IBM

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2001 to 2005 - withdrawn

May 2005 - Version 291

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Type-model	Processor	Speed	Memory	Screen	Disk	Optical	Mini PCI Communications Bay	CDC Modem	Ethernet on planar	Preload	Workhorse or Global model	Avail date
2656-2BU	Celeron™	900	64MB[11]	13.3" XGA	10GB	CD-ROM	802.11b/modem		10/100	Windows® 98 SE		Oct 2001
2656-22U	Celeron	900	64MB	13.3" XGA	10GB	CD-ROM	Open	Modem	10/100	Windows 98 SE		Oct 2001
2656-32U	Pentium® III	1.0	128MB	13.3" XGA	15GB	CD-ROM	Open	Modem	10/100	Windows 98 SE		Oct 2001
2656-5BU	Pentium III	1.0	128MB	13.3" XGA	15GB	CD-RW	802.11b/modem		10/100	Windows 98 SE		Oct 2001
2656-62U	Pentium III	1.0	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	Windows 98 SE	Workhorse/Global	Oct 2001
2656-7BU	Pentium III	1.0	128MB	14.1" XGA	30GB	CD-RW	802.11b/modem		10/100	Windows 98 SE		Oct 2001
2656-82U**	Pentium III	1.0	256MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	Windows 98 SE	Workhorse/Global	Dec 2001

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[7] with Speedstep™ Technology with 100MHz Front Side Bus**
L2 cache	*Celeron:* **128KB** / onboard (at processor speed) / ECC *Pentium III:* **256KB** / onboard (at processor speed) / ECC
Memory	**64MB, 128MB** or **256MB**[9] standard / 1GB maximum / SDRAM / non-parity / 100MHz (chipset limits to 100MHz although SO-DIMMs used) / PC 133 / 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 / 24X-10X[10] speed / bootable / removable from Ultrabay™ Plus
CD-RW	*Some:* CD-RW / 8X/4X/24X[10] Max / removable from Ultrabay Plus
DVD-ROM	*Some:* DVD-ROM / 8X-3.3X[10] speed / removable from Ultrabay Plus
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**10, 15,** or **30GB**[8] (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix *Some:* **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix *All:* Easy-open cover to unlatch and open with one hand
Graphics controller	Trident® CyberBLADE™ Aladdini1 2X AGP 3D / 8MB[11] SDRAM / 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[14]	12.3" x 10.0" x 1.42"
Approximate weight[2]	with optical drive and battery: *CD-ROM models:* 5.7 lbs; *DVD models:* 5.8 lbs; *CD-RW models:* 5.9 lbs
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[13]	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 OZ6912 for CardBus
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 / no Zoomed Video
Ports	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	S-video out / one industry standard connector
Mini PCI	One Mini PCI IIIb slot (Communications Bay) / not customer upgradeable
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-capable[29]) CDC modem card / Lucent® chip set
802.11b/modem	*Some:* Mini PCI 802.11b wireless[4], Intersil® Prism 2.5 chipset, antennas in side of display and base, Wi-Fi-certified / 56K[12] V.90[29] modem combo, Lucent® chipset
Ethernet	10/100 ethernet on planar / Intel® 82550GY chipset
Audio support	Soft audio / 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*,[22]	**1 year** - EasyServ™,[25] onsite pickup and delivery / warranty service upgrades[21]

SOFTWARE[14]

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

INCLUDED SOFTWARE[14] (all)

Preloaded
- Access ThinkPad
- Adobe® Acrobat
- ConfigSafe®
- Mediamatics™ DVD (DVD models)
- MusicMatch Jukebox
- PC-Doctor®
- ThinkPad Assistant™
- ThinkPad Utilities
- IBM Update Connector™,[15]
- Veritas RecordNOW (CD-RW mod)

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

License
- Lotus® SmartSuite® Millennium

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

64 MB SO DIMM 133MHz NP SDRAM	19K4650	USB Portable Diskette Drive	05K9276
128 MB SO DIMM 133MHz NP SDRAM	19K4652	ThinkPad Removable Diskette Drive	08K9603
256 MB SO DIMM 133MHz NP SDRAM	19K4654	ThinkPad R30 Series Li-Ion Battery	02K6821
512 MB SO DIMM 133MHz NP SDRAM	19K4656	ThinkPad 72W AC Adapter	02K6699
SuperDisk (LS-240) UltraBay 2000	08K9616	ThinkPad 72W DC Auto Adapter	10K3820
Zip 250MB Ultrabay 2000 Drive	00N8253	ThinkPad Port Replicator	02K8667
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)	19K4480
8X/4X/24X Max CD-RW Ultrabay 2000	08K9569		
8X-3X DVD Ultrabay 2000 Drive	27L3448	15GB Hard Disk Drive	08K9588
CD-RW/DVD Combo Ultrabay 2000	08K9572	30GB Hard Disk Drive	08K9593
Travel Bezel for Ultrabay 2000	08K6070	48GB Hard Disk Drive	08K9600
Second HDD Adapter for Ultrabay 2000	08K6068	ServicePac®, [21] 1yr IOR 9x5 NBD	30L9188
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ServicePac 2yr IOR 9x5 NBD	30L9189
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	ServicePac 3yr IOR 9x5 NBD	30L9190
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ServicePac 2yr P&L P/U Depot	30L9191
		ServicePac 3yr P&L P/U Depot	30L9192

Universal 72 watt AC adapter
PC 2001-compliant
CIM and DMI 2.0-compliant
Wired for Management 2.0
IBM ImageUltra Services available
IBM Rapid Restore PC available to protect software image and data
Personalized Web-based support[23]
Setup Guide, Service and Trouble-shooting Guide, Windows manual
International Warranty Service[24]
24 hour x 7 day[1] toll-free hardware support during the warranty

Type-model	Processor	Speed	Memory	Screen	Disk	Optical	Mini PCI Communications Bay	CDC Modem	Ethernet on planar	Preload	Small business software	Workhorse (W) or Global (G) model	Avail date
2656-A0U	Celeron™	900	64MB[11]	13.3" XGA	10GB	CD-ROM	Open	Modem	10/100	Windows® 2000			Oct 2001
2656-A1U	Celeron	900	64MB	13.3" XGA	10GB	CD-ROM	802.11b/modem		10/100	Windows 2000			Oct 2001
2656-B0U	Pentium® III	1.0	128MB	13.3" XGA	15GB	CD-ROM	Open	Modem	10/100	Windows 2000			Oct 2001
2656-DAU	Pentium III	1.0	128MB	13.3" XGA	15GB	CD-RW	802.11b/modem		10/100	Windows 2000			Oct 2001
2656-E0U	Pentium III	1.0	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	Windows 2000			Oct 2001
2656-EAU	Pentium III	1.0	128MB	14.1" XGA	30GB	CD-RW	802.11b/modem		10/100	Windows 2000			Oct 2001
2656-A3U	Celeron	900	64MB	13.3" XGA	10GB	CD-ROM	Open	Modem	10/100	Windows 2000	Office XP SB[18]		Oct 2001
2656-2AU	Celeron	900	128MB	13.3" XGA	10GB	CD-ROM	802.11b/modem		10/100	XP Home			Nov 2001
2656-20U	Celeron	900	128MB	13.3" XGA	10GB	CD-ROM	Open	Modem	10/100	XP Home			Nov 2001
2656-30U	Pentium III	1.0	128MB	13.3" XGA	15GB	CD-ROM	Open	Modem	10/100	XP Home			Nov 2001
2656-5AU	Pentium III	1.0	128MB	13.3" XGA	15GB	CD-RW	802.11b/modem		10/100	XP Home			Nov 2001
2656-60U	Pentium III	1.0	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	XP Home			Nov 2001
2656-6AU	Pentium III	1.0	128MB	14.1" XGA	30GB	CD-RW	802.11b/modem		10/100	XP Home			Nov 2001
2656-61U	Pentium III	1.0	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	XP Home	Office XP SB		Nov 2001
2656-6BU	Pentium III	1.0	128MB	14.1" XGA	30GB	CD-RW	802.11b/modem		10/100	XP Home	Office XP SB		Nov 2001

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[7] 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[9]** standard / 1GB maximum / SDRAM / non-parity / 100MHz / PC 133 / 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 / 24X-10X[10] speed / bootable / removable from Ultrabay™ Plus
CD-RW	*Some:* CD-RW / 8X/4X/24X[10] Max / removable from Ultrabay Plus
DVD-ROM	*Some:* DVD-ROM / 8X-3.3X[10] speed / removable from Ultrabay Plus
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**10, 15,** or **30GB[8]** (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix *Some:* **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix *All:* Easy-open cover to unlatch and open with one hand
Graphics controller	Trident® CyberBLADE™ Alladini1 2X AGP 3D / 8MB[11] SDRAM / 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[14]	12.3" x 10.0" x 1.42"
Approximate weight[2]	with optical drive and battery: *CD-ROM models:* 5.7 lbs; *DVD models:* 5.8 lbs; *CD-RW models:* 5.9 lbs
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[13]	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 OZ6912 for CardBus
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 / no Zoomed Video
Ports	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	S-video out / one industry standard connector
Mini PCI	One Mini PCI IIIb slot (Communications Bay) / not customer upgradeable
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-capable[29]) CDC modem card / Lucent® chip set
802.11b/modem	*Some:* Mini PCI 802.11b wireless[4], Intersil® Prism 2.5 chipset, antennas in side of display and base, Wi-Fi-certified / 56K[12] V.90[29] modem combo, Lucent® chipset
Ethernet	10/100 ethernet on planar / Intel® 82550GY chipset
Audio support	Soft audio / 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*,[22]	**1 year** - EasyServ™,[25] onsite pickup and delivery / warranty service upgrades[21]

SOFTWARE[15]

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

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

INCLUDED SOFTWARE[17] (all)

Preloaded
- Access ThinkPad
  - Access Connections
  - Access Help
- Adobe® Acrobat
- Mediamatics™ DVD (DVD models)
- MusicMatch Jukebox
- PC-Doctor™
- ThinkPad Assistant™
- ThinkPad Utilities
- IBM Update Connector™,[19]
- Veritas RecordNOW (CD-RW mod)

Downloadable
- IBM Rapid Restore PC
- IBM Data Transfer
- Universal Manageability Services™
- Veritas RecordNOW (CD-RW mod)

License
- Lotus® SmartSuite® Millennium

Office XP Small Business models only
- Microsoft Office XP Small Business[18] (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

64 MB SO DIMM 133MHz NP SDRAM	19K4650	USB Portable Diskette Drive	05K9276	
128 MB SO DIMM 133MHz NP SDRAM	19K4652	ThinkPad Removable Diskette Drive	08K9603	
256 MB SO DIMM 133MHz NP SDRAM	19K4654	ThinkPad R30 Series Li-Ion Battery	02K6821	
512 MB SO DIMM 133MHz NP SDRAM	19K4656	ThinkPad 72W AC Adapter	02K6699	
SuperDisk (LS-240) UltraBay 2000	08K9616	ThinkPad Port Replicator	02K8667	
Zip 250MB Ultrabay 2000 Drive	00N8253	Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)	19K4480	
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233			
8X/4X/24X Max CD-RW Ultrabay 2000	08K9569	15GB Hard Disk Drive	08K9588	
8X-3X DVD Ultrabay 2000 Drive	27L3448	30GB Hard Disk Drive	08K9593	
CD-RW/DVD Combo Ultrabay 2000	08K9572	48GB Hard Disk Drive	08K9600	
Travel Bezel for Ultrabay 2000	08K6070	ServicePac®,[21] 1yr IOR 9x5 NBD	30L9188	
Second HDD Adapter for Ultrabay 2000	08K6068	ServicePac 2yr IOR 9x5 NBD	30L9189	
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ServicePac 3yr IOR 9x5 NBD	30L9195	
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	ServicePac 2yr P&L P/U Depot	30L9191	
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ServicePac 3yr P&L P/U Depot	30L9192	

Universal 72 watt AC adapter
PC 2001-compliant
CIM and DMI 2.0-compliant
Wired for Management 2.0
IBM ImageUltra Services available
IBM Rapid Restore PC available to protect software image and data
Personalized Web-based support[23]
Setup Guide, Service and Trouble-shooting Guide, Windows manual
International Warranty Service[24]
24 hour x 7 day[1] toll-free hardware support during the warranty

IBM® ThinkPad® R31 - withdrawn

Type-model	Processor	Speed	Memory[11]	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	Security Chip	Preload	Small business software	Workhorse (W) or Global (G) model	Avail date
2656-25U	Celeron™	1.06	128MB	13.3" XGA	20G	CD-ROM	Open	Modem	10/100		XP Home			Feb 2002
2656-A5U	Celeron	1.06	128MB	13.3" XGA	20G	CD-ROM	Open	Modem	10/100		XP Pro			Feb 2002
2656-AFU	Celeron	1.06	128MB	13.3" XGA	20G	CD-ROM	Wi-Fi[32]/mod	None	10/100		XP Pro			Feb 2002
2656-AKU	Celeron	1.06	128MB	13.3" XGA	20G	CD-ROM	Open	Modem	10/100		XP Pro	Office XP SB[18]		Feb 2002
2656-AGU	Celeron	1.06	128MB	14.1" XGA	20G	CD-ROM	Wi-Fi/mod	None	10/100		XP Pro			Aug 2002
2656-HHU	Pentium® III-M	1.00	128MB	14.1" XGA	20G	DVD-ROM	Open	Modem	10/100		XP Pro		G	Mar 2002
2656-3FU	Pentium III-M	1.13	128MB	13.3" XGA	20G	CD-RW	Wi-Fi/mod	None	10/100		XP Home			Feb 2002
2656-BFU	Pentium III-M	1.13	128MB	13.3" XGA	20G	CD-RW	Wi-Fi/mod	None	10/100		XP Pro			Feb 2002
2656-E5U	Pentium III-M	1.13	128MB	14.1" XGA	30G	DVD-ROM	Open	Modem	10/100		XP Pro		W G	Feb 2002
2656-E6U	Pentium III-M	1.13	128MB	14.1" XGA	30G	CD-RW	Open	Modem	10/100	Yes	XP Pro			Feb 2002
2656-EFU	Pentium III-M	1.13	128MB	14.1" XGA	30G	DVD-ROM	Wi-Fi/mod	None	10/100		XP Pro		W G	Feb 2002
2656-HFU	Pentium III-M	1.13	128MB	14.1" XGA	40G	DVD/CD-RW	Wi-Fi/mod	None	10/100	Yes	XP Pro			Feb 2002
2656-EHU	Pentium III-M	1.13	128MB	14.1" XGA	30G	DVD-ROM	Wi-Fi/mod	None	10/100		XP Pro	Office XP SB		Feb 2002
2656-HGU	Pentium III-M	1.13	128MB	14.1" XGA	40G	DVD/CD-RW	Wi-Fi/mod	None	10/100	Yes	XP Pro	Office XP SB		Feb 2002

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Intel® Mobile Celeron™ 1.06GHz with 133MHz frontside bus** or **Intel Mobile Pentium® III-M 1.0 or 1.13GHz** with Speedstep™ technology[1] with 133MHz frontside bus
L2 cache	*Celeron:* **256KB** / at processor speed; *Pentium III:* **512 KB** / at processor speed
Memory	**128MB** standard / 1GB max[7] / 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 / 24X-10X[9] speed / bootable / removable
CD-RW	*Some:* CD-RW / 8X/4X/24X Max[9] / removable
DVD-ROM	*Some:* DVD-ROM / 8X-3.3X[9] speed / removable
DVD-ROM/CD-RW	*Some:* DVD-ROM/CD-RW combo / 8X/8X/24X/8X[21] speed / removable
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay™ Plus**-compatible
Disk	**20, 30, or 40GB**[8] (4200 rpm) / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix *Some:* **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and: *CD-ROM:* 5.8 lbs; *DVD:* 5.8 lbs; *CD-RW:* 6.1 lbs; *DVD/CD-RW:* 6.1 lbs
Case material	*Color:* Black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	*Celeron models:* 2.4 to 2.6 hrs; *Pentium III models:* 2.9 to 3.1 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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
Ports	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	S-video out port (TV out) / one industry standard connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradable
Wi-Fi[32]/modem	*Some:* Mini PCI Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Lucent® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) CDC modem card / Lucent® chip set
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16]
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

64 MB SO DIMM 133MHz NP SDRAM	19K4650	USB Portable Diskette Drive	05K9276
128 MB SO DIMM 133MHz NP SDRAM	19K4652	ThinkPad R30/R31 Li-Ion Battery	02K6821
256 MB SO DIMM 133MHz NP SDRAM	19K4654	ThinkPad 72W AC Adapter	02K6699
512 MB SO DIMM 133MHz NP SDRAM	19K4656	ThinkPad Port Replicator	02K8667
SuperDisk (LS-240) UltraBay 2000	08K9616	Portable Drive Bay 2000 (accepts Ultrabay	
Zip 250MB Ultrabay 2000 Drive	00N8253	2000 media and storage devices)	19K4480
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm (4200 rpm)	08K9686
8X/4X/24X Max CD-RW Ultrabay 2000	22P9101	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
Ultralight 8X Max DVD Ultrabay 2000	22P9102	IBM Optical 3-Button Travel Wheel Mouse	31P7410
CD-RW/DVD Combo III Ultrabay 2000	22P6980	ServicePac®,[22] 1yr IOR 9x5 NBD	30L9188
Second HDD Adapter for Ultrabay 2000	08K6068	ServicePac 2yr IOR 9x5 NBD	30L9189
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ServicePac 3yr IOR 9x5 NBD	30L9195
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	ServicePac 2yr P&L P/U Depot	30L9191
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ServicePac 3yr P&L P/U Depot	30L9192

SOFTWARE[14]

Windows XP Home models
- Microsoft® Windows® XP Home[20]
◇ Disk-to-Disk Recovery (in hidden Service Partition)

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
◇ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] (all)

Preloaded
- Access ThinkPad
  - Access Connections
  - Access Help
  - Access Support
- Adobe® Acrobat
- InterVideo WinDVD (DVD models)
- Norton AntiVirus
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]
- Veritas RecordNOW (CD-RW mod)

Downloadable
- IBM Rapid Restore™ PC
- IBM Data Transfer
- Veritas RecordNOW (CD-RW mod)

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

Microsoft Office XP Small Business[28] Models
- Microsoft Office XP Small Business[18] (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

Other options at **ibm.com**/pc/us/accessories

Universal 72 watt AC adapter
PC 2001-compliant
CIM and DMI 2.0-compliant
IBM ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
Setup Guide, Service and Trouble-shooting Guide, Windows manual
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

See footnotes for important warranty information
US models announced January 22, March 19, or August 13, 2002
US models withdrawn effective July 2002, January 2003, or July 2003

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Type-model	Processor	Speed	Memory[11]	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	Security Chip	Preload	Small business software	Workhorse (W) or Global (G) model	Avail date
2656-F5U	Pentium® III-M	1.13	128MB	14.1" XGA	30G	DVD-ROM	Open	Modem	10/100		XP Pro			Apr 2002
2656-H4U	Pentium III-M	1.13	128MB	14.1" XGA	30G	CD-RW	Open	Modem	10/100	Yes	XP Pro			Apr 2002
2656-H8U	Pentium III-M	1.13	128MB	14.1" XGA	40G	DVD/CD-RW	Wi-Fi[32]/mod	None	10/100	Yes	XP Pro			Apr 2002
2656-FGU	Pentium III-M	1.13	256MB	14.1" XGA	30G	DVD-ROM	Open	Modem	10/100		XP Pro			Apr 2002
2656-M4U	Pentium III-M	1.0	128MB	14.1" XGA	20G	DVD-ROM	Open	Modem	10/100		XP Pro			Apr 2002
2656-H6U	Pentium III-M	1.13	128MB	14.1" XGA	30G	DVD-ROM	Wi-Fi/mod	None	10/100		XP Pro	Office XP SB[18]		Apr 2002
2656-H9U	Pentium III-M	1.13	128MB	14.1" XGA	40G	DVD/CD-RW	Wi-Fi/mod	None	10/100	Yes	XP Pro	Office XP SB		Apr 2002
2656-H5U	Pentium III-M	1.13	128MB	14.1" XGA	30G	CD-RW	Open	Modem	10/100	Yes	Windows 2000			Apr 2002
2656-H7U	Pentium III-M	1.13	128MB	14.1" XGA	40G	DVD/CD-RW	Wi-Fi/mod	None	10/100	Yes	Windows 2000			Apr 2002
2656-F4U	Pentium III-M	1.13	128MB	14.1" XGA	30G	DVD-ROM	Open	Modem	10/100		Windows 2000			Apr 2002
2656-FEU	Pentium III-M	1.13	256MB	14.1" XGA	30G	DVD-ROM	Open	Modem	10/100		Windows 2000			Apr 2002
2656-L4U	Pentium III-M	1.0	128MB	14.1" XGA	20G	DVD-ROM	Open	Modem	10/100		Windows 2000			Apr 2002

Positioning	*Best blend of portability and essential features; two-spindle system*
TAA-compliant	**Trade Act Agreement-compliant**
Processor	**Intel® Mobile Pentium® III-M 1.0 or 1.13GHz** with Speedstep™ technology[1] with 133MHz Front Side Bus
L2 cache	**512 KB** / at processor speed / ECC
Memory	**128** or **256MB** standard / 1GB max[7] / 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-RW	*Some:* CD-RW / 8X/4X/24X Max[9] / removable
DVD-ROM	*Some:* DVD-ROM / 8X-3.3X speed / removable
DVD-ROM/CD-RW	*Some:* DVD-ROM/CD-RW combo / 8X/24X/8X[21] speed / removable
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay™ Plus**-compatible
Disk	**20, 30,** or **40GB**[8] (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	**14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
UltraPort™	None
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and: *DVD-ROM:* 5.8 lbs; *CD-RW:* 6.1 lbs; *DVD/CD-RW:* 6.1 lbs
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	*802.11b models:* 2.9 hrs; *Others:* 3.1 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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 / no Zoomed Video
Ports	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	S-video out port (TV out) / one industry standard connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradeable
Wi-Fi[32]/modem	*Some:* Mini PCI Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Lucent® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) CDC modem card / Lucent® chip set
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16]
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / warranty service upgrades[22]

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden Service Partition)

Windows 2000 models
- Microsoft Windows 2000 Professional[20]
- ConfigSafe®
- ◇ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(all)**

Preloaded
- Access ThinkPad
  - Access Connections
  - Access Help
  - Access Support
- Adobe® Acrobat
- InterVideo WinDVD (DVD models)
- Norton AntiVirus
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]
- 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[18] **Models** (H6U and H9U)
- Microsoft Office XP Small Business[28] (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
CIM and DMI 2.0-compliant
IBM ImageUltra Services available
IBM Rapid Restore PC available to protect software image and data
Personalized Web-based support[31]
Setup Guide, Service and Troubleshooting Guide, Windows manual
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

64 MB SO DIMM 133MHz NP SDRAM	19K4650	USB Portable Diskette Drive		05K9276
128 MB SO DIMM 133MHz NP SDRAM	19K4652	ThinkPad R30/R31 Li-Ion Battery		02K6821
256 MB SO DIMM 133MHz NP SDRAM	19K4654	ThinkPad 72W AC Adapter		02K6699
512 MB SO DIMM 133MHz NP SDRAM	19K4656	ThinkPad Port Replicator		02K8667
SuperDisk (LS-240) UltraBay 2000	08K9616	Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)		19K4480
Zip 250MB Ultrabay 2000 Drive	00N8253			
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB HDD		08K9686
8X/4X/24X Max CD-RW Ultrabay 2000	22P9101	40GB HDD		08K9687
Ultralight 8X Max DVD Ultrabay 2000	22P9102	60GB HS Hard Disk 9.5mm (5400 rpm)		08K9688
CD-RW/DVD Combo II Ultrabay 2000	08K9701	ServicePac®, [22] 1yr IOR 9x5 NBD		30L9188
Second HDD Adapter for Ultrabay 2000	08K6068	ServicePac 2yr IOR 9x5 NBD		30L9189
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ServicePac 3yr IOR 9x5 NBD		30L9195
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	ServicePac 2yr P&L P/U Depot		30L9191
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ServicePac 3yr P&L P/U Depot		30L9192

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

Type-model	Processor	GHz	Memory[11]	Screen	Disk	Optical	Mini PCI Comm Bay	CDC Modem	Ethernet on planar	Security Chip	Preload	Workhorse (W) or Global (G) model	Avail date
2657-F4U	Pentium® III-M	1.13	128MB	14.1" XGA	30GB[8]	DVD-ROM	Open	Modem	10/100	No	Windows® 2000		Apr 2002
2657-FEU	Pentium III-M	1.13	256MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	No	Windows 2000		Apr 2002
2657-F5U	Pentium III-M	1.13	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	No	Windows XP Pro		Apr 2002
2657-FGU	Pentium III-M	1.13	256MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	No	Windows XP Pro		Apr 2002

