IBM PC Institute

Personal Systems Reference
IBM IntelliStation professional workstation

October 2001 - Version 230

IBM IntelliStation® E Pro (6836)

IBM® Type-model	Processor	MHz	Memory	Disk	SCSI adapter	CD-ROM	Graphics adapter and memory	Slots x bays	Ethernet	Preload	Available date
✂ 6836-10U	Pentium® III	800	64MB	15GB EIDE	None	48X-20X	Millennium G450 16MB	4x4	10/100	2000 or NT	Oct 2000
✂ 6836-21U	Pentium III	866	128MB	15GB EIDE	None	48X-20X	Millennium G450 16MB	4x4	10/100	2000 or NT	Oct 2000
✂ 6836-22U	Pentium III	866	128MB	9.1GB SCSI	29160LP	48X-20X	Millennium G450 16MB	4x4	10/100	2000 or NT	Oct 2000
6836-31U	Pentium III	933	128MB	15GB EIDE	None	48X-20X	Millennium G450 16MB	4x4	10/100	2000 or NT	Oct 2000
6836-35U	Pentium III	933	128MB	15GB EIDE	None	48X-20X	NVIDIA GeForce2 MX 32MB	4x4	10/100	2000 or NT	Oct 2000
6836-36U	Pentium III	933	128MB	9.1GB SCSI	29160LP	48X-20X	NVIDIA GeForce2 MX 32MB	4x4	10/100	2000 or NT	Oct 2000
6836-41U	Pentium III	1.0GHz	128MB	15GB EIDE	None	48X-20X	Millennium G450 16MB	4x4	10/100	2000 or NT	Oct 2000
✂ 6836-1PU	Pentium III	800	128MB	None	None	48X-20X	Millennium G450 16MB	4x4	10/100	2000 or NT	Oct 2000
✂ 6836-2PU	Pentium III	866	128MB	None	None	48X-20X	Millennium G450 16MB	4x4	10/100	2000 or NT	Oct 2000

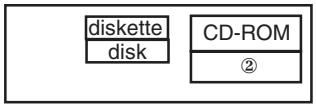
Intel® processor	**Pentium® III 800EB, 866, 933MHz[1] or 1.0GHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed
Implementation	Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA) / motherboard contains one Intel PGA370 socket, three DIMM sockets, three PCI slots, one AGP slot, and integrated ethernet
SMP support	No SMP support
Memory - std / max	**64MB or 128MB** std / 1.5GB max
Memory - sockets	3 sockets / 2 available / ECC (Error Checking and Correcting) DIMMs and ECC memory controller / PC133-compliant /
Memory - features	**SDRAM / 133MHz** / three 168-pin gold-plated DIMM 3.3 v sockets / supports unbuffered SDRAM ECC DIMMs
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-performance 2D) / AGP 4X adapter / Matrox MGA G450C GPU / 16MB std and max 166MHz SDRAM / two DB-15 connectors (dual monitor capable) • **NVIDIA™ GeForce2 MX** (advanced 3D) / AGP 4X adapter / NV11 GPU / 32MB std and max 166MHz SDRAM / one DB-15 connector
SCSI disk controller	*SCSI models:* **Adaptec® 29160LP / single channel Wide Ultra160 SCSI** (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot) / one channel with up to 15 device support
SCSI connectors	*SCSI models:* One 68-pin internal SCSI connector / one 0.8mm VHDCI 68-pin external SCSI connector
IDE disk controller	Enhanced IDE busmaster / ATA-66 support (ATA-100 on later models) / two connectors on planar
Cables	*SCSI models:* One 3-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable (connected to CD-ROM) *EIDE models:* Two EIDE cables (one 2-drop cable to CD-ROM, one 1-drop cable to EIDE disk)
Disk - features	*EIDE models:* 15GB EIDE / ATA-100 / 7200 rpm / 8.7 ms read seek / S.M.A.R.T. *SCSI models:* 9.1GB Ultra160 SCSI / 7200 rpm / 7.5 ms read seek / S.M.A.R.T.
Rack support	None
Architecture / chipsets	**VIA® Apollo Pro133A chip set** / VT82C694X North Bridge (memory controller, PCI 2.2 32-bit 33MHz controller, AGP 4X) / VIA VT82C686A or 686B South Bridge (IDE ATA-66 [686B is ATA-100], USB, diskette, par, serial, kybd, mouse)
100/10Mbps ethernet	Intel 82559 / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit 33MHz PCI bus / support for Wake on LAN®
CD-ROM / diskette	48X-20X[4] CD-ROM / CAV (ATAPI) / bootable / IDE' 3.5" 1.44MB diskette drive
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two (Ver 1.1); keyboard, mouse, audio line in, audio line out, microphone in, MIDI
Systems mgmt	Monitoring and alerting of memory, thermal, fans, and voltage faults / support for Wake on LAN, Alert on LAN™ 2, PXE
Keyboard / mouse	IBM 104-key keyboard / IBM ScrollPoint™ II mouse
Cooling fans	Two (800MHz models) or three (other models) cooling fans (power supply, front, rear) / not redundant or hot-swap / fans have two speeds
Power supply	155 watts / universal / auto sensing

SECURITY

- Cover key lock (in rear)
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Diskette, disk, serial port, parallel port I/O control
- Secure access openings
- Secure removable media
- VPD stored in EEPROM
- Write protection control for EEPROM
- Barcode labels on most components
- IBM Security Solutions

Slot 1: fullsize, AGP 4X, 25 watt (3.3v) - used by std graphics adptr
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - Alert on LAN 2 support
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - used by SCSI (some)
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)

Bay ① 5.25", HH 1.6", access, 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



- Stealth black color
- Bay 1 and 2 in cage flips up
- Bay 3 and 4 in cage flips up

➪ H 5.52" x W 16.73" x D 16.73"
➪ H140mm x W425mm x D425mm
➪ 23 to 25 pounds (10.5 to 11.4kg)

Windows 2000 Professional Preload[7]

Microsoft® Windows® 2000 Professional
- Free license for Lotus® SmartSuite® Millennium
- Free license for Lotus Notes® Client

✧ Device Drivers and Diagnostics CD-ROM
✧ Software Selections CD-ROM
✧ Windows 2000 Product Recovery CD-ROM
✧ Windows NT 4.0 (SP6) Product Recovery CD
✧ Disk-to-Disk Recovery (Windows 2000 or NT 4.0 SP6 in hidden service partition)

Options

64MB SDRAM ECC 133MHz unbuffered DIMM	33L3079
128MB SDRAM ECC 133MHz unbuffered DIMM	33L3081
256MB SDRAM ECC 133MHz unbuffered DIMM	33L3083
512MB SDRAM ECC 133MHz unbuffered DIMM	33L3085
IBM 20.4GB ATA-100 EIDE HDD	19K4461
IBM 30GB ATA-100 EIDE HDD	00N8203
IBM 9.1GB 7200rpm Ultra160 SCSI HDD	00N8204
IBM 18.2GB 7200rpm Ultra160 SCSI HDD	00N8205
IBM 36.4GB 7200rpm Ultra160 SCSI HDD	00N8206
IBM 9.1GB 10K Ultra160 SCSI HDD	00N8207
IBM 18.2GB 10K Ultra160 SCSI HDD	00N8208
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM 9.4GB DVD-RAM (black)	10K3561
IBM IDE 8X/4X/32X CD-Rewritable (black)	33L5020
IBM 250MB Zip Drive (black)	00N8078
IBM P96 Color Monitor (black)	655163N

- *Maximum internal SCSI disk capacity:* 72.8GB (2 disks x 36.4GB)
- Removable top cover
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Adv Config Power Interface (ACPI) 1.0
- ISO 9241-3 capable
- Universal Manageability Services enabled
- LANClient Control Manager™ enabled
- SMART Reaction™.[15] II
- PC 99-compliant
- DMI 2.0-compliant
- Common Information Model (CIM) 2.2

LIMITED WARRANTY*,[3]

➪ **3 year parts and labor**
➪ **International Warranty Service[3]**
➪ **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
➪ **3 year on site warranty service upgrade options:[9]**
  • **4 hour response, 7 day x 24 hr**
➪ **Post warranty maintenance services available**
➪ **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced October 10, 2000
✂ Models withdrawn from marketing effective May 2001 or October 2001

No warranties are expressed or implied in this summary
(6836) © IBM Corp. October 2000

IBM IntelliStation® E Pro (6846)

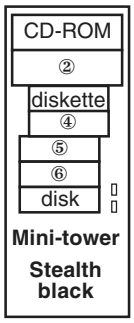
IBM® Type-model	Processor	MHz	Memory	Disk	SCSI adapter	CD-ROM	Graphics adapter and memory	Slots x bays	Ethernet	Preload	Available date
✂6846-11U	Pentium® III	800	128MB	15GB EIDE	None	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Oct 2000
✂6846-21U	Pentium III	866	128MB	15GB EIDE	None	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Oct 2000
✂6846-22U	Pentium III	866	128MB	9.1GB SCSI	29160LP	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Oct 2000
✂6846-26U	Pentium III	866	128MB	9.1GB SCSI	29160LP	48X-20X	NVIDIA GeForce2 MX 32MB	6x7	10/100	2000 or NT	Oct 2000
6846-31U	Pentium III	933	128MB	15GB EIDE	None	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Oct 2000
6846-35U	Pentium III	933	128MB	15GB EIDE	None	48X-20X	NVIDIA GeForce2 MX 32MB	6x7	10/100	2000 or NT	Oct 2000
6846-37U	Pentium III	933	256MB	9.1GB SCSI	29160LP	48X-20X	NVIDIA GeForce2 MX 32MB	6x7	10/100	2000 or NT	Oct 2000
6846-47U	Pentium III	1.0GHz	256MB	9.1GB SCSI	29160LP	48X-20X	NVIDIA GeForce2 MX 32MB	6x7	10/100	2000 or NT	Oct 2000
6846-3PU	Pentium III	866	256MB	None	None	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Oct 2000

Intel® processor	**Pentium® III 800EB, 866, 933MHz[1] or 1.0GHz[1] with 133MHz Front Side Bus**
L2 cache	**256KB** std and max / ECC / at processor speed
Implementation	Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA) / motherboard contains one Intel PGA370 socket, three DIMM sockets, three PCI slots, connector for two-slot PCI extender board, one AGP slot, and integrated ethernet
SMP support	No SMP support
Memory - std / max	**128MB or 256MB** std / 1.5GB max
Memory - sockets	3 sockets / 2 available / ECC (Error Checking and Correcting) DIMMs and ECC memory controller / PC133-compliant /
Memory - features	**SDRAM / 133MHz** / three 168-pin gold-plated DIMM 3.3 v sockets / supports unbuffered SDRAM ECC DIMMs
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-performance 2D) / AGP 4X adapter / Matrox MGA G450C GPU / 16MB std and max 166MHz SDRAM / two DB-15 connectors (dual monitor capable) • **NVIDIA™ GeForce2 MX** (advanced 3D) **/** AGP 4X adapter / NV11 GPU / 32MB std and max 166MHz SDRAM / one DB-15 connector
SCSI disk controller	*SCSI models:* **Adaptec® 29160LP / single channel Wide Ultra160 SCSI** (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot) / one channel with up to 15 device support
SCSI connectors	*SCSI models:* One 68-pin internal SCSI connector / one 0.8mm VHDCI 68-pin external SCSI connector
IDE disk controller	Enhanced IDE busmaster / ATA-66 support (ATA-100 on later models) / two connectors on planar
Cables	*SCSI models:* One 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable (connected to CD-ROM) *EIDE models:* Two EIDE cables (one 2-drop cable to CD-ROM, one 2-drop cable to EIDE disk)
Disk - features	*EIDE models:* 15GB EIDE / ATA-100 / 7200 rpm / 8.7 ms read seek / S.M.A.R.T. *SCSI models:* 9.1GB Ultra160 SCSI / 7200 rpm / 7.5 ms read seek / S.M.A.R.T.
Rack support	4U[17] rack mount support via tower-to-rack kit option
Architecture / chipsets	**VIA® Apollo Pro133A chip set** / VT82C694X North Bridge (memory controller, PCI 2.2 32-bit 33MHz controller, AGP 4X) / VIA VT82C686A or 686B South Bridge (IDE ATA-66 [686B is ATA-100], USB, diskette, par, serial, kybd, mouse)
100/10Mbps ethernet	Intel 82559 / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit 33MHz PCI bus / support for Wake on LAN®
CD-ROM / diskette	48X-20X[4] CD-ROM / CAV (ATAPI) / bootable / IDE' 3.5" 1.44MB diskette drive
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two (Ver 1.1); keyboard, mouse, audio line in, audio line out, microphone in, MIDI
Systems mgmt	Monitoring and alerting of memory, thermal, fans, and voltage faults / support for Wake on LAN, Alert on LAN™ 2, PXE
Keyboard / mouse	IBM 104-key keyboard / IBM ScrollPoint™ II mouse
Cooling fans	Three (800 and 866MHz models) or four (other models) cooling fans (power supply, disks, rear, middle) / not redundant or hot-swap / fans have two speeds
Power supply	300 watts / universal / auto sensing

