



*Personal Systems Reference  
IBM ThinkCentre Desktops  
2003 to 2005 - withdrawn*

*May 2005 - Version 291*



Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>8</sup>	EIDE disk	EIDE Optical	Graphics	Security chip	Ethernet	Preload	Workhorse or Global	Avail date
M50	8185-A1U	4x3	Pentium® 4	2.4	512KB	533		256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH		10/100	XP Pro <sup>5</sup>	No	May 2003
M50	8185-A3U	4x3	Pentium 4	2.4C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8185-B1U	4x3	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	Gbl	May 2003
M50	8185-B2U	4x3	Pentium 4	2.53	512KB	533		512MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8185-B3U	4x3	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	2000	No	May 2003
M50	8185-B4U	4x3	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	May 2003
M50	8185-D1U	4x3	Pentium 4	2.6C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8185-D2U	4x3	Pentium 4	2.66	512KB	533		512MB	40GB	DVD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8185-D3U	4x3	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8185-D5U	4x3	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	2000	No	May 2003
M50	8185-D6U	4x3	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	May 2003

Positioning Processor *Stability and manageability for the enterprise*  
**Intel® Pentium 4 at 2.4, 2.53, 2.6 or 2.66GHz** with 533 or 800MHz system bus / *some*: Hyper-Threading (HT) technology  
 L2 cache **512KB** std and max / ECC / full speed  
 Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket

Memory - std/max<sup>8</sup> **256 or 512MB std** / 4GB max  
 Memory - sockets Four 184-pin gold plated DIMM sockets / one socket used  
 Memory - type **PC2700 333MHz DDR-SDRAM** / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable

Graphics controller **Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector**

EIDE disk **40GB**, ATA-100, 7200 rpm, rubber vibration dampening mounts  
 EIDE controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)  
 EIDE cables Two EIDE 80-conductor cables (one 1-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard  
*Some*: 48X-20X<sup>4</sup> CD-ROM / EIDE  
 CD *Some*: 16X-48X Max<sup>4</sup> DVD-ROM / EIDE  
 DVD *Some*: 16X-48X Max<sup>4</sup> DVD-ROM / EIDE  
 SATA controller Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5  
 SATA cables No SATA cables / two SATA connectors on systemboard  
 Diskette drive 3.5" 1.44MB diskette drive

Chipset **Intel 865G chipset** / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor

Ports *Front*: two USB (Version 2.0)  
*Back*: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

Audio Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec  
*Back*: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]

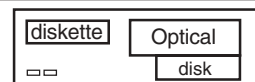
Audio connectors One internal speaker for business audio  
 Speaker *Some*: 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3  
 Ethernet *Some*: 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3

Security chip *Some*: **IBM Embedded Security Subsystem 2.0<sup>18</sup>** / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security<sup>16</sup> / TCG-compliant

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black  
 Mouse IBM Optical Wheel Mouse (USB only), 400 dpi, black  
 Cooling fans Two variable speed fans (power supply and fansink)  
 Power supply 200 watts with variable speed fan / universal / manual switch

Preload with Windows XP Professional <sup>5</sup>	Accessories	
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
<b>Preload with Windows 2000<sup>5</sup></b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
Microsoft Windows 2000 Professional	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
• ConfigSafe®	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
<b>Preloaded (all)</b>	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• Access IBM	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Access Support	160GB Serial ATA150 Disk (7200 rpm)	09N4254
• IBM Rapid Restore™ Ultra	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
• Update Connector™.15	48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM	
• PC-Doctor™ (diagnostics)	Combo drive (black)	22P7031
• Norton AntiVirus (OEM Version)	IBM Multi-Burner Plus internal (black)	22P7036
• InterVideo WinDVD (DVD models)	IBM Portable USB 2.0 40GB Hard Disk	09N4255
- Disk-to-Disk Recovery (in hidden protected area)	IBM 256MB USB 2.0 Memory Key	22P9025
<b>Downloadable (all)</b>	IBM NVIDIA Quadro4 200NVS Dual Head	33L3543
• Software Delivery Assistant	IBM ThinkVision L170 17" Monitor (black)	6734AB0
• System Migration Assistant	IBM ThinkVision L170p 17" Monitor (black)	6734HB0
• Remote Deployment Manager	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
• IBM Client Security Sft (security chip models)	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
<b>License</b> - CD not included (all)	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
- Lotus® SmartSuite® Millennium and	IBM T541H 15" Flat Panel Monitor (black)	9512HB0
Lotus Notes® Stand-alone Client	IBM T560 15" Flat Panel Monitor (black)	6656HG2
	IBM 675 Uninterruptable Power Supply	33L3478
	IBM High Rate Wireless LAN PCI Adapter	22P6901
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	

**Small Desktop**



Bay ① 3.5", SL 1", access, std diskette  
 Bay ② 5.25", HH 1.6", access, std optical  
 Bay ③ 3.5", SL 1", no access, std disk

Slot 1: Low Profile, 32-bit AGP 8X (1.5v)  
 Slot 2: Low Profile, 32-bit PCI 2.3 (5v)  
 Slot 3: Low Profile, 32-bit PCI 2.3 (5v)  
 Slot 4: Low Profile, 32-bit PCI 2.3 (5v)

- Business black color; 15.4 liters
- 14.2" W X 16.2" D X 4.1" H
- 360mm W X 412mm D X 104mm H
- 18.0 to 20.0 lb (8.1 to 9.1 kg)
- Bays 1 and 2/3 flip up (latched and pivoting)
- Toolless rails for disk mounting
- Toolless cover removal
- Toolless AGP and PCI slots
- Support for 100 lb monitor on top
- System stand for vertical orientation

**SYSTEMS MANAGEMENT**

- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.1-compliant
- DMI 2.0-compliant
- *Security chip models*: Asset ID™.19 (system-specific info in chip)

**SECURITY**

- U bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power-on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control
- *Security chip models*: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features

**LIMITED WARRANTY<sup>1</sup>**

- ⇒ 3 year parts and labor
- ⇒ International Warranty Service<sup>9</sup>
- ⇒ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup>
- ⇒ Onsite service upgrade options (in eligible locations)<sup>7</sup>
  - 3 year IOR 9x5, 4 hour response (ServicePac® part number 41L2734)
  - 3 year IOR 24x7, 4 hour response (ServicePac part number 41L2740)
  - 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9161)
  - 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9162)
  - 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9163)
- ⇒ Post warranty maintenance services available
- ⇒ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

See footnotes for important warranty information  
 US models announced May 21, 2003  
 US models withdrawn effective October 2003, December 2003, or February 2004

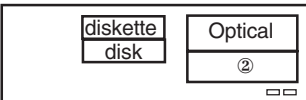
Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE Optical	Graphics	Security chip	Ethernet	Preload	Workhorse, Global, Entry	Avail date
M50	8185-E2U	4x3	Pentium® 4	2.8	512KB	533		512MB	40GB <sup>2</sup>	DVD	NVIDIA MX 440	64MB	Gigabit	XP Pro <sup>5</sup>	No	May 2003
M50	8185-E3U	4x3	Pentium 4	2.8	512KB	533		256MB	40GB	CD	Extreme™ 2 GMCH		10/100	XP Pro	No	May 2003
M50	8185-F4U	4x3	Pentium 4	3.0	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8185-F5U	4x3	Pentium 4	3.0	512KB	800	HT	512MB	40GB	DVD	Extreme 2 GMCH	Chip	Gigabit	XP Pro	No	May 2003
M50	8185-F1U	4x3	Pentium 4	3.06	512KB	533	HT	512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8185-51U	4x3	Pentium 4	3.2	512KB	800	HT	512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	Sep 2003
M50	8185-32U	4x3	Pentium 4	2.8C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	Sep 2003

Positioning Processor	<i>Stability and manageability for the enterprise</i> <b>Intel® Pentium 4 at 2.8, 3.0, 3.06, or 3.2GHz</b> with 533 or 800MHz system bus / <i>some</i> : Hyper-Threading (HT) technology	<b>Small Desktop</b>  Bay ① 3.5", SL 1", access, std diskette Bay ② 5.25", HH 1.6", access, std optical Bay ③ 3.5", SL 1", no access, std disk Slot 1: Low Profile, 32-bit AGP 8X (1.5v) - used in some Slot 2: Low Profile, 32-bit PCI 2.3 (5v) Slot 3: Low Profile, 32-bit PCI 2.3 (5v) Slot 4: Low Profile, 32-bit PCI 2.3 (5v) • Business black color; 15.4 liters • 14.2" W X 16.2"D X 4.1"H • 360mm W X 412mm D X 104mm H • 18.0 to 20.0 lb (8.1 to 9.1 kg) • Bays 1 and 2/3 flip up (latched and pivoting) • Toolless rails for disk mounting • Toolless cover removal • Toolless AGP and PCI slots • Support for 100 lb monitor on top • System stand for vertical orientation
L2 cache Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket	
Memory - std/max <sup>8</sup>	<b>256 or 512MB std</b> / 4GB max	<b>SYSTEMS MANAGEMENT</b> • PC 2001-compliant • Advanced Power Management 1.2 • Advanced Configuration and Power Interface (ACPI) 2.0b • SMBIOS 2.3.1-compliant • DMI 2.0-compliant • Security chip models: Asset ID™.19 (system-specific info in chip)
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used	
Memory - type	<b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable	<b>SECURITY</b> • U bolt anchoring feature (U-bolt is optional; supports optional padlock) • Security slot (for attachment of optional cable lock) • Power-on password • Administrator password • Boot sequence control • Diskette boot inhibit • Boot without keyboard or mouse • Diskette and disk I/O control • Serial/parallel I/O control • Security chip models: security chip providing C2 tamper switch, Asset ID <sup>19</sup> , keylock on chassis, and other features
Graphics controller (one of following)	• <b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector • <b>NVIDIA® GeForce4 MX 440</b> / AGP 8X adapter / GeForce4 MX GPU / 64MB std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector	
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts	<b>LIMITED WARRANTY<sup>1</sup></b> ↔ <b>3 year parts and labor</b> ↔ <b>International Warranty Service<sup>9</sup></b> ↔ <b>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></b> ↔ <b>Onsite service upgrade options (in eligible locations):<sup>7</sup></b> • <b>3 year IOR 9x5, 4 hour response</b> (ServicePac® part number 41L2734) • <b>3 year IOR 24x7, 4 hour response</b> (ServicePac part number 41L2740) • <b>4 year IOR 9x5, Next Business Day</b> (ServicePac part number 69P9161) • <b>4 year IOR 9x5, 4 hour response</b> (ServicePac part number 69P9162) • <b>4 year IOR 24x7, 4 hour response</b> (ServicePac part number 69P9163) ↔ <b>Post warranty maintenance services available</b> ↔ <b>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></b>
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)	
EIDE cables	Two EIDE 80-conductor cables (one 1-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard	
CD	<i>Some</i> : 48X-20X <sup>4</sup> CD-ROM / EIDE	
DVD	<i>Some</i> : 16X-48X Max <sup>4</sup> DVD-ROM / EIDE	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in I/O Controller Hub (ICH5)	
SATA cables	No SATA cables / two SATA connectors on systemboard	
Diskette drive	3.5" 1.44MB diskette drive	
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor	
Ports	<i>Front</i> : two USB (Version 2.0) <i>Back</i> : six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)	
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec	
Audio connectors	<i>Back</i> : microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]	
Speaker	One internal speaker for business audio	
Ethernet	<i>Some</i> : 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 <i>Some</i> : 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3	
Security chip	<i>Some</i> : <b>IBM Embedded Security Subsystem 2.0<sup>18</sup></b> / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security <sup>16</sup> / TCG-compliant	
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black	
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black	
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)	
Power supply	200 watts with variable speed fan / universal / manual switch	
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>	
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
<b>Preloaded</b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
• Access IBM	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
• Access Support	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• Update Connector™.15	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Adobe Acrobat Reader	160GB Serial ATA150 Disk (7200 rpm)	09N4254
• PC-Doctor™ (diagnostics)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
• Norton AntiVirus (OEM Version)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM	
• InterVideo WinDVD (DVD models)	Combo drive (black)	73P3300
• RecordNow and DLA (CD-RW, combo)	IBM Multi-Burner Plus internal (black)	73P3305
- Disk-to-Disk Recovery (in hidden protected area)	IBM Portable USB 2.0 40GB Hard Disk	09N4255
<b>Downloadable</b>	omega® Zip 750MB USB 2.0 Ext Drive	22P7099
• Software Delivery Assistant	IBM 256MB USB 2.0 Memory Key	22P9025
• System Migration Assistant	IBM NVIDIA Quadro4 200NVS Dual Head	33L3543
• IBM Director Agent	IBM ThinkVision L150p 15" Monitor (black)	6636HB1
• IBM Client Security Sft (security chip models)	IBM ThinkVision L170p 17" Monitor (black)	6734HB0
<b>License</b> - CD not included	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
	Belkin® 800VA UPS with AVR technology	31P7662
	IBM High Rate Wireless LAN PCI Adapter	22P6901
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	

See footnotes for important warranty information  
US models announced May 21 or September 16, 2003  
US models withdrawn effective June 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE optical	Graphics	Security chip	Ethernet	Preload	Workhorse Global, Entry	Avail date
M50	8187-11U	4x4	Celeron®	2.2	128KB	400	No	256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	No	10/100	XP Pro <sup>5</sup>	No	Sep 2003
M50	8187-12U	4x4	Celeron	2.4	128KB	400	No	256MB	40GB	CD	Extreme 2 GMCH	No	10/100	XP Pro	No	Sep 2003
M50	8187-13U	4x4	Celeron	2.6	128KB	400	No	256MB	40GB	CD	Extreme 2 GMCH	No	10/100	XP Pro	No	Nov 2003

Positioning Processor	<i>Stability and manageability for the enterprise</i> <b>Intel® Celeron at 2.2, 2.4 or 2.6GHz</b> with 400MHz system bus / no Hyper-Threading (HT) technology support	<b>Desktop</b>	
L2 cache Implementation	<b>128KB</b> std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket		
Memory - std/max <sup>8</sup>	<b>256MB std</b> / 4GB max Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable	Bay ① 5.25", HH 1.6", access, std optical	std optical
Memory	Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable	Bay ② 5.25", HH 1.6" access, open	open
Graphics	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector	Bay ③ 3.5", SL 1", access, std diskette	std diskette
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts	Bay ④ 3.5", SL 1", no access, std disk	std disk
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)	Slot 1: full-length, full-height, 32-bit AGP 8X (1.5v)	
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard	Slot 2: full-length, full-height, 32-bit PCI 2.3 (5v)	
CD	48X-20X <sup>4</sup> CD-ROM / EIDE	Slot 3: full-length, full-height, 32-bit PCI 2.3 (5v)	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in I/O Controller Hub (ICH5)	Slot 4: full-length, full-height, 32-bit PCI 2.3 (5v)	
SATA cables	No SATA cables / two SATA connectors on systemboard	• Business black color; 25.2 liters	
Diskette drive	3.5" 1.44MB diskette drive	• 16.7" W X 16.3"D X 5.5"H	
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor	• 425mm W X 414mm D X 140mm H	
Ports	<i>Front:</i> two USB (Version 2.0) <i>Back:</i> six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)	• 22 to 25 lb (10.0 to 11.4 kg)	
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec	• Bay 1 and 2 in cage flips up (latched and pivoting)	
Audio connectors	<i>Back:</i> microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]	• Bay 3 and 4 in cage flips up (latched and pivoting)	
Speaker	One internal speaker for business audio	• Toolless rails for disk mounting	
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / supports PXE and Wake on LAN®	• Toolless cover removal; toolless AGP and PCI slots	
Security chip	None		
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black		
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black		
Cooling fans	Two variable speed fans (power supply and fansink)		
Power supply	230 watts with variable speed fan / universal / manual switch		

**SYSTEMS MANAGEMENT**

- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.1-compliant
- DMI 2.0-compliant

**SECURITY**

- U-bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power-on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control

ThinkCentre desktops implement IBM ThinkVantage™ technologies and design; visit [ibm.com/thinkvantage](http://ibm.com/thinkvantage)

**LIMITED WARRANTY<sup>1</sup>**

- ⇒ **3 year parts and labor**
- ⇒ **International Warranty Service<sup>9</sup>**
- ⇒ **Limited onsite service, 8 am - 5 pm, Mon-Fri coverage excluding holidays, next business day response time<sup>3</sup>**
- ⇒ **Onsite service upgrade options (in eligible locations):<sup>7</sup>**
  - **3 year IOR 9x5, 4 hour response** (ServicePac® part number 41L2734)
  - **3 year IOR 24x7, 4 hour response** (ServicePac part number 41L2740)
  - **4 year IOR 9x5, Next Business Day** (ServicePac part number 69P9161)
  - **4 year IOR 9x5, 4 hour response** (ServicePac part number 69P9162)
  - **4 year IOR 24x7, 4 hour response** (ServicePac part number 69P9163)
- ⇒ **Post-warranty maintenance services at [ibm.com/services/its/us/source/maspspleu.pdf](http://ibm.com/services/its/us/source/maspspleu.pdf)**
- ⇒ **24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)**

Preload with Windows XP Professional <sup>5</sup>	Accessories	
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
<b>Preloaded</b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
• Access IBM	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
• Access Support	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• Update Connector™.15	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Adobe Acrobat Reader	80GB Serial ATA 150 Disk (7200 rpm)	09N4253
• PC-Doctor™ (diagnostics)	160GB Serial ATA150 Disk (7200 rpm)	09N4254
• Norton AntiVirus (OEM Version)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
- Disk-to-Disk Recovery (in hidden protected area)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	73P3300
<b>Downloadable</b>	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal)	73P3370
• Software Delivery Assistant	IBM USB 2.0 Portable 40GB Hard Disk	22P7196
• System Migration Assistant	IBM USB 2.0 Memory Key 512MB	22P9230
• IBM Director Agent	IBM NVIDIA Quadro4 200NVS Dual Head	33L3543
<b>License</b> - CD not included	IBM ThinkVision™ L150 15" Monitor (black)	6636AC1
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L170 17" Monitor (black)	6734AB0
	IBM ThinkVision L191p 19" Monitor (black)	9419HB7
	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
	IBM ThinkVision C220p 22" (20.0" vis) (blk)	673560N
	IBM Enh Perf Wireless Kybd and Mouse	73P4067
	IBM Enhanced Performance USB Keyboard	73P2620
	Kensington® MicroSaver® Desktop Lock	06P3839
	Belkin® 800VA UPS with AVR technology	31P7662
	IBM Optical 3-button ScrollPoint Mouse (blk)	31P7405
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>	

See footnotes for important warranty information  
US models announced September 16 or November 18, 2003  
US models withdrawn effective February 2004 or March 2005

# IBM® ThinkCentre™ M50 (8187) - 2.4 to 2.66GHz - withdrawn

Created by IBM PC Institute  
Personal Systems Reference (PSREF)

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE Optical	Graphics	Security chip	Ethernet	Preload	Workhorse or Global	Avail date
M50	8187-A1U	4x4	Pentium® 4	2.4	512KB	533		256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH		10/100	XP Pro <sup>5</sup>	No	May 2003
M50	8187-A3U	4x4	Pentium 4	2.4	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	2000	No	May 2003
M50	8187-A6U	4x4	Pentium 4	2.4C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8187-B1U	4x4	Pentium 4	2.53	512KB	533		512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8187-B2U	4x4	Pentium 4	2.53	512KB	533		512MB	40GB	DVD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8187-B3U	4x4	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8187-B6U	4x4	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	2000	No	May 2003
M50	8187-D9U	4x4	Pentium 4	2.6C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8187-D1U	4x4	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	Gbl	May 2003
M50	8187-D3U	4x4	Pentium 4	2.66	512KB	533		512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8187-D4U	4x4	Pentium 4	2.66	512KB	533		512MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8187-D6U	4x4	Pentium 4	2.66	512KB	533		512MB	40GB	DVD	NVIDIA MX 440 64MB		Gigabit	XP Pro	No	May 2003
M50	8187-D7U	4x4	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	2000	No	May 2003
M50	8187-DGU	4x4	Pentium 4	2.66	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8187-B7U	4x4	Pentium 4	2.53	512KB	533		512MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	May 2003
M50	8187-DDU	4x4	Pentium 4	2.66	512KB	533		512MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	May 2003

Positioning Processor	<i>Stability and manageability for the enterprise</i> <b>Intel® Pentium 4 at 2.4, 2.53, 2.6 or 2.66GHz</b> with 533 or 800MHz system bus / <i>some</i> : Hyper-Threading (HT) technology		<b>Desktop</b> 
L2 cache Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket		
Memory - std/max <sup>8</sup> Memory	<b>256 or 512MB std</b> / 4GB max Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR-SDRAM</b> / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable		Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6" access, open Bay ③ 3.5", SL 1", access, std diskette Bay ④ 3.5", SL 1", no access, std disk Slot 1: full-length, full-height, 32-bit AGP 8X (1.5v) - used Slot 2: full-length, full-height, 32-bit PCI 2.3 (5v) in Slot 3: full-length, full-height, 32-bit PCI 2.3 (5v) some Slot 4: full-length, full-height, 32-bit PCI 2.3 (5v)
Graphics controller (one of following)	<ul style="list-style-type: none"> <li>• <b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector</li> <li>• <b>NVIDIA® GeForce4 MX 440</b> / AGP 8X adapter / GeForce4 MX GPU / <b>64MB</b> std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector</li> </ul>		<ul style="list-style-type: none"> <li>• Business black color; 25.2 liters</li> <li>• 16.7" W X 16.3" D X 5.5" H</li> <li>• 425mm W X 414mm D X 140mm H</li> <li>• 22 to 25 lb (10.0 to 11.4 kg)</li> <li>• Bay 1 and 2 in cage flips up (latched and pivoting)</li> <li>• Bay 3 and 4 in cage flips up (latched and pivoting)</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal; toolless AGP and PCI slots</li> </ul>
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts		<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> <li>• <i>Security chip models</i>: Asset ID™.19 (system-specific info in chip)</li> </ul>
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)		
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard		
CD	<i>Some</i> : 48X-20X <sup>4</sup> CD-ROM / EIDE		
DVD	<i>Some</i> : 16X-48X Max <sup>4</sup> DVD-ROM / EIDE		
CD-RW	<i>Some</i> : 48X/24X/48X Max <sup>4</sup> CD-RW / EIDE		
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in I/O Controller Hub (ICH5)		
SATA cables	No SATA cables / two SATA connectors on systemboard		
Diskette drive	3.5" 1.44MB diskette drive		
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / <b>SMSC® LPC47M233</b> Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor		
Ports	<i>Front</i> : two USB (Version 2.0) <i>Back</i> : six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)		
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec		
Audio connectors	<i>Back</i> : microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]		
Speaker	One internal speaker for business audio		
Ethernet	<i>Some</i> : 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 <i>Some</i> : 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.2		
Security chip	<i>Some</i> : <b>IBM Embedded Security Subsystem 2.0</b> <sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security <sup>16</sup> / TCG-compliant		
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black		
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black		
Cooling fans	Two variable speed fans (power supply and fansink)		
Power supply	230 watts with variable speed fan / universal / manual switch		
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b> 128MB PC2700 CL2.5 NP DDR UDIMM 31P8854 256MB PC2700 CL2.5 NP DDR UDIMM 31P8855 512MB PC2700 CL2.5 NP DDR UDIMM 31P8856 1GB PC2700 CL2.5 NP DDR UDIMM 31P8857 120GB IDE Disk ATA-100 (7200 rpm) 09N4249 160GB Serial ATA150 Disk (7200 rpm) 09N4254 48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 22P7031 IBM Multi-Burner Plus internal (black) 22P7036 IBM ThinkVision L170p 17" Monitor (black) 6734HB0 IBM High Rate Wireless LAN PCI Adapter 22P6901 Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>		<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>↔ 3 year parts and labor</li> <li>↔ International Warranty Service<sup>9</sup></li> <li>↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></li> <li>↔ Onsite service upgrades via ServicePac<sup>6</sup> services at <a href="http://ibm.com/services/its/us/source/wamomxeu.pdf">ibm.com/services/its/us/source/wamomxeu.pdf</a></li> <li>↔ Post warranty maintenance services available</li> <li>↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>
Microsoft® Windows® XP Professional			
<b>Preload with Windows 2000<sup>5</sup></b>			
Microsoft Windows 2000 Professional			
<b>Preloaded</b> (only a portion listed)			
• Access IBM			
• IBM Rapid Restore™ Ultra			
• PC-Doctor™ (diagnostics)			
- Disk-to-Disk Recovery (in hidden protected area)			
<b>License</b> - CD not included (all)			
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client			

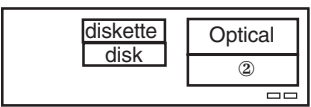
See footnotes for important warranty information

US models announced May 21, 2003

US models withdrawn effective October 2003, December 2003, or February 2004

(8187) © IBM Corp. February 2004

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>8</sup>	EIDE disk	EIDE Optical	Graphics adapter	Security chip	Workhorse Global, Entry	Avail date
M50	8187-52U	4x4	Pentium® 4 3.2	512KB	800	HT	512MB	80GB <sup>2</sup>	Combo	Radeon 9600 128MB	No	Gigabit XP Pro <sup>5</sup>	No Nov 2003

Positioning Processor	<i>Stability and manageability for the enterprise</i> <b>Intel® Pentium 4 at 3.2GHz</b> with 800MHz system bus / Hyper-Threading (HT) technology												
L2 cache Implementation	<b>512KB</b> std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket												
Memory - std/max <sup>8</sup>	<b>512MB std</b> / 4GB max												
Memory	Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable												
Graphics controller	<b>ATI® Radeon 9600</b> / AGP 8X adapter / Radeon GPU / <b>128MB</b> std and max 500MHz DDR-SDRAM / 300MHz RAMDAC / three connectors: analog DB-15, digital DVI-I, S-Video out for TV-out / no dual head support												
EIDE disk	<b>80GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts												
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)												
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard												
Combo SATA controller	48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5												
SATA cables	No SATA cables / two SATA connectors on systemboard												
Diskette drive	3.5" 1.44MB diskette drive												
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor												
Ports	<i>Front:</i> two USB (Version 2.0) <i>Back:</i> six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)												
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec												
Audio connectors	<i>Back:</i> microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]												
Speaker	One internal speaker for business audio												
Ethernet	10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN												
Security chip	None												
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black												
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black												
Cooling fans	Three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)												
Power supply	230 watts with variable speed fan / universal / manual switch												
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>												
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854											
<b>Preloaded</b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855											
• Access IBM	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856											
• Access Support	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857											
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm)	09N4248											
• Update Connector™.15	120GB IDE Disk ATA-100 (7200 rpm)	09N4249											
• Adobe Acrobat Reader	160GB Serial ATA150 Disk (7200 rpm)	09N4254											
• PC-Doctor™ (diagnostics)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042											
• Norton AntiVirus (OEM Version)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM												
• InterVideo WinDVD (used by combo)	Combo drive (black)	73P3300											
• IBM RecordNow and DLA (used by combo)	IBM Multi-Burner Plus internal (black) <sup>6</sup>	73P3305											
- Disk-to-Disk Recovery (in hidden protected area)	IBM USB 2.0 Portable 40GB Hard Disk	22P7196											
<b>Downloadable</b>	IBM 256MB USB 2.0 Memory Key	22P9025											
• Software Delivery Assistant	IBM NVIDIA Quadro4 200NVs Dual Head	33L3543											
• System Migration Assistant	IBM ThinkVision L170 17" Monitor (black)	6734AB0											
• IBM Director Agent	IBM ThinkVision L170p 17" Monitor (black)	6734HB0											
<b>License</b> - CD not included	IBM ThinkVision L190p 19" Monitor (black)	2704HB7											
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0											
	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N											
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N											
	IBM 500 Uninterrupt Powr Supp (flat pack)	33L3477											
	Belkin® 800VA UPS with AVR technology	31P7662											
	IBM High Rate Wireless LAN PCI Adapter	22P6901											
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>												
<b>Desktop</b>													
Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, std diskette Bay ④ 3.5", SL 1", no access, std disk Slot 1: full-length, full-height, 32-bit AGP 8X (1.5v) Slot 2: full-length, full-height, 32-bit PCI 2.3 (5v) Slot 3: full-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: full-length, full-height, 32-bit PCI 2.3 (5v)										• Business black color; 25.2 liters • 16.7" W X 16.3"D X 5.5"H • 425mm W X 414mm D X 140mm H • 22 to 25 lb (10.0 to 11.4 kg) • Bay 1 and 2 in cage flips up (latched and pivoting) • Bay 3 and 4 in cage flips up (latched and pivoting) • Toolless rails for disk mounting • Toolless cover removal; toolless AGP and PCI slots			
										<b>SYSTEMS MANAGEMENT</b>			
										• PC 2001-compliant • Advanced Power Management 1.2 • Advanced Configuration and Power Interface (ACPI) 2.0b • SMBIOS 2.3.1-compliant • DMI 2.0-compliant			
										<b>SECURITY</b>			
										• U-bolt anchoring feature (U-bolt is optional; supports optional padlock) • Security slot (for attachment of optional cable lock) • Power-on password • Administrator password • Boot sequence control • Diskette boot inhibit • Boot without keyboard or mouse • Diskette and disk I/O control • Serial/parallel I/O control			
										<b>LIMITED WARRANTY<sup>1</sup></b>			
										⇨ <b>3 year parts and labor</b> ⇨ <b>International Warranty Service<sup>9</sup></b> ⇨ <b>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></b> ⇨ <b>Onsite service upgrade options (in eligible locations):<sup>7</sup></b>			
										• <b>3 year IOR 9x5, 4 hour response</b> (ServicePac® part number 41L2734) • <b>3 year IOR 24x7, 4 hour response</b> (ServicePac part number 41L2740) • <b>4 year IOR 9x5, Next Business Day</b> (ServicePac part number 69P9161) • <b>4 year IOR 9x5, 4 hour response</b> (ServicePac part number 69P9162) • <b>4 year IOR 24x7, 4 hour response</b> (ServicePac part number 69P9163) ⇨ <b>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</b>			

See footnotes for important warranty information  
US models announced November 18, 2003  
US models withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE optical	Graphics	Security chip	Ethernet	Preload	Workhorse Global, Entry	Avail date
M50	8187-E1U	4x4	Pentium® 4	2.8	512KB	533		512MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH		10/100	XP Pro <sup>5</sup>	No	May 2003
M50	8187-E3U	4x4	Pentium 4	2.8	512KB	533		512MB	40GB	DVD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8187-E4U	4x4	Pentium 4	2.8	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8187-EJU	4x4	Pentium 4	2.8C	512KB	800	HT	512MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8187-F7U	4x4	Pentium 4	3.0	512KB	800	HT	512MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8187-F1U	4x4	Pentium 4	3.06	512KB	533	HT	512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8187-E8U	4x4	Pentium 4	2.8	512KB	533		512MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	May 2003
M50	8187-F4U	4x4	Pentium 4	3.0	512KB	800	HT	512MB	40GB	DVD	Extreme 2 GMCH	Chip	Gigabit	XP Pro	W G	May 2003
M50	8187-G3U	4x4	Pentium 4	3.2	512KB	800	HT	512MB	40GB	DVD	Extreme 2 GMCH		Gigabit	XP Pro	No	Sep 2003
M50	8187-G4U	4x4	Pentium 4	3.2	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	Sep 2003

Positioning Processor *Stability and manageability for the enterprise*  
**Intel® Pentium 4 at 2.8, 3.0, 3.06 or 3.2GHz** with 533 or 800MHz system bus / *some*: Hyper-Threading (HT) technology

L2 cache **512KB** std and max / ECC / full speed

Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket



Memory - std/max<sup>8</sup> **256 or 512MB std** / 4GB max

Memory Four 184-pin gold plated DIMM sockets / one socket used (two used on F4U) / **PC2700 333MHz DDR1** / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable

Bay ① 5.25", HH 1.6" access, std optical  
 Bay ② 5.25", HH 1.6" access, open  
 Bay ③ 3.5", SL 1" access, std diskette  
 Bay ④ 3.5", SL 1", no access, std diskette

Slot 1: full-length, full-height, 32-bit AGP 8X (1.5v)  
 Slot 2: full-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 3: full-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 4: full-length, full-height, 32-bit PCI 2.3 (5v)

Graphics **Integrated Intel Extreme™ Graphics 2** / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector

- Business black color; 25.2 liters
- 16.7" W X 16.3"D X 5.5"H
- 425mm W X 414mm D X 140mm H
- 22 to 25 lb (10.0 to 11.4 kg)
- Bay 1 and 2 in cage flips up (latched and pivoting)
- Bay 3 and 4 in cage flips up (latched and pivoting)
- Toolless rails for disk mounting
- Toolless cover removal; toolless AGP and PCI slots

EIDE disk **40GB**, ATA-100, 7200 rpm, rubber vibration dampening mounts

EIDE controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)

EIDE cables Two EIDE 80-conductor cables (one 2-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard

CD *Some*: 48X-20X<sup>4</sup> CD-ROM / EIDE

DVD *Some*: 16X-48X Max<sup>4</sup> DVD-ROM / single-layer / EIDE

SATA controller Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5

SATA cables No SATA cables / two SATA connectors on systemboard

Diskette drive 3.5" 1.44MB diskette drive

Chipset **Intel 865G chipset** / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC<sup>®</sup> LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor

**SYSTEMS MANAGEMENT**

- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.1-compliant
- DMI 2.0-compliant
- *Security chip models*: Asset ID™.19 (system-specific info in chip)

Ports *Front*: two USB (Version 2.0)  
*Back*: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

Audio Integrated digital audio / SoundMAX<sup>®</sup> Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec

Audio connectors *Back*: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]

Speaker One internal speaker for business audio

Ethernet *Some*: 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN<sup>®</sup>

*Some*: 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN

Security chip *Some*: **IBM Embedded Security Subsystem 2.0**<sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / Atmel<sup>®</sup> chip / TCG-compliant

**SECURITY**

- U-bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power-on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control
- *Security chip models*: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black

Mouse IBM Optical Wheel Mouse (USB only), 400 dpi, black

Cooling fans Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)

