0" XGA | 32MB | CD | Wireless upg® | Modern | 10/100 1394 | XP Pro Oct 2003

These small and medium business (SMB) models are part of the IBM US ThinkPad Express Program

**Positioning**
Mainstream performance and features; two-spindle system

**Processor**
Mobile Intel® Celeron® 2.0GHz with or without Intel SpeedStep™ technology and 400MHz system bus or Mobile Intel Pentium™ Processor-M 2.2 or 2.4GHz with enhanced Intel SpeedStep™ technology and 400MHz system bus

**L2 cache**
Celeron: 512KB; Pentium 4-M: 512KB; All: on die (at processor speed)/ ECC

**Memory**
256MB std / 1GB max / PC2100 266MHz DDR1 (DDR-SGRAM) / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available

**Disk drive**
Some: standard use / none optional Ultrabay™-based or USB-based diskette drive

**CD**
Some: CD-ROM / 24x/10x speed / bootable / removable from Ultrabay 2000

**Comdo**
Some: DVD-ROM/CD-RW / 24x/10x24x/8x** speed / removable from Ultrabay 2000

**Ultrabay 2000**
One: modular bay / Interchangeable devices / Ultrabay Plus-compatible /12.7 mm high

**30GB**
Some: 80GB / 68GB / 4200 rpm, 9.5mm high / high bay / supports 2nd disk with optional HDD Adapter in Ultrabay 2000

**Display**
Some: 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits
Some: 15.0" (381.0mm) XGA (1024x768) TFT color / Active Matrix / 150 nits
Some: 15.0" (381.0mm) SXGA+ (1400x1050) TFT color / Active Matrix / 150 nits

**Graphics controller**
Some: ATI® Mobility Radeon™ AGPX / AGP8X / 16MB DDR1 (DDR-SGRAM) / 1GB DDR2 (DDR-DRAM)

**Graphics - external**
External monitor support via analog DB-15 connector / up to 1600x1200 at 85 Hz / DDC2B

**Keyboard**
87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)

**Touchpad**
TrackPoint® pointing device, “Press-to-Select,” Internet Scroll Bar®

**ThinkPad**
Illuminates the keyboard to improve visibility in low-light conditions

**Dimensions**
14.1" models (WxDxH): 12.3" x 10" x 1.5"; 313mm x 254mm x 38.9mm
15.0" models (WxDxH): 13.5" x 10.5" x 1.65"; 342mm x 267mm x 45.0mm

**Case material**
Some: Color: black; All: Acrylonitrile-Butadiene-Styrene (ABS) plastic

**Battery**
Color: black; 9.5mm high bay / supports 2nd disk with optional HDD Adapter in Ultrabay 2000

**Battery - life**
Some: 14.1" and 15.0" XGA models: 3.8 to 4.0 hrs; 15.0" SXGA+ models: 3.4 to 3.6 hrs

**Architecture**
IBM 845M chipset / 82845MP Memory Controller Hub (MCH-M) / 82801BM ICH4-M I/O Controller Hub (ATA-100 IDE, PCI bus, ethernet MAC, Low Pin Count (LPC) interface, USB, Firmware Hub) / PCI bus 2.2 32-bit, 33MHz (Ti® PC 110 133MHz), CardBus controller, eSATA3432193149 (some), MiniPCI, external interface, LPC bus 33MHz (security chip); PC78392 Super I/O for diskette, parallel, infrared

**PC Card Std slots**
One Type I, one Type II, or one Type III / CardBus 32-bit / PCI2.1 / integrated into two USB (Version 2.0) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port

**Video out**
Some: S-video out port (TV out) / one 4-pin industry standard connector

**IEEE 1394**
Some: IEEE 1394 (FireWire port) / 4-pin connector

**Wireless upg**
Some: wireless upgradeable with wireless Mini PCI options

**Battery - type**
Lithium Ion battery / intelligent / supports 2nd battery in Ultrabay 2000

**Security**
Power-on and password / supervisor disk password / security processor / security chip

**Software**
Windows XP Professional
- Microsoft Windows® XP Professional
- Disk-to-Disk Recovery (in hidden protected area)

**Preload**
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- Adobe Creative Suite
- IBM Update Connector

**Downloadable**
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (for security chip)

**License**
(CD not included)
- Lotus® SmarSuite® Millennium and Lotus Notes® Stand-alone Client

**Limited warranty**
1 year - EasyServ™ on-site pickup and delivery / service upgrades available

**See footnotes for important warranty information**
US models withdrawn effective April 2004 or October 2004

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(R400B)
These small and medium business (SMB) models are part of the IBM US ThinkPad Express Program.

