



Personal Systems Reference
IBM ThinkPad Systems



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IBM ThinkPad® Systems

IBM® ThinkPad®		Intel® Processor	Memory	Screen type	Std disk /	Docking			Video-in/out		Available	
Name	Type-model	MHz¹ / cache KB	std / max MB	Size (inches) Resolution	CD-ROM	Port	Repl	Battery	MPEG decoder	UltraBay	Price*	date
											Limited warranty	
											Preload	
×380XD	2635-8AU	PMX 233 /512	32 /96e	HPA 12.1 SVGA	3.2G / 24X	7.1	Li	P		3 spindle	430TX	95 1 yr 2099 3/98
×380XD	2635-BAU	PMX 233 /512	32 /96e	TFT 12.1 SVGA	none / 24X	7.1	Li	P		3 spindle	430TX	none 1 yr AAP 3/98
×380XD	2635-9AU	PMX 233 /512	32 /96e	TFT 12.1 SVGA	4.0G / 24X	7.1	Li	P		3 spindle	430TX	95 1 yr 2399 3/98
×380XD	2635-AAU	PMX 266 /512	32 /96e	TFT 12.1 SVGA	5.1G / 24X	7.1	Li	P		3 spindle	430TX	95 1 yr 2499 3/98
×380XD	2635-EAU	PII 233 /512	32 /96e	HPA 12.1 SVGA	4.0G / 24X	7.2	Li	P		3 spindle	440BX	95 1 yr 2349 5/98
×380XD	2635-FAU	PII 266 /512	32 /96e	TFT 12.1 SVGA	5.1G / 24X	7.2	Li	P		3 spindle	440BX	95 1 yr 2899 5/98
380Z	2635-HGU	PII 233 /512	32 /96e	TFT 13.3 XGA	4.0G / 24X	7.2	Li	P		3 spindle	440BX	98 1 yr 1949 ↘ 9/98
380Z	2635-JGU	PII 300 /512	32 /96e	TFT 13.3 XGA	4.0G / 24X	7.2	Li	P		3 spindle	440BX	98 1 yr 2499 ↘ 9/98
380Z	2635-HBU	PII 233 /512	32 /96e	TFT 13.3 XGA	4.0G / 24X	7.2	Li	P		3 spindle	440BX	NT4 1 yr 2049 ↘ 9/98
380Z	2635-JBU	PII 300 /512	32 /96e	TFT 13.3 XGA	4.0G / 24X	7.2	Li	P		3 spindle	440BX	NT4 1 yr 2599 ↘ 9/98
380Z	2635-JCU	PII 300 /512	32 /96e	TFT 13.3 XGA	none / 24X	7.2	Li	P		3 spindle	440BX	none 1 yr 2199 ↘ 9/98
390	2626-20U	PMX 233 /512	32 /256s	TFT 12.1 SVGA	3.2G / 24X	7.5	NiMH		U	3 spindle	430TX	98 1 yr 1799 11/98
390	2626-50U	PII 233 /512	32 /256s	TFT 12.1 SVGA	3.2G / 24X	7.5	NiMH		U	3 spindle	440BX	98 1 yr 1999 11/98
390	2626-70U	PII 266 /512	64 /256s	TFT 14.1 XGA	4.3G / 24X	7.7	Li	P	U	3 spindle	440BX	98 1 yr 2599 ↘ 11/98
×560X	2640-60U	PMX 200 /256	32 /96e	HPA 12.1 SVGA	2.1G /	4.2	Li	P		Slim/full keyb	430TX	95 1 yr 1799 3/98
×560X	2640-70U	PMX 233 /256	32 /96e	TFT 12.1 SVGA	4.0G /	4.1	Li	P		Slim/full keyb	430TX	95 1 yr 2299 11/97
560Z	2640-90U	PII 233 /512	32 /96e	TFT 12.1 SVGA	4.0G /	4.1	Li	P		Slim/full keyb	440BX	98 1 yr 2599 ↘ 9/98
560Z	2640-91U	PII 233 /512	32 /96e	TFT 12.1 SVGA	4.0G /	4.1	Li	P		Slim/full keyb	440BX	NT4 1 yr 2699 ↘ 9/98
560Z	2640-B0U	PII 300 /512	64 /128e	TFT 12.1 SVGA	6.4G /	4.2	Li	P		Slim/full keyb	440BX	98 1 yr 3499 ↘ 9/98
560Z	2640-B1U	PII 300 /512	64 /128e	TFT 12.1 SVGA	6.4G /	4.2	Li	P		Slim/full keyb	440BX	NT4 1 yr 3599 ↘ 9/98
×600	2645-21U	PMX 233 /512	32 /256s	HPA 13.0 XGA	3.2G / 24X	5.3	Li	P	D	M	U	430TX 95 3 yr 2499 4/98
×600	2645-31U	PMX 233 /512	32 /256s	TFT 12.1 SVGA	3.2G / UD	5.1	Li	P	D	M	U	430TX 95 3 yr 2499 4/98
600	2645-35U	PII 233 /512	32 /288s	TFT 12.1 SVGA	3.2G / 24X	4.7	Li	P	D	M	U	440BX 95 3 yr 2899 8/98
×600	2645-41U	PII 233 /512	32 /288s	TFT 13.3 XGA	3.2G / 24X	5.4	Li	P	D	M	U	440BX 95 3 yr 3199 4/98
600	2645-51U	PII 266 /512	32 /288s	TFT 13.3 XGA	4.0G / 24X	5.5	Li	P	D	M	U	440BX 95 3 yr 3599 4/98
×600	2645-A1U	PII 266 /512	32 /288s	TFT 13.3 XGA	none / UD	5.1	Li	P	D	M	U	440BX none 3 yr AAP 4/98
600	2645-45U	PII 300 /512	64 /288s	TFT 13.3 XGA	5.1G / 24X	5.0	Li	P	D	M	U	440BX 98 3 yr 4299 9/98
600	2645-85U	PII 300 /512	64 /288s	TFT 13.3 XGA	5.1G / 24X	5.0	Li	P	D	M	U	440BX NT4 3 yr 4399 9/98
600E	2645-55U	PII 300 /512	64 /288s	TFT 13.3 XGA	6.4G / V	5.0	Li	P	D	M	U	VO 440BX 98 3 yr 4599 11/98
600E	2645-A5U	PII 300 /512	32 /288s	TFT 13.3 XGA	none / UD	5.0	Li	P	D	M	U	VO 440BX none 3 yr AAP 11/98
×770E	9548-51U	PII 266 /512	32 /288s	TFT 14.1 XGA	5.1G / UD	7.6	Li	P	D	U		440BX 95 3 yr 3999 4/98
×770E	9548-52U	PII 266 /512	32 /288s	TFT 14.1 XGA	5.1G / UD	7.6	Li	P	D	U		440BX NT4 3 yr 4099 4/98
×770E	9548-53U	PII 266 /512	32 /288s	TFT 14.1 XGA	none / UD	7.6	Li	P	D	U		440BX none 3 yr AAP 4/98
×770ED	9549-5AU	PII 266 /512	64 /288s	TFT 14.1 XGA	8.1G / V	7.8	Li	P	D	M	U	MG2 VIO 440BX 95 3 yr 4999 4/98
770X	9549-71U	PII 300 /512	64 /320s	TFT 14.1 XGA	8.1G / V	7.6	Li	P	D	M	U	440BX 98 3 yr 4999 ↘ 10/98
770X	9549-72U	PII 300 /512	64 /320s	TFT 14.1 XGA	8.1G / 24X	7.6	Li	P	D	M	U	440BX NT4 3 yr 4899 ↘ 10/98
770X	9549-7AU	PII 300 /512	128 /320s	TFT 13.7 SXGA	8.1G / V	7.6	Li	P	D	M	U	440BX 98 3 yr 5399 ↘ 10/98
770X	9549-7BU	PII 300 /512	128 /320s	TFT 13.7 SXGA	8.1G / 24X	7.6	Li	P	D	M	U	440BX NT4 3 yr 5299 ↘ 10/98
770X	9549-73U	PII 300 /512	64 /320s	TFT 13.7 SXGA	none / UD	7.6	Li	P	D	M	U	440BX none 3 yr 4099 ↘ 10/98