- *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	*Best blend of portability and essential features; two-spindle system*
TAA-compliant	**Trade Act Agreement-compliant**
Processor	**Intel® Mobile Pentium® III Processor-M 1.13GHz** with Speedstep™ technology[1] with 133MHz Front Side Bus
L2 cache	**512 KB** / at processor speed
Memory	**128MB** or **256MB** standard / 1GB maximum[7] / 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-RW	DVD-ROM / 8X-3.3X[9] speed / removable
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay**™ **Plus**-compatible
Disk	**30GB**[8] (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	**14.1"** (358.1mm) **XGA (1024x768)** TFT color / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
UltraPort™	None
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and DVD: 5.8 lbs (2.6 kg)
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	2.5 to 3.1 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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 / no Zoomed Video
Ports	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	S-video out port (TV out) / one industry standard connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradeable
WI-Fi[32] wireless	None
CDC	One Communications Daughter Card (CDC) socket / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) CDC modem card / Lucent® chip set
Bluetooth™	None
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole
Limited warranty[12]	**3 years**/1 year battery - EasyServ™,[19] onsite pickup and delivery / warranty service upgrades[22]

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden Service Partition)

Windows 2000 models
- Microsoft Windows 2000 Professional[20]
- ConfigSafe®
- ◇ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(all)**

Preloaded
- Access ThinkPad
  - Access Connections
  - Access Help
  - Access Support
- Adobe® Acrobat
- InterVideo WinDVD (DVD models)
- Norton AntiVirus
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

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

64 MB SO DIMM 133MHz NP SDRAM	19K4650	USB Portable Diskette Drive	05K9276	Universal 72 watt AC adapter
128 MB SO DIMM 133MHz NP SDRAM	19K4652	ThinkPad Removable Diskette Drive	08K9603	PC 2001-compliant
256 MB SO DIMM 133MHz NP SDRAM	19K4654	ThinkPad R30/R31 Li-Ion Battery	02K6821	CIM and DMI 2.0-compliant
512 MB SO DIMM 133MHz NP SDRAM	19K4656	ThinkPad 72W AC Adapter	02K6699	IBM ImageUltra Services available
IBM 32MB USB Memory Key	22P5296	ThinkPad Port Replicator	02K8667	IBM Rapid Restore PC available to
SuperDisk (LS-240) UltraBay 2000	08K9616	Portable Drive Bay 2000 (accepts Ultrabay		protect software image and data
Zip 250MB Ultrabay 2000 Drive	00N8253	2000 media and storage devices)	19K4480	Personalized Web-based support[31]
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB HDD	08K9686	Setup Guide, Service and Trouble-
8X/4X/24X Max CD-RW Ultrabay 2000	22P9101	40GB HDD	08K9687	shooting Guide, Windows manual
Ultralight 8X Max DVD Ultrabay 2000	22P9102	60GB HS Hard Disk 9.5mm (5400 rpm)	08K9688	International Warranty Service[17]
CD-RW/DVD Combo II Ultrabay 2000	08K9701	IBM USB 2.0 Portable CD-RW Driv	22P5297	24 hour x 7 day[18] toll-free hardware
Second HDD Adapter for Ultrabay 2000	08K6068	ThinkPad Portable 20GB Hard DiskDrive	10K0177	support during the warranty[12]
IBM ThinkPad Ultrabay Plus Carrier	22P5737	IBM 1GB Microdrive	07N5574	
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	IBM USB Mobile Mouse	33L3243	
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ServicePac®,[22] 2yr IOR 9x5 NBD	30L9190	
Other options at **ibm.com**/pc/us/accessories		ServicePac 3yr IOR 9x5 NBD	30L9197	

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

Type-model	Processor	GHz	Memory[11]	Screen	Disk	Optical	Mini PCI Comm Bay wireless/modem	CDC Modem	Ethernet on planar	Security Chip	Preload	Workhorse (W) or Global (G) model	Avail date
2656-A4U	Celeron™	1.06	128MB	13.3" XGA	20GB[8]	CD-ROM	Open	Modem	10/100		Windows® 2000		Feb 2002
2656-AEU	Celeron	1.06	128MB	13.3" XGA	20GB	CD-ROM	Wi-Fi[32]/mod	None	10/100		Windows 2000		Feb 2002
2656-FFU	Pentium® III-M	1.00	128MB	14.1" XGA	20GB	DVD-ROM	Open	Modem	10/100		Windows 2000	G	Mar 2002
2656-BEU	Pentium III-M	1.13	128MB	13.3" XGA	20GB	CD-RW	Wi-Fi/modem	None	10/100		Windows 2000		Feb 2002
2656-EEU	Pentium III-M	1.13	128MB	14.1" XGA	30GB	DVD-ROM	Wi-Fi/modem	None	10/100		Windows 2000	W G	Feb 2002
2656-E4U	Pentium III-M	1.13	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100		Windows 2000	W G	Feb 2002
2656-E7U	Pentium III-M	1.13	128MB	14.1" XGA	30GB	CD-RW	Open	Modem	10/100	Yes	Windows 2000		Feb 2002
2656-HEU	Pentium III-M	1.13	128MB	14.1" XGA	40GB	DVD/CD-RW	Wi-Fi/modem	None	10/100	Yes	Windows 2000		Feb 2002

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Intel**® **Mobile Celeron™ 1.06GHz with 133MHz Front Side Bus** or **Intel Mobile Pentium**® **III-M 1.0 or 1.13GHz** with Speedstep™ technology[1] with 133MHz Front Side Bus
L2 cache	*Celeron:* **256KB** / at processor speed; *Pentium III:* **512 KB** / at processor speed
Memory	**128MB**[9] standard / 1GB maximum / SDRAM / non-parity / 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 / 24X-10X[9] speed / bootable / removable
CD-RW	*Some:* CD-RW / 8X/4X/24X Max[9] / removable
DVD-ROM	*Some:* DVD-ROM / 8X-3.3X[9] speed / removable
DVD-ROM/CD-RW	*Some:* DVD-ROM/CD-RW combo / 8X/8X/24X/8X[21] speed / removable
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay™ Plus**-compatible
Disk	**20, 30,** or **40GB**[8] (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix *Some:* **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
UltraPort™	None
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and: *CD-ROM:* 5.8 lbs; *DVD:* 5.8 lbs; *CD-RW with 13.3":* 6.0 lbs; *CD-RW with 14.1:* 6.1 lbs; *DVD/CD-RW:* 6.1 lbs
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	*Celeron models:* 2.4 to 2.6 hrs; *Pentium III models:* 2.9 to 3.1 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI) /Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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 / no Zoomed Video
Ports	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	S-video out port (TV out) / one industry standard connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradeable
Wi-Fi[32]/modem	*Some:* Mini PCI Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Lucent® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) CDC modem card / Lucent® chip set
Bluetooth™	None
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16]
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

64 MB SO DIMM 133MHz NP SDRAM	19K4650	
128 MB SO DIMM 133MHz NP SDRAM	19K4652	
256 MB SO DIMM 133MHz NP SDRAM	19K4654	
512 MB SO DIMM 133MHz NP SDRAM	19K4656	
IBM 32MB USB Memory Key	22P5296	
SuperDisk (LS-240) UltraBay 2000	08K9616	
Zip 250MB Ultrabay 2000 Drive	00N8253	
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	
8X/4X/24X Max CD-RW Ultrabay 2000	22P9101	
Ultralight 8X Max DVD Ultrabay 2000	22P9102	
CD-RW/DVD Combo III Ultrabay 2000	22P6980	
Second HDD Adapter for Ultrabay 2000	08K6068	
IBM ThinkPad Ultrabay Plus Carrier	22P5737	
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	
Other options at **ibm.com**/pc/us/accessories		

USB Portable Diskette Drive	05K9276
ThinkPad Removable Diskette Drive	08K9603
ThinkPad R30/R31 Li-Ion Battery	02K6821
ThinkPad 72W AC Adapter	02K6699
ThinkPad Port Replicator	02K8667
Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)	19K4480
20GB Hard Disk 9.5mm (4200 rpm)	08K9686
40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688
ServicePac®, [21] 1yr IOR 9x5 NBD	30L9188
ServicePac 2yr IOR 9x5 NBD	30L9189
ServicePac 3yr IOR 9x5 NBD	30L9195
ServicePac 2yr P&L P/U Depot	30L9191
ServicePac 3yr P&L P/U Dmpot	30L9192

SOFTWARE[14]

Windows 2000 models
- Microsoft Windows 2000 Professional[20]
- ConfigSafe®
✧ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14]
Preloaded
- Access ThinkPad
  - Access Connections
  - Access Help
  - Access Support
- Adobe® Acrobat
- InterVideo WinDVD (DVD models)
- Norton AntiVirus
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]
- Veritas RecordNOW (CD-RW mod)

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

Universal 72 watt AC adapter
PC 2001-compliant
CIM and DMI 2.0-compliant
IBM ImageUltra Services available
IBM Rapid Restore PC available to protect software image and data
Personalized Web-based support[31]
Setup Guide, Service and Trouble-shooting Guide, Windows manual
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

See footnotes for important warranty information
US models announced January 22 or March 19, 2002
US models withdrawn effective July 2002 or January 2003

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Type-model	Processor	Speed	Memory[11]	Screen	Disk	Optical	Mini PCI Comm Bay	CDC	Ethernet on planar	Security Chip	Preload	Limited warranty	Avail date
2656-99U	Pentium® III-M	1.06	128MB	13.3" XGA	20GB[8]	CD-RW	Wi-Fi[32]/modem	None	10/100	No	Windows® XP Pro	1 yr	Apr 2002
2656-88U	Pentium III-M	1.06	128MB	14.1" XGA	30GB	DVD/CD-RW	Wi-Fi/modem	None	10/100	No	Windows XP Pro	1 yr	Apr 2002
2656-77U	Pentium III-M	1.06	128MB	14.1" XGA	20GB	CD-RW	Wi-Fi/modem	None	10/100	No	Windows XP Pro	1 yr	Aug 2002
2657-99U	Pentium III-M	1.06	128MB	13.3" XGA	20GB	CD-RW	Wi-Fi/modem	None	10/100	No	Windows XP Pro	3 yr	Apr 2002
2657-88U	Pentium III-M	1.06	128MB	14.1" XGA	30GB	DVD/CD-RW	Wi-Fi/modem	None	10/100	No	Windows XP Pro	3 yr	Apr 2002
2657-77U	Pentium III-M	1.06	128MB	14.1" XGA	20GB	CD-RW	Wi-Fi/modem	None	10/100	No	Windows XP Pro	3 yr	Aug 2002

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.

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Intel**® **Mobile Pentium**® **III-M 1.06GHz** with Speedstep™ technology[1] with 133MHz frontside bus
L2 cache	**512 KB** / at processor speed / ECC
Memory	**128MB** standard / 1GB max[7] / SDRAM / non-parity / 133MHz / PC133-compliant / 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-RW	*Some:* CD-RW / 8X/4X/24X Max[9] / removable
DVD-ROM/CD-RW	*Some:* DVD-ROM/CD-RW combo / 8X/8X/24X/8X[21] speed / removable
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay**™ **Plus**-compatible
Disk	**20** or **30GB**[8] (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix *Some:* **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
UltraPort™	None
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and: *13.3" TFT:* 6.0 lbs (2.7kg); *14.1" TFT:* 6.1 lbs (2.7kg)
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	2.9 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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 / no Zoomed Video
Ports	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	S-video out port (TV out) / one industry standard connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradeable
Wi-Fi[32]/modem	Mini PCI Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29])modem combo, Lucent® chipset
CDC	One Communications Daughter Card (CDC) socket / not accessible
Open	One Communications Daughter Card (CDC) socket open
Ethernet	10/100 ethernet on planar / Intel® 82562ET chipset (physical layer)
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole
Limited warranty[12]	*2656:* **1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available *2657:* **3 years**/1 year battery - EasyServ onsite pickup and delivery / service upgrades available

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(all)**
Preloaded
- Access ThinkPad
  - Access Connections
  - Access Help
  - Access Support
- Adobe® Acrobat
- InterVideo WinDVD (DVD models)
- Norton AntiVirus
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]
- Veritas RecordNOW

Downloadable
- IBM Rapid Restore™ PC
- IBM Data Transfer
- IBM Director Agen

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

Universal 72 watt AC adapter
PC 2001-compliant
CIM and DMI 2.0-compliant
IBM ImageUltra Services available
IBM Rapid Restore PC available to protect software image and data
Personalized Web-based support[31]
Setup Guide, Service and Trouble-shooting Guide, Windows manual
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

64 MB SO DIMM 133MHz NP SDRAM	19K4650	USB Portable Diskette Drive	05K9276
128 MB SO DIMM 133MHz NP SDRAM	19K4652	ThinkPad R30/R31 Li-Ion Battery	02K6821
256 MB SO DIMM 133MHz NP SDRAM	19K4654	ThinkPad 72W AC Adapter	02K6699
512 MB SO DIMM 133MHz NP SDRAM	19K4656	ThinkPad Port Replicator	02K8667
SuperDisk (LS-240) UltraBay 2000	08K9616	Portable Drive Bay 2000 (accepts Ultrabay	
Zip 250MB Ultrabay 2000 Drive	00N8253	2000 media and storage devices)	19K4480
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm (4200 rpm)	08K9686
8X/4X/24X Max CD-RW Ultrabay 2000	22P9101	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
Ultralight 8X Max DVD Ultrabay 2000	22P9102	60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688
CD-RW/DVD Combo III Ultrabay 2000	22P6980	*2656:* ServicePac®,[22] 1yr IOR 9x5 NBD	30L9188
Second HDD Adapter for Ultrabay 2000	08K6068	*2656:* ServicePac 2yr IOR 9x5 NBD	30L9189
IBM ThinkPad Ultrabay Plus Carrier	22P5737	*2656:* ServicePac 3yr IOR 9x5 NBD	30L9195
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	*2656:* ServicePac 2yr P&L P/U Depot	30L9191
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	*2656:* ServicePac 3yr P&L P/U Depot	30L9192
Other options at **ibm.com**/pc/us/accessories		*2657:* ServicePac 2yr IOR 9x5 NBD	30L9190
		2657: ServicePac 3yr IOR 9x5 NBD	30L9197

See footnotes for important warranty information
US models announced April 30 or August 13, 2002
US models withdrawn from marketing effective October 2002 or January 2003

Type-model	Processor	Speed GHz	Memory[11]	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	IEEE 1394	Preload	Workhorse (W) or Global (G) model	Avail date
2656-2GU	Celeron®	1.13	128MB	13.3" XGA	20GB	CD-ROM	Open	Modem	10/100		Windows® XP Pro	No	Jun 2002
2656-1CU	Celeron	1.13	128MB	14.1" XGA	20GB	CD-ROM	Open	Modem	10/100		Windows XP Pro	No	Jun 2002
2656-2VU	Celeron	1.13	128MB	13.3" XGA	20GB	CD-ROM	Wi-Fi[32]/modem	Open	10/100	1394	Windows XP Pro	No	Jun 2002
2656-1FU	Celeron	1.13	128MB	14.1" XGA	20GB	CD-RW	Open	Modem	10/100		Windows XP Pro	No	Jun 2002
2656-1GU	Celeron	1.13	128MB	14.1" XGA	20GB	DVD	Open	Modem	10/100		Windows XP Home	No	Jun 2002
2656-2HU	Celeron	1.13	128MB	13.3" XGA	20GB	CD-ROM	Open	Modem	10/100		Windows XP Home	No	Jun 2002
2656-1BU	Celeron	1.13	128MB	14.1" XGA	20GB	CD-ROM	Open	Modem	10/100		Windows XP Home	No	Aug 2002

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Intel**® **Mobile Celeron**® **1.13GHz with 133MHz frontside bus**
L2 cache	**256KB** / at processor speed / ECC
Memory	**128MB** standard / 1GB max[7] / 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 / 24X-10X[9] speed / removable from Ultrabay 2000
CD-RW	*Some:* CD-RW / 8X/4X/24X Max[9] / removable from Ultrabay 2000
DVD-ROM	*Some:* DVD-ROM / 8X-3.3X Max[9] / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay**™ **Plus**-compatible
Disk	**20GB**[8] (4200 rpm) / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix
	Some: **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
UltraPort™	None
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and: *CD-ROM:* 5.8lb (2.62kg); *DVD:* 5.75lb (2.61kg); *CD-RW:* 6.05lb (2.73kg)
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	*2VU:* 2.4 hrs; *Others:* 2.6 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI, TI TSB43AB22 IEEE 1394) / Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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 / no Zoomed Video
Ports	Two USB (Version 1.1) / parallel / external DB-15 monitor / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / IEEE 1394 (4-pin) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394 (FireWire)	*Some:* IEEE 1394 (FireWire) Port (4-pin)
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradeable
Wi-Fi[32]/modem	*Some:* Mini PCI Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Lucent® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) CDC modem card / Lucent® chip set
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

SOFTWARE[14]

Windows XP Home models
- Microsoft® Windows® XP Home[20]
✧ Disk-to-Disk Recovery (in hidden Service Partition)

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
✧ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(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™[15]
- Veritas RecordNOW (CD-RW 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

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

64 MB SO DIMM 133MHz NP SDRAM	19K4650	IBM USB Portable Diskette Drive	05K9276	
128 MB SO DIMM 133MHz NP SDRAM	19K4652	IBM 128MB USB 2.0 Memory Key	22P8998	
256 MB SO DIMM 133MHz NP SDRAM	19K4654	TrackPoint Cap Collection	73P2698	
512 MB SO DIMM 133MHz NP SDRAM	19K4656	IBM USB 2.0 Portable CD-RW Drive	22P5297	
SuperDisk (LS-240) UltraBay 2000	08K9616	IBM ThinkPad USB 2.0 CardBus Adapter	33L3245	
Zip 250MB Ultrabay 2000 Drive	00N8253	IBM USB Serial Parallel Adapter	22P5298	
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	ThinkPad R30 Series Li-Ion Battery	02K6821	
8X/4X/24X Max CD-RW Ultrabay 2000	22P9101	ThinkPad 72W AC Adapter	02K6699	
Ultralight 8X Max DVD Ultrabay 2000	22P9102	20GB Hard Disk 9.5mm (4200 rpm)	08K9686	
CD-RW/DVD Combo III Ultrabay 2000	22P6980	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	
Second HDD Adapter for Ultrabay 2000	08K6068	60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688	
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ServicePac®,[22] 1yr IOR 9x5 NBD	30L9188	
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	ServicePac 2yr IOR 9x5 NBD	30L9189	
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ServicePac 3yr IOR 9x5 NBD	30L9195	
Portable Drive Bay 2000 (accepts Ultrabay		ServicePac 2yr P&L P/U Depot	30L9191	
2000 media and storage devices)	19K4480	ServicePac 3yr P&L P/U Depot	30L9192	
ThinkPad Port Replicator	02K8667	Other options at **ibm.com**/pc/us/accessories		

Universal 72 watt AC adapter
PC 2001-compliant
CIM and DMI 2.0-compliant
IBM ImageUltra Services available
IBM Rapid Restore PC available to protect software image and data
Personalized Web-based support[31]
Proactive e-mail updates[31]
Setup Guide, Service and Trouble-shooting Guide, Windows manual
International Warranty Service[17]
24x7[18] toll-free support for warranty-related issues during the warranty period[12]

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

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Type-model	Processor	GHz	Memory[11]	Screen	Disk	Optical	Mini PCI Comm Bay	CDC Modem	Ethernet on planar	Security Chip	Preload	Workhorse (W) or Global (G) model	Avail date
2657-LLU	Pentium®III-M	1.00	128MB	14.1" XGA	20GB[8]	DVD-ROM	Open	Modem	10/100	No	Windows® 2000		Mar 2002
2657-MMU	Pentium III-M	1.00	128MB	14.1" XGA	20GB	DVD-ROM	Open	Modem	10/100	No	Windows XP Pro		Mar 2002
2657-E4U	Pentium III-M	1.13	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	No	Windows 2000	W G	Mar 2002
2657-J1U	Pentium III-M	1.13	256MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	No	Windows 2000	W G	Mar 2002
2657-E5U	Pentium III-M	1.13	128MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	No	Windows XP Pro	W G	Mar 2002
2657-J2U	Pentium III-M	1.13	256MB	14.1" XGA	30GB	DVD-ROM	Open	Modem	10/100	No	Windows XP Pro	W G	Mar 2002

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

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Intel® Mobile Pentium® III Processor-M 1.0 or 1.13GHz** with Speedstep™ technology[1] with 133MHz Front Side Bus
L2 cache	**512 KB** / at processor speed
Memory	**128MB** or **256MB** standard / 1GB maximum[7] / 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
DVD-ROM	DVD-ROM / 8X-3.3X[9] speed / removable
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay™ Plus**-compatible
Disk	**20, 30,** or **40GB**[8] (4200 rpm) / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	**14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
UltraPort™	None
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and DVD: 5.8 lbs (2.6 kg)
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	3.1 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI) / Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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
Ports	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	S-video out port (TV out) / one industry standard connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradable
Wi-Fi[32] wireless	None
CDC	One Communications Daughter Card (CDC) socket / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) CDC modem card / Lucent® chip set
Bluetooth™	None
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole
Limited warranty[12]	**3 years**/1 year battery - EasyServ™,[19] onsite pickup and delivery
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
◇ Disk-to-Disk Recovery (in hidden Service Partition)

Windows 2000 models
- Microsoft Windows 2000 Professional[20]
- ConfigSafe®
◇ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(all)**
Preloaded
• Access ThinkPad
  - Access Connections
  - Access Help
  - Access Support
• Adobe® Acrobat
• InterVideo WinDVD (DVD models)
• Norton AntiVirus
• PC-Doctor™
• ThinkPad Utilities
• IBM Update Connector™,[15]
• 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

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

64 MB SO DIMM 133MHz NP SDRAM	19K4650	USB Portable Diskette Drive	05K9276	Universal 72 watt AC adapter
128 MB SO DIMM 133MHz NP SDRAM	19K4652	ThinkPad Removable Diskette Drive	08K9603	PC 2001-compliant
256 MB SO DIMM 133MHz NP SDRAM	19K4654	ThinkPad R30/R31 Li-Ion Battery	02K6821	CIM and DMI 2.0-compliant
512 MB SO DIMM 133MHz NP SDRAM	19K4656	ThinkPad 72W AC Adapter	02K6699	IBM ImageUltra™ Services available
IBM 32MB USB Memory Key	22P5296	ThinkPad Port Replicator	02K8667	IBM Rapid Restore PC available to
SuperDisk (LS-240) UltraBay 2000	08K9616	Portable Drive Bay 2000 (accepts Ultrabay		protect software image and data
Zip 250MB Ultrabay 2000 Drive	00N8253	2000 media and storage devices)	19K4480	Personalized Web-based support[31]
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm (4200 rpm)	08K9686	Setup Guide, Service and Trouble-
8X/4X/24X Max CD-RW Ultrabay 2000	22P9101	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	shooting Guide, Windows manual
Ultralight 8X Max DVD Ultrabay 2000	22P9102	60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688	International Warranty Service[17]
CD-RW/DVD Combo III Ultrabay 2000	22P6980	IBM USB 2.0 Portable CD-RW Driv	22P5297	24 hour x 7 day[18] toll-free hardware
Second HDD Adapter for Ultrabay 2000	08K6068	ThinkPad Portable 20GB Hard DiskDrive	10K0177	support during the warranty[12]
IBM ThinkPad Ultrabay Plus Carrier	22P5737	IBM 1GB Microdrive	07N5574	
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	IBM Optical 3-Button Travel Wheel Mouse	31P7410	
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ServicePac®,[22] 2yr IOR 9x5 NBD	30L9190	
Other options at **ibm.com**/pc/us/accessories		ServicePac 3yr IOR 9x5 NBD	30L9197	

See footnotes for important warranty information
US models announced March 5 or 19, 2002
US models withdrawn effective January 2003 or April 2003

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Type-model	Processor	Speed GHz	Memory[11]	Screen	Disk GB[8]	Optical in Ultrabay 2000	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	IEEE 1394	Preload	Workhorse (W) or Global (G) model	Avail date
2656-L2U	Celeron®	1.2	128MB	13.3" XGA	20GB	CD-ROM	Open	Modem	10/100		Windows® XP Pro	No	Sep 2002
2656-L6U	Celeron	1.2	128MB	13.3" XGA	20GB	CD-ROM	Wi-Fi[32]/modem	Open	10/100	1394	Windows XP Pro	No	Sep 2002
2656-M2U	Celeron	1.2	128MB	14.1" XGA	20GB	CD-ROM	Open	Modem	10/100		Windows XP Pro	No	Sep 2002
2656-NYU	Celeron	1.2	128MB	14.1" XGA	20GB	Combo III	Open	Modem	10/100		Windows XP Pro	No	Sep 2002
2656-L1U	Celeron	1.2	128MB	13.3" XGA	20GB	CD-ROM	Open	Modem	10/100		Windows XP Home	No	Sep 2002
2656-LBU	Celeron	1.2	256MB	14.1" XGA	30GB	None (open)	Open	Modem	10/100		Windows XP Home	No	Sep 2002
2656-NAU	Celeron	1.2	128MB	14.1" XGA	20GB	DVD	Open	Modem	10/100		Windows XP Home	No	Sep 2002