<table>
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<tr>
<th>Type-model</th>
<th>Processor</th>
<th>Speed GHz</th>
<th>Memory</th>
<th>Screen</th>
<th>Graphics</th>
<th>Disk</th>
<th>Operating System</th>
<th>nutrients</th>
<th>Availability</th>
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<td>1.3</td>
<td>256MB</td>
<td>14.1&quot; XGA</td>
<td>20G DVD</td>
<td>Open</td>
<td>Wireless upg</td>
<td>Modem 10/100</td>
<td>1394 Yes</td>
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<td>1394 Yes</td>
<td>XP Pro Yes Oct 2003</td>
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<td>Modem 10/100</td>
<td>1394 Yes</td>
<td>XP Pro Yes Nov 2003</td>
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IBM Embedded Security Subsystem 2.0
- Power-on password
- Hard disk password
- Supervisor password
- Security keyhole
- Microphone input jack (3.5 mm)
- Headphone jack (3.5 mm)
- No line in jack
- Stereo speakers
- 1 watt
- Volume up, down, mute buttons
- Internal mic
- Illuminates the keyboard to improve visibility in low-light conditions

Limited warranty: 1 year - EasyServ™ on-site pickup and delivery / service upgrades available

SOFTWARE
- IBM® Windows XP Pro models
  - Microsoft® Windows® XP Professional
  - Disk-to-Disk Recovery (in hidden protected area)

Preloaded:
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM® Rapid Restore® for IBM® PC
- IBM® RecordNow® and DLA by Veritas (combo models)
- InterVideo WinDVD (Combo, DVD)
- Norton Antivirus® (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM® Update Connector™

Downloadable:
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (for security chip)

License (CD not included):
  - Lotus® SmartSuite® Millennium and Lotus® Notes® Stand-alone Client
  - Universal 72 watt AC adapter
  - Asset ID™ (system-specific info in chip accessed over network)
  - PC 2001 and PXE 2.0-compliant
  - ACPI 1.0b and 2.0-compliant
  - CIL and DMI 2.0-compliant
  - IBM Rapid Restore PC available to protect software image and data
  - International Warranty Service™
  - 24 hour x 7 day toll-free warranty support during the warranty period via 800-IBMP-SERV (426-7378)

ServicePack 22 1yr IOR 9x5 NBD
ServicePack 3 yr IOR 9x5 NBD
ServicePack 4 yr IOR 9x5 NBD
ServicePack 5 yr IOR 9x5 NBD
ServicePack 2 yr P/L U/ Depot
ServicePack 3 yr P/L U/ Depot
ServicePack 4 yr P/L U/ Depot
ServicePack 5 yr P/L U/ Depot

Other ServicePack options at IBM.com/services/its/us/source/warmpxe.pdf
Post-warranty annual maintenance agreements at IBM.com/services/its/us/source/masppele.pdf

See footnotes for important warranty information

*Powered by Intel Centrino™ mobile technology

(®IBM Corp. October 2004)
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<th>Speed</th>
<th>Cache</th>
<th>Memory</th>
<th>Disk</th>
<th>Mini PCI</th>
<th>Comm Bay</th>
<th>Ethernet</th>
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<td>40GB</td>
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<td>256MB 14.1&quot; XGA</td>
<td>32MB</td>
<td>40GB</td>
<td>COMBO + 11a/b Wi-Fi</td>
<td>100/100</td>
<td>1994 Yes</td>
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<td>Nov 2003</td>
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</table>

These educational models of the ThinkPad R40 models are available only to public or private K-12 (or higher) accredited schools and organized and operated exclusively for educational purposes by qualified students and/or teachers.

This model for education is for sale direct from IBM or through an Authorized Education Reseller. The model or models for education are not available for resale to any other organization or individual.

The 2723 models have a 3 year limited warranty (other 2722 ThinkPad R40 systems have a 1 year limited warranty).

IBM Portable USB 2.0 Multi-Burner Drive 08K9816
IBM 11a/b/g Wireless CardBus Adapter 31P9910
IBM 11a/b/g Wireless Mini PCI Adapter 31P0701

IBM ImageUltra™ with PC Card 09N4280
IBM 11a/b/g Wireless Mini PCI Adapter 31P9701
IBM 11a/b/g Wireless CardBus Adapter 31P9101

IBM Update Connector™

Universal 72 watt AC adapter
Asset ID™ (system-specific info in chip accessed over network)

PC 2001 and PXE 2.0-compliant

ACPI 1.0b and 2.0-compliant

Mobile Intel Pentium M Processor 1.3 or 1.4GHz
Mobile Intel Pentium M Processor 1.3 or 1.4GHz

Windows XP Pro models

- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore® PC
- IBM RecordNow and DLA
- InterVideo WinDVD
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™

Downloadable

- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (for security chip)

License (CD not included)

- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client

IBM E400 Projector 0038A04
IBM 11a/b/g Wireless Mini PCI Adapter 31P9701
IBM 11a/b/g Wireless CardBus Adapter 31P9101

IBM Update Connector™

Universal 72 watt AC adapter
Asset ID™ (system-specific info in chip accessed over network)

PC 2001 and PXE 2.0-compliant

ACPI 1.0b and 2.0-compliant

Mobile Intel Pentium M Processor 1.3 or 1.4GHz
Mobile Intel Pentium M Processor 1.3 or 1.4GHz

Windows XP Pro models

- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore® PC
- IBM RecordNow and DLA
- InterVideo WinDVD
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™

Downloadable

- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (for security chip)

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- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client
## IBM® ThinkPad® R50e (1834) - withdrawn