Service Options	Product Warranty	Depot repair service		Onsite ³² next business day service	
	<ul style="list-style-type: none"> - Available through these service offerings: <ul style="list-style-type: none"> - EasyServ Plus and Onsite Plus - IBM ServicePac® for Warranty and Maintenance Options - Options for depot repair or onsite next business day service, for up to 5 years from date of product purchase - Options available based on specific ThinkPad purchased - Onsite service available in 72 US metropolitan areas - Includes parts and labor - Optional Express Repair Option (\$99) 	1 Year WARRANTY WARRANTY 2 Years \$ 99 3 Years \$198 4 Years \$297 5 Years \$396	EasyServ Plus WARRANTY WARRANTY 04L6094** \$99 04L6100 \$198 04L6106 \$297 Not available	ServicePac WARRANTY WARRANTY \$99 \$198 \$297 Not available	Onsite Plus 1 Year \$ 49 2 Years \$197 3 Years \$345 4 Years \$493 5 Years \$641 NA NA \$147 \$295 \$443
512 = (italic) write-back L2 cache e = EDO memory s = SDRAM memory HPA = High Performance Addressing (Dual Scan) TFT = Thin Film Transistor (Active Matrix) PMX = Pentium® with MMX™ technology PII = Intel Pentium II processor SVGA = 800x600 LCD resolution XGA = 1024x768 LCD resolution SXGA = 1280x1024 LCD resolution 5.1G = (italic) Removable disk 24X = 24X-10X ⁵ speed CD-ROM (CAV) V = DVD-ROM drive (removable) 95 = Microsoft® Windows® 95 preinstalled 98 = Microsoft Windows 98 preinstalled NT4 = Windows NT® Workstation 4.0 preinstalled U = Internal CD-ROM upgrade available D = Internal DVD Drive upgrade available	ThinkPad EasyServ³¹ Customer calls 1-800-772-2227, courier service picks up ThinkPad system at most North American locations, IBM repairs and mails back (no shipping charges, most shipping is overnight, five business day average turnaround). Rapid Depot Repair (depot repair for ThinkPad systems with 12-hour service from the time the machine arrives at the depot for three business day average turnaround) is standard for in warranty ThinkPad 600 and 770 systems and included for all ThinkPad systems as part of any mobile warranty upgrade. The customer may be asked certain diagnostic questions before a courier is sent.	Warranty Service Support ↗ 1 or 3 year warranty¹¹ ↗ International Warranty Service¹⁴ ↗ ThinkPad EasyServ™ or carry-in to reseller ↗ Several service options¹⁵ available ↗ 24 hour / 7 day telephone³⁰, bulletin board, fax, electronic, and Internet support ↗ Internet: www.ibm.com/pc/us/thinkpad ↗ IBM SystemXtra™ ↗ = Announced November 3, 1998 ↘ = Price decrease effective November 6 or December 2, 1998 ↗ = Withdrawn from marketing			

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* Prices are estimated reseller prices and subject to change without notice; actual prices may vary (THINK) © IBM Corp. December 1998
** Part numbers for an electronic package instead of a physical shrink wrapped package available at www.ibm-svcpac.iws.ihost.com

IBM® ThinkPad®					
Processor	Intel® Mobile Pentium® II 233 or 300MHz¹ / 66MHz system bus				All-in-one integration means the disk, diskette drive, and CD-ROM are all within the covers of the notebook; removable disk; keyboard does not lift up on right side
Processor features	No upgrade / processor, L2 cache, and MTXC (North Bridge) on Intel Mobile Module				
L2 cache	512KB / sync pipelined burst / ECC / half speed				
Diskette drive	Internal 3.5" 1.44MB / use simultaneously with CD-ROM / on right side				
External FDD port	None since diskette internal				
CD-ROM	5.25" CD-ROM / 24X-10X⁵ speed / CAV / multi-session / XA / ATAPI / bootable / not removable / on right side				
Type - model	2635-HGU	2635-JGU	2635-HBU	2635-JBU	2635-JCU (AAP)
Processor	Pentium II 233MHz	Pentium II 300MHz	Pentium II 233MHz	Pentium II 300MHz	Pentium II 300MHz
Preload (see side)	Windows 98	Windows 98	NT 4.0	NT 4.0	None
Disk - size / ms	4.0GB* / 13ms read / 14ms write / SMART				
Disk controller	EIDE / PCI 2.1 / supports one internal disk / disk can be removed and upgraded by customer				
Available date	September 1998				
Display - size and type	13.3 inch TFT color				All models: - C: drive is FAT16 of 2GB - D: drive is FAT32 (if W98) or FAT16 (if NT) of remaining space
Display - technology	XGA / 640x480 or 800x600 or 1024x768 / Active Matrix TFT / 75ms / 100 nits 16.7 million simultaneous colors / 100 to 1 contrast ratio ratio				
Graphics - controller	NeoMagic™ MagicMedia256AV™ (NM2200) / PCI 2.1 / 128-bit engine, 256-bit memory interface / DDC2B / Direct3D				
Graphics - external	2.5MB / SDRAM (embedded) / motion compensation / color space conversion / interpolation in X and Y axis				
Graphics - features	External SVGA to 1024x768 with 16.7 million colors at 85Hz Simultaneous LCD and CRT / 150 degree tilt / multiple-monitor support ²⁶				
Memory - std / max	32MB / 96MB or 160MB* / non-parity / 3.3 volt / EDO / 60ns				
Memory - features	1 socket for one JEDEC 144 pin EDO SO DIMM of 16, 32, or 64MB / socket accessed from bottom via screw				
Keyboard / # of keys	Full size alp/num / 85 (6 Fn key functions) / keyboard slope with Port Replicator				
External keyboard	External keyboard support with option cable 06G8619 or Port Replicator				
Pointing	TrackPoint® / Press-to-Select / Release-to-Select / dragging / click pace				
Dimensions	11.8 x 9.2 x 2.4" (260 cubic inches); 300.0mm x 233.0mm x 62.0mm				
Weight ²	7.2 pounds (3.3 kg) with battery and disk				
Battery - type / life ¹⁰	Li-Ion / non-intelligent / Hxx: 3.1 hrs; Jxx: 3.3 hrs				
Charge time - on / off	4.2 to 12 hrs / 3.3 hrs				
Architecture	Intel 440BX PCiset / Intel PIIX4E (EIDE, PCI to ISA bridge, USB) Texas Instruments® T11250A PCMCIA controller / NS PC97338 (FDC, IR, I/O) PCI 2.1 / 32-bit / 33MHz (EIDE, graphics, PCMCIA, USB) ISA (audio, diskette, serial, parallel, infrared)				
Docking station	None				
Port replicator	ThinkPad Port Replicator with Advanced EtherJet / ThinkPad 560 Port Replor				
PC Card Std slots	2 Type I, 2 Type II, or 1 Type III / CardBus 32-bit / PCMCIA 2.1 / Zoomed video				
USB / serial / parallel	One USB / one 9 pin; 16550A / one (IEEE P1284-A, EPP, ECP, bidirectional)				
Other features	APM-aware BIOS / Universal AC adapter; barrel (56 watts)				
Video in/out	None				
MPEG decoder	None (software support for MPEG-1 in Windows 98)				
Data/fax/modem	None				
Audio	16-bit / CS4237B / SRS 3D audio / FM synthesis				
Speakers	Two front stereo speakers (.5 watt) / one subwoofer above keyboard (1 watt)				
Audio features	Dial volume control (left side) / internal microphone / full duplex spk/mic				
Audio in/out jacks	Input/microphone jack (stereo) / output jack (stereo) / no joystick port				
Infrared ports	Infrared port on left side / IrDA 1.1 compatible / up to 4Mbps				
Security	Power-on password / supervisor password / hard disk password / security keyhole / personalization screen at startup				
Limited warranty ¹¹	1 year - ThinkPad EasyServ ³¹ (door-to-door depot repair service) or carry-in				
Service options ¹⁵	On-site ³² , M-F, 8-5, next bus day (72 cities) / service agreements up to 5 years from purchase date				
The ThinkPad Port Replicator with Advanced EtherJet Feature provides cable management, additional I/O ports, CardBus PC Card slots, and 10/100 ethernet with Wake on LAN™. Features:			OPTIONS		
- 10/100 ethernet (Intel 82558, Wake on LAN)			- 16MB SO DIMM 3.3v NP EDO 64-bit 01K1124		
- Dual IBM lock slots to secure the ThinkPad, PC Cards, and Port Replicator			- 32MB SO DIMM 3.3v NP EDO 64-bit 92G7342		
Connectors:			- 64MB SO DIMM 3.3v NP EDO 64-bit 76H0268		
- USB, serial (RS-232, 9 pin), parallel (25 pin), external display, keyboard, mouse			- ThinkPad 560 Port Replicator 46H4209		
- Audio in and out (3.5 mm)			- Port Replicator w/ Advanced EtherJet 05K4872		
- Joystick/MIDI port (15 pin) - not on system			- ThinkPad 380/385 Li-Ion Battery 02K6507		
- External diskette drive connector (no support)			- 56 watt AC Adapter (barrel; 3 prong) 83H6739		
- Power connector			- 4.0GB disk, 13ms 05K8871		
Features of the PC Card slots:			- 6.4GB disk, 13ms, Ultra DMA/33 02K0518		
- Two Type III slots (side by side)			- V.90 PC Card Modem with XJACK ²⁴ 10L7393		
- PC Card Standard 95 compliant			- 56K PC Card Modem/Cellular cpble 02K4196		
- CardBus compliant (PCI 2.1 / 32-bit)			- 10/100 Ethernet CardBus PC Card 08L3147		
- PCMCIA 2.1 (no Zoomed Video)			- ThinkPad Proven™ solutions ¹² (visit www.ibm.com/pc/us/thinkpad/proven)		
- TI 1250A controller			Easy-Setup is entered by holding F1 when turning on.		
- Requires no PCI-to-PCI bridge					
			4.0GB = Ultra DMA/33 or PIO Mode 4 6.4GB = Ultra DMA/33 or PIO Mode 4 All disks are SMART compliant		
FEATURES					
Wired for Management 1.1a compliant					
DMI 2.0 compliant					
PC 97 compliant					
ACPI ready (APM enabled)					
Setup Guide and User's Guide					
System Status Indicators					
Plug and Play 1.0a					
Standby, suspend, safe suspend (RediSafe), and hibernation modes					
ENERGY STAR compliant					
International Warranty Service¹⁴					
IBM SystemXtra™					
24 hour / 7 day telephone³⁰, bulletin board, fax, electronic, and Internet (www.ibm.com/pc/us) support					