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Intel® Mobile Celeron® 1.20GHz with 133MHz frontside bus**
L2 cache	**256KB** / at processor speed / ECC
Memory	**128MB** or **256MB** standard / 1GB max[7] / 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 / 24X-10X[9] speed / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW Combo III / 16X/10X/24X/8X[21] / removable from Ultrabay 2000
DVD-ROM	*Some:* DVD-ROM / 8X-3.3X Max[9] / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay™ Plus**-compatible
Disk	**20GB**[8] (4200 rpm) or **30GB** (4200 rpm) / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix *Some:* **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix
Graphics controller	**Intel 830MG Integrated Direct AGP 3D** / Unified Memory Architecture / in GMCH / controller dynamically allocates 8 to 32MB[11] 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[13] / pitch: 19mm; stroke: 2.7mm
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.42" / 313mm x 254mm x 36mm
Approximate weight[2]	w/ battery and: *CD-ROM:* 5.8 lb (2.62kg); *DVD:* 5.75 lb (2.61kg); *Combo:* 6.05 lb (2.73kg); *Open LBU:* 5.3 lb (2.41kg)
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 6-cell / intelligent / no second battery in Ultrabay Plus
Battery - life[10]	*Wireless L6U:* 2.4 hrs; *Others:* 2.6 hrs
Architecture	**Intel 830MG** chipset / 82830MG 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 (TI® PCI1410A CardBus, Mini PCI, TI TSB43AB22 IEEE 1394) / Firmware Hub / LPC bus 33MHz (NS PC87392VJG Super I/O 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
Ports	Two USB (Version 1.1) / parallel / external DB-15 monitor / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / IEEE 1394 (4-pin) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) Port (4-pin)
Mini PCI	One Mini PCI type III slot (Communications Bay) / not customer upgradable
Wi-Fi[32]/modem	*Some:* Mini PCI Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Lucent® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) CDC modem card / Lucent® chip set
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 (3.5 mm) / headphone jack (3.5 mm)
Security	Power-on password / hard disk password / supervisor password / security keyhole
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

64 MB SO DIMM 133MHz NP SDRAM	19K4650	
128 MB SO DIMM 133MHz NP SDRAM	19K4652	
256 MB SO DIMM 133MHz NP SDRAM	19K4654	
512 MB SO DIMM 133MHz NP SDRAM	19K4656	
ThinkPad Removable Diskette Drive	08K9603	
Zip 250MB Ultrabay 2000 Drive	00N8253	
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	
Ultralight 8X Max DVD Ultrabay 2000	22P9102	
CD-RW/DVD Combo III Ultrabay 2000	22P6980	
Second HDD Adapter for Ultrabay 2000	08K6068	
IBM ThinkPad Ultrabay Plus Carrier	22P5737	
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	
Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)	19K4480	
ThinkPad Port Replicator	02K8667	
IBM High Rate Wireless LAN PC Card 128	09N9904	
IBM USB Portable Diskette Drive	05K9276	
Other options at **ibm.com**/pc/us/accessories		

IBM 128MB USB 2.0 Memory Key	22P8998
IBM USB 2.0 Portable CD-RW Drive	22P5297
IBM ThinkPad USB 2.0 CardBus Adapter	33L3245
IBM USB Serial Parallel Adapter	22P5298
ThinkPad R30 Series Li-Ion Battery	02K6821
ThinkPad 72W AC Adapter	02K6699
20GB Hard Disk Drive	08K9686
40GB Hard Disk Drive	08K9687
40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
60GB HS Hard Disk 12.5mm (5400 rpm)*	08K9688
ServicePac®,[22] 1yr IOR 9x5 NBD	30L9188
ServicePac 2yr IOR 9x5 NBD	30L9189
ServicePac 3yr IOR 9x5 NBD	30L9195
ServicePac 4yr IOR 9x5 NBD	69P9194
ServicePac 5yr IOR 9x5 NBD	69P9196
ServicePac 2yr P&L P/U Depot	30L9191
ServicePac 3yr P&L P/U Depot	30L9192
ServicePac 4yr P&L P/U Depot	69P9195
ServicePac 5yr P&L P/U Depot	69P9197

SOFTWARE[14]

Windows XP Home models
- Microsoft® Windows® XP Home[20]
✧ Disk-to-Disk Recovery
  (in hidden Service Partition)

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
✧ Disk-to-Disk Recovery
  (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(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™,[15]
- IBM RecordNOW and DLA by Veritas® (combo models)
- IBM Rapid Restore™ PC

Downloadable
- IBM Director Agent
- Software Delivery Assistant
- 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

Universal 72 watt AC adapter
PC 2001-compliant
CIM and DMI 2.0-compliant
ACPI 1.0b and 2.0-compliant
IBM ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
Personalized Web-based support[31]
Proactive e-mail updates[31]
Setup Guide, Service and Trouble-shooting Guide, Windows manual
International Warranty Service[17]
24x7[18] toll-free support for warranty-related issues during the warranty period[12]

See footnotes for important warranty information
US models announced September 17, 2002
US models withdrawn effective April 2003

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Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Small business or software	Workhorse (W) or Global (G) model	Avail date
2658-ACU	Pentium® 4-M	1.6	128MB	14.1" XGA	20GB	CD-ROM	Open	Modem	10/100			XP Pro		No	Jun 2002
2658-ADU	Pentium 4-M	1.6	128MB	14.1" XGA	20GB	CD-RW	Open	Modem	10/100	1394		XP Pro		No	Jun 2002
2658-AEU	Pentium 4-M	1.6	128MB	14.1" XGA	30GB	Combo	Wi-Fi[32]/modem	None	10/100	1394	Yes	XP Pro		No	Jun 2002
2658-AFU	Pentium 4-M	1.6	128MB	14.1" XGA	30GB	Combo	Open	Modem	10/100			XP Pro		No	Jun 2002
2658-CZU	Pentium 4-M	1.8	256MB	14.1" XGA	40GB	Combo	Open	Modem	10/100	1394	Yes	XP Pro		No	Jun 2002
2658-AGU	Pentium 4-M	1.6	128MB	14.1" XGA	20GB	CD-ROM	Open	Modem	10/100			XP Pro	Office[18]	No	Jun 2002
2658-DAU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Wi-Fi/modem	None	10/100			XP Pro	Office	No	Jun 2002

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

Positioning	*Best blend of portability and essential features; two-spindle system*
TAA-compliant	**Trade Act Agreement-compilant**
Processor	**Mobile Intel**® **Pentium**® **4 Processor-M 1.6 or 1.8GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB** / on die (at processor speed) / ECC
Memory	**128** or **256MB** std / 1GB max[7] / **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[9] speed / bootable / removable from Ultrabay 2000
CD-RW	*Some:* CD-RW / 8X/4X/24X Max[9] / bootable /removable from Ultrabay 2000
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 8X/8X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**20GB**[8], **30GB**, or **40GB** / 4200 rpm / upgradeable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
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-SDRAM
Graphics - external	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[13], magnifying glass
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
Approximate weight[2]	with optical drive and battery: 5.9 to 6.2 lbs (2.6 to 2.7 kg) depending on model
Case material	Color: black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*Wireless models:* 3.0 hrs; *Others:* 3.1 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, 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 / no Zoomed Video
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394 (FireWire)	*Some:* IEEE 1394 (FireWire) port / 4-pin connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradeable[4,36]
Wi-Fi[32]/modem	*Some:* Mini PCI Wi-Fi[4] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Agere® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562ETchipset (physical layer)
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 (3.5 mm) / headphone jack (3.5 mm) / no line in jack
Security	Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCPA-compliant
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	2000 media and storage devices)	19K4480
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ThinkPad R32 Series Li-Ion Battery	02K7052
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	Ultrabay 2000 Li-Ion battery	02K6646
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ThinkPad 72W AC Adapter	02K6699
Travel Bezel for Ultrabay 2000	08K6070	ThinkPad 72W DC Auto Adapter	10K3820
Zip 250MB Ultrabay 2000 Drive	00N8253	Multiple Li-Ion/NiMH Battery Charger	02K6719
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm (4200 rpm)	08K9686
Ultralight 8X Max DVD Ultrabay 2000	22P9102	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
CD-RW/DVD Combo III Ultrabay 2000	22P6980	60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688
Second HDD Adapter for Ultrabay 2000	08K6068	IBM 128MB USB 2.0 Memory Key	22P8998
ThinkPad Removable Diskette Drive	08K9603	TrackPoint Cap Collection	73P2698
ThinkPad Monitor Stand 2001	22P5265	IBM USB 2.0 Portable CD-RW	22P5297
IBM 802.11a PC Card	22P7501	IBM USB 2.0 PC Card	33L3245
		Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
✧ Disk-to-Disk Recovery (in hidden Service Partition)

Windows 2000 models
- Microsoft Windows 2000 Professional[20]
- ConfigSafe®
✧ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(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
• Veritas RecordNOW (CD-RW mod)
• IBM Update Connector™,[15]

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

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

Office XP Small Business model only (2658-AGU/DAU)
- Microsoft Office XP Small Business[28] (Word, Excel, Outlook, Publisher, Small Business Tools)
✧ Office XP Small Business CD

Universal 72 watt AC adapter
Asset ID (system-specific info in chip accessed over network)
PC 2001-compliant
ACPI 1.0b and 2.0-compliant
CIM and DMI 2.0-compliant
PXE 2.0-compliant
IBM ImageUltra Services available
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
Personalized Web-based support[31]
Proactive e-mail updates[31]
24x7[18] toll-free support for warranty-related issues during the warranty period[12]

ServicePac®, [22] 1yr IOR 9x5 NBD 30L9188
ServicePac 2yr IOR 9x5 NBD 30L9189
ServicePac 3yr IOR 9x5 NBD 30L9195
ServicePac 2yr P&L P/U Depot 30L9191
ServicePac 3yr P&L P/U Depot 30L9192

See footnotes for important warranty information
US models announced June 4, 2002
US models withdrawn effective January 2003

IBM® ThinkPad® R32 - withdrawn

Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Small business or software	Workhorse (W) or Global (G) model	Avail date
2658-A5U	Pentium® 4-M	1.6	128MB	14.1" XGA	20GB	CD-ROM	Open	Modem	10/100			XP Pro			Jun 2002
2658-A6U	Pentium 4-M	1.6	128MB	14.1" XGA	20GB	CD-RW	Open	Modem	10/100	1394		XP Pro			Jun 2002
2658-A7U	Pentium 4-M	1.6	128MB	14.1" XGA	30GB	Combo	11b Wi-Fi[32]/mod	None	10/100	1394	Yes	XP Pro			Jun 2002
2658-A8U	Pentium 4-M	1.6	128MB	14.1" XGA	30GB	Combo	Open	Modem	10/100			XP Pro			Jun 2002
2658-CSU	Pentium 4-M	1.8	256MB	14.1" XGA	40GB	Combo	Open	Modem	10/100	1394	Yes	XP Pro			Jun 2002
2658-A9U	Pentium 4-M	1.6	128MB	14.1" XGA	20GB	CD-ROM	Open	Modem	10/100			XP Pro	Office[18]		Jun 2002
2658-BKU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open	Modem	10/100			XP Pro	Office		Jun 2002
2658-BPU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open	Modem	10/100			XP Pro		W G	Jun 2002
2658-BQU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	11b Wi-Fi/mod	None	10/100		Yes	XP Pro		W G	Jun 2002
2658-CFU	Pentium 4-M	1.8	256MB	14.1" XGA	30GB	DVD	Open	Modem	10/100			XP Pro		W G	Jun 2002
2658-CGU	Pentium 4-M	1.8	256MB	14.1" XGA	30GB	DVD	11b Wi-Fi/mod	None	10/100		Yes	XP Pro		W G	Jun 2002
2658-BMU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open	Modem	10/100			2000		W G	Jun 2002
2658-BNU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	11b Wi-Fi/mod	None	10/100		Yes	2000		W G	Jun 2002

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Pentium® 4 Processor-M 1.6 or 1.8GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB** / on die (at processor speed) / ECC
Memory	**128** or **256MB** std / 1GB max[7] / **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[9] speed / bootable / removable from Ultrabay 2000
CD-RW	*Some:* CD-RW / 8X/4X/24X Max[9] / bootable /removable from Ultrabay 2000
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 8X/8X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**20GB**[8], **30GB,** or **40GB** / 4200 rpm / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
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-SDRAM
Graphics - external	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[13], magnifying glass
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
Approximate weight[2]	with optical drive and battery: 5.9 to 6.2 lbs (2.6 to 2.7 kg) depending on model
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*Wireless models:* 3.0 hrs; *Others:* 3.1 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, 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
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394 (FireWire)	*Some:* IEEE 1394 (FireWire) port / 4-pin connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable[4,36]
11b Wi-Fi[32]/mod	*Some:* Mini PCI 11b Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Agere® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562ET chipset (physical layer)
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 (3.5 mm) / headphone jack (3.5 mm) / no line in jack
Security	Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCPA-compliant
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden Service Partition)

Windows 2000 models
- Microsoft Windows 2000 Professional[20]
- ConfigSafe®
- ✧ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] (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-RW mod)
- IBM Update Connector™,[15]

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[28] (Word, Excel, Outlook, Publisher, Small Business Tools)
- ✧ Office XP Small Business CD

Universal 72 watt AC adapter
Asset ID (system-specific info in chip accessed over network)
PC 2001-compliant
ACPI 1.0b and 2.0-compliant
CIM and DMI 2.0-compliant
PXE 2.0-compliant
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
Personalized Web-based support[31]
Proactive e-mail updates[31]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD — 30L9188
ServicePac 2yr IOR 9x5 NBD — 30L9189
ServicePac 3yr IOR 9x5 NBD — 30L9195
ServicePac 2yr P&L P/U Depot — 30L9191
ServicePac 3yr P&L P/U Depot — 30L9192

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)	19K4480
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032		
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ThinkPad R32/R40 Li-Ion Battery	02K7052
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	Ultrabay 2000 Li-Ion battery	02K6646
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ThinkPad 72W AC Adapter	02K6699
Travel Bezel for Ultrabay 2000	08K6070	ThinkPad 72W DC Auto Adapter	10K3820
Zip 250MB Ultrabay 2000 Drive	00N8253	Multiple Li-Ion/NiMH Battery Charger	02K6719
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm	08K6986
Ultralight 8X Max DVD Ultrabay 2000	22P9102	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
CD-RW/DVD Combo III Ultrabay 2000	22P6980	60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688
Second HDD Adapter for Ultrabay 2000	08K6068	TrackPoint Cap Collection	73P2698
ThinkPad Removable Diskette Drive	08K9603	Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information
US models announced June 4, 2002
US models withdrawn effective January 2003 or April 2003

IBM® ThinkPad® R32 (2659) - withdrawn

Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Limited Warranty	Workhorse (W) or Global (G) model	Avail date
2659-BPU	Pentium® 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open	Modem	10/100	No		XP Pro	3 yr	W G	Jun 2002
2659-BQU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	11b Wi-Fi[32]/mod	None	10/100	No	Yes	XP Pro	3 yr	W G	Jun 2002
2659-CFU	Pentium 4-M	1.8	256MB	14.1" XGA	30GB	DVD	Open	Modem	10/100	No		XP Pro	3 yr	W G	Jun 2002
2659-CGU	Pentium 4-M	1.8	256MB	14.1" XGA	30GB	DVD	11b Wi-Fi/mod	None	10/100	No	Yes	XP Pro	3 yr	W G	Jun 2002
2659-BMU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open	Modem	10/100	No		2000	3 yr	W G	Jun 2002
2659-BNU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	11b Wi-Fi/mod	None	10/100	No	Yes	2000	3 yr	W G	Jun 2002

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

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Pentium® 4 Processor-M 1.6 or 1.8GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB** / on die (at processor speed) / ECC
Memory	**128** or **256MB** std / 1GB max[7] / **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
DVD	DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**20GB**[8] or **30GB** / 4200 rpm / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
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-SDRAM
Graphics - external	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[13], magnifying glass
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
Approximate weight[2]	with optical drive and battery: 5.9 lbs (2.6kg)
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*Wireless models:* 3.0 hrs; *Others:* 3.1 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip (some); PC87392 Super I/O for diskette, 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
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	None
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable[4,36]
11b Wi-Fi[32]/mod	*Some:* Mini PCI 11b Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Agere® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562ET chipset (physical layer)
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 (3.5 mm) / headphone jack (3.5 mm) / no line in jack
Security	Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCPA-compliant
Limited warranty[12]	**3 years**/1 year battery - EasyServ™,[19] onsite pickup and delivery
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
✧ Disk-to-Disk Recovery (in hidden Service Partition)

Windows 2000 models
- Microsoft Windows 2000 Professional[20]
- ConfigSafe®
✧ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] (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
- Veritas RecordNOW (CD-RW mod)
- IBM Update Connector™,[15]

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

Universal 72 watt AC adapter
Asset ID (system-specific info in chip accessed over network)
PC 2001-compliant
ACPI 1.0b and 2.0-compliant
CIM and DMI 2.0-compliant
PXE 2.0-compliant
IBM ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
Personalized Web-based support[31]
Proactive e-mail updates[31]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 2yr IOR 9x5 NBD
30L9190
ServicePac 3yr IOR 9x5 NBD
30L9197

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667	
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)	19K4480	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad R32/R40 Li-Ion Battery	02K7052	
IBM ThinkPad Ultrabay Plus Carrier	22P5737	Ultrabay 2000 Li-Ion battery	02K6646	
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	ThinkPad 72W AC Adapter	02K6699	
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ThinkPad 72W DC Auto Adapter	10K3820	
Travel Bezel for Ultrabay 2000	08K6070	Multiple Li-Ion/NiMH Battery Charger	02K6719	
Zip 250MB Ultrabay 2000 Drive	00N8253	20GB Hard Disk 9.5mm (4200 rpm)	08K9686	
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	
Ultralight 8X Max DVD Ultrabay 2000	22P9102	60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688	
CD-RW/DVD Combo III Ultrabay 2000	22P6980	IBM 128MB USB 2.0 Memory Key	22P8998	
Second HDD Adapter for Ultrabay 2000	08K6068	TrackPoint Cap Collection	73P2698	
ThinkPad Removable Diskette Drive	08K9603	Other options at **ibm.com**/pc/us/accessories		

See footnotes for important warranty information
US models announced June 4, 2002
US models withdrawn effective January 2003 or April 2003

Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Limited or Global (G) Warranty	Workhorse (W) model	Avail date
2659-DPU	Pentium® 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open	Modem	10/100	No		XP Pro	3 yr	W	Jun 2002
2659-DQU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	11b Wi-Fi[32]/mod	None	10/100	No	Yes	XP Pro	3 yr	W	Jun 2002
2659-EFU	Pentium 4-M	1.8	256MB	14.1" XGA	30GB	DVD	Open	Modem	10/100	No		XP Pro	3 yr	W	Jun 2002
2659-EGU	Pentium 4-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 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open	Modem	10/100	No		2000	3 yr	W	Jun 2002
2659-DNU	Pentium 4-M	1.6	256MB	14.1" XGA	20GB	DVD	11b Wi-Fi/mod	None	10/100	No	Yes	2000	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	*Best blend of portability and essential features; two-spindle system*
TAA-compliant	**Trade Act Agreement-compliant**
Processor	**Mobile Intel® Pentium® 4 Processor-M 1.6 or 1.8GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB** / on die (at processor speed) / ECC
Memory	**128** or **256MB** std / 1GB max[7] / **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
DVD	DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**20GB**[8] or **30GB** / 4200 rpm / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
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-SDRAM
Graphics - external	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[13], magnifying glass
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
Approximate weight[2]	with optical drive and battery: 5.9 lbs (2.6kg) depending on model
Case material	*Color:* black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*Wireless:* 3.0 hrs; *Others:* 3.1 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip (some); PC87392 Super I/O for diskette, 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
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	None
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable[4,36]
11b Wi-Fi[32]/mod	*Some:* Mini PCI 11b Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Agere® chipset
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562ET chipset (physical layer)
Audio support	Soft audio / ICH AC97 controller / SoundBlaster Pro™-compatible / AD1881A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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 *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCPA-compliant
Limited warranty[12]	**3 years**/1year battery - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	2000 media and storage devices)	19K4480
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ThinkPad R32/R40 Li-Ion Battery	02K7052
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	Ultrabay 2000 Li-Ion battery	02K6646
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ThinkPad 72W AC Adapter	02K6699
Travel Bezel for Ultrabay 2000	08K6070	ThinkPad 72W DC Auto Adapter	10K3820
Zip 250MB Ultrabay 2000 Drive	00N8253	Multiple Li-Ion/NiMH Battery Charger	02K6719
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm (4200 rpm)	08K9686
Ultralight 8X Max DVD Ultrabay 2000	22P9102	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
CD-RW/DVD Combo III Ultrabay 2000	22P6980	60GB HS Hard Disk 12.5mm (5400 rpm)	08K9688
Second HDD Adapter for Ultrabay 2000	08K6068	IBM 128MB USB 2.0 Memory Key	22P8998
ThinkPad Removable Diskette Drive	08K9603	TrackPoint Cap Collection	73P2698
ThinkPad Monitor Stand 2001	22P5265	IBM USB 2.0 Portable CD-RW	22P5297
IBM 802.11a PC Card	22P7501	IBM USB 2.0 PC Card	33L3245
		Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information
US models announced June 4, 2002
US models withdrawn effective January 2003 or April 2003

(R323TAA) © IBM Corp. March 2003

IBM® ThinkPad® R32 (July 2002) - withdrawn

Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	Security Chip	Preload	Workhorse (W) Limited or Global (G) warranty	model	Avail date
2658-BZU	Pentium® 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open (wireless upg[36])	Modem	10/100		XP Pro	1 year	W G	Jul 2002
2658-CHU	Pentium 4-M	1.8	256MB	14.1" XGA	30GB	DVD	Cisco 802.11b	Modem	10/100	Yes	XP Pro	1 year	W	Jul 2002

Positioning	*Best blend of portability and essential features; two-spindle system*	**SOFTWARE**[14]
Processor	**Mobile Intel® Pentium® 4 Processor-M 1.6 or 1.8GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus	**Windows XP Pro models**
L2 cache	**512KB** / on die (at processor speed) / ECC	- Microsoft® Windows® XP Professional[20]
Memory	**256MB** std / 1GB max[7] / **PC2100** 266MHz DDR-SDRAM / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available	✧ Disk-to-Disk Recovery (in hidden Service Partition)
Diskette drive	None standard / use optional Ultrabay™-based or USB-based diskette drive	**INCLUDED SOFTWARE**[14] **(all)**
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000	**Preloaded**
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible	• Access ThinkPad
Disk	**20GB**[8] or **30GB** / 4200 rpm / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000	- Access Connections - Access Help - Access Support
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)	• Adobe Acrobat Reader • InterVideo WinDVD (DVD models)
Graphics controller	**ATI® Mobility™ RADEON™ 7000 / AGP 4X / 16MB** DDR-SDRAM	• Norton AntiVirus (OEM edition)
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B	• PC-Doctor™ • ThinkPad Utilities
Keyboard	87-key / ThinkPad Button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)	• IBM Update Connector™,[15]
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass	**Downloadable**
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™	• IBM Rapid Restore™ PC
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm	• IBM Data Transfer • IBM Director Agent
Approximate weight[2]	with optical drive and battery: 5.9 lbs (2.7 kg)	• Client Security Software (models with security chip)
Case material	*Color:* Black; *All:* ABS plastic	**License** (CD not included)
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000	- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client
Battery - life[10]	*Wireless CHU model:* 3.0 hrs; *BZU:* 3.1 hrs	
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, 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	
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port	

Video out	S-video out port (TV out) / one industry standard connector	**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
IEEE 1394	None	
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable	
802.11b	*CHU:* Mini PCI 802.11b wireless[4], Cisco® Aironet® Wireless 802.11b, Prism 2.0 chipset, dual antennas (in side of display and in base), Wi-Fi-certified	
Wireless up-gradable	*BZU:* Dual antennas (in side of display and in base) for wireless connectivity / IBM intends to announce Mini PCI Wi-Fi wireless communication options	
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible	
Modem	*All:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset	Universal 72 watt AC adapter
Ethernet	10/100 ethernet on motherboard / Intel 82562ET chipset (physical layer)	Asset ID (system-specific info in chip accessed over network)
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 (3.5 mm) / headphone jack (3.5 mm) / no line in jack	PC 2001-compliant ACPI 1.0b and 2.0-compliant CIM and DMI 2.0-compliant PXE 2.0-compliant
Security	*All:* Power-on password / hard disk password / supervisor password / security keyhole	IBM ImageUltra™ Services available
	CHU: **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCPA-compliant	IBM Rapid Restore PC available to protect software image and data International Warranty Service[17]
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery	24 hour x 7 day[18] toll-free hardware support during the warranty[12]
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)	

