

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US models withdrawn effective January or March 2005

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US models withdrawn effective July 2004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	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 port	Battery Sec cells Limited	Workhorse Global Avail warranty Entry 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 Processor	Mainstream performance and features; two-spindle system Intel® Pentium® M Processor 1.6 or 1.7GHz with enhanced Intel SpeedStep™ technology ¹ and 400MHz system bus										SOFTWARE¹⁴ 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	
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 Ultrabay Enhanced Disk	DVD-ROM/CD-RW / 24X/24X/24X/8X ²¹ speed / removable from Ultrabay Enhanced One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high 40GB⁸ (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	<i>Color:</i> black; <i>All:</i> Acrylonitrile-Butadiene-Styrene (ABS) plastic											
Battery - type	Lithium Ion 6- or 9-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced											
Battery - life ¹⁰	<i>Model 6YU with 6-cell:</i> up to 4.7 hr; <i>7ZU with 9-cell:</i> 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 2.0³³ / 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										

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US models withdrawn effective October 2004

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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	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 Processor	Mainstream performance and features; two-spindle system Intel® Pentium® M Processor 1.4GHz with enhanced Intel SpeedStep™ technology ¹ and 400MHz system bus										SOFTWARE¹⁴				
L2 cache	1MB / on die (at processor speed) / ECC										Windows XP Pro models				
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										- Microsoft® Windows® XP Professional ²⁰ ♦ Disk-to-Disk Recovery (in hidden protected area)				
Diskette drive	None standard / use optional USB-based diskette drive										Preloaded				
Combo	DVD-ROM/CD-RW / 24X/24X/24X/8X ²¹ speed / removable from Ultrabay Enhanced										• Access IBM				
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high										• Access Connections				
Disk	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 (impact protection)										• Adobe Acrobat Reader				
Display	<i>Some:</i> 14.1" (358.1mm) XGA (1024x768) TFT color / Active Matrix / 150 nits <i>Some:</i> 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 <i>All:</i> one latch to unlatch and open with one hand										• IBM Rapid Restore™ Ultra				
Graphics controller	<i>Some:</i> ATI® Mobility™ RADEON™ 7500 / AGP 4X / 32MB DDR-SDRAM <i>Some:</i> ATI Mobility RADEON 9000 / AGP 4X / 32MB DDR-SDRAM										• IBM RecordNOW and IBM Drive Letter Access				
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B										• InterVideo WinDVD				
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)										• Norton AntiVirus (OEM edition)				
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar ¹³ , magnifying glass										• PC-Doctor™				
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones										• ThinkPad Utilities				
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions										• IBM Update Connector™ ¹⁵				
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										Downloadable				
Approximate weight ²	with optical drive and battery: 5AU/5CU: 6.0 lb (2.7kg); 7CU: 6.6 lb (3.0kg)										• IBM Director Agent				
Case material	<i>Color:</i> black; <i>All:</i> Acrylonitrile-Butadiene-Styrene (ABS) plastic										• Software Delivery Assistant				
Battery - type	Lithium Ion 6-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced										• System Migration Assistant				
Battery - life ¹⁰	<i>Model 7CU with SXGA+:</i> up to 4.0 hr; <i>Others:</i> up to 4.7 hr; <i>Optional 9-cell:</i> up to 6.9 hr										• Client Security Software (for security chip)				
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])										License (CD not included)				
PC Card Std slots	One Type I, one Type II, or one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door										- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client				
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										Universal 72 watt AC adapter				
IEEE 1394	IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard										Asset ID™ ³⁴ (system-specific info in chip accessed over network)				
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception										PC 2001 and PXE 2.0-compliant				
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable										ACPI 1.0b and 2.0-compliant				
11b Wi-Fi ³²	<i>Some:</i> 11b Wi-Fi ³² wireless ⁴ , Mini PCI, Intel PRO/Wireless 2100, Intel 82531 chipset										CIM and DMI 2.0-compliant				
11a/b/g Wi-Fi ³²	<i>Some:</i> 11a/b/g Wi-Fi ³² wireless ⁴ , Mini PCI, Atheros™ AR5001X+ chipset										IBM ImageUltra™ Services available				
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible										IBM Rapid Restore PC available to protect software image and data				
Modem	56K ⁶ V.90 (V.92-designed ²⁹) modem in CDC / Agere® chipset										International Warranty Service ¹⁷				
Bluetooth	None										24 hour x 7 day ¹⁸ toll-free warranty support during the warranty ¹² via 800-IBM-SERV (426-7378)				
Ethernet	Gigabit Ethernet on planar / Intel 82540EP chipset (MAC/PHY) / Wake on LAN®										ServicePac®, ²² 2 yr IOR 9x5 NBD				
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										30L9190				
Security	Power-on password / hard disk password / supervisor password / security keyhole										ServicePac 3 yr IOR 9x5 NBD				
Security chip	IBM Embedded Security Subsystem 2.0³³ / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security ¹⁶ / TCG-compliant										30L9197				
Limited warranty ¹²	3 years/1 yr battery - EasyServ™¹⁹ onsite pickup and delivery / service upgrades ²² avail										ServicePac 4 yr IOR 9x5 NBD				
128MB PC2700 DDR-SDRAM CL2.5 SOD	31P9828		T40/R50 Series Li-Ion Battery 6-cell		08K8214		ServicePac 5 yr IOR 9x5 NBD		69P9200						
256MB PC2700 DDR-SDRAM CL2.5 SOD	31P9830		T40/R50 High Capacity Li-Ion Batt 9-cell		08K8197		ServicePac 4 yr P&L P/U Depot		69P9199						
512MB PC2700 DDR-SDRAM CL2.5 SOD	31P9832		Ultrabay Slim Li-Polymer Battery 3-cell		08K8190		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				
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										