Power supply 230 watts with variable speed fan / universal / manual switch

Preload with Windows XP Professional <sup>5</sup>	Accessories
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM 31P8854
<b>Preloaded</b>	256MB PC2700 CL2.5 NP DDR UDIMM 31P8855
• Access IBM	512MB PC2700 CL2.5 NP DDR UDIMM 31P8856
• Access Support	1GB PC2700 CL2.5 NP DDR UDIMM 31P8857
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm) 09N4248
• Update Connector™.15	120GB IDE Disk ATA-100 (7200 rpm) 09N4249
• Adobe Acrobat Reader	160GB Serial ATA150 Disk (7200 rpm) 09N4254
• PC-Doctor™ (diagnostics)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042
• Norton AntiVirus (OEM Version)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM
• InterVideo WinDVD (DVD models)	Combo drive (black) 73P3300
- Disk-to-Disk Recovery (in hidden protected area)	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal) 73P3370
<b>Downloadable</b>	IBM USB 2.0 Portable 40GB Hard Disk 22P7196
• Software Delivery Assistant	IBM USB 2.0 Memory Key 512MB 22P9230
• System Migration Assistant	IBM NVIDIA Quadro4 200NVS Dual Head 33L3543
• IBM Director Agent	IBM ThinkVision L150 15" Monitor (black) 6636AC1
• IBM Client Security Sft (security chip models)	IBM ThinkVision L170 17" Monitor (black) 6734AB0
<b>License</b> - CD not included	IBM ThinkVision L170p 17" Monitor (black) 6734HB0
- Lotus® SmartSuite® Millennium and	IBM ThinkVision L200p 20.1" Monitor (blk) 6736HBO
Lotus Notes® Stand-alone Client	IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>

**LIMITED WARRANTY<sup>1</sup>**

- ⇨ **3 year parts and labor**
- ⇨ **International Warranty Service<sup>9</sup>**
- ⇨ **Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup>**
- ⇨ **Onsite service upgrade options (in eligible locations):<sup>7</sup>**
  - **3 year IOR 9x5, 4 hour response** (ServicePac<sup>®</sup> part number 41L2734)
  - **3 year IOR 24x7, 4 hour response** (ServicePac part number 41L2740)
  - **4 year IOR 9x5, Next Business Day** (ServicePac part number 69P9161)
  - **4 year IOR 9x5, 4 hour response** (ServicePac part number 69P9162)
  - **4 year IOR 24x7, 4 hour response** (ServicePac part number 69P9163)
- ⇨ **24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>**

See footnotes for important warranty information  
 US models announced May 21 or September 16, 2003  
 US models withdrawn effective August 2004 or March 2005

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>a</sup>	EIDE disk	EIDE optical	Graphics	Security chip	Ethernet	Preload	Workhorse Global, Entry	Avail date
M50	8189-11U	4x5	Celeron®	2.2	128KB	400	No	256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	No	10/100	XP Pro <sup>5</sup>	No	Sep 2003
M50	8189-12U	4x5	Celeron	2.4	128KB	400	No	256MB	40GB	CD	Extreme 2 GMCH	No	10/100	XP Pro	No	Sep 2003
M50	8189-13U	4x5	Celeron	2.6	128KB	400	No	256MB	40GB	CD	Extreme 2 GMCH	No	10/100	XP Pro	No	Nov 2003

Positioning Processor	<i>Stability and manageability for the enterprise</i> <b>Intel® Celeron at 2.2, 2.4, or 2.6GHz</b> with 400MHz system bus / no Hyper-Threading (HT) technology support											<b>Tower</b>			
L2 cache Implementation	128KB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket											<ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul>			
Memory - std/max <sup>6</sup> Memory	256MB std / 4GB max Four 184-pin gold plated DIMM sockets / one socket used / PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable														
Graphics	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector											Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v) Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)			
EIDE disk controller	40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)											<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>			
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard														
CD SATA controller	48X-20X <sup>4</sup> CD-ROM / EIDE Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5														
SATA cables	No SATA cables / two SATA connectors on systemboard														
Diskette drive	3.5" 1.44MB diskette drive											<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>			
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMCSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor											<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>⇒ 3 year parts and labor</li> <li>⇒ International Warranty Service<sup>9</sup></li> <li>⇒ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></li> <li>⇒ Onsite service upgrade options (in eligible locations)<sup>7</sup> <ul style="list-style-type: none"> <li>• 3 year IOR 9x5, 4 hour response (ServicePac® part number 41L2734)</li> <li>• 3 year IOR 24x7, 4 hour response (ServicePac part number 41L2740)</li> <li>• 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9161)</li> <li>• 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9162)</li> <li>• 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9163)</li> </ul> </li> <li>⇒ Post-warranty maintenance services at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></li> <li>⇒ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>			
Ports	Front: two USB (Version 2.0) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)														
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec														
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]														
Speaker	One internal speaker for business audio														
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN <sup>®</sup>														
Security chip	None														
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black														
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black														
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)														
Power supply	230 watts with variable speed fan / universal / manual switch														
Preload with Windows XP Professional <sup>5</sup>	Microsoft® Windows® XP Professional											ThinkCentre desktops implement IBM ThinkVantage™ technologies and design; visit <a href="http://ibm.com/thinkvantage">ibm.com/thinkvantage</a>			
Preloaded	128MB PC2700 CL2.5 NP DDR UDIMM 31P8854 256MB PC2700 CL2.5 NP DDR UDIMM 31P8855 512MB PC2700 CL2.5 NP DDR UDIMM 31P8856 1GB PC2700 CL2.5 NP DDR UDIMM 31P8857 80GB IDE Disk ATA-100 (7200 rpm) 09N4248 120GB IDE Disk ATA-100 (7200 rpm) 09N4249 80GB Serial ATA 150 Disk (7200 rpm) 09N4253 160GB Serial ATA150 Disk (7200 rpm) 09N4254 48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042 48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300 IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal) 73P3370 IBM USB 2.0 Portable 40GB Hard Disk 22P7196 Iomega® Zip 750MB USB 2.0 Ext Drive 22P7099 IBM USB 2.0 Memory Key 512MB 22P9230 IBM NVIDIA Quadro4 200NV5 Dual Head 33L3543 IBM ThinkVision L150 15" Monitor (black) 6636AC1 IBM ThinkVision L150p 15" Monitor (black) 6636HB1 IBM ThinkVision L170 17" Monitor (black) 6734AB0 IBM ThinkVision L170p 17" Monitor (black) 6734HB0 IBM ThinkVision L191p 19" Monitor (black) 9419HB7 IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0 IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N IBM ThinkVision C220p 22" (20.0" vis) (blk) 673560N Belkin® 800VA UPS with AVR technology 31P7662 IBM ScrollPoint Pro Optical Mouse (black) 31P8700 IBM Optical 3-button ScrollPoint Mouse (blk) 31P7405 Other options at <a href="http://ibm.com/options">ibm.com/options</a>														
Downloadable	Software Delivery Assistant System Migration Assistant IBM Director Agent														
License - CD not included	Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client														

See footnotes for important warranty information  
US models announced September 16 or November 18, 2003  
US models withdrawn effective February 2004 or March 2005



Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE Optical	Graphics	Security chip	Ethernet	Preload	Workhorse Global, Entry	Avail date
M50	8189-A1U	4x5	Pentium® 4	2.4	512KB	533		256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH		10/100	2000 <sup>5</sup>	No	May 2003
M50	8189-A2U	4x5	Pentium 4	2.4	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-A4U	4x5	Pentium 4	2.4C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8189-B1U	4x5	Pentium 4	2.53	512KB	533		512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-B2U	4x5	Pentium 4	2.53	512KB	533		512MB	40GB	DVD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8189-B3U	4x5	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	2000	No	May 2003
M50	8189-B4U	4x5	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-B6U	4x5	Pentium 4	2.53	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-22U	4x5	Pentium 4	2.6C	512KB	800	HT	512MB	40GB	CD-RW	Extreme 2 GMCH		10/100	XP Pro	No	Nov 2003
M50	8189-D1U	4x5	Pentium 4	2.6C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8189-DEU	4x5	Pentium 4	2.66	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-D2U	4x5	Pentium 4	2.66	512KB	533		512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-D4U	4x5	Pentium 4	2.66	512KB	533		512MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8189-D5U	4x5	Pentium 4	2.66	512KB	533		512MB	40GB	DVD	NVIDIA MX 440 64MB		Gigabit	XP Pro	No	May 2003
M50	8189-D7U	4x5	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	2000	No	May 2003
M50	8189-D8U	4x5	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-B7U	4x5	Pentium 4	2.53	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	May 2003
M50	8189-DAU	4x5	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	Chip	10/100	XP Pro	No	May 2003

Positioning Processor *Stability and manageability for the enterprise*  
**Intel® Pentium 4 at 2.4, 2.53, 2.6 or 2.66GHz** with 533 or 800MHz system bus / *some*: Hyper-Threading (HT) technology  
 L2 cache **512KB** std and max / ECC / full speed  
 Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket

Memory - std/max<sup>6</sup> **256 or 512MB std / 4GB max**  
 Memory Four 184-pin gold plated DIMM sockets / one socket used / **PC2700 333MHz DDR-SDRAM** / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable

Graphics controller • **Integrated Intel Extreme™ Graphics 2** / Direct AGP / (one of following) in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector  
 • **NVIDIA® GeForce4 MX 440** / AGP 8X adapter / GeForce4 MX GPU / **64MB** std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector

EIDE disk **40GB**, ATA-100, 7200 rpm, rubber vibration dampening mounts  
 EIDE controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)  
 EIDE cables Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard  
*Some*: 48X-20X<sup>4</sup> CD-ROM / EIDE  
 CD *Some*: 16X-48X Max<sup>4</sup> DVD-ROM / EIDE  
 DVD *Some*: 48X/24X/48X Max<sup>4</sup> CD-RW; 22U: 48X/32X/48X Max<sup>4</sup> CD-RW  
 CD-RW (EIDE)  
 SATA controller Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in I/O Controller Hub (ICH5)  
 SATA cables No SATA cables / two SATA connectors on systemboard  
 Diskette drive 3.5" 1.44MB diskette drive

Chipset **Intel 865G chipset** / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMCSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor

Ports *Front*: two USB (Version 2.0)  
*Back*: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

Audio Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec

Audio connectors *Back*: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]  
 Speaker One internal speaker for business audio  
 Ethernet *Some*: 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3  
*Some*: 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3

Security chip *Some*: **IBM Embedded Security Subsystem 2.0**<sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security<sup>16</sup> / TCG-compliant

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black  
 Mouse IBM Optical Wheel Mouse (USB only), 400 dpi, black  
 Cooling fans Two variable speed fans (power supply and fansink)  
 Power supply 230 watts with variable speed fan / universal / manual switch

**Tower**

- Business black color; 31.4 liters
- 7.5" W X 16.0" D X 16.3" H
- 191mm W X 406mm D X 413mm H
- 20.0 to 22.5 lb (9.1 to 10.2 kg)
- Handle on top front
- Disk bay pivots forward
- Toolless rails for disk mounting
- Toolless cover removal
- Toolless AGP and PCI slots

Bay ① 5.25", HH 1.6", access, std optical  
 Bay ② 5.25", HH 1.6", access, open  
 Bay ③ 3.5", SL 1", access, open  
 Bay ④ 3.5", SL 1", access, std diskette  
 Bay ⑤ 3.5", SL 1", no access, std disk

Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)\*  
 Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)  
 \* Used in some models

**SYSTEMS MANAGEMENT**

- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.1-compliant
- DMI 2.0-compliant
- *Security chip models*: Asset ID™.19 (system-specific info in chip)

**SECURITY**

- U bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control
- *Security chip models*: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features

	Preload with Windows XP Professional <sup>5</sup>	Accessories	
	Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
	<b>Preload with Windows 2000<sup>5</sup></b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
	Microsoft Windows 2000 Professional	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
	<b>Preloaded</b> (only a portion listed)	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
	• Access IBM	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
	• IBM Rapid Restore™ Ultra	160GB Serial ATA150 Disk (7200 rpm)	09N4254
	- Disk-to-Disk Recovery (in hidden protected area)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
		48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	22P7031
	<b>License</b> - CD not included (all)	IBM Multi-Burner Plus internal (black)	22P7036
	- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM High Rate Wireless LAN PCI Adapter	22P6901
		Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	

**LIMITED WARRANTY<sup>1</sup>**

- ↔ 3 year parts and labor
- ↔ International Warranty Service<sup>9</sup>
- ↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup>
- ↔ Onsite service upgrades via ServicePac® options at [ibm.com/services/its/us/source/wamomxeu.pdf](http://ibm.com/services/its/us/source/wamomxeu.pdf)
- ↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE optical	Graphics	Security chip	Ethernet	Preload	Workhorse or Global	Avail date
M50	8189-E1U	4x5	Pentium® 4	2.8	512KB	533		256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH		10/100	XP Pro <sup>5</sup>	Gbl	May 2003
M50	8189-E4U	4x5	Pentium 4	2.8	512KB	533		512MB	40GB	DVD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8189-E8U	4x5	Pentium 4	2.8	512KB	800	HT	512MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8189-F5U	4x5	Pentium 4	3.0	512KB	800	HT	512MB	40GB	CD	Extreme 2 GMCH		Gigabit	XP Pro	No	May 2003
M50	8189-F1U	4x5	Pentium 4	3.06	512KB	533	HT	512MB	40GB	CD	Extreme 2 GMCH		10/100	XP Pro	No	May 2003
M50	8189-F6U	4x5	Pentium 4	3.0	512KB	800	HT	512MB	40GB	DVD	Extreme 2 GMCH	Chip	Gigabit	XP Pro	No	May 2003

Positioning Processor *Stability and manageability for the enterprise*  
**Intel® Pentium 4 at 2.8, 3.0 or 3.06GHz** with 533 or 800MHz system bus / *some:* Hyper-Threading (HT) technology  
 L2 cache **512KB** std and max / ECC / full speed  
 Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket

Memory - std/max<sup>8</sup> **256 or 512MB std** / 4GB max  
 Memory Four 184-pin gold plated DIMM sockets / one socket used (two used on F6U) / **PC2700 333MHz DDR1** / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable

Graphics **Integrated Intel Extreme™ Graphics 2** / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 2665G / DVMT / one 15-pin analog D-sub connector

EIDE disk **40GB**, ATA-100, 7200 rpm, rubber vibration dampening mounts  
 EIDE controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)  
 EIDE cables Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard  
 CD *Some:* 48X-20X<sup>4</sup> CD-ROM / EIDE  
 DVD *Some:* 16X-48X Max<sup>4</sup> DVD-ROM / EIDE  
 SATA controller Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5  
 SATA cables No SATA cables / two SATA connectors on systemboard  
 Diskette drive 3.5" 1.44MB diskette drive

Chipset **Intel 865G chipset** / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor

Ports *Front:* two USB (Version 2.0)  
*Back:* six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

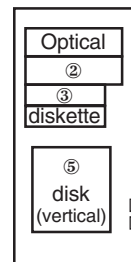
Audio Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec  
 Audio connectors *Back:* microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]  
 Speaker One internal speaker for business audio  
 Ethernet *Some:* 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN<sup>®</sup>  
*Some:* 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN

Security chip *Some:* **IBM Embedded Security Subsystem 2.0**<sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security<sup>16</sup> / TCG-compliant

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black  
 Mouse IBM Optical Wheel Mouse (USB only), 400 dpi, black  
 Cooling fans Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)  
 Power supply 230 watts with variable speed fan / universal / manual switch

**Tower**

- Business black color; 31.4 liters
- 7.5" W X 16.0"D X 16.3"H
- 191mm W X 406mm D X 413mm H
- 20.0 to 22.5 lb (9.1 to 10.2 kg)
- Handle on top front
- Disk bay pivots forward
- Toolless rails for disk mounting
- Toolless cover removal
- Toolless AGP and PCI slots



Bay ① 5.25", HH 1.6", access, std optical  
 Bay ② 5.25", HH 1.6", access, open  
 Bay ③ 3.5", SL 1", access, open  
 Bay ④ 3.5", SL 1", access, std diskette  
 Bay ⑤ 3.5", SL 1", no access, std disk  
 Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)  
 Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)

**SYSTEMS MANAGEMENT**

- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.1-compliant
- DMI 2.0-compliant
- *Security chip models:* Asset ID™<sup>19</sup> (system-specific info in chip)

**SECURITY**

- U-bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power-on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control
- *Security chip models:* security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features

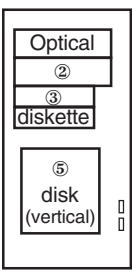
Supports IBM ThinkVantage™ technologies

**LIMITED WARRANTY<sup>1</sup>**

- ↔ 3 year parts and labor
- ↔ International Warranty Service<sup>9</sup>
- ↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup>
- ↔ Onsite service upgrade options (in eligible locations):<sup>7</sup>
  - 3 year IOR 9x5, 4 hour response (ServicePac® part number 41L2734)
  - 3 year IOR 24x7, 4 hour response (ServicePac part number 41L2740)
  - 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9161)
  - 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9162)
  - 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9163)
- ↔ Post warranty maintenance services available
- ↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)

Preload with Windows XP Professional <sup>5</sup>	Accessories	
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
<b>Preloaded</b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
• Access IBM	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
• Access Support	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• Update Connector™ <sup>15</sup>	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Adobe Acrobat Reader	80GB Serial ATA 150 Disk (7200 rpm)	09N4253
• PC-Doctor™ (diagnostics)	160GB Serial ATA 150 Disk (7200 rpm)	09N4254
• Norton AntiVirus (OEM Version)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
• InterVideo WinDVD (DVD models)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM	73P3300
• RecordNow and DLA (CD-RW, combo)	Combo drive (black)	73P3305
- Disk-to-Disk Recovery (in hidden protected area)	IBM Multi-Burner Plus internal (black) <sup>6</sup>	22P7196
<b>Downloadable</b>	IBM USB 2.0 Portable 40GB Hard Disk	22P7099
• Software Delivery Assistant	lomega® Zip 750MB USB 2.0 Ext Drive	22P9230
• System Migration Assistant	IBM USB 2.0 Memory Key 512MB	33L3543
• IBM Director Agent	IBM NVIDIA Quadro4 200NVS Dual Head	6734AB0
• IBM Client Security Sft (security chip models)	IBM ThinkVision L170 17" Monitor (black)	6734HB0
<b>License</b> - CD not included	IBM ThinkVision L191p 19" Monitor (black)	9419HB7
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
	IBM Enhanced Performance USB Keybrd	73P2620
	Kensington® MicroSaver® Desktop Lock	06P3839
	Belkin® 800VA UPS with AVR technology	31P7662
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	

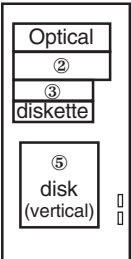
See footnotes for important warranty information  
 US models announced May 21, 2003  
 US models withdrawn effective August 2004 or January 2005

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Memory <sup>8</sup>	EIDE disk	EIDE optical	Graphics	Security chip	Ethernet	Preload	Workhorse Global, Entry	Avail date	
<b>M50</b>	8189-31U	4x5	Pentium® 4	2.8	512KB	800	HT	512MB	80GB <sup>2</sup>	Combo	NVIDIA MX 440	64MB	10/100	XP Pro <sup>5</sup>	No	Sep 2003	
<b>M50</b>	8189-43U	4x5	Pentium 4	3.0	512KB	800	HT	512MB	80GB	Combo	NVIDIA MX 440	64MB	10/100	XP Pro	No	Sep 2003	
<b>M50</b>	8189-G1U	4x5	Pentium 4	3.2	512KB	800	HT	512MB	40GB	CD	Extreme™ 2	GMCH	10/100	XP Pro	No	Sep 2003	
<b>M50</b>	8189-G3U	4x5	Pentium 4	3.2	512KB	800	HT	512MB	40GB	DVD	Extreme 2	GMCH	Gigabit	XP Pro	No	Sep 2003	
<b>M50</b>	8189-32U	4x5	Pentium 4	2.8	512KB	800	HT	512MB	40GB	CD	Extreme 2	GMCH	Chip	10/100	XP Pro	No	Sep 2003
Positioning	<i>Stability and manageability for the enterprise</i>																
Processor	<b>Intel® Pentium 4 at 2.8, 3.0 or 3.06GHz</b> with 800MHz system bus																
Hyper-Threading	Hyper-Threading (HT) technology																
L2 cache	<b>512KB</b> std and max / ECC / full speed																
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket																
Memory - std/max <sup>8</sup>	<b>512MB std / 4GB max</b>																
Memory	Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable																
Graphics (one of following)	<ul style="list-style-type: none"> <li><b>Integrated Intel Extreme™ Graphics 2 / Direct AGP</b> / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector</li> <li><b>NVIDIA® GeForce4 MX 440 / AGP 8X adapter</b> / GeForce4 MX GPU / <b>64MB</b> std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector</li> </ul>																
EIDE disk	<b>40 or 80GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts																
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)																
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard																
CD	<i>Some: 48X-20X<sup>4</sup> CD-ROM / EIDE</i>																
DVD	<i>Some: 16X-48X Max<sup>4</sup> DVD-ROM / single-layer / EIDE</i>																
Combo	<i>Some: 48X/24X/48X/16X Max<sup>11</sup> CD-RW/DVD-ROM Combo / EIDE</i>																
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5																
SATA cables	No SATA cables / two SATA connectors on systemboard																
Diskette drive	3.5" 1.44MB diskette drive																
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor																
Ports	<i>Front:</i> two USB (Version 2.0) <i>Back:</i> six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)																
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec																
Audio connectors	<i>Back:</i> microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]																
Speaker	One internal speaker for business audio																
Ethernet	<i>Some: 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN®</i> <i>Some: 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN</i>																
Security chip	<i>Some: IBM Embedded Security Subsystem 2.0<sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / Atmel® chip / TCG-compliant</i>																
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black																
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black																
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)																
Power supply	230 watts with variable speed fan / universal / manual switch																
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>																
Microsoft® Windows® XP Professional	128MB PC3200 CL3 NP DDR1 UDIMM 22P9271																
<b>Preloaded</b>	256MB PC3200 CL3 NP DDR1 UDIMM 73P2685																
• Access IBM	512MB PC3200 CL3 NP DDR1 UDIMM 73P2686																
• Access Support	1GB PC3200 CL3 NP DDR1 UDIMM 22P9272																
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm) 09N4248																
• Update Connector™.15	120GB IDE Disk ATA-100 (7200 rpm) 09N4249																
• Adobe Acrobat Reader	160GB Serial ATA150 Disk (7200 rpm) 09N4254																
• PC-Doctor™ (diagnostics)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042																
• Norton AntiVirus (OEM Version)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM																
• InterVideo WinDVD (DVD models)	Combo drive (black) 73P3300																
• RecordNow and DLA (CD-RW, combo)	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal) 73P3370																
- Disk-to-Disk Recovery (in hidden protected area)	IBM USB 2.0 Portable 40GB Hard Disk 22P7196																
<b>Downloadable</b>	IBM USB 2.0 Memory Key 512MB 22P9230																
• Software Delivery Assistant	IBM NVIDIA Quadro4 200NVS Dual Head 33L3543																
• System Migration Assistant	IBM ThinkVision L170 17" Monitor (black) 6734AB0																
• IBM Director Agent	IBM ThinkVision L170p 17" Monitor (black) 6734HB0																
• IBM Client Security Sft (security chip models)	IBM ThinkVision L191p 19" Monitor (black) 9419HB7																
<b>License</b> - CD not included	IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0																
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N																
	IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N																
	Belkin® 800VA UPS with AVR technology 31P7662																
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>																
<b>Tower</b>																	
<ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul>																	
																	
Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6" access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk																	
Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v) - used Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) in Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v) some Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)																	
<b>SYSTEMS MANAGEMENT</b>																	
<ul style="list-style-type: none"> <li>• PC2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> <li>• Security chip models: Asset ID™.19 (system-specific info in chip)</li> </ul>																	
<b>SECURITY</b>																	
<ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> <li>• Security chip models: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features</li> </ul>																	
<b>LIMITED WARRANTY<sup>1</sup></b>																	
<ul style="list-style-type: none"> <li>⇒ 3 year parts and labor</li> <li>⇒ International Warranty Service<sup>9</sup></li> <li>⇒ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></li> <li>⇒ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 3 year IOR 9x5, 4 hour response (ServicePac® part number 41L2734)</li> <li>• 3 year IOR 24x7, 4 hour response (ServicePac part number 41L2740)</li> <li>• 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9161)</li> <li>• 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9162)</li> <li>• 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9163)</li> </ul> </li> <li>⇒ Post-warranty maintenance services at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></li> <li>⇒ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>																	

See footnotes for important warranty information  
US models announced September 16, 2003  
US models withdrawn effective March 2005

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>6</sup>	EIDE disk	EIDE optical	Graphics	Security chip	Ethernet	Preload	Workhorse Global, Entry	Avail date
M50	8189-33U	4x5	Pentium® 4	2.8C 512KB	800	HT	256MB	40GB <sup>2</sup>		Extreme™ 2 GMCH	No	10/100	XP Pro <sup>5</sup>	No	Nov 2003
M50	8189-34U	4x5	Pentium 4	2.8 512KB	533		512MB	40GB	CD-RW	Extreme 2 GMCH	No	10/100	XP Pro	No	Nov 2003
M50	8189-44U	4x5	Pentium 4	3.0 512KB	800	HT	256MB	40GB		Extreme 2 GMCH	No	10/100	XP Pro	No	Nov 2003
M50	8189-45U	4x5	Pentium 4	3.06 512KB	533	HT	512MB	40GB	CD-RW	Extreme 2 GMCH	No	10/100	XP Pro	No	Nov 2003
M50	8189-51U	4x5	Pentium 4	3.2 512KB	800	HT	512MB	80GB	Combo	Radeon 9600	No	Gigabit	XP Pro	No	Nov 2003

Positioning Processor	<i>Stability and manageability for the enterprise</i> <b>Intel® Pentium 4 at 2.8, 3.0, 3.06, or 3.2GHz</b> with 533 or 800MHz system bus / <i>some</i> : Hyper-Threading (HT) technology	<b>Tower</b> <ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul> 
L2 cache Implementation	<b>512KB</b> std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket	
Memory - std/max <sup>8</sup> Memory	<b>256 or 512MB std / 4GB max</b> Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable	
Graphics (one of following)	<ul style="list-style-type: none"> <li>• <b>Integrated Intel Extreme™ Graphics 2 / Direct AGP</b> / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector</li> <li>• <b>ATI® Radeon 9600 / AGP 8X adapter / Radeon GPU / 128MB</b> std and max 500MHz DDR-SDRAM / 300MHz RAMDAC / three connectors: analog DB-15, digital DVI-I, S-Video out for TV-out / no dual head support</li> </ul>	
EIDE disk	<b>40 or 80GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts	
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)	
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard	
CD-RW	<i>Some</i> : 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE	
Combo	<i>Some</i> : 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5	
SATA cables	No SATA cables / two SATA connectors on systemboard	
Diskette drive	3.5" 1.44MB diskette drive	
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor	
Ports	<i>Front</i> : two USB (Version 2.0) <i>Back</i> : six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)	
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec	
Audio connectors	<i>Back</i> : microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]	
Speaker	One internal speaker for business audio	
Ethernet	<i>Some</i> : 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN® <i>Some</i> : 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN	
Security chip	None	
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black	
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black	
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)	
Power supply	230 watts with variable speed fan / universal / manual switch	
<b>Preload with Windows XP Professional<sup>5</sup></b>	Microsoft® Windows® XP Professional	
<b>Preloaded</b>	<ul style="list-style-type: none"> <li>• Access IBM</li> <li>• Access Support</li> <li>• IBM Rapid Restore™ Ultra</li> <li>• Update Connector™.15</li> <li>• Adobe Acrobat Reader</li> <li>• PC-Doctor™ (diagnostics)</li> <li>• Norton AntiVirus (OEM Version)</li> <li>• InterVideo WinDVD (combo models)</li> <li>• RecordNow and DLA (CD-RW, combo)</li> <li>- Disk-to-Disk Recovery (in hidden protected area)</li> </ul>	
<b>Downloadable</b>	<ul style="list-style-type: none"> <li>• Software Delivery Assistant</li> <li>• System Migration Assistant</li> <li>• IBM Director Agent</li> </ul>	
<b>License</b> - CD not included	<ul style="list-style-type: none"> <li>- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client</li> </ul>	
<b>Accessories</b>	<ul style="list-style-type: none"> <li>128MB PC2700 CL2.5 NP DDR UDIMM 31P8854</li> <li>256MB PC2700 CL2.5 NP DDR UDIMM 31P8855</li> <li>512MB PC2700 CL2.5 NP DDR UDIMM 31P8856</li> <li>1GB PC2700 CL2.5 NP DDR UDIMM 31P8857</li> <li>80GB IDE Disk ATA-100 (7200 rpm) 09N4248</li> <li>120GB IDE Disk ATA-100 (7200 rpm) 09N4249</li> <li>160GB Serial ATA150 Disk (7200 rpm) 09N4254</li> <li>48X/32X/48X Max<sup>4</sup> CD-RW internal (black) 22P7042</li> <li>48X/32X/48X/16X Max<sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300</li> <li>IBM Multi-Burner Plus<sup>6</sup> (DVD±RW; internal) 73P3370</li> <li>IBM USB 2.0 Portable 40GB Hard Disk 22P7196</li> <li>IBM USB 2.0 Memory Key 512MB 22P9230</li> <li>IBM NVIDIA Quadro4 200NVS Dual Head 33L3543</li> <li>IBM ThinkVision L170 17" Monitor (black) 6734AB0</li> <li>IBM ThinkVision L170p 17" Monitor (black) 6734HB0</li> <li>IBM ThinkVision L191p 19" Monitor (black) 9419HB7</li> <li>IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0</li> <li>IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N</li> <li>IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N</li> <li>IBM ThinkVision C220p 22" (20.0" vis) (blk) 673560N</li> <li>Belkin® 800VA UPS with AVR technology 31P7662</li> </ul> Other options at <a href="http://ibm.com/options">ibm.com/options</a>	
		<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>
		<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>
		ThinkCentre desktops implement IBM ThinkVantage™ technologies and design; visit <a href="http://ibm.com/thinkvantage">ibm.com/thinkvantage</a>
		<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>↔ <b>3 year parts and labor</b></li> <li>↔ <b>International Warranty Service<sup>9</sup></b></li> <li>↔ <b>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></b></li> <li>↔ <b>Onsite service upgrade options (in eligible locations):<sup>7</sup></b> <ul style="list-style-type: none"> <li>• <b>3 year IOR 9x5, 4 hour response</b> (ServicePac® part number 41L2734)</li> <li>• <b>3 year IOR 24x7, 4 hour response</b> (ServicePac part number 41L2740)</li> <li>• <b>4 year IOR 9x5, Next Business Day</b> (ServicePac part number 69P9161)</li> <li>• <b>4 year IOR 9x5, 4 hour response</b> (ServicePac part number 69P9162)</li> <li>• <b>4 year IOR 24x7, 4 hour response</b> (ServicePac part number 69P9163)</li> </ul> </li> <li>↔ <b>Post-warranty maintenance services at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></b></li> <li>↔ <b>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</b></li> </ul>

See footnotes for important warranty information  
 US models announced November 18, 2003  
 US models withdrawn effective August 2004 or March 2005

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Diskette Memory <sup>8</sup>	EIDE drive	EIDE Disk	Optical	Graphics	Security chip	Ethernet	Preload	Workhorse Gbl, Entry	Avail date
S50	8183-A3U	2x3	Celeron®	2.0	128KB	400		128MB	40GB <sup>2</sup>	CD		Extreme™ 2	GMCH	10/100	XP Pro <sup>5</sup>	No	Jun 2003
S50	8183-ABU	2x3	Celeron	2.1	128KB	400		128MB	40GB	CD		Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-A1U	2x3	Celeron	2.2	128KB	400		256MB	Dsk	40GB	CD	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-11U	2x3	Pentium® 4	2.4	512KB	533		256MB	Dsk	40GB	CD	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-12U	2x3	Pentium 4	2.4	512KB	533		256MB	40GB	CD		Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-13U	2x3	Pentium 4	2.4	512KB	533		256MB	40GB	CD		Extreme 2	GMCH	10/100	2000	No	Jun 2003
S50	8183-15U	2x3	Pentium 4	2.4C	512KB	800	HT	256MB	Dsk	40GB	CD	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-51U	2x3	Pentium 4	2.53	512KB	533		256MB	Dsk	40GB	CD	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-52U	2x3	Pentium 4	2.53	512KB	533		256MB	40GB	CD		Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-53U	2x3	Pentium 4	2.53	512KB	533		256MB	40GB	CD		Extreme 2	GMCH	10/100	2000	No	Jun 2003
S50	8183-26U	2x3	Pentium 4	2.6C	512KB	800	HT	256MB	Dsk	40GB	CD	Extreme 2	GMCH	Gigabit	XP Pro	No	Jun 2003
S50	8183-2CU	2x3	Pentium 4	2.6C	512KB	800	HT	256MB	Dsk	40GB	CD-RW	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-21U	2x3	Pentium 4	2.66	512KB	533		256MB	Dsk	40GB	CD	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-22U	2x3	Pentium 4	2.66	512KB	533		256MB	40GB	CD		Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003
S50	8183-23U	2x3	Pentium 4	2.66	512KB	533		512MB	Dsk	40GB	DVD	Extreme 2	GMCH	Gigabit	XP Pro	No	Jun 2003
S50	8183-24U	2x3	Pentium 4	2.66	512KB	533		256MB	40GB	CD		Extreme 2	GMCH	10/100	2000	No	Jun 2003
S50	8183-29U	2x3	Pentium 4	2.6C	512KB	800	HT	256MB	Dsk	40GB	CD	Extreme 2	GMCH Chip	Gigabit	XP Pro	No	Jun 2003
S50	8183-2AU	2x3	Pentium 4	2.66	512KB	533		256MB	Dsk	40GB	CD	Extreme 2	GMCH Chip	10/100	XP Pro	No	Jun 2003