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	2000 media and storage devices)	19K4480
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ThinkPad R32/R40 Li-Ion Battery	02K7052
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	Ultrabay 2000 Li-Ion battery	02K6646
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ThinkPad 72W AC Adapter	02K6699
Travel Bezel for Ultrabay 2000	08K6070	ThinkPad 72W DC Auto Adapter	10K3820
Zip 250MB Ultrabay 2000 Drive	00N8253	Multiple Li-Ion/NiMH Battery Charger	02K6719
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm (4200 rpm)	08K9686
Ultralight 8X Max DVD Ultrabay 2000	22P9102	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
CD-RW/DVD Combo III Ultrabay 2000	22P6980	Optical 3-Button Travel Wheel Mouse	08K9869
Second HDD Adapter for Ultrabay 2000	08K6068	IBM 128MB USB 2.0 Memory Key	22P8998
ThinkPad Removable Diskette Drive	08K9603	TrackPoint Cap Collection	73P2698
IBM High Rate Wireless LAN Mini PCI	22P7701	IBM USB 2.0 Portable CD-RW Drive	22P5297
Cisco Aironet Wireless 802.11b Mini PCI	31P8301	IBM 1GB Microdrive™ with PC Card	07N5574
IBM High Rate Wireless LAN PC Card 128	09N9904	Other options at **ibm.com**/pc/us/accessories	

ServicePac®,[22] 1yr IOR 9x5 NBD	30L9188
ServicePac 2yr IOR 9x5 NBD	30L9189
ServicePac 3yr IOR 9x5 NBD	30L9195
ServicePac 4yr IOR 9x5 NBD	69P9194
ServicePac 5yr IOR 9x5 NBD	69P9196
ServicePac 2yr P&L P/U Depot	30L9191
ServicePac 3yr P&L P/U Depot	30L9192
ServicePac 4yr P&L P/U Depot	69P9195
ServicePac 5yr P&L P/U Depot	69P9197

See footnotes for important warranty information
US models announced July 16, 2002
US models withdrawn effective April or July 2003

Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	Security Chip	Preload	Limited warranty	Workhorse (W) or Global (G) model	Avail date
2659-BZU	Pentium® 4-M	1.6	256MB	14.1" XGA	20GB	DVD	Open (wireless upg[36])	Modem	10/100		XP Pro	3 years	W G	Jul 2002
2659-CHU	Pentium 4-M	1.8	256MB	14.1" XGA	30GB	DVD	Cisco 802.11b	Modem	10/100	Yes	XP Pro	3 years	W	Jul 2002

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

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Pentium® 4 Processor-M 1.6 or 1.8GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB** / on die (at processor speed) / ECC
Memory	**256MB** std / 1GB max[7] / **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
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**20GB**[8] or **30GB** / 4200 rpm / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
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 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
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[13], magnifying glass
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
Approximate weight[2]	with optical drive and battery: 5.9 lbs (2.7 kg)
Case material	*Color:* Black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*Wireless CHU model:* 3.0 hrs; *BZU:* 3.1 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, 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
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	None
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
802.11b	*CHU:* Mini PCI 802.11b wireless[4], Cisco® Aironet® Wireless 802.11b, Prism 2.0 chipset, dual antennas (in side of display and in base), Wi-Fi-certified
Wireless upgradable	*BZU:* Dual antennas (in side of display and in base) for wireless connectivity / IBM intends to announce Mini PCI Wi-Fi wireless communication options
CDC	One Communications Daughter Card (CDC) socket (open or empty) / not accessible
Modem	*All:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562ET chipset (physical layer)
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 (3.5 mm) / headphone jack (3.5 mm) / no line in jack
Security	*All:* Power-on password / hard disk password / supervisor password / security keyhole
	CHU: **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCPA-compliant
Limited warranty[12]	**3 years**/1 year battery - EasyServ™,[19] onsite pickup and delivery
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	2000 media and storage devices)	19K4480
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ThinkPad R32/R40 Li-Ion Battery	02K7052
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	Ultrabay 2000 Li-Ion battery	02K6646
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ThinkPad 72W AC Adapter	02K6699
Travel Bezel for Ultrabay 2000	08K6070	ThinkPad 72W DC Auto Adapter	10K3820
Zip 250MB Ultrabay 2000 Drive	00N8253	Multiple Li-Ion/NiMH Battery Charger	02K6719
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk 9.5mm (4200 rpm)	08K9686
Ultralight 8X Max DVD Ultrabay 2000	22P9102	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
CD-RW/DVD Combo III Ultrabay 2000	22P6980	Optical 3-Button Travel Wheel Mouse	31P7410
Second HDD Adapter for Ultrabay 2000	08K6068	IBM 128MB USB 2.0 Memory Key	22P8998
ThinkPad Removable Diskette Drive	08K9603	TrackPoint Cap Collection	73P2698
IBM High Rate Wireless LAN Mini PCI	22P7701	IBM USB 2.0 Portable CD-RW Drive	22P5297
Cisco Aironet Wireless 802.11b Mini PCI	31P8301	IBM 1GB Microdrive™ with PC Card	07N5574
IBM High Rate Wireless LAN PC Card 128	09N9904	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(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™,[15]

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

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
Asset ID (system-specific info in chip accessed over network)
PC 2001-compliant
ACPI 1.0b and 2.0-compliant
CIM and DMI 2.0-compliant
PXE 2.0-compliant
IBM ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 2yr IOR 9x5 NBD
30L9190
ServicePac 3yr IOR 9x5 NBD
30L9197
ServicePac 4yr IOR 9x5 NBD
69P9198
ServicePac 5yr IOR 9x5 NBD
69P9200
ServicePac 4yr P&L P/U Depot
69P9199
ServicePac 5yr P&L P/U Depot
69P9201

See footnotes for important warranty information
US models announced July 16, 2002
US models withdrawn effective April or July 2003

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Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Small business or software	Workhorse (W) or Global (G) model	Avail date
2658-H3U	Celeron®	1.5	128MB	14.1" XGA	20G	CD	Open	Modem	10/100			XP Pro			Sep 2002
2658-J3U	Pentium® 4-M	1.8	256MB	14.1" XGA	20G	DVD	Open; wireless upg[36]	Modem	10/100			XP Pro		W G	Sep 2002
2658-N3U	Pentium 4-M	2.0	256MB	14.1" XGA	30G	DVD	Open; wireless upg[36]	Modem	10/100			XP Pro		W G	Sep 2002
2658-N4U	Pentium 4-M	2.0	256MB	14.1" XGA	30G	DVD	11b Wi-Fi[32]/modem	Open	10/100		Yes	XP Pro		W G	Sep 2002
2658-N5U	Pentium 4-M	2.0	256MB	14.1" XGA	30G	DVD	Cisco® 802.11b	Modem	10/100		Yes	XP Pro		W	Sep 2002
2658-K7U	Pentium 4-M	1.7	128MB	14.1" XGA	20G	DVD	Open	Modem	10/100	1394		XP Pro			Sep 2002
2658-KAU	Pentium 4-M	1.7	128MB	14.1" XGA	20G	CD	Open	Modem	10/100			XP Pro			Sep 2002
2658-KGU	Pentium 4-M	1.7	128MB	14.1" XGA	30G	Combo	Open	Modem	10/100			XP Pro			Sep 2002
2658-KHU	Pentium 4-M	1.7	128MB	14.1" XGA	30G	Combo	11b Wi-Fi/modem	None	10/100	1394	Yes	XP Pro			Sep 2002
2658-KJU	Pentium 4-M	1.7	128MB	14.1" XGA	40G	Combo	Open	Modem	10/100	1394		XP Pro			Sep 2002
2658-LSU	Pentium 4-M	1.7	256MB	14.1" XGA	40G	Combo	Open	Modem	10/100	1394		XP Pro			Sep 2002
2658-NWU	Pentium 4-M	2.0	256MB	14.1" XGA	40G	Combo	Open	Modem	10/100	1394	Yes	XP Pro			Sep 2002
2658-K4U	Pentium 4-M	1.7	128MB	14.1" XGA	20G	CD	Open	Modem	10/100			XP Home			Sep 2002
2658-K8U	Pentium 4-M	1.7	128MB	14.1" XGA	20G	DVD	11b Wi-Fi/modem	None	10/100			XP Pro	Office XP SB[18]		Sep 2002
2658-KCU	Pentium 4-M	1.7	128MB	14.1" XGA	20G	CD	Open	Modem	10/100			XP Pro	Office XP SB		Sep 2002
2658-LHU	Pentium 4-M	1.7	256MB	14.1" XGA	20G	DVD	Open	Modem	10/100			XP Pro	Office XP SB		Sep 2002

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 4 Processor-M 1.7, 1.8, or 2.0GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	*Celeron:* **256KB**; *Pentium 4-M:* **512KB**; *All:* on die (at processor speed) / ECC
Memory	**128** or **256MB** std / 1GB max[7] / **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	*Some:* CD-ROM / 24X-10X[9] speed / bootable / removable from Ultrabay 2000
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 8X/8X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible
Disk	**20GB**[8], **30GB**, or **40GB** / 4200 rpm / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
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 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
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[13], magnifying glass
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
Approximate weight[2]	with optical drive and battery: 5.9 to 6.2 lbs (2.6 to 2.7 kg) depending on model
Case material	*Color:* Black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*Celeron model:* 3.1 hrs; *wireless models:* 3.2 hrs; *Pentium 4 non-wireless:* 3.3 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, 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
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394 (FireWire)	*Some:* IEEE 1394 (FireWire) port / 4-pin connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradeable
11b Wi-Fi[32]/mod	*Some:* Mini PCI 11b Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Agere® chipset
802.11b	*N5U:* Mini PCI 802.11b wireless[4], Cisco® Aironet® Wireless 802.11b with custom chipset, dual antennas (in side of display and in base), Wi-Fi-certified
Wireless upg[36]	*Some:* Dual antennas (in display and in base) for wireless connectivity Mini PCI options
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562ET chipset (physical layer)
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 (3.5 mm) / headphone jack (3.5 mm) / no line in jack
Security	Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
◇ Disk-to-Disk Recovery (in hidden Service Partition)

Windows XP Home models
- Microsoft Windows XP Home[20]
◇ Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] **(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 RecordNOW and DLA by Veritas (combo models)
• IBM Update Connector™,[15]
• IBM Rapid Restore™ PC

Downloadable
• IBM Director Agent
• Software Delivery Assistant
• System Migration Assistant
• 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-K8U/KCU/LHU)
- Microsoft Office XP Small Business[28] (Word, Excel, Outlook, Publisher, Small Business Tools)
◇ Office XP Small Business CD

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 Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®, [22] 1yr IOR 9x5 NBD
                           30L9188
ServicePac 3yr P&L P/U Depot
                           30L9192
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay 2000 media and storage devices)	19K4480
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032		
Ultralight 8X Max DVD Ultrabay 2000	22P9102	ThinkPad R32/R40 Li-Ion Battery	02K7052
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	Ultrabay 2000 Li-Ion battery	02K6646
Second HDD Adapter for Ultrabay 2000	08K6068	ThinkPad 72W AC Adapter	02K6699
ThinkPad Removable Diskette Drive	08K9603	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
Other options at **ibm.com**/pc/us/accessories		IBM 11a/b/g Wireless CardBus Adapter	31P9101

See footnotes for important warranty information
US models announced Septermber 17, 2002
US models withdrawn effective April, July, or October 2003

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Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless/modem	CDC modem	Ethernet on planar	Security Chip	Preload	Workhorse (W) Limited or Global (G) warranty	model	Avail date
2659-J3U	Pentium 4-M	1.8	256MB	14.1" XGA	20GB	DVD	Open (wireless upg[36])	Modem	10/100		XP Pro	3 years	W G	Sep 2002
2659-N3U	Pentium 4-M	2.0	256MB	14.1" XGA	30GB	DVD	Open (wireless upg[36])	Modem	10/100		XP Pro	3 years	W G	Sep 2002
2659-N4U	Pentium 4-M	2.0	256MB	14.1" XGA	30GB	DVD	11b Wi-Fi[32]/modem	None	10/100	Yes	XP Pro	3 years	W G	Sep 2002
2659-N5U	Pentium 4-M	2.0	256MB	14.1" XGA	30GB	DVD	Cisco® 802.11b	Modem	10/100	Yes	XP Pro	3 years	W	Sep 2002

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

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Pentium® 4 Processor-M 1.8 or 2.0GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB** / on die (at processor speed) / ECC
Memory	**256MB** std / 1GB max[7] / **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
DVD	DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices (right side) / **Ultrabay Plus**-compatible
Disk	**20GB**[8] or **30GB** / 4200 rpm / upgradable / S.M.A.R.T. / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
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 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
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[13], magnifying glass
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions / no UltraPort™
Dimensions[3]	12.3" x 10.0" x 1.5"; 313mm x 254mm x 38mm
Approximate weight[2]	with optical drive and battery: 6.0 lbs (2.7 kg)
Case material	*Color:* Black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*Wireless N4U/N5U:* 3.2 hrs; *non-wireless J3U/N3U:* 3.3 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801CAM ICH3-M 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 (TI® PCI1410A CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, 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
Ports	Two USB (Version 1.1) / parallel / external monitor (DB-15) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	None
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
11b Wi-Fi[32]/mod	*N4U:* Mini PCI 11b Wi-Fi[32] wireless[4], Intersil® Prism 2.5 chipset, dual antennas (in side of display and in base), Wi-Fi-certified / 56K[6] V.90 (V.92-designed[29]) modem combo, Agere® chipset
802.11b	*N5U:* Mini PCI 802.11b wireless[4], Cisco® Aironet® Wireless 802.11b, Prism 2.0 chipset, dual antennas (in side of display and in base), Wi-Fi-certified
Wireless upg[36]	*Some:* Dual antennas (in display and in base) for wireless connectivity Mini PCI options
CDC	One Communications Daughter Card (CDC) socket (open or modem) / not accessible
Modem	*Some:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562ET chipset (physical layer)
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 (3.5 mm) / headphone jack (3.5 mm) / no line in jack
Security	*All:* Power-on password / hard disk password / supervisor password / security keyhole *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**3 years**/1 year battery - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧Disk-to-Disk Recovery (in hidden Service Partition)

INCLUDED SOFTWARE[14] (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™,[15]
- IBM Rapid Restore™ PC

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

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

Universal 72 watt AC adapter
Asset ID (system-specific info in chip accessed over network)
PC 2001-compliant
ACPI 1.0b and 2.0-compliant
CIM and DMI 2.0-compliant
PXE 2.0-compliant
IBM ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 2yr IOR 9x5 NBD
         30L9190
ServicePac 3yr IOR 9x5 NBD
         30L9197
ServicePac 4yr IOR 9x5 NBD
         69P9198
ServicePac 5yr IOR 9x5 NBD
         69P9200
ServicePac 4yr P&L P/U Depot
         69P9199
ServicePac 5yr P&L P/U Depot
         69P9201

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator	02K8667
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Portable Drive Bay 2000 (accepts Ultrabay	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	2000 media and storage devices)	19K4480
IBM ThinkPad Ultrabay Plus Carrier	22P5737	ThinkPad R32/R40 Li-Ion Battery	02K7052
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	Ultrabay 2000 Li-Ion battery	02K6646
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	ThinkPad 72W AC Adapter	02K6699
Travel Bezel for Ultrabay 2000	08K6070	ThinkPad 72W AC/DC Combo Adapter	22P9010
Zip 250MB Ultrabay 2000 Drive	00N8253	Multiple Li-Ion/NiMH Battery Charger	02K6719
24X-10X[9] CD-ROM Ultrabay 2000 Drive	05K9233	20GB Hard Disk Drive	08K9686
Ultralight 8X[9] Max DVD Ultrabay 2000	22P9102	40GB Hard Disk Drive	08K9687
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	40GB HS Hard Disk Drive (5400 rpm)	08K9816
Second HDD Adapter for Ultrabay 2000	08K6068	Optical 3-Button Travel Wheel Mouse	31P7410
ThinkPad Removable Diskette Drive	08K9603	IBM 128MB USB 2.0 Memory Key	22P8998
IBM High Rate Wireless LAN PC Card 128	09N9904	TrackPoint Cap Collection	73P2698
IBM High Rate Wireless LAN Mini PCI	22P7701	IBM USB 2.0 Portable CD-RW Drive	22P5297
Cisco Aironet Wireless 802.11b Mini PCI	31P8301	ThinkPad USB 2.0 PC CardBus Adpter	33L3245
IBM 11a/b/g Wireless CardBus Adapter	31P9101	Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information
US models announced September 17, 2002
US models withdrawn effective July or October 2003

(R323S) © IBM Corp. October 2003

Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	Security chip	Preload	Workhorse (W) or Global (G) or Entry (E)	Avail date
2684-H6U	Celeron®	2.0	128MB	14.1" XGA	20GB	CD	None	Modem	10/100	No	Windows XP Pro	No	Oct 2003
2684-H8U	Celeron	2.0	128MB	14.1" XGA	20GB	CD	None	Modem	10/100	No	Windows XP Home	Entry	Oct 2003
2684-H4U	Celeron	2.0	128MB	14.1" XGA	30GB	Combo	None	Modem	10/100	No	Windows XP Home	No	Oct 2003

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Mobile Intel**® **Celeron 2.0GHz** with 400MHz system bus
L2 cache	**256KB** / on die (at processor speed) / ECC
Memory	**128MB** std / 1GB max[7] / **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 USB-based diskette drive
CD	*Some:* CD-ROM / 24X-10X[9] speed / fixed, not removable
Combo	*Some:* Combo / 24X/10X/24X/8X[21] speed / fixed, not removable
Ultrabay™ 2000	None
Disk	**20** or **30GB**[8], 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 9.5mm high bay
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 controller	**ATI**® **RADEON**™ **IGP 330M** / integrated in northbridge / 16MB DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass / soft dome TrackPoint cap / ships with classic dome and soft rim TrackPoint cap
Touch pad	No UltraNav™ multi-pointing system
ThinkLight™	None
Dimensions[3]	12.3 x 10.0 x 1.53" / 313mm x 254mm x 38.9mm
Approximate weight[2]	with optical drive and battery: *H6U/H8U:* 5.9 lb (2.67kg); *H4U:* 6.0 lb (2.72kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent
Battery - life[10]	Up to 2.1 hrs
Architecture	**ATI RADEON IGP 330M chipset** / **IGP 330M** northbridge (memory controller, graphics controller, PCI bus) / **ALi**® **M1535+** southbridge (ATA-100 EIDE, Low Pin Count [LPC] interface, USB, parallel, audio) / PCI 2.1, 32-bit 33MHz (TI® PCI1510 CardBus controller) / 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 II or one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door
Ports	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
Video out	None
IEEE 1394	None
Wireless antenna	None / can upgrade to wireless via optional PC Cards
Mini PCI	No Mini PCI slot (Communications Bay)
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on planar / Broadcom® BCM5901 (PHY/MAC) / PXE / Wake on LAN®
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1981B AC97 codec / mono speakers / 1 watt / volume up, down, mute buttons / internal mic / microphone input jack (3.5 mm; mono) / headphone jack (3.5 mm; stereo) / no line-in jack
Security	Power-on password / hard disk password / supervisor password / security keyhole
Security chip	None
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery courier service
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

SOFTWARE[14]

Windows XP Home models
- Microsoft® Windows® XP Home Edition[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Windows XP Pro models
- Microsoft Windows XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded (all)
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore™ PC
- IBM RecordNOW and DLA by Veritas® (combo model)
- InterVideo WinDVD (combo model)
- Norton® AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

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[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®, [22] 1yr IOR 9x5 NBD
    30L9188
ServicePac 2 yr IOR 9x5 NBD
    30L9189
ServicePac 3 yr IOR 9x5 NBD
    30L9195
ServicePac 4 yr IOR 9x5 NBD
    30L9194
ServicePac 5 yr IOR 9x5 NBD
    30L9196
ServicePac 2 yr P&L P/U Depot
    30L9191
ServicePac 3 yr P&L P/U Depot
    30L9192
ServicePac 4 yr P&L P/U Depot
    69P9195
ServicePac 5 yr P&L P/U Depot
    69P9197
Other ServicePac options at
    ibm.com/services/its/us/source/ wamomxeu.pdf
Post-warranty annual maintenance agreements at
    ibm.com/services/its/us/source/ maspspleu.pdf

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad R40e Li-Ion Battery (6-cell)	08K8218
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Multiple Multiple Battery Charger II	22P9040
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad 72W AC Adapter	02K6699
30GB Hard Disk 9.5mm (4200 rpm)	09N4268	ThinkPad 72W AC/DC Combo Adapter	22P9010
40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	IBM USB Keyboard with UltraNav	31P8950
IBM 4GB Microdrive™ with PC Card	09N4280	ThinkPad Monitor Stand 2001	22P5265
IBM 128MB USB 2.0 Memory Key	22P9229	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM 256MB USB 2.0 Memory Key	22P9025	IBM H Rate Wireless LAN PC Card 128	09N9904
IBM USB Portable Diskette Drive	05K9276	IBM iLV200 Value Data/Video Projector	0038A03
IBM USB Portable CD-ROM	33L5151	IBM iLC300 Conference Room Projector	0039A03
IBM USB 2.0 Portable CD-RW Drive	22P5297	IBM Optical 3-Button Travel Wheel Mouse	31P7410
IBM USB Serial Parallel Adapter	22P5298	IBM Optical 3-Button ScrollPoint® Mouse	31P7405
GemPC400 Smart Card Reader/Writer	31P8901	Nylon Carrying Case	10K0207
IBM Turbo 16/4 Token-Ring PC Card 2	34L1401	Leather Carrying Case	10K0209
Ericsson® GC82 EDGE PC Card Wireless	58P8782	Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information
US models announced October 7, 2003
US models withdrawn effective April 2004

(R40EO) © IBM Corp. April 2004

Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	Security chip	Preload	Workhorse (W) or Global (G) or Entry (E)	Avail date
2684-KJU	Celeron®	2.2	128MB	14.1" XGA	20GB	CD	None	Modem	10/100	No	Windows XP Home	Entry	Apr 2004
2684-KAU	Celeron	2.2	256MB	14.1" XGA	30GB	Combo	None	Modem	10/100	No	Windows XP Pro	No	Apr 2004
2684-KNU	Celeron	2.2	256MB	14.1" XGA	20GB	CD	None	Modem	10/100	No	Windows XP Pro	No	Apr 2004

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Mobile Intel**® **Celeron 2.2GHz** with 400MHz system bus
L2 cache	**256KB** / on die (at processor speed) / ECC
Memory	**128MB** or **256MB** std / 1GB max[7] / **PC2100** 266MHz DDR1 / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket avail
Diskette drive	None standard / use optional USB-based diskette drive
CD	*Some:* CD-ROM / 24X-10X[9] speed / fixed, not removable
Combo	*Some:* Combo / 24X/10X/24X/8X[21] speed / fixed, not removable
Ultrabay™ 2000	None
Disk	**20** or **30GB**[8], 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 9.5mm high bay
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 controller	**ATI**® **RADEON**™ **IGP 330M** / integrated in northbridge / 16MB DDR1 (DDR-SDRAM)
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass / soft dome TrackPoint cap / ships with classic dome and soft rim TrackPoint cap
Touch pad	No UltraNav™ multi-pointing system
ThinkLight™	None
Dimensions[3]	12.3 x 10.0 x 1.53" / 313mm x 254mm x 38.9mm
Approximate weight[2]	with optical drive and battery: *KJU/KNU:* 5.9 lb (2.67kg); *KAU:* 6.0 lb (2.72kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent
Battery - life[10]	Up to 2.1 hrs
Architecture	**ATI RADEON IGP 330M chipset** / **IGP 330M** northbridge (memory controller, graphics controller, PCI bus) / **ALi**® **M1535+** southbridge (ATA-100 EIDE, Low Pin Count [LPC] interface, USB, parallel, audio) / PCI 2.1, 32-bit 33MHz (TI® PCI1510 CardBus controller) / 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 II or one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door
Ports	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
Video out	None
IEEE 1394	None
Wireless antenna	None / can upgrade to wireless via optional PC Cards
Mini PCI	No Mini PCI slot (Communications Bay)
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on planar / Broadcom® BCM5901 (PHY/MAC) / PXE / Wake on LAN®
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1981B AC97 codec / mono speakers / 1 watt / volume up, down, mute buttons / internal mic / microphone input jack (3.5 mm; mono) / headphone jack (3.5 mm; stereo) / no line-in jack
Security	Power-on password / hard disk password / supervisor password / security keyhole
Security chip	None
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery courier service
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

SOFTWARE[14]

Windows XP Home models
- Microsoft® Windows® XP Home Edition[20]
◇ Disk-to-Disk Recovery (in hidden protected area)

Windows XP Pro models
- Microsoft Windows XP Professional[20]
◇ Disk-to-Disk Recovery (in hidden protected area)

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™,[15]

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[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12]

ServicePac®, [22] 1yr IOR 9x5 NBD   30L9188
ServicePac 2 yr IOR 9x5 NBD   30L9189
ServicePac 3 yr IOR 9x5 NBD   30L9195
ServicePac 4 yr IOR 9x5 NBD   30L9194
ServicePac 5 yr IOR 9x5 NBD   30L9196
ServicePac 2 yr P&L P/U Depot   30L9191
ServicePac 3 yr P&L P/U Depot   30L9192
ServicePac 4 yr P&L P/U Depot   69P9195
ServicePac 5 yr P&L P/U Depot   69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/ wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/ maspspleu.pdf

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad R40e Li-Ion Battery (6-cell)	08K8218	
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Multiple Multiple Battery Charger II	22P9040	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad 72W AC Adapter	02K6699	
30GB Hard Disk 9.5mm (4200 rpm)	09N4268	ThinkPad 72W AC/DC Combo Adapter	22P9010	
40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	IBM USB Keyboard with UltraNav	31P8950	
IBM 4GB Microdrive™ with PC Card	09N4280	ThinkPad Monitor Stand 2001	22P5265	
IBM 128MB USB 2.0 Memory Key	22P9229	IBM 11a/b/g Wireless CardBus Adapter	31P9101	
IBM 256MB USB 2.0 Memory Key	22P9025	IBM M400 Projector	0037A04	
IBM USB Portable Diskette Drive	05K9276	IBM E400 Projector	0038A04	
IBM USB Portable CD-ROM	33L5151	IBM C400 Projector	0039A04	
IBM USB 2.0 Portable Combo Drive	22P9194	IBM Optical 3-Button Travel Wheel Mouse	31P7410	
IBM USB Serial Parallel Adapter	22P5298	IBM Optical 3-Button ScrollPoint® Mouse	31P7405	
GemPC400 Smart Card Reader/Writer	31P8901	Nylon Carrying Case	10K0207	
Kensington® Microsaver® Security Cable	73P2582	Leather Carrying Case	10K0209	
Ericsson® GC82 EDGE PC Card Wireless	58P8782	Other options at **ibm.com**/pc/us/accessories		

See footnotes for important warranty information
US models announced April 6, 2004
US models withdrawn effective October 2004

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Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	Security chip	Preload	Workhorse (W) or Global (G) or Entry (E)	Avail date
2684-4YU	Celeron®	1.7	128MB	14.1" XGA	20GB	CD	11b Wi-Fi[32]	Modem	10/100	No	Windows XP Pro	No	Mar 2003
2684-HYU	Celeron	2.0	128MB	14.1" XGA	20GB	CD	11b Wi-Fi	Modem	10/100	No	Windows XP Pro	No	Oct 2003

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.