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* Maximum memory capacity with 128MB SO DIMM from ThinkPad Proven vendor

No warranties are expressed or implied in this summary (380Z) © IBM Corp. September 1998

IBM® ThinkPad®																																
Processor	Intel® Pentium® 233MHz¹ with MMX™ technology or Mobile Pentium II 233 or 266MHz / 66MHz system bus																															
Processor features	No upgrade / processor, L2 cache, and MTXC (North Bridge) on Intel Mobile Module																															
L2 cache	512KB / sync pipelined burst (66MHz for Pentium / ECC and 150MHz for Pentium II)																															
Diskette drive	Internal 3.5" 1.44MB / removable from UltraBay FX / on right side / integrated with CD-ROM																															
External FDD port	None since diskette internal																															
CD-ROM	CD-ROM / 24X-10X⁵ speed / ATAPI / bootable / removable from UltraBay FX / on right side / integrated with diskette drive																															
DVD	None																															
Type - model	2626-20U	2626-50U	2626-70U																													
Processor	Pentium 233MHz	Pentium II 233MHz	Pentium II 266MHz																													
Disk - size / ms	3.2GB⁴ / 13ms read / 14ms write / S.M.A.R.T.²⁹																															
Disk controller	EIDE / PCI 2.1 / supports one internal disk / disk can be removed to upgrade by customer / supports two internal disks																															
Available date	November 1998																															
Display - size and type	12.1" TFT color / Active Matrix		14.1" TFT color / Active Matrix																													
Display - technology	SVGA / 640x480 or 800x600 / 30ms / 150 nits 16.7 million simultaneous colors / 100 to 1 contrast		XGA / 640x480 or 800x600 or 1024x768 / 30ms / 120 nits 16.7 million simultaneous colors / 150 to 1 contrast ratio																													
Graphics - controller	NeoMagic™ MagicMedia256AV™ (NM2200) / PCI 2.1 / 128-bit engine, 256-bit memory interface / DDC2B / Direct3D																															
Graphics - external	External SVGA to 1024x768 with 16.7 million colors at 85Hz																															
Graphics - features	Simultaneous LCD and CRT / 150 degree tilt / multiple-monitor support ²⁶																															
Memory - std / max	32MB / 256MB		64MB / 256MB																													
Memory - features	SDRAM / non-parity / 66MHz / 3.3 volt / 64-bit 2 sockets for JEDEC 144-pin SO DIMMs / one socket used by std memory sockets accessed from bottom via removing cover held by phillips-head screw																															
Keyboard	Full-size 85-key (7 Fn key functions) / palm rest / keyboard slope with tilt feet																															
Pointing	TrackPoint® / Press-to-Select / Release-to-Select / dragging / click pace center button for scrolling (Internet Scroll Bar) or magnifying glass / spare caps																															
Dimensions	12.4 x 10.1 x 1.8" (225 cubic inches)	12.4 x 10.2 x 1.8" (227 cubic inches)	All models:																													
Weight ²	7.5 lbs (3.4 kg) with battery and disk	7.7 lbs (3.5 kg) with battery and disk	- C: drive is FAT16 of 2GB																													
Case material	PC/ABS plastic	PC/ABS plastic	- D: drive is FAT32 of remaining space																													
Battery - type / life ¹⁰	NiMH / intelligent / 3.25 hrs (1 battery) / left side	Li-Ion / intelligent / 4 hrs / left side																														
Charge time ¹⁰ - on / off	5 hrs on / 2.5 hrs off	6 hrs on / 3 hrs off																														
Architecture	Intel Triton 430TX for Pentium system / Intel 440BX PCiset for Pentium II		WINDOWS 98 PRELOAD¹⁶ <ul style="list-style-type: none"> - Microsoft® Windows® 98 • Online User's Guide • ThinkPad Configuration Program • ThinkPad Utilities • IBM Update Connector • RingCentral Fax • Ergonomics • IBM Registration • Puma IntelliSync 97 (infrared) • IBM Global Network Dialer • Netscape Navigator web browser • Lotus® SmartSuite Millennium²⁰ • PC Doctor • ConfigSafe • Norton AntiVirus (OEM Version) • ThinkPad on the Net (TCC CD) ◇ Customization Center CD-ROM ◇ Lotus SmartSuite Millennium CD-ROM ◇ Product Recovery CD-ROM (with boot diskette) 																													
Docking station	None																															
Port replicator	ThinkPad Port Replicator with Advanced EtherJet™ / ThinkPad 560 Port Replic																															
PC Card Std slots	2 Type I, 2 Type II, or 1 Type III / CardBus 32-bit / PCMCIA 2.1 / Zoomed video																															
USB / serial / parallel	One USB / one 9 pin; 16550A / one (IEEE P1284-A, EPP, ECP, bidirectional)																															
Other features	APM-aware BIOS / Universal AC adapter; barrel (56 watts)																															
Video in/out	None																															
MPEG decoder	None (software support for MPEG-1 in Windows 98)																															
Data/fax/modem	56Kbps²⁴ / V.90 / integrated in system / Lucent 1644																															
Audio	16-bit SoundBlaster Pro™ compatible / NeoMagic NMA2 / ISA / full duplex																															
Speakers	Two Altec Lansing® stereo speakers on display (1 watt)																															
Audio features	Dial volume control (right side) / internal microphone																															
Audio in/out jacks	Microphone jack (stereo) / headphone jack (stereo) / line-in jack																															
Infrared ports	Infrared port on left side / IrDA 1.1 compatible / up to 4Mbps																															
Security	Power-on password / setup password / disk password / security keyhole / security screw for UltraBay FX																															
Limited warranty ¹¹	1 year - ThinkPad EasyServ ³¹ (door-to-door depot repair service) or carry-in																															
Service options ¹⁵	On-site ³² , M-F, 8-5, next bus day (72 cities) / serv up to 5 yrs from purchase date																															
	<table border="1"> <thead> <tr> <th rowspan="2">Resolution</th> <th>LCD</th> <th colspan="3">External Monitor</th> </tr> <tr> <th>TFT</th> <th>60Hz</th> <th>75Hz</th> <th>85Hz</th> </tr> </thead> <tbody> <tr> <td>640x480</td> <td>16M</td> <td>16M</td> <td>16M</td> <td>16M</td> </tr> <tr> <td>800x600</td> <td>16M</td> <td>16M</td> <td>16M</td> <td>16M</td> </tr> <tr> <td>1024x768</td> <td>16M</td> <td>16M</td> <td>16M</td> <td>16M</td> </tr> <tr> <td>1280x1024</td> <td>--</td> <td>256</td> <td>--</td> <td>--</td> </tr> </tbody> </table>	Resolution	LCD	External Monitor			TFT	60Hz	75Hz	85Hz	640x480	16M	16M	16M	16M	800x600	16M	16M	16M	16M	1024x768	16M	16M	16M	16M	1280x1024	--	256	--	--	OPTIONS <ul style="list-style-type: none"> - 32MB SO DIMM 3.3v NP SDRAM 76H0294 - 64MB SO DIMM 3.3v NP SDRAM 20L0241 - 128MB SO DIMM 3.3v NP SDRAM 01K1150 - ThinkPad 560 Port Replicator 46H4209 - Port Replicator w/ Advanced EtherJet 05K4872 - ThinkPad 390/i Series Li-Ion Battery 02K6513 - 56 watt AC Adapter (barrel; 3 prong) 83H6739 - 6.4GB disk with UltraBay FX adapter 05K8923 - 900MHz Cordless Computer Conn 04K0064 - V.90 PC Card Modem with XJACK²⁴ 10L7393 - 10/100 Ethernet CardBus PC Card 08L3147 - Smart Card Security Kit 10L7333 	FEATURES Wired for Management 1.1a compliant DMI 2.0 compliant PC 97 compliant ACPI ready (APM enabled) Wake on LAN™ support²⁸ Setup Guide, User's Reference, Windows 98 manual, and Quick Reference Card System Status Indicators Plug and Play 1.0a Standby, suspend, and hibernation modes ENERGY STAR compliant International Warranty Service¹⁴ IBM SystemXtra™ 24 hour / 7 day telephone³⁰, bulletin board, fax, electronic, and Internet (www.ibm.com/pc/us) support
Resolution	LCD		External Monitor																													
	TFT	60Hz	75Hz	85Hz																												
640x480	16M	16M	16M	16M																												
800x600	16M	16M	16M	16M																												
1024x768	16M	16M	16M	16M																												
1280x1024	--	256	--	--																												
	The ThinkPad Port Replicator with Advanced EtherJet Feature provides cable management, additional I/O ports, CardBus PC Card slots, and 10/100 ethernet with Wake on LAN™ ²⁸ . Features: <ul style="list-style-type: none"> • 10/100 ethernet (Intel 82558, Wake on LAN) • Dual IBM lock slots to secure the ThinkPad, PC Cards, and Port Replicator • USB, serial (RS-232, 9 pin), parallel (25 pin), external display, keyboard, mouse • Audio in and out (3.5 mm) • Joystick/MIDI port (15 pin) - not on system • Power connector • Two Type III PC Card slots (side by side) <ul style="list-style-type: none"> - PC Card Standard 95 compliant - CardBus compliant (PCI 2.1 / 32-bit) - PCMCIA 2.1 (no Zoomed Video) 		<ul style="list-style-type: none"> - Visit www.ibm.com/pc/us/accessories (U.S.) or www.ibm.com/pc/ca/accessories (CA) - ThinkPad Proven™ solutions¹² (visit www.ibm.com/pc/us/thinkpad/proven) Pressing F1 during startup brings up IBM BIOS Setup Utility																													