Positioning Processor *Smallest ThinkCentre desktop without compromise*  
**Intel® Celeron at 2.0, 2.1 or 2.2GHz** with 400MHz system bus or **Pentium 4 at 2.4, 2.53, 2.6 or 2.66GHz** with 533 or 800MHz system bus / *some*: Hyper-Threading (HT) technology  
 L2 cache *Celeron:* **128KB** std and max / ECC / full speed  
*Pentium 4:* **512KB** std and max / ECC / full speed  
 Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket

Memory - std/max<sup>8</sup> **128, 256, or 512MB std** / 2GB max  
 Memory - sockets Two 184-pin gold plated DIMM sockets / one socket used  
 Memory - type **PC2700 333MHz DDR-SDRAM** / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable

Graphics controller **Integrated Intel Extreme™ Graphics 2** / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector

EIDE disk **40GB**, ATA-100, 7200 rpm, rubber vibration dampening mounts  
 EIDE controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)  
 EIDE cables One EIDE 80-conductor cable (one 2-drop cable to optical and disk) / one EIDE connector on systemboard  
*Some:* 48X-20X<sup>4</sup> CD-ROM / EIDE  
 CD *Some:* 48X/24X/48X Max<sup>4</sup> CD-RW / EIDE  
 CD-RW *Some:* 16X-48X Max<sup>4</sup> DVD-ROM / EIDE  
 DVD *Some:* 16X-48X Max<sup>4</sup> DVD-ROM / EIDE  
 SATA controller Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5  
 SATA cables No SATA cables / two SATA connectors on systemboard  
 Diskette drive *Some:* 3.5" 1.44MB diskette drive

Chipset **Intel 865G chipset** / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC<sup>®</sup> LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor

Ports *Front:* two USB (Version 2.0), microphone in (stereo), headphone out (stereo)  
*Back:* six USB (Version 2.0), two serial (9-pin), parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

Audio connectors *Back:* line-in (stereo), line-out (stereo) [all 3.5mm]  
 Audio Integrated digital audio / SoundMAX<sup>®</sup> Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec

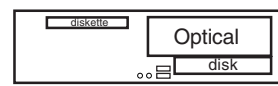
Speaker One internal speaker for business audio  
 Ethernet *Some:* 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2  
*Some:* 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.2

Security chip *Some:* **IBM Embedded Security Subsystem 2.0**<sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security<sup>16</sup> / TCG-compliant

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black  
 Mouse IBM Optical Wheel Mouse (USB only), optical, 400 dpi, black  
 Cooling fans Two variable speed fans (front fan for passive heatsink, power supply)  
 Power supply 200 watts with variable speed fan / universal / manual switch

Preload with Windows XP Professional <sup>5</sup>	Accessories
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM 31P8854
Preload with Windows 2000 <sup>5</sup>	256MB PC2700 CL2.5 NP DDR UDIMM 31P8855
Microsoft Windows 2000 Professional	512MB PC2700 CL2.5 NP DDR UDIMM 31P8856
• ConfigSafe <sup>®</sup>	1GB PC2700 CL2.5 NP DDR UDIMM 31P8857
Preloaded (all; only a portion listed)	120GB IDE Disk ATA-100 (7200 rpm) 09N4249
• Access IBM	160GB Serial ATA150 Disk (7200 rpm) 09N4254
• IBM Rapid Restore™ Ultra	48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM
- Disk-to-Disk Recovery (in hidden protected area)	Combo drive (black) 22P7031
License - CD not included (all)	IBM 256MB USB 2.0 Memory Key 22P9025
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L150 15" Monitor (black) 6636AB1
	IBM ThinkVision L170 17" Monitor (black) 6734AB0
	IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N
	IBM High Rate Wireless LAN PCI Adapter 22P6901
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>

**Small Form Factor**



Bay ① 3.5", slim .5", access, std or opt diskette  
 Bay ② 5.25", HH 1.6", access, std optical  
 Bay ③ 3.5", SL 1", no access, std disk

Slot 1: half-length (175mm), full-height, 32-bit PCI 2.3 (5v)  
 Slot 2: half-length (175mm), full-height, 32-bit PCI 2.3 (5v)

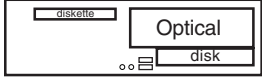
- Business black color; metal case; 9.3 liters
- 12.2" W X 14.1"D X 3.3"H
- 309mm W X 359mm D X 85mm H
- With vertical stand: 5.0" W X 14.6"D X 13.6"H
- With vertical stand: 126mm W X 370mm D X 346mm H
- 18.0 to 20.0 lb (8.1 to 9.1 kg)
- Bays 1 and 2/3 flip up (latched and pivoting)
- Toolless cover flips up and tilts backward on rear hinges
- Toolless disk, diskette drive, optical drive removal
- Two PCI slots on riser card
- Toolless PCI slots and riser card retention
- Toolless systemboard retention
- Support for 100 lb (45kg) monitor on top
- System stand for vertical orientation

- SYSTEMS MANAGEMENT**
- PC 2001-compliant
  - Advanced Power Management 1.2
  - Advanced Configuration and Power Interface (ACPI) 2.0b
  - SMBIOS 2.3.1-compliant
  - DMI 2.0-compliant
  - Security chip models: Asset ID™<sup>19</sup> (system-specific info in chip)

- SECURITY**
- U bolt anchoring feature (U-bolt is optional; supports optional padlock)
  - Security slot (for attachment of optional cable lock)
  - Power-on password
  - Administrator password
  - Boot sequence control
  - Diskette boot inhibit
  - Boot without keyboard or mouse
  - Diskette and disk I/O control
  - Serial/parallel I/O control
  - Security chip models: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features

- LIMITED WARRANTY<sup>1</sup>**
- ⇒ 3 year parts and labor
  - ⇒ International Warranty Service<sup>9</sup>
  - ⇒ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup>
  - ⇒ Onsite service upgrades via ServicePac<sup>®</sup> options at [ibm.com/services/its/us/source/wamomxeu.pdf](http://ibm.com/services/its/us/source/wamomxeu.pdf)
  - ⇒ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

See footnotes for important warranty information  
 US models announced May 21, 2003  
 US models withdrawn effective October 2003, December 2003, or February 2004  
 (8183) © IBM Corp. February 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Diskette Memory <sup>8</sup>	EIDE drive	EIDE Disk	optical	Graphics	Security chip	Ethernet	Preload	Workhorse or Global	Avail date																																																
S50	8183-32U	2x3	Pentium® 4	2.8	512KB	533		256MB	Dsk	40GB <sup>2</sup>	CD	Extreme™ 2	GMCH	10/100	XP Pro <sup>5</sup>	No	Jun 2003																																																
S50	8183-33U	2x3	Pentium 4	2.8	512KB	533		256MB		40GB	CD	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003																																																
S50	8183-34U	2x3	Pentium 4	2.8	512KB	533		512MB	Dsk	40GB	DVD	Extreme 2	GMCH	Gigabit	XP Pro	No	Jun 2003																																																
S50	8183-36U	2x3	Pentium 4	2.8C	512KB	800	HT	512MB	Dsk	40GB	CD	Extreme 2	GMCH	Gigabit	XP Pro	No	Jun 2003																																																
S50	8183-46U	2x3	Pentium 4	3.06	512KB	533	HT	256MB	Dsk	40GB	CD	Extreme 2	GMCH	10/100	XP Pro	No	Jun 2003																																																
S50	8183-43U	2x3	Pentium 4	3.0	512KB	800	HT	512MB	Dsk	40GB	DVD	Extreme 2	GMCH	Chip	Gigabit	XP Pro	W G Jun 2003																																																
Positioning Processor	Smallest ThinkCentre desktop without compromise <b>Intel® Pentium 4 at 2.8, 3.0 or 3.06GHz</b> with 533 or 800MHz system bus / some: Hyper-Threading (HT) technology											<b>Small Form Factor</b>  Bay ① 3.5", slim .5", access, std or opt diskette Bay ② 5.25", HH 1.6", access, std optical Bay ③ 3.5", SL 1", no access, std disk Slot 1: half-length (175mm), full-height, 32-bit PCI 2.3 (5v) Slot 2: half-length (175mm), full-height, 32-bit PCI 2.3 (5v)																																																					
L2 cache Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket																																																																
Memory - std/max <sup>8</sup>	256 or 512MB std / 2GB max											• Business black color; metal case; 9.3 liters • 12.2" W X 14.1"D X 3.3"H • 309mm W X 359mm D X 85mm H • 18.0 to 20.0 lb (8.1 to 9.1 kg) • Bays 1 and 2/3 flip up (latched and pivoting) • Toolless cover flips up and tilts backward on rear hinges • Toolless disk, diskette drive, optical drive removal • Two PCI slots on riser card • Toolless PCI slots and riser card retention • Toolless systemboard retention • Support for 100 lb (45kg) monitor on top • System stand for vertical orientation																																																					
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used																																																																
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable											<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> <li>• Security chip models: Asset ID™.19 (system-specific info in chip)</li> </ul> <b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> <li>• Security chip models: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features</li> </ul>																																																					
Graphics	Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector																																																																
EIDE disk	40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts																																																																
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)																																																																
EIDE cables	One EIDE 80-conductor cable (one 2-drop cable to optical and disk) / one EIDE connector on systemboard																																																																
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE											<b>ThinkCentre desktops implement IBM ThinkVantage™ technologies and design; visit <a href="http://ibm.com/thinkvantage">ibm.com/thinkvantage</a></b>																																																					
DVD	Some: 16X-48X Max <sup>4</sup> DVD-ROM / single-layer / EIDE																																																																
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5																																																																
SATA cables	No SATA cables / two SATA connectors on systemboard																																																																
Diskette drive	Some: 3.5" 1.44MB diskette drive																																																																
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor											<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>⇒ 3 year parts and labor</li> <li>⇒ International Warranty Service<sup>9</sup></li> <li>⇒ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></li> <li>⇒ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 3 year IOR 9x5, 4 hour response (ServicePac® part number 41L2734)</li> <li>• 3 year IOR 24x7, 4 hour response (ServicePac part number 41L2740)</li> <li>• 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9162)</li> <li>• 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9163)</li> </ul> </li> <li>⇒ Post warranty maintenance services available</li> <li>⇒ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>																																																					
Ports	Front: two USB (Version 2.0), microphone in (stereo), headphone out (stereo) Back: six USB (Version 2.0), two serial (9-pin), parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)																																																																
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Speaker	One internal speaker for business audio																																																																
Ethernet	Some: 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 Some: 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.2																																																																
Security chip	All: supports PXE and Wake on LAN Some: IBM Embedded Security Subsystem 2.0 <sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / Atmel® chip / TCG-compliant																																																																
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black																																																																
Mouse	Model 46U: IBM PS/2 Wheel Mouse (6-pin PS/2 connector), ball, 400 dpi, black All others: IBM Optical Wheel Mouse (USB only), optical, 400 dpi, black																																																																
Cooling fans	Two or three variable speed fans (power supply, front system fan, 3.0GHz or higher have additional front system fan)																																																																
Power supply	200 watts with variable speed fan / universal / manual switch																																																																
Preload with Windows XP Professional <sup>5</sup>	Microsoft® Windows® XP Professional											<b>Accessories</b> <table border="0"> <tr> <td>128MB PC2700 CL2.5 NP DDR UDIMM</td> <td>31P8854</td> </tr> <tr> <td>256MB PC2700 CL2.5 NP DDR UDIMM</td> <td>31P8855</td> </tr> <tr> <td>512MB PC2700 CL2.5 NP DDR UDIMM</td> <td>31P8856</td> </tr> <tr> <td>1GB PC2700 CL2.5 NP DDR UDIMM</td> <td>31P8857</td> </tr> <tr> <td>80GB IDE Disk ATA-100 (7200 rpm)</td> <td>09N4248</td> </tr> <tr> <td>120GB IDE Disk ATA-100 (7200 rpm)</td> <td>09N4249</td> </tr> <tr> <td>80GB Serial ATA 150 Disk (7200 rpm)</td> <td>09N4253</td> </tr> <tr> <td>160GB Serial ATA 150 Disk (7200 rpm)</td> <td>09N4254</td> </tr> <tr> <td>48X/32X/48X Max<sup>4</sup> CD-RW internal (black)22P7042</td> <td></td> </tr> <tr> <td>48X/32X/48X/16X Max<sup>11</sup> CD-RW/DVD-ROM Combo drive (black)</td> <td>73P3300</td> </tr> <tr> <td>IBM Multi-Burner Plus<sup>6</sup> (DVD±RW; internal)</td> <td>73P3370</td> </tr> <tr> <td>IBM USB 2.0 Portable 40GB Hard Disk</td> <td>22P7196</td> </tr> <tr> <td>lomega® Zip 750MB USB 2.0 Ext Drive</td> <td>22P7099</td> </tr> <tr> <td>IBM USB 2.0 Memory Key 512MB</td> <td>22P9230</td> </tr> <tr> <td>IBM ThinkVision™ L150 15" Monitor (blk)</td> <td>6636AC1</td> </tr> <tr> <td>IBM ThinkVision L170p 17" Monitor (black)</td> <td>6734HB0</td> </tr> <tr> <td>IBM ThinkVision L191p 19" Monitor (black)</td> <td>9419HB7</td> </tr> <tr> <td>IBM ThinkVision L200p 20.1" Monitor (blk)</td> <td>6736HB0</td> </tr> <tr> <td>IBM ThinkVision C170 17" (16.0" vis) (blk)</td> <td>673766N</td> </tr> <tr> <td>IBM ThinkVision C190 19" (18.0" vis) (blk)</td> <td>673960N</td> </tr> <tr> <td>IBM Enh Perf Wireless Keybrd and Mouse</td> <td>73P4067</td> </tr> <tr> <td>IBM Enhanced Performance USB Keybrd</td> <td>73P2620</td> </tr> <tr> <td>Belkin® 800VA UPS with AVR technology</td> <td>31P7662</td> </tr> <tr> <td>Other options at <a href="http://ibm.com/options">ibm.com/options</a></td> <td></td> </tr> </table>						128MB PC2700 CL2.5 NP DDR UDIMM	31P8854	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857	80GB IDE Disk ATA-100 (7200 rpm)	09N4248	120GB IDE Disk ATA-100 (7200 rpm)	09N4249	80GB Serial ATA 150 Disk (7200 rpm)	09N4253	160GB Serial ATA 150 Disk (7200 rpm)	09N4254	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)22P7042		48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	73P3300	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal)	73P3370	IBM USB 2.0 Portable 40GB Hard Disk	22P7196	lomega® Zip 750MB USB 2.0 Ext Drive	22P7099	IBM USB 2.0 Memory Key 512MB	22P9230	IBM ThinkVision™ L150 15" Monitor (blk)	6636AC1	IBM ThinkVision L170p 17" Monitor (black)	6734HB0	IBM ThinkVision L191p 19" Monitor (black)	9419HB7	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N	IBM Enh Perf Wireless Keybrd and Mouse	73P4067	IBM Enhanced Performance USB Keybrd	73P2620	Belkin® 800VA UPS with AVR technology	31P7662	Other options at <a href="http://ibm.com/options">ibm.com/options</a>	
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License - CD not included	<ul style="list-style-type: none"> <li>- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client</li> </ul>																																																																

See footnotes for important warranty information  
US models announced May 21, 2003  
US models withdrawn effective August 2004 or March 2005

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus Hyper-MHz Thread	Diskette Memory <sup>8</sup>	EIDE drive Disk	EIDE optical	Graphics	Security chip	Ethernet	Preload	Workhorse Gbl, Entry	Avail date
S50	8183-ADU	2x3	Celeron®	2.4	128KB	400	256MB	Dsk 40GB <sup>2</sup>	CD	Extreme™ 2	GMCH	10/100	XP Pro <sup>5</sup>	No	Sep 2003
S50	8183-2JU	2x3	Pentium® 4	2.66	512KB	533	256MB	40GB		Extreme 2	GMCH	10/100	XP Pro	No	Sep 2003
S50	8183-B2U	2x3	Pentium 4	2.8C	512KB	800	HT	512MB	Dsk 80GB	Combo		10/100	XP Pro	No	Sep 2003
S50	8183-41U	2x3	Pentium 4	3.2	512KB	800	HT	256MB	Dsk 40GB	CD		10/100	XP Pro	No	Sep 2003
S50	8183-42U	2x3	Pentium 4	3.2	512KB	800	HT	512MB	Dsk 40GB	CD		10/100	XP Pro	No	Sep 2003
S50	8183-G1U	2x3	Pentium 4	3.2	512KB	800	HT	512MB	Dsk 40GB	DVD		Gigabit	XP Pro	No	Sep 2003
S50	8183-B4U	2x3	Pentium 4	2.8C	512KB	800	HT	256MB	Dsk 40GB	CD		10/100	XP Pro	No	Sep 2003
S50	8183-47U	2x3	Pentium 4	3.2	512KB	800	HT	256MB	Dsk 40GB	CD		10/100	XP Pro	No	Sep 2003

Positioning Processor *Smallest ThinkCentre desktop without compromise*  
**Intel® Celeron at 2.4** with 400MHz system bus or **Pentium 4 at 2.66, 2.8 or 3.2GHz** with 533 or 800MHz system bus / *some*: Hyper-Threading (HT) technology  
 L2 cache *Celeron*: **128KB** std and max / ECC / full speed  
*Pentium 4*: **512KB** std and max / ECC / full speed  
 Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket

Memory - std/max<sup>8</sup> **256 or 512MB std** / 2GB max  
 Memory - sockets Two 184-pin gold plated DIMM sockets / one socket used  
 Memory - type **PC2700 333MHz DDR1** (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable

Graphics **Integrated Intel Extreme™ Graphics 2** / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector

EIDE disk **40 or 80GB**, ATA-100, 7200 rpm, rubber vibration dampening mounts  
 EIDE controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)  
 EIDE cables One EIDE 80-conductor cable (one 2-drop cable to optical and disk) / one EIDE connector on systemboard  
 CD *Some*: 48X-20X<sup>4</sup> CD-ROM / EIDE  
 DVD *Some*: 16X-48X Max<sup>4</sup> DVD-ROM / single-layer / EIDE  
 Combo *Some*: 48X/24X/48X/16X Max<sup>11</sup> CD-RW/DVD-ROM Combo / EIDE  
 SATA controller Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5  
 SATA cables No SATA cables / two SATA connectors on systemboard  
 Diskette drive *Some*: 3.5" 1.44MB diskette drive

Chipset **Intel 865G chipset** / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC<sup>®</sup> LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor

Ports *Front*: two USB (Version 2.0), microphone in (stereo), headphone out (stereo)  
*Back*: six USB (Version 2.0), two serial (9-pin), parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

Audio connectors *Back*: line-in (stereo), line-out (stereo) [all 3.5mm]  
 Audio Integrated digital audio / SoundMAX<sup>®</sup> Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec

Speaker One internal speaker for business audio

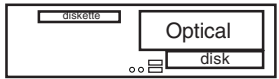
Ethernet *Some*: 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2  
*Some*: 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.2

Security chip *Some*: **IBM Embedded Security Subsystem 2.0**<sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / Atmel<sup>®</sup> chip / TCG-compliant

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black  
 Mouse IBM Optical Wheel Mouse (USB only), optical, 400 dpi, black  
 Cooling fans Two or three variable speed fans (power supply, fansink, 3.2GHz have third fan)  
 Power supply 200 watts with variable speed fan / universal / manual switch

Preload with Windows XP Professional <sup>5</sup>	Accessories
Microsoft® Windows® XP Professional	533MHz: 128MB PC2700 CL2.5 NP DDR1 31P8854
<b>Preloaded</b>	533MHz: 256MB PC2700 CL2.5 NP DDR1 31P8855
• Access IBM	533MHz: 512MB PC2700 CL2.5 NP DDR1 31P8856
• Access Support	533: 1GB PC2700 CL2.5 NP DDR1 UDIMM 31P8857
• IBM Rapid Restore™ Ultra	800MHz: 128MB PC3200 CL3 NP DDR1 22P9271
• Update Connector™.15	800MHz: 256MB PC3200 CL3 NP DDR1 73P2685
• Adobe Acrobat Reader	800MHz: 512MB PC3200 CL3 NP DDR1 73P2686
• PC-Doctor™ (diagnostics)	800: 1GB PC3200 CL3 NP DDR1 UDIMM 22P9272
• Norton AntiVirus (OEM Version)	80GB IDE Disk ATA-100 (7200 rpm) 09N4248
• InterVideo WinDVD (DVD models)	120GB IDE Disk ATA-100 (7200 rpm) 09N4249
• RecordNow and DLA (CD-RW, combo)	160GB Serial ATA150 Disk (7200 rpm) 09N4254
- Disk-to-Disk Recovery (in hidden protected area)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042
<b>Downloadable</b>	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal) 73P3370
• Software Delivery Assistant	IBM USB 2.0 Portable 40GB Hard Disk 22P7196
• System Migration Assistant	IBM USB 2.0 Memory Key 512MB 22P9230
• IBM Director Agent	IBM ThinkVision L150 15" Monitor (black) 6636AB1
• IBM Client Security Software (security chip models)	IBM ThinkVision L170 17" Monitor (black) 6734AB0
<b>License</b> - CD not included	IBM ThinkVision L170p 17" Monitor (black) 6734HB0
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L191p 19" Monitor (black) 9419HB7
	IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0
	IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>

**Small Form Factor**



Bay ① 3.5", slim .5", access, std or opt diskette  
 Bay ② 5.25", HH 1.6", access, std or opt optical  
 Bay ③ 3.5", SL 1", no access, std disk

Slot 1: half-length (175mm), full-height, 32-bit PCI 2.3 (5v)  
 Slot 2: half-length (175mm), full-height, 32-bit PCI 2.3 (5v)

- Business black color; metal case; 9.3 liters
- 12.2" W X 14.1"D X 3.3"H
- 309mm W X 359mm D X 85mm H
- With vertical stand: 5.0" W X 14.6"D X 13.6"H
- With vertical stand: 126mm W X 370mm D X 346mm H
- 18.0 to 20.0 lb (8.1 to 9.1 kg)
- Bays 1 and 2/3 flip up (latched and pivoting)
- Toolless cover flips up and tilts backward on rear hinges
- Toolless disk, diskette drive, optical drive removal
- Two PCI slots on riser card
- Toolless PCI slots and riser card retention
- Toolless systemboard retention
- Steel chassis supports 100 lb (45kg) monitor on top
- System stand for vertical orientation

- SYSTEMS MANAGEMENT**
- PC 2001-compliant
  - Advanced Power Management 1.2
  - Advanced Configuration and Power Interface (ACPI) 2.0b
  - SMBIOS 2.3.1-compliant
  - DMI 2.0-compliant
  - Security chip models: Asset ID™.19 (system-specific info in chip)

- SECURITY**
- U-bolt anchoring feature (U-bolt is optional; supports optional padlock)
  - Security slot (for attachment of optional cable lock)
  - Power-on password
  - Administrator password
  - Boot sequence control
  - Diskette boot inhibit
  - Boot without keyboard or mouse
  - Diskette and disk I/O control
  - Serial/parallel I/O control
  - Security chip models: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features

- LIMITED WARRANTY<sup>1</sup>**
- ⇒ 3 year parts and labor
  - ⇒ International Warranty Service<sup>9</sup>
  - ⇒ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup>
  - ⇒ Onsite service upgrade options (in eligible locations):<sup>7</sup>
    - 3 year IOR 9x5, 4 hour response (ServicePac<sup>®</sup> part number 41L2734)
    - 3 year IOR 24x7, 4 hour response (ServicePac part number 41L2740)
    - 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9162)
    - 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9163)
  - ⇒ Post warranty maintenance services available
  - ⇒ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

See footnotes for important warranty information  
 US models announced September 16, 2003  
 US models withdrawn effective February 2004 or March 2005

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Memory <sup>5</sup>	Diskette drive	EIDE disk	EIDE optical	Graphics in GMCH	Security chip	Ethernet	Preload	Workhorse Gbl, Entry	Avail date
S50	8183-AEU	2x3	Celeron®	2.6	128KB	400		256MB	Diskette	40GB <sup>2</sup>	CD	Extreme™ 2	No	10/100	XP Pro <sup>5</sup>	No	Nov 2003
S50	8183-B5U	2x3	Pentium® 4	2.8C	512KB	800	HT	256MB	Diskette	40GB		Extreme 2	No	10/100	XP Pro	No	Nov 2003
S50	8183-B6U	2x3	Pentium 4	2.8C	512KB	800	HT	256MB		40GB		Extreme 2	No	10/100	XP Pro	No	Nov 2003
S50	8183-D3U	2x3	Pentium 4	3.0	512KB	800	HT	256MB	Diskette	40GB		Extreme 2	No	10/100	XP Pro	No	Nov 2003
S50	8183-G2U	2x3	Pentium 4	3.2	512KB	800	HT	512MB	Diskette	40GB	Combo	Extreme 2	No	Gigabit	XP Pro	No	Nov 2003

Positioning Processor	Smallest ThinkCentre desktop without compromise <b>Intel® Celeron at 2.6</b> with 400MHz system bus or <b>Pentium 4 at 2.8, 3.0 or 3.2GHz</b> with 800MHz system bus / some: Hyper-Threading (HT) technology										<b>Small Form Factor</b> 							
L2 cache	Celeron: <b>128KB</b> std and max / ECC / full speed Pentium 4: <b>512KB</b> std and max / ECC / full speed										Bay ① 3.5", slim .5", access, std or opt diskette Bay ② 5.25", HH 1.6", access, std or opt optical Bay ③ 3.5", SL 1", no access, std disk							
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket										Slot 1: half-length (175mm), full-height, 32-bit PCI 2.3 (5v) Slot 2: half-length (175mm), full-height, 32-bit PCI 2.3 (5v)							
Memory - std/max <sup>6</sup>	<b>256 or 512MB std</b> / 2GB max										• Business black color; metal case; 9.3 liters • 12.2" W X 14.1"D X 3.3"H • 309mm W X 359mm D X 85mm H • With vertical stand: 5.0" W X 14.6"D X 13.6"H • With vertical stand: 126mm W X 370mm D X 346mm H • 18.0 to 20.0 lb (8.1 to 9.1 kg) • Bays 1 and 2/3 flip up (latched and pivoting) • Toolless cover flips up and tilts backward on rear hinges • Toolless disk, diskette drive, optical drive removal • Two PCI slots on riser card • Toolless PCI slots and riser card retention • Toolless systemboard retention • Steel chassis supports 100 lb (45kg) monitor on top • System stand for vertical orientation							
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used																	
Memory - type	<b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable																	
Graphics	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector																	
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts																	
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)																	
EIDE cables	One EIDE 80-conductor cable (one 2-drop cable to optical and disk) / one EIDE connector on systemboard																	
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE																	
Combo	Some: 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE																	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5																	
SATA cables	No SATA cables / two SATA connectors on systemboard																	
Diskette drive	Some: 3.5" 1.44MB diskette drive																	
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / <b>SMSC® LPC47M233</b> Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor										<b>SYSTEMS MANAGEMENT</b> • PC2001-compliant • Advanced Power Management 1.2 • Advanced Configuration and Power Interface (ACPI) 2.0b • SMBIOS 2.3.1-compliant • DMI 2.0-compliant							
Ports	<i>Front:</i> two USB (Version 2.0), microphone in (stereo), headphone out (stereo) <i>Back:</i> six USB (Version 2.0), two serial (9-pin), parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										<b>SECURITY</b> • U-bolt anchoring feature (U-bolt is optional; supports optional padlock) • Security slot (for attachment of optional cable lock) • Power-on password • Administrator password • Boot sequence control • Diskette boot inhibit • Boot without keyboard or mouse • Diskette and disk I/O control • Serial/parallel I/O control							
Audio connectors	<i>Back:</i> line-in (stereo), line-out (stereo) [all 3.5mm]																	
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec																	
Speaker	One internal speaker for business audio																	
Ethernet	Some: 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 Some: 10/100/1000 gigabit ethernet on planar / Intel 82541EI PHY (physical layer) and MAC / Intel Pro/1000MT Network Connection / 32-bit PCI 2.2																	
Security chip	None																	
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black										ThinkCentre desktops implement IBM ThinkVantage™ technologies and design; visit <a href="http://ibm.com/thinkvantage">ibm.com/thinkvantage</a>							
Mouse	IBM Optical Wheel Mouse (USB only), optical, 400 dpi, black																	
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.2GHz have third fan)																	
Power supply	200 watts with variable speed fan / universal / manual switch																	
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>										<b>LIMITED WARRANTY<sup>1</sup></b> ⇨ <b>3 year parts and labor</b> ⇨ <b>International Warranty Service<sup>9</sup></b> ⇨ <b>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></b> ⇨ <b>Onsite service upgrade options (in eligible locations):<sup>7</sup></b> • <b>3 year IOR 9x5, 4 hour response</b> (ServicePac® part number 41L2734) • <b>3 year IOR 24x7, 4 hour response</b> (ServicePac part number 41L2740) • <b>4 year IOR 9x5, 4 hour response</b> (ServicePac part number 69P9162) • <b>4 year IOR 24x7, 4 hour response</b> (ServicePac part number 69P9163) ⇨ <b>Post warranty maintenance services available</b> ⇨ <b>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>7</sup> via 800-IBM-SERV (426-7378)</b>							
Microsoft® Windows® XP Professional	800MHz: 128MB PC3200 CL3 NP DDR1 22P9271 800MHz: 256MB PC3200 CL3 NP DDR1 73P2685 800MHz: 512MB PC3200 CL3 NP DDR1 73P2686 800: 1GB PC3200 CL3 NP DDR1 UDIMM 22P9272 80GB IDE Disk ATA-100 (7200 rpm) 09N4248 120GB IDE Disk ATA-100 (7200 rpm) 09N4249 160GB Serial ATA150 Disk (7200 rpm) 09N4254 48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042 48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300 IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal) 73P3370 IBM USB 2.0 Portable 40GB Hard Disk 22P7196 IBM USB 2.0 Memory Key 512MB 22P9230 IBM ThinkVision L150 15" Monitor (black) 6636AC1 IBM ThinkVision L170 17" Monitor (black) 6734AB0 IBM ThinkVision L170p 17" Monitor (black) 6734HB0 IBM ThinkVision L191p 19" Monitor (black) 9419HB7 IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0 IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N IBM ThinkVision C220p 22" (20.0" vis) (blk) 673560N IBM 500 Uninterrupt Powr Supp (flat pack) 33L3477 Belkin® 800VA UPS with AVR technology 31P7662 Other options at <a href="http://ibm.com/options">ibm.com/options</a>																	
<b>Preloaded</b>																		
• Access IBM																		
• Access Support																		
• IBM Rapid Restore™ Ultra																		
• Update Connector™.15																		
• Adobe Acrobat Reader																		
• PC-Doctor™ (diagnostics)																		
• Norton AntiVirus (OEM Version)																		
• InterVideo WinDVD (combo models)																		
• RecordNow and DLA (combo models)																		
- Disk-to-Disk Recovery (in hidden protected area)																		
<b>Downloadable</b>																		
• Software Delivery Assistant																		
• System Migration Assistant																		
• IBM Director Agent																		
<b>License</b> - CD not included																		
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client																		

See footnotes for important warranty information  
US models announced November 18, 2003  
US models withdrawn effective January or March 2005



Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Memory <sup>8</sup>	EIDE disk and rpm	EIDE optical	Graphics	PCI modem	External speakers	Preload	Workhorse Global, Entry	Available date
A30	8191-11U	3x4	Celeron®	2.0	128KB	400	128MB	40GB <sup>2</sup> 7200	CD	Extreme™ GMCH	Modem	Spk	XP Home <sup>5</sup>	No	Jun 2003
A30	8191-12U	3x4	Celeron	2.0	128KB	400	128MB	40GB 7200	CD	Extreme GMCH		Spk	XP Pro	No	Jun 2003
A30	8191-21U	3x4	Celeron	2.1	128KB	400	128MB	40GB 7200	CD	Extreme GMCH	Modem	Spk	XP Home	No	Jun 2003
A30	8191-22U	3x4	Celeron	2.1	128KB	400	128MB	40GB 7200	CD	Extreme GMCH		Spk	XP Pro	No	Jun 2003
A30	8191-31U	3x4	Celeron	2.2	128KB	400	128MB	40GB 7200	CD	Extreme GMCH	Modem	Spk	XP Home	No	Jun 2003
A30	8191-32U	3x4	Celeron	2.2	128KB	400	128MB	40GB 7200	CD	Extreme GMCH		Spk	XP Pro	No	Jun 2003
A30	8191-B2U	3x4	Celeron	2.4	128KB	400	128MB	40GB 7200	CD	Extreme GMCH			XP Pro	No	Sep 2003
A30	8191-54U	3x4	Celeron	2.6	128KB	400	128MB	40GB 7200	CD	Extreme GMCH			XP Pro	No	Sep 2003
A30	8191-D1U	3x4	Celeron	2.8	128KB	400	128MB	40GB 7200	CD	Extreme GMCH			XP Pro	No	Nov 2003

Positioning Processor *Great technology and affordable prices*  
**Intel® Celeron 2.0, 2.1, 2.2, 2.4, 2.6, or 2.8GHz**  
 with 400MHz system bus  
 L2 cache **128KB** std and max / ECC / full speed  
 Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket

Memory - std/max<sup>8</sup> **128MB std / 2GB max**  
 Memory - sockets Two 184-pin gold plated DIMM sockets / one socket used  
 Memory - type **PC2100 266MHz DDR1 (DDR-SDRAM)** / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)

Graphics controller **Integrated Intel Extreme™ Graphics / Direct AGP /**  
 in 845GL GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVT / 15-pin analog D-sub connector

Disk **40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts**  
 Disk controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)  
 Diskette drive 3.5" 1.44MB diskette drive  
 CD 48X-20X<sup>4</sup> CD-ROM / EIDE  
 Cables Two EIDE 80-conductor cables (one 2-drop cable to optical, one 1-drop cable to disk)

Chipset **Intel 845GL chipset /**  
 82845GL Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse

Ports *Front:* two USB (Version 2.0)  
*Back:* four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

Audio Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / ADI1981B codec

Audio connectors *Back:* microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]

Speaker *Some:* external active speakers / Jazz Infinity® / 2-piece / 6 watts / black color