SECURITY

- Cover key lock (in rear)
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Diskette, disk, serial port, parallel port I/O control
- Secure access openings
- Secure removable media
- VPD stored in EEPROM
- Write protection control for EEPROM
- Barcode labels on most components
- IBM Security Solutions

Bay ① 5.25", HH1.6", access, CD-ROM
Bay ② 5.25", HH1.6", access, open
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", no access, open
Bay ⑥ 3.5", SL 1", no access, open
Bay ⑦ 3.5", SL 1", no access, disk



Mini-tower
Stealth black

Slot 1: fullsize, AGP 4X, 25 watt (3.3v) - used by std AGP graphics adapter
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - slot has Alert on LAN 2 support
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - used by SCSI adapter (some)
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - on two-slot PCI extender board
Slot 6: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - on two-slot PCI extender board

Windows 2000 Professional Preload[7]

Microsoft® Windows® 2000 Professional
- Free license for Lotus® SmartSuite® Millennium
- Free license for Lotus Notes® Client

✧ Device Drivers and Diagnostics CD-ROM
✧ Software Selections CD-ROM
✧ Windows 2000 Product Recovery CD-ROM
✧ Windows NT 4.0 (SP6) Prod Recovery CD-ROM
✧ Disk-to-Disk Recovery (Windows 2000 or NT 4.0 SP6 in hidden service partition)

Options

64MB SDRAM ECC 133MHz unbuffered DIMM	33L3079
128MB SDRAM ECC 133MHz unbuffered DIMM	33L3081
256MB SDRAM ECC 133MHz unbuffered DIMM	33L3083
512MB SDRAM ECC 133MHz unbuffered DIMM	33L3085
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM 20.4GB ATA-100 EIDE HDD	19K4461
IBM 30GB ATA-100 EIDE HDD	00N8203
IBM 9.1GB 7200rpm Ultra160 SCSI HDD	00N8204
IBM 18.2GB 7200rpm Ultra160 SCSI HDD	00N8205
IBM 36.4GB 7200rpm Ultra160 SCSI HDD	00N8206
IBM 9.1GB 10K Ultra160 SCSI HDD	00N8207
IBM 18.2GB 10K Ultra160 SCSI HDD	00N8208
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM 9.4GB DVD-RAM (black)	10K3561
IBM IDE 8X/4X/32X CD-Rewritable (black)	33L5020
IBM 250MB Zip Drive (black)	00N8078
IBM P96 Color Monitor (black)	655163N

➪ Metal cage for disk bays 5,6,7 rotates out of chassis
➪ Two front stabilizing feet
➪ Handle grip on top
➪ H 18.5" x W 6.5" x D 20.0"
➪ H 470mm x W 165mm x D 508mm
➪ 35 to 43 pounds (15.9 to 19.5kg)

- *Maximum internal SCSI disk capacity:* 145.6GB (4 disks x 36.4GB)
- Removable left side panel
- Configuration/Setup Utility (in flash memory) invoked by pressing F1 at startup
- SCSISelect near startup by pressing CTRL+A
- Adv Config Power Interface (ACPI) 1.0
- Universal Manageability Services enabled
- LANClient Control Manager™ enabled
- DMI 2.0-compliant

LIMITED WARRANTY*,[3]

➪ **3 year parts and labor**
➪ **International Warranty Service[3]**
➪ **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
➪ **3 year on site warranty service upgrade option:[9]**
  • 4 hour response, 7 day x 24 hr
➪ **Post warranty maintenance services available**
➪ **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced October 10, 2000
✂ Models withdrawn from marketing effective May 2001 or October 2001

No warranties are expressed or implied in this summary
(6846) © IBM Corp. January 2001

IBM IntelliStation® E Pro (6204)

IBM® Type-model	Processor	GHz[1]	L2 cache	Memory	Disk and rpm	SCSI adapter	CD-ROM	Graphics adapter and memory	Slots x bays	Preload	Available date
6204-10U	Pentium® 4	1.6GHz	256KB	128MB	40GB[2] 7200	None	CD-ROM	NVIDIA™ Quadro2 EX 32MB	4x3	Windows® 2000[7]	Oct 2001
6204-20U	Pentium 4	1.8GHz	256KB	128MB	40GB 7200	None	CD-ROM	NVIDIA Quadro2 EX 32MB	4x3	Windows 2000	Oct 2001
6204-30U	Pentium 4	2.0GHz	256KB	128MB	40GB 7200	None	CD-ROM	NVIDIA Quadro2 EX 32MB	4x3	Windows 2000	Oct 2001

Positioning	*Compelling combination of price, performance and design*
Processor	**Intel® Pentium 4 1.6, 1.8, 2.0GHz with 400MHz[1] Front Side Bus**
L2 cache	**256KB** std and max / ECC / full speed
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478 socket
SMP support	No SMP support
Memory - std/max	**128MB** / 1GB max
Memory - sockets	Two 168-pin gold plated DIMM sockets / one socket used
Memory - type	**133MHz SDRAM** / Error Checking and Correcting (ECC) DIMMs and ECC memory controller / industry std / unbuffered / PC133-compliant / CAS Latency 2 (CL2)
Graphics controller	• **NVIDIA Quadro2 EX** (entry 3D) / AGP 4X adapter / NV11GL GPU / 32MB std and max 166MHz SDRAM / 350MHz RAMDAC / one analog DB-15 connector
SCSI disk controller	None
Disk	ATA-100, 7200 rpm, 8.7 ms average read seek, S.M.A.R.T.[15]
Disk controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH2)
Diskette drive	3.5" 1.44MB diskette drive
CD-ROM	*Some models:* 48X-20X[4] CD-ROM / bootable
DVD-ROM	Option
Cables	Two EIDE 80-conductor cables (one 1-drop cable to CD, one 1-drop cable to disk)
Rack support	None
Chipset	**Intel 845 chipset** / 82845 Memory Controller Hub (MCH) / 82801BA I/O Controller Hub (ICH2) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / 82802 Firmware Hub / National® 87360 Super I/O for diskette, parallel, serial, keyboard, mouse
Ports	*Front:* None *Back:* two 9-pin serial, parallel, two USB (Ver 1.1), keyboard, mouse, ethernet, monitor
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH2) / AC '97 interface / ADI1887 codec (analog mixing, Analog-to-Digital and Digital-to-Analog conversion)
Audio connectors	*Back:* microphone jack, line-in, line-out
Speakers	One internal speaker for business audio
Ethernet	10/100 ethernet on planar / ICH2 (MAC layer) with Intel 82562ETPHY (physical layer) / supports PXE and Wake on LAN® / Intel Pro/100VE Desktop Connection
Security chip	None (so no cover tamper detect switch)
Keyboard / mouse	104-key (rubber dome) keyboard / IBM 3-button mouse
Cooling fans	Two or three variable speed fans (power supply, fansink, some have third fan)
Power supply	160 watts with variable speed fan / universal / manual switch

Desktop
Small Form Factor

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

Slot 1: Low Profile, 32-bit AGP 4X (1.5v) - used
Slot 2: Low Profile, 32-bit PCI 2.2 (5v)
Slot 3: Low Profile, 32-bit PCI 2.2 (5v)
Slot 4: Low Profile, 32-bit PCI 2.2 (5v)

- Stealth black color
- 14.2" W X 16.2"D X 4.1"H
- 360mm W X 412mm D X 104mm H
- 20.0 to 22.0 lb (9.1 to 10.0 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

SECURITY

- Optional U-bolt support via knockout
- Cover key lock (on rear)
- Secure fixed DASD
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Diskette, disk, serial port, parallel port I/O control
- Secure access openings
- Secure removable media
- VPD stored in EEPROM
- Write protection control for EEPROM
- Barcode labels on most components

Preload with Windows 2000[7]

Microsoft® Windows® 2000 Professional
- Lotus® SmartSuite® Millennium license
- Lotus Notes® Client license
- Disk-to-Disk Recovery (in Service Partition)

✧ Device Drivers and Diagnostics CD-ROM
✧ Software Selections CD-ROM

- *Maximum internal EIDE disk capacity:* 80GB (1 disk x 80GB 7200 rpm)
- Configuration/Setup Utility invoked by pressing F1 at startup
- Universal Manageability Services enabled
- LANClient Control Manager™ enabled
- Common Information Model (CIM) 2.2
- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 1.0b
- System Management BIOS
- DMI 2.0-compliant
- Wired for Management 2.0-compliant

Options

128MB SDRAM PC133 CL2 ECC UDIMM	10K0044
256MB SDRAM PC133 CL2 ECC UDIMM	10K0046
512MB SDRAM PC133 CL2 ECC UDIMM	10K0048
20GB IDE Disk ATA-100 (7200 rpm)	19K4461
40GB IDE Disk ATA-100 (7200 rpm)	22P7157
60GB IDE Disk ATA-100 (7200 rpm)	09N4207
80GB IDE Disk ATA-100 (7200 rpm)	09N4208
PCI Ultra160 SCSI Adapter	19K4646
IBM 16X[4] max DVD-ROM Drive (black)	22P6950
16X/10X/40X[4] Max CD-RW internal (blk)	24P3626
8X/4X/32X/8X[4] Max CD-RW/DVD-ROM Combo drive (black)	10K3790
IBM DVD-RAM/DVD-R Drive (black)	22P6959
Zip Drive 250MB (white/black)	00N8078
IBM P96 19" (17.9" v.i.s.) Monitor (black)	655163N
IBM P275 21" (19.8" v.i.s.) Monitor (blk)	6652U3N
IBM T540 15" Flat Panel Monitor (black)	9511AG4
IBM T560 15" Flat Panel Monitor (black)	6656HG2
IBM Wireless keyboard and mouse (blk)	22P5170
Spaceball 3D Input Device	33L3252
IBM 1394 Firewire Adapter	19K5790

LIMITED WARRANTY*,[3]

- **3 year parts and labor**
- **International Warranty Service[3]**
- **On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time**
- **3 year on site warranty service upgrade options:[9]**
  - **4 hour response, Mon-Fri 8-5** (ServicePac® part number 41L2735)
  - **4 hour response, 7 day x 24 hr** (ServicePac part number 41L2741)
- **Post warranty maintenance services available**
- **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced September 18, 2001

No warranties are expressed or implied in this summary
(6204) © IBM Corp. September 2001

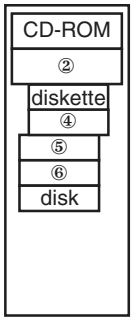
IBM IntelliStation® E Pro (6214)

IBM® Type-model	Processor	GHz[1]	L2 cache	Memory	Disk and rpm	SCSI adapter	CD-ROM	Graphics adapter and memory	Slots x bays	Preload	Available date
6214-10U	Pentium® 4	1.6GHz	256KB	128MB	40GB[2] EIDE 7200	None	CD-ROM	Millennium G450 16MB	6x7	Windows® 2000[7]	Oct 2001
6214-20U	Pentium 4	1.8GHz	256KB	128MB	40GB EIDE 7200	None	CD-ROM	Millennium G450 16MB	6x7	Windows 2000	Oct 2001
6214-23U	Pentium 4	1.8GHz	256KB	128MB	18.2G SCSI 10K	29160LP	CD-ROM	Quadro2 Pro 64MB	6x7	Windows 2000	Oct 2001
6214-30U	Pentium 4	2.0GHz	256KB	128MB	40GB EIDE 7200	None	CD-ROM	Millennium G450 16MB	6x7	Windows 2000	Oct 2001
6214-33U	Pentium 4	2.0GHz	256KB	256MB	18.2G SCSI 10K	29160LP	CD-ROM	Quadro2 Pro 64MB	6x7	Windows 2000	Oct 2001