IBM® ThinkPad®

Processor	Intel® Mobile Pentium® II 233 or 300MHz¹ / 66MHz system bus		
Processor features	No processor upgrade / processor on Mini-Cartridge		
L2 cache	512KB / synchronous pipelined burst / ECC / half speed		
Diskette drive	External 3.5" 1.44MB (connects to left side) / includes case with a cable		
External FDD port	External FDD port (works with standard external diskette; no kit reqd)		
CD-ROM drive	None (CD-ROM drive as option via PCMCIA or parallel port)		
Type - model	2640-90U	2640-91U	2640-B0U
Preload (see side)	Windows 98	NT 4.0	Windows 98
Processor	Pentium II 233MHz		Pentium II 300MHz
Disk - size / ms	4.0GB⁴ / 13ms / SMART ²⁹		6.4GB / 13ms / SMART
Disk controller	Disk can be removed and upgraded by customer / Ultra DMA/33 or PIO Mode 4 EIDE / busmaster / PCI 2.1 / supports one internal disk		
Available date	September 1998		
Display - size and type	12.1" TFT SVGA color (active matrix)		All models:
	640x480 or 800x600		- C: drive is FAT16 of 2GB
	16.7 million simultaneous colors		- D: drive is FAT32 (if W98) or
Display - technology	100 to 1 contrast ratio		FAT16 (if NT) of remaining space
Graphics - controller	NeoMagic™ MagicGraph128XD™ (NM2160) / 128-bit SVGA accelerator		
Graph - arch/data path	2MB / iDRAM™ (embedded) / PCI 2.1 / Zoomed Video support		
Graphics - features	Interpolation in X and Y axis / color space conversion		
Graphics - features	Simultaneous LCD and CRT / 135 degree tilt		
Graphics - external	External SVGA to 1024x768 with 65,536 colors (or 800 x 600 with 16.7 mil)		
Memory - std / max	32MB std / 96MB or 160MB* max	64MB std / 128MB or 192MB* max	
Memory - features	60ns / non-parity / 3.3 volt / EDO		
Memory - upgrade	1 socket for one JEDEC 144-pin EDO SO-DIMM of 16, 32, or 64MB		
Keyboard / # of keys	Full size alp/num / 85 keys (6 Fn key functions)		
Keyboard slope	Large palm rest / keyboard remains flat (no sloop) / opt P Replicator adds slope		
Pointing device	TrackPoint® / Press-to-Select / Release-to-Select / dragging / click pace		
Palm rest	Integrated palm rest / external keyboard support (with optional cable 54G0441)		
Dimensions	11.7" x 8.7" x 1.22" (124 cubic inches); 297mm x 222mm x 31mm		
Weight ² with battery	90U: 4.1 lbs (1.88 kg)	B0U/B1U: 4.2 lbs (1.92 kg)	
Battery - type / life ¹⁰	Lithium Ion / intelligent / 3.0 hours		
Charge time - on / off	2.5 to 3.5 hrs / 1.5 hrs		
Architecture	Intel 440BX PCiset / Intel 82371EB PIIX4E (EIDE, ISA Bridge, USB) / PCI 2.1 / 32-bit / 33MHz (EIDE, graphics, PCMCIA, USB) / TI PCI1250A ISA (audio, diskette, serial, parallel, infrared) / NS PC97338 (FDC, IR, I/O)		
Docking Station	None		
Port replicator	Port Replicator with Advanced EtherJet / ThinkPad 560 Port Replicator		
PC Card Std slots	2 Type I or 2 Type II or 1 Type III / CardBus 32-bit PCI / Zoomed Video PCMCIA 2.1 compatible / Texas Instruments® TI1250A controller		
Serial / parallel ports	One 9 pin; 16550A / one (IEEE P1284-A, EPP, ECP, bidirectional)		
USB port	One USB port		
Other features	Universal AC Adapter; 3 prong (56 watts) with barrel connector / APM-aware BIOS / APM 1.2 / Selectable boot / IBM BIOS		
Video in/out	None		
MPEG decoder	None (software support for MPEG-1 in Windows 98)		
Data/fax modem	56Kbps²³ PC Card modem / x2 / cellular capable / XJACK / IBM pn 02K4196		
Audio support	16-bit audio chip / FM synthesis / CS4237B / SRS 3D audio (if use ext speakers)		
Jacks	Internal mono speaker / .5 watt / keyboard volume control / internal microphone		
Infrared ports	Input jack (3.5 mm) / stereo output jack (3.5 mm) / full duplex speakers/mic		
Security	Infrared port (left side) / IrDA 1.1 compatible / up to 4Mbps		
Security	Power-on password / hard disk password / security keyhole on left side / personalization screen at startup		
Limited warranty ¹¹	1 year - ThinkPad EasyServ ³¹ (door-to-door depot repair service) or carry-in		
Service options ¹⁵	On-site ³² , M-F, 8-5, next bus day (72 cities) / serv up to 5 yrs from purchase date		

- WINDOWS 98 PRELOAD¹⁶**
- Microsoft® Windows® 98
 - ThinkPad Utilities
 - Online User's Guide
 - ThinkPad Configuration Program
 - ThinkPad on the Net
 - IBM Update Connector
 - RingCentral Fax
 - Ergonomics
 - IBM Product Registration
 - Puma IntelliSync 97 (infrared)
 - IBM Global Network Dialer
 - Netscape Navigator web browser
 - Lotus® SmartSuite 97
 - Artisoft ConfigSafe
 - Norton AntiVirus
 - ◇ Customization Center CD-ROM
 - ◇ Product Recovery CD-ROM (with boot diskette)

- WINDOWS NT PRELOAD¹⁶**
- Windows NT® Workstation 4.0
 - Service Pack 3
 - ThinkPad Utilities
 - Online User's Guide
 - Puma IntelliSync 97 (infrared)
 - ConfigSafe
 - Norton AntiVirus (OEM Version)
 - Ergonomics
 - IBM Product Registration
 - SystemSoft CardWizard
 - ◇ Customization CD-ROM (apps/drivers)
 - ◇ Product Recovery CD-ROM (with boot diskette)

Easy-Setup is entered by holding F1 when turning on.
System does not have non-disruptive battery exchange. Battery can be changed while system is off, in hibernation, or under AC power.

The optional **ThinkPad 560 Port Replicator** acts as a wedge which attaches to the back and bottom of the unit and provides a keyboard slope. Following are its connectors:

- Release button
- Security keyhole
- Mouse
- Keyboard
- External monitor
- Parallel
- Serial (9 pin)
- External diskette drive
- Power jack

ThinkPad Port Replicator with Advanced EtherJet Feature. Features include:	OPTIONS	FEATURES
- 10/100 ethernet (Intel 82558, Wake on LAN™)	- 6.4GB disk, 13ms, Ultra DMA/33	Wired for Management 1.1a compliant
- Dual IBM lock slots to secure the ThinkPad, PC Cards, and Port Replicator	- ThinkPad 560 Port Replicator	DMI 2.0 compliant
Connectors:	- Port Replicator w/ Advanced EtherJet	PC 97 compliant
- USB, serial (RS-232, 9 pin), parallel (25 pin), external display, keyboard, mouse	- ThinkPad 560 Li-Ion Battery Pack	ACPI ready (APM enabled)
- Audio in and out (3.5 mm)	- 56 watt AC Adapter (barrel; 3 prong)	Setup Guide, User's Guide, Windows 98 or NT Manual
- Joystick/MIDI port (15 pin) - not on system	- 16MB SO DIMM 3.3v NP EDO 64-bit	Plug and Play 1.0a
- External diskette drive connector	- 32MB SO DIMM 3.3v NP EDO 64-bit	Standby, suspend, safe suspend, and hibernation modes
- Power connector	- 64MB SO DIMM 3.3v NP EDO 64-bit	ENERGY STAR compliant
Features of the PC Card slots:	- 20X-8X Portable Stereo CD-ROM	Personalized nameplate indentation
- Two Type III slots (side by side)	- 56K PC Card Modem/Cellular Capable	International Warranty Service ¹⁴
- PC Card Standard 95 compliant	- V.90 PC Card Modem with XJACK ²⁴	IBM SystemXtra™
- CardBus compliant (PCI 2.1 / 32-bit)	- ThinkPad Proven™ solutions ¹² (visit www.ibm.com/pc/us/thinkpad/proven)	24 hour / 7 day telephone ³⁰ , bulletin board, fax, electronic, and Internet (www.ibm.com/pc/us) support
- PCMCIA 2.1 support (no Zoomed Video)		
- TI 1250A controller		

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* Maximum memory capacity with 128MB SO DIMM from ThinkPad Proven vendor

No warranties are expressed or implied in this summary (560Z) © IBM Corp. September 1998