Beeper One internal beeper

Ethernet 10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100 Network Connection / 32-bit PCI 2.2 / PXE and Wake on LAN®

Modem *Some:* 56K<sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / soft HSF1 modem / PCI adapter

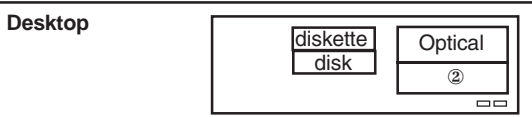
Security chip None

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)

Mouse IBM Optical Wheel Mouse (USB only), 400 dpi, black

Cooling fans Three variable speed fans (power supply, fansink, rear fan)

Power supply 230 watts with variable speed fan / universal / manual switch



Bay ① 5.25", HH 1.6", access, std CD-ROM  
 Bay ② 5.25", HH 1.6" access, open  
 Bay ③ 3.5", SL 1", access, std diskette  
 Bay ④ 3.5", SL 1", no access, std disk

Slot 1: full-length, full-height, 32-bit PCI 2.2 (5v) - used in  
 Slot 2: full-length, full-height, 32-bit PCI 2.2 (5v) some  
 Slot 3: full-length, full-height, 32-bit PCI 2.2 (5v)

- Business black color; 25.2 liters
- 16.7" W X 16.3"D X 5.5"H
- 425mm W X 414mm D X 140mm H
- 22 to 25 lb (10.0 to 11.4 kg)
- Bay 1 and 2 in cage flips up (latched and pivoting)
- Bay 3 and 4 in cage flips up (latched and pivoting)
- Toolless rails for disk mounting
- Toolless cover removal; toolless PCI slots

**SYSTEMS MANAGEMENT**

- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.4-compliant
- DMI 2.0-compliant

**SECURITY**

- U-bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power-on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control

**LIMITED WARRANTY<sup>1</sup>**

- ⇨ 3 year parts / 1 year labor
- ⇨ International Warranty Service<sup>9</sup>
- ⇨ 1st year: limited onsite service, 8 am - 5 pm, Mon-Fri coverage excl holidays, 2nd business day response time<sup>3</sup>
- ⇨ 2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)
- ⇨ Onsite service upgrade options (in eligible locations):<sup>7</sup>
  - 3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199)
  - 3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)
  - 3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)
  - 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)
  - 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)
  - 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9160)
- ⇨ Post warranty maintenance services available
- ⇨ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

Preload with Windows XP Home <sup>5</sup>	Accessories	
Microsoft Windows XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
- Disk-to-Disk Recovery (in Service Partition)	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
<b>Preload with Windows XP Professional<sup>5</sup></b>	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
Microsoft® Windows® XP Professional Edition	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
- Disk-to-Disk Recovery (in Service Partition)	40GB IDE Disk ATA-100 (7200 rpm)	22P7157
<b>Preloaded (all)</b>	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• Access IBM	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Access Support	IBM 16X Max <sup>4</sup> DVD-ROM Drive (black)	22P6950
• IBM Rapid Restore™ Ultra	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
• Update Connector™ <sup>15</sup>	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM	
• Norton AntiVirus (OEM Version)	Combo drive (black)	73P3300
• PC-Doctor™ (diagnostics)	IBM Multi-Burner Plus internal (black) <sup>6</sup>	73P3305
<b>Downloadable (all)</b>	IBM 256MB USB 2.0 Memory Key	22P9025
• Software Delivery Assistant	IBM USB 2.0 Portable 40GB Hard Disk	22P7196
• System Migration Assistant	Imega® Zip 750MB USB 2.0 Ext Drive	22P7099
• IBM Director Agent (not XP Home models)	IBM ThinkVision L170 17" Monitor (black)	6734AB0
<b>License - CD not included (all)</b>	IBM ThinkVision L170p 17" Monitor (black)	6734HB0
- Lotus® SmartSuite® Millennium and	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
	Belkin® 800VA UPS with AVR technology	31P7662
	Kensington® MicroSaver® Desktop Lock	06P3839
	IBM Enhanced Performance USB Keybrd	73P2620
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	

See footnotes for important warranty information (8191) © IBM Corp. August 2004  
 US models announced June 17, September 16, or November 18, 2003  
 US models withdrawn effective August 2003, October 2003, February 2004, or August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Memory <sup>6</sup>	EIDE disk and rpm	EIDE optical	Graphics	Chipset	PCI modem	Ext speakers	Mouse	Workhorse Preload	Avail Global, Entry date
A30	8198-12U	3x5	Celeron®	2.0	128KB	400	128MB	40GB 7200	CD	Extreme™	845GL			2 btn XP Pro <sup>5</sup>	No	Jun 2003
A30	8198-22U	3x5	Celeron	2.1	128KB	400	128MB	40GB 7200	CD	Extreme	845GL			2 btn XP Pro	No	Jun 2003
A30	8198-32U	3x5	Celeron	2.2	128KB	400	128MB	40GB 7200	CD	Extreme	845GL			2 btn XP Pro	No	Jun 2003
A30	8198-51U	3x5	Celeron	2.4	128KB	400	128MB	40GB 7200	CD	Extreme	845GL			Opcl XP Pro	No	Nov2003
A30	8198-42U	3x5	Pentium® 4	2.4	512KB	533	128MB	40GB 7200	CD	Extreme	845GV			2 btn XP Pro	No	Jun 2003
A30	8198-63U	3x5	Pentium 4	2.66	512KB	533	128MB	40GB 7200	CD	Extreme	845GV			2 btn XP Pro	No	Jun 2003
A30	8198-91U	3x5	Pentium 4	2.4	512KB	533	256MB	40GB 7200	CD	Extreme	845GV	Modem	Spk	Opcl XP Pro	No	Jun 2003
A30	8198-92U	3x5	Pentium 4	2.4	512KB	533	256MB	40GB 7200	CD-RW	Extreme	845GV	Modem	Spk	Opcl XP Pro	No	Jun 2003
A30	8198-93U	3x5	Pentium 4	2.66	512KB	533	256MB	40GB 7200	CD	Extreme	845GV	Modem	Spk	Opcl XP Pro	No	Jun 2003
A30	8198-94U	3x5	Pentium 4	2.66	512KB	533	256MB	40GB 7200	CD-RW	Extreme	845GV	Modem	Spk	Opcl XP Pro	No	Jun 2003
A30	8198-81U	3x5	Pentium 4	2.8	512KB	533	256MB	40GB 7200	CD	Extreme	845GV	Modem	Spk	Opcl XP Pro	No	Sep2003
A30	8198-82U	3x5	Pentium 4	2.8	512KB	533	256MB	40GB 7200	CD-RW	Extreme	845GV	Modem	Spk	Opcl XP Pro	No	Sep2003
A30	8198-A1U	3x5	Pentium 4	3.06	512KB	533	256MB	40GB 7200	CD	Extreme	845GV			Opcl XP Pro	No	Feb 2004
A30	8198-A2U	3x5	Pentium 4	3.06	512KB	533	256MB	40GB 7200	CD-RW	Extreme	845GV			Opcl XP Pro	No	Feb 2004

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

Positioning Processor	Great technology and affordable prices <b>Intel® Celeron 2.0, 2.1, 2.2, or 2.4GHz</b> with 400MHz system bus or <b>Intel Pentium 4 at 2.4, 2.66, 2.8 or 3.06GHz</b> with 533MHz system bus no Hyper-Threading technology support											<b>Tower</b>	
L2 cache	Celeron: <b>128KB</b> std and max / ECC / full speed Pentium 4: <b>512KB</b> std and max / ECC / full speed											<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0"D X 16.3"H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 25.0 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless PCI slots</li> </ul>	
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket												
Memory - std/max <sup>8</sup>	<b>128MB</b> or <b>256MB</b> std / 2GB max											Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk	
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used											Slot 1: 3/4-length, full-height, 32-bit PCI 2.2 (5v) - used in Slot 2: 3/4-length, full-height, 32-bit PCI 2.2 (5v) some Slot 3: 3/4-length, full-height, 32-bit PCI 2.2 (5v)	
Memory - type	<b>PC2100 266MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)												
Graphics controller	<b>Integrated Intel Extreme™ Graphics</b> / Direct AGP / in 845GL or 845GV GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVMT / 15-pin analog D-sub connector												
Disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts												
Disk controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)												
Diskette drive	3.5" 1.44MB diskette drive												
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE												
CD-RW (EIDE)	Some: 48X/24X/48X Max <sup>4</sup> CD-RW; 82U/A2U: 48X/32X/48X Max <sup>4</sup>												
Cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop cable to disk)												
Chipset	<b>Intel 845GL or 845GV chipset</b> / 82845GL or 82845GV Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse											<b>SYSTEMS MANAGEMENT</b>	
Front ports	Two USB (Version 2.0)											<ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.4-compliant</li> <li>DMI 2.0-compliant</li> </ul>	
Rear ports	Four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)												
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / ADI1981B codec											<b>SECURITY</b>	
Audio connectors	Back: microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]											<ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>	
Speakers	Some: external active speakers / Jazz Infinity® / 2-piece / 6 watts / black color												
Beeper	One internal beeper												
Ethernet	10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / Wake on LAN®												
Modem	Some: 56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter												
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)												
Mouse	Some: [2 btn] IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black Some: [Opcl] IBM Optical Wheel Mouse (USB only), 400 dpi, black												
Cooling fans	Three variable speed fans (power supply, fansink, rear fan)												
Power supply	230 watts with variable speed fan / universal / manual switch											<b>LIMITED WARRANTY<sup>1</sup></b>	
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>											<ul style="list-style-type: none"> <li>1 year parts and labor</li> <li>International Warranty Service<sup>9</sup></li> <li>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup></li> <li>Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>1 year IOR 9x5, 4 hour response (ServicePac® part number 54P1858)</li> <li>2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859)</li> <li>2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860)</li> <li>3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861)</li> <li>3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>	
Microsoft® Windows® XP Professional Edition	128MB PC2700 CL2.5 NP DDR UDIMM 31P8854												
- Disk-to-Disk Recovery (in Service Partition)	256MB PC2700 CL2.5 NP DDR UDIMM 31P8855												
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM 31P8856												
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM 31P8857												
• Access Support	40GB IDE Disk ATA-100 (7200 rpm) 22P7157												
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm) 09N4248												
• Update Connector™ <sup>15</sup>	120GB IDE Disk ATA-100 (7200 rpm) 09N4249												
• Norton AntiVirus (OEM Version)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042												
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM												
• RecordNOW and DLA (CD-RW models)	Combo drive (black) 73P3300												
<b>Downloadable</b>	IBM Multi-Burner Plus internal (black) <sup>6</sup> 73P3305												
• Software Delivery Assistant	IBM 64MB USB 2.0 Memory Key 22P9024												
• System Migration Assistant	IBM ThinkVision L150 15" Monitor (black) 6636AB1												
• IBM Director Agent	IBM ThinkVision L170 17" Monitor (black) 6734AB0												
<b>License</b> - CD not included	IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N												
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM 500 Uninterrupt Power Supp (flat pack) 33L3477												
	Kensington® MicroSaver® Desktop Lock 06P3839												
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>												

See footnotes for important warranty information  
US models announced June 17, September 16 or November 18, 2003, or February 10, 2004  
US models withdrawn effective August 2003, October 2003, February 2004, or August 2004

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	EIDE disk Memory <sup>8</sup>	EIDE and rpm	EIDE optical	Graphics	Chipset	PCI modem	Ext speakers	Mouse	Workhorse Preload	Avail Global, Entry date
A30	8198-54U	3x5	Celeron®	2.6	128KB	400 256MB	40GB <sup>2</sup> 7200	CD	Extreme™	845GL	None	None	Optical	XP Pro <sup>5</sup>	No Apr 2004
A30	8198-66U	3x5	Pentium® 4	2.6	512KB	400 256MB	40GB 7200	CD	Extreme	845GL	None	None	Optical	XP Pro	No Apr 2004

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

Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Celeron 2.6GHz</b> with 400MHz system bus or <b>Intel Pentium 4 at 2.6GHz</b> with 400MHz system bus / no Hyper-Threading technology support										<b>Tower</b> <ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 25.0 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless PCI slots</li> </ul>
L2 cache	<b>Celeron:</b> 128KB std and max / ECC / full speed <b>Pentium 4:</b> 512KB std and max / ECC / full speed										
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket										
Memory - std/max <sup>9</sup>	<b>256MB std / 2GB max</b> Two 184-pin gold plated DIMM sockets / one socket used										
Memory - sockets	<b>PC2100 266MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)										
Memory - type	<b>PC2100 266MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)										
Graphics controller	<b>Integrated Intel Extreme™ Graphics / Direct AGP /</b> in 845GL GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVMT / 15-pin analog D-sub connector										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6" access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk Slot 1: 3/4-length, full-height, 32-bit PCI 2.2 (5v) Slot 2: 3/4-length, full-height, 32-bit PCI 2.2 (5v) Slot 3: 3/4-length, full-height, 32-bit PCI 2.2 (5v)
Disk controller	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)										
Diskette drive	3.5" 1.44MB diskette drive										
CD	48X-20X <sup>4</sup> CD-ROM / EIDE										
Cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop cable to disk)										
Chipset	<b>Intel 845GL chipset /</b> 82845GL Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse										<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.4-compliant</li> <li>• DMI 2.0-compliant</li> </ul>
Front ports	Two USB (Version 2.0)										<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>
Rear ports	Four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / ADI1981B codec										
Audio connectors	<b>Back:</b> microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]										
Speakers	None										
Beeper	One internal beeper										
Ethernet	10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / Wake on LAN®										
Modem	None										
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)										
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black										
Cooling fans	Three variable speed fans (power supply, fansink, rear fan)										
Power supply	230 watts with variable speed fan / universal / manual switch										
<b>Preload with Windows XP Professional<sup>5</sup></b> Microsoft® Windows® XP Professional Edition - Disk-to-Disk Recovery (in Service Partition)			<b>Accessories</b> 128MB PC2700 CL2.5 NP DDR UDIMM 31P8854 256MB PC2700 CL2.5 NP DDR UDIMM 31P8855 512MB PC2700 CL2.5 NP DDR UDIMM 31P8856 1GB PC2700 CL2.5 NP DDR UDIMM 31P8857 40GB IDE Disk ATA-100 (7200 rpm) 22P7157 80GB IDE Disk ATA-100 (7200 rpm) 09N4248 120GB IDE Disk ATA-100 (7200 rpm) 09N4249 48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042 48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300 IBM Multi-Burner Plus internal (black) <sup>6</sup> 73P3305 IBM 256MB USB 2.0 Memory Key 22P9025 IBM ThinkVision L150 15" Monitor (black) 6636AB1 IBM ThinkVision L170 17" Monitor (black) 6734AB0 IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0 IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N IBM Enhanced Performance USB Kybrd 73P2620 IBM 500 Uninterrupt Powr Supp ( at pack) 33L3477 Belkin® 800VA UPS with AVR technology 31P7662 Kensington® MicroSaver® Desktop Lock 06P3839 Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>			<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>↔ 1 year parts and labor</li> <li>↔ International Warranty Service<sup>9</sup></li> <li>↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup></li> <li>↔ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 1 year IOR 9x5, 4 hour response (ServicePac® part number 54P1858)</li> <li>• 2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859)</li> <li>• 2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860)</li> <li>• 3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861)</li> <li>• 3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>					

See footnotes for important warranty information  
US models announced April 13, 2004  
US models withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Memory <sup>6</sup>	EIDE disk and rpm	EIDE optical	Graphics	Chipset	PCI Modem	Ext Speakers	Mouse Preload	Workhorse or Entry	Avail date
A30	8199-11U	3x5	Celeron®	2.0	128KB	400	128MB	40GB <sup>2</sup> 7200	CD	Extreme™	845GL	Modem Spk	2 btn	XP Home <sup>5</sup>	Entry	Jun 03
A30	8199-13U	3x5	Celeron	2.0	128KB	400	128MB	80GB 7200	CD-RW	Extreme	845GL	Modem Spk	Opcl	XP Home	No	Jun 03
A30	8199-21U	3x5	Celeron	2.1	128KB	400	128MB	40GB 7200	CD	Extreme	845GL	Modem Spk	2 btn	XP Home	Entry	Jun 03
A30	8199-23U	3x5	Celeron	2.1	128KB	400	128MB	80GB 7200	CD-RW	Extreme	845GL	Modem Spk	Opcl	XP Home	No	Jun 03
A30	8199-31U	3x5	Celeron	2.2	128KB	400	128MB	40GB 7200	CD	Extreme	845GL	Modem Spk	2 btn	XP Home	Entry	Jun 03
A30	8199-33U	3x5	Celeron	2.2	128KB	400	128MB	80GB 7200	CD-RW	Extreme	845GL	Modem Spk	Opcl	XP Home	No	Jun 03
A30	8199-41U	3x5	Pentium® 4	2.4	512KB	533	128MB	40GB 7200	CD	Extreme	845GV	Modem Spk	2 btn	XP Home	Entry	Jun 03
A30	8199-43U	3x5	Pentium 4	2.4	512KB	533	128MB	80GB 7200	CD-RW	Extreme	845GV	Modem Spk	Opcl	XP Home	No	Jun 03
A30	8199-45U	3x5	Pentium 4	2.4	512KB	533	256MB	40GB 7200	None	Extreme	845GV	Modem No	2 btn	XP Pro	No	Dec 03
A30	8199-62U	3x5	Pentium 4	2.66	512KB	533	128MB	40GB 7200	CD	Extreme	845GV	Modem Spk	2 btn	XP Home	Entry	Jun 03
A30	8199-64U	3x5	Pentium 4	2.66	512KB	533	128MB	80GB 7200	CD-RW	Extreme	845GV	Modem Spk	Opcl	XP Home	No	Jun 03
A30	8199-66U	3x5	Pentium 4	2.66	512KB	533	256MB	40GB 7200	None	Extreme	845GV	Modem No	2 btn	XP Pro	No	Dec 03

Positioning	<i>Great technology and affordable prices</i>										<b>Tower</b>		
Processor	Intel® Celeron 2.0, 2.1, or 2.2GHz with 400MHz system bus or Intel Pentium 4 at 2.4 or 2.66GHz with 533MHz system bus										<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0"D X 16.3"H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 25.0 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless PCI slots</li> </ul>		
L2 cache	Celeron: 128KB std and max / ECC / full speed Pentium 4: 512KB std and max / ECC / full speed												
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket												
Memory - std/max <sup>8</sup>	128 or 256MB std / 2GB max										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk		
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used										Slot 1: 3/4-length, full-height, 32-bit PCI 2.2 (5v) - modem Slot 2: 3/4-length, full-height, 32-bit PCI 2.2 (5v) Slot 3: 3/4-length, full-height, 32-bit PCI 2.2 (5v)		
Memory - type	PC2100 266MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)												
Graphics controller	Integrated Intel Extreme™ Graphics / Direct AGP / in 845GL or 865GV GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVMT / 15-pin analog D-sub connector												
Disk controller	40 or 80GB, ATA-100, 7200 rpm, rubber vibration dampening mounts												
Diskette drive	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)												
CD	3.5" 1.44MB diskette drive												
CD-RW	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE												
Cables	Some: 48X/24X/48X Max <sup>4</sup> CD-RW / EIDE												
	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop cable to disk)												

Chipset	Intel 845GL or 845GV chipset / 82845GL or GV Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse										<b>SYSTEMS MANAGEMENT</b>	
Front ports	Two USB (Version 2.0)										<ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.4-compliant</li> <li>DMI 2.0-compliant</li> </ul>	
Rear ports	Four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										<b>SECURITY</b>	
Audio	Integrated digital audio / SoundMAX <sup>®</sup> 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / ADI1981B codec										<ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>	
Audio connectors	Back: microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]											
Speakers	Some: external active speakers / Jazz Infinity <sup>®</sup> / 2-piece / 6 watts / black color											
Beeper	One internal beeper											
Ethernet	10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / PXE / Wake on LAN <sup>®</sup>											
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant <sup>®</sup> chipset / PCI adapter											
Security chip	None											
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)											
Mouse	Some: [2 btn] IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black Some: [Opcl] IBM Optical Wheel Mouse (USB only), 400 dpi, black											
Cooling fans	Three variable speed fans (power supply, fansink, rear fan)											
Power supply	230 watts with variable speed fan / universal / manual switch											

<b>Preload with Windows XP Home<sup>5</sup></b>	<b>Accessories</b>	
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
- Disk-to-Disk Recovery (in Service Partition)	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
<b>Preload with Windows XP Professional<sup>5</sup></b>	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
Microsoft® Windows® XP Professional Edition	40GB IDE Disk ATA-100 (7200 rpm)	22P7157
- Disk-to-Disk Recovery (in Service Partition)	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
<b>Preloaded (all)</b>	48X/32X/48X Max <sup>4</sup> CD-RW internal (blk)	22P7042
• Access IBM	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM	
• IBM Rapid Restore™ Ultra	Combo drive (black)	73P3300
• Update Connector™ <sup>15</sup>	IBM Multi-Burner Plus internal (black) <sup>6</sup>	73P3305
• Norton AntiVirus (OEM Version)	IBM 256MB USB 2.0 Memory Key	22P9025
• PC-Doctor™ (diagnostics)	IBM ThinkVision L170 17" Monitor (black)	6734AB0
• RecordNOW and DLA (CD-RW models)	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
<b>Downloadable (all)</b>	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
• Software Delivery Assistant	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
<b>License - CD not included (all)</b>	Belkin® 800VA UPS with AVR technology	31P7662
- Lotus® SmartSuite® Millennium and	IBM Optical ScrollPoint™ Pro Mouse (blk)	31P8700
Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	Kensington® MicroSaver® Desktop Lock	06P3839
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	
<b>LIMITED WARRANTY<sup>1</sup></b> ⇐ 1 year parts and labor ⇐ International Warranty Service <sup>9</sup> ⇐ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time <sup>3</sup> ⇐ Onsite service upgrade options (in eligible locations): <sup>7</sup> • 1 year IOR 9x5, 4 hour response (ServicePac <sup>®</sup> part number 54P1858) • 2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859) • 2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860) • 3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861) • 3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862) ⇐ Post warranty maintenance services available ⇐ 24x7 <sup>14</sup> toll-free support for warranty issues during the warranty period <sup>1</sup>		

See footnotes for important warranty information  
US models announced June 17 or December 16, 2003  
US models withdrawn effective August 2003, October 2003, February 2004, or August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Memory <sup>6</sup>	EIDE disk and rpm	EIDE optical	Graphics	Chipset	PCI modems	Ext Mouse speakers	Workhorse Preload	Avail Gbl, Entry date
A30	8199-16U	3x5	Celeron®	2.0	128KB	400	128MB	40GB <sup>2</sup> 7200	CD	Extreme™ 845GL	845GL		2 btn XP Home <sup>5</sup>	Entry	Sep 03
A30	8199-36U	3x5	Celeron	2.2	128KB	400	128MB	40GB 7200	CD	Extreme 845GL	845GL		2 btn XP Home	Entry	Sep 03
A30	8199-51U	3x5	Celeron	2.4	128KB	400	128MB	40GB 7200	CD	Extreme 845GL	845GL	Modem Spk	Opcl XP Home	No	Sep 03
A30	8199-52U	3x5	Celeron	2.4	128KB	400	128MB	80GB 7200	CD-RW	Extreme 845GL	845GL	Modem Spk	Opcl XP Home	No	Sep 03
A30	8199-B1U	3x5	Celeron	2.6	128KB	400	128MB	40GB 7200	CD	Extreme 845GL	845GL	Modem Spk	Opcl XP Home	No	Sep 03
A30	8199-B2U	3x5	Celeron	2.6	128KB	400	128MB	80GB 7200	CD-RW	Extreme 845GL	845GL	Modem Spk	Opcl XP Home	No	Sep 03
A30	8199-D1U	3x5	Pentium® 4	2.26	512KB	533	128MB	40GB 7200	CD	Extreme 845GV	845GV		2 btn XP Home	Entry	Sep 03
A30	8199-46U	3x5	Pentium 4	2.4	512KB	533	128MB	40GB 7200	CD	Extreme 845GV	845GV		2 btn XP Home	Entry	Sep 03
A30	8199-67U	3x5	Pentium 4	2.66	512KB	533	128MB	40GB 7200	CD	Extreme 845GV	845GV		2 btn XP Home	Entry	Sep 03

Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Celeron 2.0, 2.2, 2.4, or 2.6GHz</b> with 400MHz system bus or <b>Intel Pentium 4 at 2.26, 2.4, or 2.66GHz</b> with 533MHz system bus
L2 cache	<i>Celeron:</i> <b>128KB</b> std and max / ECC / full speed <i>Pentium 4:</i> <b>512KB</b> std and max / ECC / full speed
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket
Memory - std/max <sup>8</sup>	<b>128MB std</b> / 2GB max
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used
Memory - type	<b>PC2100 266MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)
Graphics	<b>Integrated Intel Extreme™ Graphics</b> / Direct AGP / in 845GL or 865GV GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVM T / 15-pin analog D-sub connector
Disk	<b>40 or 80GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts
Disk controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)
Diskette drive	3.5" 1.44MB diskette drive
CD	<i>Some:</i> 48X-20X <sup>4</sup> CD-ROM / EIDE
CD-RW	<i>Some:</i> 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE
Cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop cable to disk)

**Tower**

- Business black color; 31.4 liters
- 7.5" W X 16.0"D X 16.3"H
- 191mm W X 406mm D X 413mm H
- 20.0 to 25.0 lb (9.1 to 10.2 kg)
- Handle on top front
- Disk bay pivots forward
- Toolless rails for disk mounting
- Toolless cover removal
- Toolless PCI slots

Bay ① 5.25", HH 1.6", access, std optical  
 Bay ② 5.25", HH 1.6" access, open  
 Bay ③ 3.5", SL 1", access, open  
 Bay ④ 3.5", SL 1", access, std diskette  
 Bay ⑤ 3.5", SL 1", no access, std disk

Slot 1: 3/4-length, full-height, 32-bit PCI 2.2 (5v) - modem\*  
 Slot 2: 3/4-length, full-height, 32-bit PCI 2.2 (5v)  
 Slot 3: 3/4-length, full-height, 32-bit PCI 2.2 (5v)  
 \* modem used in some models

Chipset	<b>Intel 845GL or 845GV chipset</b> / 82845GL or GV Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse
Front ports	Two USB (Version 2.0)
Rear ports	Four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / ADI1981B codec
Audio connectors	<i>Back:</i> microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]
Speakers	<i>Some:</i> external active speakers / Jazz Infinity® / 2-piece / 6 watts / black color
Beeper	One internal beeper
Ethernet	10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / supports PXE and Wake on LAN®
Modem	<i>Some:</i> 56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter
Security chip	None
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)
Mouse	<i>Some:</i> [2 btn] IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black <i>Some:</i> [Opcl] IBM Optical Wheel Mouse (USB only), 400 dpi, black
Cooling fans	Three variable speed fans (power supply, fansink, rear fan)
Power supply	230 watts with variable speed fan / universal / manual switch

- SYSTEMS MANAGEMENT**
- PC 2001-compliant
  - Advanced Power Management 1.2
  - Advanced Configuration and Power Interface (ACPI) 2.0b
  - SMBIOS 2.3.4-compliant
  - DMI 2.0-compliant

- SECURITY**
- U-bolt anchoring feature (U-bolt is optional; supports optional padlock)
  - Security slot (for attachment of optional cable lock)
  - Power-on password
  - Administrator password
  - Boot sequence control
  - Diskette boot inhibit
  - Boot without keyboard or mouse
  - Diskette and disk I/O control
  - Serial/parallel I/O control

- LIMITED WARRANTY<sup>1</sup>**
- ↔ 1 year parts and labor
  - ↔ International Warranty Service<sup>9</sup>
  - ↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup>
  - ↔ Onsite service upgrade options (in eligible locations):<sup>7</sup>
    - 1 year IOR 9x5, 4 hour response (ServicePac® part number 54P1858)
    - 2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859)
    - 2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860)
    - 3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861)
    - 3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862)
  - ↔ Post-warranty maintenance services at [ibm.com/services/us/its/pdf/maspspleu.pdf](http://ibm.com/services/us/its/pdf/maspspleu.pdf)
  - ↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

Preload with Windows XP Home <sup>5</sup>	Accessories	
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
- Disk-to-Disk Recovery (in Service Partition)	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
• Access Support	40GB IDE Disk ATA-100 (7200 rpm)	22P7157
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• Update Connector™ <sup>15</sup>	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Norton AntiVirus (OEM Version)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM	
• RecordNOW and DLA (CD-RW models)	Combo drive (black)	73P3300
<b>Downloadable</b>	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal)	73P3370
• Software Delivery Assistant	IBM USB 2.0 Memory Key 512MB	22P9230
• System Migration Assistant	IBM ThinkVision L150 15" Monitor (black)	6636AC1
<b>License</b> - CD not included	IBM ThinkVision L170p 17" Monitor (black)	6734HB0
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
	Belkin® 800VA UPS with AVR technology	31P7662
	IBM Optical ScrollPoint® Pro Mouse (blk)	31P8700
	Kensington® MicroSaver® Desktop Lock	06P3839
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>	

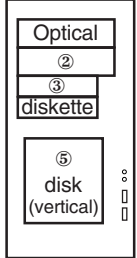
See footnotes for important warranty information  
 US models announced September 16, 2003  
 US models withdrawn effective December 2003, February 2004, or March 2005

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Memory <sup>6</sup>	EIDE disk and rpm	EIDE optical	Graphics	Chipset	PCI modems	Ext Mouse speakers	Workhorse Preload	Avail Gbl, Entry date
A30	8199-54U	3x5	Celeron®	2.4	128KB	400	128MB	40GB 7200	CD	Extreme™ 845GL			2 btn XP Home <sup>5</sup>	Entry	Nov 03
A30	8199-55U	3x5	Celeron	2.4	128KB	400	256MB	40GB 7200	CD-RW	Extreme 845GL	Modem Spk	Opcl	XP Home	No	Nov 03
A30	8199-E1U	3x5	Celeron	2.8	128KB	400	128MB	40GB 7200	CD	Extreme 845GL	Modem Spk	Opcl	XP Home	No	Nov 03
A30	8199-E2U	3x5	Celeron	2.8	128KB	400	128MB	80GB 7200	CD-RW	Extreme 845GL	Modem Spk	Opcl	XP Home	No	Nov 03
A30	8199-83U	3x5	Pentium® 4	2.8	512KB	533	128MB	40GB 7200	CD	Extreme 845GV	Modem		2 btn XP Home	Entry	Nov 03
A30	8199-84U	3x5	Pentium 4	2.8	512KB	533	128MB	80GB 7200	CD-RW	Extreme 845GV	Modem Spk	Opcl	XP Home	No	Nov 03

Positioning	<i>Great technology and affordable prices</i>
Processor	<b>Intel® Celeron 2.4 or 2.8GHz</b> with 400MHz system bus or <b>Intel Pentium 4 at 2.8GHz</b> with 533MHz system bus
L2 cache	<i>Celeron:</i> 128KB std and max / ECC / full speed <i>Pentium 4:</i> 512KB std and max / ECC / full speed
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket
Memory - std/max <sup>6</sup>	128 or 256MB std / 2GB max
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used
Memory - type	<b>PC2100 266MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)
Graphics	<b>Integrated Intel Extreme™ Graphics</b> / Direct AGP / in 845GL or 845GV GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVMT / 15-pin analog D-sub connector
Disk	<b>40 or 80GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts
Disk controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)
Diskette drive	3.5" 1.44MB diskette drive
CD	<i>Some:</i> 48X-20X <sup>4</sup> CD-ROM / EIDE
CD-RW	<i>Some:</i> 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE
Cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop cable to disk)

**Tower**

- Business black color; 31.4 liters
- 7.5" W X 16.0"D X 16.3"H
- 191mm W X 406mm D X 413mm H
- 20.0 to 25.0 lb (9.1 to 10.2 kg)
- Handle on top front
- Disk bay pivots forward
- Toolless rails for disk mounting
- Toolless cover removal
- Toolless PCI slots



Bay ① 5.25", HH 1.6", access, std optical  
 Bay ② 5.25", HH 1.6", access, open  
 Bay ③ 3.5", SL 1", access, open  
 Bay ④ 3.5", SL 1", access, std diskette  
 Bay ⑤ 3.5", SL 1", no access, std disk

Slot 1: 3/4-length, full-height, 32-bit PCI 2.2 (5v) - modem\*  
 Slot 2: 3/4-length, full-height, 32-bit PCI 2.2 (5v)  
 Slot 3: 3/4-length, full-height, 32-bit PCI 2.2 (5v)  
 \* modem used in some models

Chipset	<b>Intel 845GL or 845GV chipset</b> / 82845GL or GV Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse
Front ports	<i>All:</i> two USB (Version 2.0) <i>55U/E1U/E2U/84U:</i> mic (mono, 3.5mm), headphone (stereo, 3.5mm)
Rear ports	Four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / ADI1981B codec
Audio connectors	<i>Back:</i> microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]
Speakers	<i>Some:</i> external active speakers / Jazz Infinity® / 2-piece / 6 watts / black color
Beeper	One internal beeper
Ethernet	10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / supports PXE and Wake on LAN®
Modem	<i>Some:</i> 56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter
Security chip	None
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)
Mouse	<i>Some:</i> [2 btn] IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black <i>Some:</i> [Opcl] IBM Optical Wheel Mouse (USB only), 400 dpi, black
Cooling fans	Three variable speed fans (power supply, fansink, rear fan)
Power supply	230 watts with variable speed fan / universal / manual switch

**SYSTEMS MANAGEMENT**

- PC2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.4-compliant
- DMI 2.0-compliant

**SECURITY**

- U-bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power-on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control

ThinkCentre desktops implement IBM ThinkVantage™ technologies and design; visit [ibm.com/thinkvantage](http://ibm.com/thinkvantage)