### Type-model Processor Speed GHz Memory Screen Disk GB³ Optical Mini PCI Comm Bay Modem Ethernet IEEE Security Limited Workhorse (W) warranty¹² Global (G) availability²
1834-4EU Celeron M 1.3 128MB 14.1”XGA 20GB CD None Modern 10/100 No No XP Home 1 y 1 E Apr 2004
1834-5BU Celeron M 1.3 128MB 15.0”XGA 30GB CD None Modern 10/100 No No XP Home 1 y 1 E Apr 2004
1834-4AU Celeron M 1.3 256MB 14.1”XGA 30GB Combo None Modern 10/100 No No XP Pro 1 y 1 E Apr 2004
1834-5EU Celeron M 1.5 128MB 14.1”XGA 30GB CD = Intel 11b/g⁴² No Modern 10/100 No No XP Home 1 y 1 E July 2004
1834-C4U Pentium M 715 1.5 128MB 14.1”XGA 30GB CD = Intel 11b/g⁴² No Modern 10/100 No No XP Home 1 y 1 E July 2004
1834-AAU Pentium M 715 1.5 256MB 14.1”XGA 30GB CD = Intel 11b/g⁴² No Modern 10/100 No No XP Pro 1 y 1 E July 2004

### Positioning

#### Processor

Intel® Celeron M Processor 1.3GHz with 400MHz system bus or
Intel Pentium M Processor 705 (1.5GHz with 1MB L2 cache) or 715 (1.5GHz with
2MB L2 cache) with enhanced Intel SpeedStep technology and 400MHz system bus

#### L2 cache

Celeron M: 512KB; Pentium M 705: 1MB; Pentium M 715: 2MB; All: ECC

#### Memory

128MB or 256MB std / 2GB max / PC2700 333MHz DDR 1 (memory controller limits speed to 266MHz) / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available

#### Diskette drive

None standard / use optional USB-based diskette drive

#### CD

Some: CD-ROM / 24x-10X² speed / fixed, not removable / 12.7 mm high

#### Combo

Some: DVD-ROM/CD-RW / 24x/24x/24x/8X³ speed / fixed, not removable / 12.7 mm high

#### Ultrabay Enhancements

None / no support for Ultrabay⁴ options

#### Display

Some: 14.1” (358.1mm) XGA (1024x768) TFFT color / Active Matrix / 150 nits
Some: 15.0” (381.0mm) XGA (1024x768) TFFT color / Active Matrix / 200 nits

#### Graphics

Integrated Intel Extreme™ Graphics 2 / in 855GM GMCH / use main memory (up to 64MB) / 200MHz / 32-bit / 1024x768 (XGA) / 2GB max / 1MB of L1 cache

#### Keyboard

87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)

#### Touchpad

No UltraNav multi-pointing system

#### ThinkLight™

Illuminates the keyboard to improve visibility in low-light conditions

#### Dimensions³

14.1” models (WXxD/H): 12.4” x 10.2” x 1.35-1.46”; 314mm x 260mm x 34-37mm
15.0” models (WXxD/H): 13.1” x 10.6” x 1.47-1.58”; 322mm x 269mm x 37-40mm

#### Weight³

Color: white; All: Acrylic/Infrate-Biuretene-Styrene (ABS) plastic

#### Battery - type

Lithium Ion 6-cell / intelligent battery / optional 9-cell battery

#### Battery - life³

Celeron M models: up to 4.0 hr; Pentium M models: up to 4.7 hr; Optional High Capacity 9-cell: up to 6.0 hr

### Architecture

Innolux 855GM chipset / 82855GM Memory Controller Hub (MCH-M) / 82801DBMICH-M I/O Controller Hub (ATA-100 IDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB)/ PCI bus 2.2 32-bit, 33MHz (TI) PCI1510 Cardbus controller, Mini PCI) / LPC bus 33MHz (PC87392 Super I/O for parallel)

#### Port replicator

No port replicator support

#### Docking station

No docking station support

#### PC Card Std slots

One Type I, one Type II, or one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door

#### Ports

Two USB (Version 2.0) / parallel / external monitor (DB-15) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial or infrared port

#### Video output

None

#### Wireless antenna

Some (Celeron models): none / can upgrade to wireless via optional PC Cards

#### Mini PCI

Some (Celeron models): UltraConnect™ Antenna built into the display cover

#### CDDVD

One Communications Daughter Card (CDC) socket (used by modem) / not accessible

#### Modem

56K V.90 (V.92-designed) modem in CDC / Conexant¹⁶ chip

#### Ethernet

10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / Wake on LAN™

#### Audio support

Soft audio / ICH AC97 controller / DirectSound⁴ support / AD1981B AC97 codec / mono speaker / 1 watt / volume up, down, mute buttons / internal microphone / microphone input jack (3.5 mm) / headphone jack (3.5 mm) / no line in jack

#### Security

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

### Limited warranty²

1 year - EasyServ¹³,¹⁹ onsite pickup and delivery service

### SOFTWARE

Windows XP Home models
- Microsoft® Windows® XP Home Edition²⁴
  - Disk-to-Disk Recovery (in hidden protected area)