IBM® ThinkPad®		The right bay (UltraslimBay) has LED on release latch to provide status; supports warm swapping; supports:	
Processor type/path	Intel® Pentium® MMX™ 233/66MHz ¹ or Pentium II 233/66 or 266/66MHz	• std diskette and weight-saver bezel	
Processor features	No upgrade / processor, L2 cache, and mem cntr (North Bridge) on Mobile Module L2 cache	• std or optional CD-ROM	
Diskette (removable)	512KB / sync pipelined burst (66MHz for Pentium / ECC and half speed for Pent II)	• optional DVD drive ¹⁹	
External FDD port	3.5" 1.44MB / use in UltraslimBay (CD-ROM models include external diskette enclosure)	• opt LS-120 SuperDisk drive (no warm swap)	
CD-ROM (removable)	External diskette port on right side (can use simultaneously with internal CD-ROM)	• optional Zip 100MB drive	
DVD ¹⁹ (removable)	<i>Standard or option: 5.25" CD-ROM / 24X-10X⁵ speed / bootable / warm swap</i>	• optional HDD adapter (no warm swap)	
SuperDisk (LS-120)	<i>EIDE (ATAPI) / PIO Mode 4 for W95; DMA Mode 2 for NT / use in UltraslimBay</i>	• optional ThinkPad Proven™ solutions ¹²	
	<i>Option: DVD-ROM drive / removable UltraslimBay option / warm swap</i>		
	<i>Option: Removable UltraslimBay option / supports 1.44MB and 120MB diskette</i>		
Type - model	> 2645-21U	> 2645-31U	
Processor	Pent 233/66	Pent 233/66	
Display (diagonal)	13.0" HPA XGA	12.1 TFT SVGA	
Disk (removable)	3.2GB / PIO4	3.2GB / PIO4	
Preload (see side)	W95 OSR2.1	W95 OSR2.1	
CD-ROM	CD-ROM std	Optional	
Modem	56Kbps	Opt PC Card	
Available date	Apr 98/Dec 98	Apr 98/Dec 98	
	> 2645-35U	> 2645-41U	
	Pent 233/66MHz	Pent 233/66MHz	
	12.1 TFT SVGA	13.3" TFT XGA	
	3.2GB / PIO4	3.2GB / PIO4	
	W95 OSR2.1	W95 OSR2.1	
	CD-ROM std	CD-ROM std	
	56Kbps	56Kbps	
	August 98	Apr 98/Aug 98	
	> 2645-51U	> 2645-A1U	
	Pent 233/66MHz	Pent 233/66MHz	
	13.3" TFT XGA	13.3" TFT XGA	
	4.0GB / PIO4	None (AAP)	
	W95 OSR2.1	Blank (no disk)	
	CD-ROM std	None (AAP)	
	56Kbps	56Kbps	
	April 98	Apr 98/Aug 98	
Memory - std / max	32MB / 256MB ³ (TX max=256)	32MB std / 288MB maximum	WINDOWS 95 PRELOAD¹⁶
Memory - upgrade	SDRAM / non-parity / 66MHz / 3.3v / 2 sockets available for two JEDEC 144-pin SDRAM SO-DIMMs / sockets accessed by removing screw on bottom		- Microsoft® Windows® 95 OSR2.1
Display	(See below) SVGA or XGA color / TFT or HPA / 180 degree tilt		• Internet Explorer 4.01
Graphics - controller	NeoMagic™ MagicGraph128XD™ (NM2160B) / 128-bit SVGA accelerator		• Online User's Guide
Graphics - arch	2MB / iDRAM™ (embedded) / Zoomed Video support		• ThinkPad Configuration Program
Graphics - features	Support for DirectX 5.0, DDC2B, color space conversion		• ThinkPad Customization Center
Graphics - external	External SVGA to 1024x768 with 65,536 colors (800x600 with 16.7 million colors)		• Puma IntelliSync 97 (infrared)
Disk	Left front / removable via coin screw or 2.5mm Allen wrench / SMART / upgradeable		• IBM AntiVirus 3.02 (not installed)
Disk controller	Enhanced IDE / busmaster / PCI 2.1 / South Bridge / PIIX4		• ConfigSafe 1.05 (must install)
	DMA Mode 2, Ultra DMA/33, or PIO Mode 4 / supports 2nd disk in opt HDD adapter		• IBM Global Network Dialer 4.15.6 with Netscape Navigator web browser
Keyboard / Fn keys	Full size alp/num / 9 Fn key functions / integrated palm rest		• Intel LANdesk® Client Manager 3.1 (not installed)
Keyboard slope	Flat keyboard (does not lift up)		• PointCast with ThinkPad channel
Pointing device	TrackPoint® / Press-to-Select / Release-to-Select / dragging / click pace / center click button for scrolling or magnifying glass / suspension top / spare caps		• Ergonomics
Dimensions	11.8 x 9.4 x 1.4" (155 cubic inches); 300mm x 240mm x 36.5mm		• Netfinity 5.1 for Windows 95 (not installed)
Weight ²	4.72 lb (2.14 kg) to 5.62 lb (2.55 kg)		• Tivoli Light Client Framework (not installed)
Battery - type	Lithium Ion / intelligent / remove from base / locked with latch		• Lotus® SmartSuite 97 ²⁰
Battery - life ¹⁰	3.0 hrs / no non-disruptive battery exchange		• Ring Zero RingCentral 4.10
Charge time - on / off	2 to 3 hrs / 1.5 to 2.5 hrs		• Intel Video Phone 2.0.1
Architecture	Intel 430TX, PIIX4 for Pentium systems / Intel 440BX, PIIX4 for Pent II systems		• IBM Update Connector
	PCI 2.1 / 32-bit / 33MHz (EIDE, graphics, CardBus, USB, ext expansion)		• IBM Product Registration
	TI PCI1250A for CardBus / LM75 digital thermometer / PC97338 Super I/O / ISA (audio, modem, diskette, serial, parallel, infrared, ext expansion)		◇ Customization CD-ROM (apps/drivers)
Port replicator	SelectaBase 600 / PC Card Enabler ¹⁷ / PC Card Enabler with Advanced EtherJet ¹⁷		◇ Recovery CD-ROM with boot diskette
Docking Station	SelectaDock III / SelectaDock I and II		
PC Card Std slots	2 Type I, 2 Type II, or 1 Type III / CardBus 32-bit / PCMCIA 2.1 / Zoomed Video		System does not have non-disruptive battery exchange. Battery can be changed while system is off, in hibernation, or under AC power.
USB / serial / parallel	One USB / one 9 pin serial; 16550A / one (IEEE P1284-A, EPP, ECP, bidirectional)		ThinkPad 600 supported disks:
Other features	APM-aware BIOS / AC Adapter barrel, 3 prong (56 watts) / Selectable boot		- 3.2GB 13ms read/14ms write
Video in/out	None		9.5 mm PIO Mode 4 or Ultra DMA/33
MPEG decoder	None (software support for MPEG-1 in Windows 95)		- 4.0GB 13ms read/14ms write
Data/fax modem	Some models: 56Kbps (x2, upgradeable to v.90 ⁹) / 14.4Kbps fax / telephony / integrated Mwave® 3780i DSP / international programmable DAA / modem cable		12.5 mm PIO Mode 4 or Ultra DMA/33
Audio support	CS4237B / 16-bit / SRS 3D audio / FM synthesis		- 6.4GB 13ms read/14ms write
	Int stereo speakers (front) / .5 watt / Fn+PgUp and PgDn (volume) / int microphone		12.5 mm PIO Mode 4 or Ultra DMA/33
Jacks	Input jack (3.5 mm) / Output jack (3.5 mm) / full duplex		
Infrared ports	Infrared port (on right) / IrDA 1.1 compatible / up to 4Mbps		
Security	Power-on password / hard disk password / supervisor password / security keyhole / personalization / phillips-head screw on base for memory / opt Allen screw for disk		FEATURES
Limited warranty ¹¹	3 year - ThinkPad EasyServ ³¹ (door-to-door depot repair service) or carry-in		PC 97 compliant
Service options ¹⁵	Rapid Depot Repair (12 hr service from arrival time for 3 bus day average turnaround)		DMI 2.0 compliant
	On-site ³² , M-F, 8-5, next bus day (72 cities) / serv up to 5 yrs from purchase date		DMI instrumentation (thermal monitoring)
			ACPI 1.0 compliant
			Wired for Management 1.1a
			Wake on LAN™ support²⁸
			C: is 1.99GB, D: is up to 1.99GB, etc.
			Setup Guide, User's Reference, Quick Reference and Service Information Card, Options by IBM Catalog, Windows 95 manual
			Plug and Play 1.0a
			Standby, suspend, safe suspend, and hibernation modes
			ENERGY STAR compliant
			International Warranty Service ¹⁴
			IBM SystemXtra™
			24 hour / 7 day telephone ³⁰ , bulletin board, fax, electronic, and Internet (www.ibm.com/pc/us) support
13.0" (330.2 mm) HPA XGA color	- High Performance Addressing (Dual Scan)	- 6.4GB disk, 13ms, Ultra DMA/33	02K0518
- 640x480 (16 million), 800x600 (16 million), or 1024x768 (65,536 simultaneous colors)	- 150ms; 40 to 1 contrast ratio	- SelectaBase 600	12J2467
- 70 nits (AC), 40 nits (battery)		- PC Card Enabler ¹⁷	83H6741
12.1" (307.5 mm) TFT SVGA color	- Active Matrix TFT	- PC Card Enabler with EtherJet ¹⁷	05K4820
- 640x480 (16 million) or 800x600 (16 million simultaneous colors)	- 75ms; 100 to 1 contrast ratio	- SelectaDock I ¹⁷	3547001
- 110 nits (AC), 70 nits (battery)		- SelectaDock II ¹⁷	3547002
13.3" (337.8 mm) TFT XGA color	- Active Matrix TFT	- SelectaDock III ¹⁷	3547003
- 640x480 (16 million), 800x600 (16 million), or 1024x768 (65,536 simultaneous colors)	- 75ms; 100 to 1 contrast ratio	- 56 watt AC Adapter (barrel; 3 prong)	83H6739
- 150 nits (AC), 90 nits (battery)		- 24X-10X CD-ROM (UltraslimBay; includes external diskette enclosure)	12J2471
		- 16MB SO DIMM 3.3v NP SDRAM	76H0293
		- 32MB SO DIMM 3.3v NP SDRAM	76H0294
		- 64MB SO DIMM 3.3v NP SDRAM	76H0295
		- ThinkPad 600 Li-Ion Battery	12J2464
		- V.90 PC Card Modem with XJACK ²⁴	10L7393
		- UltraslimBay HDD adapter (for 2nd disk)	05K5336
		- SuperDisk LS-120 (UltraslimBay)	20L1929
		- DVD Drive (UltraslimBay)	05K8890
		- Zip 100MB UltraslimBay Drive	37L1504