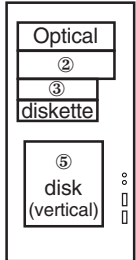
Preload with Windows XP Home <sup>5</sup>	Accessories
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM 31P8854
- Disk-to-Disk Recovery (in Service Partition)	256MB PC2700 CL2.5 NP DDR UDIMM 31P8855
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM 31P8856
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM 31P8857
• Access Support	40GB IDE Disk ATA-100 (7200 rpm) 22P7157
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm) 09N4248
• Update Connector™ <sup>15</sup>	120GB IDE Disk ATA-100 (7200 rpm) 09N4249
• Norton AntiVirus (OEM Version)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM
• RecordNOW and DLA (CD-RW models)	Combo drive (black) 73P3300
<b>Downloadable</b>	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal) 73P3370
• Software Delivery Assistant	IBM USB 2.0 Memory Key 256MB 22P9228
• System Migration Assistant	IBM USB 2.0 Memory Key 512MB 22P9230
<b>License</b> - CD not included	IBM ThinkVision L150 15" Monitor (black) 6636AC1
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	IBM ThinkVision L170p 17" Monitor (black) 6734HB0
	IBM ThinkVision L191p 19" Monitor (black) 9419HB7
	IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0
	IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N
	Belkin® 800VA UPS with AVR technology 31P7662
	IBM Optical ScrollPoint® Pro Mouse (blk) 31P8700
	Kensington® MicroSaver® Desktop Lock 06P3839
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>

**LIMITED WARRANTY<sup>1</sup>**

- ↔ 1 year parts and labor
- ↔ International Warranty Service<sup>9</sup>
- ↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup>
- ↔ Onsite service upgrade options (in eligible locations):<sup>7</sup>
  - 1 year IOR 9x5, 4 hour response (ServicePac® part number 54P1858)
  - 2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859)
  - 2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860)
  - 3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861)
  - 3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862)
- ↔ Post-warranty maintenance services at [ibm.com/services/us/its/pdf/maspspleu.pdf](http://ibm.com/services/us/its/pdf/maspspleu.pdf)
- ↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

See footnotes for important warranty information  
 US models announced November 18, 2003  
 US models withdrawn effective April 2005

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Memory <sup>6</sup>	EIDE disk and rpm	EIDE optical	Graphics	Chipset	PCI modem	Ext speakers	Workhorse Preload	Avail Gbl, Entry date
A30	8199-F1U	4x5	Pentium® 4	2.66	512KB	533	256MB	40GB <sup>2</sup> 7200	CD	Extreme™	845G			XP Pro	No Dec03
A30	8199-F2U	4x5	Pentium 4	2.66	512KB	533	256MB	80GB 7200	CD-RW	Extreme	845G	Modem	Speakers	XP Home	No Dec03

Positioning	<i>Great technology and affordable prices</i>										
Processor	<b>Intel® Pentium 4 at 2.66GHz</b> with 533MHz system bus										
L2 cache	<b>512KB</b> std and max / ECC / full speed										
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket										
Memory - std/max <sup>6</sup>	<b>256MB std</b> / 2GB max										
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used										
Memory - type	<b>PC2100 266MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)										
Graphics	<b>Integrated Intel Extreme™ Graphics</b> / Direct AGP / in 845G GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVMT / 15-pin analog D-sub connector										
Disk	<b>40 or 80GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts										
Disk controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)										
Diskette drive	3.5" 1.44MB diskette drive										
CD	<i>Some:</i> 48X-20X <sup>4</sup> CD-ROM / EIDE										
CD-RW	<i>Some:</i> 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE										
Cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop cable to disk)										
Chipset	<b>Intel 845G chipset</b> / 82845G Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse										
Front ports	Two USB (Version 2.0)										
Rear ports	Four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / AD1981B codec										
Audio connectors	<i>Back:</i> microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]										
Speakers	<i>Some:</i> external active speakers / Jazz Infinity® / 2-piece / 6 watts / black color										
Beeper	One internal beeper										
Ethernet	10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / supports PXE and Wake on LAN®										
Modem	<i>Some:</i> 56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter										
Security chip	None										
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)										
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black										
Cooling fans	Three variable speed fans (power supply, fansink, rear fan)										
Power supply	230 watts with variable speed fan / universal / manual switch										
<b>TOWER</b>											
<ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 25.0 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless PCI slots</li> </ul>											
											
Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk Slot 1: 3/4-length, full-height, 32-bit AGP 4X (1.5v) Slot 2: 3/4-length, full-height, 32-bit PCI 2.2 (5v) - modem* Slot 3: 3/4-length, full-height, 32-bit PCI 2.2 (5v) Slot 4: 3/4-length, full-height, 32-bit PCI 2.2 (5v) * modem used in some models											
<b>SYSTEMS MANAGEMENT</b>											
<ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.4-compliant</li> <li>• DMI 2.0-compliant</li> </ul>											
<b>SECURITY</b>											
<ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>											
<b>LIMITED WARRANTY<sup>1</sup></b>											
<ul style="list-style-type: none"> <li>↔ 1 year parts and labor</li> <li>↔ International Warranty Service<sup>9</sup></li> <li>↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>↔ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 1 year IOR 9x5, 4 hour response (ServicePac® part number 54P1858)</li> <li>• 2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859)</li> <li>• 2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860)</li> <li>• 3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861)</li> <li>• 3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>↔ Post-warranty maintenance services at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></li> <li>↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>											

Preload with Windows XP Home <sup>5</sup>	Accessories	
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
- Disk-to-Disk Recovery (in Service Partition)	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
<b>Preload with Windows XP Professional<sup>5</sup></b>	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
Microsoft Windows XP Professional Edition	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
- Disk-to-Disk Recovery (in Service Partition)	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
<b>Preloaded (all)</b>	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Access IBM	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
• Access Support	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	73P3300
• IBM Rapid Restore™ Ultra	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal)	73P3370
• Update Connector™ <sup>15</sup>	IBM USB 2.0 Memory Key 512MB	22P9230
• Norton AntiVirus (OEM Version)	IBM ThinkVision L150 15" Monitor (black)	6636AC1
• PC-Doctor™ (diagnostics)	IBM ThinkVision L170p 17" Monitor (black)	6734HB0
• RecordNOW and DLA (CD-RW models)	IBM ThinkVision L191p 19" Monitor (black)	9419HB7
<b>Downloadable (all)</b>	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
• Software Delivery Assistant	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
• System Migration Assistant	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
<b>License - CD not included (all)</b>	IBM ThinkVision C220p 22" (20.0" vis) (blk)	673560N
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	Belkin® 800VA UPS with AVR technology	31P7662
	IBM Optical ScrollPoint® Pro Mouse (blk)	31P8700
	Kensington® MicroSave® Desktop Lock	06P3839
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>	

See footnotes for important warranty information  
US models announced December 2, 2003  
US models withdrawn effective March 2005

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	EIDE disk and rpm	EIDE optical	Graphics	Chipset	PCI modems	Ext Mouse speakers	Workhorse Preload	Avail date
A30	8199-88U	3x5	Pentium® 4	2.8 512KB	533	256MB	40GB <sup>2</sup> 7200 CD	Extreme™ 845GV	Modem Spk	Opcl	XP Home <sup>5</sup>	No	Feb 04
A30	8199-F5U	3x5	Pentium 4	3.06 512KB	533	128MB	40GB 7200 CD	Extreme 845GV			2 btn XP Home	Entry	Feb 04
A30	8199-F6U	3x5	Pentium 4	3.06 512KB	533	256MB	40GB 7200 CD-RW	Extreme 845GV	Modem Spk	Opcl	XP Home	No	Feb 04
A30	8199-B5U	3x5	Celeron®	2.6 128KB	400	128MB	40GB 7200 CD	Extreme 845GL			2 btn XP Home	Entry	Apr 04
A30	8199-69U	3x5	Pentium 4	2.6 512KB	400	128MB	40GB 7200 CD	Extreme 845GL			2 btn XP Home	Entry	Apr 04

Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Celeron 2.6GHz</b> with 400MHz system bus or <b>Intel Pentium 4 at 2.6, 2.8 or 3.06GHz</b> with 400 or 533MHz system bus / no Hyper-Threading technology support	<b>Tower</b> <ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 25.0 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless PCI slots</li> </ul>
L2 cache	<b>Celeron:</b> 128KB std and max / ECC / full speed <b>Pentium 4:</b> 512KB std and max / ECC / full speed	
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket	
Memory - std/max <sup>8</sup>	<b>128 or 256MB std / 2GB max</b>	
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used	
Memory - type	<b>PC2100 266MHz DDR1 (DDR-SDRAM)</b> / non-parity / industry std / unbuffered / CAS Latency 2.5 (CL2.5)	
Graphics	<b>Integrated Intel Extreme™ Graphics</b> / Direct AGP / in 845GV or 845GL GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 200MHz / DVMT / 15-pin analog D-sub connector	Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6" access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk
Disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts	Slot 1: 3/4-length, full-height, 32-bit PCI 2.2 (5v) - mo- Slot 2: 3/4-length, full-height, 32-bit PCI 2.2 (5v) dem* Slot 3: 3/4-length, full-height, 32-bit PCI 2.2 (5v) * modem used in some models
Disk controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH4)	
Diskette drive	3.5" 1.44MB diskette drive	
CD	<i>Some:</i> 48X-20X <sup>4</sup> CD-ROM / EIDE	
CD-RW	<i>Some:</i> 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE	
Cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop cable to disk)	
Chipset	<b>Intel 845GV or 845GL chipset</b> / 82845GV or GL Graphics Memory Controller Hub (GMCH) / 82801DB I/O Controller Hub (ICH4) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / LM86 temp sensor / LPC47M133 Super I/O for diskette, parallel, serial, keyboard, mouse	<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.4-compliant</li> <li>• DMI 2.0-compliant</li> </ul>
Front ports	Two USB (Version 2.0)	<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>
Rear ports	Four USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)	
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH4) / AC '97 interface / ADI1981B codec	
Audio connectors	<i>Back:</i> microphone-in (mono), line-in (stereo), line-out (stereo) [all 3.5mm]	
Speakers	<i>Some:</i> external active speakers / Jazz Infinity® / 2-piece / 6 watts / black color	
Beeper	One internal beeper	
Ethernet	10/100 ethernet on planar / ICH4 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / supports PXE and Wake on LAN®	
Modem	<i>Some:</i> 56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter	
Security chip	None	
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector)	
Mouse	<i>Some:</i> [2 btn] IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black <i>Some:</i> [Opcl] IBM Optical Wheel Mouse (USB only), 400 dpi, black	ThinkCentre desktops implement IBM ThinkVantage™ technologies and design; visit <a href="http://ibm.com/thinkvantage">ibm.com/thinkvantage</a>
Cooling fans	Three variable speed fans (power supply, fansink, rear fan)	<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>↪ 1 year parts and labor</li> <li>↪ International Warranty Service<sup>9</sup></li> <li>↪ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>↪ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 1 year IOR 9x5, 4 hour response (ServicePac® part number 54P1858)</li> <li>• 2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859)</li> <li>• 2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860)</li> <li>• 3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861)</li> <li>• 3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>↪ Post-warranty maintenance services at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></li> <li>↪ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>
Power supply	230 watts with variable speed fan / universal / manual switch	

Preload with Windows XP Home <sup>5</sup>	Accessories
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM 31P8854
- Disk-to-Disk Recovery (in Service Partition)	256MB PC2700 CL2.5 NP DDR UDIMM 31P8855
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM 31P8856
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM 31P8857
• Access Support	40GB IDE Disk ATA-100 (7200 rpm) 22P7157
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm) 09N4248
• Update Connector™ <sup>15</sup>	120GB IDE Disk ATA-100 (7200 rpm) 09N4249
• Norton AntiVirus (OEM Version)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM
• RecordNOW and DLA (CD-RW models)	Combo drive (black) 73P3300
<b>Downloadable</b>	IBM Multi-Burner Plus <sup>6</sup> (DVD±RW; internal) 73P3370
• Software Delivery Assistant	IBM USB 2.0 Memory Key 512MB 22P9230
• System Migration Assistant	IBM ThinkVision L150 15" Monitor (black) 6636AC1
<b>License</b> - CD not included	IBM ThinkVision L170p 17" Monitor (black) 6734HB0
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	IBM ThinkVision L191p 19" Monitor (black) 9419HB7
	IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0
	IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N
	IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N
	IBM ThinkVision C220p 22" (20.0" vis) (blk) 673560N
	Belkin® 800VA UPS with AVR technology 31P7662
	IBM Optical ScrollPoint® Pro Mouse (blk) 31P8700
	Kensington® MicroSaver® Desktop Lock 06P3839
	Other options at <a href="http://ibm.com/options">ibm.com/options</a>

See footnotes for important warranty information  
US models announced February 10 or April 13, 2004  
US models withdrawn effective August 2004 or March 2005

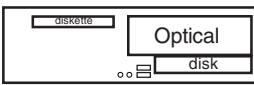


Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>8</sup>	EIDE Disk	EIDE Optical	Second Optical	Graphics	Modem and speakers	Workhorse, Preload Global, Entry date
A50	8195-29U	3x5	Pentium® 4 2.6C	512K	800	HT	256MB	40GB <sup>2</sup>	CD	None	Extreme™ 2	Modem/speakers	XP Home <sup>5</sup> No Apr 2004
A50	8195-39U	3x5	Pentium 4 2.8C	512K	800	HT	256MB	40GB	CD	None	Extreme 2	Modem/speakers	XP Home No Apr 2004

Positioning	<i>Great technology and affordable prices</i>										
Processor	<b>Intel® Pentium 4 at 2.6 or 2.8GHz</b> with 800MHz system bus										
Hyper-Threading	Hyper-Threading (HT) technology										
L2 cache	<b>512KB</b> std and max / ECC / full speed										
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket										
Memory - std/max <sup>8</sup>	<b>256MB std</b> / 4GB max										
Memory	Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable										
Graphics controller	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865GV GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector										
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5) / two EIDE connectors on systemboard										
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration damp mounts										
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to opticals, one 2-drop to disk)										
CD	48X-20X <sup>4</sup> CD-ROM / EIDE										
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5 /										
SATA cables	No SATA cables / two SATA connectors on systemboard										
Diskette drive	3.5" 1.44MB diskette drive										
Chipset	<b>Intel 865GV chipset</b> / 82865GV Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor										
Ports	<i>Front:</i> two USB (Version 2.0) <i>Back:</i> six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec										
Audio connectors	<i>Back:</i> microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]										
Speakers	External active speakers / Jazz In nity® / 2-piece / 3 watts per channel / blk color										
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / PXE / Wake on LAN®										
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter										
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black										
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black										
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)										
Power supply	230 watts with variable speed fan / universal / manual switch										
<b>TOWER</b>											
<ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0" D X 16.3" H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul>											
<p>Bay ① 5.25", HH 1.6", access, std optical                  Bay ② 5.25", HH 1.6", access, std optical                  Bay ③ 3.5", SL 1", access, open                  Bay ④ 3.5", SL 1", access, std diskette                  Bay ⑤ 3.5", SL 1", no access, std disk</p> <p>Slot 1: 3/4-length, full-height, 32-bit PCI 2.3 (5v) - modem                  Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v)                  Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)</p>											
<b>SYSTEMS MANAGEMENT</b>											
<ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>											
<b>SECURITY</b>											
<ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>											
<b>LIMITED WARRANTY<sup>1</sup></b>											
<ul style="list-style-type: none"> <li>⇒ 1 year parts and labor</li> <li>⇒ International Warranty Service<sup>9</sup></li> <li>⇒ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>⇒ Onsite service upgrade options (in eligible locations)<sup>7</sup>:                         <ul style="list-style-type: none"> <li>• 1 year 9x5 4 hour response (ServicePac® part number 54P1858)</li> <li>• 2 year 9x5 Next Business Day (ServicePac part number 54P1859)</li> <li>• 2 year 9x5 4 hour response (ServicePac part number 54P1860)</li> <li>• 3 year 9x5 Next Business Day (ServicePac part number 54P1861)</li> <li>• 3 year 9x5 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>⇒ Post-warranty annual maintenance agreements at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></li> <li>⇒ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>											
<b>Preload with Windows XP Home<sup>5</sup></b>			<b>Accessories</b>								
Microsoft® Windows® XP Home Edition			128MB PC2700 CL2.5 NP DDR UDIMM	31P8854							
- Disk-to-Disk Recovery (in hidden protected area)			256MB PC2700 CL2.5 NP DDR UDIMM	31P8855							
<b>Preloaded</b>			512MB PC2700 CL2.5 NP DDR UDIMM	31P8856							
• Access IBM			1GB PC2700 CL2.5 NP DDR UDIMM	31P8857							
• Access Support			80GB IDE Disk ATA-100 (7200 rpm)	09N4248							
• IBM Rapid Restore™ Ultra			120GB IDE Disk ATA-100 (7200 rpm)	09N4249							
• Update Connector™. 15			160GB Serial ATA150 Disk (7200 rpm)	09N4254							
• PC-Doctor™ (diagnostics)			48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042							
• Norton AntiVirus (OEM Version)			48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	73P3300							
<b>Downloadable</b>			IBM Multi-Burner Plus internal (black) <sup>6</sup>	73P3305							
• Software Delivery Assistant			IBM 256MB USB 2.0 Memory Key	22P9025							
• System Migration Assistant			IBM NVIDIA Quadro4 200NVS Dual Head	33L3543							
<b>License</b> - CD not included			IBM ThinkVision L150 15" Monitor (black)	6636AB1							
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)			IBM ThinkVision L150p 15" Monitor (black)	6636HB1							
			IBM ThinkVision L170p 17" Monitor (black)	6734HB0							
			IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0							
			IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N							
			IBM ThinkVision C220p 22" (20.0" vis) (blk)	673560N							
			Kensington® MicroSaver® Desktop Lock	06P3839							
			IBM 500 Uninterrupt Powr Supp ( at pack)	33L3477							
			Belkin® 800VA UPS with AVR technology	31P7662							
			IBM High Rate Wireless LAN PCI Adapter	22P6901							
			IBM Enhanced Performance USB Keybrd	73P2620							
			Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>								

See footnotes for important warranty information  
 US models announced April 13, 2004  
 US models withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Memory	Diskette drive	EIDE Disk	EIDE Optical	Graphics	Modem Ethernet	Preload	Workhorse Gbl, Entry	Avail date
A50	8320-ABU	2x3	Celeron®	2.0	128KB	400	128MB	Diskette	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	Mod 10/100 XP Home <sup>5</sup>	Entry	Jun 03
A50	8320-ACU	2x3	Celeron	2.0	128KB	400	128MB	Diskette	40GB	CD	Extreme 2 GMCH	10/100 XP Pro	Entry	Jun 03
A50	8320-AEU	2x3	Celeron	2.1	128KB	400	128MB	Diskette	40GB	CD	Extreme 2 GMCH	10/100 XP Pro	Entry	Jun 03
A50	8320-51U	2x3	Celeron	2.2	128KB	400	128MB	Diskette	40GB	CD	Extreme 2 GMCH	10/100 XP Pro	Entry	Sep03
A50	8320-53U	2x3	Celeron	2.2	128KB	400	128MB	Diskette	40GB	CD	Extreme 2 GMCH	10/100 XP Home	Entry	Nov03
A50	8320-52U	2x3	Celeron	2.4	128KB	400	128MB	Diskette	40GB	CD	Extreme 2 GMCH	10/100 XP Pro	Entry	Sep03
A50	8320-1DU	2x3	Pentium® 4	2.4	512KB	533	128MB	Diskette	40GB	CD	Extreme 2 GMCH	Mod 10/100 XP Home	Entry	Jun 03
A50	8320-1EU	2x3	Pentium 4	2.4	512KB	533	128MB	Diskette	40GB	CD	Extreme 2 GMCH	10/100 XP Pro	Entry	Jun 03
A50	8320-26U	2x3	Pentium 4	2.66	512KB	533	128MB	Diskette	40GB	CD-RW	Extreme 2 GMCH	Mod 10/100 XP Home	Entry	Jun 03
A50	8320-27U	2x3	Pentium 4	2.66	512KB	533	128MB	Diskette	40GB	CD	Extreme 2 GMCH	10/100 XP Pro	Entry	Nov03

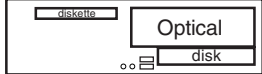
Positioning Processor	<i>Smallest ThinkCentre desktop without compromise</i> <b>Intel® Celeron at 2.0, 2.1, 2.2 or 2.4</b> with 400MHz system bus or <b>Pentium 4 at 2.4 or 2.66GHz</b> with 533MHz system bus	<b>Small Form Factor</b>  Bay ① 3.5", slim .5", access, std diskette Bay ② 5.25", HH 1.6", access, std optical Bay ③ 3.5", SL 1", no access, std disk Slot 1: half-length (175mm), full-height, 32-bit PCI 2.3 (5v) - modem in some models Slot 2: half-length (175mm), full-height, 32-bit PCI 2.3 (5v) • Business black color; metal case; 9.3 liters • 12.2" W X 14.1"D X 3.3"H • 309mm W X 359mm D X 85mm H • With vertical stand: 5.0" W X 14.6"D X 13.6"H • With vertical stand: 126mm W X 370mm D X 346mm H • 18.0 to 20.0 lb (8.1 to 9.1 kg) • Bays 1 and 2/3 flip up (latched and pivoting) • Toolless cover flips up and tilts backward on rear hinges • Toolless disk, diskette drive, optical drive removal • Two PCI slots on riser card • Toolless PCI slots and riser card retention • Toolless systemboard retention • Steel chassis supports 100 lb (45kg) monitor on top • System stand for vertical orientation
Hyper-Threading L2 cache	No Hyper-Threading (HT) technology support <i>Celeron:</i> 128KB std and max / ECC / full speed <i>Pentium 4:</i> 512KB std and max / ECC / full speed	
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket	
Memory - std/max <sup>8</sup>	128MB std / 2GB max	
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used	
Memory - type	<b>PC2700 333MHz DDR-SDRAM</b> / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable	
Graphics controller	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 32MB with 128MB main memory; up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector	
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts	
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)	
EIDE cables	One EIDE 80-conductor cable (one 2-drop cable to optical and disk) / one EIDE connector on systemboard <i>Some:</i> 48X-20X <sup>4</sup> CD-ROM / EIDE <i>Some:</i> 48X/24X/48X Max <sup>4</sup> CD-RW / EIDE	
CD	CD-RW	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5	
SATA cables	No SATA cables / two SATA connectors on systemboard	
Diskette drive	3.5" 1.44MB diskette drive	

Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor	<b>SYSTEMS MANAGEMENT</b> • PC 2001-compliant • Advanced Power Management 1.2 • Advanced Configuration and Power Interface (ACPI) 2.0b • SMBIOS 2.3.1-compliant • DMI 2.0-compliant
Ports	<i>Front:</i> two USB (Version 2.0), microphone in (stereo), headphone out (stereo) <i>Back:</i> six USB (Version 2.0), two serial (9-pin), parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)	
Audio connectors	<i>Back:</i> line-in (stereo), line-out (stereo) [all 3.5mm]	<b>SECURITY</b> • U bolt anchoring feature (U-bolt is optional; supports optional padlock) • Security slot (for attachment of optional cable lock) • Power-on password • Administrator password • Boot sequence control • Diskette boot inhibit • Boot without keyboard or mouse • Diskette and disk I/O control • Serial/parallel I/O control
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec	
Speaker	One internal speaker for business audio	
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / PXE and Wake on LAN® <i>Some:</i> 56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter	
Modem	None	
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black	
Mouse	IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black	
Cooling fans	Two variable speed fans (front fan for passive heatsink, power supply)	
Power supply	200 watts with variable speed fan / universal / manual switch	

<b>Preload with Windows XP Home<sup>5</sup></b> Microsoft® Windows® XP Home Edition	<b>Accessories</b> 128MB PC2700 CL2.5 NP DDR UDIMM 31P8854	<b>LIMITED WARRANTY<sup>1</sup></b> ⇨ 1 year parts and labor ⇨ <b>International Warranty Service<sup>9</sup></b> ⇨ <b>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time<sup>3</sup></b> ⇨ <b>Onsite service upgrade options (in eligible locations):<sup>7</sup></b> • 1 year IOR 9x5, 4 hour response (ServicePac <sup>6</sup> part number 54P1858) • 2 year IOR 9x5, Next Business Day (ServicePac part number 54P1859) • 2 year IOR 9x5, 4 hour response (ServicePac part number 54P1860) • 3 year IOR 9x5, Next Business Day (ServicePac part number 54P1861) • 3 year IOR 9x5, 4 hour response (ServicePac part number 54P1862) ⇨ <b>Post warranty maintenance services available</b> ⇨ <b>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></b>
<b>Preload with Windows XP Professional<sup>5</sup></b> Microsoft Windows XP Professional	256MB PC2700 CL2.5 NP DDR UDIMM 31P8855	
<b>Preloaded (all)</b> • Access IBM • Access Support • IBM Rapid Restore™ Ultra • Update Connector™.15 • Adobe Acrobat Reader • PC-Doctor™ (diagnostics) • Norton AntiVirus (OEM Version) • RecordNow and DLA (CD-RW) - Disk-to-Disk Recovery (in hidden protected area)	512MB PC2700 CL2.5 NP DDR UDIMM 31P8856 1GB PC2700 CL2.5 NP DDR UDIMM 31P8857 80GB IDE Disk ATA-100 (7200 rpm) 09N4248 120GB IDE Disk ATA-100 (7200 rpm) 09N4249 160GB Serial ATA150 Disk (7200 rpm) 09N4254 48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM 22P7031 Combo drive (black) 22P7036 IBM Multi-Burner Plus internal (black) 09N4255 IBM Portable USB 2.0 40GB Hard Disk 22P9025 IBM 256MB USB 2.0 Memory Key 33L3543 IBM NVIDIA Quadro4 200NV5 Dual Head 6636AB1 IBM ThinkVision L150 15" Monitor (black) 6734AB0 IBM ThinkVision L170 17" Monitor (black) 6734HB0 IBM ThinkVision L170p 17" Monitor (black) 6736HB0 IBM ThinkVision L200p 20.1" Monitor (blk) 673766N IBM ThinkVision C170 17" (16.0" vis) (blk) 673960N IBM ThinkVision C190 19" (18.0" vis) (blk) 33L3478 IBM 675 Uninterruptable Power Supply 22P6901 IBM High Rate Wireless LAN PCI Adapter Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	
<b>Downloadable (all)</b> • Software Delivery Assistant • System Migration Assistant • IBM Director Agent (not XP Home)		
<b>License</b> - CD not included (all) - Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client		

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Memory <sup>8</sup>	EIDE disk	EIDE optical	Graphics	Ethernet	Preload	Workhorse Gbl, Entry	Avail date
A50	8419-11U	2x3	Pentium® 4	2.4	512KB	533		256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	10/100	XP Pro <sup>5</sup>	No	Jun 2003
A50	8419-12U	2x3	Pentium 4	2.4	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	Jun 2003
A50	8419-21U	2x3	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	Jun 2003
A50	8419-22U	2x3	Pentium 4	2.66	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	Jun 2003
A50	8419-31U	2x3	Pentium 4	2.8	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	Jun 2003
A50	8419-32U	2x3	Pentium 4	2.8	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	Jun 2003
A50	8419-33U	2x3	Pentium 4	2.8C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	Jun 2003
A50	8419-34U	2x3	Pentium 4	2.8C	512KB	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	Jun 2003
A50	8419-23U	2x3	Pentium 4	2.6C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	Sep 2003
A50	8419-24U	2x3	Pentium 4	2.6C	512KB	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	Sep 2003

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

Positioning	Smallest ThinkCentre desktop without compromise	<b>Small Form Factor</b> 
Processor	Intel® Pentium 4 at 2.4, 2.66 or 2.8GHz with 533MHz system bus	
Hyper-Threading	Some: Hyper-Threading (HT) technology support	Bay ① 3.5", slim .5", access, std diskette Bay ② 5.25", HH 1.6", access, std optical Bay ③ 3.5", SL 1", no access, std disk Slot 1: half-length (175mm), full-height, 32-bit PCI 2.3 (5v) Slot 2: half-length (175mm), full-height, 32-bit PCI 2.3 (5v)
L2 cache	512KB std and max / ECC / full speed	
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket	<ul style="list-style-type: none"> <li>• Business black color; metal case; 9.3 liters</li> <li>• 12.2" W X 14.1"D X 3.3"H</li> <li>• 309mm W X 359mm D X 85mm H</li> <li>• With vertical stand: 5.0" W X 14.6"D X 13.6"H</li> <li>• With vertical stand: 126mm W X 370mm D X 346mm H</li> <li>• 18.0 to 20.0 lb (8.1 to 9.1 kg)</li> <li>• Bays 1 and 2/3 flip up (latched and pivoting)</li> <li>• Toolless cover flips up and tilts backward on rear hinges</li> <li>• Toolless disk, diskette drive, optical drive removal</li> <li>• Two PCI slots on riser card</li> <li>• Toolless PCI slots and riser card retention</li> <li>• Toolless systemboard retention</li> <li>• Steel chassis supports 100 lb (45kg) monitor on top</li> <li>• System stand for vertical orientation</li> </ul>
Memory - std/max <sup>8</sup>	256MB std / 2GB max	
Memory - sockets	Two 184-pin gold plated DIMM sockets / one socket used	
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable	<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>
Graphics	Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector	
EIDE disk	40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts	<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>↔ 3 year parts / 1 year labor</li> <li>↔ International Warranty Service<sup>9</sup></li> <li>↔ 1st year: limited onsite service, 8 am - 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup></li> <li>↔ 2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</li> <li>↔ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 3 year IOR 9x5, Next Business Day (ServicePac<sup>®</sup> part number 30L9199)</li> <li>• 3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)</li> <li>• 3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)</li> <li>• 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)</li> <li>• 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)</li> <li>• 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9160)</li> </ul> </li> <li>↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)	
EIDE cables	One EIDE 80-conductor cable (one 2-drop cable to optical and disk) / one EIDE connector on systemboard	
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE	
CD-RW (EIDE)	Some: 48X/24X/48X Max <sup>4</sup> CD-RW; 24U: 48X/32X/48X Max <sup>4</sup>	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5	
SATA cables	No SATA cables / two SATA connectors on systemboard	
Diskette drive	3.5" 1.44MB diskette drive	
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC <sup>®</sup> LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor	
Ports	Front: two USB (Version 2.0), microphone in (stereo), headphone out (stereo) Back: six USB (Version 2.0), two serial (9-pin), parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)	
Audio connectors	Back: line-in (stereo), line-out (stereo) [all 3.5mm]	
Audio	Integrated digital audio / SoundMAX <sup>®</sup> Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec	
Speaker	One internal speaker for business audio	
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.2 / Wake on LAN <sup>®</sup>	
Modem	None	
Security chip	None	
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black	
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black	
Cooling fans	Two variable speed fans (front fan for passive heatsink, power supply)	
Power supply	200 watts with variable speed fan / universal / manual switch	

<b>Preload with Windows XP Professional<sup>5</sup></b> Microsoft® Windows® XP Professional	<b>Accessories</b> 128MB PC2700 CL2.5 NP DDR UDIMM 31P8854 256MB PC2700 CL2.5 NP DDR UDIMM 31P8855 512MB PC2700 CL2.5 NP DDR UDIMM 31P8856 1GB PC2700 CL2.5 NP DDR UDIMM 31P8857 80GB IDE Disk ATA-100 (7200 rpm) 09N4248 120GB IDE Disk ATA-100 (7200 rpm) 09N4249 160GB Serial ATA 150 Disk (7200 rpm) 09N4254 48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042 48X/32X/48X/16X Max <sup>4</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300 IBM Multi-Burner Plus internal (black) <sup>6</sup> 73P3305 IBM USB 2.0 Portable 40GB Hard Disk 22P7196 Iomega <sup>®</sup> Zip 750MB USB 2.0 Ext Drive 22P7099 IBM USB 2.0 Memory Key 512MB 22P9230 IBM NVIDIA Quadro4 200NV5 Dual Head 33L3543 IBM ThinkVision L150p 15" Monitor (black) 6636HB1 IBM ThinkVision L170 17" Monitor (black) 6734AB0 IBM ThinkVision L170p 17" Monitor (black) 6734HB0 IBM ThinkVision L191p 19" Monitor (black) 9419HB7 IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0 IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N Belkin <sup>®</sup> 800VA UPS with AVR technology 31P7662 Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>
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See footnotes for important warranty information  
 US models announced September 16, 2003; previous models on June 17, 2003  
 US models withdrawn effective October 2003, February 2004, or January 2005

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE optical	Graphics	Audio front panel	Limited Preload warranty	Workhorse Global, Entry date
A50	8432-9FU	3x5	Pentium® 4	2.8C	512KB	800	HT	256MB	40GB <sup>2</sup>	CD	Extreme™ 2	865GV	No XP Pro <sup>5</sup> 3 yr No Apr 2004