Windows XP Pro models
- Microsoft Windows XP Professional³⁰
  - Disk-to-Disk Recovery (in hidden protected area)

Preloaded (all)
- Access IBM
- Access Connections
- IBM Rescue and Recovery™
- IBM RecordNOW and Drive Letter
  - Norton AntiVirus ( OEM edition)
  - PC-Doctor³⁰
  - ThinkPad Utilities
  - Adobe Reader
- IBM Update Connector³⁰,³¹

Downloadable (all)
- IBM Director Agent
- Software Delivery Assistant
- System Tools Assistant

License (CD not included)
- Lotus® Smartsuite Millennium and Lotus Notes® Stand-alone Client

### ServicePac

24 hour x 7 day 7 toll-free warranty support during the warranty²

ServicePac²²
- 1yr IOR 9x5 NBD 30L9188
- 2yr IOR 9x5 NBD 30L9195

ServicePac 3yr IOR 9x5 NBD 30L9195

ServicePac 4yr IOR 9x5 NBD 30L9194

ServicePac 5yr IOR 9x5 NBD 30L9194

ServicePac 2yr P&L P/U Depot 30L9198

ServicePac 3yr P&L P/U Depot 30L9194

ServicePac 4yr P&L P/U Depot 30L9192

ServicePac 5yr P&L P/U Depot 69P9197

Post-warranty annual maintenance agreements at ibm.com/services/its/us/source/ maspspleu.pdf

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See footnotes for important warranty information

US models announced April 6 or July 13, 2004

US models withdrawn effective January or March 2005

(1834) © IBM Corp. April 2005
### IBM ThinkPad R50 - withdrawn

#### Type-model / Processor / Memory / Screen / Graphics / Disk / Optical / Mini PCI / Ethernet on board / IEEE / Workhorse (W) / Preload / Software

<table>
<thead>
<tr>
<th>Type-model</th>
<th>IBM® Processor</th>
<th>Memory</th>
<th>Screen</th>
<th>Graphics</th>
<th>Disk</th>
<th>Optical</th>
<th>Board</th>
<th>Ethernet</th>
<th>IEEE</th>
<th>Workhorse (W)</th>
<th>Preload</th>
<th>Software</th>
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<tr>
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<td>750MB</td>
<td>30G CD</td>
<td>Open, wireless upg</td>
<td>10/100</td>
<td>Modem</td>
<td>10/100</td>
<td>Yes</td>
<td>XP Pro</td>
<td>W Oct 2003</td>
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<td>Modem</td>
<td>10/100</td>
<td>Yes</td>
<td>XP Pro</td>
<td>W Oct 2003</td>
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<td></td>
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<td>1830-56U</td>
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<td>30G CD</td>
<td>Open, wireless upg</td>
<td>10/100</td>
<td>Modem</td>
<td>10/100</td>
<td>Yes</td>
<td>XP Pro</td>
<td>W Oct 2003</td>
<td></td>
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<tr>
<td>1830-6FU</td>
<td>M 1.5 256MB/15.0&quot;XGA</td>
<td>750MB</td>
<td>40G CD</td>
<td>Open, wireless upg</td>
<td>11a/b/g/Wi-Fi</td>
<td>11a/b/g/Wi-Fi</td>
<td>Modem</td>
<td>11a/b/g/Wi-Fi</td>
<td>11a/b/g/Wi-Fi</td>
<td>Yes</td>
<td>XP Pro</td>
<td>W Oct 2003</td>
</tr>
</tbody>
</table>

#### Software
- Windows XP Pro models
  - Microsoft® Windows® XP Professional
  - Disk-to-Disk Recovery (in hidden protected area)
- Preloaded
  - Access IBM
  - IBM Rapid Restore™ Ultra
  - IBM RecordNOW™ and IBM Drive ImageUltra
  - IBM Hard Disk Drive Shock Absorber / IBM Active Protection System
- Downloadable
  - IBM Director
  - IBM Device Driver Assistant
  - IBM System Management Assistant
  - Client Security Software (for security chip)
- License (CD not included)
  - Lotus® SmartSuite® Millennium and Lotus® Notes® Stand-alone Client

#### Limited warranty
- 3 years / 1 year battery - EasyServ® service on pickup and delivery, service upgrades® available

#### Other options at IBM®
- IBM® 512MB PC2700 DDR-SDRAM CL2.5 SODIMM 333MHz 256B (4200 rpm) or 40GB (4200 rpm), 9.5mm high / removable and upgradable / 9.5mm high bay / supports 2nd disk with optional 'Second HDD Adapter for Ultrabay Slim' / IBM Hard Disk Drive Shock Absorber / IBM Active Protection System
- IBM Update Connector™
- PC-Doctor®
- Norton AntiVirus (OEM edition)
- Software Delivery Assistant
- IBM Rapid Restore™
- IBM Update Connector™