Positioning	*Compelling combination of price, performance and design*
Processor	**Intel® Pentium 4 1.6, 1.8, 2.0GHz with 400MHz[1] Front Side Bus**
L2 cache	**256KB** std and max / ECC / full speed
Implementation	Processor and L2 cache in FC-PGA2 in mPGA478 socket
SMP support	No SMP support
Memory - std/max	**128MB** or **256MB** / 1GB max
Memory - sockets	Two 168-pin gold plated DIMM sockets / one socket used
Memory - type	**133MHz SDRAM** / Error Checking and Correcting (ECC) DIMMs and ECC memory controller / industry std / unbuffered / PC133-compliant / CAS Latency 2 (CL2)
Graphics controller (one of following)	• **Matrox® Millennium G450** (performance 2D) / AGP 4X adapter / MGA G450F GPU / 16MB 150MHz SDRAM / dual RAMDAC [360/232MHz] / dual head: 2048x1536x16M at 70Hz and 1600x1200x16M at 85Hz / two DB-15 connectors • **NVIDIA™ Quadro2 Pro** (advanced 3D) / AGP 4X adapter / NV15GL 250MHz GPU / 64MB 200MHz DDR-SDRAM / 350MHz RAMDAC / single head: 2048x1535x16M at 75Hz / DB-15 and DVI-I connectors (same image if both used)
SCSI disk controller	*SCSI models:* **Adaptec® 29160LP / single channel Wide Ultra160 SCSI** (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot) / one channel with up to 15 device support
SCSI connectors	*SCSI models:* One 68-pin internal SCSI connector / one 0.8mm VHDCI 68-pin external SCSI connector
IDE disk controller	Enhanced IDE / ATA-100 / integrated in I/O Controller Hub (ICH2)
Cables	*SCSI models:* One 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable (connected to CD-ROM) *EIDE models:* Two EIDE cables (one 2-drop cable to CD-ROM, one 2-drop cable to EIDE disk)
Disk - features	*SCSI models:* 18.2GB Ultra160 SCSI / 10K rpm / 5.2 ms read seek / S.M.A.R.T. *EIDE models:* 40GB EIDE / ATA-100 / 7200 rpm / 8.7 ms read seek / S.M.A.R.T.
CD-ROM / diskette	48X-20X[4] CD-ROM, bootable, IDE / 3.5" 1.44MB diskette drive
Rack support	4U[17] rack mount support via tower-to-rack kit option
Chipset	**Intel 845 chipset** / 82845 Memory Controller Hub (MCH) / 82801BA I/O Controller Hub (ICH2) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / 82802 Firmware Hub / National® 87360 Super I/O for diskette, parallel, serial, keyboard, mouse
Ports	*Front:* None *Back:* two 9-pin serial, parallel, two USB (Ver 1.1), keyboard, mouse, ethernet, monitor
Audio	Integrated digital audio / SoundMAX® 3.0 with SPX™ / software-based audio (done by processor and ICH2) / AC '97 interface / ADI1887 codec
Audio connectors	*Back:* microphone jack, line-in, line-out
Speakers	One internal speaker for business audio
Ethernet	10/100 ethernet on planar / ICH2 (MAC layer) with Intel 82562ETPHY (physical layer) / supports PXE and Wake on LAN® / Intel Pro/100VE Desktop Connection
Security chip	None (so no cover tamper detect switch)
Keyboard / mouse	104-key (rubber dome) keyboard / IBM 3-button mouse
Cooling fans	Three cooling fans (power supply, processor fansink, rear) / fans have two speeds
Power supply	340 watts with variable speed fan / universal / auto-sensing

Mini-tower

- Stealth black color
- H 18.5" x W 6.5" x D 20.0"
- H 470mm x W 165mm x D 508mm
- 35 to 43 pounds (15.9 to 19.5kg)
- Metal cage for disk bays 5,6,7 rotates out of chassis
- Two front stabilizing feet
- Handle grip on top
- Toolless cover removal
- Toolless AGP and PCI slots
- Removable left side panel



Bay ①	5.25", HH	1.6", access,	CD-ROM
Bay ②	5.25", HH	1.6", access,	open
Bay ③	3.5", SL	1", access,	diskette
Bay ④	3.5", SL	1", access,	open
Bay ⑤	3.5", SL	1", no access,	open
Bay ⑥	3.5", SL	1", no access,	open
Bay ⑦	3.5", SL	1", no access,	disk

Slot 1: fullsize, AGP 4X, 25 watt (3.3v) - used by graphics
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - used by SCSI adapter (some models)
Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v)**
Slot 6: fullsize, 32-bit 33MHz, PCI 2.2 (5v)**
** on two-slot PCI extender board

SECURITY

- Optional U-bolt support via knockout
- Cover key lock (on side)
- Secure fixed DASD
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Diskette, disk, serial port, parallel port I/O control
- Secure access openings
- Secure removable media
- VPD stored in EEPROM
- Write protection control for EEPROM
- Barcode labels on most components

Preload with Windows 2000[7]

Microsoft® Windows® 2000 Professional
- Lotus® SmartSuite® Millennium license
- Lotus Notes® Client license
- Disk-to-Disk Recovery (in Service Partition)

✧ Device Drivers and Diagnostics CD-ROM
✧ Software Selections CD-ROM

- *Maximum internal EIDE disk capacity:* 240GB (3 disk x 80GB 7200 rpm)
- *Maximum internal SCSI disk capacity:* 145.6GB (4 disks x 36.4GB)
- Configuration/Setup Utility invoked by pressing F1 at startup
- Universal Manageability Services enabled
- LANClient Control Manager™ enabled
- Common Information Model (CIM) 2.2
- PC 2001-compliant
- Advanced Power Management 1.2
- Advanced Configuration and Power Interface (ACPI) 1.0b
- System Management BIOS
- DMI 2.0-compliant
- Wired for Management 2.0-compliant

Options

128MB SDRAM PC133 CL2 ECC UDIMM	10K0044
256MB SDRAM PC133 CL2 ECC UDIMM	10K0046
512MB SDRAM PC133 CL2 ECC UDIMM	10K0048
60GB IDE Disk ATA-100 (7200 rpm)	09N4207
80GB IDE Disk ATA-100 (7200 rpm)	09N4208
PCI Ultra160 SCSI Adapter	19K4646
18.2GB 15K rpm Ultra160 SCSI disk	19K0658
36.4GB 10K rpm Ultra160 SCSI disk	00N8209
IBM 16X[4] max DVD-ROM Drive (black)	22P6950
12X/8X/32X[4] Max CD-RW internal (black)	10K3785
16X/10X/40X[4] Max CD-RW internal (blk)	24P3626
8X/4X/32X/8X[4] Max CD-RW/DVD-ROM Combo drive (black)	10K3790
IBM DVD-RAM/DVD-R Drive (black)	22P6959
Zip Drive 250MB (white/black)	00N8078
IBM P96 19 " (17.9" v.i.s.) Monitor (black)	655163N
IBM P275 21" (19.8" v.i.s.) Monitor (blk)	6652U3N
IBM T540 15" Flat Panel Monitor (black)	9511AG4
IBM T560 15" Flat Panel Monitor (black)	6656HG2
IBM Wireless keyboard and mouse (blk)	22P5170
Spaceball 3D Input Device	33L3252
IBM rack mount kit	09N4300

LIMITED WARRANTY*,[3]

- **3 year parts and labor**
- **International Warranty Service[3]**
- **On site, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time**
- **3 year on site warranty service upgrade options:[9]**
  - **4 hour response, Mon-Fri 8-5** (ServicePac® part number 41L2735)
  - **4 hour response, 7 day x 24 hr** (ServicePac part number 41L2741)
- **Post warranty maintenance services available**
- **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced September 18, 2001

No warranties are expressed or implied in this summary
(6214) © IBM Corp. September 2001

IBM IntelliStation® M Pro (6849)

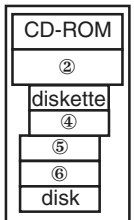
IBM® Type-model	Processor	GHz[1]	Memory	Disk and rpm	SCSI adapter	CD-ROM	Graphics adapter and memory	Slots x bays	Ethernet	Preload[7]	Available date
✂ 6849-10U	Pentium® 4	1.4	256MB	20.4GB[2] EIDE 7.2K	None	48X-20X[4]	Millennium G450 16MB	6x7	10/100	2000 or NT	Nov 2000
✂ 6849-11U	Pentium 4	1.4	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Nov 2000
✂ 6849-12U	Pentium 4	1.4	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	NVIDIA™ Quadro2 MXR 32M	6x7	10/100	2000 or NT	Nov 2000
✂ 6849-13U	Pentium 4	1.4	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	IBM Fire GL2 64MB	6x7	10/100	2000 or NT	Nov 2000
6849-20U	Pentium 4	1.5	256MB	20.4GB EIDE 7.2K	None	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Nov 2000
6849-21U	Pentium 4	1.5	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Nov 2000
6849-22U	Pentium 4	1.5	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	NVIDIA Quadro2 MXR 32MB	6x7	10/100	2000 or NT	Nov 2000
6849-23U	Pentium 4	1.5	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	IBM Fire GL2 64MB	6x7	10/100	2000 or NT	Nov 2000
✂ 6849-1PU	Pentium 4	1.4	256MB	None	None	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Nov 2000
6849-2PU	Pentium 4	1.5	256MB	None	None	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	Nov 2000

Intel® processor	**Pentium® 4 at 1.4 or 1.5GHz[1] with 400MHz Front Side Bus**
L2 cache	**256KB** std and max / at processor speed
Implementation	Processor and L2 cache in Pin Grid Array (PGA) / motherboard contains one Intel PGA423 socket (with Pentium 4 and heat sink), four RIMM sockets, five PCI slots, one AGP slot, integrated ethernet, and 850 chip w/ heat sink
SMP support	No SMP support
Memory - std / max	**256 or 512MB std** / 2GB max / **dual RDRAM (Rambus) channels** / 32 devices max each channel /
Memory - features	*256MB models:* Two 8D 128MB PC600 RIMMs; *512MB models:* Two 16D 256MB PC600 RIMMs **ECC memory controller and RIMMs** / four 184-pin gold-plated RIMM sockets (two per channel) / two RIMMs installed (one per channel) / CRIMMs in two sockets / supports PC600 or PC800 RIMMs (not PC700) / all installed RIMMs must be installed in pairs across channels / mixing speeds will have all RIMMs operate at slowest
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-performance 2D) / AGP 4X adapter / MGA G450C GPU / 16MB 150MHz SDRAM / dual RAMDAC [360/232MHz] / dual head: 2048x1536x16M at 70Hz and 1600x1200x16M at 85Hz / two DB-15 connectors • **NVIDIA Quadro2 MXR** (advanced 3D) **/** AGP 4X adapter / NV11GL GPU / 32MB std and max 183MHz SDRAM / DB-15 and DVI-I connectors (dual monitor capable) • **IBM Fire GL2** (extreme 3D) / AGP 4X adapter / 64MB std and max 120MHz DDR-SGRAM / DB-15 and DVI-D connectors (single head; same image if both used)
IDE disk controller	Enhanced IDE busmaster / ATA-100 / two connectors on planar
SCSI disk controller	*SCSI models:* Adaptec® 29160LP / Ultra160 SCSI (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot) / one channel 15 dev
SCSI connectors	*SCSI models:* One 68-pin internal / one 0.8mm VHDCI 68-pin external connector
Cables	*SCSI models:* One 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable *EIDE models:* Two EIDE cables (one 2-drop cable to CD-ROM, one 2-drop cable to EIDE disk)
Disk - features	*EIDE models:* 20.4GB EIDE / ATA-100 / 7200 rpm / 9 ms read seek / S.M.A.R.T. *SCSI models:* 18.2GB Ultra160 SCSI / 10K rpm / 5.5 ms read seek / S.M.A.R.T.
Rack support	4U[17] rack mount support via tower-to-rack kit option
Chipset	**Intel 850 chip set** / MCH (Memory Controller Hub) / I/O Controller Hub (ICH2) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC LPC47M102 Super I/O off LPC interface
100/10Mbps ethernet	Intel 82562EM / on planar / 10BaseT, 100BaseTX / full duplex / RJ-45 port / LAN Connect Interface / controller in ICH2 and 82562EM / support for Wake on LAN®, Alert on LAN™, Preboot eXecution Envir (PXE)
CD-ROM / diskette	48X-20X[4] CD-ROM / CAV (ATAPI) / bootable / 3.5" 1.44MB diskette drive
Audio	Soft audio AC '97 v2.1 controller via ICH2 (powered speakers required)
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two (Ver 1.1); kybd, mouse, audio line in, audio line out, microphone in
Systems mgmt	Monitoring and alerting of thermal, fans, and voltage faults
Keyboard / mouse	IBM 104-key keyboard / IBM three button mouse
Cooling fans	Three varialble speed fans (power supply, rear, processor) / not redundant or hot-swap
Power supply	340 watts / universal / auto sensing