IBM® ThinkPad®		WINDOWS 98 PRELOAD¹⁶		
Processor type/path	Intel® Mobile Pentium® II 300MHz¹ / 66MHz system bus	<ul style="list-style-type: none"> Microsoft® Windows® 98 Online User's Guide ThinkPad Utilities ThinkPad Configuration Program RingCentral Ergonomics IBM Product Registration Puma IntelliSync 97 (infrared) IBM Global Network Dialer Netscape Navigator web browser IBM Update Connector Artisoft ConfigSafe Norton AntiVirus Lotus® SmartSuite Millennium CD-ROM Customization Center CD-ROM Product Recovery CD-ROM (with boot diskette) 		
Processor features	No upgrade / processor, L2 cache, and mem cntr (North Bridge) on Mobile Module	WINDOWS NT PRELOAD¹⁶ <ul style="list-style-type: none"> Windows NT® Workstation 4.0 Online User's Guide ThinkPad Utilities ThinkPad Configuration Program Puma IntelliSync 97 (infrared) ConfigSafe IBM Global Network Dialer Netscape Navigator web browser Norton AntiVirus (OEM Version) Ergonomics IBM Product Registration SystemSoft CardWizard Lotus SmartSuite Millennium CD-ROM Customization CD-ROM (apps/drivers) Product Recovery CD-ROM (with boot diskette) 		
L2 cache	512KB / sync pipelined burst / ECC / 150MHz (half speed)			
Diskette (removable)	3.5" 1.44MB / use in UltralimBay / ships in external diskette enclosure with a cable	System does not have non-disruptive battery exchange. Battery can be changed while system is off, in hibernation, or under AC power. ThinkPad 600 supported disks: - 3.2GB 13ms read/14ms write 9.5 mm PIO Mode 4 or Ultra DMA/33 - 4.0GB 13ms read/14ms write 12.5 mm PIO Mode 4 or Ultra DMA/33 - 5.1GB 12ms read/13ms write 12.5 mm PIO Mode 4 or Ultra DMA/33 - 6.4GB 13ms read/14ms write 12.5 mm PIO Mode 4 or Ultra DMA/33		
External FDD port	External diskette port on right side (can use simultaneously with internal CD-ROM)			
CD-ROM (removable)	5.25" CD-ROM / 24X-10X⁵ speed / bootable / warm swap	FEATURES Wired for Management 1.1a PC 97 compliant DMI 2.0 compliant DMI instrumentation (thermal monitoring) ACPI ready (APM enabled) Wake on LAN™ support²⁸ C: is 1.99GB, D: is up to 1.99GB, etc. Setup Guide, User's Reference, Quick Reference and Service Information Card, Options by IBM Catalog, Windows 98 or NT manual Plug and Play 1.0a Standby, suspend, safe suspend, and hibernation modes ENERGY STAR compliant International Warranty Service ¹⁴ IBM SystemXtra™ 24 hour / 7 day telephone ³⁰ , bulletin board, fax, electronic, and Internet (www.ibm.com/pc/us) support		
DVD ¹⁹ (removable)	<i>Option:</i> DVD-ROM drive / removable UltralimBay option / warm swap			
SuperDisk (LS-120)	<i>Option:</i> Removable UltralimBay option / supports 1.44MB and 120MB diskette			
Type - model	2645-45U 2645-85U All models:			
Preload (see side)	Windows 98 Windows NT 4.0 - C: drive is FAT16 of 2GB			
Disk (removable)	5.1GB⁴ / 12ms (read); 13ms (write) / upgradeable			
Available date	September 1998			
Memory	64MB std / 288MB ²⁵ maximum / SDRAM / non-parity / 66MHz / 3.3v Two 144-pin sockets / 32MB on planar and 1 socket used by 32MB SO-DIMM / 1 socket available / sockets accessed by removing screw on bottom			
Display	13.3" (337.8mm) TFT color / Active Matrix / XGA / 75ms / 100 to 1 contrast ratio / 640x480 or 800x600 (16.7 million colors), 1024x768 (65,536 colors) / 150 nits (AC), 90 nits (battery) / 180 degree tilt			
Graphics - controller	NeoMagic™ MagicGraph128XD™ (NM2160B) / 128-bit SVGA accelerator			
Graphics - arch	2MB / iDRAM™ (embedded) / Zoomed Video support			
Graphics - features	Support for DirectX 5.0, DDC2B, color space conversion			
Graphics - external	External SVGA to 1024x768 with 65,536 colors (800x600 with 16.7 million colors)			
Disk	Left front / removable via coin screw or 2.5mm Allen wrench / SMART / upgradeable			
Disk controller	Enhanced IDE / busmaster / PCI 2.1 / South Bridge / PIIX4 DMA Mode 2, Ultra DMA/33, or PIO Mode 4 / supports 2nd disk inopt HDD adapter			
Keyboard / Fn keys	Full size alp/num / 9 Fn key functions / integrated palm rest			
Keyboard slope	Flat keyboard (does not lift up) / optional Port Replicator adds slope			
Pointing device	TrackPoint® / Press-to-Select / Release-to-Select / dragging / click pace / center click button for scrolling or magnifying glass / suspension top / spare caps			
Dimensions	11.8 x 9.4 x 1.4" (155 cubic inches); 300mm x 240mm x 36.5mm			
Weight ²	5.01 lbs (2.27 kg) with travel bezel and battery only			
Battery - type	Lithium Ion / intelligent / remove from base / locked with latch			
Battery - life ¹⁰	3.0 hrs / no non-disruptive battery exchange			
Charge time - on / off	2 to 3 hrs / 1.5 to 2.5 hrs			
Architecture	Intel 440BX and PIIX4 (EIDE, ISA Bridge, USB) PCI 2.1 / 32-bit / 33MHz (EIDE, graphics, CardBus, USB, ext expansion) TI PCI1250A for CardBus / LM75 digital thermometer / PC97338 Super I/O / ISA (audio, modem, diskette, serial, parallel, infrared, ext expansion)			
Port replicator	SelectaBase 600 / PC Card Enabler ¹⁷ / PC Card Enabler with Advanced EtherJet ¹⁷			
Docking Station	SelectaDock III / SelectaDock I and II			
PC Card Std slots	2 Type I, 2 Type II, or 1 Type III / CardBus 32-bit / PCMCIA 2.1 / Zoomed Video			
USB / serial / parallel	One USB / one 9 pin serial; 16550A / one (IEEE P1284-A, EPP, ECP, bidirectional)			
Other features	APM-aware BIOS / AC Adapter barrel, 3 prong (56 watts) / Selectable boot			
Video in/out	None			
MPEG decoder	None (software support for MPEG-1 in Windows 98)			
Data/fax modem	56Kbps (x2, upgradeable to v.90 ⁹) / 14.4Kbps fax / telephony / integrated Mwave® 3780i DSP / international programmable DAA / modem cable			
Audio support	CS4237B / 16-bit / SRS 3D audio / FM synthesis Int stereo speakers (front) / .5 watt / Fn+PgUp and PgDn (volume) / int microphone Input jack (3.5 mm) / Output jack (3.5 mm) / full duplex			
Jacks	Infrared port (on right) / IrDA 1.1 compatible / up to 4Mbps			
Infrared ports				
Security	Power-on password / hard disk password / supervisor password / security keyhole / personalization / phillips-head screw on base for memory / opt Allen screw for disk			
Limited warranty ¹¹	3 year - ThinkPad EasyServ ³¹ (door-to-door depot repair service) or carry-in Rapid Depot Repair (12 hr service from arrival time for 3 bus day average turnaround)			
Service options ¹⁵	On-site ³² , M-F, 8-5, next bus day (72 cities) / service agreements up to 5 years from purchase date			
	- 56K PC Card Modem Kit 04K0052 - 56K PC Card Modem/Cellular capab 02K4196 - V.90 PC Card Modem with XJACK ²⁴ 10L7393 - EtherJet PC Card Combo 72H4534 - IBM 10/100 EtherJet CardBus PC Cd 08L3147 - UltralimBay HDD adapter (for 2nd disk) 05K5336 - SuperDisk LS-120 (UltralimBay) 20L1929 - DVD Drive (UltralimBay) 05K8890	- 6.4GB disk, 13ms, Ultra DMA/33 02K0518 - SelectaBase 600 12J2467 - PC Card Enabler ¹⁷ 83H6741 - PC Card Enabler with EtherJet ¹⁷ 05K4820 - SelectaDock I ¹⁷ 3547001 - SelectaDock II ¹⁷ 3547002 - SelectaDock III¹⁷ 3547003 - 56 watt AC Adapter (barrel; 3 prong) 83H6739 - 24X-10X CD-ROM (UltralimBay; includes external diskette enclosure) 12J2471 - 16MB SO DIMM 3.3v NP SDRAM 76H0293 - 32MB SO DIMM 3.3v NP SDRAM 76H0294 - 64MB SO DIMM 3.3v NP SDRAM 76H0295 - 64MB SO DIMM 3.3v NP SDRAM 20L0241 - 128MB SO DIMM 3.3v NP SDRAM 01K1150 - ThinkPad 600 Li-Ion Battery 12J2464 - External Battery Charger 02K6499 - DVD Drive (UltralimBay) 05K8890 - Zip 100MB UltralimBay Drive 37L1504		
	The right bay (UltralimBay) has LED on release latch to provide status; supports warm swapping; supports: • std diskette and weight-saver bezel • std or optional CD-ROM • optional DVD drive ¹⁹ • optional Zip 100MB drive • opt LS-120 SuperDisk drive (no warm swap) • opt HDD adapter; second disk (no warm swap) • optional ThinkPad Proven™ solutions ¹²			