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

Positioning Processor	Great technology and affordable prices <b>Intel® Pentium 4 at 2.8GHz</b> with 800MHz system bus / Hyper-Threading (HT) technology																																																																											
L2 cache Implementation	512KB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket																																																																											
Memory - std/max <sup>2</sup>	256MB std / 4GB max																																																																											
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used																																																																											
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable																																																																											
Graphics controller	Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865GV GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector																																																																											
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Ports	Front: two USB (Version 2.0) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)																																																																											
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec										<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>																																																																	
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Security chip	None																																																																											
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Cooling fans	Two variable speed fans (power supply and fansink)																																																																											
Power supply	230 watts with variable speed fan / universal / manual switch																																																																											
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b> <table border="0"> <tr><td>Microsoft® Windows® XP Professional</td><td>128MB PC2700 CL2.5 NP DDR UDIMM</td><td>31P8854</td></tr> <tr><td>- Disk-to-Disk Recovery (in hidden protected area)</td><td>256MB PC2700 CL2.5 NP DDR UDIMM</td><td>31P8855</td></tr> <tr><td></td><td>512MB PC2700 CL2.5 NP DDR UDIMM</td><td>31P8856</td></tr> <tr><td></td><td>1GB PC2700 CL2.5 NP DDR UDIMM</td><td>31P8857</td></tr> <tr><td></td><td>80GB IDE Disk ATA-100 (7200 rpm)</td><td>09N4248</td></tr> <tr><td></td><td>120GB IDE Disk ATA-100 (7200 rpm)</td><td>09N4249</td></tr> <tr><td></td><td>160GB Serial ATA150 Disk (7200 rpm)</td><td>09N4254</td></tr> <tr><td></td><td>48X/32X/48X Max<sup>4</sup> CD-RW internal (black)</td><td>22P7042</td></tr> <tr><td></td><td>48X/32X/48X/16X Max<sup>11</sup> CD-RW/DVD-ROM Combo drive (black)</td><td>73P3300</td></tr> <tr><td></td><td>IBM Multi-Burner Plus internal (black)<sup>6</sup></td><td>73P3305</td></tr> <tr><td></td><td>IBM USB 2.0 Portable 40GB Hard Disk</td><td>22P7196</td></tr> <tr><td></td><td>IBM 256MB USB 2.0 Memory Key</td><td>22P9025</td></tr> <tr><td></td><td>IBM NVIDIA Quadro4 200NVS Dual Head</td><td>33L3543</td></tr> <tr><td></td><td>IBM ThinkVision L150p 15" Monitor (black)</td><td>6636HB1</td></tr> <tr><td></td><td>IBM ThinkVision L170p 17" Monitor (black)</td><td>6734HB0</td></tr> <tr><td></td><td>IBM ThinkVision L200p 20.1" Monitor (blk)</td><td>6736HB0</td></tr> <tr><td></td><td>IBM ThinkVision C170 17" (16.0" vis) (blk)</td><td>673766N</td></tr> <tr><td></td><td>IBM ThinkVision C190 19" (18.0" vis) (blk)</td><td>673960N</td></tr> <tr><td></td><td>IBM ThinkVision C220p 22" (20.0" vis) (blk)</td><td>673560N</td></tr> <tr><td></td><td>IBM 500 Uninterrupt Powr Supp ( at pack)</td><td>33L3477</td></tr> <tr><td></td><td>Belkin® 800VA UPS with AVR technology</td><td>31P7662</td></tr> <tr><td></td><td>IBM High Rate Wireless LAN PCI Adapter</td><td>22P6901</td></tr> </table> Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>										Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854	- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855		512MB PC2700 CL2.5 NP DDR UDIMM	31P8856		1GB PC2700 CL2.5 NP DDR UDIMM	31P8857		80GB IDE Disk ATA-100 (7200 rpm)	09N4248		120GB IDE Disk ATA-100 (7200 rpm)	09N4249		160GB Serial ATA150 Disk (7200 rpm)	09N4254		48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042		48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	73P3300		IBM Multi-Burner Plus internal (black) <sup>6</sup>	73P3305		IBM USB 2.0 Portable 40GB Hard Disk	22P7196		IBM 256MB USB 2.0 Memory Key	22P9025		IBM NVIDIA Quadro4 200NVS Dual Head	33L3543		IBM ThinkVision L150p 15" Monitor (black)	6636HB1		IBM ThinkVision L170p 17" Monitor (black)	6734HB0		IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0		IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N		IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N		IBM ThinkVision C220p 22" (20.0" vis) (blk)	673560N		IBM 500 Uninterrupt Powr Supp ( at pack)	33L3477		Belkin® 800VA UPS with AVR technology	31P7662		IBM High Rate Wireless LAN PCI Adapter	22P6901
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<b>Preloaded</b>	<ul style="list-style-type: none"> <li>• Access IBM</li> <li>• Access Support</li> <li>• IBM Rapid Restore™ Ultra</li> <li>• Update Connector™.15</li> <li>• Adobe Acrobat Reader</li> <li>• PC-Doctor™ (diagnostics)</li> <li>• Norton AntiVirus (OEM Version)</li> </ul>										<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>↔ 3 year parts / 1 year labor</li> <li>↔ International Warranty Service<sup>9</sup></li> <li>↔ 1st year: limited onsite service, 8 am to 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup></li> <li>↔ 2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</li> <li>↔ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199)</li> <li>• 3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)</li> <li>• 3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)</li> <li>• 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)</li> <li>• 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)</li> <li>• 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9160)</li> </ul> </li> <li>↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>																																																																	
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<b>License</b> - CD not included	<ul style="list-style-type: none"> <li>- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client</li> </ul>																																																																											

See footnotes for important warranty information  
US model announced April 13, 2004  
US model withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>5</sup>	EIDE disk	EIDE optical	Graphics	Audio front panel	Chipset	Limited Preload warranty	Workhorse Global, Entry date	Avail		
A50	8433-9FU	3x5	Pentium® 4	2.8C	512KB	800	HT	256MB	40GB <sup>2</sup>	CD	Extreme™ 2	865GV	No	XP Pro <sup>5</sup>	1 yr	No	Apr 2004

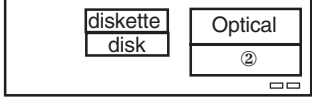
These small and medium business (SMB) models are part of the IBM US ThinkCentre Express Program

Positioning Processor	Great technology and affordable prices <b>Intel® Pentium 4 at 2.8GHz</b> with 800MHz system bus / Hyper-Threading (HT) technology										<b>Tower</b>		
L2 cache Implementation	512KB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket										<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0"D X 16.3"H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>		
Memory - std/max <sup>5</sup>	256MB std / 4GB max Four 184-pin gold plated DIMM sockets / one socket used										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk		
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable										Slot 1: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)		
Graphics controller	Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865GV GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVM T / one 15-pin analog D-sub connector												<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Con guration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul> <b>SECURITY</b> <ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>
EIDE disk	40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts												
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)												
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard												
CD	48X-20X <sup>4</sup> CD-ROM / EIDE												
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Ports	Front: two USB (Version 2.0) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)												
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec												
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]												
Beeper	One internal beeper												
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN®												
Security chip	None												
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black												
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black												
Cooling fans	Two variable speed fans (power supply and fansink)												
Power supply	230 watts with variable speed fan / universal / manual switch												
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>										<b>LIMITED WARRANTY<sup>1</sup></b>		
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM										↪ 1 year parts and labor		
- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM										↪ International Warranty Service <sup>9</sup>		
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM										↪ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time <sup>3</sup>		
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM										↪ Onsite service upgrade options (in eligible locations):		
• Access Support	80GB IDE Disk ATA-100 (7200 rpm)										• 1 year 9x5 4 hour response (ServicePac® part number 54P1858)		
• IBM Rapid Restore™ Ultra	120GB IDE Disk ATA-100 (7200 rpm)										• 2 year 9x5 Next Business Day (ServicePac part number 54P1859)		
• Update Connector™.15	160GB Serial ATA150 Disk (7200 rpm)										• 2 year 9x5 4 hour response (ServicePac part number 54P1860)		
• Adobe Acrobat Reader	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)										• 3 year 9x5 Next Business Day (ServicePac part number 54P1861)		
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)										• 3 year 9x5 4 hour response (ServicePac part number 54P1862)		
• Norton AntiVirus (OEM Version)	IBM Multi-Burner Plus internal (black) <sup>6</sup>										↪ Post-warranty annual maintenance agreements at		
<b>Downloadable</b>	IBM USB 2.0 Portable 40GB Hard Disk										ibm.com/services/us/its/pdf/maspspleu.pdf		
• Software Delivery Assistant	lomega® Zip 750MB USB 2.0 Ext Drive										↪ 24x7 <sup>12</sup> toll-free support for warranty issues during the warranty period <sup>1</sup>		
• System Migration Assistant	IBM 256MB USB 2.0 Memory Key												
• IBM Director Agent	IBM NVIDIA Quadro4 200NVS Dual Head												
<b>License</b> - CD not included	IBM ThinkVision L170p 17" Monitor (black)												
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L170p 17" Monitor (black)												
	IBM ThinkVision L200p 20.1" Monitor (blk)												
	IBM ThinkVision C170 17" (16.0" vis) (blk)												
	IBM ThinkVision C220p 22" (20.0" vis) (blk)												
	IBM 500 Uninterrupt Powr Supp ( at pack)												
	Belkin® 800VA UPS with AVR technology												
	IBM High Rate Wireless LAN PCI Adapter												
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>												

See footnotes for important warranty information  
US model announced April 13, 2004  
US model withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>6</sup>	EIDE disk	EIDE Optical	Graphics	Ethernet	Preload	Workhorse Gbl, Entry	Avail date
A50p	8193-91U	4x4	Pentium® 4	2.4	512KB	533		256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	10/100	XP Pro <sup>5</sup>	No	May 2003
A50p	8193-92U	4x4	Pentium 4	2.4	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	May 2003
A50p	8193-93U	4x4	Pentium 4	2.4C	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	May 2003
A50p	8193-94U	4x4	Pentium 4	2.6C	512KB	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	May 2003
A50p	8193-95U	4x4	Pentium 4	2.66	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	May 2003
A50p	8193-96U	4x4	Pentium 4	2.66	512KB	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	May 2003
A50p	8193-97U	4x4	Pentium 4	2.8	512KB	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	May 2003
A50p	8193-98U	4x4	Pentium 4	2.8C	512KB	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	May 2003

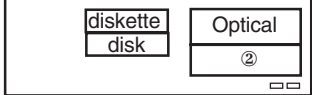
These small and medium business (SMB) models are part of the IBM US ThinkCentre Express Program

Positioning	Great technology and affordable prices; models for small and medium business (SMB)	Desktop	
Processor	Intel® Pentium 4 at 2.4, 2.6, 2.66 or 2.8GHz with 533 or 800MHz system bus / some: Hyper-Threading (HT) technology		
L2 cache Implementation	512KB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket		
Memory - std/max <sup>8</sup>	256MB std / 4GB max	Bay ① 5.25", HH 1.6", access, std optical	
Memory	Four 184-pin gold plated DIMM sockets / one socket used / PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable	Bay ② 5.25", HH 1.6" access, open	
Graphics controller	Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector	Bay ③ 3.5", SL 1", access, std diskette	
EIDE disk	40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts	Bay ④ 3.5", SL 1", no access, std disk	
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)	Slot 1: full-length, full-height, 32-bit AGP 8X (1.5v)	
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard	Slot 2: full-length, full-height, 32-bit PCI 2.3 (5v)	
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE	Slot 3: full-length, full-height, 32-bit PCI 2.3 (5v)	
CD-RW	Some: 48X/24X/48X Max <sup>4</sup> CD-RW / EIDE	Slot 4: full-length, full-height, 32-bit PCI 2.3 (5v)	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5	• Business black color; 25.2 liters	
SATA cables	No SATA cables / two SATA connectors on systemboard	• 16.7" W X 16.3" D X 5.5" H	
Diskette drive	3.5" 1.44MB diskette drive	• 425mm W X 414mm D X 140mm H	
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor	• 22 to 25 lb (10.0 to 11.4 kg)	
Ports	Front: two USB (Version 2.0) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)	• Bay 1 and 2 in cage flips up (latched and pivoting)	
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec	• Bay 3 and 4 in cage flips up (latched and pivoting)	
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]	• Toolless rails for disk mounting	
Beeper	One internal beeper	• Toolless cover removal; toolless AGP and PCI slots	
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN <sup>9</sup>		
Security chip	None		
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black		
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black		
Cooling fans	Two variable speed fans (power supply and fansink)		
Power supply	230 watts with variable speed fan / universal / manual switch		
Preload with Windows XP Professional <sup>5</sup>	Microsoft® Windows® XP Professional - Disk-to-Disk Recovery (in hidden protected area)		
Preloaded	Access IBM Access Support IBM Rapid Restore™ Ultra Update Connector™.15 Adobe Acrobat Reader PC-Doctor™ (diagnostics) Norton AntiVirus (OEM Version) RecordNow and DLA (CD-RW, combo)		
Downloadable	Software Delivery Assistant System Migration Assistant IBM Director Agent		
License	CD not included - Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client		
Accessories	128MB PC2700 CL2.5 NP DDR UDIMM 31P8854 256MB PC2700 CL2.5 NP DDR UDIMM 31P8855 512MB PC2700 CL2.5 NP DDR UDIMM 31P8856 1GB PC2700 CL2.5 NP DDR UDIMM 31P8857 80GB IDE Disk ATA-100 (7200 rpm) 09N4248 120GB IDE Disk ATA-100 (7200 rpm) 09N4249 160GB Serial ATA150 Disk (7200 rpm) 09N4254 48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042 48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300 IBM Multi-Burner Plus internal (black) <sup>6</sup> 73P3305 IBM USB 2.0 Portable 40GB Hard Disk 22P7196 Iomega® Zip 750MB USB 2.0 Ext Drive 22P7099 IBM 256MB USB 2.0 Memory Key 22P9025 IBM NVIDIA Quadro4 200NVS Dual Head 33L3543 IBM ThinkVision L150 15" Monitor (black) 6636AB1 IBM ThinkVision L170 17" Monitor (black) 6734AB0 IBM ThinkVision L170p 17" Monitor (black) 6734HB0 IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0 IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N Belkin® 800VA UPS with AVR technology 31P7662 IBM High Rate Wireless LAN PCI Adapter 22P6901 Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>		
			<b>SYSTEMS MANAGEMENT</b> • PC 2001-compliant • Advanced Power Management 1.2 • Advanced Configuration and Power Interface (ACPI) 2.0b • SMBIOS 2.3.1-compliant • DMI 2.0-compliant
			<b>SECURITY</b> • U-bolt anchoring feature (U-bolt is optional; supports optional padlock) • Security slot (for attachment of optional cable lock) • Power-on password • Administrator password • Boot sequence control • Diskette boot inhibit • Boot without keyboard or mouse • Diskette and disk I/O control • Serial/parallel I/O control
			<b>LIMITED WARRANTY<sup>1</sup></b> ↔ 3 year parts / 1 year labor ↔ International Warranty Service <sup>9</sup> ↔ 1st year: limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time <sup>3</sup> ↔ 2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378) ↔ Onsite service upgrade options (in eligible locations): • 3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199) • 3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732) • 3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724) • 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158) • 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159) ↔ 24x7 <sup>14</sup> toll-free support for warranty issues during the warranty period <sup>1</sup>

See footnotes for important warranty information  
US models announced May 21, 2003  
US models withdrawn effective October 2003, February 2004, or August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Memory <sup>8</sup>	EIDE disk	EIDE Optical	Graphics	Ethernet	Preload	Workhorse Gbl, Entry	Avail date
A50p	8193-36U	4x4	Pentium® 4	2.8E	1MB	800	HT	256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	10/100	XP Pro <sup>5</sup>	No	Feb 2004
A50p	8193-37U	4x4	Pentium 4	2.8E	1MB	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	Feb 2004
A50p	8193-41U	4x4	Pentium 4	3.0E	512KB	533	HT	256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	No	Feb 2004
A50p	8193-43U	4x4	Pentium 4	3.0E	1MB	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	No	Feb 2004

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

Positioning	Great technology and affordable prices; models for small and medium business (SMB)										<b>Desktop</b>	
Processor	Intel® Pentium 4 at 2.8, 3.0, or 3.06GHz with 533 or 800MHz system bus / Hyper-Threading (HT) technology											
L2 cache Implementation	512KB or 1MB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket											
Memory - std/max <sup>8</sup>	256MB std / 4GB max										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6" access, open Bay ③ 3.5", SL 1", access, std diskette Bay ④ 3.5", SL 1", no access, std disk	
Memory	Four 184-pin gold plated DIMM sockets / one socket used / PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable										Slot 1: full-length, full-height, 32-bit AGP 8X (1.5v) Slot 2: full-length, full-height, 32-bit PCI 2.3 (5v) Slot 3: full-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: full-length, full-height, 32-bit PCI 2.3 (5v)	
Graphics controller	Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector										<ul style="list-style-type: none"> <li>• Business black color; 25.2 liters</li> <li>• 16.7" W X 16.3"D X 5.5"H</li> <li>• 425mm W X 414mm D X 140mm H</li> <li>• 22 to 25 lb (10.0 to 11.4 kg)</li> <li>• Bay 1 and 2 in cage flips up (latched and pivoting)</li> <li>• Bay 3 and 4 in cage flips up (latched and pivoting)</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal; toolless AGP and PCI slots</li> </ul>	
EIDE disk	40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts										<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>	
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)											
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 1-drop cable to disk) / two EIDE connectors on systemboard											
CD	Some: 48X/20X <sup>4</sup> CD-ROM / EIDE											
CD-RW	Some: 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE											
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA 150 / integrated in ICH5											
SATA cables	No SATA cables / two SATA connectors on systemboard										<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>	
Diskette drive	3.5" 1.44MB diskette drive											
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor											
Ports	Front: two USB (Version 2.0) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)											
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec											
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]											
Beeper	One internal beeper										<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>⇨ 3 year parts / 1 year labor</li> <li>⇨ International Warranty Service<sup>9</sup></li> <li>⇨ 1st year: limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>⇨ 2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</li> <li>⇨ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199)</li> <li>• 3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)</li> <li>• 3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)</li> <li>• 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)</li> <li>• 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)</li> </ul> </li> <li>⇨ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>	
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN <sup>®</sup>											
Security chip	None											
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black											
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black											
Cooling fans	Two variable speed fans (power supply and fansink)											
Power supply	230 watts with variable speed fan / universal / manual switch											
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>										31P8854 31P8855 31P8856 31P8857 09N4248 09N4249 09N4254 22P7042 73P3300 73P3305 22P7196 22P7099 22P9025 33L3543 6636AB1 6734AB0 6734HB0 6736HB0 673766N 673960N 673560N 31P7662 22P6901 Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM											
- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM											
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM											
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM											
• Access Support	80GB IDE Disk ATA-100 (7200 rpm)											
• IBM Rapid Restore™ Ultra	120GB IDE Disk ATA-100 (7200 rpm)											
• Update Connector™ <sup>15</sup>	160GB Serial ATA 150 Disk (7200 rpm)											
• Adobe Acrobat Reader	48X/32X/48X Max <sup>1</sup> CD-RW internal (black)											
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)											
• Norton AntiVirus (OEM Version)	IBM Multi-Burner Plus internal (black) <sup>6</sup>											
• RecordNow and DLA (CD-RW)	IBM USB 2.0 Portable 40GB Hard Disk											
<b>Downloadable</b>	lomega® Zip 750MB USB 2.0 Ext Drive											
• Software Delivery Assistant	IBM 256MB USB 2.0 Memory Key											
• System Migration Assistant	IBM NVIDIA Quadro4 200NV5 Dual Head											
• IBM Director Agent	IBM ThinkVision L150 15" Monitor (black)											
<b>License</b> - CD not included	IBM ThinkVision L170 17" Monitor (black)											
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L170p 17" Monitor (black)											
	IBM ThinkVision L200p 20.1" Monitor (blk)											
	IBM ThinkVision C170 17" (16.0" vis) (blk)											
	IBM ThinkVision C190 19" (18.0" vis) (blk)											
	IBM ThinkVision C220p 22" (20.0" vis) (blk)											
	Belkin® 800VA UPS with AVR technology											
	IBM High Rate Wireless LAN PCI Adapter											

See footnotes for important warranty information  
US models announced February 10, 2004  
US models withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE Optical	Graphics	Security chip	Ethernet	Mouse	Preload	Available date	
<b>A50p</b>	8194-A1U	4x5	Pentium® 4	2.4	512KB	533		128MB	40GB <sup>2</sup>	CD	Extreme™ 2	GMCH	10/100	2 btn	XP Pro <sup>5</sup>	May 2003	
<b>A50p</b>	8194-A2U	4x5	Pentium 4	2.4	512KB	533		128MB	40GB	CD	Extreme 2	GMCH	10/100	2 btn	2000	May 2003	
<b>A50p</b>	8194-A4U	4x5	Pentium 4	2.4	512KB	533		128MB	80GB	CD-RW	Extreme 2	GMCH	10/100	Optical	XP Pro	May 2003	
<b>A50p</b>	8194-A6U	4x5	Pentium 4	2.4C	512KB	800	HT	128MB	40GB	CD	Extreme 2	GMCH	10/100	Optical	XP Pro	May 2003	
<b>A50p</b>	8194-B2U	4x5	Pentium 4	2.53	512KB	533		128MB	40GB	CD	Extreme 2	GMCH	10/100	Optical	XP Pro	May 2003	
<b>A50p</b>	8194-B3U	4x5	Pentium 4	2.53	512KB	533		128MB	80GB	CD-RW	Extreme 2	GMCH	10/100	Optical	XP Pro	May 2003	
<b>A50p</b>	8194-D2U	4x5	Pentium 4	2.6C	512KB	800	HT	256MB	80GB	CD-RW	Extreme 2	GMCH	10/100	Optical	XP Pro	May 2003	
<b>A50p</b>	8194-D3U	4x5	Pentium 4	2.66	512KB	533		128MB	40GB	CD	Extreme 2	GMCH	10/100	Optical	XP Pro	May 2003	
<b>A50p</b>	8194-D4U	4x5	Pentium 4	2.66	512KB	533		128MB	80GB	CD-RW	Extreme 2	GMCH	10/100	Optical	XP Pro	May 2003	
<b>A50p</b>	8194-DAU	4x5	Pentium 4	2.66	512KB	533		128MB	40GB	CD	Extreme 2	GMCH	10/100	Optical	2000	May 2003	
<b>A50p</b>	8194-A7U	4x5	Pentium 4	2.4	512KB	533		256MB	40GB	CD	Extreme 2	GMCH	Chip	10/100	2 btn	XP Pro	May 2003

Positioning *Great technology and affordable prices*  
 Processor **Intel® Pentium 4 at 2.4, 2.53, 2.6 or 2.66GHz** with 533 or 800MHz system bus / *some*: Hyper-Threading (HT) technology  
 L2 cache **512KB** std and max / ECC / full speed  
 Implementation Processor and L2 cache in FC-PGA2 in mPGA478B socket

Memory - std/max<sup>8</sup> **128 or 256MB std** / 4GB max  
 Memory - sockets Four 184-pin gold plated DIMM sockets / one socket used  
 Memory - type **PC2700 333MHz DDR-SDRAM** / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable

Graphics controller **Integrated Intel Extreme™ Graphics 2** / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector

EIDE disk **40 or 80GB**, ATA-100, 7200 rpm, rubber vibration dampening mounts  
 EIDE controller Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)  
 EIDE cables Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard  
*Some*: 48X-20X<sup>4</sup> CD-ROM / EIDE  
*Some*: 48X/24X/48X Max<sup>4</sup> CD-RW / EIDE  
 CD Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5  
 CD-RW No SATA cables / two SATA connectors on systemboard  
 SATA controller  
 SATA cables  
 Diskette drive 3.5" 1.44MB diskette drive

**Tower**

- Business black color; 31.4 liters
- 7.5" W X 16.0"D X 16.3"H
- 191mm W X 406mm D X 413mm H
- 20.0 to 22.5 lb (9.1 to 10.2 kg)
- Handle on top front
- Disk bay pivots forward
- Toolless rails for disk mounting
- Toolless cover removal
- Toolless AGP and PCI slots

Bay ① 5.25", HH 1.6", access, std optical  
 Bay ② 5.25", HH 1.6", access, open  
 Bay ③ 3.5", SL 1", access, open  
 Bay ④ 3.5", SL 1", access, std diskette  
 Bay ⑤ 3.5", SL 1", no access, std disk

Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)  
 Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)  
 Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)

Chipset **Intel 865G chipset** / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor

Ports *Front*: two USB (Version 2.0)  
*Back*: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)

Audio Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec  
*Back*: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]

Audio connectors One internal beeper  
 Ethernet 10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN®

Security chip *Some*: **IBM Embedded Security Subsystem 2.0**<sup>18</sup> / hardware key storage / multi-factor authentication / local file encryption / enhances VPN security<sup>16</sup> / TCG-compliant

Keyboard 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black  
 Mouse *Some*: IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black  
*Some*: IBM Optical Wheel Mouse (USB only), 400 dpi, black

Cooling fans Two variable speed fans (power supply and fansink)  
 Power supply 230 watts with variable speed fan / universal / manual switch

**SYSTEMS MANAGEMENT**

- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 2.0b
- SMBIOS 2.3.1-compliant
- DMI 2.0-compliant
- *Security chip models*: Asset ID™<sup>19</sup> (system-specific info in chip)

**SECURITY**

- U bolt anchoring feature (U-bolt is optional; supports optional padlock)
- Security slot (for attachment of optional cable lock)
- Power-on password
- Administrator password
- Boot sequence control
- Diskette boot inhibit
- Boot without keyboard or mouse
- Diskette and disk I/O control
- Serial/parallel I/O control
- *Security chip models*: security chip providing C2 tamper switch, Asset ID<sup>19</sup>, keylock on chassis, and other features

Preload with Windows XP Professional <sup>5</sup>	Accessories	
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
<b>Preload with Windows 2000<sup>5</sup></b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
Microsoft Windows 2000 Professional	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
• ConfigSafe®	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
<b>Preloaded (all)</b>	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• Access IBM	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Access Support	80GB Serial ATA 150 Disk (7200 rpm)	09N4253
• IBM Rapid Restore™ Ultra	160GB Serial ATA 150 Disk (7200 rpm)	09N4254
• Update Connector™ <sup>15</sup>	48X/24X/48X Max <sup>4</sup> CD-RW internal (black)	22P6997
• PC-Doctor™ (diagnostics)	48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	22P7031
• Norton AntiVirus (OEM Version)	IBM Multi-Burner internal (black)	22P6970
• RecordNow and DLA (CD-RW, combo)	IBM Portable USB 2.0 40GB Hard Disk	09N4255
- Disk-to-Disk Recovery (in hidden protected area)	IBM 256MB USB 2.0 Memory Key	22P9025
<b>Downloadable (all)</b>	IBM NVIDIA Quadro4 200NVS Dual Head	33L3543
• Software Migration Assistant	IBM ThinkVision L170 17" Monitor (black)	6734AB0
• IBM Director Agent	IBM ThinkVision L170p 17" Monitor (black)	6734HB0
• IBM Client Security Sft (security chip models)	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
<b>License - CD not included (all)</b>	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
	IBM 675 Uninterruptable Power Supply	33L3478
	IBM High Rate Wireless LAN PCI Adapter	22P6901
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	

**LIMITED WARRANTY<sup>1</sup>**

- ↔ 3 year parts / 1 year labor
- ↔ International Warranty Service<sup>9</sup>
- ↔ 1st year: on site, 8 am - 5 pm, Mon - Fri coverage, 2nd business day response time
- ↔ 2nd/3rd year: parts exchange only, call 1-800-772-2227
- ↔ On site service upgrade options (in eligible locations):<sup>7</sup>
  - 3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199)
  - 3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)
  - 3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)
  - 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)
- ↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup>

See footnotes for important warranty information  
 US models announced May 21, 2003  
 US models withdrawn effective August 2003 or October 2003



Name	Type-model	Slot x bay	Processor	L2 cache GHz	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE Optical	Graphics	Ethernet	Firewire adapter	Workhorse, Global, Entry	Available date	
A50p	8194-E1U	4x5	Pentium® 4	2.8	512KB	533	128MB	40GB <sup>2</sup>	CD	Extreme™ 2	10/100	XP Pro <sup>5</sup>	No	May 2003	
A50p	8194-E2U	4x5	Pentium 4	2.8	512KB	533	128MB	80GB	CD-RW	Extreme 2	10/100	XP Pro	No	May 2003	
A50p	8194-E3U	4x5	Pentium 4	2.8	512KB	533	256MB	120GB	Combo	MX 440 64MB	10/100	XP Pro	No	May 2003	
A50p	8194-F7U	4x5	Pentium 4	3.0	512KB	800	HT	256MB	80GB	Combo	MX 440 64MB	10/100 1394	XP Pro	No	May 2003
A50p	8194-F2U	4x5	Pentium 4	3.06	512KB	533	HT	128MB	80GB	CD-RW	Extreme 2	10/100	XP Pro	No	May 2003
A50p	8194-G1U	4x5	Pentium 4	3.2	512KB	800	HT	512MB	80GB	CD-RW	MX 440 64MB	10/100	XP Pro	No	Sep 2003
Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Pentium 4 at 2.8, 3.0, 3.06 or 3.2GHz</b> with 533 or 800MHz system bus / <i>some</i> : Hyper-Threading (HT) technology										<b>Tower</b>				
L2 cache Implementation	512KB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket										<ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0" D X 16.3" H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul>				
Memory - std/max <sup>6</sup>	128, 256 or 512MB std / 4GB max										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk				
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used (two on G1U)										Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)* Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)* * Used in some models (graphics and/or 1394)				
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable										<b>SYSTEMS MANAGEMENT</b>				
Graphics controller (one of following)	<ul style="list-style-type: none"> <li>• <b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector</li> <li>• <b>NVIDIA® GeForce4 MX 440</b> / AGP 8X adapter / GeForce4 MX GPU / 64MB std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector</li> </ul>										<ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>				
EIDE disk	40, 80 or 120GB, ATA-100, 7200 rpm, rubber vibration dampening mounts										<b>SECURITY</b>				
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)										<ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>				
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard										<b>LIMITED WARRANTY<sup>1</sup></b>				
CD	<i>Some</i> : 48X-20X <sup>4</sup> CD-ROM / EIDE										<ul style="list-style-type: none"> <li>↔ 3 year parts / 1 year labor</li> <li>↔ International Warranty Service<sup>9</sup></li> <li>↔ 1st year: limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>↔ 2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</li> <li>↔ Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>• 3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199)</li> <li>• 3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)</li> <li>• 3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)</li> <li>• 4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)</li> <li>• 4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)</li> <li>• 4 year IOR 24x7, 4 hour response (ServicePac part number 69P9160)</li> </ul> </li> <li>↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>				
CD-RW	<i>E2U/F2U</i> : 48X/24X/48X Max <sup>4</sup> CD-RW; <i>G1U</i> : 48X/32X/48X Max <sup>4</sup> CD-RW														
Combo	<i>Some</i> : 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE														
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5														
SATA cables	No SATA cables / two SATA connectors on systemboard														
Diskette drive	3.5" 1.44MB diskette drive														
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor														
Ports	<i>Front</i> : two USB (Version 2.0) <i>Front (F7U)</i> : mic (mono, 3.5mm), headphone (stereo, 3.5mm), IEEE 1394 (4-pin) <i>Front (G1U)</i> : mic (mono, 3.5mm), headphone (stereo, 3.5mm) <i>Back</i> : six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)														
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec														
Audio connectors	<i>Back</i> : microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]														
Beeper	One internal beeper														
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN <sup>8</sup>														
IEEE 1394	<i>Model F7U</i> : FireWire PCI adapter / 1394A, 400Mbps, dual 6-pin ports on rear, 4-pin port on front of system, no external cables included														
Security chip	None														
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black														
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black														
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)														
Power supply	230 watts with variable speed fan / universal / manual switch														
<b>Preload with Windows XP Professional<sup>5</sup></b>		<b>Accessories</b>													
Microsoft® Windows® XP Professional		128MB PC2700 CL2.5 NP DDR UDIMM 31P8854													
- Disk-to-Disk Recovery (in hidden protected area)		256MB PC2700 CL2.5 NP DDR UDIMM 31P8855													
<b>Preloaded</b>		512MB PC2700 CL2.5 NP DDR UDIMM 31P8856													
• Access IBM		1GB PC2700 CL2.5 NP DDR UDIMM 31P8857													
• Access Support		80GB IDE Disk ATA-100 (7200 rpm) 09N4248													
• IBM Rapid Restore™ Ultra		120GB IDE Disk ATA-100 (7200 rpm) 09N4249													
• Update Connector™.15		160GB Serial ATA150 Disk (7200 rpm) 09N4254													
• Adobe Acrobat Reader		48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042													
• PC-Doctor™ (diagnostics)		48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300													
• Norton AntiVirus (OEM Version)		IBM Multi-Burner Plus internal (black) <sup>6</sup> 73P3305													
• InterVideo WinDVD (combo models)		IBM USB 2.0 Portable 40GB Hard Disk 22P7196													
• RecordNow and DLA (CD-RW, combo)		IBM 256MB USB 2.0 Memory Key 22P9025													
<b>Downloadable</b>		IBM NVIDIA Quadro4 200NVS Dual Head 33L3543													
• Software Delivery Assistant		IBM ThinkVision L170 17" Monitor (black) 6734AB0													
• System Migration Assistant		IBM ThinkVision L170p 17" Monitor (black) 6734HB0													
• IBM Director Agent		IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0													
<b>License</b> - CD not included		IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N													
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client		IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N													
		IBM High Rate Wireless LAN PCI Adapter 22P6901													
		Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>													

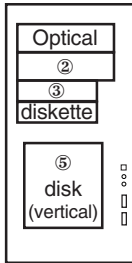
See footnotes for important warranty information  
US models announced May 21 or September 16, 2003  
US models withdrawn effective August 2003 or August 2004

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>8</sup>	EIDE disk	EIDE Optical	Graphics	Ethernet	Audio front panel	Modem and spk	Workhorse, Preload Educ, Entry	Avail date	
A50p	8194-38U	4x5	Pentium® 4	2.8E	1MB	800	HT	256MB	80GB <sup>2</sup>	CD-RW	Extreme™ 2	10/100	Yes	Mod/spk XP Home <sup>5</sup>	No	Feb 2004
A50p	8194-46U	4x5	Pentium 4	3.0E	512KB	533	HT	256MB	40GB	CD-RW	Extreme 2	10/100	Yes	Mod/spk XP Home	No	Feb 2004
A50p	8194-4AU	4x5	Pentium 4	3.0E	1MB	800	HT	256MB	80GB	Combo	Extreme 2	10/100	Yes	Mod/spk XP Home	No	Feb 2004
A50p	8194-54U	4x5	Pentium 4	3.2	512KB	800	HT	512MB	80GB	Combo	Radeon 9600	10/100	Yes	Mod/spk XP Pro	Educ	Feb 2004