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Mobile Intel® Celeron 1.7 or 2.0GHz** with 400MHz system bus
L2 cache	**256KB** / on die (at processor speed) / ECC
Memory	**128MB** std / 1GB max[7] / **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 USB-based diskette drive
CD	CD-ROM / 24X-10X[9] speed / fixed, not removable
Ultrabay™ 2000	None
Disk	**20GB**[8], 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 9.5mm high bay
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 controller	**ATI® RADEON™ IGP 330M** / integrated in northbridge / 16MB DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass / soft dome TrackPoint cap / ships with classic dome and soft rim TrackPoint cap
Touch pad	No UltraNav™ multi-pointing system
ThinkLight™	None
Dimensions[3]	12.3 x 10.0 x 1.53" / 313mm x 254mm x 38.9mm
Approximate weight[2]	with optical drive and battery: 5.9 lb (2.7kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent
Battery - life[10]	Up to 2.1 hrs
Architecture	**ATI RADEON IGP 330M chipset** / **IGP 330M** northbridge (memory controller, graphics controller, PCI bus) / **ALi® M1535+** southbridge (ATA-100 EIDE, Low Pin Count [LPC] interface, USB, parallel, audio) / PCI 2.1, 32-bit 33MHz (TI® PCI1510 CardBus controller) / 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 II or one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door
Ports	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
Video out	None
IEEE 1394	None
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
11b Wi-Fi[32]	11b Wi-Fi[32] wireless[4], Mini PCI, Intersil® Prism 2.5 chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on planaer / Broadcom® BCM5901 (PHY/MAC) / PXE / Wake on LAN®
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1981B AC97 codec / mono speakers / 1 watt / volume up, down, mute buttons / internal mic / microphone input jack (3.5 mm; mono) / headphone jack (3.5 mm; stereo) / no line in jack
Security	Power-on password / hard disk password / supervisor password / security keyhole
Security chip	None
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery courier service
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

SOFTWARE[14]

Windows XP Pro models
- Microsoft Windows XP Professional[20]
◇ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
• Access IBM
• Access Connections
• Adobe Acrobat Reader
• IBM Rapid Restore™ PC
• Norton® AntiVirus (OEM edition)
• PC-Doctor™
• ThinkPad Utilities
• IBM Update Connector™,[15]

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[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD 30L9188
ServicePac 2 yr IOR 9x5 NBD 30L9189
ServicePac 3 yr IOR 9x5 NBD 30L9195
ServicePac 4 yr IOR 9x5 NBD 30L9194
ServicePac 5 yr IOR 9x5 NBD 30L9196
ServicePac 2 yr P&L P/U Depot 30L9191
ServicePac 3 yr P&L P/U Depot 30L9192
ServicePac 4 yr P&L P/U Depot 69P9195
ServicePac 5 yr P&L P/U Depot 69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/ wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/ maspspleu.pdf

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad R40e Li-Ion Battery (6-cell)	08K8218	
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Multiple Multiple Battery Charger II	22P9040	
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad 72W AC Adapter	02K6699	
30GB Hard Disk 9.5mm (4200 rpm)	09N4268	ThinkPad 72W AC/DC Combo Adapter	22P9010	
40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	IBM USB Keyboard with UltraNav	31P8950	
IBM 4GB Microdrive™ with PC Card	09N4280	ThinkPad Monitor Stand 2001	22P5265	
IBM 128MB USB 2.0 Memory Key	22P9229	IBM 11a/b/g Wireless CardBus Adapter	31P9101	
IBM 256MB USB 2.0 Memory Key	22P9025	IBM H Rate Wireless LAN PC Card 128	09N9904	
IBM USB Portable Diskette Drive	05K9276	IBM iLM300 MicroPortable Projector	0037A03	
IBM USB Portable CD-ROM	33L5151	IBM iLV200 Value Data/Video Projector	0038A03	
IBM USB 2.0 Portable CD-RW Drive	22P5297	IBM iLC300 Conference Room Projector	0039A03	
Portable 40GB USB 2.0 with Rapid Restore	09N4255	IBM Optical 3-Button Travel Wheel Mouse	31P7410	
IBM USB Serial Parallel Adapter	22P5298	IBM Optical 3-Button ScrollPoint® Mouse	31P7405	
GemPC400 Smart Card Reader/Writer	31P8901	Nylon Carrying Case	10K0207	
IBM Turbo 16/4 Token-Ring PC Card 2	34L1401	Leather Carrying Case	10K0209	
Ericsson® GC82 EDGE PC Card Wireless	58P8782	Other options at **ibm.com**/pc/us/accessories		

See footnotes for important warranty information
US model announced October 7, 2003; previous model on March 25, 2003
US models withdrawn effective October 2003 or April 2004

(R40EE) © IBM Corp. April 2004

Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Workhorse (W) or Global (G) or Entry (E) / Preload	Avail date
2681-1AU	Celeron®	1.6	128MB	13.3" XGA	16MB	20G	CD	11a/b Wi-Fi[27]	Modem	10/100			XP Pro		Jan 2003
2681-28U	Celeron	1.6	128MB	14.1" XGA	16MB	20G	Combo	Open; wireless upg[36]	Modem	10/100	1394		XP Pro		Jan 2003
2681-37U	Celeron	1.6	128MB	15.0" XGA	16MB	20G	CD	Open; wireless upg	Modem	10/100	1394		XP Pro		Jan 2003
2681-C8U	Pentium® 4-M	1.9	128MB	14.1" XGA	16MB	20G	CD	Open; wireless upg	Modem	10/100	1394		XP Pro	E	Jan 2003
2681-DBU	Pentium 4-M	1.9	256MB	15.0" XGA	16MB	20G	DVD	11a/b Wi-Fi	Modem	10/100			XP Pro		Jan 2003
2681-DCU	Pentium 4-M	1.9	256MB	15.0" XGA	16MB	20G	DVD	Open; wireless upg	Modem	10/100	1394		XP Pro		Jan 2003
2681-F9U	Pentium 4-M	2.0	256MB	14.1" XGA	16MB	20G	DVD	Open; wireless upg	Modem	10/100		Yes	XP Pro	W	Jan 2003
2681-FFU	Pentium 4-M	2.0	256MB	14.1" XGA	16MB	40G	Combo	Open; wireless upg	Modem	10/100	1394		XP Pro		Jan 2003
2681-FCU	Pentium 4-M	2.0	256MB	14.1" XGA	16MB	40G	DVD	11b Wi-Fi[32]	Modem	10/100		Yes	XP Pro		Jan 2003
2681-GMU	Pentium 4-M	2.0	256MB	15.0" XGA	32MB	40G	Combo	Open; wireless upg	Modem	10/100	1394		XP Pro		Jan 2003
2681-GHU	Pentium 4-M	2.0	256MB	15.0" XGA	32MB	40G	DVD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	W	Jan 2003
2681-K3U	Pentium 4-M	2.2	256MB	15.0" XGA	32MB	40G	DVD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	W	Jan 2003
2681-L7U	Pentium 4-M	2.2	256MB	15.0" SXGA+	32M	60G	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro		Jan 2003

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Celeron 1.6GHz** with 400MHz frontside bus or **Mobile Intel Pentium 4 Processor-M 1.9, 2.0, or 2.2GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	*Celeron:* **256KB**; *Pentium 4-M:* **512KB**; *All:* on die (at processor speed) / ECC
Memory	**128** and **256MB** std / 1GB max[7] / **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	*Some:* CD-ROM / 24X-10X[9] speed / bootable / removable from Ultrabay 2000
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 24X/10X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible /12.7 mm high
Disk	**20GB[8], 40GB,** or **60GB,** 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 9.5mm high bay / supports 2nd disk with optional HDD Adapter in Ultrabay 2000
Display	*Some:* **13.3"** (337.8mm) **XGA (1024x768) TFT color** / Active Matrix / 150 nits / *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 / *Some:* **15.0"** (381mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 150 nits / *All:* Easy-open cover to unlatch and open with one hand (two latches)
Graphics controller	*Some:* **ATI® Mobility™ RADEON™** / **AGP 4X** / **16MB** DDR-SDRAM *Some:* **ATI Mobility RADEON 7500** / **AGP 4X** / **32MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*13.3/14.1" models:* 12.3" x 10" x 1.5"; *15.0" models:* 13" x 10.5" x 1.6"
Approximate weight[2]	with optical drive and battery: *13.3" models:* 6.2 lb; *14.1" models:* 6.0 lb; *15.0":* 6.7 lb
Case material	*Color:* Black; *All:* ABS plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*13.3" models:* 3.8 hrs; *14.1" models:* 3.8 to 4.0 hrs; *15.0" models:* 3.4 to 3.6 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
11a/b Wi-Fi[27]	*Some:* 11a/b Wi-Fi[27] wireless[4], Mini PCI, Atheros™ AR5001X chipset, UltraConnect™ antenna built in both sides of display, Wi-Fi-certified
Wireless upg[36]	*Some:* UltraConnect™ antenna built in both sides of display for wireless Mini PCI options
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intersil® Prism 2.5 chipset, UltraConnect™ antenna built in both sides of display, Wi-Fi-certified
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	*All:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chip (physical layer)
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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 *Some:* **IBM Embedded Security Subsystem 2.0[33]** / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Optical 3-Button Travel Wheel Mouse	31P7410
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
Ultralight 8X Max DVD Ultrabay 2000	22P9102	Ultrabay 2000 Li-Ion battery	02K6646
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	ThinkPad Multiple Battery Charger II	22P9040
Second HDD Adapter for Ultrabay 2000	08K6068	IBM USB Keyboard with UltraNav	31P8950
ThinkPad Removable Diskette Drive	08K9603	IBM USB 2.0 Portable CD-RW Drive	22P5297
IBM USB Portable Diskette Drive	05K9276	ThinkPad 72W AC Adapter	02K6699

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Adobe Acrobat Reader
- IBM Rapid Restore™ PC
- IBM RecordNOW and DLA by Veritas (combo models)
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

Downloadable
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (models with 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
CIM and DMI 2.0-compliant
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD 30L9188
ServicePac 3 yr IOR 9x5 NBD 30L9195
ServicePac 3yr P&L P/U Depot 30L9192
ServicePac 5yr P&L P/U Depot 69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf

IBM 1GB Microdrive™ 07N5574
Cisco Aironet Wirless 802.11b Mini PCI 31P8301
IBM 11a/b/g Wireless Mini PCI Adapter 31P9701
IBM 11a/b/g Wireless CardBus Adapter 31P9101
ThinkPad 72W AC Adapter 02K6699
ThinkPad Port Replicator II 74P6733
ThinkPad Mini Dock 287810U
Optical 3-Button Travel Wheel Mouse 31P7410
Other options at **ibm.com**/pc/us/accessories

See footnotes for important warranty information
US models announced January 28, 2003
US models withdrawn effective October 2003 or January 2004

Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security chip	Workhorse (W) or Global (G) or Entry (E)		Avail date
													Preload		
2681-4GU	Celeron®	1.8	128MB	14.1" XGA	16MB	20G	Combo	Open; wireless upg[36]	Modem	10/100	1394	No	XP Pro	No	May 2003
2681-5AU	Celeron	1.8	256MB	15.0" XGA	16MB	30G	Combo	Open; wireless upg	Modem	10/100	1394	No	XP Pro	No	May 2003
2681-59U	Celeron	1.8	128MB	15.0" XGA	16MB	30G	DVD	Open; wireless upg	Modem	10/100	1394	No	XP Pro	No	May 2003
2681-69U	Celeron	2.0	128MB	14.1" XGA	16MB	30G	Combo	Open; wireless upg	Modem	10/100	1394	No	XP Pro	No	Oct 2003
2681-7FU	Celeron	2.0	128MB	15.0" XGA	16MB	30G	Combo	Open; wireless upg	Modem	10/100	1394	No	XP Pro	No	Oct 2003

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Mobile Intel® Celeron 1.8** or **2.0GHz** with 400MHz system bus
L2 cache	**256KB** / on die (at processor speed) / ECC
Memory	**128** or **256MB** std / 1GB max[7] / **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	*Some:* CD-ROM / 24X-10X[9] speed / bootable / removable from Ultrabay 2000
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 24X/10X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible /12.7 mm high
Disk	**20** or **30GB**[8]**,** 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 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)
Graphics controller	**ATI® Mobility™ RADEON™ / AGP 4X / 16MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models:* 12.3" x 10" x 1.5"; 313mm x 254mm x 38.9mm
	15.0" models: 13" x 10.5" x 1.6"; 329mm x 267.5mm x 40.5mm
Approximate weight[2]	with optical drive and battery: *14.1" models:* 6.1 lb (2.77kg);
	15.0" models: 6.6 to 6.7 lb (2.99 to 3.04kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	3.95 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	IEEE 1394 (FireWire) port / 4-pin connector
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	Wireless upgradable with wireless Mini PCI options
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chip (physical layer)
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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	None
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Ultrabay 2000 Li-Ion battery	02K6646
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad Multiple Battery Charger II	22P9040
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	30GB Hard Disk 9.5mm (4200rpm)	09N4268
Ultralight 8X Max DVD Ultrabay 2000	22P9102	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	80GB Hard Disk 9.5mm (4200 rpm)	08K9869
Second HDD Adapter for Ultrabay 2000	08K6068	IBM 1GB Microdrive™ with PC Card	07N5574
ThinkPad Multi-Burner Ultrabay 2000 Drive	22P7015	IBM 64MB USB 2.0 Memory Key	22P9024
ThinkPad Slim Drive Adpr for Ultrabay 2000	62P4557	IBM 256MB USB 2.0 Memory Key	22P9025
ThinkPad Removable Diskette Drive	08K9603	Cisco Aironet Wireless 802.11b Mini PCI	31P8301
IBM USB Portable Diskette Drive	05K9276	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
IBM USB 2.0 Portable CD-RW Drive	22P5297	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB 2.0 Portable 40GB Hard Disk	09N4255	ThinkPad 72W AC Adapter	02K6699
IBM USB Serial Parallel Adapter	22P5298	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM Optical 3-Button Travel Wheel Mouse	31P7410	GemPC400 Smart Card Reader/Writer	31P8901
IBM Optical 3-Button ScrollPoint® Mouse	31P7405	IBM USB Keyboard with UltraNav	31P8950
IBM iLM300 MicroPortable Projector	0037A03	ThinkPad Ultrabay Plus Numeric Keypad	22P7330
IBM iLV200 Value Data/Video Projector	0038A03	ThinkPad Port Replicator II	74P6733
IBM iLC300 Conference Room Projector	0039A03	ThinkPad Mini Dock	287810U
ThinkPad Monitor Stand 2001	22P5265	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore™ PC
- IBM RecordNOW and DLA by Veritas (combo models)
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

Downloadable
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (models with 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
CIM and DMI 2.0-compliant
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD
   30L9188
ServicePac 2 yr IOR 9x5 NBD
   30L9189
ServicePac 3 yr IOR 9x5 NBD
   30L9195
ServicePac 4 yr IOR 9x5 NBD
   30L9194
ServicePac 5 yr IOR 9x5 NBD
   30L9196
ServicePac 2 yr P&L P/U Depot
   30L9191
ServicePac 3 yr P&L P/U Depot
   30L9192
ServicePac 4 yr P&L P/U Depot
   69P9195
ServicePac 5 yr P&L P/U Depot
   69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/maspspleu.pdf

See footnotes for important warranty information
US models announced October 7, 2003; previous models on May 21, 2003
US models withdrawn effective January 2004 or April 2004

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Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Workhorse (W) or Global (G) Preload or Entry (E)	Avail date
2681-J7U	Pentium® 4-M	2.2	128MB	14.1" XGA	16MB	30G	CD	Open; wireless upg[36]	Modem	10/100	1394		XP Pro	E	May 2003
2681-J8U	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	40G	Combo	Open; wireless upg	Modem	10/100	1394		XP Pro	No	May 2003
2681-JCU	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	30G	DVD	Open; wireless upg	Modem	10/100		Yes	XP Pro	No	May 2003
2681-J9U	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	30G	DVD	Cisco® 802.11b	Modem	10/100		Yes	XP Pro	No	May 2003
2681-JQU	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	40G	DVD	11b Wi-Fi[32]	Modem	10/100		Yes	XP Pro	No	May 2003
2681-JDU	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	40G	Combo	11a/b Wi-Fi[27]	Modem	10/100		Yes	XP Pro	No	May 2003
2681-JEU	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	40G	DVD	11a/b Wi-Fi	Modem	10/100		Yes	XP Pro	No	May 2003
2681-KAU	Pentium 4-M	2.2	256MB	15.0" XGA	32MB	40G	Combo	11a/b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	No	May 2003
2681-KMU	Pentium 4-M	2.2	256MB	15.0" XGA	32MB	40G	DVD	Cisco 802.11b	Modem	10/100	1394	Yes	XP Pro	No	May 2003
2681-JHU	Pentium 4-M	2.2	256MB	14.1" XGA	32MB	60G	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	No	May 2003
2681-QCU	Pentium 4-M	2.4	256MB	15.0" SXGA+	32M	60G	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	No	May 2003
2681-KLU	Pentium 4-M	2.2	256MB	15.0" XGA	32MB	40G	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	No	May 2003
2681-KPU	Pentium 4-M	2.2	256MB	15.0" XGA	16MB	20G	DVD	Open; wireless upg	Modem	10/100	1394		XP Pro	No	May 2003
2681-KQU	Pentium 4-M	2.2	256MB	15.0" XGA	16MB	30G	DVD	11a/b Wi-Fi	Modem	10/100		Yes	XP Pro	No	May 2003
2681-Q5U	Pentium 4-M	2.4	256MB	15.0" SXGA+	32M	40G	DVD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	No	May 2003
2681-Q6U	Pentium 4-M	2.4	256MB	15.0" SXGA+	32M	60G	Combo	11a/b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	No	May 2003

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Pentium 4 Processor-M 2.2** or **2.4GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB**; *All:* on die (at processor speed) / ECC
Memory	**128** or **256MB** std / 1GB max[7] / **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	*Some:* CD-ROM / 24X-10X[9] speed / bootable / removable from Ultrabay 2000
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 24X/10X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible /12.7 mm high
Disk	**20, 30, 40,** or **60GB**[8], 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 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 *Some:* **15.0"** (381mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 150 nits *All:* Easy-open cover to unlatch and open with one hand (two latches)
Graphics controller	*Some:* **ATI® Mobility™ RADEON™** / **AGP 4X** / **16MB** DDR-SDRAM *Some:* **ATI Mobility RADEON 7500** / **AGP 4X** / **32MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models:* 12.3" x 10" x 1.5"; *15.0" models:* 13" x 10.5" x 1.6"
Approximate weight[2]	with optical drive and battery: *14.1" models:* 6.0 lb; *15.0":* 6.7 lb
Case material	*Color:* Black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*14.1" models:* 3.8 to 4.0 hrs; *15.0" models:* 3.4 to 3.6 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
PC Card Std slots	One Type I, one Type II, one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door
Ports	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	S-video out port (TV out) / one industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	*Some:* Wireless upgradable with wireless Mini PCI options
11a/b Wi-Fi[27]	*Some:* 11a/b Wi-Fi[27] wireless[4], Mini PCI, Atheros™ AR5001X chipset, UltraConnect™ antenna built in both sides of display, Wi-Fi-certified
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intersil™ Prism 2.5 chipset, UltraConnect™ antenna built in both sides of display, Wi-Fi-certified
Cisco 802.11b	*Some:* 802.11b wireless[4], Mini PCI, Cisco® Aironet® Wireless 802.11b, Prism 2.0 chipset, UltraConnect™ antenna built in both sides of display, Wi-Fi-certified
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	*All:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chip (physical layer)
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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 *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	ThinkPad Multiple Battery Charger II	22P9040
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	Ultrabay 2000 Li-Ion battery	02K6646

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Adobe Acrobat Reader
- IBM Rapid Restore™ PC
- IBM RecordNOW and DLA by Veritas (combo models)
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

Downloadable
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (models with 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
CIM and DMI 2.0-compliant
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD 30L9188
ServicePac 3 yr IOR 9x5 NBD 30L9195
ServicePac 3yr P&L P/U Depot 30L9192
ServicePac 5yr P&L P/U Depot 69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf

Cisco Aironet Wirless 802.11b Mini PCI 31P8301
IBM 11a/b/g Wireless Mini PCI Adapter 31P9701
IBM 11a/b/g Wireless CardBus Adapter 31P9101
ThinkPad 72W AC Adapter 02K6699
ThinkPad Port Replicator II 74P6733
ThinkPad Mini Dock 287810U
Second HDD Adapter for Ultrabay 2000 08K6068
Other options at **ibm.com**/pc/us/accessories

See footnotes for important warranty information
US models announced May 21, 2003
US models withdrawn effective January 2004

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Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Workhorse (W) or Global (G) model	Avail date
2682-FAU	Pentium® 4-M	2.0	256MB	14.1" XGA	16MB	20G	DVD	Open; wireless upg[36]	Modem	10/100			XP Pro	W G	Jan 2003
2682-F9U	Pentium 4-M	2.0	256MB	14.1" XGA	16MB	20G	DVD	Open; wireless upg	Modem	10/100		Yes	XP Pro	W	Jan 2003
2682-FEU	Pentium 4-M	2.0	256MB	14.1" XGA	16MB	20G	DVD	Cisco® 802.11b	Modem	10/100		Yes	XP Pro	W	Jan 2003
2682-K2U	Pentium 4-M	2.2	256MB	15.0" XGA	16MB	40G	DVD	Open; wireless upg	Modem	10/100			XP Pro	W G	Jan 2003
2682-K4U	Pentium 4-M	2.2	256MB	15.0" XGA	16MB	40G	DVD	Cisco 802.11b	Modem	10/100		Yes	XP Pro	W G	Jan 2003
2682-GHU	Pentium 4-M	2.0	256MB	15.0" XGA	32MB	40G	DVD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	W	Jan 2003
2682-GLU	Pentium 4-M	2.0	256MB	15.0" XGA	32MB	40G	DVD	Cisco 802.11b	Modem	10/100	1394	Yes	XP Pro	W	Jan 2003
2682-K3U	Pentium 4-M	2.2	256MB	15.0" XGA	32MB	40G	DVD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	W	Jan 2003
2682-J8U	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	40G	Combo	Open; wireless upg	Modem	10/100	1394		XP Pro		May 2003
2682-JAU	Pentium 4-M	2.2	256MB	14.1" XGA	16MB	40G	Combo	Cisco 802.11b	Modem	10/100	1394		XP Pro		May 2003

2682 models have a 3 year limited warranty (other 2681 ThinkPad R40 systems have a 1 year limited warranty)

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Pentium 4 Processor-M 2.0, or 2.2GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**512KB** / on die (at processor speed) / ECC
Memory	**256MB** std / 1GB max[7] / **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
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 24X/10X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible / 12.7 mm high
Disk	**20GB**[8] or **40GB**, 4200 rpm, 9.5mm high, S.M.A.R.T. / removable and upgradable / 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)