SECURITY

- Cover key lock
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Keyboard/mouse password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Disable mouse
- Diskette, disk, serial port, parallel port I/O control
- Secure access openings
- VPD stored in EEPROM
- Write protection control for EEPROM
- Barcode labels on most components
- IBM Security Solutions

Bay ① 5.25", HH1.6", access, CD-ROM
Bay ② 5.25", HH1.6", access, open
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", no access, open
Bay ⑥ 3.5", SL 1", no access, open
Bay ⑦ 3.5", SL 1", no access, disk



Mini-tower
Stealth black

Preload with Windows 2000 Professional[7]

Microsoft® Windows® 2000 Professional
- Free license for Lotus® SmartSuite® Millennium
- Free license for Lotus Notes® Client
- ✧ Device Drivers and Diagnostics CD-ROM
- ✧ Software Selections CD-ROM
- ✧ Windows 2000 Product Recovery CD-ROM
- ✧ Windows NT 4.0 (SP6) Product Recovery CD
- ✧ Disk-to-Disk Recovery (Windows 2000 or NT 4.0 SP6 in hidden service partition)

Options

64MB PC600 ECC RDRAM RIMM (4 Dev)	33L3093
128MB PC600 ECC RDRAM RIMM (8 Dev)	33L3095
256MB PC600 ECC RDRAM RIMM (16 Dev)	33L3097
64MB PC800 ECC RDRAM RIMM (4 Dev)	20L0274
128MB PC800 ECC RDRAM RIMM (8 Dev)	20L0275
256MB PC800 ECC RDRAM RIMM (16 Dev)	20L0277
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM 30GB ATA-100 EIDE HDD	00N8203
IBM 18.2GB 7200rpm Ultra160 SCSI HDD	00N8205
IBM 36.4GB 7200rpm Ultra160 SCSI HDD	00N8206
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM 18.2GB 15K Ultra160 SCSI HDD	19K0658
IBM 9.4GB DVD-RAM (black)	10K3561
IBM IDE 8X/4X/32X CD-Rewritable (black)	33L5020
IBM 250MB Zip Drive (black)	00N8078
IBM P96 Color Monitor (black)	655163N

Slot 1: fullsize, AGP 4X Pro50 (1.5v) - used by std AGP graphics adapter
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 6: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - used by SCSI adapter (some)

- ➪ Metal cage for disk bays 5,6,7 rotates out of chassis
- ➪ Two front stabilizing feet
- ➪ Handle grip on top
- ➪ H 18.5" x W 6.5" x D 20.0"
- ➪ H 470mm x W 165mm x D 508mm
- ➪ 36 to 42 pounds (16.4 to 19.1kg)

- *Maximum internal SCSI disk capacity:* 182GB (5 disks x 36.4GB)
- Removable left side panel
- BIOS Setup Utility via F2 at startup
- SCSISelect via CTRL+A at startup
- Product Recovery Pgm via F11 at startup
- Adv Config Power Interface (ACPI) 1.0
- LANClient Control Manager™ enabled
- DMI 2.0-compliant

LIMITED WARRANTY*,[3]

- ➪ **3 year parts and labor**
- ➪ **International Warranty Service[3]**
- ➪ **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- ➪ **3 year on site warranty service upgrade options:[9]**
  - **4 hour response, 7 day x 24 hr**
- ➪ **Post warranty maintenance services available**
- ➪ **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

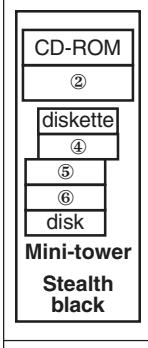
* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced November 21, 2000
✂ = US models withdrawn effective October 2001

No warranties are expressed or implied in this summary
(6849) © IBM Corp. November 2000

IBM IntelliStation® M Pro (6849) - Spring 2001

IBM® Type-model	Processor	GHz[1]	Memory	Disk and rpm	SCSI adapter	CD-ROM	Graphics adapter and memory	Slots x bays	Ethernet	Preload[7]	Available date
6849-30U	Pentium® 4	1.7	256MB	40.0GB[2] EIDE 7.2K	None	48X-20X[4]	Millennium G450 16MB	6x7	10/100	2000 or NT	May 2001
6849-31U	Pentium 4	1.7	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	Millennium G450 16MB	6x7	10/100	2000 or NT	May 2001
6849-32U	Pentium 4	1.7	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	NVIDIA™ Quadro2 MXR 32MB	6x7	10/100	2000 or NT	May 2001
6849-33U	Pentium 4	1.7	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	ATI® Fire GL2 64MB	6x7	10/100	2000 or NT	May 2001
6849-34U	Pentium 4	1.7	512MB	18.2GB Ultra160 10K	29160LP	48X-20X	ATI Fire GL4 128MB	6x7	10/100	2000 or NT	Jun 2001

Processor	**Intel® Pentium® 4 1.7GHz[1] with 400MHz Front Side Bus**
L2 cache	**256KB** std and max / at processor speed
Implementation	Processor and L2 cache in Pin Grid Array (PGA) / motherboard contains one Intel PGA423 socket (with Pentium 4 and heat sink), four RIMM sockets, five PCI slots, one AGP slot, integrated ethernet, and 850 chip with heat sink
SMP support	No SMP support
Memory - std / max	**256 or 512MB std** / 2GB max / **dual RDRAM (Rambus) channels** / 32 devices max each channel /
Memory - features	*256MB models:* Two 8D 128MB PC800 RIMMs; *512MB models:* Two 16D 256MB PC800 RIMMs / **ECC memory controller and RIMMs** / four 184-pin gold-plated RIMM sockets (two per channel) / two RIMMs installed (one per channel) / CRIMMs in two sockets / supports PC600 or PC800 RIMMs (not PC700) / all installed RIMMs must be installed in pairs across channels / mixing speeds will have all RIMMs operate at slowest
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-performance 2D) / AGP 4X adapter / MGA G450C GPU / 16MB 150MHz SDRAM / dual RAMDAC [360/232MHz] / dual head: 2048x1536x16M at 70Hz and 1600x1200x16M at 85Hz / two DB-15 connectors • **NVIDIA Quadro2 MXR** (advanced 3D) **/** AGP 4X adapter / NV11GL GPU / 32MB 183MHz SDRAM / dual RAMDAC [350/150MHz] / dual head: 2048x1536x16M at 75Hz and 1280x1024x16M at 85Hz / DB-15 and DVI-I conn • **ATI Fire GL2** (extreme 3D) **/** AGP 4X adapter / IBM GT1000-RT1000 GPUs / 64MB 120MHz DDR-SGRAM / 300MHz RAMDAC / single head: 1920x1200x16M at 76Hz / DB-15 and DVI-D connectors (same image if both used) • **ATI Fire GL4** (extreme 3D) **/** AGP 4X adapter / IBM GT1000-RT1000 GPUs / 128MB 120MHz DDR-SGRAM / dual RAMDAC [300/135MHz] / dual head: 1920x1200x16M at 76Hz and 1280x1024x16M at 75Hz / two DVI-I w/ DB-15 dongles
IDE disk controller	Enhanced IDE busmaster / ATA-100 / two connectors on planar
SCSI disk controller	*SCSI models:* Adaptec® 29160LP / Ultra160 SCSI (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot)
SCSI connectors	*SCSI models:* One 68-pin internal / one 0.8mm VHDCI 68-pin external connector
Cables	*SCSI models:* One 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable *EIDE models:* Two EIDE cables (one 2-drop cable to CD-ROM, one 2-drop cable to EIDE disk)
Disk - features	*EIDE models:* 40.0GB EIDE / ATA-100 / 7200 rpm / 9 ms read seek / S.M.A.R.T. *SCSI models:* 18.2GB Ultra160 SCSI / 10K rpm / 5.5 ms read seek / S.M.A.R.T.
Rack support	4U[17] rack mount support via tower-to-rack kit option
Architecture / chipset	**Intel 850 chip set** / MCH (Memory Controller Hub) / I/O Controller Hub (ICH2) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC LPC47M102 Super I/O off LPC interface
10/100 Mbps ethernet	Intel 82562EM / on planar / 10BaseT, 100BaseTX / full duplex / RJ-45 port / LAN Connect Interface / controller in ICH2 and 82562EM / support for Wake on LAN®, Alert on LAN™, Preboot eXecution Envir (PXE)
CD-ROM / diskette	48X-20X[4] CD-ROM / CAV (ATAPI) / bootable / 3.5" 1.44MB diskette drive
Audio	Soft audio AC '97 v2.1 controller via ICH2 / internal speaker (use of audio line out requires powered speakers)
External ports	*Serial:* Two 9 pin; *Parallel:* One (EPP, ECP) / IEEE 1284; *USB:* Two; keyboard, mouse, audio line in/line out, mic in
Systems mgmt	Monitoring and alerting of thermal, fans, and voltage faults
Keyboard / mouse	IBM 104-key keyboard / IBM three button mouse
Cooling fans	Three varialble speed fans (power supply, rear, processor) / not redundant or hot-swap
Power supply	340 watts / universal / auto sensing



Bay ① 5.25", HH 1.6", access, CD-ROM
Bay ② 5.25", HH 1.6", access, open
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", no access, open
Bay ⑥ 3.5", SL 1", no access, open
Bay ⑦ 3.5", SL 1", no access, disk

Slot 1: fullsize, AGP 4X Pro50 (1.5v)
- used by std AGP graphics adapter
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
- not available on models with GL4
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 6: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
- used by SCSI adapter (some)

- ➪ Metal cage for disk bays 5,6,7 rotates out of chassis
- ➪ Two front stabilizing feet
- ➪ Handle grip on top
- ➪ H 18.5" x W 6.5" x D 20.0"
- ➪ 36 to 42 pounds (16.4 to 19.1kg)

- *Maximum internal SCSI disk capacity:* 182GB (5 disks x 36.4GB)
- Removable left side panel
- BIOS Setup Utility - F1 at startup
- SCSISelect via CTRL+A at prompt
- Product Recovery Pgm - F11 at startup
- Adv Config Power Interface (ACPI) 1.0
- LANClient Control Manager™ enabled

PRELOAD[7]

Microsoft® Windows® 2000 Professional
- Free license for Lotus® SmartSuite®
- Free license for Lotus Notes® Client

✧ Device Drivers and Diagnostics CD
✧ Software Selections CD-ROM
✧ Windows 2000 Product Recovery CD
✧ NT 4.0 (SP6) Product Recovery CD
✧ Disk-to-Disk Recovery (Windows 2000 or NT 4.0 SP6 in hidden service partition)

OPTIONS

64MB PC600 ECC RDRAM RIMM (4 Dev)	33L3093
128MB PC600 ECC RDRAM RIMM (8 Dev)	33L3095
256MB PC600 ECC RDRAM RIMM (16 Dev)	33L3097
64MB PC800 ECC RDRAM RIMM (4 Dev)	20L0274
128MB PC800 ECC RDRAM RIMM (8 Dev)	20L0275
256MB PC800 ECC RDRAM RIMM (16 Dev)	20L0277
512MB PC800 ECC RDRAM RIMM (16 Dev)	33L3254
IBM 18.2GB 7.2K rpm Ultra160 SCSI HDD	00N8205
IBM 36.4GB 7.2K rpm Ultra160 SCSI HDD	00N8206
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM 18.2GB 15K Ultra160 SCSI HDD	19K0658
IBM 40.0GB 7.2K rpm ATA-100 EIDE HDD	22P7157
IBM 9.4GB DVD-RAM (black)	10K3561
IBM IDE 8X/4X/32X CD-Rewritable (black)	33L5020
IBM 250MB Zip Drive (black)	00N8078
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM P260 Color Monitor (black)	655263N