IBM® ThinkPad®:	770X	770X	770X	770X	770X (AAP)	WINDOWS 98 PRELOAD ¹⁶
Processor	Intel® Mobile Pentium® II 300MHz ¹ / 66MHz system bus					<ul style="list-style-type: none"> Microsoft® Windows® 98 Online User's Guide ThinkPad Configuration Program ThinkPad Utilities IBM Registration Puma IntelliSync 97 Norton AntiVirus Mediamatics DVD Express Artisoft ConfigSafe IBM Global Network Dialer Netscape Navigator web browser ThinkPad on the Net Ring Central Intel Video Phone Ergonomics Update Connector Recovery CD-ROM (with boot diskette) Customization CD-ROM (apps/drivers)
Processor features	No upgrade / processor, L2 cache, and MTXC (North Bridge) on Mobile Module					
L2 cache	512KB / write-back / 4 way set associative/ sync pipelined burst / ECC / 150MHz					
Diskette (removable)	3.5" 1.44MB / in encased enclosure / use in UltraBay™ II or attach externally					
External FDD port	External diskette port (use std cable to attach diskette drive externally)					
CD-ROM (removable)	Std or option: CD-ROM / 24X-10X ⁵ speed / bootable / hot swap/ use in UltraBay II					
DVD-ROM (removable)	Std or option: DVD drive / 16X-8X ⁵ speed / CAV / use in UltraBay II / (DVD5/4.7GB)					
Type - model	9549-71U	9549-72U	9549-7AU	9549-7BU	9549-73U(AAP)	
Preload (see side)	Windows 98	NT 4.0	Windows 98	NT 4.0	Blank (no disk)	
DVD or CD-ROM	DVD-ROM	CD-ROM	DVD-ROM	CD-ROM	Optional	
Display (diagonal)	14.1" TFT XGA (1024x768)		13.7" TFT SXGA (1280x1024)		14.1" TFT XGA	
Disk (removable)	8.1GB ⁴ / 12ms read / 13ms write				None	
Available date	October 1998					
Memory - std / max	64MB / 320MB ²¹		128MB / 320MB ²¹		64MB / 320MB ²¹	
Available sockets	2 available sockets		1 socket (one used by 64MB)		2 available	
Memory - features	SDRAM / 66MHz / non-parity / 3.3v / sockets accessed by removing screw on bottom 64MB on motherboard and 2 sockets for two JEDEC 144-pin SDRAM SO-DIMMs					
Display - size	14.1" (358mm) color / 1024x768		13.7" (348mm) SXGA color / 1280x1024			
Display - colors	16.7 million simultaneous colors					
Display - technology	Active Matrix TFT / 180 degree tilt					
Graphics - controller	Trident™ CYBER9397DVD / Accelerated Graphics Port / 64-bit accelerator					
Graphics - arch	4MB SGRAM / 83MHz		8MB SGRAM / 83MHz		4MB SGRAM	
Graphics - features	3D hardware accelerator / AGP-1x / sideband / motion compensation / Direct3D					
Graphics - external	External SVGA to 1280x1024 w/ 64K colors (85Hz) / multiple-monitor support ²⁶					
Disk (swappable)	Left side / removable via 3 methods: latch, coin screw, security tool / SMART					
Disk controller	Enhanced IDE / busmaster / PCI 2.1 / 430TX South Bridge / PIIX4 / supports two internal disks (16.2GB max) / DMA Mode 2, Ultra DMA/33, or PIO Mode 4					
Keyboard / Fn keys	Full size alp/num / 7 Fn key functions / integrated palm rest					
Keyboard slope	Flat keyboard (does not lift up) / rear legs pop up (5.5 degrees slope)					
Pointing device	TrackPoint® / Press-to-Select / Release-to-Select / dragging / click pace/ center click button for scrolling or magnifying glass / suspension top / spare caps					
Dimensions / weight ²	12.3 x 10 x 2.2" (270 cubic in) / 14.1" mod: 7.57 lbs (3.43 kg) with battery/diskette 13.7" mod: 7.63 lbs (3.46 kg) with battery/diskette					
Battery - type	Lithium Ion / intelligent / left side					
Battery - life ¹⁰ (1 batt)	3.5 hrs (7 hrs with second battery in UltraBay II)					
Charge time - on / off	2 to 3 hrs / 1.5 to 2.5 hrs					
Architecture	Intel 440BX AGPset / Intel 82371EB PIIX4E (EIDE, ISA Bridge, USB) / TI® PCI1251 for CardBus / AGP for graphics / LM75 digital thermometer PCI 2.1 / 32-bit / 33MHz (EIDE, CardBus, audio, USB, ext expansion) PC97338 Super I/O / ISA (audio, modem, diskette, serial, parallel, infrared, ext exp)					
Port replicator	SelectaBase 770 / PC Card Enabler ¹⁸ / PC Card Enabler with Adv EtherJet ¹⁸					
Docking Station	SelectaDock III / SelectaDock I and II					
PC Card Std slots	2 Type 1, 2 Type II, or 1 Type III / CardBus / PCMCIA 2.1 / Zoomed Video					
USB / serial / parallel	One USB / one 9 pin serial; 16550A / one (IEEE P1284-A, EPP, ECP, bidirectional)					
Other features	APM-aware BIOS / AC Adapter barrel, 3 prong (56 watts) / Selectable boot					
Video in/out	Option on DEVA: Video in/out (composite and S-Video) / SAA7111A NTSC/PAL					
MPEG	Software support for MPEG-2 ²⁷ since 300MHz with motion compensation					
Data/fax modem	56Kbps (x2, upgradeable to v.90 ⁸) / integrated Mwave® 3780i DSP / international programmable DAA					
Audio support	CS4239: ISA / SRS 3D audio / FM synthesis / 16-bit playback and record CS4610: PCI / decodes AC3 into stereo / MPEG-2 audio decoding / accel of DirectX Int stereo speakers (front) / 1 watt / rotary volume control (right) / int microphone Input jack (3.5 mm) / output jack (3.5 mm) / full duplex					
Jacks	Infrared ports (front and back) / IrDA 1.1 compatible / up to 4Mbps					
Security	Power-on password / hard disk password / supervisor password / security keyhole / personalization / phillips-head screws on base for battery and UltraBay II bays					
Limited warranty ¹¹	3 year - ThinkPad EasyServ ³¹ (door-to-door depot repair service) or carry-in Rapid Depot Repair (12 hr service from arrival time for 3 bus day average turnaround)					
Service options ¹⁵	On-site ³² , M-F, 8-5, next bus day (72 cities) / serv up to 5 yrs from purchase date					
Optional DVD and Enhanced Video Adapter (DEVA) 10L1228 provides:	<ul style="list-style-type: none"> - MPEG-1, MPEG-2 HHR, and full MPEG-2²⁷ hardware decoder (audio decoded via software); IBM MPEGCD1M / 2MB SDRAM; 100MHz - DVD movie playback²⁷ (MPEG-2 decoding; decryption and audio decoding via software) - Video in (composite and SVHS) (NTSC or PAL) for video capture (capture and digitize video from a TV or VCR), still image capture (capture and digitize still photo images), and overlay - Video out (composite and SVHS) to TV (connect to video out port; NTSC or PAL); or record on VCR the screen of ThinkPad - Dolby® Digital AC-3⁸ (outputs undecoded Dolby Digital signal from AC-3 connector; CSA8404A); requires external AC3 decoder/amplifier - Three ports - ① video in, ② video out, ③ AC-3 - 5.1GB disk, 12ms, Ultra DMA/33 11J8947 - 8.1GB disk, 12ms, Ultra DMA/33 02K0517 - 2nd Disk Adapter (for 760/770 disks) 11J8836 - SelectaBase 770 83H6735 - SelectaDock III¹⁸ 3547003 - PC Card Enabler with EtherJet¹⁸ 05K4820 - 760 UltraBay Tray for SD III 11J8839 - 56 watt AC Adapter (barrel; 3 prong) 83H6739 - 24X-10X CD-ROM Drive (UltraBay II) 02K0516 - DVD Drive (UltraBay II) 05K8886 - DVD and Enh Video Adapter (DEVA) 10L1228 - 32MB SO DIMM 3.3v NP SDRAM 76H0294 - 64MB SO DIMM 3.3v NP SDRAM 20L0241 - 128MB SO DIMM 3.3v NP SDRAM 01K1150 - 900MHz Cordless Comp Connection 04K0064 - V.90 PC Card Modem with XJACK²⁴ 10L7393 - ThinkPad 770 Li-Ion Battery 83H6738 - External Battery Charger 11J8985 					
	<p>The right bay (UltraBay™ II) has LED on release latch to provide status; it supports hot swapping; it supports:</p> <ul style="list-style-type: none"> • std diskette • std or optional DVD drive • std or optional CD-ROM • optional 2nd disk • optional 2nd battery (requires adapter; cold swap only) • optional ThinkPad Proven™ VST Zip™ 100 drive or SuperDisk (LS-120) drive (cold swap only) <p>ThinkPad 770 supported disks:</p> <ul style="list-style-type: none"> - 3.2GB 13ms read/14ms write 17 mm - 4.0GB 13ms read/14ms write 12.5 mm - 5.1GB 12ms read/13ms write 17 mm - 8.1GB 12ms read/13ms write 17 mm - All 760 supported disks (requires opt adaptor) <p>PC 97 compliant DMI 2.0 compliant DMI instrumentation (thermal monitoring) ACPI ready (APM enabled) Wired for Management 1.1a compliant Wake on LAN™ support²⁹ Setup Guide, User's Guide, Windows 98 or NT manual LCD indicator panel Plug and Play 1.0a Non-disruptive battery exchange Standby, suspend, safe suspend, and hibernation modes ENERGY STAR compliant International Warranty Service¹⁴ IBM SystemXtra™ 24 hour / 7 day telephone³⁰, bulletin board, fax, electronic, and Internet (www.ibm.com/pc/us) support</p>					