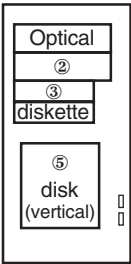
Positioning	<i>Great technology and affordable prices</i>										<b>Tower</b>		
Processor	Intel® Pentium 4 at 2.8, 3.0, 3.06 or 3.2GHz with 533 or 800MHz system bus / Hyper-Threading (HT) technology										<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0" D X 16.3" H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>		
L2 cache Implementation	512KB or 1MB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk		
Memory - std/max <sup>8</sup>	256 or 512MB std / 4GB max										Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)* Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)*		<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul>
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used										<b>SECURITY</b> <ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>		
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable										* Used in some models (graphics and/or modem)		
Graphics controller (one of following)	<ul style="list-style-type: none"> <li>Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector</li> <li>ATI® Radeon 9600 / AGP 8X adapter / Radeon GPU / 128MB std and max 500MHz DDR-SDRAM / 300MHz RAMDAC / three connectors: analog DB-15, digital DVI-I, S-Video out for TV-out / no dual head support</li> </ul>										<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>3 year parts / 1 year labor</li> <li>International Warranty Service<sup>9</sup></li> <li>1st year: limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</li> <li>Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199)</li> <li>3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)</li> <li>3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)</li> <li>4 year IOR 9x5, Next Business Day (ServicePac® part number 69P9158)</li> <li>4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)</li> <li>4 year IOR 24x7, 4 hour response (ServicePac part number 69P9160)</li> </ul> </li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>		
EIDE disk	40 or 80GB, ATA-100, 7200 rpm, rubber vibration dampening mounts												
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)												
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard												
CD-RW	Some: 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE												
Combo	Some: 48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE												
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5												
SATA cables	No SATA cables / two SATA connectors on systemboard												
Diskette drive	3.5" 1.44MB diskette drive												
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor												
Ports	Front: two USB (Version 2.0) Front: mic (mono, 3.5mm), headphone (stereo, 3.5mm) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)												
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec												
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]												
Speakers	External active speakers / Jazz Infinity® / 2-piece / 3 watts per channel / blk color												
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN®												
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter												
Security chip	None												
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black												
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black												
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)												
Power supply	230 watts with variable speed fan / universal / manual switch												
<b>Preload with Windows XP Home<sup>5</sup></b>	<b>Accessories</b>												
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM										31P8854		
<b>Preload with Windows XP Professional<sup>5</sup></b>	256MB PC2700 CL2.5 NP DDR UDIMM										31P8855		
Microsoft® Windows® XP Professional	512MB PC2700 CL2.5 NP DDR UDIMM										31P8856		
<b>Preloaded (all)</b>	1GB PC2700 CL2.5 NP DDR UDIMM										31P8857		
• Model 54U: contains additional module with a specialized education preload image in the base preload package**	80GB IDE Disk ATA-100 (7200 rpm)										09N4248		
• Access IBM	120GB IDE Disk ATA-100 (7200 rpm)										09N4249		
• Access Support	160GB Serial ATA150 Disk (7200 rpm)										09N4254		
• IBM Rapid Restore™ Ultra	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)										22P7042		
• Update Connector™.15	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM										73P3300		
• PC-Doctor™ (diagnostics)	Combo drive (black)										73P3305		
• Norton AntiVirus (OEM Version)	IBM Multi-Burner Plus internal (black) <sup>6</sup>										22P9025		
• InterVideo WinDVD (combo models)	IBM NVIDIA Quadro4 200NVs Dual Head										33L3543		
• RecordNow and DLA (CD-RW, combo)	IBM ThinkVision L150 15" Monitor (black)										6636AB1		
- Disk-to-Disk Recovery (in hidden protected area)	IBM ThinkVision L170 17" Monitor (black)										6734AB0		
<b>Downloadable (all)</b>	IBM ThinkVision L200p 20.1" Monitor (blk)										6736HB0		
• Software Delivery Assistant	IBM ThinkVision C170 17" (16.0" vis) (blk)										673766N		
• System Migration Assistant	IBM ThinkVision C190 19" (18.0" vis) (blk)										673960N		
<b>License - CD not included (all)</b>	IBM High Rate Wireless LAN PCI Adapter										22P6901		
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>												
	**Vital Source Technologies™ software used in educational institutions for electronic delivery of a variety of class materials including textbooks, rich media, and an existing library of published works												

See footnotes for important warranty information  
US models announced February 10, 2004  
US models withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	Memory <sup>8</sup>	Disk	Disk interface	EIDE Optical	Graphics adapter	Modem adpt	FireWire adapter	Workhorse, Global, Entry	Avail date	
<b>A50p</b>	8194-E6U	4x5	Pentium® 4	2.8C	512K	800	HT	256MB	120GB <sup>2</sup>	EIDE	Combo	Radeon 9600	Modem 1394	XP Home <sup>5</sup>	No	May 2003
<b>A50p</b>	8194-F1U	4x5	Pentium 4	3.0	512K	800	HT	256MB	120GB	EIDE	Combo	Radeon 9600	Modem 1394	XP Home	No	May 2003
<b>A50p</b>	8194-F8U	4x5	Pentium 4	3.0	512K	800	HT	512MB	160GB	SATA	Combo	Radeon 9600	Modem 1394	XP Home	No	May 2003
<b>A50p</b>	8194-G3U	4x5	Pentium 4	3.2	512K	800	HT	512MB	160GB	SATA	Combo	Radeon 9600	Modem 1394	XP Home	No	Sep 2003
<b>A50p</b>	8194-4CU	4x5	Pentium 4	3.0E	1MB	800	HT	512MB	160GB	SATA	Combo	Radeon 9600	Modem 1394	XP Home	No	Feb 2004
Positioning	<i>Great technology and affordable prices</i>										<b>Tower</b>					
Processor	Intel® Pentium 4 at 2.8, 3.0 or 3.2GHz with 800MHz system bus										<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0" D X 16.3" H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>					
Hyper-Threading	<b>Hyper-Threading (HT) technology</b>										<ul style="list-style-type: none"> <li>Bay ① 5.25", HH 1.6", access, std optical</li> <li>Bay ② 5.25", HH 1.6" access, open</li> <li>Bay ③ 3.5", SL 1", access, open</li> <li>Bay ④ 3.5", SL 1", access, std diskette</li> <li>Bay ⑤ 3.5", SL 1", no access, std disk</li> </ul>					
L2 cache	<b>512KB</b> or <b>1MB</b> std and max / ECC / full speed										<ul style="list-style-type: none"> <li>Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)-graphics</li> <li>Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) - modem</li> <li>Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)</li> <li>Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v) - 1394</li> </ul>					
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket															
Memory - std/max <sup>8</sup>	<b>256</b> or <b>512MB std</b> / 4GB max															
Memory	Four 184-pin gold plated DIMM sockets / one socket used (two used on F8U/G3U/4CU) / <b>PC2700 333MHz DDR1</b> / non-parity / ind std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable															
Graphics controller	<b>ATI® Radeon 9600</b> / AGP 8X adapter / Radeon GPU / <b>128MB</b> std and max 500MHz DDR-SDRAM / 300MHz RAMDAC / three connectors: analog DB-15, digital DVI-I, S-Video out for TV-out / no dual head support															
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5) / two EIDE connectors on systemboard															
EIDE disk	<i>Model E6U/F1U:</i> <b>120GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts															
EIDE cable(s)	<i>Model E6U/F1U:</i> Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk)															
	<i>Model F8U:</i> One EIDE 80-conductor cable (one 2-drop cable to optical)															
Combo	<i>All except 4CU:</i> 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE / <i>4CU:</i> 48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE/Serial															
SATA controller	ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5 / two SATA connectors on planar												<b>SYSTEMS MANAGEMENT</b>			
SATA disk	<i>Model F8U/G3U/4CU:</i> <b>160GB</b> , SATA150, 7200 rpm, rubber vibration damp mounts															
SATA cables	<i>Model F8U/G3U/4CU:</i> One 1-drop SATA cable (to disk)												<ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul>			
Diskette drive	3.5" 1.44MB diskette drive															
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor															
Ports	<i>Front:</i> two USB (Version 2.0), mic (mono, 3.5mm), headphone (stereo, 3.5mm), IEEE 1394 (4-pin)												<b>SECURITY</b>			
	<i>Back:</i> six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15), two IEEE 1394 (6-pin)															
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec												<ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>			
Audio connectors	<i>Back:</i> microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]															
Speakers	External active speakers / Jazz Infinity® / 2-piece / 3 watts per channel / blk color															
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN®															
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter															
IEEE 1394	FireWire PCI adapter / 1394A, 400Mbps, dual 6-pin ports on rear, 4-pin port on front of system, no external cables included															
Security chip	None															
Keyboard	IBM Rapid Access™ IIIe Keyboard (USB / no USB hub or ports)												<b>LIMITED WARRANTY<sup>1</sup></b>			
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black															
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)												<ul style="list-style-type: none"> <li>3 year parts / 1 year labor</li> <li>International Warranty Service<sup>9</sup></li> <li>1st year: limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>9</sup></li> <li>2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</li> <li>Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>3 year IOR 9x5, Next Business Day (ServicePac® part number 30L9199)</li> <li>3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)</li> <li>3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)</li> <li>4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)</li> <li>4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)</li> <li>4 year IOR 24x7, 4 hour response (ServicePac part number 69P9160)</li> </ul> </li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>			
Power supply	230 watts with variable speed fan / universal / manual switch															
<b>Preload with Windows XP Home<sup>5</sup></b>	<b>Accessories</b>															
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM										31P8854					
- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM										31P8855					
	512MB PC2700 CL2.5 NP DDR UDIMM										31P8856					
<b>Preloaded</b> (only some listed)	1GB PC2700 CL2.5 NP DDR UDIMM										31P8857					
• Access IBM	80GB IDE Disk ATA-100 (7200 rpm)										09N4248					
• Access Support	120GB IDE Disk ATA-100 (7200 rpm)										09N4249					
• IBM Rapid Restore™ Ultra	160GB Serial ATA150 Disk (7200 rpm)										09N4254					
• Update Connector™.15	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)										22P7042					
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM															
• Norton AntiVirus (OEM Version)	Combo drive (black)										73P3300					
• InterVideo WinDVD	IBM Multi-Burner Plus internal (black) <sup>6</sup>										73P3305					
• RecordNow and DLA	IBM 256MB USB 2.0 Memory Key										22P9025					
<b>Downloadable</b>	IBM NVIDIA Quadro4 200NVS Dual Head										33L3543					
• Software Delivery Assistant	IBM ThinkVision L170 17" Monitor (black)										6734AB0					
• System Migration Assistant	IBM ThinkVision L200p 20.1" Monitor (blk)										6736HB0					
	IBM ThinkVision C170 17" (16.0" vis) (blk)										673766N					
	IBM ThinkVision C190 19" (18.0" vis) (blk)										673960N					
<b>License</b> - CD not included (all)	Belkin® 800VA UPS with AVR technology										31P7662					
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	IBM High Rate Wireless LAN PCI Adapter										22P6901					
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>															

See footnotes for important warranty information  
US models announced May 21 and September 16, 2003, or February 10, 2004  
US models withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>8</sup>	EIDE disk	EIDE Optical	Graphics	Modem adapter	Mouse	Preload	Workhorse, Global, Entry	Available date
A50p	8195-A1U	4x5	Pentium® 4	2.4	512KB	533		128MB	40GB <sup>2</sup>	CD	Extreme™ 2	Modem	2 btn	XP Home <sup>5</sup>	No	May 2003
A50p	8195-A2U	4x5	Pentium 4	2.4	512KB	533		128MB	40GB	CD-RW	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-A4U	4x5	Pentium 4	2.4C	512KB	800	HT	128MB	40GB	CD	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-A5U	4x5	Pentium 4	2.4C	512KB	800	HT	128MB	80GB	CD-RW	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-B4U	4x5	Pentium 4	2.53	512KB	533		128MB	40GB	CD	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-B5U	4x5	Pentium 4	2.53	512KB	533		128MB	80GB	CD-RW	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-D2U	4x5	Pentium 4	2.6C	512KB	800	HT	128MB	40GB	CD	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-D8U	4x5	Pentium 4	2.6C	512KB	800	HT	256MB	80GB	CD-RW	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-D4U	4x5	Pentium 4	2.66	512KB	533		128MB	40GB	CD	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-D5U	4x5	Pentium 4	2.66	512KB	533		128MB	80GB	CD-RW	Extreme 2	Modem	Optical	XP Home	No	May 2003
A50p	8195-D6U	4x5	Pentium 4	2.66	512KB	533		256MB	80GB	Combo	MX 440 64MB	Modem	Optical	XP Home	No	May 2003
A50p	8195-A8U	4x5	Pentium 4	2.4	512KB	533		128MB	80GB	CD-RW	Extreme 2	Modem	Optical	XP Home	No	Sep 2003
A50p	8195-23U	4x5	Pentium 4	2.6C	512KB	800	HT	256MB	80GB	Combo	MX 440 64MB	Modem	Optical	XP Home	No	Sep 2003

Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Pentium 4 at 2.4, 2.53, 2.6 or 2.66GHz</b> with 533 or 800MHz system bus / <i>some:</i> Hyper-Threading (HT) technology											<b>Tower</b>	
L2 cache Implementation	512KB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket											<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0"D X 16.3"H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>	
Memory - std/max <sup>8</sup>	128 or 256MB std / 4GB max												
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used											<ul style="list-style-type: none"> <li>Bay ① 5.25", HH 1.6", access, std optical</li> <li>Bay ② 5.25", HH 1.6" access, open</li> <li>Bay ③ 3.5", SL 1", access, open</li> <li>Bay ④ 3.5", SL 1", access, std diskette</li> <li>Bay ⑤ 3.5", SL 1", no access, std disk</li> </ul>	
Memory - type	PC2700 333MHz DDR-SDRAM / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable											<ul style="list-style-type: none"> <li>Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)*</li> <li>Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) - modem</li> <li>Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)</li> <li>Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)</li> <li>* Used in some models</li> </ul>	
Graphics controller (one of following)	<ul style="list-style-type: none"> <li>Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector</li> <li>NVIDIA® GeForce4 MX 440 / AGP 8X adapter / GeForce4 MX GPU / 64MB std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector</li> </ul>											<p><b>SYSTEMS MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul>	
EIDE disk	40 or 80GB, ATA-100, 7200 rpm, rubber vibration dampening mounts												
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)												
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard												
CD	<i>Some:</i> 48X/20X <sup>4</sup> CD-ROM / EIDE												
CD-RW (EIDE)	<i>Some:</i> 48X/24X/48X Max <sup>4</sup> CD-RW; A8U: 48X/32X/48X Max <sup>4</sup> CD-RW												
Combo	<i>Some:</i> 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE												
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in I/O Controller Hub (ICH5)												
SATA cables	No SATA cables / two SATA connectors on systemboard												
Diskette drive	3.5" 1.44MB diskette drive												
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor												
Ports	<p>Front: two USB (Version 2.0)</p> <p>Front (A8U/23U): mic (mono, 3.5mm), headphone (stereo, 3.5mm)</p> <p>Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)</p>												
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec												
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]												
Speakers	External active speakers / Jazz Infinity® / 2-piece / 3 watts per channel / blk color												
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / Wake on LAN®												
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter												
Security chip	None												
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black												
Mouse	<p><i>Some:</i> IBM Std 2-Button PS/2 Mouse (6-pin PS/2 connector), black</p> <p><i>Some:</i> IBM Optical Wheel Mouse (USB only), 400 dpi, black</p>												
Cooling fans	Two variable speed fans (power supply and fansink)												
Power supply	230 watts with variable speed fan / universal / manual switch												

<b>Preload with Windows XP Home<sup>5</sup></b>	<b>Accessories</b>	
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854
<b>Preloaded (all)</b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855
• Access IBM	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856
• IBM Rapid Restore™ Ultra	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857
• Update Connector™ <sup>15</sup>	80GB IDE Disk ATA-100 (7200 rpm)	09N4248
• PC-Doctor™ (diagnostics)	120GB IDE Disk ATA-100 (7200 rpm)	09N4249
• Norton AntiVirus (OEM Version)	160GB Serial ATA150 Disk (7200 rpm)	09N4254
• InterVideo WinDVD (combo models)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)	22P7042
• RecordNow and DLA (CD-RW, combo)	48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM	
- Disk-to-Disk Recovery (in hidden protected area)	Combo drive (black)	22P7031
<b>Downloadable (all)</b>	IBM Multi-Burner Plus internal (black)	22P7036
• System Migration Assistant	IBM NVIDIA Quadro4 200NVS Dual Head	33L3543
<b>License</b> - CD not included (all)	IBM ThinkVision L170 17" Monitor (black)	6734AB0
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N
	IBM High Rate Wireless LAN PCI Adapter	22P6901
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>	
	<p><b>LIMITED WARRANTY<sup>1</sup></b></p> <ul style="list-style-type: none"> <li>1 year parts and labor</li> <li>International Warranty Service<sup>9</sup></li> <li>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup></li> <li>Onsite service upgrade options (in eligible locations)<sup>7</sup>: <ul style="list-style-type: none"> <li>1 year 9x5 4 hour response (ServicePac® part number 54P1858)</li> <li>2 year 9x5 Next Business Day (ServicePac part number 54P1859)</li> <li>2 year 9x5 4 hour response (ServicePac part number 54P1860)</li> <li>3 year 9x5 Next Business Day (ServicePac part number 54P1861)</li> <li>3 year 9x5 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>	

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>3</sup>	EIDE disk	EIDE Optical	Graphics	Modem	Ethernet	Preload	Available date
A50p	8195-E1U	4x5	Pentium® 4	2.8	512KB	533		128MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	Modem	10/100 XP Home <sup>5</sup>		May 2003
A50p	8195-E2U	4x5	Pentium 4	2.8	512KB	533		128MB	80GB	CD-RW	Extreme 2 GMCH	Modem	10/100 XP Home		May 2003
A50p	8195-E4U	4x5	Pentium 4	2.8C	512KB	800	HT	128MB	40GB	CD	Extreme 2 GMCH	Modem	10/100 XP Home		May 2003
A50p	8195-F1U	4x5	Pentium 4	3.0	512KB	800	HT	256MB	40GB	CD	Extreme 2 GMCH	Modem	10/100 XP Home		May 2003
A50p	8195-F2U	4x5	Pentium 4	3.06	512KB	533	HT	128MB	40GB	CD	Extreme 2 GMCH	Modem	10/100 XP Home		May 2003
A50p	8195-F3U	4x5	Pentium 4	3.06	512KB	533	HT	128MB	80GB	CD-RW	Extreme 2 GMCH	Modem	10/100 XP Home		May 2003

Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Pentium 4 at 2.8, 3.0 or 3.06GHz</b> with 533 or 800MHz system bus / <i>some:</i> Hyper-Threading (HT) technology										<b>Tower</b>				
L2 cache Implementation	512KB std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket										<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0" D X 16.3" H</li> <li>191 mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>				
Memory - std/max <sup>8</sup>	128 or 256MB std / 4GB max										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk				
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used										Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v) Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) - modem Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)				
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable														
Graphics controller	Integrated Intel Extreme™ Graphics 2 / Direct AGP / (one of following) in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector														
EIDE disk	40 or 80GB, ATA-100, 7200 rpm, rubber vibration dampening mounts														
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)														
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard														
CD	<i>Some:</i> 48X/20X <sup>4</sup> CD-ROM / EIDE														
CD-RW	<i>Some:</i> 48X/24X/48X Max <sup>4</sup> CD-RW / EIDE														
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5														
SATA cables	No SATA cables / two SATA connectors on systemboard														
Diskette drive	3.5" 1.44MB diskette drive														
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC <sup>®</sup> LPC47M233										<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul>				
Ports	Front: two USB (Version 2.0) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										<b>SECURITY</b> <ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>				
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec														
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]														
Speakers	External active speakers / Jazz Infinity® / 2-piece / 3 watts per channel / blk color														
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562EX PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3														
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter														
Security chip	None														
Keyboard	<i>Some:</i> 104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black														
Mouse	Model F3U: IBM Rapid Access™ IIe Keyboard (USB / no USB hub or ports)														
Cooling fans	IBM Optical Wheel Mouse (USB only), 400 dpi, black														
Power supply	Two or three variable speed fans (power supply, fansink, 3.0GHz have third fan)														
	230 watts with variable speed fan / universal / manual switch														
<b>Preload with Windows XP Home<sup>5</sup></b>			<b>Accessories</b>												
Microsoft® Windows® XP Home Edition			128MB PC2700 CL2.5 NP DDR UDIMM										31P8854		
- Disk-to-Disk Recovery (in hidden protected area)			256MB PC2700 CL2.5 NP DDR UDIMM										31P8855		
			512MB PC2700 CL2.5 NP DDR UDIMM										31P8856		
<b>Preloaded</b>			1GB PC2700 CL2.5 NP DDR UDIMM										31P8857		
• Access IBM			80GB IDE Disk ATA-100 (7200 rpm)										09N4248		
• Access Support			120GB IDE Disk ATA-100 (7200 rpm)										09N4249		
• IBM Rapid Restore™ Ultra			80GB Serial ATA 150 Disk (7200 rpm)										09N4253		
• Update Connector™ <sup>15</sup>			160GB Serial ATA150 Disk (7200 rpm)										09N4254		
• Adobe Acrobat Reader			48X/32X/48X Max <sup>4</sup> CD-RW internal (black)										22P7042		
• PC-Doctor™ (diagnostics)			48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM										73P3300		
• Norton AntiVirus (OEM Version)			Combo drive (black)										73P3305		
• RecordNow and DLA (CD-RW, combo)			IBM Multi-Burner Plus internal (black) <sup>6</sup>										22P7196		
<b>Downloadable</b>			IBM USB 2.0 Portable 40GB Hard Disk										22P7099		
• Software Delivery Assistant			Iomega® Zip 750MB USB 2.0 Ext Drive										22P9025		
• System Migration Assistant			IBM 256MB USB 2.0 Memory Key										33L3543		
<b>License</b> - CD not included			IBM ThinkVision L170 17" Monitor (black)										6734AB0		
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)			IBM ThinkVision L170p 17" Monitor (black)										6734HB0		
			IBM ThinkVision L200p 20.1" Monitor (blk)										6736HB0		
			IBM ThinkVision C170 17" (16.0" vis) (blk)										673766N		
			IBM ThinkVision C190 19" (18.0" vis) (blk)										673960N		
			IBM Enhanced Performance USB Keybrd										73P2620		
			Kensington® MicroSaver® Desktop Lock										06P3839		
			Belkin® 800VA UPS with AVR technology										31P7662		
			IBM High Rate Wireless LAN PCI Adapter										22P6901		
			Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>												
<b>LIMITED WARRANTY<sup>1</sup></b>															
<ul style="list-style-type: none"> <li>1 year parts and labor</li> <li>International Warranty Service<sup>9</sup></li> <li>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>1 year 9x5 4 hour response (ServicePac® part number 54P1858)</li> <li>2 year 9x5 Next Business Day (ServicePac part number 54P1859)</li> <li>2 year 9x5 4 hour response (ServicePac part number 54P1860)</li> <li>3 year 9x5 Next Business Day (ServicePac part number 54P1861)</li> <li>3 year 9x5 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>															

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

Name	Type-model	Slot x bay	Processor	GHz	Bus Hyper-MHz	Thread	Memory <sup>a</sup>	Disk	Disk interface	EIDE Optical	Graphics	Modem adapter	Ethernet	Preload	Workhorse, Global, Entry	Available date
<b>A50p</b>	8195-E3U	4x5	Pentium® 4	2.8	533		256MB	80GB <sup>2</sup>	EIDE	Combo	MX 440 64MB	Modem	10/100	XP Home <sup>5</sup>	No	May 2003
<b>A50p</b>	8195-E9U	4x5	Pentium 4	2.8C	800	HT	256MB	80GB	EIDE	Combo	MX 440 64MB	Modem	10/100	XP Home	No	May 2003
<b>A50p</b>	8195-F5U	4x5	Pentium 4	3.0	800	HT	256MB	80GB	EIDE	Combo	MX 440 64MB	Modem	10/100	XP Home	No	May 2003
<b>A50p</b>	8195-F4U	4x5	Pentium 4	3.06	533	HT	256MB	80GB	EIDE	Combo	MX 440 64MB	Modem	10/100	XP Home	No	May 2003
<b>A50p</b>	8195-G1U	4x5	Pentium 4	3.2	800	HT	256MB	80GB	SATA	Combo	Radeon 9600	Modem	10/100	XP Home	No	Sep 2003

Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Pentium 4 at 2.8, 3.0, 3.06 or 3.2GHz</b> with 533 or 800MHz system bus		
Hyper-Threading L2 cache Implementation	<i>Some</i> : Hyper-Threading (HT) technology <b>512KB</b> std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket		
Memory - std/max <sup>6</sup>	<b>256MB std</b> / 4GB max		
Memory	Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable		
Graphics controller (one of following)	<ul style="list-style-type: none"> <li><b>NVIDIA® GeForce4 MX 440</b> / AGP 8X adapter / GeForce4 MX GPU / <b>64MB</b> std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector</li> <li><b>ATI® Radeon 9600</b> / AGP 8X adapter / Radeon GPU / <b>128MB</b> std and max 500MHz DDR-SDRAM / 300MHz RAMDAC / three connectors: analog DB-15, digital DVI-I, S-Video out for TV-out / no dual head support</li> </ul>		
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5) / two EIDE connectors on systemboard		
EIDE disk	<i>Some</i> : <b>80GB</b> , ATA-100, 7200 rpm, rubber vibration dampen mounts		
EIDE cables	<i>EIDE models</i> : Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) <i>Model G1U</i> : One EIDE 80-conductor cable (one 2-drop cable to optical)		
Combo SATA controller	48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5 / two SATA connectors on systemboard		
SATA disk	<i>Model G1U</i> : 80GB, SATA150, 7200 rpm, rubber vibration dampening mounts		
SATA cables	<i>Model G1U</i> : One 1-drop SATA cable (to disk)		
Diskette drive	3.5" 1.44MB diskette drive		
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / <b>SMSC® LPC47M233</b> Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor		
Ports	<i>Front</i> : two USB (Version 2.0) <i>Front (E9U/F5U/F4U/G1U)</i> : microphone (mono, 3.5mm), headphone (stereo, 3.5mm) <i>Back</i> : six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)		
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec		
Audio connectors	<i>Back</i> : microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]		
Speakers	External active speakers / Jazz Infinity® / 2-piece / 3 watts per channel / blk color		
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / Wake on LAN®		
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter		
Security chip	None		
Keyboard	IBM Rapid Access™ IIIe Keyboard (USB / no USB hub or ports)		
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black		
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)		
Power supply	230 watts with variable speed fan / universal / manual switch		
<b>Preload with Windows XP Home<sup>5</sup></b>	<b>Accessories</b>		
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854	
- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855	
	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856	
<b>Preloaded</b> (only some listed)	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857	
• Access IBM	80GB IDE Disk ATA-100 (7200 rpm)	09N4248	
• Access Support	120GB IDE Disk ATA-100 (7200 rpm)	09N4249	
• IBM Rapid Restore™ Ultra	160GB Serial ATA150 Disk (7200 rpm)	09N4254	
• Update Connector™.15	48X/32X/48X Max <sup>11</sup> CD-RW internal (black)	22P7042	
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)	73P3300	
• Norton AntiVirus (OEM Version)	IBM Multi-Burner Plus internal (black) <sup>6</sup>	73P3305	
• InterVideo WinDVD	IBM USB 2.0 Portable 40GB Hard Disk	22P7196	
• RecordNow and DLA	IBM 256MB USB 2.0 Memory Key	22P9025	
<b>Downloadable</b>	IBM NVIDIA Quadro4 200NVS Dual Head	33L3543	
• Software Delivery Assistant	IBM ThinkVision L150 15" Monitor (black)	6636AB1	
• System Migration Assistant	IBM ThinkVision L170p 17" Monitor (black)	6734HB0	
<b>License</b> - CD not included	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0	
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client (Notes client not supported on XP Home)	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N	
	Belkin® 800VA UPS with AVR technology	31P7662	
	IBM High Rate Wireless LAN PCI Adapter	22P6901	
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>		

<b>Tower</b>	
<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0"D X 16.3"H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>	
Bay ①	5.25", HH 1.6", access, std optical
Bay ②	5.25", HH 1.6", access, open
Bay ③	3.5", SL 1", access, open
Bay ④	3.5", SL 1", access, std diskette
Bay ⑤	3.5", SL 1", no access, std disk
Slot 1:	3/4-length, full-height, 32-bit AGP 8X (1.5v)-graphics
Slot 2:	3/4-length, full-height, 32-bit PCI 2.3 (5v) - modem
Slot 3:	3/4-length, full-height, 32-bit PCI 2.3 (5v)
Slot 4:	3/4-length, full-height, 32-bit PCI 2.3 (5v)

<b>SYSTEMS MANAGEMENT</b>	
<ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul>	
<b>SECURITY</b>	
<ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>	
<b>LIMITED WARRANTY<sup>1</sup></b>	
<ul style="list-style-type: none"> <li>1 year parts and labor</li> <li>International Warranty Service<sup>9</sup></li> <li>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>Onsite service upgrade options (in eligible locations)<sup>7</sup>:             <ul style="list-style-type: none"> <li>1 year 9x5 4 hour response (ServicePac® part number 54P1858)</li> <li>2 year 9x5 Next Business Day (ServicePac part number 54P1859)</li> <li>2 year 9x5 4 hour response (ServicePac part number 54P1860)</li> <li>3 year 9x5 Next Business Day (ServicePac part number 54P1861)</li> <li>3 year 9x5 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>Post-warranty annual maintenance agreements at <a href="http://ibm.com/services/its/us/source/maspspleu.pdf">ibm.com/services/its/us/source/maspspleu.pdf</a></li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>	

See footnotes for important warranty information  
US models announced May 21 or September 16, 2003  
US models withdrawn effective August 2003 or August 2004

Name	Type-model	Slot x bay	Processor	L2 cache	Bus MHz	Hyper-Thread	EIDE Memory <sup>8</sup>	EIDE Disk	EIDE Optical	Second Optical	Graphics	Modem and speakers	Preload	Workhorse, Global, Entry	Avail date
A50p	8195-26U	4x5	Pentium® 4 2.6C	512K	800	HT	256MB	80GB <sup>2</sup>	CD-RW	DVD	Extreme™ 2	Mod/spkrs	XP Home <sup>5</sup>	No	Nov 2003
A50p	8195-33U	4x5	Pentium 4 2.8C	512K	800	HT	256MB	120GB	DVD±RW <sup>6</sup>	DVD	MX 440 64MB	Mod/spkrs	XP Home	No	Nov 2003
A50p	8195-35U	4x5	Pentium 4 2.8E	1MB	800	HT	256MB	40GB	CD-RW		Extreme 2	Mod/spkrs	XP Home	No	Feb 2004
A50p	8195-36U	4x5	Pentium 4 2.8E	1MB	800	HT	256MB	80GB	CD-RW	DVD	Extreme 2	Mod/spkrs	XP Home	No	Feb 2004
A50p	8195-45U	4x5	Pentium 4 3.0E	512K	533	HT	256MB	40GB	CD		Extreme 2	Mod/spkrs	XP Home	No	Feb 2004
A50p	8195-47U	4x5	Pentium 4 3.0E	1MB	800	HT	256MB	40GB	CD-RW		Extreme 2	Mod/spkrs	XP Home	No	Feb 2004
A50p	8195-48U	4x5	Pentium 4 3.0E	1MB	800	HT	256MB	80GB	Combo		MX 440 64MB	Mod/spkrs	XP Home	No	Feb 2004
Positioning Processor	Great technology and affordable prices <b>Intel® Pentium 4 at 2.6, 2.8, 3.0, or 3.06GHz</b> with 533 or 800MHz system bus										<b>Tower</b>				
Hyper-Threading L2 cache Implementation	Hyper-Threading (HT) technology <b>512KB or 1MB</b> std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket										<ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0"D X 16.3"H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>				
Memory - std/max <sup>8</sup> Memory	<b>256MB std / 4GB max</b> Four 184-pin gold plated DIMM sockets / one socket used / <b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, std optical Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk				
Graphics controller (one of following)	<ul style="list-style-type: none"> <li><b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector</li> <li><b>NVIDIA® GeForce4 MX 440</b> / AGP 8X adapter / GeForce4 MX GPU / <b>64MB</b> std and max 400MHz DDR-SDRAM / 350MHz RAMDAC / one 15-pin analog D-sub connector</li> </ul>										Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)-graphics Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) - modem Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)				
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5) / two EIDE connectors on systemboard										<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul>				
EIDE disk	<b>40, 80 or 120GB</b> , ATA-100, 7200 rpm, rubber vibration damp mounts														
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to opticals, one 2-drop to disk)										<b>SECURITY</b> <ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>				
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE														
DVD	Some: 16X-48X Max <sup>4</sup> DVD-ROM / EIDE														
CD-RW	Some: 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE														
Combo	Some: 48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE														
DVD±RW	Some: DVD and CD burner / Multi-Burner Plus / writes DVD-RAM, DVD-R, DVD-RW, DVD+R, DVD+RW, CD-R, CD-RW / reads many DVD and CD formats / EIDE														
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5 /										<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>1 year parts and labor</li> <li>International Warranty Service<sup>9</sup></li> <li>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>Onsite service upgrade options (in eligible locations)<sup>7</sup>:                             <ul style="list-style-type: none"> <li>1 year 9x5 4 hour response (ServicePac<sup>®</sup> part number 54P1858)</li> <li>2 year 9x5 Next Business Day (ServicePac part number 54P1859)</li> <li>2 year 9x5 4 hour response (ServicePac part number 54P1860)</li> <li>3 year 9x5 Next Business Day (ServicePac part number 54P1861)</li> <li>3 year 9x5 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>Post-warranty annual maintenance agreements at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup> via 800-IBM-SERV (426-7378)</li> </ul>				
SATA cables	No SATA cables / two SATA connectors on systemboard														
Diskette drive	3.5" 1.44MB diskette drive														
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor														
Ports	Front: two USB (Version 2.0) Front: microphone (mono, 3.5mm), headphone (stereo, 3.5mm) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)														
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec														
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]														
Speakers	External active speakers / Jazz Infinity® / 2-piece / 3 watts per channel / blk color														
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / PXE / Wake on LAN®														
Modem	56K <sup>10</sup> V.90 data/fax soft modem / Conexant® chipset / PCI adapter														
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black														
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black														
Cooling fans	Two or three variable speed fans (power supply, fansink, 3.0GHz+ have third fan)														
Power supply	230 watts with variable speed fan / universal / manual switch														
<b>Preload with Windows XP Home<sup>5</sup></b>	<b>Accessories</b>														
Microsoft® Windows® XP Home Edition	128MB PC2700 CL2.5 NP DDR UDIMM			31P8854											
- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM			31P8855											
	512MB PC2700 CL2.5 NP DDR UDIMM			31P8856											
<b>Preloaded</b> (only some listed)	1GB PC2700 CL2.5 NP DDR UDIMM			31P8857											
• Access IBM and Access Support	80GB IDE Disk ATA-100 (7200 rpm)			09N4248											
• IBM Rapid Restore™ Ultra	120GB IDE Disk ATA-100 (7200 rpm)			09N4249											
• Update Connector™ <sup>15</sup>	160GB Serial ATA150 Disk (7200 rpm)			09N4254											
• PC-Doctor™ (diagnostics)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)			22P7042											
• Norton AntiVirus (OEM Version)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)			73P3300											
• InterVideo WinDVD (Combo, DVD)	IBM Multi-Burner Plus internal (black) <sup>6</sup>			73P3305											
• InterVideo WinDVD Creator (Multi-Burner)	IBM 256MB USB 2.0 Memory Key			22P9025											
• IBM Simple Backup (for Multi-Burner)	IBM NVIDIA Quadro4 200NV5 Dual Head			33L3543											
• IBM RecordNow and DLA (CD-RW, combo)	IBM ThinkVision L150 15" Monitor (black)			6636AB1											
<b>Downloadable</b>	IBM ThinkVision L170p 17" Monitor (black)			6734HB0											
• Software Delivery Assistant	IBM ThinkVision L200p 20.1" Monitor (blk)			6736HB0											
• System Migration Assistant	IBM ThinkVision C190 19" (18.0" vis) (blk)			673960N											
	Belkin® 800VA UPS with AVR technology			31P7662											
	IBM High Rate Wireless LAN PCI Adapter			22P6901											
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>														