SECURITY

- Cover key lock
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Keyboard/mouse password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Disable mouse
- Diskette, disk, serial port, parallel port I/O control
- Secure access openings
- VPD stored in EEPROM
- Write protection control for EEPROM
- IBM Security Solutions

LIMITED WARRANTY*,[3]

- ➪ **3 year parts and labor**
- ➪ **International Warranty Service[3]**
- ➪ **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- ➪ **3 year on site warranty service upgrade options:[9]**
  - **4 hour response, Mon-Fri 9-5** (ServicePac® part number 41L2735)
  - **4 hour response, 7 day x 24 hr** (ServicePac part number 41L2741)
- ➪ **Post warranty maintenance services available**
- ➪ **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

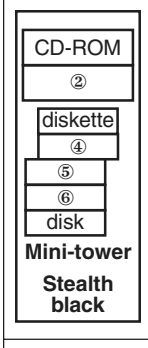
* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced April 24, 2001

No warranties are expressed or implied in this summary
(6849S) © IBM Corp. June 2001

IBM IntelliStation® M Pro (6849) - Summer 2001

IBM® Type-model	Processor	GHz[1]	Memory	Disk and rpm	SCSI adapter	CD-ROM	Graphics adapter and memory	Slots x bays	Ethernet	Preload[7]	Available date
6849-40U	Pentium® 4	1.8	256MB	40.0GB[2] EIDE 7.2K	None	CD	Millennium G450 16MB	6x7	10/100	2000 or NT	Aug 2001
6849-41U	Pentium 4	1.8	512MB	18.2GB Ultra160 10K	29160LP	CD	Millennium G450 16MB	6x7	10/100	2000 or NT	Aug 2001
6849-42U	Pentium 4	1.8	512MB	18.2GB Ultra160 10K	29160LP	CD	NVIDIA™ Quadro2 Pro 64MB	6x7	10/100	2000 or NT	Aug 2001
6849-44U	Pentium 4	1.8	512MB	18.2GB Ultra160 10K	29160LP	CD	ATI® Fire GL4™,[11] 128MB	6x7	10/100	2000 or NT	Aug 2001
☞ 6849-50U	Pentium 4	2.0	256MB	40.0GB EIDE 7.2K	None	CD	Millennium G450 16MB	6x7	10/100	2000 or NT	Sep 2001
☞ 6849-51U	Pentium 4	2.0	512MB	18.2GB Ultra160 10K	29160LP	CD	Millennium G450 16MB	6x7	10/100	2000 or NT	Sep 2001
☞ 6849-52U	Pentium 4	2.0	512MB	18.2GB Ultra160 10K	29160LP	CD	Millennium G450 16MB	6x7	10/100	2000 or NT	Sep 2001
☞ 6849-54U	Pentium 4	2.0	512MB	18.2GB Ultra160 10K	29160LP	CD	ATI® Fire GL4 128MB	6x7	10/100	2000 or NT	Sep 2001

Processor	**Intel® Pentium® 4 1.8 or 2.0GHz[1] with 400MHz Front Side Bus**
L2 cache	**256KB** std and max / at processor speed
Implementation	Processor and L2 cache in Pin Grid Array (PGA) / motherboard contains one Intel PGA423 socket (with Pentium 4 and heat sink), four RIMM sockets, five PCI slots, one AGP slot, integrated ethernet, and 850 chip with heat sink
SMP support	No SMP support
Memory - std / max	**256 or 512MB std** / 2GB max / **dual RDRAM (Rambus) channels** / 32 devices max each channel /
Memory - features	*256MB models:* Two 8D 128MB PC800 RIMMs; *512MB models:* Two 16D 256MB PC800 RIMMs / **ECC memory controller and RIMMs** / four 184-pin gold-plated RIMM sockets (two per channel) / two RIMMs installed (one per channel) / CRIMMs in two sockets / supports PC600 or PC800 RIMMs (not PC700) / all installed RIMMs must be installed in pairs across channels / mixing speeds will have all RIMMs operate at slowest
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-performance 2D) / AGP 4X adapter / MGA G450C GPU / 16MB 150MHz SDRAM / dual RAMDAC [360/232MHz] / dual head: 2048x1536x16M at 70Hz and 1600x1200x16M at 85Hz / two DB-15 connectors • **NVIDIA Quadro2 Pro** (advanced 3D) / AGP 4X adapter / NV15GL 250MHz GPU / 64MB 200MHz DDR-SDRAM / 350MHz RAMDAC / single head: 1600x1200x16M at 85Hz / DB-15 and DVI-I connectors (same image if both used) • **ATI Fire GL4** (extreme 3D) / AGP 4X Pro 50 adapter / IBM GT1000-RT1000 GPUs / 128MB 150MHz DDR-SGRAM / dual RAMDAC [300/135MHz] / dual head: 1920x1200x16M at 76Hz and 1280x1024x16M at 75Hz / two DVI-I w/ DB-15 dongles
IDE disk controller	Enhanced IDE busmaster / ATA-100 / two connectors on planar
SCSI disk controller	*SCSI models:* Adaptec® 29160LP / Ultra160 SCSI (LVD 160MB/sec) / 64-bit 33MHz PCI adapter (in a 32-bit slot)
SCSI connectors	*SCSI models:* One 68-pin internal / one 0.8mm VHDCI 68-pin external connector
Cables	*SCSI models:* One 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable *EIDE models:* Two EIDE cables (one 2-drop cable to CD-ROM, one 2-drop cable to EIDE disk)
Disk - features	*EIDE models:* 40.0GB EIDE / ATA-100 / 7200 rpm / 9 ms read seek / S.M.A.R.T. *SCSI models:* 18.2GB Ultra160 SCSI / 10K rpm / 5.5 ms read seek / S.M.A.R.T.
Rack support	4U[17] rack mount support via tower-to-rack kit option
Architecture / chipset	**Intel 850 chipset** / MCH (Memory Controller Hub) / I/O Controller Hub (ICH2) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / Firmware Hub / SMC LPC47M102 Super I/O off LPC interface
10/100Mbps ethernet	Intel 82562EM / on planar / 10BaseT, 100BaseTX / full duplex / RJ-45 port / LAN Controller Interface / controller in ICH2 and 82562EM / support for Wake on LAN®, Alert on LAN™, PXE
CD-ROM / diskette	48X-20X[4] CD-ROM, CAV (ATAPI), bootable / 3.5" 1.44MB diskette drive
Audio	Soft audio AC '97 v2.1 controller via ICH2 / internal speaker (use of audio line out requires powered speakers)
Rear ports	Two 9-pin serial; two USB (Vers 1.1), parallel, keyboard, mouse, ethernet, audio line in, audio line out, mic in
Systems mgmt	Monitoring and alerting of thermal, fans, and voltage faults
Keyboard / mouse	IBM 104-key keyboard / IBM three button mouse
Cooling fans	Three variable speed fans (power supply, rear, processor) / not redundant or hot-swap
Power supply	340 watts / universal / auto sensing



Bay ① 5.25", HH 1.6", access, CD-ROM
Bay ② 5.25", HH 1.6", access, open
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", no access, open
Bay ⑥ 3.5", SL 1", no access, open
Bay ⑦ 3.5", SL 1", no access, disk

Slot 1: fullsize, AGP 4X Pro50 (1.5v) - used by std AGP graphics adapter
Slot 2: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - not available on models with GL4
Slot 3: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 4: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 5: fullsize, 32-bit 33MHz, PCI 2.2 (5v)
Slot 6: fullsize, 32-bit 33MHz, PCI 2.2 (5v) - used by SCSI adapter (some)

- ➪ Metal cage for disk bays 5,6,7 rotates out of chassis
- ➪ Two front stabilizing feet
- ➪ Handle grip on top
- ➪ H 18.5" x W 6.5" x D 20.0"
- ➪ 36 to 42 pounds (16.4 to 19.1kg)

- *Maximum internal SCSI disk capacity:* 182GB (5 disks x 36.4GB)
- Removable left side panel
- BIOS Setup Utility - F1 at startup
- SCSISelect via CTRL+A at prompt
- Product Recovery Pgm - F11 at startup
- Adv Config Power Interface (ACPI) 1.0
- LANClient Control Manager™ enabled

PRELOAD[7]

Microsoft® Windows® 2000 Professional
- Free license for Lotus® SmartSuite®
- Free license for Lotus Notes® Client

✧ Device Drivers and Diagnostics CD
✧ Software Selections CD-ROM
✧ Windows 2000 Product Recovery CD
✧ NT 4.0 (SP6) Product Recovery CD
✧ Disk-to-Disk Recovery (Windows 2000 or NT 4.0 SP6 in hidden service partition)

OPTIONS

64MB PC 800 ECC RDRAM RIMM (4 Dev)	20L0274
128MB PC 800 ECC RDRAM RIMM (8 Dev)	20L0275
256MB PC 800 ECC RDRAM RIMM (16 Dev)	20L0277
64MB PC 800 ECC RDRAM RIMM (2 Dev)	33L3348
128MB PC 800 ECC RDRAM RIMM (4 Dev)	33L3350
256MB PC 800 ECC RDRAM RIMM (8 Dev)	33L3352
512MB PC 800 ECC RDRAM RIMM (16 Dev)	33L3254
IBM 18.2GB 7.2K rpm Ultra160 SCSI HDD	00N8205
IBM 36.4GB 7.2K rpm Ultra160 SCSI HDD	00N8206
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM 18.2GB 15K Ultra160 SCSI HDD	19K0658
IBM 40.0GB 7.2K rpm ATA-100 EIDE HDD	22P7157
IBM IDE 12X/8X/32X CD-Rewritable (black)	10K3785
IBM 20/40GB 8mm SCSI Tape Drive (black)	01K1325
IBM 250MB Zip Drive (black)	00N8078
IBM 4Ux20D Tower-to-Rack Kit	09N4300
IBM P260 Color Monitor (black)	655263N

SECURITY

- Cover key lock
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Keyboard/mouse password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Disable mouse
- Diskette, disk, serial port, parallel port I/O control
- Secure access openings
- VPD stored in EEPROM
- Write protection control for EEPROM
- IBM Security Solutions

LIMITED WARRANTY*,[3]

- ➪ **3 year parts and labor**
- ➪ **International Warranty Service[3]**
- ➪ **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- ➪ **3 year on site warranty service upgrade options:[9]**
  - **4 hour response, Mon-Fri 9-5** (ServicePac® part number 41L2735)
  - **4 hour response, 7 day x 24 hr** (ServicePac part number 41L2741)
- ➪ **Post warranty maintenance services available**
- ➪ **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

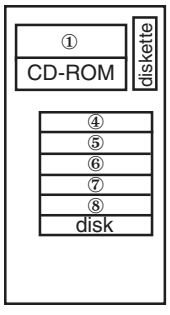
* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
☞ US models announced August 28, 2001; previous models on July 31, 2001

No warranties are expressed or implied in this summary
(6849R) © IBM Corp. September 2001

IBM IntelliStation® M Pro (6850)

IBM® Type-model	Qty x Processor	L2 cache	Memory	Disk and rpm	Disk controllers	CD-ROM	Graphics adapter and memory	Slots x bays	Preload[7]	Available date
6850-10U	1 x Xeon 1.5	256KB	256MB	40GB[2] EIDE 7.2K	Ultra160, EIDE	CD	Millennium G450 16MB	6x9	2000	Aug 2001
6850-20U	1 x Xeon 1.7	256KB	256MB	40GB EIDE 7.2K	Ultra160, EIDE	CD	Millennium G450 16MB	6x9	2000	Aug 2001
6850-21U	1 x Xeon 1.7	256KB	256MB	18.2GB Ultra 160 10K	Ultra160, EIDE	CD	Millennium G450 16MB	6x9	2000	Aug 2001
6850-22U	1 x Xeon 1.7	256KB	512MB	18.2GB Ultra 160 10K	Ultra160, EIDE	CD	NVIDIA™ Quadro2 Pro 64MB	6x9	2000	Aug 2001
6850-25U	1 x Xeon 1.7	256KB	512MB	18.2GB Ultra 160 10K	Ultra160, EIDE	CD	ATI® Fire GL4™,[11] 128 MB	6x9	2000	Aug 2001