| 125MB PC2700 DDR-SDRAM CL2.5 SODIMM 333MHz | 512MB PC2700 DDR-SDRAM CL2.5 SODIMM 333MHz | 1GB PC2700 DDR-SDRAM CL2.5 SODIMM 333MHz | Second HDD Adapter for Ultrabay Slim | ThinkPad DVD-ROM Ultrabay Slim Drive | CD-RW/DVD Combo Ultrabay Enhanced Drive | Multi-Beaker Ultrabay Enhanced Drive | IBM USB Portable Diskette Drive | IBM USB 2.0 Portable Multi-Bus Interface | Other options at IBM® /pc/us/accessories | T40/R50 Series Li-Ion Battery 6-cell | T40/R50 High Capacity Li-Ion Batt 9-cell | Ultrabase Slim - DP/IBM® Battery 3-cell | IBM 11a/b/g Wireless Mini PCI Adapter | ThinkPad Port Replicator II | ThinkPad Dock II |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| 319P9288 | 319P9285 | 319P9384 | 62P6554 | 73P2700 | 73P2725 | 73P2801 | 05K9276 | 22P9163 | 22P98010 | T40/R50 Series Li-Ion Battery 6-cell | 08K8214 | T40/R50 High Capacity Li-Ion Batt 9-cell | 08K8197 | Ultrabase Slim - DP/IBM® Battery 3-cell | 11a/b/g/Wi-Fi | ThinkPad Port Replicator II | 74P6733 | 2876110 | 08K9368 | 40GB HS Hard Disk 9.5mm (5400 rpm) | 08K9816 | 80GB HS Hard Disk 9.5mm (5400 rpm) | 09N4273 | IBM 11a/b/g Wireless Mini PCI Adapter | 31P9701 | ThinkPad Port Replicator II | 74P6733 | 2876110 |
| 319P9288 | 319P9285 | 319P9384 | 62P6554 | 73P2700 | 73P2725 | 73P2801 | 05K9276 | 22P9163 | 22P98010 | T40/R50 Series Li-Ion Battery 6-cell | 08K8214 | T40/R50 High Capacity Li-Ion Batt 9-cell | 08K8197 | Ultrabase Slim - DP/IBM® Battery 3-cell | 11a/b/g/Wi-Fi | ThinkPad Port Replicator II | 74P6733 | 2876110 | 08K9368 | 40GB HS Hard Disk 9.5mm (5400 rpm) | 08K9816 | 80GB HS Hard Disk 9.5mm (5400 rpm) | 09N4273 | IBM 11a/b/g Wireless Mini PCI Adapter | 31P9701 | ThinkPad Port Replicator II | 74P6733 | 2876110 |

**Note:** IBM® Corporate, July 2004

See footnotes for important warranty information

*Powered by Intel Centrino™ mobile technology*
IBM® ThinkPad® R50 (1829) - withdrawn

<table>
<thead>
<tr>
<th>Type-Model</th>
<th>Processor</th>
<th>Memory</th>
<th>Hard Disk</th>
<th>CD/DVD</th>
<th>Ethernet</th>
<th>Graphics</th>
<th>Software</th>
</tr>
</thead>
</table>
| 1829-6U    | Pentium M 1.6 512MB 15.0" XGA 7500 40GBB Combo Open; wireless upg Mod/Blue Gigabit 1394 Yes 6 1 year No Jan 2004 | 900Mhz on die (at processor speed) | 10GB (4200 rpm) | 32MB | CD-Rom/CDRW/2x2/4x2/6x8/10x | Intel 855PM Memory Controller Hub (MCH-I) / Intel PRO/1000 Gigabit Ethernet / on planar / Intel 82540EP chipset (MAC/PHY) / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI) | Windows XP Pro models
| 1829-7U    | Pentium M 1.7 512MB 15.0" SXGA+ 9000 60GB Combo Open; wireless upg Mod/Blue Gigabit 1394 Yes 9 1 year No Jan 2004 | 900Mhz on die (at processor speed) | 10GB (4200 rpm) | 32MB | CD-Rom/CDRW/2x2/4x2/6x8/10x | Intel 855PM Memory Controller Hub (MCH-I) / Intel PRO/1000 Gigabit Ethernet / on planar / Intel 82540EP chipset (MAC/PHY) / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI) | Windows XP Pro models

**Positioning**

Mainstream performance and features; two-spindled system

**Diskette drive**

None standard / use optional USB-based diskette drive

**Audio support**

CDC

Mini PCI

Video out

Ports

PC Card Std slots

Case material

Battery

Battery life - type

Battery life - life (WxDxH): 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm

**Software**

- IBM Director
- ThinkPad Utilities
- IBM Update Connector

**Dimensions**

Approximateweight

- 1.8 kg / 4 lbs

**Case material**

Lithium Ion 6- or 9-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced

**Power support**

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

**Security chip**

IBM Embedded Security Subsystem 2.0 / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security / TCG-compliant

**Limited warranty**

1 year - EasyServ, onsite pickup and delivery / service upgrades available

**Video out**

S-video out port (TV out) / one 4-pin industry standard connector

**Wireless antenna**

One Mini PCI type 3 slot (Communications Bay) / customer upgradable

**Wireless upg**

Wireless upgradable with wireless Mini PCI options

**CDC**

One Communications Daughter Card (CDC) socket (used by modem) / not accesible

**Modem**

One Communications Daughter Card (CDC) socket (used by modem) / not accesible

**Bluetooth**

Intel PRO/1000 Gigabit Ethernet / on planar / Intel 82540EP chipset (MAC/PHY) / Wake on LAN