Graphics controller	*Some:* **ATI® Mobility™ RADEON™ / AGP 4X / 16MB** DDR-SDRAM / *Some:* **ATI Mobility RADEON 7500 / AGP 4X / 32MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B

Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions

Dimensions[3]	*14.1" models:* 12.3" x 10" x 1.5"; *15.0" models:* 13" x 10.5" x 1.6"
Approximate weight[2]	with optical drive and battery: *14.1" models:* 6.0 lb; *15.0" models:* 6.7 lb
Case material	*Color:* Black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*14.1" wireless models:* 3.8 hrs; *14.1" non-wireless models:* 4.0 hrs; *15" wireless models:* 3.4 hrs; *15" non-wireless models:* 3.6 hrs

Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port

Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	*Some:* Wireless upgradable with wireless Mini PCI options
Cisco 802.11b	*Some:* 802.11b wireless[4], Mini PCI, Cisco® Aironet® Wireless 802.11b, Prism 2.0 chipset, UltraConnect™ antenna built in both sides of display, Wi-Fi-certified
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	*All:* 56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chipset (physical layer)
Audio support	Soft audio / ICH AC97 controller / DirectSound™ support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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 / *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**3 years**/1 year battery - EasyServ™[19] onsite pickup and delivery

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
  - Access Connections
  - Access Help
  - Access Support
- Adobe Acrobat Reader
- IBM Rapid Restore™ PC
- IBM RecordNOW and DLA by Veritas (combo models)
- InterVideo WinDVD (DVD models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™.[15]

Downloadable
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (models with 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
CIM and DMI 2.0-compliant
IBM ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 2 yr IOR 9x5 NBD
30L9190
ServicePac 3 yr IOR 9x5 NBD
30L9197
ServicePac 4 yr IOR 9x5 NBD
69P9198
ServicePac 5 yr IOR 9x5 NBD
69P9200
ServicePac 4 yr P&L P/U Depot
69P9199
ServicePac 5 yr P&L P/U Depot
69P9201
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/maspspleu.pdf

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Ultrabay 2000 Li-Ion battery	02K6646
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad Multiple Battery Charger II	22P9040
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	GemPC400 Smart Card Reader/Writer	31P8901
Second HDD Adapter for Ultrabay 2000	08K6068	Cisco Aironet Wireless 802.11b Mini PCI	31P8301
ThinkPad Multi-Burner Ultrabay 2000 Drive	22P7015	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
ThinkPad Removable Diskette Drive	08K9603	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB Portable Diskette Drive	05K9276	ThinkPad 72W AC Adapter	02K6699
IBM USB 2.0 Portable CD-RW Drive	22P5297	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM USB Serial Parallel Adapter	22P5298	ThinkPad Port Replicator II	74P6733
IBM iLV200 Value Data/Video Projector	0038A03	ThinkPad Mini Dock	287810U
IBM Optical 3-Button Travel Wheel Mouse	31P7410	Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information
US models announced on January 28 or May 21, 2003
US models withdrawn effective January 2004

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Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Small and medium business	Avail date
2896-4WU	Celeron®	1.8	256MB	14.1" XGA	16MB	20GB	DVD	Open; wireless upg[36]	Modem	10/100		Yes	XP Pro	Yes	May 2003
2896-5WU	Celeron	1.8	256MB	15.0" XGA	16MB	20GB	DVD	Open; wireless upg	Modem	10/100		Yes	XP Pro	Yes	May 2003
2896-FZU	Pentium® 4-M	2.0	256MB	14.1" XGA	16MB	20GB	DVD	Open; wireless upg	Modem	10/100		Yes	XP Pro	Yes	May 2003
2896-GZU	Pentium 4-M	2.0	256MB	15.0" XGA	32MB	20GB	DVD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Yes	May 2003

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

Positioning	*Best blend of portability and essential features; two-spindle system*
Processor	**Mobile Intel® Celeron 1.8GHz** with 400MHz frontside bus or **Mobile Intel Pentium 4 Processor-M 2.0GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	*Celeron:* **256KB**; *Pentium 4-M:* **512KB**; *All:* on die (at processor speed) / ECC
Memory	**256MB** std / 1GB max[7] / **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
DVD	DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible / 12.7 mm high
Disk	**20GB**[8], 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 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)
Graphics controller	*Some:* **ATI® Mobility™ RADEON™** / **AGP 4X** / **16MB** DDR-SDRAM *Some:* **ATI Mobility RADEON 7500** / **AGP 4X** / **32MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.3" x 10" x 1.5"; 313mm x 254mm x 38.9mm *15.0" models (WxDxH):* 13" x 10.5" x 1.6"; 329mm x 267.5mm x 40.5mm
Approximate weight[2]	with optical drive and battery: *14.1" models:* 6.0 lb (2.8kg); *15.0":* 6.7 lb (3.1kg)
Case material	*Color:* Black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*14.1" models:* 3.8 to 4.0 hrs; *15.0" models:* 3.4 to 3.6 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	Wireless upgradable with wireless Mini PCI options
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere[29] chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chip (physical layer)
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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 **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Ultrabay 2000 Li-Ion battery	02K6646
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad Multiple Battery Charger II	22P9040
Ultralight 8X Max DVD Ultrabay 2000	22P9102	IBM USB Keyboard with UltraNav	31P8950
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
24X-10X CD-ROM Ultrabay 2000 Drive	05K9233	GemPC400 Smart Card Reader/Writer	31P8901
Second HDD Adapter for Ultrabay 2000	08K6068	ThinkPad Monitor Stand 2001	22P5265
ThinkPad Multi-Burner Ultrabay 2000 Drive	22P7015	Cisco Aironet Wirless 802.11b Mini PCI	31P8301
ThinkPad Removable Diskette Drive	08K9603	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
IBM USB Portable Diskette Drive	05K9276	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB 2.0 Portable CD-RW Drive	22P5297	ThinkPad 72W AC Adapter	02K6699
IBM USB Serial Parallel Adapter	22P5298	ThinkPad 72W AC/DC Combo Adapter	22P9010
Optical 3-Button Travel Wheel Mouse	31P7410	ThinkPad Port Replicator II	74P6733
IBM iLV200 Value Data/Video Projector	0038A03	ThinkPad Mini Dock	287810U
IBM ThinkPad Ultrabay Plus Carrier	22P5737	IBM 1GB Microdrive™ with PC Card	07N5574
IBM ThinkPad Ultrabay Plus c500 Cradle	22P5738	IBM Optical 3-Button Travel Wheel Mouse	31P7410
ThinkPad Ultrabay Plus Numeric Keypad	22P7330	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
• Access IBM
• Adobe Acrobat Reader
• IBM Rapid Restore™ PC
• InterVideo WinDVD (DVD models)
• Norton AntiVirus (OEM edition)
• PC-Doctor™
• ThinkPad Utilities
• IBM Update Connector™,[15]

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
CIM and DMI 2.0-compliant
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free hardware support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD 30L9188
ServicePac 2 yr IOR 9x5 NBD 30L9189
ServicePac 3 yr IOR 9x5 NBD 30L9195
ServicePac 4 yr IOR 9x5 NBD 30L9194
ServicePac 5 yr IOR 9x5 NBD 30L9196
ServicePac 2 yr P&L P/U Depot 30L9191
ServicePac 3 yr P&L P/U Depot 30L9192
ServicePac 4 yr P&L P/U Depot 69P9195
ServicePac 5 yr P&L P/U Depot 69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/ wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/ maspspleu.pdf

See footnotes for important warranty information
US models announced April 22, 2003
US models withdrawn effective October 2003

(R40B) © IBM Corp. October 2003

Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security chip	Preload	Avail date
2896-72U	Celeron®	2.0	256MB	15.0" XGA	16MB	30GB	Combo	Open; wireless upg[36]	Modem	10/100	1394		XP Pro	Oct 2003
2896-J2U	Pentium® 4-M	2.2	256MB	14.1" XGA	32MB	30GB	CD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-J3U	Pentium 4-M	2.2	256MB	14.1" XGA	32MB	40GB	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-J4U	Pentium 4-M	2.2	256MB	14.1" XGA	32MB	60GB	Combo	11a/b Wi-Fi[27]	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-N2U	Pentium 4-M	2.4	256MB	14.1" XGA	32MB	30GB	CD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-N3U	Pentium 4-M	2.4	256MB	14.1" XGA	32MB	40GB	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-N4U	Pentium 4-M	2.4	256MB	14.1" XGA	32MB	60GB	Combo	11a/b Wi-Fi[27]	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-Q3U	Pentium 4-M	2.4	256MB	15.0" SXGA+	32MB	40GB	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-Q4U	Pentium 4-M	2.4	256MB	15.0" SXGA+	32MB	60GB	Combo	11a/b Wi-Fi[27]	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-P2U	Pentium 4-M	2.4	256MB	15.0" XGA	32MB	30GB	CD	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Oct 2003
2896-P3U	Pentium 4-M	2.4	256MB	15.0" XGA	32MB	40GB	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Oct 2003

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

Positioning	Mainstream performance and features; two-spindle system
Processor	**Mobile Intel® Celeron 2.0GHz** with 400MHz system bus or **Mobile Intel Pentium 4 Processor-M 2.2** or **2.4GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	*Celeron:* **256KB**; *Pentium 4-M:* **512KB**; *All:* on die (at processor speed) / ECC
Memory	**256MB** std / 1GB max[7] / **PC2100** 266MHz DDR1 (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	*Some:* CD-ROM / 24X-10X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 24X/10X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible /12.7 mm high
Disk	**30GB**[8], **40GB**, or **60GB** / 4200 rpm, 9.5mm, S.M.A.R.T. / removable and upgradable / 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"** (381.0mm) **XGA (1024x768) TFT color** / Active Matrix / 150 nits *Some:* **15.0"** (381.0mm) **SXGA+ (1450x1050) TFT color** / Active Matrix / 150 nits
Graphics controller	*Some:* **ATI® Mobility™ RADEON™ / AGP 4X / 16MB** DDR1 (DDR-SDRAM) *Some:* **ATI Mobility RADEON 7500 / AGP 4X / 32MB** DDR1 (DDR-SDRAM)
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.3" x 10" x 1.5"; 313mm x 254mm x 38.9mm *15.0" models (WxDxH):* 13" x 10.5" x 1.6"; 329mm x 267.5mm x 40.5mm
Approximate weight[2]	with optical drive and batt: *14.1" models:* 6.0 to 6.1 lb (2.7kg); *15.0":* 6.6 to 6.7 lb (3.0kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	*14.1" and 15" XGA models:* 3.8 to 4.0 hrs; *15.0" SXGA+ models:* 3.4 to 3.6 hrs
Architecture	**Intel 845MP** chipset / 82845MP Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	IEEE 1394 (FireWire) port / 4-pin connector
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	*Some:* wireless upgradable with wireless Mini PCI options
11a/b Wi-Fi[27]	*Some:* 11a/b Wi-Fi[27] wireless[4], Mini PCI, Atheros™ AR5001X chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chip (physical layer)
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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 *Some:* **IBM Embedded Security Subsystem 2.0**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	Ultrabay 2000 Li-Ion battery	02K6646
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	ThinkPad Multiple Battery Charger II	22P9040
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
Ultralight 8X Max DVD Ultrabay 2000	22P9102	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
Second HDD Adapter for Ultrabay 2000	08K6068	Cisco Aironet Wireless 802.11b Mini PCI	31P8301
Multi-Burner Plus Ultrabay Enhanced Drive	73P3312	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
ThinkPad Slim Drive Adpr for Ultrabay 2000	62P4557	IBM 11a/b/g Wireless CardBus Adapter	31P9101
ThinkPad Removable Diskette Drive	08K9603	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM USB Portable Diskette Drive	05K9276	ThinkPad Port Replicator II	74P6733
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	ThinkPad Mini Dock	287810U
ThinkPad 72W AC Adapter	02K6699	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore™ PC
- InterVideo WinDVD (combo models)
- IBM RecordNOW and DLA by Veritas (combo models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™.[15]

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
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IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
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ServicePac®,[22] 1yr IOR 9x5 NBD
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ServicePac 4 yr IOR 9x5 NBD
30L9194
ServicePac 5 yr IOR 9x5 NBD
30L9196
ServicePac 2 yr P&L P/U Depot
30L9191
ServicePac 3 yr P&L P/U Depot
30L9192
ServicePac 4 yr P&L P/U Depot
69P9195
ServicePac 5 yr P&L P/U Depot
69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/maspspleu.pdf

See footnotes for important warranty information
US models announced October 7, 2003
US models withdrawn effective April 2004 or October 2004

IBM® ThinkPad® R40 (2897) - Express - withdrawn

Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Small and medium business	Avail date
2897-22U	Pentium® M	1.3	256MB	14.1" XGA	16MB	20G	DVD	Open; wireless upg[36]	Modem	10/100	1394	Yes	XP Pro	Yes	May 2003
2897-23U	Pentium M	1.3	256MB	14.1" XGA	16MB	20G	Combo	✳Intel 11b Wi-Fi[32]	Modem	10/100	1394	Yes	XP Pro	Yes	May 2003
2897-34U	Pentium M	1.3	256MB	14.1" XGA	32MB	40G	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	Yes	May 2003
2897-55U	Pentium M	1.3	256MB	15.0" XGA	32MB	40G	Combo	Open; wireless upg	Modem	10/100	1394	Yes	XP Pro	Yes	May 2003
2897-54U	Pentium M	1.3	256MB	15.0" XGA	32MB	40G	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	Yes	May 2003
2897-GWU	Pentium M	1.5	256MB	15.0" SXGA+	32MB	60G	Combo	11a/b Wi-Fi[27]	Modem	10/100	1394	Yes	XP Pro	Yes	May 2003
2897-93U	Pentium M	1.4	256MB	14.1" XGA	16MB	20G	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	Yes	Oct 2003
2897-B4U	Pentium M	1.4	256MB	15.0" XGA	32MB	40G	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	Yes	Oct 2003
2897-GAU	Pentium M	1.5	256MB	15.0" SXGA+	32MB	60G	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	Yes	Oct 2003
2897-83U	Pentium M	1.4	256MB	15.0" XGA	16MB	20G	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	Yes	Nov 2003

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

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel® Pentium® M Processor 1.3, 1.4,** or **1.5GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**256MB** std / 2GB max[7] / **PC2100** 266MHz DDR1 (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
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay 2000
Combo	*Some:* DVD-ROM/CD-RW / 24X/10X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible /12.7 mm high
Disk	**20GB[8], 40GB,** or **60GB,** 4200 rpm, 9.5mm / removable and upgradable / 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"** (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™ / AGP 4X / 16MB** DDR1 (DDR-SDRAM) *Some:* **ATI Mobility RADEON 7500 / AGP 4X / 32MB** DDR1 (DDR-SDRAM)
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models:* 12.3" x 10.0" x 1.53"; *15.0" models:* 13.0" x 10.5" x 1.59"
Approximate weight[2]	with optical drive and battery: *14.1" models:* 6.1 to 6.7 lb; *15.0":* 6.6 to 6.7 lb (3.0 to 3.4kg)
Case material	*Color:* Black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	6.1 to 6.2 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	IEEE 1394 (FireWire) port / 4-pin connector
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	*Some:* Wireless upgradable with wireless Mini PCI options
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2100 Network Connection 802.11b, Intel 82531 chipset
11a/b Wi-Fi[27]	*Some:* 11a/b Wi-Fi[27] wireless[4], Mini PCI, Atheros™ AR5001X chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Bluetooth™	None
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chip (physical layer) / PXE
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

SOFTWARE[14]

Windows XP Pro models

- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
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  - Access Connections
- Adobe Acrobat Reader
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Downloadable
- IBM Director Agent
- Software Delivery Assistant
- System Migration Assistant
- Client Security Software (for security chip)

License (CD not included)
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Universal 72 watt AC adapter
Asset ID™,[34] (system-specific info in chip accessed over network)
PC 2001 and PXE 2.0-compliant
ACPI 1.0b and 2.0-compliant
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International Warranty Service[17]
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ServicePac®,[22] 1yr IOR 9x5 NBD
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ServicePac 3 yr IOR 9x5 NBD
　30L9195
ServicePac 4 yr IOR 9x5 NBD
　30L9194
ServicePac 5 yr IOR 9x5 NBD
　30L9196
ServicePac 2 yr P&L P/U Depot
　30L9191
ServicePac 3 yr P&L P/U Depot
　30L9192
ServicePac 4 yr P&L P/U Depot
　69P9195
ServicePac 5 yr P&L P/U Depot
　69P9197
Other ServicePac options at **ibm.com**/services/its/us/source/ wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/ maspspleu.pdf

128 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator II	74P6733
256 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	ThinkPad Mini Dock	287810U
512 MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
1GB PC2100 DDR-SDRAM CL2.5 SOD	10K0034	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
Second HDD Adapter for Ultrabay 2000	08K6068	Ultrabay 2000 Li-Ion battery	02K6646
ThinkPad Removable Diskette Drive	08K9603	ThinkPad Multiple Battery Charger II	22P9040
IBM USB Portable Diskette Drive	05K9276	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM 4GB Microdrive™ with PC Card	09N4280	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
IBM 256MB USB 2.0 Memory Key	22P9025	Cisco Aironet Wireless 802.11b Mini PCI	31P8301
ThinkPad 72W AC Adapter	02K6699	Ericsson® GC82 EDGE PC Card Wireless	58P8782
ThinkPad 72W AC/DC Combo Adapter	22P9010	Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information　　✳ Powered by Intel Centrino™ mobile technology　　(R40MB) © IBM Corp. October 2004
US models announced April 22, October 21, or November 11, 2003
US models withdrawn effective October 2003 or January 2004 or October 2004

Type-model	Processor	Speed GHz	Memory	Screen	Graphics memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security Chip	Preload	Workhorse (W) Global (G) Entry (E)	Avail date
2723-3XU	Pentium® M	1.3	256MB	14.1" XGA	32MB	40GB	Combo	✳Intel 11b Wi-Fi[32]	Modem	10/100	1394	Yes	XP Pro	W	Mar 2003
2723-3PU	Pentium M	1.3	256MB	14.1" XGA	32MB	40GB	Combo	11a/b Wi-Fi[27]	Modem	10/100	1394	Yes	XP Pro	W	Mar 2003
2723-6XU	Pentium M	1.3	256MB	15.0" SXGA+	32MB	40GB	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	W	Mar 2003
2723-6PU	Pentium M	1.3	256MB	15.0" SXGA+	32MB	40GB	Combo	11a/b Wi-Fi	Modem	10/100	1394	Yes	XP Pro	W	Mar 2003
2723-BDU	Pentium M	1.4	256MB	15.0" SXGA+	32MB	40GB	Combo	✳Intel 11b Wi-Fi	Modem	10/100	1394	Yes	XP Pro		Nov 2003

These educational models of the ThinkPad R40 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.

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

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Mobile Intel® Pentium® M Processor 1.3 or 1.4GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz frontside bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**256MB** std / 2GB max[7] / **PC2100** 266MHz DDR1 (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
Combo	DVD-ROM/CD-RW / 24X/10X/24X/8X[21] speed / removable from Ultrabay 2000
Ultrabay 2000	One modular bay for interchangeable devices / **Ultrabay Plus**-compatible / 12.7 mm high
Disk	**40GB**[8], 4200 rpm, 9.5mm high / removable and upgradable / 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 *Some:* **15.0" (381.0mm) SXGA+ (1400x1050) TFT color** / Active Matrix / 150 nits *All:* Easy-open cover to unlatch and open with one hand (two latches)
Graphics controller	**ATI® Mobility RADEON® 7500 / AGP 4X / 32MB** DDR1 (DDR-SDRAM)
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models:* 12.3" x 10.0" x 1.53"; *15.0" models:* 13.0" x 10.5" x 1.59"
Approximate weight[2]	with optical drive and battery: *14.1" models:* 6.0 to 6.1 lb; *15.0":* 6.6 to 6.7 lb (3.0 to 3.4kg)
Case material	*Color:* Black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 8-cell / intelligent / supports unique 2nd battery in Ultrabay 2000
Battery - life[10]	6.2 hr; *BDU:* 6.1 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M 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 (TI® PCI1510 CardBus controller, TSB43AB21 1394 (some), Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared)
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	IEEE 1394 (FireWire) port / 4-pin connector
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2100, Intel 82531 chipset
11a/b Wi-Fi[27]	*Some:* 11a/b Wi-Fi[27] wireless[4], Mini PCI, Atheros™ AR5001X chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Bluetooth	None
Ethernet	10/100 ethernet on motherboard / Intel 82562EZ chipset (physical layer) / PXE
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1891A AC97 codec / stereo speakers / 1 watt / volume up, down, mute buttons / internal mic / 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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**3 years**/1 year battery - EasyServ™[19] onsite pickup and delivery / serv upgrades[22] avail

128MB PC2100 DDR-SDRAM CL2.5 SOD	10K0028	ThinkPad Port Replicator II	74P6733
256MB PC2100 DDR-SDRAM CL2.5 SOD	10K0030	ThinkPad Mini Dock	287810U
512MB PC2100 DDR-SDRAM CL2.5 SOD	10K0032	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
1GB PC2100 DDR-SDRAM CL2.5 SOD	10K0034	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
CD-RW/DVD Combo IV Ultrabay 2000	22P6991	GemPC400 Smart Card Reader/Writer	31P8901
Second HDD Adapter for Ultrabay 2000	08K6068	ThinkPad R32/R40 Series Li-Ion Battery	02K7052
ThinkPad Removable Diskette Drive	08K9603	Ultrabay 2000 Li-Ion battery	02K6646
IBM USB Portable Diskette Drive	05K9276	ThinkPad Multiple Battery Charger II	22P9040
IBM Portable USB 2.0 Multi-Burner Drive	22P9163	IBM 11a/b/g Wireless CardBus Adapter	31P9101
Optical 3-Button Travel Wheel Mouse	31P7410	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
IBM 4GB Microdrive™ with PC Card	09N4280	Cisco Aironet Wireless 802.11b Mini PCI	31P8301
IBM 128MB USB 2.0 Memory Key	22P9229	IBM M400 Projector	0037A04
IBM 256MB USB 2.0 Memory Key	22P9025	IBM E400 Projector	0038A04
ThinkPad 72W AC Adapter	02K6699	ThinkPad Monitor Stand 2001	22P5265
ThinkPad 72W AC/DC Combo Adapter	22P9010	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- 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™,[15]

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™,[34] (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 ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12]

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

ServicePac®, [22] 2 yr IOR 9x5 NBD 30L9190
ServicePac 3 yr IOR 9x5 NBD 30L9197
ServicePac 4 yr IOR 9x5 NBD 69P9198
ServicePac 5 yr IOR 9x5 NBD 69P9200
ServicePac 4 yr P/L P/U Depot 69P9199
ServicePac 5 yr P/L P/U Depot 69P9201
Other ServicePac options at **ibm.com**/services/its/us/source/ wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/ maspspleu.pdf

See footnotes for important warranty information
US models announced March 25 or November 20, 2003
US models withdrawn effective January 2004 or October 2004

✳ Powered by the Intel Centrino™ mobile technology

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Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Secu-rity chip	Preload	Limited warranty[12]	Workhorse (W) Global (G) Entry (E)	Avail date
1834-4EU	Celeron® M	1.3	128MB	14.1" XGA	20GB	CD	None	Modem	10/100	No	No	XP Home	1 yr	E	Apr 2004
1834-5BU	Celeron M	1.3	128MB	15.0" XGA	20GB	CD	None	Modem	10/100	No	No	XP Home	1 yr	E	Apr 2004
1834-4AU	Celeron M	1.3	256MB	14.1" XGA	30GB	Combo	None	Modem	10/100	No	No	XP Pro	1 yr		Apr 2004
1834-56U	Celeron M	1.3	256MB	15.0" XGA	30GB	Combo	None	Modem	10/100	No	No	XP Pro	1 yr		Apr 2004
1834-NEU	Pentium® M 705	1.5	128MB	14.1" XGA	30GB	CD	✳Intel 11b/g[32]	Modem	10/100	No	No	XP Home	1 yr	E	July 2004
1834-C4U	Pentium M 715	1.5	128MB	14.1" XGA	30GB	CD	✳Intel 11b/g	Modem	10/100	No	No	XP Home	1 yr	E	July 2004
1834-AAU	Pentium M 715	1.5	256MB	14.1" XGA	30GB	CD	✳Intel 11b/g	Modem	10/100	No	No	XP Pro	1 yr		July 2004