Positioning	*Ultimate workstation performance and scalability*
Processor	**1 x Intel® Xeon™ 1.5 or 1.7GHz[1] with 400MHz Front Side Bus**
L2 cache	256KB L2 cache / on die of Xeon / at processor speed / no L3 cache
Implementation	Processor and L2 cache in Pin Grid Array (PGA) / motherboard contains two Intel Socket-603 sockets, one memory card connector, five PCI slots, one AGP Pro slot, integrated ethernet and SCSI, and 860 chipset
SMP support	**2-way SMP** via identical processor
Memory	**256 or 512MB std** / **4GB max** / **PC800 ECC Rambus** / two or four RDRAM (Rambus) channels / 32 devices max each channel / 8 slot memory card with four RDRAM channels and max of 8x512MB=4GB / each 82803 Memory Repeater Hub (MRH-R) converts each channel into two channels (2x2=4 channels total) / **ECC** memory controller and RIMMs / 184-pin gold-plated RIMM sockets / supports PC800 RIMMs only / all installed RIMMs must be installed in pairs across channels / 2.5v
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-perf 2D) / AGP 4X adapter / Matrox MGA G450C GPU / 16MB 150MHz SDRAM / dual RAMDAC [360/232MHz] / dual head: 2048x1536x16M at 70Hz and 1600x1200x16M at 85Hz / two DB-15 connectors • **NVIDIA Quadro2 Pro** (advanced 3D) / AGP 4X adapter / NV15GL 250MHz GPU / 64MB 200MHz DDR-SDRAM / 350MHz RAMDAC / single head: 1600x1200x16M at 85Hz / DB-15 and DVI-I connectors (same image if both used) • **ATI Fire GL4** (extreme 3D) / AGP 4X Pro 50 adapter / IBM GT1000-RT1000 GPUs / 128MB 150MHz DDR-SGRAM / dual RAMDAC [300/135MHz] / dual head: 1920x1200x16M at 76Hz and 1280x1024x16M at 75Hz / two DVI-I w/ DB-15 dongles
SCSI controller	**Adaptec® AIC-7899** / dual channel Ultra160 SCSI controller (160MB/sec) / on planar / 64-bit PCI bus
SCSI connectors	*Internal Port A:* 68 pin (attaches 6-drop 16-bit LVD cable to SCSI disk [cable std on SCSI models, not EIDE models]); *External Port B:* 68-pin SCSI port on rear (connected by 1-drop 16-bit LVD cable to conn on planar [cable on all models])
IDE cables	*EIDE and SCSI models:* one 2-drop IDE ATA-33 cable (for CD-ROM); *EIDE models:* one 2-drop ATA-66/100 cable (to disk)
EIDE controller	Enhanced IDE / ATA-100 with two channel support / integrated in I/O Controller Hub (ICH2)
Disk - features	*SCSI models:* 18.2GB Ultra160 / 10K rpm / 5.5 ms read seek; *EIDE:* 40GB / 7200 rpm / 8.7 ms read seek; *All:* S.M.A.R.T.[15]
Rack support	4U[17] rack mount support via tower-to-rack kit option
Chipset	**Intel 860 chipset** / 82860 MCH (Memory Controller Hub) / two 82803AA Memory Repeater Hubs (MRH-R) / 82801BA I/O Controller Hub (ICH2) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / 82806AA 64-bit PCI controller (P64H) / 82802 Firmware Hub / Winbond® Super I/O off LPC interface
10/100 Mbps ethernet	Intel 82550 / on planar / 10BaseT, 100BaseTX / full duplex / RJ-45 port / LAN Connect Interface / controller in ICH2 and 82550 / support for Wake on LAN®, Alert on LAN™, Preboot eXecution Envir (PXE)
CD-ROM / diskette	*CD-ROM:* 48X-20X[4] / CAV (ATAPI) / bootable; *Diskette:* 3.5" 1.44MB drive
Audio	Soft audio AC '97 v2.1 controller via ICH2 / ADI 1885 codec / internal mono speaker (use of audio line out requires powered speakers)
External rear ports	*Serial:* two 9-pin; *Parallel:* one (EPP, ECP) / IEEE 1284; *USB:* two; keyboard, mouse, audio line in, audio line out, mic in
Systems mgmt	Monitoring and alerting of thermal, fans, voltage faults, and chassis intrusion
Keyboard / mouse	IBM 104-key keyboard (black) / IBM three-button mouse (black)
Cooling fans	Five variable speed fans (two for processors, one for chassis, one for PCI cards, one in power supply) / not redundant or hot-swap
Power supply	480 watts / universal / auto sensing



Bay ① 5.25", HH 1.6", access, open
Bay ② 5.25", HH 1.6", access, std CD-ROM
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", no access, open (disk only)
Bay ⑤ 3.5", SL 1", no access, open (disk only)
Bay ⑥ 3.5", SL 1", no access, open (disk only)
Bay ⑦ 3.5", SL 1", no access, open (disk only)
Bay ⑧ 3.5", SL 1", no access, open (disk only)
Bay ⑨ 3.5", SL 1", no access, std disk (disk only)

- Mini tower
- Stealth black color
- Swinging door covers bays 1 to 3

Slot 1: full, 32-bit 4X AGP Pro110 (universal) - used by AGP adapter
Slot 2: full, 32-bit 33MHz PCI 2.2 (5v) - not available with Fire GL4 model
Slot 3: full, 32-bit 33MHz PCI 2.2 (5v)
Slot 4: full, 32-bit 33MHz PCI 2.2 (5v)
Slot 5: full 64-bit 66MHz PCI 2.2 (3.3v)
Slot 6: full, 64-bit 66MHz PCI 2.2 (3.3v)

SECURITY

- Cover key lock
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Keyboard/mouse password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Disable mouse
- Disk, serial port I/O control
- Secure access openings
- VPD stored in EEPROM
- Write protection control for EEPROM
- Optional U-bolt support

PRELOAD[7]

Microsoft® Windows® 2000 Professional
- License for Lotus® SmartSuite®
- License for Lotus Notes® Client

✧ Device Drivers and Diagnostics CD
✧ Software Selections CD-ROM
✧ Windows 2000 Product Recovery CD
✧ Disk-to-Disk Recovery (Windows 2000 in hidden service partition)

OPTIONS

Xeon 1.5GHz/256KB Proc Upgrade	24P8401
Xeon 1.7GHz/256KB Proc Upgrade	24P8402
64MB PC800 ECC RDRAM RIMM (4 Dev)	20L0274
128MB PC800 ECC RDRAM RIMM (8 Dev)	20L0275
256MB PC800 ECC RDRAM RIMM (16 Dev)	20L0277
512MB PC800 ECC RDRAM RIMM (16 Dev)	33L3254
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM 73.4GB 10K Ultra160 SCSI HDD	06P5752
IBM 18.2GB 15K Ultra160 SCSI HDD	19K0658
IBM 40.0GB 7.2K rpm ATA-100 EIDE HDD	22P7157
IBM 9.4GB DVD-RAM (black)	10K3561
IBM 12X/8X/14-32x CD-Rewritable IDE (black)	10K3785
IBM 4Ux20D Tower-to-Rack Kit	10L7006
IBM P260 Color Monitor (black)	655263N
IBM T540 15" TFT Flat Panel Monitor (black)	9511AG4

- *Maximum internal disk capacity:* SCSI: 218.4GB (6 disks x 36.4GB) EIDE: 120GB (3 disks x 40GB)
- H 17.3" x W 8.6" x D 23.7"
- H 440mm" x W 217mm x D 603mm
- 59 pounds max (26.8kg)
- Removable left side panel
- Configuration Manager at startup
- SCSISelect via CTRL+A at prompt
- Adv Config Power Interface (ACPI) 1.1-compliant
- Wired for Manageability (WfM) 2.0-compliant
- SMBIOS 2.3-compliant
- PC99A-compliant

LIMITED WARRANTY*,[3]

- **3 year parts and labor**
- **International Warranty Service[3]**
- **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- **3 year on site warranty service upgrade options:[9]**
  - **4 hour response, Mon-Fri 9-5**
  - **4 hour response, 7 day x 24 hr**
- **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

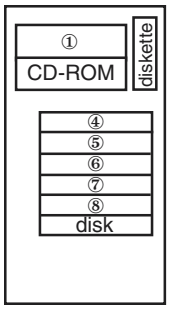
* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced July 31, 2001

No warranties are expressed or implied in this summary
(6850) © IBM Corp. July 2001

IBM IntelliStation® M Pro (6850) - Fall 2001

IBM® Type-model	Qty x Processor	L2 cache	Memory	Disk and rpm	Disk controllers	CD-ROM	Graphics adapter and memory	Slots x bays	Preload[7]	Available date
6850-30U	1 x Xeon 2.0	256KB	256MB	40GB[2] EIDE 7.2K	Ultra160, EIDE	CD	Millennium G450 16MB	6x9	2000	Oct 2001
6850-31U	1 x Xeon 2.0	256KB	256MB	18.2GB Ultra 160 10K	Ultra160, EIDE	CD	Millennium G450 16MB	6x9	2000	Oct 2001
6850-32U	1 x Xeon 2.0	256KB	512MB	18.2GB Ultra 160 10K	Ultra160, EIDE	CD	NVIDIA™ Quadro2 Pro 64MB	6x9	2000	Oct 2001
6850-35U	1 x Xeon 2.0	256KB	512MB	18.2GB Ultra 160 10K	Ultra160, EIDE	CD	ATI® Fire GL4™, [11] 128 MB	6x9	2000	Oct 2001

Positioning	*Ultimate workstation performance and scalability*
Processor	**1 x Intel® Xeon™ 2.0GHz[1] with 400MHz Front Side Bus**
L2 cache	256KB L2 cache / on die of Xeon / at processor speed / no L3 cache
Implementation	Processor and L2 cache in Pin Grid Array (PGA) / motherboard contains two Intel Socket-603 sockets, one memory card connector, five PCI slots, one AGP Pro slot, integrated ethernet and SCSI, and 860 chipset
SMP support	**2-way SMP** via identical processor
Memory	**256 or 512MB std** / **4GB max**[19] / **PC800 ECC Rambus** / two or four RDRAM (Rambus) channels / 32 devices max each channel / 8 slot memory card with four RDRAM channels and max of 8x512MB=4GB / each 82803 Memory Repeater Hub (MRH-R) converts each channel into two channels (2x2=4 channels total) / **ECC** memory controller and RIMMs / 184-pin gold-plated RIMM sockets / supports PC800 RIMMs only / all installed RIMMs must be installed in pairs across channels / 2.5v
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-perf 2D) / AGP 4X adapter / Matrox MGA G450C GPU / 16MB 150MHz SDRAM / dual RAMDAC [360/232MHz] / dual head: 2048x1536x16M at 70Hz and 1600x1200x16M at 85Hz / two DB-15 connectors • **NVIDIA Quadro2 Pro** (advanced 3D) / AGP 4X adapter / NV15GL 250MHz GPU / 64MB 200MHz DDR-SDRAM / 350MHz RAMDAC / single head: 1600x1200x16M at 85Hz / DB-15 and DVI-I connectors (same image if both used) • **ATI Fire GL4** (extreme 3D) / AGP 4X Pro 50 adapter / IBM GT1000-RT1000 GPUs / 128MB 150MHz DDR-SGRAM / dual RAMDAC [300/135MHz] / dual head: 1920x1200x16M at 76Hz and 1280x1024x16M at 75Hz / two DVI-I w/ DB-15 dongles
SCSI controller	**Adaptec® AIC-7899** / dual channel Ultra160 SCSI controller (160MB/sec) / on planar / 64-bit PCI bus
SCSI connectors	*Internal Port A:* 68 pin (attaches 6-drop 16-bit LVD cable to SCSI disk [cable std on SCSI models, not EIDE models]); *External Port B:* 68-pin SCSI port on rear (connected by 1-drop 16-bit LVD cable to conn on planar [cable on all models])
IDE cables	*EIDE and SCSI models:* one 2-drop IDE ATA-33 cable (for CD-ROM); *EIDE models:* one 2-drop ATA-66/100 cable (to disk)
EIDE controller	Enhanced IDE / ATA-100 with two channel support / integrated in I/O Controller Hub (ICH2)
Disk - features	*SCSI models:* 18.2GB Ultra160 / 10K rpm / 5.5 ms read seek; *EIDE:* 40GB / 7200 rpm / 8.7 ms read seek; *All:* S.M.A.R.T.[15]
Rack support	4U[17] rack mount support via tower-to-rack kit option
Chipset	**Intel 860 chipset** / 82860 MCH (Memory Controller Hub) / two 82803AA Memory Repeater Hubs (MRH-R) / 82801BA I/O Controller Hub (ICH2) for PCI 2.2 bus, ATA-100 EIDE, ethernet MAC, USB, Low Pin Count Interface / 82806AA 64-bit PCI controller (P64H) / 82802 Firmware Hub / Winbond® Super I/O off LPC interface
Ethernet	10/100 ethernet on planar / Intel 82550 / 10BaseT, 100BaseTX / full duplex / RJ-45 port / LAN Connect Interface / controller in ICH2 and 82550 / support for Wake on LAN®, Alert on LAN™, Preboot eXecution Envir (PXE)
CD-ROM / diskette	*CD-ROM:* 48X-20X[4] / CAV (ATAPI) / bootable; *Diskette:* 3.5" 1.44MB drive
Audio	Soft audio AC '97 v2.1 controller via ICH2 / ADI 1885 codec / internal mono speaker (use of audio line out requires powered speakers)
External rear ports	*Serial:* two 9-pin; *Parallel:* one (EPP, ECP) / IEEE 1284; *USB:* two; keyboard, mouse, audio line in, audio line out, mic in
Systems mgmt	Monitoring and alerting of thermal, fans, voltage faults, and chassis intrusion
Keyboard / mouse	IBM 104-key keyboard (black) / IBM three-button mouse (black)
Cooling fans	Five variable speed fans (two for processors, one for chassis, one for PCI cards, one in power supply) / not redundant or hot-swap
Power supply	480 watts / universal / auto sensing