**Audio support**

Soft audio / ICH AC97 controller / DirectSound® support / AD1981B AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal microphone / microphone input jack (3.5 mm) / headphone jack (3.5 mm) / no line in jack

**Security**

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

**Security chip**

IBM Embedded Security Subsystem 2.0 / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security / TCG-compliant

**ServicePac**

- 22 1yr IOR 9x5 NBD
- 30L9188
- 30L9189
- 30L9195
- 30L9194
- 30L9196
- 30L9197
- 69P9195
- 69P9197

See footnotes for important warranty information

US models announced January 13, 2004

US models withdrawn effective October 2004

(R501) © IBM Corp. October 2004
### IBM ThinkPad R50 (1830) - Education - withdrawn

#### Key Features:
- **Processor**: 1.4 GHz, Intel® Pentium M Processor 1.4GHz with enhanced Intel SpeedStep™ technology
- **Memory**: 256MB (two 200-pin SO-DIMM sockets)
- **Display**: 14.1" XGA (1024x768)
- **Graphics**: FlexView display, wide viewing angle, high density
- **Battery**: Lithium Ion 6-cell / intelligent
- **Software**: Windows XP Pro

#### Preloaded Software:
- Microsoft® Windows® XP Professional
- Disk-to-Disk Recovery (in hidden protected area)

#### Limited Warranty:
- **3 years/1 year battery**
- **EasyServ** onsite pickup and delivery

#### ServicePac Options:
- ServicePac 3 yr IOR 9x5 NBD
- ServicePac 4 yr IOR 9x5 NBD
- ServicePac 5 yr P&L P/U Depot
- ServicePac 5 yr P&L P/U Depot
- ServicePac 5 yr P&L P/U Depot

#### Additional Notes:
- **Security**: IBM Embedded Security Subsystem 2.0
- **Client Security Software**: for Windows® XP Professional models
- **InterVideo WinDVD 4™**: for 11a/b/g Wi-Fi32 models

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### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Memory</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1830-5AU M 1.4 Pentium® M 14.1&quot; XGA 256MB 40G Combo</td>
<td>Intel 11b Wi-Fi™</td>
<td>14.1&quot; XGA (1024x768)</td>
<td>Windows XP Professional 32-bit</td>
</tr>
<tr>
<td>1830-5CU M 1.4 Pentium® M 14.1&quot; XGA 256MB 40G Combo</td>
<td>Intel 11b Wi-Fi™</td>
<td>14.1&quot; XGA (1024x768)</td>
<td>Windows XP Professional 32-bit</td>
</tr>
<tr>
<td>1830-7CU M 1.5 Pentium® M 15.0&quot; SXGA+ 256MB 40G Combo</td>
<td>Intel 11b Wi-Fi™</td>
<td>15.0&quot; SXGA+ (1400x1050)</td>
<td>Windows XP Professional 32-bit</td>
</tr>
</tbody>
</table>

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*Created by IBM PC Institute*
<table>
<thead>
<tr>
<th>Type/Model</th>
<th>Processor</th>
<th>Speed (GHz)</th>
<th>O/S</th>
<th>Memory</th>
<th>Graphics Controller</th>
<th>Disk Drive</th>
<th>Mini PCI</th>
<th>CAD codec</th>
<th>Ethernet</th>
<th>Security</th>
<th>Warranty</th>
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<tr>
<td>128MB PC2700 DDR-SRAM CL2.5 SOD</td>
<td>Intel Pentium 4 2.66GHz</td>
<td>266/333 MHz</td>
<td>1GB</td>
<td>512MB</td>
<td>128MB CardBus</td>
<td>31P9828</td>
<td>ThinkPad DVD-ROM</td>
<td>73P3270</td>
<td>CD-Rom</td>
<td>IBM Embedded</td>
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<td>1 yr IOR</td>
<td>Nov 2002</td>
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<tr>
<td>256MB PC2700 DDR-SRAM CL2.5 SOD</td>
<td>Intel Pentium 4 2.66GHz</td>
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<td>2GB</td>
<td>512MB</td>
<td>1GB CardBus</td>
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<td>ThinkPad DVD-ROM</td>
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<td>CD-Rom</td>
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<td>3 years</td>
<td>1 yr IOR</td>
<td>Nov 2002</td>
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<td>ThinkPad DVD-ROM</td>
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<td>CD-Rom</td>
<td>IBM Embedded</td>
<td>3 years</td>
<td>1 yr IOR</td>
<td>Nov 2002</td>
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**See footnotes for important warranty information.**