Positioning	*Mainstream performance and features; two-spindle system*
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[1] and 400MHz system bus
L2 cache	*Celeron M:* **512KB**; *Pentium M 705:* **1MB**; *Pentium M 715:* **2 MB**; *All:* ECC
Memory	**128MB** or **256MB** std / 2GB max[7] / **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-10X[9] speed / fixed, not removable / 12.7 mm high
Combo	*Some:* DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / fixed, not removable / 12.7 mm
Ultrabay Enhanced	None / no support for removable Ultrabay™ options
Disk	**20GB**[8] or **30GB** (4200 rpm), 9.5mm high / removable and upgradable / 9.5mm high bay / **IBM Hard Disk Drive Shock Absorber**
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 / 200 nits *All:* one latch to unlatch and open with one hand
Graphics	**Integrated Intel Extreme™ Graphics 2** / in 855GM GMCH / uses main memory (up to 64MB) / 200MHz
Graphics external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	No UltraNav™ multi-pointing system
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.4" x 10.2" x 1.35-1.46"; 314mm x 260mm x 34-37mm *15.0" models (WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Weight[2]	with optical drive and battery: *14.1" models:* 6.0 lb (2.7kg); *15.0" models:* 6.6 lb (3.0kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent / supports optional 9-cell battery
Battery - life[10]	*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	**Intel 855GM** chipset / 82855GM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, 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 out	None
IEEE 1394	None
Wireless antenna	*Some (Celeron models):* none / can upgrade to wireless via optional PC Cards *Some (Pentium models):* UltraConnect™ Antenna built into the display cover
Mini PCI	*Some (Celeron models):* no Mini PCI slot (Communications Bay) *Some (Pentium):* one Mini PCI slot (Communications Bay) / not customer upgradable
Intel 11b/g[32]	*Some:* 11b/g wireless[4], Mini PCI, Intel PRO/Wireless 2200BG, Intel 82532 chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Conexant™ chipset
Ethernet	10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / Wake on LAN®
Audio support	Soft audio / ICH AC97 controller / DirectSound® support / AD1981B AC97 codec / mono speaker / 1 watt / volume up, down, mute buttons / no 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	None
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery courier service

128MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214
256MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197
512MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	ThinkPad Multiple Battery Charger II	22P9040
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	TrackPoint Cap Collection	73P2698
IBM 4GB Microdrive™ with PC Card	09N4280	Kensington® MicroSaver® Security Cable	73P2582
IBM USB Portable Diskette Drive	05K9276	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
IBM USB 2.0 Combo Drive	73P4515	60GB HS Hard Disk 9.5mm (5400 rpm)	73P3357
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
IBM USB 2.0 Portable 40GB Hard Disk	22P7196	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB 2.0 Memory Key 256MB	22P9228	ThinkPad Carrying Case - Leather	73P3600
IBM USB 2.0 Memory Key 512MB	22P9230	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM C400 Projector	0039A04	IBM USB Travel Keyboard with UltraNav	31P9490
ThinkPad Monitor Stand 2001	22P5265	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Home models
- Microsoft® Windows® XP Home Edition[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Windows XP Pro models
- Microsoft Windows XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Preloaded (all)
- Access IBM
- Access Connections
- IBM Rescue and Recovery™
- IBM RecordNOW and Drive Letter Access powered by Sonic products (combo models)
- InterVideo WinDVD (combo models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- Adobe Reader
- IBM Update Connector™,[15]

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

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

ThinkPad notebooks implement IBM ThinkVantage™ technologies and design; visit **ibm.com**/thinkvantage

Universal 72 watt AC adapter
Asset ID™,[34] (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
ENERGY STAR®-compliant
IBM ImageUltra™ Services available
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12]

ServicePac®, [22] 1yr IOR 9x5 NBD
    30L9188
ServicePac 2 yr IOR 9x5 NBD
    30L9189
ServicePac 3 yr IOR 9x5 NBD
    30L9195
ServicePac 4 yr IOR 9x5 NBD
    30L9194
ServicePac 5 yr IOR 9x5 NBD
    30L9196
ServicePac 2 yr P&L P/U Depot
    30L9191
ServicePac 3 yr P&L P/U Depot
    30L9192
ServicePac 4 yr P&L P/U Depot
    69P9195
ServicePac 5 yr P&L P/U Depot
    69P9197
Post-warranty annual maintenance agreements at
    ibm.com/services/its/us/source/ maspspleu.pdf

See footnotes for important warranty information
US models announced April 6 or July 13, 2004
US models withdrawn effective January or March 2005

✳ Powered by Intel Centrino™ mobile technology

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Type-model	Processor	Speed GHz	Memory	Screen	Graphics controller	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security chip	Workhorse (W) Global (G) Entry (E) Preload		Avail date
1830-46U	Pentium® M	1.4	256MB	14.1" XGA	7500	30G	CD	Open; wireless upg[36]	Modem	10/100		Yes	XP Pro	W	Oct 2003
1830-48U	Pentium M	1.4	256MB	14.1" XGA	7500	30G	DVD	Open; wireless upg	Modem	10/100		Yes	XP Pro	W G	Oct 2003
1830-56U	Pentium M	1.4	256MB	14.1" XGA	7500	30G	Combo	✳Intel 11b Wi-Fi[32]	Modem	Gigabit	1394	Yes	XP Pro	W G	Oct 2003
1830-6FU	Pentium M	1.5	256MB	15.0" XGA	7500	40G	Combo	✳Intel 11b Wi-Fi[32]	Modem	Gigabit	1394	Yes	XP Pro	W G	Oct 2003
1830-7DU	Pentium M	1.4	256MB	15.0" SXGA+	9000	40G	Combo	11a/b/g Wi-Fi[32]	Modem	Gigabit	1394	Yes	XP Pro		Oct 2003

1830 models have a 3 year limited warranty (other 1829/1836 ThinkPad R50 systems have a 1 year limited warranty)

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel® Pentium® M Processor 1.4 or 1.5GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**256MB** std / 2GB max[7] / **PC2700** 333MHz 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 USB-based diskette drive
CD	*Some:* CD-ROM / 24X-10X[9] speed / bootable / removable from Ultrabay Enhanced
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay Enhanced
Combo	*Some:* DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / removable from Ultrabay Enhan
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high
Disk	**30GB**[8] (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**
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 / 200 nits *Some:* **15.0"** (381.0mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 200 nits / FlexView display with wide viewing angle and high density using in plane switching (IPS) technology
Graphics controller	*Some:* **ATI® Mobility™ RADEON™ 7500 / AGP 4X / 32MB** DDR-SDRAM *Some:* **ATI Mobility RADEON 9000 / AGP 4X / 32MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.4" x 10.2" x 1.35-1.46"; 314mm x 260mm x 34-37mm *15.0" models (WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Approximate weight[2]	with optical drive and battery: *46U/48U:* 5.7 lb (2.6kg); *56U:* 6.0 lb; *6FU/7DU:* 6.6 lb (3.0kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	*Model 7DU with SXGA+:* up to 4.0 hr; *Others:* up to 4.7 hr; *Optional 9-cell:* up to 6.9 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI® PCI4520A CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared, [docking-based ports])
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	*Some:* wireless upgradable with wireless Mini PCI options
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intel PRO™/Wireless 2100, Intel 82531 chipset
11a/b/g Wi-Fi[32]	*Some:* 11a/b/g Wi-Fi[32] wireless[4], Mini PCI, Atheros™ AR5001X+ chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Bluetooth	None
Ethernet	*Some:* 10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / Wake on LAN® *Some:* 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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**3 years**/1 yr battery - EasyServ™[19] onsite pickup and delivery / service upgrades[22] avail

128 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214
256MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197
512MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	Ultrabay Slim Li-Polymer Battery 3-cell	08K8190
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	30GB Hard Disk 9.5mm (4200 rpm)	09N4268
Second HDD Adapter for Ultrabay Slim	62P4554	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
ThinkPad DVD-ROM Ultrabay Slim Drive	73P3270	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
CD-RW/DVD Combo Ultrabay Enhanced	73P3275	Intel PRO/Wireless 2200BG Mini PCI	73P2801
Multi-Burner Ultrabay Enhanced Drive	73P3282	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
IBM USB Portable Diskette Drive	05K9276	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	ThinkPad Port Replicator II	74P6733
ThinkPad 72W AC/DC Combo Adapter	22P9010	ThinkPad Mini Dock	287810U
Other options at **ibm.com**/pc/us/accessories		ThinkPad Dock II	287710U

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ◇Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore™ Ultra
- IBM RecordNOW and IBM Drive Letter Access (combo models)
- InterVideo WinDVD (combo, DVD)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

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™,[34] (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 ImageUltra™ Services available
IBM Rapid Restore Ultra available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12] via 800-IBM-SERV (426-7378)

ServicePac®, [22] 2 yr IOR 9x5 NBD
30L9190
ServicePac 3 yr IOR 9x5 NBD
30L9197
ServicePac 4 yr IOR 9x5 NBD
69P9198
ServicePac 5 yr IOR 9x5 NBD
69P9200
ServicePac 4 yr P&L P/U Depot
69P9199
ServicePac 5 yr P&L P/U Depot
69P9201
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/maspspleu.pdf

See footnotes for important warranty information
US models announced October 7, 2003
US models withdrawn effective July 2004

✳ Powered by Intel Centrino™ mobile technology

(R50) © IBM Corp. July 2004

Type-model	Processor	Speed GHz	Memory	Screen	Graphics controller	Disk	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 port	Battery Sec chip	cells	Limited warranty	Workhorse Global Entry	Avail date
1829-6YU	Pentium® M	1.6	512MB	15.0" XGA	7500	40GB[8]	Combo	Open; wireless upg[36]	Modem	Gigabit	1394	Yes	6	1 year	No	Jan 2004
1829-7ZU	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

1829 models have a 1 year limited warranty (other 1830 ThinkPad R50 systems have a 3 year limited warranty)

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel**® **Pentium**® **M Processor 1.6** or **1.7GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**512MB** std / 2GB max[7] / **PC2700** 333MHz DDR1 (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 USB-based diskette drive
Combo	DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / removable from Ultrabay Enhanced
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high
Disk	**40GB**[8] (4200 rpm) or **60GB** (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**
Display	*Some:* **15.0"** (381.0mm) **XGA (1024x768) TFT color** / Active Matrix / 200 nits *Some:* **15.0"** (381.0mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 200 nits / FlexView display with wide viewing angle and high density using in plane switching (IPS) technology
Graphics controller	*Some:* **ATI**® **Mobility**™ **RADEON**™ **7500** / **AGP 4X** / **32MB** DDR1 (DDR-SDRAM) *Some:* **ATI Mobility RADEON 9000** / **AGP 4X** / **32MB** DDR1 (DDR-SDRAM)
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*(WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Approximate weight[2]	with optical drive and battery: *6YU:* 6.6 lb (3.0kg); *7ZU/:* 6.8 lb (3.1kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6- or 9-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	*Model 6YU with 6-cell:* up to 4.7 hr; *7ZU with 9-cell:* up to 6.0 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI® PCI4520A CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared, [docking-based ports])
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	Wireless upgradable with wireless Mini PCI options
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Bluetooth	*Some:* Bluetooth wireless technology / in CDC (with modem)
Ethernet	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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] avail

128MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214
256MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197
512MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	Ultrabay Slim Li-Polymer Battery 3-cell	08K8190
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	ThinkPad Multiple Battery Charger II	22P9040
Second HDD Adapter for Ultrabay Slim	62P4554	IBM USB Travel Keyboard with UltraNav	31P9490
ThinkPad DVD-ROM Ultrabay Slim Drive	73P3270	TrackPoint Cap Collection	73P2698
CD-RW/DVD Combo Ultrabay Enhanced	73P3275	30GB Hard Disk 9.5mm (4200 rpm)	09N4268
Multi-Burner Plus Ultrabay Enhanced Drive	73P3312	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
IBM 128MB USB 2.0 Memory Key	22P9229	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
IBM 256MB USB 2.0 Memory Key	22P9025	Intel PRO/Wireless 2200BG Mini PCI	73P2801
IBM 4GB Microdrive™ with PC Card	09N4280	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
IBM USB Portable Diskette Drive	05K9276	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB 2.0 Portable Combo Drive	22P9194	Ericsson® GC82 EDGE PC Card Wireless	58P8782
IBM USB 2.0 Portable Multi-Burner	22P9163	ThinkPad 72W AC Adapter	02K6699
IBM USB Serial Parallel Adapter	22P5298	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM M400 Projector	0037A04	ThinkPad Port Replicator II	74P6733
IBM E400 Projector	0038A04	ThinkPad Mini Dock	287810U
IBM C400 Projector	0039A04	ThinkPad Dock II	287710U
IBM Optical 3-Button Travel Wheel Mouse	31P7410	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
• Access IBM
• Access Connections
• Adobe Acrobat Reader
• IBM Rapid Restore™ Ultra
• IBM RecordNOW and IBM Drive Letter Access
• InterVideo WinDVD
• Norton AntiVirus (OEM edition)
• PC-Doctor™
• ThinkPad Utilities
• IBM Update Connector™,[15]

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

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Universal 72 watt AC adapter
Asset ID™,[34] (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 ImageUltra™ Services available
IBM Rapid Restore Ultra available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12] via 800-IBM-SERV (426-7378)

ServicePac®,[22] 1yr IOR 9x5 NBD
30L9188
ServicePac 2 yr IOR 9x5 NBD
30L9189
ServicePac 3 yr IOR 9x5 NBD
30L9195
ServicePac 4 yr IOR 9x5 NBD
30L9194
ServicePac 5 yr IOR 9x5 NBD
30L9196
ServicePac 2 yr P&L P/U Depot
30L9191
ServicePac 3 yr P&L P/U Depot
30L9192
ServicePac 4 yr P&L P/U Depot
69P9195
ServicePac 5 yr P&L P/U Depot
69P9197
Post-warranty annual maintenance agreements at
ibm.com/services/its/us/source/maspspleu.pdf

See footnotes for important warranty information
US models announced January 13, 2004
US models withdrawn effective October 2004

Type-model	Processor	Speed GHz	Memory	Screen	Graphics controller	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Ethernet on planar	IEEE 1394 port	Security chip	Preload	Workhorse (W) Global (G) Entry (E)	Avail date
1830-5AU	Pentium® M	1.4	256MB	14.1" XGA	7500	40G	Combo	✳Intel 11b Wi-Fi[32]	Modem	Gigabit	1394	Yes	XP Pro	No	Oct 2003
1830-5CU	Pentium M	1.4	256MB	14.1" XGA	7500	40G	Combo	11a/b/g Wi-Fi[32]	Modem	Gigabit	1394	Yes	XP Pro	No	Oct 2003
1830-7CU	Pentium M	1.4	256MB	15.0" SXGA+	9000	40G	Combo	✳Intel 11b Wi-Fi	Modem	Gigabit	1394	Yes	XP Pro	No	Oct 2003

These educational models of the ThinkPad 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 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.

1830 models have a 3 year limited warranty (other 1829/1836 ThinkPad R50 systems have a 1 year limited warranty)

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel® Pentium® M Processor 1.4GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**256MB** std / 2GB max[7] / **PC2700** 333MHz 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 USB-based diskette drive
Combo	DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / removable from Ultrabay Enhanced
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high
Disk	**40GB** (4200 rpm), 9.5mm high / removable and upgradable / 9.5mm half bay / supports 2nd disk with optional 'Second HDD Adapter for Ultrabay Slim' / **IBM Hard Disk Drive Shock Absorber** / **IBM Active Protection System** (impact protection)
Display	*Some:* **14.1"** (358.1mm) **XGA (1024x768) TFT color** / Active Matrix / 150 nits
	Some: **15.0"** (381.0mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 200 nits / FlexView display with wide viewing angle and high density using in plane switching (IPS) technology
	All: one latch to unlatch and open with one hand
Graphics controller	*Some:* **ATI® Mobility™ RADEON™ 7500 / AGP 4X / 32MB** DDR-SDRAM
	Some: **ATI Mobility RADEON 9000 / AGP 4X / 32MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.4" x 10.2" x 1.35-1.46"; 314mm x 260mm x 34-37mm
	15.0" models (WxDxH): 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Approximate weight[2]	with optical drive and battery: *5AU/5CU:* 6.0 lb (2.7kg); *7CU:* 6.6 lb (3.0kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	*Model 7CU with SXGA+:* up to 4.0 hr; *Others:* up to 4.7 hr; *Optional 9-cell:* up to 6.9 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI® PCI4520A CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared, [docking-based ports])
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2100, Intel 82531 chipset
11a/b/g Wi-Fi[32]	*Some:* 11a/b/g Wi-Fi[32] wireless[4], Mini PCI, Atheros™ AR5001X+ chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Bluetooth	None
Ethernet	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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**3 years**/1 yr battery - EasyServ™[19] onsite pickup and delivery / service upgrades[22] avail

128 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214
256 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197
512 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	Ultrabay Slim Li-Polymer Battery 3-cell	08K8190
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	ThinkPad Multiple Battery Charger II	22P9040
Second HDD Adapter for Ultrabay Slim	62P4554	30GB Hard Disk 9.5mm (4200 rpm)	09N4268
ThinkPad DVD-ROM Ultrabay Slim Drive	73P3270	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
CD-RW/DVD Combo Ultrabay Enhanced	73P3275	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
Multi-Burner Ultrabay Enhanced Drive	73P3282	Intel PRO/Wireless 2200BG Mini PCI	73P2801
Portable 40GB USB 2.0 with Rapid Restore	09N4255	IBM 11a/b/g Wireless Mini PCI Adapter	31P9701
IBM USB Portable Diskette Drive	05K9276	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	ThinkPad Port Replicator II	74P6733
ThinkPad 72W AC/DC Combo Adapter	22P9010	ThinkPad Mini Dock	287810U
Other options at **ibm.com**/pc/us/accessories		ThinkPad Dock II	287710U

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore™ Ultra
- IBM RecordNOW and IBM Drive Letter Access
- InterVideo WinDVD
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™[15]

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™[34] (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 ImageUltra™ Services available
IBM Rapid Restore PC available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12] via 800-IBM-SERV (426-7378)

ServicePac®, [22] 2 yr IOR 9x5 NBD 30L9190
ServicePac 3 yr IOR 9x5 NBD 30L9197
ServicePac 4 yr IOR 9x5 NBD 69P9198
ServicePac 5 yr IOR 9x5 NBD 69P9200
ServicePac 4 yr P&L P/U Depot 69P9199
ServicePac 5 yr P&L P/U Depot 69P9201
Other ServicePac options at **ibm.com**/services/its/us/source/wamomxeu.pdf
Post-warranty annual maintenance agreements at **ibm.com**/services/its/us/source/maspspleu.pdf

See footnotes for important warranty information
US models announced October 7, 2003
US models withdrawn effective July 2004

✳ Powered by Intel Centrino™ mobile technology

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Type-model	Processor	Speed GHz	Memory	Screen	Graphics controller	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 port	Security chip	Battery cells	Preload	Entry (E) Global (G)	Avail date
1836-2NU	Pentium® M	1.4	256MB	14.1" XGA	7500	40G	DVD	✳Intel 11b Wi-Fi[32]	Modem	10/100			Yes	6	XP Pro	No	Oct 2003
1836-2PU	Pentium M	1.4	256MB	14.1" XGA	7500	40G	Combo	Open; wireless upg[36]	Modem	Gigabit	1394		Yes	6	XP Pro	No	Oct 2003
1836-2QU	Pentium M	1.4	256MB	14.1" XGA	7500	40G	Combo	✳Intel 11b Wi-Fi	Modem	Gigabit	1394		Yes	6	XP Pro	No	Oct 2003
1836-2RU	Pentium M	1.4	256MB	14.1" XGA	7500	60G	Combo	11a/b/g Wi-Fi[32]	Modem	Gigabit	1394		Yes	9	XP Pro	No	Oct 2003
1836-2SU	Pentium M	1.5	256MB	14.1" XGA	7500	40G	Combo	Open; wireless upg	Modem	Gigabit	1394		Yes	6	XP Pro	No	Oct 2003
1836-2TU	Pentium M	1.5	256MB	14.1" XGA	7500	40G	Combo	✳Intel 11b Wi-Fi	Modem	Gigabit	1394		Yes	6	XP Pro	No	Oct 2003
1836-2UU	Pentium M	1.5	256MB	14.1" XGA	7500	60G	Combo	11a/b/g Wi-Fi	Modem	Gigabit	1394		Yes	9	XP Pro	No	Oct 2003
1836-3NU	Pentium M	1.4	256MB	15.0" XGA	7500	40G	DVD	Open; wireless upg	Modem	10/100			Yes	6	XP Pro	No	Oct 2003
1836-3PU	Pentium M	1.4	256MB	15.0" XGA	7500	40G	DVD	✳Intel 11b Wi-Fi	Modem	10/100			Yes	6	XP Pro	No	Oct 2003
1836-3QU	Pentium M	1.5	256MB	15.0" XGA	7500	40G	DVD	Open; wireless upg	Modem	10/100			Yes	6	XP Pro	No	Oct 2003
1836-3RU	Pentium M	1.5	256MB	15.0" XGA	7500	40G	DVD	✳Intel 11b Wi-Fi	Modem	10/100			Yes	6	XP Pro	No	Oct 2003
1836-3SU	Pentium M	1.6	256MB	15.0" SXGA+	9000	60G	Combo	11a/b/g Wi-Fi	Mod/Blue	Gigabit	1394		Yes	9	XP Pro	No	Oct 2003
1836-3TU	Pentium M	1.6	256MB	15.0" SXGA+	9000	40G	Combo	Open; wireless upg	Modem	Gigabit	1394		Yes	6	XP Pro	No	Oct 2003
1836-3UU	Pentium M	1.6	256MB	15.0" SXGA+	9000	40G	Combo	✳Intel 11b Wi-Fi	Modem	Gigabit	1394		Yes	6	XP Pro	No	Oct 2003

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

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel® Pentium® M Processor 1.4, 1.5,** or **1.6GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**256MB** std / 2GB max[7] / **PC2700** 333MHz 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 USB-based diskette drive
DVD	*Some:* DVD-ROM / 8X-3.3X[9] speed / bootable / removable from Ultrabay Enhanced
Combo	*Some:* DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / removable from Ultrabay Enhan
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7mm high
Disk	**40GB**[8] (4200 rpm) or **60GB** (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**
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 / 200 nits *Some:* **15.0"** (381.0mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 200 nits / FlexView display with wide viewing angle and high density using IPS technology
Graphics controller	*Some:* **ATI® Mobility™ RADEON™ 7500 / AGP 4X / 32MB** DDR-SDRAM *Some:* **ATI Mobility RADEON 9000 / AGP 4X / 32MB** DDR-SDRAM
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.4" x 10.2" x 1.35-1.46"; 314mm x 260mm x 34-37mm *15.0" models (WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Approximate weight[2]	with optical drive and battery: *14.1" models:* 5.7 to 6.2 lb; *15.0" models:* 6.6 to 6.8 lb
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6- or 9-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	*6-cell models:* 4.0 to 4.7 hr; *9-cell models:* 6.0 to 6.9 hr; optional 9-cell available for all
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI® PCI4520A CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared, [docking-based ports])
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	*Some:* wireless upgradable with wireless Mini PCI options
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2100, Intel 82531 chipset
11a/b/g Wi-Fi[32]	*Some:* 11a/b/g Wi-Fi[32] wireless[4], Mini PCI, Atheros™ AR5001X+ chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Bluetooth	*Some:* Bluetooth wireless technology / in CDC (with modem)
Ethernet	*Some:* 10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / Wake on LAN® *Some:* 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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™,[19] onsite pickup and delivery / service upgrades[22] available

128MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell 08K8214
256MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell 08K8197
512MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	ThinkPad Dock II 287710U
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	Other options at **ibm.com**/pc/us/accessories

SOFTWARE[14]

Windows XP Pro models
- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- Adobe Acrobat Reader
- IBM Rapid Restore™ Ultra
- IBM RecordNOW and IBM Drive Letter Access (combo models)
- InterVideo WinDVD (combo, DVD)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

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™,[34] (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 ImageUltra™ Services available
IBM Rapid Restore Ultra available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12]

ServicePac®, [22] 1yr IOR 9x5 NBD
    30L9188
ServicePac 2 yr IOR 9x5 NBD
    30L9189
ServicePac 3 yr IOR 9x5 NBD
    30L9195
ServicePac 4 yr IOR 9x5 NBD
    30L9194
ServicePac 5 yr IOR 9x5 NBD
    30L9196
ServicePac 2 yr P&L P/U Depot
    30L9191
ServicePac 3 yr P&L P/U Depot
    30L9192
ServicePac 4 yr P&L P/U Depot
    69P9195
ServicePac 5 yr P&L P/U Depot
    69P9197

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

Type-model	Processor	Speed GHz	Memory	Screen	Graphics controller memory	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 port	Security chip	Preload	Workhorse (W) Global (G) Entry (E)	Avail date
1832-22U	Pentium® M	1.7	512MB	15.0" UXGA	128MB	60G	DVD-RW	11a/b/g Wi-Fi[32]	Mod/Blue	Gigabit	No	Yes	XP Pro	W	Nov 2003
1832-23U	Pentium M	1.7	512MB	15.0" UXGA	128MB	60G	DVD-RW	✳ Intel 11b Wi-Fi[32]	Mod/Blue	Gigabit	No	Yes	XP Pro	W G	Nov 2003