Bay ① 5.25", HH 1.6", access, open
Bay ② 5.25", HH 1.6", access, std CD-ROM
Bay ③ 3.5", SL 1", access, diskette
Bay ④ 3.5", SL 1", no access, open (disk only)
Bay ⑤ 3.5", SL 1", no access, open (disk only)
Bay ⑥ 3.5", SL 1", no access, open (disk only)
Bay ⑦ 3.5", SL 1", no access, open (disk only)
Bay ⑧ 3.5", SL 1", no access, open (disk only)
Bay ⑨ 3.5", SL 1", no access, std disk (disk only)

- Mini tower
- Stealth black color
- Swinging door covers bays 1 to 3

Slot 1: full, 32-bit 4X AGP Pro110 (universal) - used by AGP adapter
Slot 2: full, 32-bit 33MHz PCI 2.2 (5v) - not available with Fire GL4 model
Slot 3: full, 32-bit 33MHz PCI 2.2 (5v)
Slot 4: full, 32-bit 33MHz PCI 2.2 (5v)
Slot 5: full 64-bit 66MHz PCI 2.2 (3.3v)
Slot 6: full, 64-bit 66MHz PCI 2.2 (3.3v)

SECURITY

- Cover key lock
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Keyboard/mouse password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Disable mouse
- Disk, serial port I/O control
- Secure access openings
- VPD stored in EEPROM
- Write protection control for EEPROM
- Optional U-bolt support

PRELOAD[7]

Microsoft® Windows® 2000 Professional
- License for Lotus® SmartSuite®
- License for Lotus Notes® Client

✧ Device Drivers and Diagnostics CD
✧ Software Selections CD-ROM
✧ Disk-to-Disk Recovery (Windows 2000 in hidden service partition)

OPTIONS

Xeon 2.0GHz/256KB Proc Upgrade	24P8453
64MB PC800 ECC RDRAM RIMM (4 Dev)	20L0274
128MB PC800 ECC RDRAM RIMM (8 Dev)	20L0275
256MB PC800 ECC RDRAM RIMM (16 Dev)	20L0277
512MB PC800 ECC RDRAM RIMM (16 Dev)	33L3254
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM 73.4GB 10K Ultra160 SCSI HDD	06P5752
IBM 18.2GB 15K Ultra160 SCSI HDD	19K0658
IBM 40.0GB 7.2K rpm ATA-100 EIDE HDD	22P7157
IBM 9.4GB DVD-RAM (black)	10K3561
IBM 12X/8X/14-32x CD-Rewritable IDE (black)	10K3785
IBM 4Ux20D Tower-to-Rack Kit	10L7006
IBM P275 (21.0" viewable)Color Monitor (black)	6552U3N
IBM T540 15" TFT Flat Panel Monitor (black)	9511AG4
IBM T750 17" TFT Flat Panel Monitor (black)	6657HG2

- *Maximum internal disk capacity:* SCSI: 440.4GB (6 disks x 73.4GB) EIDE: 120GB (3 disks x 40GB)
- H 17.3" x W 8.6" x D 23.7"
- H 440mm" x W 217mm x D 603mm
- 59 pounds max (26.8kg)
- Removable left side panel
- Configuration Manager at startup
- SCSISelect via CTRL+A at prompt
- Adv Config Power Interface (ACPI) 1.1-compliant
- Wired for Manageability (WfM) 2.0-compliant
- SMBIOS 2.3-compliant
- PC99A-compliant

LIMITED WARRANTY*,[3]

- **3 year parts and labor**
- **International Warranty Service[3]**
- **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- **3 year on site warranty service upgrade options[9]:**
  - **4 hour response, Mon-Fri 9-5** (ServicePac® part number 41L2737)
  - **4 hour response, 7 day x 24 hr** (ServicePac part number 30L9186)
- **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
US models announced September 25, 2001

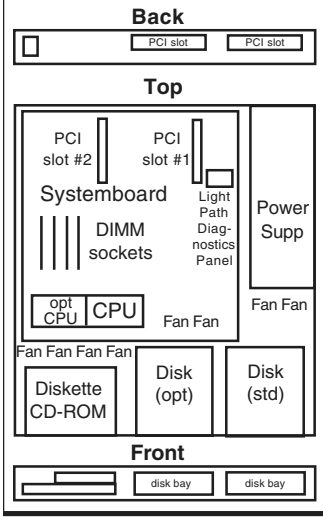
No warranties are expressed or implied in this summary
(6850F) © IBM Corp. September 2001

IBM IntelliStation® R Pro (6851)

IBM® Type-model	Qnty x Processor	Memory	Disk	Disk Controller	CD	Graphics	Video in standard	Ethernet	Mech	Slots x bays	OS	Available date
6851-10U	1 x Pentium® III 1.13GHz[1]/133	256MB	20.4GB[2]	EIDE	CD	Matrox G200 MMS	NTSC	2 x 10/100	1U rack	2x4	DOS	July 2001
6851-11U	1 x Pentium III 1.13GHz/133	256MB	18.2GB	Ultra160	CD	Matrox G200 MMS	NTSC	2 x 10/100	1U rack	2x4	DOS	July 2001
☞ 6851-20U	1 x Pentium III 1.26GHz/133	256MB	20.4GB	EIDE	CD	Matrox G200 MMS	NTSC	2 x 10/100	1U rack	2x4	DOS	Aug 2001
☞ 6851-21U	1 x Pentium III 1.26GHz/133	256MB	18.2GB	Ultra160	CD	Matrox G200 MMS	NTSC	2 x 10/100	1U rack	2x4	DOS	Aug 2001

Processor	**Intel® Pentium® III 1.13 or 1.26GHz[1] with 133MHz[1] Front Side Bus**
Upgrade	1.13GHz models can be upgraded to 1.26GHz
SMP support	**2-way SMP** via identical processor / both VRMs integrated on planar
Implementation	Processor and L2 cache in Flip-Chip Pin Grid Array (FC-PGA2) / two Intel PGA370 sockets / terminator in empty socket
L2 cache	**512KB** std and max / ECC / full speed
Memory - std / max	**256MB** std / 4GB max / Error Checking and Correcting (ECC) memory controller / 4 sockets / 3 available
Memory - features	**SDRAM / 133MHz** / ECC registered DIMMs / 168-pin gold-plated DIMM 3.3 volt sockets / PC133-compliant
Graphics controller	• **Matrox® G200 MMS** / **four monitor support** implemented via 2 proprietary LFH-60 connectors on back of adapter / two std cables attach to each LFH-60 connector/ one cable has two DB-15 analog connectors / another cable has two DB-15 analog connectors and a composite video-in RCA connector / 32-bit PCI adapter / 32MB (8MB per monitor) SGRAM / 250MHz RAMDAC / **integrated TV tuner** (CATV tuner in) / supports NTSC video standard / max of 1920x1200 • *Disabled by BIOS:* SVGA / PCI bus / S3® Savage4Pro / 8MB SDRAM std and max / DDC2B / on planer
SCSI disk controller	*All:* Adaptec® AIC-7892 / Wide Ultra160 SCSI (LVD 160MB/sec) / single channel / 64-bit PCI / integrated on planar
SCSI connectors	*All:* Internal 68-pin connector / no external SCSI connector
IDE controller	*All:* Enhanced IDE / ATA-33 / two connectors on planar
Cabling	*x0U*: one 2-drop IDE cable to two disk bays (one used) *x1U:* one 2-drop 16-bit LVD cable from internal 68-pin SCSI connector to SCSI disk bays (one used) *All:* one 1-drop IDE cable to standard CD-ROM
Disk	*x0U:* 20.4GB ATA-100, 7200 rpm, 8.7ms read, S.M.A.R.T.[15] / *x1U:* 18.2GB Ultra160 SCSI, 10K rpm, 5.2ms read, S.M.A.R.T.
Architecture and chipsets	**ServerWorks® ServerSet III LE chip set** / NB6635 North Bridge 3.0LE (the North Bridge has two peer PCI buses: (1) PCI Bus 0, 32-bit 33MHz, South Bridge, Super I/O, graphics, 2 x ethernet; (2) PCI Bus 1, 64-bit 33MHz, SCSI controller, two 64-bit PCI slots) / IB6566 OSB4 rev B2 South Bridge for IDE, USB, ISA bus for Service Processor and Super I/O National Semiconductor® PC97317VUL (diskette, parallel, serial, keyboard, mouse)
Mechanical	**EIA 19" Rack (1U[4])** / rack-mount only / supported in IBM NetBAY™ Rack products (rack requires vented front door)
Control Panel	Front indicators/switches include Power, Reset, Console Select, Power LED and Fault/info LED
Ethernet controllers	**2 x Intel 82559** ethernet controllers / on planar / 10BaseT, 100BaseTX / full duplex / 32-bit PCI bus / redundant ethernet capability and load balancing support through the connection of both ethernet ports to the same LAN segment / two RJ-45 connectors on rear / supports PXE 2.0 Boot Agent / Wake on LAN® support
CD-ROM / diskette	24X-10X[4] CD-ROM, CAV (ATAPI), bootable, IDE / 3.5" 1.44MB diskette drive
Systems mgmt	*No support:* Advanced System Mgmt Processor / on planar / PowerPC 403GA™ / monitors temp, fans, and power supply
Diagnostics	**Light Path Diagnostics™** (LED lights indicate failing component) and on-board diagnostics (via PC-Doctor in BIOS)
Audio	16-bit audio / PCI adapter / microphone in / stereo line in / stereo line out / speaker out (2 watts) / joystick port (no MIDI)
Ports	*Serial:* One 9-pin (jumper selectable for COM1/Mgmt Processor shared, COM2, or Mgmt Processor); *Parallel:* none; *USB:* Two ports (Version 1.1); *Mgmt:* Two RS485 ports (RJ-45) for systems mgmt
Console interconnect	Cable Chain Technology is not implemented / output port used for attachment of keyboard and mouse via standard KVM console cable (the video connector is disabled) / KVM console cable has PS/2 mouse female connector, keyboard female connector, and DB-15 VGA connector
Security	Power-on password / administrator password / unattended boot / selectable boot / systems mgmt security (user log-in password, read-only or read/write access, dial back) / unattended start mode
Software	DOS 2000 license included / includes Device and Application CD-ROM and Matrox G200 CD-ROM
Keyboard / mouse	104-key keyboard (black) / 3-button mouse (black)
Cooling fans	Eight fans (four for processor(s) and planar, two for disk(s) and planar, two for power supply)
Power supply	200 watt / universal / auto-sensing / auto-restart support
KVM extender[18]	Monitor, keyboard, mouse, and speakers can be located 500 feet from system via a 3rd party rack mounted KVM extender / contact AMuletHotkey® at amulet-hotkey.com, Wey Technologies® at www.wey.ch, Paragon® at paragonav.com