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<table>
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<tr>
<th>Type-model</th>
<th>Speed</th>
<th>Processor</th>
<th>Graphics</th>
<th>Disk drive</th>
<th>Mini PCI</th>
<th>CDC</th>
<th>Ethernet</th>
<th>Workhorse</th>
<th>Preload Entry (%)</th>
<th>Global (%)</th>
<th>Availability</th>
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<tbody>
<tr>
<td>1836-A4U Pentium M 1.5 256MB 14.1&quot; XGA 7500 40GB Combo</td>
<td>800MHz</td>
<td>Intel Pentium M 1.5</td>
<td>DVD-RW</td>
<td>11a/b/g-Wi-Fi/32</td>
<td>Modern</td>
<td>10/100</td>
<td>Wireless</td>
<td>1394</td>
<td>Yes</td>
<td>XP Pro</td>
<td>No April 2004</td>
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<tr>
<td>1836-ASU Pentium M 1.5 256MB 14.1&quot; XGA 7500 40GB Combo</td>
<td>1.6 256MB 14.1&quot; XGA 7500 40GB Combo</td>
<td>Intel Pentium M 1.5</td>
<td>DVD-RW</td>
<td>11a/b/g-Wi-Fi/32</td>
<td>Modern</td>
<td>10/100</td>
<td>Wireless</td>
<td>1394</td>
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<td>XP Pro</td>
<td>No April 2004</td>
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<tr>
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<td>1.6 256MB 15.0&quot; XGA 7500 40GB Combo</td>
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<td>DVD-RW</td>
<td>11a/b/g-Wi-Fi/32</td>
<td>Modern</td>
<td>10/100</td>
<td>Wireless</td>
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<td>10/100</td>
<td>Wireless</td>
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<td>10/100</td>
<td>Wireless</td>
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<td>11a/b/g-Wi-Fi/32</td>
<td>Modern</td>
<td>10/100</td>
<td>Wireless</td>
<td>1394</td>
<td>Yes</td>
<td>XP Pro</td>
<td>No April 2004</td>
</tr>
</tbody>
</table>

These small and medium business (SMB) models are part of the IBM US Think Express Program.

### Positioning
- **Mainstream performance and features:** two-spindle system with optical drive and battery.

### Processor
- **Intel Pentium M 1.5 GHz:** enhanced Intel SpeedStep technology and 400MHz system bus.
- **L2 cache:** 1MB on die (at processor speed) / ECC.
- **Memory:** 256MB std / 2GB max / PC2700 333MHz DDR1 (DDR-SRAM) / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available.

### Audio Support
- **Audio controllers:** 87-key / Accs IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys).

### Security features
- **IBM Embedded Security Subsystem 2.0**
  - Power-on password / hard disk password / supervisor password / security keyhole.

### Preload
- **Windows XP Professional:**
  - Access Connections
  - Software Delivery Assistant
  - System Migration Assistant
  - Client Security Software (for security chip)

### License
- **CD (not included)**
  - ENDUS SmartSuite Millennium and Lotus Notes Stand-alone Client

### Preload Entry:
- **No preload entry available.**

### Preload Agreements:
- **No preload agreements available.**

### Software:
- **IBM Rescue and Recovery**
- **IBM Client Security Software**
- **IBM System Migration Assistant**
- **IBM Access IBM**

### Limited warranty:
- **1 year**

### Other options:
- **at ibm.com:**
  - Preload Entry:
  - Global (G)

### See footnotes for important warranty information.

*Powered by Intel Centrino mobile technology*
<table>
<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
<th>Speed</th>
<th>Memory</th>
<th>Graphics</th>
<th>Display</th>
<th>Dimensions</th>
<th>Diskette drive</th>
<th>Modem</th>
<th>Battery</th>
<th>Bluetooth</th>
<th>Ethernet</th>
<th>Workhorse</th>
<th>SOFTWARE</th>
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<td>Pentium® M 715 1.5</td>
<td>256MB</td>
<td>40GB</td>
<td>Intel® 11b/g/b-FlHi</td>
<td>XGA (1024x768) TFT color</td>
<td>14.1&quot;</td>
<td>None standard</td>
<td>11a/b/g Wi-Fi Mod</td>
<td>Yes</td>
<td>10/100</td>
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<td>Jul 2004</td>
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<td>1836-GDU</td>
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<td>256MB</td>
<td>40GB</td>
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<td>10/100</td>
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<td>Jul 2004</td>
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These small and medium business (SMB) models are part of the IBM US Think Express Program.
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<thead>
<tr>
<th>Type-model</th>
<th>Processor</th>
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<th>Screen</th>
<th>Disk drive</th>
<th>Optical</th>
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<th>Comm Bay</th>
<th>Wireless Antenna</th>
<th>IEEE 1394 Ports</th>
<th>PC Card Std slots</th>
<th>Case material</th>
<th>Weight (g)</th>
<th>Display</th>
<th>Graphics</th>
<th>Integrated Security</th>
<th>Workhorse (W)</th>
<th>Secu-Limited Warranty</th>
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<th>Global (G)</th>
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<td>15.0” XGA</td>
<td>30GB Combo</td>
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</tbody>
</table>

**NOTE:** These small and medium business (SMB) models are part of the IBM US Think Express Program. The 2883 has a 1 year limited warranty.