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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IBM® ThinkPad® R50 (1836) - Express - withdrawn

Created by IBM PC Institute
Personal Systems Reference (PSREF)

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 Security chip	Battery cells Preload	Workhorse (W) Global (G) Entry (E)	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											SOFTWARE ¹⁴				
Processor	Intel® Pentium® M Processor 1.4, 1.5, or 1.6GHz with enhanced Intel SpeedStep™ technology ¹ and 400MHz system bus											Windows XP Pro models				
L2 cache	1MB / on die (at processor speed) / ECC											- Microsoft® Windows® XP Professional ²⁰				
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											◆ Disk-to-Disk Recovery (in hidden protected area)				
Diskette drive	None standard / use optional USB-based diskette drive											Preloaded				
DVD	Some: DVD-ROM / 8X-3.3X ⁹ speed / bootable / removable from Ultrabay Enhanced											• Access IBM				
Combo	Some: DVD-ROM/CD-RW / 24X/24X/8X ²¹ speed / removable from Ultrabay Enhanced											• Access Connections				
Ultrabay Enhanced	One modular bay for interchangeable devices / Ultrabay Slim-compatible / 12.7 mm high											• Adobe Acrobat Reader				
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											• IBM Rapid Restore™ Ultra				
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											• IBM RecordNow and IBM Drive Letter Access (combo models)				
Graphics controller	Some: ATI® Mobility™ RADEON™ 7500 / AGP 4X / 32MB DDR-SDRAM Some: ATI Mobility RADEON 9000 / AGP 4X / 32MB DDR-SDRAM											• InterVideo WinDVD (combo, DVD)				
Graphics - external	External monitor support via analog DB-15 connector / up to 1600x1200 at 85Hz / DDC2B											• Norton AntiVirus (OEM edition)				
Keyboard	87-key / Access IBM button / palm rest / pitch: 19mm; stroke: 2.7mm (std-size keys)											• PC-Doctor™				
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar ¹³ , magnifying glass											• ThinkPad Utilities				
Touch pad	UltraNav™ multi-pointing system / touch pad below keyboard / Tap Zones											• IBM Update Connector™ ¹⁵				
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions											Downloadable				
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											• IBM Director Agent				
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											• Software Delivery Assistant				
Case material	Color: black; All: Acrylonitrile-Butadiene-Styrene (ABS) plastic											• System Migration Assistant				
Battery - type	Lithium Ion 6- or 9-cell / intelligent / supports unique 2nd battery in Ultrabay Enhanced											• Client Security Software (for security chip)				
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											License (CD not included)				
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])											- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client				
PC Card Std slots	One Type I, one Type II, or one Type III / CardBus 32-bit / PCMCIA 2.1 / integrated door											Universal 72 watt AC adapter				
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											Asset ID™ ³⁴ (system-specific info in chip accessed over network)				
Video out	S-video out port (TV out) / one 4-pin industry standard connector											PC 2001 and PXE 2.0-compliant				
IEEE 1394	Some: IEEE 1394 (FireWire) port / 4-pin connector / 1394a-2000 standard											ACPI 1.0b and 2.0-compliant				