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel® Pentium® M Processor 1.7GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**512MB** std / 2GB max[7] / **PC2700** 333MHz DDR1 (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 USB-based diskette drive
DVD-RW	CD-RW/DVD-RW Multi-Burner / writes to CD-R, CD-RW, DVD-RAM, DVD-R, DVD-RW / reads CD-ROM, CD-R, CD-RW, CD-Audio, DVD-ROM, DVD-R, DVD+R, DVD+RW, DVD-RW, DVD-Video, DVD-RAM / same as optional ThinkPad Multi-Burner Ultrabay Enhanced Drive Option / removable from Ultrabay Enhanced
Ultrabay Enhanced Disk	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high **60GB**[8] **Ultra HS** (7200 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**
Display	**15.0"** (381mm) **UXGA-IPS (1600x1200) TFT color** / Active Matrix / 200 nits / 400:1 contrast ratio / 170-degree horizontal and vertical viewing angle / display uses **in plane switching (IPS) technology** / one latch to unlatch and open with one hand
Graphics	**ATI® Mobility™ FireGL™ T2** / **AGP 4X** / **128MB** DDR1 / OpenGL® support
Graphics external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*(WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Weight[2]	with optical drive and battery: 7.1 lb (3.2kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 9-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	5.9 hr; *with optional Ultrabay Slim Li-Polymer Battery:* 8.0 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI® PCI4520A CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for diskette, parallel, infrared, [docking-based ports])
PC Card Std slots	Two Type I, two 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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	None
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
11b Wi-Fi[32]	*Some:* 11b Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2100, Intel 82531 chipset
11a/b/g Wi-Fi[32]	*Some:* 11a/b/g Wi-Fi[32] wireless[4], Mini PCI, Atheros™ AR5001X+ chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Agere® chipset
Bluetooth	Bluetooth wireless technology / in CDC (with modem)
Ethernet	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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**3 years**/1 yr battery - EasyServ™,[19] onsite pickup and delivery courier service
Service options	Service upgrades[22] provide up to five years of onsite or depot repair service coverage from date of ThinkPad purchase (including warranty period)

SOFTWARE[14]

Windows XP Professional

- Microsoft® Windows® XP Professional[20]
- ✧ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- Adobe Reader
- IBM Rapid Restore™ Ultra
- IBM RecordNOW and IBM Drive Letter Access by Sonic
- InterVideo WinDVD
- InterVideo WinDVD Creator
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- IBM Update Connector™,[15]

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

ThinkPad notebooks implement IBM ThinkVantage™ technologies and design; visit **ibm.com**/thinkvantage

Universal 72 watt AC adapter
Asset ID™,[34] (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
ENERGY STAR®-compliant
IBM ImageUltra™ Services available
IBM Rapid Restore Ultra available to protect software image and data
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12] via 800-IBM-SERV (426-7378)

ServicePac®,[22] 2 yr IOR 9x5 NBD
30L9190
ServicePac 3 yr IOR 9x5 NBD
30L9197
ServicePac 4 yr IOR 9x5 NBD
69P9198
ServicePac 5 yr IOR 9x5 NBD
69P9200
ServicePac 4 yr P&L P/U Depot
69P9199
ServicePac 5 yr P&L P/U Depot
69P9201
Other ServicePac options at
ibm.com/services/its/us/source/ wamomxeu.pdf
Post-warranty annual maintenance agreements at
ibm.com/services/its/us/source/ maspspleu.pdf

128 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214	
256 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197	
512 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	Ultrabay Slim Li-Polymer Battery 3-cell	08K8190	
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	ThinkPad Multiple Battery Charger II	22P9040	
Second HDD Adapter for Ultrabay Slim	62P4554	IBM USB Travel Keyboard with UltraNav	31P9490	
ThinkPad DVD-ROM Ultrabay Slim Drive	73P3270	30GB Hard Disk 9.5mm (4200 rpm)	09N4268	
CD-RW/DVD Combo Ultrabay Enhanced	73P3275	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	
Multi-Burner Plus Ultrabay Enhanced Drive	73P3312	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273	
IBM 4GB Microdrive™ with PC Card	09N4280	Intel PRO/Wireless 2200BG Mini PCI	73P2801	
IBM USB Portable Diskette Drive	05K9276	IBM 11a/b/g Wireless Mini PCI Adptr II	73P4301	
IBM USB Serial Parallel Adapter	22P5298	IBM 11a/b/g Wireless CardBus Adapter	31P9101	
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	ThinkPad 72W AC Adapter	02K6699	
IBM USB 2.0 Portable 40GB Hard Disk	22P7196	ThinkPad 72W AC/DC Combo Adapter	22P9010	
IBM USB 2.0 Memory Key 256MB	22P9228	ThinkPad Port Replicator II	74P6733	
IBM USB 2.0 Memory Key 512MB	22P9230	ThinkPad Mini Dock	287810U	
IBM M400 Projector	0037A04	ThinkPad Dock II	287710U	
IBM Enh Perf Wireless Keyboard and Mouse	73P4067	IBM Optical 3-Button Travel Wheel Mouse	31P7410	
ThinkPad Premiere Leather Carrying Case	10K0209	Other options at **ibm.com**/pc/us/accessories		

See footnotes for important warranty information
US models announced October 28, 2003
US models withdrawn effective January 2005

✳ Powered by Intel Centrino™ mobile technology

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Type-model	Processor	Speed GHz	Memory	Screen	Graphics controller	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 port	Security chip	Workhorse (W) Preload Entry (E)	Global (G)	Avail date
1836-A4U	Pentium® M	1.5	256MB	14.1" XGA	7500	40GB	Combo	∗Intel 11b/g Wi-Fi[32]	Modem	10/100		Yes	XP Pro	No	Apr 2004
1836-A5U	Pentium M	1.5	256MB	14.1" XGA	9000	60GB	DVD-RW	11a/b/g Wi-Fi[32]	Modem	Gigabit	1394	Yes	XP Pro	No	Apr 2004
1836-BAU	Pentium M	1.5	256MB	15.0" XGA	7500	40GB	Combo	∗Intel 11b/g Wi-Fi	Modem	10/100		Yes	XP Pro	No	Apr 2004
1836-BBU	Pentium M	1.6	256MB	15.0" SXGA+	9000	60GB	DVD-RW	∗Intel 11b/g Wi-Fi	Modem	Gigabit	1394	Yes	XP Pro	No	Apr 2004
1836-BCU	Pentium M	1.6	256MB	15.0" SXGA+	9000	80GB	DVD-RW	11a/b/g Wi-Fi	Mod/Blue	Gigabit	1394	Yes	XP Pro	No	Apr 2004
1836-BDU	Pentium M	1.5	256MB	15.0" SXGA+	7500	40GB	Combo	∗Intel 11b/g Wi-Fi	Modem	10/100		Yes	XP Pro	No	Apr 2004

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

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel**® **Pentium**® **M Processor 1.5** or **1.6GHz** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	**1MB** / on die (at processor speed) / ECC
Memory	**256MB** std / 2GB max[7] / **PC2700** 333MHz DDR1 (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 USB-based diskette drive
Combo	*Some:* DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / removable from Ultrabay Enhan
DVD-RW	*Some:* CD-RW/DVD-RW Multi-Burner / removable from Ultrabay Enhanced
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high
Disk	**40GB**[8] (4200 rpm), **60GB** (4200 rpm), or **80GB** (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**
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 / 200 nits *Some:* **15.0"** (381.0mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 200 nits / FlexView display with wide viewing angle and high density using IPS technology
Graphics	*Some:* **ATI**® **Mobility**™ **RADEON**™ **7500 / AGP 4X / 32MB** DDR1 (DDR-SDRAM) *Some:* **ATI Mobility RADEON 9000 / AGP 4X / 32MB** DDR1 (DDR-SDRAM)
Graphics external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Acss IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.4" x 10.2" x 1.35-1.46"; 314mm x 260mm x 34-37mm *15.0" models (WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Weight[2]	with optical drive and battery: *14.1" models:* 6.0 lb (2.7kg); *15.0" models:* 6.6 lb (3.0kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	*Model BBU/BCU/BDU with SXGA+:* 4.0 hr; *Others:* 4.7 hr; *Optional 9-cell:* up to 6.9 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI® PCI4520A CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for parallel, infrared, [docking-based ports])
PC Card Std slots	One Type I, one Type II, one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door
Ports	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	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Intel 11b/g[32]	*Some:* 11b/g Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2200BG, Intel 82532 chipset
11a/b/g Wi-Fi[32]	*Some:* 11a/b/g Wi-Fi[32] wireless[4], Mini PCI, Atheros™ AR5001X+ chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Conexant® chipset
Bluetooth	*Some:* Bluetooth wireless technology / in CDC (with modem)
Ethernet	*Some:* 10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / Wake on LAN® *Some:* 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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

128MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214
256MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197
512MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	Ultrabay Slim Li-Polymer Battery 3-cell	08K8190
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	Intel PRO/Wireless 2200BG Mini PCI	73P2801
Second HDD Adapter for Ultrabay Slim	62P4554	IBM 11a/b/g Wireless Mini PCI Adapter II	73P4301
CD-RW/DVD Combo Ultrabay Enhanced	73P3275	IBM 11a/b/g Wireless CardBus Adapter	31P9101
Multi-Burner Plus Ultrabay Enhanced Drive	73P3312	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM USB Portable Diskette Drive	05K9276	ThinkPad Port Replicator II	74P6733
IBM USB 2.0 Combo Drive	73P4515	ThinkPad Mini Dock	287810U
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	ThinkPad Dock II	287710U
40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	ThinkPad Carrying Case - Leather	73P3600
80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273	Other options at **ibm.com**/pc/us/accessories	

SOFTWARE[14]

Windows XP Professional
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- IBM Rescue and Recovery™
- IBM RecordNOW and Drive Letter Access powered by Sonic products (combo, DVD-RW)
- InterVideo WinDVD (combo, DVD-RW)
- InterVideo WinDVD Creator (DVD-RW)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- Adobe Reader
- IBM Update Connector™,[15]

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

ThinkPad notebooks implement IBM ThinkVantage™ technologies and design; visit **ibm.com**/thinkvantage

Universal 72 watt AC adapter
Asset ID™,[34] (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
ENERGY STAR®-compliant
IBM ImageUltra™ Services available
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD
　　　　30L9188
ServicePac 2 yr IOR 9x5 NBD
　　　　30L9189
ServicePac 3 yr IOR 9x5 NBD
　　　　30L9195
ServicePac 4 yr IOR 9x5 NBD
　　　　30L9194
ServicePac 5 yr IOR 9x5 NBD
　　　　30L9196
ServicePac 2 yr P&L P/U Depot
　　　　30L9191
ServicePac 3 yr P&L P/U Depot
　　　　30L9192
ServicePac 4 yr P&L P/U Depot
　　　　69P9195
ServicePac 5 yr P&L P/U Depot
　　　　69P9197
Post-warranty annual maintenance agreements at
ibm.com/services/its/us/source/ maspspleu.pdf

See footnotes for important warranty information
US models announced April 6, 2004
US models withdrawn effective January 2005

∗ Powered by Intel Centrino™ mobile technology

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Type-model	Processor	Speed GHz	Memory	Screen	Graphics controller	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 port	Security chip	Workhorse (W) Global (G) Entry (E)	Avail date
1836-GCU	Pentium® M 715	1.5	256MB	14.1" XGA	7500	40GB	Combo	✳ Intel 11b/g Wi-Fi[32]	Modem	10/100		Yes	No	Jul 2004
1836-GDU	Pentium M 715	1.5	256MB	14.1" XGA	9000	60GB	DVD-RW	11a/b/g Wi-Fi[32]	Modem	Gigabit	1394	Yes	No	Jul 2004
1836-H7U	Pentium M 715	1.5	256MB	15.0" XGA	7500	40GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	10/100		Yes	No	Jul 2004
1836-H8U	Pentium M 715	1.5	256MB	15.0" SXGA+	7500	40GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	10/100		Yes	No	Jul 2004
1836-H9U	Pentium M 725	1.6	256MB	15.0" SXGA+	9000	60GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	Gigabit	1394	Yes	No	Jul 2004
1836-HAU	Pentium M 725	1.6	256MB	15.0" SXGA+	9000	80GB	DVD-RW	11a/b/g Wi-Fi	Mod/Blue	Gigabit	1394	Yes	No	Jul 2004

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

Positioning	*Mainstream performance and features; two-spindle system*	
Processor	**Intel® Pentium® M Processor 715 (1.5GHz)** or **725 (1.6GHz)** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus	
L2 cache	**2MB** / on die (at processor speed) / ECC	
Memory	**256MB** std / 2GB max[7] / **PC2700** 333MHz DDR1 (DDR-SDRAM) / non-parity / CL2.5 / two 200-pin SO-DIMM sockets / std memory in one socket / one socket available	

SOFTWARE[14]

Windows XP Professional
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Diskette drive	None standard / use optional USB-based diskette drive
Combo	*Some:* DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / removable from Ultrabay Enhan
DVD-RW	*Some:* CD-RW/DVD-RW Multi-Burner / removable from Ultrabay Enhanced
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high
Disk	**40GB**[8] (4200 rpm), **60GB** (4200 rpm), or **80GB** (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**
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 / 200 nits *Some:* **15.0"** (381.0mm) **SXGA+ (1400x1050) TFT color** / Active Matrix / 200 nits / FlexView display with wide viewing angle and high density using IPS technology
Graphics	*Some:* **ATI® Mobility™ RADEON™ 7500 / AGP 4X / 32MB** DDR1 (DDR-SDRAM) *Some:* **ATI Mobility RADEON 9000 / AGP 4X / 32MB** DDR1 (DDR-SDRAM)
Graphics external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Acss IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.4" x 10.2" x 1.35-1.46"; 314mm x 260mm x 34-37mm *15.0" models (WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Weight[2]	with optical drive and battery: *14.1" models:* 6.0 lb (2.7kg); *15.0" models:* 6.6 lb (3.0kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	Up to 4.7 hr; *Optional High Capacity 9-cell:* up to 6.9 hr
Architecture	**Intel 855PM** chipset / 82855PM Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB, [Bluetooth]) / PCI bus 2.2 32-bit, 33MHz (TI® PCI4520A CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for parallel, infrared, [docking-based ports])
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	*Some:* IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Intel 11b/g[32]	*Some:* 11b/g Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2200BG, Intel 82532 chipset
11a/b/g Wi-Fi[32]	*Some:* 11a/b/g Wi-Fi[32] wireless[4], Mini PCI, Atheros™ AR5001X+ chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Conexant® chipset
Bluetooth	*Some:* Bluetooth wireless technology / in CDC (with modem)
Ethernet	*Some:* 10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / Wake on LAN® *Some:* 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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

Preloaded
- Access IBM
- Access Connections
- IBM Rescue and Recovery™
- IBM RecordNOW and Drive Letter Access powered by Sonic products (combo, DVD-RW)
- InterVideo WinDVD (combo, DVD-RW)
- InterVideo WinDVD Creator (DVD-RW)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- Adobe Reader
- IBM Update Connector™,[15]

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

ThinkPad notebooks implement IBM ThinkVantage™ technologies and design; visit **ibm.com**/thinkvantage

Universal 72 watt AC adapter
Asset ID™,[34] (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
ENERGY STAR®-compliant
IBM ImageUltra™ Services available
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD
    30L9188
ServicePac 2 yr IOR 9x5 NBD
    30L9189
ServicePac 3 yr IOR 9x5 NBD
    30L9195
ServicePac 4 yr IOR 9x5 NBD
    30L9194
ServicePac 5 yr IOR 9x5 NBD
    30L9196
ServicePac 2 yr P&L P/U Depot
    30L9191
ServicePac 3 yr P&L P/U Depot
    30L9192
ServicePac 4 yr P&L P/U Depot
    69P9195
ServicePac 5 yr P&L P/U Depot
    69P9197
Post-warranty annual maintenance agreements at
ibm.com/services/its/us/source/ maspspleu.pdf

Option	Part	Option	Part
128 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214
256 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197
512 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	Ultrabay Slim Li-Polymer Battery 3-cell	08K8190
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	Intel PRO/Wireless 2200BG Mini PCI	73P2801
Second HDD Adapter for Ultrabay Slim	62P4554	IBM 11a/b/g Wireless Mini PCI Adapter II	73P4301
CD-RW/DVD Combo Ultrabay Enhanced	73P3275	IBM 11a/b/g Wireless CardBus Adapter	31P9101
Multi-Burner Plus Ultrabay Enhanced Drive	73P3312	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM USB Portable Diskette Drive	05K9276	ThinkPad Port Replicator II	74P6733
IBM USB 2.0 Combo Drive	73P4515	ThinkPad Mini Dock	287810U
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	ThinkPad Dock II	287710U
40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816	ThinkPad Carrying Case - BackPack	73P3599
80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273	Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information
US models announced July 13, 2004
US models withdrawn effective January 2005

✳ Powered by Intel Centrino™ mobile technology

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Type-model	Processor	Speed GHz	Memory	Screen	Disk GB[8]	Optical	Mini PCI Comm Bay wireless	CDC modem	Integrated graphics	Secu-rity chip	Limited warranty[12] Preload	Workhorse (W) Global (G) Entry (E)	Avail date
2883-2ZU	Celeron® M	1.3	256MB	15.0" XGA	30GB	Combo	Open; wireless upg[36]	Modem	Extreme™ 2	Yes	1 yr XP Pro	No	Apr 2004
2883-2NU	Pentium® M	1.5	256MB	14.1" XGA	30GB	Combo	✳ Intel 11b/g Wi-Fi[32]	Modem	Extreme 2	Yes	1 yr XP Pro	No	Apr 2004
2883-2XU	Pentium M	1.5	256MB	14.1" XGA	20GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	Extreme 2	Yes	1 yr XP Pro	No	Apr 2004
2883-2QU	Pentium M	1.5	256MB	15.0" XGA	30GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	Extreme 2	Yes	1 yr XP Pro	No	Apr 2004
2883-2YU	Pentium M	1.5	256MB	15.0" XGA	20GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	Extreme 2	Yes	1 yr XP Pro	No	Apr 2004
2883-8QU	Pentium M 715	1.5	256MB	14.1" XGA	30GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	Extreme 2	Yes	1 yr XP Pro	No	July 2004
2883-ARU	Pentium M 715	1.5	256MB	15.0" XGA	30GB	Combo	✳ Intel 11b/g Wi-Fi	Modem	Extreme 2	Yes	1 yr XP Pro	No	July 2004

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

Positioning	*Mainstream performance and features; two-spindle system*
Processor	**Intel® Celeron M Processor 1.3GHz** with 400MHz system bus or **Intel Pentium M Processor 1.5GHz** or **Intel Pentium M Processor 715 (1.5GHz)** with enhanced Intel SpeedStep™ technology[1] and 400MHz system bus
L2 cache	*Celeron M:* **512KB**; *Pentium M:* **1MB**; *Pentium M 715:* **2 MB**; *All:* ECC
Memory	**256MB** std / 2GB max[7] / **PC2700** 333MHz DDR1 (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 USB-based diskette drive
Combo	DVD-ROM/CD-RW / 24X/24X/24X/8X[21] speed / removable from Ultrabay Enhan
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high
Disk	**20GB**[8] or **30GB** (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**
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 / 200 nits
Graphics	**Integrated Intel Extreme™ Graphics 2** / in 855GME GMCH / uses main memory (up to 64MB) / 250MHz
Graphics external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions[3]	*14.1" models (WxDxH):* 12.4" x 10.2" x 1.35-1.46"; 314mm x 260mm x 34-37mm *15.0" models (WxDxH):* 13.1" x 10.6" x 1.47-1.58"; 332mm x 269mm x 37-40mm
Weight[2]	with optical drive and battery: *14.1" models:* 6.0 lb (2.7kg); *15.0" models:* 6.6 lb (3.0kg)
Case material	*Color:* black; *All:* Acrylonitrile-Butadiene-Styrene (ABS) plastic
Battery - type	Lithium Ion 6-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced
Battery - life[10]	*Celeron M model:* up to 3.5 hr; *Pentium M models:* up to 4.7 hr; *Optional High Capacity 9-cell:* up to 6.9 hr
Architecture	**Intel 855GME** chipset / 82855GME Memory Controller Hub (MCH-M) / 82801DBM ICH4-M I/O Controller Hub (ATA-100 EIDE, PCI bus, ethernet MAC, Low Pin Count [LPC] interface, USB / PCI bus 2.2 32-bit, 33MHz (TI® PCI4510 CardBus and 1394 controller, Mini PCI, external expansion) / LPC bus 33MHz (security chip; PC87392 Super I/O for parallel, infrared, [docking-based ports])
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) / infrared (4Mbps) / RJ-11 (modem) / RJ-45 (ethernet) / no keyboard or mouse or serial port
Video out	S-video out port (TV out) / one 4-pin industry standard connector
IEEE 1394	None
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable
Wireless upg[36]	*Some:* wireless upgradable with wireless Mini PCI options
Intel 11b/g[32]	*Some:* 11b/g Wi-Fi[32] wireless[4], Mini PCI, Intel PRO/Wireless 2200BG, Intel 82532 chipset
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible
Modem	56K[6] V.90 (V.92-designed[29]) modem in CDC / Conexant® chipset
Bluetooth	None
Ethernet	10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / 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**[33] / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security[16] / TCG-compliant
Limited warranty[12]	**1 year** - EasyServ™[19] onsite pickup and delivery / service upgrades[22] available

SOFTWARE[14]

Windows XP Professional
- Microsoft® Windows® XP Professional[20]
- ◇ Disk-to-Disk Recovery (in hidden protected area)

Preloaded
- Access IBM
- Access Connections
- IBM Rescue and Recovery™
- IBM RecordNOW and Drive Letter Access powered by Sonic products (combo models)
- InterVideo WinDVD (combo models)
- Norton AntiVirus (OEM edition)
- PC-Doctor™
- ThinkPad Utilities
- Adobe Reader
- IBM Update Connector™,[15]

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

ThinkPad notebooks implement IBM ThinkVantage technologies and design; visit **ibm.com**/thinkvantage

Universal 72 watt AC adapter
Asset ID™,[34] (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
ENERGY STAR®-compliant
IBM ImageUltra™ Services available
International Warranty Service[17]
24 hour x 7 day[18] toll-free warranty support during the warranty[12]

ServicePac®,[22] 1yr IOR 9x5 NBD
    30L9188
ServicePac 2 yr IOR 9x5 NBD
    30L9189
ServicePac 3 yr IOR 9x5 NBD
    30L9195
ServicePac 4 yr IOR 9x5 NBD
    30L9194
ServicePac 5 yr IOR 9x5 NBD
    30L9196
ServicePac 2 yr P&L P/U Depot
    30L9191
ServicePac 3 yr P&L P/U Depot
    30L9192
ServicePac 4 yr P&L P/U Depot
    69P9195
ServicePac 5 yr P&L P/U Depot
    69P9197
Post-warranty annual maintenance agreements at
ibm.com/services/its/us/source/maspspleu.pdf

128 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828	T40/R50 Series Li-Ion Battery 6-cell	08K8214
256 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830	T40/R50 High Capacity Li-Ion Batt 9-cell	08K8197
512 MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832	Ultrabay Slim Li-Polymer Battery 3-cell	08K8190
1GB PC2700 DDR-SDRAM CL2.5 SOD	31P9834	ThinkPad Multiple Battery Charger II	22P9040
Second HDD Adapter for Ultrabay Slim	62P4554	40GB HS Hard Disk 9.5mm (5400 rpm)	08K9816
ThinkPad DVD-ROM Ultrabay Slim Drive	73P3270	80GB HS Hard Disk 9.5mm (5400 rpm)	09N4273
CD-RW/DVD Combo Ultrabay Enhanced	73P3275	Intel PRO/Wireless 2200BG Mini PCI	73P2801
Multi-Burner Plus Ultrabay Enhanced Drive	73P3312	IBM 11a/b/g Wireless Mini PCI Adapter II	73P4301
IBM 4GB Microdrive™ with PC Card	09N4280	IBM 11a/b/g Wireless CardBus Adapter	31P9101
IBM USB Portable Diskette Drive	05K9276	SonyEricsson® GC83 EDGE PC Card	26K3393
IBM USB 2.0 Portable Multi-Burner Drive	22P9163	ThinkPad 72W AC/DC Combo Adapter	22P9010
IBM USB 2.0 Memory Key 512MB	22P9230	ThinkPad Port Replicator II	74P6733
TrackPoint Cap Collection	73P2698	ThinkPad Mini Dock	287810U
Kensington® MicroSaver® Security Cable	73P2582	ThinkPad Dock II	287710U
ThinkPad Carrying Case - Leather	73P3600	Other options at **ibm.com**/pc/us/accessories	

See footnotes for important warranty information   ✳ Powered by Intel Centrino™ mobile technology   (2883) © IBM Corp. December 2004
US models announced July 13, 2004; previous models on April 6, 2004
US models withdrawn effective January 2005

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, 27709, Attn: Dept JDJA/B203. 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 Winstone 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**/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**/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.

[16] **IBM Embedded Security Subsystem** works with optional VPN software.

[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.

[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 Ultrabay 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.**

[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.

[33] **IBM Embedded Security Subsystem**
requires download of client security software from the Web and requires Internet access, not included.

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

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

[36] **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.

[37] **Mobile processors:** Power management features reduce processor speed when in battery mode.

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