See footnotes for important warranty information  
US models announced November 18, 2003 or February 10, 2004  
US models withdrawn effective February or August 2004

Name	Type-model	Slot x bay	Processor	GHz	Bus Hyper-Thread	EIDE Memory <sup>8</sup>	EIDE disk	EIDE optical	Graphics	Audio front Ethernet panel	Limited Preload warranty	Workhorse Global, Entry date	Avail date	
A50p	8432-91U	4x5	Pentium® 4	2.4	533	256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	10/100	XP Pro <sup>5</sup>	3 yr	No Jun 2003	
A50p	8432-92U	4x5	Pentium 4	2.4	533	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	3 yr	No Jun 2003	
A50p	8432-93U	4x5	Pentium 4	2.4C	800	HT	256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	3 yr	No Jun 2003
A50p	8432-94U	4x5	Pentium 4	2.6C	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	3 yr	No Jun 2003
A50p	8432-95U	4x5	Pentium 4	2.66	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	3 yr	No Jun 2003
A50p	8432-96U	4x5	Pentium 4	2.66	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	3 yr	No Jun 2003
A50p	8432-97U	4x5	Pentium 4	2.8	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	3 yr	No Jun 2003
A50p	8432-98U	4x5	Pentium 4	2.8C	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	3 yr	No Jun 2003
A50p	8432-99U	4x5	Pentium 4	2.4C	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	Yes XP Pro	3 yr	No Sep 2003
A50p	8432-9AU	4x5	Pentium 4	2.8C	800	HT	256MB	80GB	Combo	Extreme 2 GMCH	10/100	Yes XP Pro	3 yr	No Sep 2003

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

Positioning	Great technology and affordable prices		<b>Tower</b> <ul style="list-style-type: none"> <li>Business black color; 31.4 liters</li> <li>7.5" W X 16.0" D X 16.3" H</li> <li>191mm W X 406mm D X 413mm H</li> <li>20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>Handle on top front</li> <li>Disk bay pivots forward</li> <li>Toolless rails for disk mounting</li> <li>Toolless cover removal</li> <li>Toolless AGP and PCI slots</li> </ul>	
Processor	<b>Intel® Pentium 4 at 2.4, 2.6, 2.66, or 2.8GHz</b> with 533 or 800MHz system bus / some: Hyper-Threading (HT) technology			
L2 cache	512KB std and max / ECC / full speed			
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket			
Memory - std/max <sup>8</sup>	256MB std / 4GB max			
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used			
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable			
Graphics controller	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector			
EIDE disk	40 or 80GB, ATA-100, 7200 rpm, rubber vibration dampening mounts		Bay ① 5.25", HH 1.6", access, std optical	
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)		Bay ② 5.25", HH 1.6", access, open	
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard		Bay ③ 3.5", SL 1", access, open	
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE		Bay ④ 3.5", SL 1", access, std diskette	
CD-RW (EIDE)	Some: 48X/24X/48X Max <sup>4</sup> CD-RW; 99U: 48X/32X/48X Max <sup>4</sup> CD-RW		Bay ⑤ 3.5", SL 1", no access, std disk	
Combo	Some: 48X/24X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo / EIDE		Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v)	
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5		Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v)	
SATA cables	No SATA cables / two SATA connectors on systemboard		Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v)	
Diskette drive	3.5" 1.44MB diskette drive		Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)	
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC <sup>®</sup> LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor		<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>PC 2001-compliant</li> <li>Advanced Power Management 1.2</li> <li>Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>SMBIOS 2.3.1-compliant</li> <li>DMI 2.0-compliant</li> </ul>	
Ports	Front: two USB (Version 2.0) Front (99U/9AU): mic (mono, 3.5mm), headphone (stereo, 3.5mm) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)		<b>SECURITY</b> <ul style="list-style-type: none"> <li>U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>Security slot (for attachment of optional cable lock)</li> <li>Power-on password</li> <li>Administrator password</li> <li>Boot sequence control</li> <li>Diskette boot inhibit</li> <li>Boot without keyboard or mouse</li> <li>Diskette and disk I/O control</li> <li>Serial/parallel I/O control</li> </ul>	
Audio	Integrated digital audio / SoundMAX <sup>®</sup> Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec			
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]			
Beeper	One internal beeper			
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports Wake on LAN <sup>®</sup>			
Security chip	None			
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black			
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black			
Cooling fans	Two variable speed fans (power supply and fansink)			
Power supply	230 watts with variable speed fan / universal / manual switch			
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>		<b>LIMITED WARRANTY<sup>1</sup></b>	
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM	31P8854	<ul style="list-style-type: none"> <li>3 year parts / 1 year labor</li> <li>International Warranty Service<sup>9</sup></li> <li>1st year: limited onsite service, 8 am to 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup></li> <li>2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</li> <li>Onsite service upgrade options (in eligible locations):<sup>7</sup> <ul style="list-style-type: none"> <li>3 year IOR 9x5, Next Business Day (ServicePac<sup>®</sup> part number 30L9199)</li> <li>3 year IOR 9x5, 4 hour response (ServicePac part number 41L2732)</li> <li>3 year IOR 24x7, 4 hour response (ServicePac part number 31L2724)</li> <li>4 year IOR 9x5, Next Business Day (ServicePac part number 69P9158)</li> <li>4 year IOR 9x5, 4 hour response (ServicePac part number 69P9159)</li> <li>4 year IOR 24x7, 4 hour response (ServicePac part number 69P9160)</li> </ul> </li> <li>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>	
<b>Preloaded</b>	256MB PC2700 CL2.5 NP DDR UDIMM	31P8855		
• Access IBM	512MB PC2700 CL2.5 NP DDR UDIMM	31P8856		
• Access Support	1GB PC2700 CL2.5 NP DDR UDIMM	31P8857		
• IBM Rapid Restore™ Ultra	80GB IDE Disk ATA-100 (7200 rpm)	09N4248		
• Update Connector™.15	120GB IDE Disk ATA-100 (7200 rpm)	09N4249		
• Adobe Acrobat Reader	160GB Serial ATA150 Disk (7200 rpm)	09N4254		
• PC-Doctor™ (diagnostics)	48X/32X/48X Max <sup>4</sup> CD-RW internal (black) 22P7042			
• Norton AntiVirus (OEM Version)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM			
• InterVideo WinDVD (DVD models)	Combo drive (black)	73P3300		
• RecordNow and DLA (CD-RW, combo models)	IBM Multi-Burner Plus internal (black) <sup>6</sup>	73P3305		
- Disk-to-Disk Recovery (in hidden protected area)	IBM USB 2.0 Portable 40GB Hard Disk	22P7196		
<b>Downloadable</b>	IBM 256MB USB 2.0 Memory Key	22P9025		
• Software Delivery Assistant	IBM NVIDIA Quadro4 200NVS Dual Head	33L3543		
• System Migration Assistant	IBM ThinkVision L150p 15" Monitor (black)	6636HB1		
• IBM Director Agent	IBM ThinkVision L170p 17" Monitor (black)	6734HB0		
<b>License</b> - CD not included	IBM ThinkVision L200p 20.1" Monitor (blk)	6736HB0		
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision C170 17" (16.0" vis) (blk)	673766N		
	IBM ThinkVision C190 19" (18.0" vis) (blk)	673960N		
	IBM 500 Uninterrupt Power Supp (flat pack)	33L3477		
	Belkin® 800VA UPS with AVR technology	31P7662		
	IBM High Rate Wireless LAN PCI Adapter	22P6901		
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>			

See footnotes for important warranty information  
US models announced June 17 or September 16, 2003  
US models withdrawn effective October 2003, December 2003, February 2004, or August 2004



Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Memory <sup>a</sup>	EIDE disk	EIDE optical	Graphics	Audio front Ethernet panel	Limited Preload warranty	Workhorse Global, Entry date	Avail date	
A50p	8432-9BU	4x5	Pentium® 4	2.8E	1MB	800	HT	256MB	40GB <sup>2</sup>	CD	Extreme™ 2	10/100 Yes	XP Pro <sup>5</sup>	3 yr	No	Feb 2004
A50p	8432-9CU	4x5	Pentium 4	2.8E	1MB	800	HT	256MB	40GB	CD-RW	Extreme 2	10/100 Yes	XP Pro	3 yr	No	Feb 2004
A50p	8432-9DU	4x5	Pentium 4	3.0E	512KB	533	HT	256MB	40GB	CD	Extreme 2	10/100 Yes	XP Pro	3 yr	No	Feb 2004
A50p	8432-9EU	4x5	Pentium 4	3.0E	1MB	800	HT	256MB	40GB	CD-RW	Extreme 2	10/100 Yes	XP Pro	3 yr	No	Feb 2004

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

Positioning Processor	Great technology and affordable prices <b>Intel® Pentium 4 at 2.8, 3.0, or 3.06GHz</b> with 533 or 800MHz system bus / Hyper-Threading (HT) technology										<b>Tower</b>				
L2 cache Implementation	<b>512KB</b> or <b>1MB</b> std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket										<ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul>				
Memory - std/max <sup>8</sup>	<b>256MB std</b> / 4GB max														
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used														
Memory - type	<b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable														
Graphics controller	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector														
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts										Bay ① 5.25", HH 1.6", access, std optical Bay ② 5.25", HH 1.6", access, open Bay ③ 3.5", SL 1", access, open Bay ④ 3.5", SL 1", access, std diskette Bay ⑤ 3.5", SL 1", no access, std disk  Slot 1: 3/4-length, full-height, 32-bit AGP 8X (1.5v) Slot 2: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 3: 3/4-length, full-height, 32-bit PCI 2.3 (5v) Slot 4: 3/4-length, full-height, 32-bit PCI 2.3 (5v)				
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)														
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard														
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE														
CD-RW	Some: 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE														
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5														
SATA cables	No SATA cables / two SATA connectors on systemboard														
Diskette drive	3.5" 1.44MB diskette drive														
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMCSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor										<b>SYSTEMS MANAGEMENT</b>				
Ports	Front: two USB (Version 2.0) Front: mic (mono, 3.5mm), headphone (stereo, 3.5mm) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										<ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>				
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec										<b>SECURITY</b>				
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]										<ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>				
Beeper	One internal beeper														
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / PXE / Wake on LAN®														
Security chip	None														
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black														
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black														
Cooling fans	Two variable speed fans (power supply and fansink)														
Power supply	230 watts with variable speed fan / universal / manual switch														
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>										<b>LIMITED WARRANTY<sup>1</sup></b>				
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM										⇨ <b>3 year parts / 1 year labor</b> ⇨ <b>International Warranty Service<sup>9</sup></b> ⇨ <b>1st year: limited onsite service, 8 am to 5 pm, Mon - Fri coverage excl holidays, 2nd business day response time<sup>3</sup></b> ⇨ <b>2nd/3rd year: parts exchange only, call 1-800-IBM-SERV (426-7378)</b> ⇨ <b>Onsite service upgrade options (in eligible locations):<sup>7</sup></b>				
- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM										<ul style="list-style-type: none"> <li>• <b>3 year IOR 9x5, Next Business Day</b> (ServicePac® part number 30L9199)</li> <li>• <b>3 year IOR 9x5, 4 hour response</b> (ServicePac part number 41L2732)</li> <li>• <b>3 year IOR 24x7, 4 hour response</b> (ServicePac part number 31L2724)</li> <li>• <b>4 year IOR 9x5, Next Business Day</b> (ServicePac part number 69P9158)</li> <li>• <b>4 year IOR 9x5, 4 hour response</b> (ServicePac part number 69P9159)</li> <li>• <b>4 year IOR 24x7, 4 hour response</b> (ServicePac part number 69P9160)</li> </ul>				
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM										⇨ <b>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></b>				
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM														
• Access Support	80GB IDE Disk ATA-100 (7200 rpm)														
• IBM Rapid Restore™ Ultra	120GB IDE Disk ATA-100 (7200 rpm)														
• Update Connector™.15	160GB Serial ATA150 Disk (7200 rpm)														
• Adobe Acrobat Reader	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)														
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)														
• Norton AntiVirus (OEM Version)	IBM Multi-Burner Plus internal (black) <sup>6</sup>														
• RecordNow and DLA (CD-RW models)	IBM USB 2.0 Portable 40GB Hard Disk														
<b>Downloadable</b>	IBM 256MB USB 2.0 Memory Key														
• Software Delivery Assistant	IBM NVIDIA Quadro4 200NVs Dual Head														
• System Migration Assistant	IBM ThinkVision L150p 15" Monitor (black)														
• IBM Director Agent	IBM ThinkVision L170p 17" Monitor (black)														
<b>License</b> - CD not included	IBM ThinkVision L200p 20.1" Monitor (blk)														
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision C170 17" (16.0" vis) (blk)														
	IBM ThinkVision C190 19" (18.0" vis) (blk)														
	IBM ThinkVision C220p 22" (20.0" vis) (blk)														
	IBM 500 Uninterrupt Powr Supp (flat pack)														
	Belkin® 800VA UPS with AVR technology														
	IBM High Rate Wireless LAN PCI Adapter														
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>														

See footnotes for important warranty information  
US models announced February 10, 2004  
US models withdrawn effective August 2004

Name	Type-model	Slot x bay	Processor	GHz	Bus Hyper-MHz	Thread	EIDE Memory <sup>5</sup>	EIDE disk	EIDE optical	Graphics	Audio front Ethernet	Limited Preload warranty	Workhorse Global, Entry	Avail date
A50p	8433-91U	4x5	Pentium® 4	2.4	533		256MB	40GB <sup>2</sup>	CD	Extreme™ 2 GMCH	10/100	XP Pro <sup>5</sup>	1 yr	No Jun 2003
A50p	8433-92U	4x5	Pentium 4	2.4	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	1 yr	No Jun 2003
A50p	8433-93U	4x5	Pentium 4	2.4C	800	HT	256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	1 yr	No Jun 2003
A50p	8433-94U	4x5	Pentium 4	2.6C	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	1 yr	No Jun 2003
A50p	8433-95U	4x5	Pentium 4	2.66	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	1 yr	No Jun 2003
A50p	8433-96U	4x5	Pentium 4	2.66	533		256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	1 yr	No Jun 2003
A50p	8433-97U	4x5	Pentium 4	2.8	533		256MB	40GB	CD	Extreme 2 GMCH	10/100	XP Pro	1 yr	No Jun 2003
A50p	8433-98U	4x5	Pentium 4	2.8C	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	XP Pro	1 yr	No Jun 2003
A50p	8433-99U	4x5	Pentium 4	2.4C	800	HT	256MB	40GB	CD-RW	Extreme 2 GMCH	10/100	Yes XP Pro	1 yr	No Sep 2003

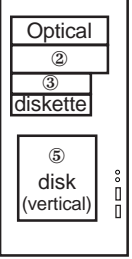
These small and medium business (SMB) models are part of the IBM US ThinkCentre Express Program

Positioning Processor	Great technology and affordable prices <b>Intel® Pentium 4 at 2.4, 2.6, 2.66, or 2.8GHz</b> with 533 or 800MHz system bus / some: Hyper-Threading (HT) technology		<b>Tower</b> <ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul>
L2 cache Implementation	Processor and L2 cache in FC-PGA2 in mPGA478B socket		
Memory - std/max <sup>8</sup>	256MB std / 4GB max		
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used		
Memory - type	PC2700 333MHz DDR1 (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable		
Graphics controller	Integrated Intel Extreme™ Graphics 2 / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector		
EIDE disk	40GB, ATA-100, 7200 rpm, rubber vibration dampening mounts		
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)		
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard		
CD	Some: 48X-20X <sup>4</sup> CD-ROM / EIDE		
CD-RW (EIDE)	Some: 48X/24X/48X Max <sup>4</sup> CD-RW; 99U: 48X/32X/48X Max <sup>4</sup> CD-RW		
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5		
SATA cables	No SATA cables / two SATA connectors on systemboard		
Diskette drive	3.5" 1.44MB diskette drive		
Chipset	Intel 865G chipset / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor		
Ports	Front: two USB (Version 2.0) Front (99U): mic (mono, 3.5mm), headphone (stereo, 3.5mm) Back: six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)		
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec		
Audio connectors	Back: microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]		
Beeper	One internal beeper		
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN®		
Security chip	None		
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black		
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black		
Cooling fans	Two variable speed fans (power supply and fansink)		
Power supply	230 watts with variable speed fan / universal / manual switch		
Preload with Windows XP Professional <sup>5</sup>	Microsoft® Windows® XP Professional		
	- Disk-to-Disk Recovery (in hidden protected area)		
Preloaded	<ul style="list-style-type: none"> <li>• Access IBM</li> <li>• Access Support</li> <li>• IBM Rapid Restore™ Ultra</li> <li>• Update Connector™.15</li> <li>• Adobe Acrobat Reader</li> <li>• PC-Doctor™ (diagnostics)</li> <li>• Norton AntiVirus (OEM Version)</li> <li>• RecordNow and DLA (CD-RW models)</li> </ul>		
Downloadable	<ul style="list-style-type: none"> <li>• Software Delivery Assistant</li> <li>• System Migration Assistant</li> <li>• Remote Deployment Manager</li> <li>• IBM Director Agent</li> </ul>		
License - CD not included	- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client		
Accessories	<ul style="list-style-type: none"> <li>128MB PC2700 CL2.5 NP DDR UDIMM 31P8854</li> <li>256MB PC2700 CL2.5 NP DDR UDIMM 31P8855</li> <li>512MB PC2700 CL2.5 NP DDR UDIMM 31P8856</li> <li>1GB PC2700 CL2.5 NP DDR UDIMM 31P8857</li> <li>80GB IDE Disk ATA-100 (7200 rpm) 09N4248</li> <li>120GB IDE Disk ATA-100 (7200 rpm) 09N4249</li> <li>160GB Serial ATA150 Disk (7200 rpm) 09N4254</li> <li>48X/32X/48X Max<sup>4</sup> CD-RW internal (black) 22P7042</li> <li>48X/32X/48X/16X Max<sup>11</sup> CD-RW/DVD-ROM Combo drive (black) 73P3300</li> <li>IBM Multi-Burner Plus internal (black)<sup>6</sup> 73P3305</li> <li>IBM USB 2.0 Portable 40GB Hard Disk 22P7196</li> <li>lomega® Zip 750MB USB 2.0 Ext Drive 22P7099</li> <li>IBM 256MB USB 2.0 Memory Key 22P9025</li> <li>IBM NVIDIA Quadro4 200NVS Dual Head 33L3543</li> <li>IBM ThinkVision L170 17" Monitor (black) 6734AB0</li> <li>IBM ThinkVision L170p 17" Monitor (black) 6734HB0</li> <li>IBM ThinkVision L200p 20.1" Monitor (blk) 6736HB0</li> <li>IBM ThinkVision C170 17" (16.0" vis) (blk) 673766N</li> <li>IBM ThinkVision C190 19" (18.0" vis) (blk) 673960N</li> <li>IBM 500 Uninterrupt Powr Supp (flat pack) 33L3477</li> <li>Belkin® 800VA UPS with AVR technology 31P7662</li> <li>IBM High Rate Wireless LAN PCI Adapter 22P6901</li> </ul>		
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>		
	<b>SYSTEMS MANAGEMENT</b> <ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>		
	<b>SECURITY</b> <ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>		
	<b>LIMITED WARRANTY<sup>1</sup></b> <ul style="list-style-type: none"> <li>↔ 1 year parts and labor</li> <li>↔ International Warranty Service<sup>9</sup></li> <li>↔ Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></li> <li>↔ Onsite service upgrade options (in eligible locations)<sup>7</sup>: <ul style="list-style-type: none"> <li>• 1 year 9x5 4 hour response (ServicePac® part number 54P1858)</li> <li>• 2 year 9x5 Next Business Day (ServicePac part number 54P1859)</li> <li>• 2 year 9x5 4 hour response (ServicePac part number 54P1860)</li> <li>• 3 year 9x5 Next Business Day (ServicePac part number 54P1861)</li> <li>• 3 year 9x5 4 hour response (ServicePac part number 54P1862)</li> </ul> </li> <li>↔ Post-warranty annual maintenance agreements at <a href="http://ibm.com/services/us/its/pdf/maspspleu.pdf">ibm.com/services/us/its/pdf/maspspleu.pdf</a></li> <li>↔ 24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></li> </ul>		

See footnotes for important warranty information  
US models announced on June 17 or September 16, 2003  
US models withdrawn effective October 2003, December 2003, February 2004, or August 2004

Name	Type-model	Slot x bay	Processor	GHz	L2 cache	Bus MHz	Hyper-Thread	Memory <sup>3</sup>	EIDE disk	EIDE optical	Graphics	Audio front Ethernet panel	Limited Preload warranty	Workhorse Global, Entry date	Avail date		
<b>A50p</b>	8433-9BU	4x5	Pentium® 4	2.8E	1MB	800	HT	256MB	40GB <sup>2</sup>	CD	Extreme™ 2	10/100	Yes	XP Pro <sup>5</sup>	1 yr	No	Feb 2004
<b>A50p</b>	8433-9CU	4x5	Pentium 4	2.8E	1MB	800	HT	256MB	40GB	CD-RW	Extreme 2	10/100	Yes	XP Pro	1 yr	No	Feb 2004
<b>A50p</b>	8433-9DU	4x5	Pentium 4	3.0E	512KB	533	HT	256MB	40GB	CD	Extreme 2	10/100	Yes	XP Pro	1 yr	No	Feb 2004
<b>A50p</b>	8433-9EU	4x5	Pentium 4	3.0E	1MB	800	HT	256MB	40GB	CD-RW	Extreme 2	10/100	Yes	XP Pro	1 yr	No	Feb 2004

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

Positioning Processor	<i>Great technology and affordable prices</i> <b>Intel® Pentium 4 at 2.8 3.0, or 3.06GHz</b> with 533 or 800MHz system bus / Hyper-Threading (HT) technology										<b>Tower</b>				
L2 cache Implementation	<b>512KB or 1MB</b> std and max / ECC / full speed Processor and L2 cache in FC-PGA2 in mPGA478B socket										<ul style="list-style-type: none"> <li>• Business black color; 31.4 liters</li> <li>• 7.5" W X 16.0"D X 16.3"H</li> <li>• 191mm W X 406mm D X 413mm H</li> <li>• 20.0 to 22.5 lb (9.1 to 10.2 kg)</li> <li>• Handle on top front</li> <li>• Disk bay pivots forward</li> <li>• Toolless rails for disk mounting</li> <li>• Toolless cover removal</li> <li>• Toolless AGP and PCI slots</li> </ul>				
Memory - std/max <sup>6</sup>	<b>256MB std</b> / 4GB max														
Memory - sockets	Four 184-pin gold plated DIMM sockets / one socket used														
Memory - type	<b>PC2700 333MHz DDR1</b> (DDR-SDRAM) / non-parity / industry std / unbuffered / CAS latency 2.5 (CL2.5) / dual channel capable														
Graphics controller	<b>Integrated Intel Extreme™ Graphics 2</b> / Direct AGP / in 865G GMCH / uses main memory (up to 64MB with 256MB+) / 266MHz / DVMT / one 15-pin analog D-sub connector														
EIDE disk	<b>40GB</b> , ATA-100, 7200 rpm, rubber vibration dampening mounts														
EIDE controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH5)														
EIDE cables	Two EIDE 80-conductor cables (one 2-drop cable to optical, one 2-drop to disk) / two EIDE connectors on systemboard														
CD	<i>Some:</i> 48X-20X <sup>4</sup> CD-ROM / EIDE														
CD-RW	<i>Some:</i> 48X/32X/48X Max <sup>4</sup> CD-RW / EIDE														
SATA controller	Serial ATA 1.0 / 150 MB/sec SATA150 / integrated in ICH5														
SATA cables	No SATA cables / two SATA connectors on systemboard														
Diskette drive	3.5" 1.44MB diskette drive														
Chipset	<b>Intel 865G chipset</b> / 82865G Graphics Memory Controller Hub (GMCH) / 82801EB I/O Controller Hub (ICH5) for PCI 2.3 bus, ATA-100 EIDE, SATA150, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMSC® LPC47M233 Super I/O for diskette, parallel, serial, keyboard, mouse, temperature sensor										<b>SYSTEMS MANAGEMENT</b>				
Ports	<i>Front:</i> two USB (Version 2.0) <i>Front:</i> mic (mono, 3.5mm), headphone (stereo, 3.5mm) <i>Back:</i> six USB (Version 2.0), one 9-pin serial, parallel (25-pin), keyboard (PS/2), mouse (PS/2), ethernet (RJ-45), monitor (DB-15)										<ul style="list-style-type: none"> <li>• PC 2001-compliant</li> <li>• Advanced Power Management 1.2</li> <li>• Advanced Configuration and Power Interface (ACPI) 2.0b</li> <li>• SMBIOS 2.3.1-compliant</li> <li>• DMI 2.0-compliant</li> </ul>				
Audio	Integrated digital audio / SoundMAX® Cadenza / software-based audio (done by processor and ICH5) / AC '97 interface / ADI1981B codec										<b>SECURITY</b>				
Audio connectors	<i>Back:</i> microphone-in (stereo), line-in (stereo), line-out (stereo) [all 3.5mm]										<ul style="list-style-type: none"> <li>• U-bolt anchoring feature (U-bolt is optional; supports optional padlock)</li> <li>• Security slot (for attachment of optional cable lock)</li> <li>• Power-on password</li> <li>• Administrator password</li> <li>• Boot sequence control</li> <li>• Diskette boot inhibit</li> <li>• Boot without keyboard or mouse</li> <li>• Diskette and disk I/O control</li> <li>• Serial/parallel I/O control</li> </ul>				
Beeper	One internal beeper														
Ethernet	10/100 ethernet on planar / ICH5 (MAC layer) with Intel 82562 PHY (physical layer) / Intel Pro/100VE Network Connection / 32-bit PCI 2.3 / supports PXE and Wake on LAN®														
Security chip	None														
Keyboard	104-key IBM Preferred Pro Full-size keyboard (6-pin PS/2 connector), black														
Mouse	IBM Optical Wheel Mouse (USB only), 400 dpi, black														
Cooling fans	Two variable speed fans (power supply and fansink)														
Power supply	230 watts with variable speed fan / universal / manual switch														
<b>Preload with Windows XP Professional<sup>5</sup></b>	<b>Accessories</b>										<b>LIMITED WARRANTY<sup>1</sup></b>				
Microsoft® Windows® XP Professional	128MB PC2700 CL2.5 NP DDR UDIMM										↔ <b>1 year parts and labor</b>				
- Disk-to-Disk Recovery (in hidden protected area)	256MB PC2700 CL2.5 NP DDR UDIMM										↔ <b>International Warranty Service<sup>9</sup></b>				
<b>Preloaded</b>	512MB PC2700 CL2.5 NP DDR UDIMM										↔ <b>Limited onsite service, 8 am - 5 pm, Mon - Fri coverage excluding holidays, 2nd business day response time<sup>3</sup></b>				
• Access IBM	1GB PC2700 CL2.5 NP DDR UDIMM										↔ <b>Onsite service upgrade options (in eligible locations)<sup>7</sup>:</b>				
• Access Support	80GB IDE Disk ATA-100 (7200 rpm)										• <b>1 year 9x5 4 hour response</b> (ServicePac® part number 54P1858)				
• IBM Rapid Restore™ Ultra	120GB IDE Disk ATA-100 (7200 rpm)										• <b>2 year 9x5 Next Business Day</b> (ServicePac part number 54P1859)				
• Update Connector™.15	160GB Serial ATA150 Disk (7200 rpm)										• <b>2 year 9x5 4 hour response</b> (ServicePac part number 54P1860)				
• Adobe Acrobat Reader	48X/32X/48X Max <sup>4</sup> CD-RW internal (black)										• <b>3 year 9x5 Next Business Day</b> (ServicePac part number 54P1861)				
• PC-Doctor™ (diagnostics)	48X/32X/48X/16X Max <sup>11</sup> CD-RW/DVD-ROM Combo drive (black)										• <b>3 year 9x5 4 hour response</b> (ServicePac part number 54P1862)				
• Norton AntiVirus (OEM Version)	IBM Multi-Burner Plus internal (black) <sup>5</sup>										↔ <b>Post-warranty annual maintenance agreements at</b>				
• RecordNow and DLA (CD-RW models)	IBM USB 2.0 Portable 40GB Hard Disk										↔ <b>ibm.com/services/us/its/pdf/maspspleu.pdf</b>				
<b>Downloadable</b>	lomega® Zip 750MB USB 2.0 Ext Drive										↔ <b>24x7<sup>14</sup> toll-free support for warranty issues during the warranty period<sup>1</sup></b>				
• Software Delivery Assistant	IBM 256MB USB 2.0 Memory Key														
• System Migration Assistant	IBM NVIDIA Quadro4 200NVS Dual Head														
• IBM Director Agent	IBM ThinkVision L170 17" Monitor (black)														
<b>License</b> - CD not included	IBM ThinkVision L170p 17" Monitor (black)														
- Lotus® SmartSuite® Millennium and Lotus Notes® Stand-alone Client	IBM ThinkVision L200p 20.1" Monitor (blk)														
	IBM ThinkVision C170 17" (16.0" vis) (blk)														
	IBM ThinkVision C220p 22" (20.0" vis) (blk)														
	IBM 500 Uninterrupt Powr Supp (flat pack)														
	Belkin® 800VA UPS with AVR technology														
	IBM High Rate Wireless LAN PCI Adapter														
	Other options at <a href="http://ibm.com/pc/us/accessories">ibm.com/pc/us/accessories</a>														

See footnotes for important warranty information  
US models announced on February 10, 2004  
US models withdrawn effective August 2004

- Availability:** All offers subject to availability. IBM reserves the right to alter product offerings and specifications at any time, without notice. IBM is not responsible for photographic or typographic errors.
- Warranty:** For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC, 27709, Attn: Dept JDJA/B203. IBM makes no representation or warranty regarding third party products or services.
- <sup>1</sup> **Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.
  - <sup>2</sup> **Hard drive:** GB = billion bytes, TB = trillion bytes. Accessible capacity may be less; up to 4GB is used in service partition.
  - <sup>3</sup> **Systems with limited onsite service** are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by IBM. IBM will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by IBM for onsite replacement. For a list of onsite replaceable parts, contact IBM. Support unrelated to a warranty issue may be subject to additional charges.
  - <sup>4</sup> **CD and DVD list** maximum rates; rates are variable and are often less than the maximum.
  - <sup>5</sup> **Included software** may differ from its retail version (if available), and may not include user manuals or all program functionality. License agreements may apply.
  - <sup>6</sup> **IBM Multi-Burner Plus** (part number 73P3305 or 73P3370) is a DVD±RW device that reads and writes to DVD-RAM, DVD-R, DVD-RW, DVD+R, and DVD+RW. It also reads and writes to CD-R and CD-RW media. 73P3370 also writes to DVD+R double layer media.
  - <sup>7</sup> **These services** are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations.
  - <sup>8</sup> **Memory:** For PCs without a separate graphics card, memory supports both system and video. Accessible system memory may be up to 64MB less than the amount stated, depending on video mode.
  - <sup>9</sup> **International Warranty Service** is available in any country in which this product is sold and serviced. Service delivery methods and parts availability vary by country, may be different from that in the country of purchase, and are subject to change without notice. Fees and restrictions may apply in some countries.
  - <sup>10</sup> **Designed to be capable** of receiving data at up to 56kbps with compatible phone line and server equipment, and transmitting data at up to 31.2kbps. Public networks currently limit download speeds to about 53kbps. Compatible phone line and server equipment required. Actual speeds vary and are often less than the maximum possible.
  - <sup>11</sup> **For combination drives**, maximum speeds only are given in the following order: CD read, CD write, CD re-write, DVD read.
  - <sup>14</sup> **Response times may vary.** May exclude some holidays. Telephone support may be subject to additional charges.
  - <sup>15</sup> **Update Connector** is available at no charge to registered NetVista customers during the limited warranty period. Line charges may apply.
  - <sup>16</sup> **IBM Embedded Security Subsystem** works with optional VPN software.

<sup>18</sup> **IBM Embedded Security Subsystem** requires download of security software from IBM.

<sup>19</sup> **Asset ID** allows system-specific information to be stored in a chip inside the system; it does not have any radio frequency support.

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