- ¹ MHz only measures microprocessor internal clock speed (or bus speed where indicated), not application performance. Other factors also affect application performance.
- ² Includes battery (and travel cover on ThinkPad 600) and excludes external diskette drive if applicable; actual weight may vary due to vendor components, manufacturing process and options.
- ³ Current available memory options allow memory expansion up to 160MB using two 64MB SDRAM SO DIMMs in the two available slots for memory expansion. Memory expansion beyond 160MB will depend on the availability of memory options larger than 64MB built to IBM ThinkPad 600-770 specifications and such availability cannot be assured. EDO memory is not supported in ThinkPad 770E/ED models.
- ⁴ GB means billion bytes when referring to hard drive capacity. Accessible capacity varies.
- ⁵ Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
- ⁶ DVD drive required for ThinkPad 770 models (standard in some models). For Dolby Digital output, the 'DVD and Enhanced Video Adapter' (11J8957) must be installed (standard in some models) and the ThinkPad notebook connected to appropriate receiver and external speakers.
- ⁷ Actual speeds depend on many factors are often less than the maximum possible.
- ⁸ Upgrade on 9549-1AU (770) and -5AU (770ED) and 770X via Internet software download at no additional charge (Internet access fees excepted). Software upgrade via the Internet to the V.90 56K ITU standard beginning in 4Q98. Subject to change without notice. x2 modems are designed to be capable of receiving data at up to 56Kbps from an x2-compatible service provider, and transmitting data at up to 31.2Kbps. Public networks currently limit maximum download speeds to about 53Kbps. Actual speeds depend on many factors and are often less than the maximum possible.
- ⁹ Software upgrade via the Internet to the V.90 56K ITU standard beginning 4Q98. Subject to change without notice.
- ¹⁰ Results obtained using BAPCo (Business Applications Performance Corporation) SYSmark Benchmark Test. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences.
- ¹¹ For terms and conditions or a copy of IBM's statement of Limited Warranty, call 1 800 772-2227 in the U.S. and in Canada, call 1 800 426-2255.
- ¹² Not warranted by IBM.
- ¹³ If you qualify and subject to condition.
- ¹⁴ Available in those countries where IBM and IBM resellers sell and service ThinkPad products. Registration required. Service level is based on the standard service for ThinkPad notebooks in that particular country.
- ¹⁵ Service options available based on specific ThinkPad notebook purchased; details available via fax by calling 1 800 426-3395 and requesting document #11017 or call your IBM authorized reseller for additional information.
- ¹⁶ Applications may vary from retail version and may not include all documentation or functions. Not all applications available separately. Titles subject to change without notice.
- ¹⁷ SelectaDock III requires SelectaBase 600
- ¹⁸ SelectaDock III requires SelectaBase 770
- ¹⁹ DVD drive supports standard CD-ROM and data-only DVD discs on 600 models. DVD movie playback requires an optional third-party DVD PC Card adapter on 600 models. DVD movie playback not supported with Windows NT.
- ²⁰ Lotus SmartSuite may be preinstalled or provided on CD-ROM depending on the model. Documentation and hard copy available at no extra charge.
- ²¹ The IBM ThinkPad 770X is designed to recognize up to 320MB of addressable memory with the new Mobile Pentium II processor at 300MHz. 64MB or 128MB of new, fast SDRAM SO DIMM system memory (RAM) is standard, depending on model. Current available memory options allow memory expansion up to 320MB using two 128MB SDRAM SO DIMMs in the two user accessible slots for memory expansion. On models with the 13.7-inch display, one of these slots is currently occupied with a 64MB SDRAM that provides the standard 128MB of system memory. This 64MB SDRAM would have to be removed and replaced with a 128MB SDRAM to achieve the 320MB maximum.
- ²² 56K modems are designed to be capable of receiving data at up to 56Kbps from a compatible service provider, and transmitting data at up to 31.2Kbps. Public networks currently limit maximum download speeds to about 53Kbps. Actual speeds depend on many factors and are often less than the maximum possible.
- ²³ x2 modems are designed to be capable of receiving data at up to 56Kbps from an x2-compatible service provider, and transmitting data at up to 31.2Kbps. Public networks currently limit maximum download speeds to about 53Kbps. Actual speeds depend on many factors and are often less than the maximum possible.
- ²⁴ Designed to be capable of receiving at up to 56kbps with x2 or V.90 compatible phone line and server equipment, and transmitting at up to 31.2kbps. Public networks currently limit download speeds to about 53kbps. Actual speeds vary and are often less than the maximum. Complies with V.90 ITU 56K specifications dated 2/98.
- ²⁵ For ThinkPad 600 or 600E, to achieve 288MB memory configuration on models 2645-45U/-55U/-85U, you need to replace one 32MB SDRAM SO DIMM in the memory slot with 128MB SDRAM SO DIMM and add a second 128MB SDRAM SO DIMM.
- ²⁶ When using multi-monitor with Windows 98, available graphics memory may limit resolution and/or color. Individual application support for this feature will vary.
- ²⁷ Software-supported MPEG-2 playback is supported on ThinkPad 770X models with Windows 98. Software-supported MPEG-2 playback and support for video capture on Windows NT models requires the optional 'DVD and Enhanced Video Adapter'.
- ²⁸ For ThinkPad 770, IBM Wake on LAN support available via the optional SelectaBase 770 and PC Card Enabler with Advanced EtherJet Feature or SelectaDock III and a Wake on LAN network interface card. For ThinkPad 600, IBM Wake on LAN support available via the optional SelectaBase 600 and PC Card Enabler with Advanced EtherJet Feature or SelectaDock III and a Wake on LAN network interface card. For the ThinkPad 380Z, 560Z, and 390, IBM Wake on LAN support available via the optional ThinkPad Port Replicator with Advanced EtherJet Feature.
- ²⁹ S.M.A.R.T. is defined as Self-Monitoring, Analysis and Reporting Technology.
- ³⁰ Response time varies. May exclude some holidays.

³¹ ThinkPad EasyServ: customer calls 1-800-772-2227, courier service picks up ThinkPad system at most North American locations, IBM repairs and mails back (no shipping charges, most shipping is overnight, five business day average turnaround). Rapid Depot Repair (depot repair for ThinkPad systems with 12-hour service from the time the machine arrives at the depot for three business day average turnaround) is standard for in warranty ThinkPad 600 and 770 systems and included for all ThinkPad systems as part of any mobile warranty upgrade. The customer may be asked certain diagnostic questions before a courier is sent. Service levels are response objectives and are not guaranteed

³² Onsite service: for customers who have purchased on-site service options, LCD screen replacements, and other selected repair replacements may be completed at a Depot repair center at IBM's discretion. National on-site coverage is available for selected ThinkPad products 8 a.m. to 5 p.m., customer's time zone, Monday through Friday, excluding holidays, next business day response. Not available in Alaska, Hawaii, Montana, and Wyoming (depot repair service only). Available in selected locations in other States.

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