Wireless antenna	UltraConnect™ Antenna built into the display cover for optimal wireless signal reception											CIM and DMI 2.0-compliant				
Mini PCI	One Mini PCI type III slot (Communications Bay) / customer upgradable											IBM ImageUltra™ Services available				
Wireless upg ³⁶	Some: wireless upgradable with wireless Mini PCI options											IBM Rapid Restore Ultra available to protect software image and data				
11b Wi-Fi ³²	Some: 11b Wi-Fi ³² wireless ⁴ , Mini PCI, Intel PRO/Wireless 2100, Intel 82531 chipset											International Warranty Service ¹⁷				
11a/b/g Wi-Fi ³²	Some: 11a/b/g Wi-Fi ³² wireless ⁴ , Mini PCI, Atheros™ AR5001X+ chipset											24 hour x 7 day ¹⁸ toll-free warranty support during the warranty ¹²				
CDC	One Communications Daughter Card (CDC) socket (used by modem) / not accessible											ServicePac®, ²² 1yr IOR 9x5 NBD				
Modem	56K ⁵ V.90 (V.92-designed ²⁹) modem in CDC / Agere® chipset											30L9188				
Bluetooth	Some: Bluetooth wireless technology / in CDC (with modem)											ServicePac 2 yr IOR 9x5 NBD				
Ethernet	Some: 10/100 ethernet on planar / Intel 82562EZ chipset (physical layer) / Wake on LAN®											30L9189				
Audio support	Some: Gigabit Ethernet on planar / Intel 82540EP chipset (MAC/PHY) / Wake on LAN											ServicePac 3 yr IOR 9x5 NBD				
	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											30L9195				
Security	Power-on password / hard disk password / supervisor password / security keyhole											ServicePac 4 yr IOR 9x5 NBD				
Security chip	IBM Embedded Security Subsystem 2.0 ³³ / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security ¹⁶ / TCG-compliant											30L9194				
Limited warranty ¹²	1 year - EasyServ™ ¹⁹ onsite pickup and delivery / service upgrades ²² available											ServicePac 5 yr P&L P/U Depot				
	128MB PC2700 DDR-SDRAM CL2.5 SOD 31P9828											69P9197				
	256MB PC2700 DDR-SDRAM CL2.5 SOD 31P9830											Post-warranty annual maintenance agreements at				
	512MB PC2700 DDR-SDRAM CL2.5 SOD 31P9832											ibm.com/services/its/us/source/maspspleu.pdf				
	1GB PC2700 DDR-SDRAM CL2.5 SOD 31P9834															
	T40/R50 Series Li-Ion Battery 6-cell 08K8214															
	T40/R50 High Capacity Li-Ion Batt 9-cell 08K8197															
	ThinkPad Dock II 287710U															
	Other options at ibm.com/pc/us/accessories															

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 memory GB ⁸	Optical	Mini PCI Comm Bay wireless	CDC modem/ Bluetooth™	Ethernet on planar	IEEE 1394 Security chip	Workhorse (W) Global (G) 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 Processor	Mainstream performance and features; two-spindle system Intel® Pentium® M Processor 1.7GHz with enhanced Intel SpeedStep™ technology ¹ and 400MHz system bus											SOFTWARE¹⁴ 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
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 60GB⁸ 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 <i>Ultrabay Slim Li-Polymer Battery</i> : 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 ⁵ 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 2.0³³ / 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)											

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	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 Adpdr 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	

	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 28, 2003
US models withdrawn effective January 2005

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