**Software:**

- Windows XP Professional
- IBM ThinkVantage Technologies

**Preloaded:**

- Access IBM
- IBM Rescue and Recovery
- IBM RecordNOW and Drive Letter
- IBM Update Connector

**Downloadable:**

- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (for security chip)
- IBM ThinkVantage Technologies

**License:**

- Lotus SmartSuite

**Security Chip:**

- IBM Embedded Security Subsystem

**Limited warranty:**

- 1 year - EasyServ 11 onsite pickup and delivery - service upgrades available

**See footnotes for important warranty information**

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**Availability:** All offers subject to availability. IBM reserves the right to alter product offerings and specifications at any time, without notice. IBM is not responsible for photographic or typographic errors.

**Warranty:** For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC. IBM makes no representation or warranty regarding third party products or services.

**Footnotes:**

1. With Intel SpeedStep, processor speed may be reduced to conserve battery power.

2. **Travel weight** includes battery and optional travel bezel instead of standard optical drive in Ultrabay bay. If applicable; weight may vary due to vendor components, manufacturing process and options.

3. **Thinness** may vary at certain points on the system.

4. **Wireless capability:** Requires compatible wireless-enabled options sold separately.

5. **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.

6. **Public network download speeds** are limited to 53Kbps. Upload speeds are limited to 31.2Kbps. Compatible phone line and server equipment required. Actual speeds depend on many factors and are often less than the maximum possible.

7. **Maximum memory and hard disk drive capacity** may require the replacement of standard component with largest supported component available.

8. **Hard drive:** GB = billion bytes, TB = trillion bytes. Accessible capacity may be less; up to 4GB is used in service partition.

9. **CD/DVD drive speeds** list maximum rates; rates are variable and are often less than the maximum.

10. **Battery:** These model numbers achieved the Ziff Davis Media Inc.’s Business Winstore 2002 BatteryMark™ Version 1.0, Battery Rundown Time of at least the times shown. This test was performed without independent verification by the VeriTest testing division of Lionbridge Technologies, Inc. (“VeriTest”) nor Ziff Davis Media Inc.; neither Ziff Davis Media Inc. nor VeriTest makes any representations or warranties as to these test results. Winstore is a registered trademark and BatteryMark is a trademark of Ziff Davis Publishing Holdings Inc., in the US and other countries. A description of the environment under which the test was performed is available at [ibm.com](http://ibm.com)/pc/ww/thinkpad/batterylife. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. Refer to [ibm.com](http://ibm.com)/pc/support and enter machine type and model number for more information.

11. **Memory:** For ThinkPad models without a separate video card, memory supports both system and video. Accessible system memory may be up to 64MB less than the amount stated, depending on video mode.

12. **Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.

13. **Internet access not included.**

14. **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

15. **Update Connector** is available to registered ThinkPad customers during the limited warranty period at no charge. Line charges may apply.


17. **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.

18. **Telephone support** may be subject to additional charges, even during the limited warranty period. 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, IBM 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 IBM machines with EasyServ or Courier service, IBM will attempt to diagnose and resolve the problem remotely before sending a courier.

19. **Depot repair:** 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 warranty period.

20. **Delivered with Windows 2000, Windows XP Professional, or Windows XP Home Edition preloaded and a recovery partition on the hard disk drive.**

21. **For combination drives,** maximum possible speeds only are given in the following order: CD write, CD rewrite, CD read, DVD read.

22. **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. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center.
27 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.

28 Certain Microsoft software products included with this computer may use technological measures for copy protection. IN SUCH EVENT, YOU WILL NOT BE ABLE TO USE THE PRODUCT IF YOU DO NOT FULLY COMPLY WITH THE PRODUCT ACTIVATION PROCEDURES. Product activation procedures and Microsoft’s privacy policy will be detailed during initial launch of the product, or upon certain reinstallations of the software products or reconfigurations of the computer, and may be completed by Internet or telephone (toll charges may apply).

29 Public network download 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. Requires download of V.92 microcode when available and country approval.

30 Measures only maximum data transfer rate, not application performance. Many factors affect application performance.

31 Internet access account (not included) and profiling at ibm.com/support required.

32 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.

23 For ThinkPad X Series, the 32GB, 48GB, and 60GB HDD only supports ThinkPad Dock, UltraBase X2, or X3 UltraBase media slice and requires the ThinkPad Second HDD Adapter for Ultra-bay 2000.

24 Systems with limited onsite service are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by IBM. IBM 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 IBM for onsite replacement. For a list of onsite replaceable parts, contact IBM. Support unrelated to a warranty issue may be subject to additional charges. IBM onsite repair (IOR), 8 am to 5 pm, Monday through Friday coverage excluding holidays, next business day response time.

25 Linux preloaded systems do not support UltraPort connector solutions and S-video-out port that may be included on this machine.

26 As defined by ISO/IEC 15412.
IBM Embedded Security Subsystem requires download of client security software from the Web and requires Internet access, not included.

Asset ID allows system-specific information to be stored in a chip inside the system; it does not have any radio frequency support.

Operating system: Level of support varies by operating system. Operating systems not preloaded on the system may not provide full feature functionality. Refer to ibm.com/pc/support and enter your machine type and model number for more information.

Wireless upgradable allows the system to be wireless-enabled with an optional wireless Mini PCI card. These systems are designed to operate only with wireless LAN Mini PCI options sold by IBM.

Mobile processors: Power management features reduce processor speed when in battery mode.

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