Pentium III 1.13GHz/133MHz/512KB Proc Upg	25P2835
Pentium III 1.26GHz/133MHz/512KB Proc Upg	25P2836
128MB SDRAM ECC DIMM 133MHz (RDIMM)	10K0018
256MB SDRAM ECC DIMM 133MHz (RDIMM)	10K0020
512MB SDRAM ECC DIMM 133MHz (RDIMM)	10K0022
1GB SDRAM ECC DIMM 133MHz (RDIMM)	33L3326
40GB ATA-100 EIDE HDD (Model 10X)	22P7157
36.4GB 10K Ultra160 SCSI HDD (Model x1U)	00N8209
73.4GB 10K Ultra160 SCSI HDD (Model x1U)	06P5752
18.2GB 15K Ultra160 SCSI HDD (Model x1U)	19K0658
IBM P260 (19.8" viewable) FD Monitor (black)	655263N



Bay ① 3.5", UltraSlim 0.8", access, std diskette
Bay ② 5.25", UltraSlim 0.8", access, std CD-ROM
Bay ③ 3.5", SL 1", access, std disk
Bay ④ 3.5", SL 1", access, open

Slot 1: fullsize, 64-bit 33MHz PCI 2.2 (5v) - used by graphics adptr
Slot 2: halfsize,64-bit 33MHz PCI 2.2 (5v) - used by sound adapter

- Stealth black
- H 1.72" (1U) x W 17.3" x D 25.7"
- 26 to 28.4 lbs (minimum to maximum configuration)
- Setup Program is available by pressing F1 at startup
- PC-Doctor diagnostics is available by pressing F2 at startup
- SCSISelect near startup by pressing CTRL+A
- PXE Bullet Agent near startup by pressing CTRL+S
- DMI 2.1 and Wired for Management 1.1a-compliant
- Includes rack mounting kit
- Includes two line cords (9 ft 110v cable with NEMA plug and 9 ft universal interrack HV cable with IEC plug)
- Predictive Failure Analysis® on processor(s), voltage regulator modules, memory, fans, power supply, and disk options

All models: Maximum internal disk capacity (model dependent):
146.8GB with two 73.4GB SL SCSI disks or
80GB with two 40GB EIDE disks / supports 15K rpm SCSI disks

LIMITED WARRANTY*[,3]

- **3 year parts and labor**
- **International Warranty Service[3]**
- **On site warranty all 3 years**
- **All cities in all states**
- **8 am-5 pm, Mon-Fri coverage**
- **Next business day average response time**
- **3 year on site warranty service upgrade options:[9]**
  - **Mon-Fri coverage, 4 hour average response time**
  - **24 hr x 7 day coverage, 4 hour average response time**
- **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

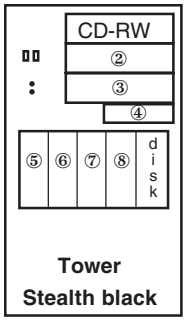
* For a copy of IBM's Statement of Limited Warranty, call 1-800-772-2227
☞ US models announced August 28, 2001; previous models on June 26, 2001

No warranties are expressed or implied in this summary
(6851) © IBM Corp. August 2001

IBM IntelliStation® Z Pro (6894)

IBM® Type-model	Qty x Processor	L3 cache	Mem	Disk and rpm	SCSI adapter	CD-RW	Graphics adapter and memory	Slots x bays	Preload[7]	Available date
6894-10X	2 x Itanium 800	2MB	2GB	18.2GB[2] Ultra160 10K	39160	CD-RW	Millennium G450 16MB	8x9	None	Jun 2001
6894-12X	2 x Itanium 800	2MB	2GB	36.4GB Ultra160 10K	39160	CD-RW	NVIDIA™ Quadro2 Pro 64MB	8x9	None	Jun 2001
6894-14X	2 x Itanium 800	2MB	2GB	18.2GB Ultra160 10K	39160	CD-RW	Millennium G450 16MB	8x9	Windows® XP 64-bit	Oct 2001
6894-16X	2 x Itanium 800	2MB	2GB	36.4GB Ultra160 10K	39160	CD-RW	NVIDIA Quadro2 Pro 64MB	8x9	Windows XP 64-bit	Oct 2001

Processor	**2 x Intel® Itanium™ 800MHz[1] with 266MHz Front Side Bus** (double pumped 133MHz)
L1 and L2 cache	32KB L1 cache / 96KB L2 cache / on die of Itanium / at processor speed
L3 cache	**2MB L3 cache** / inside Itanium cartridge / at processor speed
Implementation	One Processor Board with two Socket M 418-pin LIF sockets / both sockets used by Itanium PAC418 (418-pin array cartridge) processor and caches / each Itanium powered by one Power Pod on Processor Board / systemboard contains one Processor Board slot, two Memory Board slots, seven PCI slots, one AGP slot, one I/O Board slot, and 460GX chip set
SMP support	2-way SMP via identical processor / all models ship with both processors
Memory - std / max	**2GB std** / 16GB max / registered SDRAM PC100 3.3v **/** Error Checking and Correction (ECC) controller and DIMMs
Memory - features	Two Memory Boards standard each with eight 168-pin DIMM sockets / ships standard with four DIMMs on one Memory Board for four-way interleaving / must install four identical DIMMs at a time / adding DIMMs on second Memory Board enables Card to Card (C2C) interleaving
Graphics controller (one of following)	• **Matrox® Millennium G450** (high-perf 2D) / AGP 4X adapter / Matrox MGA G450C GPU / 16MB 150MHz SDRAM / dual RAMDAC [300/136MHz] / dual head: 1920x1440x16M at 75Hz and 1280x1024x16M at 75Hz / two DB-15 connectors • **NVIDIA Quadro2 Pro** (advanced 3D) **/** AGP 4X adapter / NV15GL 250MHz GPU / 64MB 200MHz DDR-SDRAM / 350MHz RAMDAC / single head: 1600x1200x16M at 85Hz / DB-15 and DVI-I connectors (same image if both used)
IDE disk controller	Enhanced IDE busmaster / ATA-33 / controller in IFB (I/O Firmware Bridge) off the PXB / two connectors on planar
SCSI disk controller	Adaptec® ASC-39160 / Ultra160 SCSI (LVD 160MB/sec) / two channel / 64-bit 66MHz PCI adapter
SCSI connectors	Two 68-pin internal (Channel A and B) / one 50-pin internal (Chan A) / two 0.8mm VHDCI 68-pin external (Chan A and B)
Cables	One 5-drop 16-bit LVD SCSI cable, one 2-drop EIDE cable (attached to CD-RW), and one 2-drop EIDE (unconnected)
Disk - features	18.2 or 36.4GB Ultra160 SCSI / 10K rpm / 5.5 ms read seek / S.M.A.R.T.
Rack support	None
Architecture / chipset	**Intel 460GX chip set** / 82460GX includes 82461GX System Address Controller (SAC), 82462GX System Data Controller (SDC), 82463 Memory Address Controller (MAC), 82464GX Memory Data Controller (MDC), 82465GX Graphics eXpansion Bus (GXB), 82466GX Wide eXpansion Bus (WXB), 82467NX PCI eXpansion Bus (PXB), 82468GX I/O Firmware Bridge (IFB), 82802AC Firmware Hub (FWH), 82064AA Programmable Interrupt Device (PID)
I/O Board and ports	I/O Board in proprietary connector / contains controllers for hardware monitor (ADM1024e), 10/100 ethernet, audio, USB (Version 1.1), two channel IDE, chassis intrusion, LPC47M142 Super I/O (serial, keyboard, mouse, USB)
Rear external ports	Serial (9-pin), keyboard, mouse, two USB, ethernet (RJ-45), two disabled audio ports (no parallel port)
Front ports	Two USB, audio line in, audio line out
Ethernet	Intel 82559 10/100 ethernet / support for Wake on LAN®, Alert on LAN™ 2, Preboot eXecution Environment (PXE)
CD-RW / diskette	12X/8X/32X[4] CD-RW / no diskette drive support
Audio	Soft audio AC '97 v2.1 controller / Cirrus Logic CS4281 PCI audio-codec controller and CS4297A stereo audio codec
Systems mgmt	Monitoring and alerting of thermal, fans, and voltage faults
Keyboard / mouse	IBM 104-key keyboard / IBM three-button mouse
Cooling fans	Four cooling zones / 6 fans / processor zone with two 120mm fans / memory zone with one 80mm fan / I/O zone with one 92mm fan and one 60mm fan / exhaust zone with one 80mm fans / varialble speed fans / not redundant or hot-swap
Power supply	800 watts / swings out from right side on door / universal / auto sensing / two internal 80mm fans



Tower

Stealth black

Bay ① 5.25",HH 1.6",access, CD-RW
Bay ② 5.25",HH 1.6",access, open
Bay ③ 5.25",HH 1.6",access, open
Bay ④ 3.5", SL 1", access, open
Bay ⑤ 3.5", SL 1", no access,open
Bay ⑥ 3.5", SL 1", no access,open
Bay ⑦ 3.5", SL 1", no access,open
Bay ⑧ 3.5", SL 1", no access,open
Bay ⑨ 3.5", SL 1", no access,disk
(Bays 5 to 9 accepts three 1.6 HH disks)

Slot 1: fullsize,64-bit 66MHz, PCI 2.2 (3.3v), Bus 1 via WXB
Slot 2: fullsize,64-bit 66MHz, PCI 2.2 (3.3v), Bus 1 via WXB - used by SCSI adapter
Slot 3: fullsize,64-bit 66MHz, PCI 2.2 (3.3v), Bus 1 via WXB
Slot 4: fullsize,64-bit 66MHz, PCI 2.2 (3.3v), Bus 2 via WXB
Slot 5: fullsize,64-bit 66MHz, PCI 2.2 (3.3v), Bus 2 via WXB
Slot 6: fullsize,64-bit 33MHz, PCI 2.1 (5v), Bus 0 via PXB
Slot 7: fullsize, AGP 4X Pro110 (1.5v) via GXB - used by std AGP graphics adapter
Slot 8: fullsize,64-bit 33MHz, PCI 2.1 (5v), Bus 0 via PXB

SOFTWARE[7]

- *10X/12X:* No operating system or preloaded software included
- *14X/16X:* Preloaded with Microsoft® Windows® XP 64-bit Edition
✧ *14X/16X:* Microsoft Windows XP 64-bit Edition Product Recovery CD
✧ *All:* Enhanced Diagnostics CD-ROM
- *All:* Compatible with Linux® OS and Microsoft® Windows® XP 64-bit Edition

SECURITY

- Cover key lock
- Cover tamper detect switch
- Secure fixed DASD
- Power-on password
- Administrator password
- Keyboard/mouse password
- Boot sequence control
- Boot without keyboard or mouse
- Diskette boot inhibit and write-protect
- Disable mouse
- Disk, serial port I/O control
- Secure access openings
- VPD stored in EEPROM
- Write protection control for EEPROM

OPTIONS

1GB (4 x 256MB) PC100 ECC SDRAM RDIMM Kit	33L3258
2GB (4 x 512MB) PC100 ECC SDRAM RDIMM Kit	33L3260
4GB (4 x 1GB) PC100 ECC SDRAM RDIMM Kit	33L3262
IBM IDE 12X/8X/32X CD-RW (black)	10K3785
IBM 18.2GB 10K Ultra160 SCSI HDD	00N8208
IBM 36.4GB 10K Ultra160 SCSI HDD	00N8209
IBM Netfinity Gigabit Ethernet Adapter	19K4401
PCI Ultra160 SCSI Adapter (Adaptec 39160)	19K4646
IBM G96 19" FST (17.9" viewable) Monitor (black)	65494AN
IBM P96 19" FD (17.9" viewable) Monitor (black)	655163N
IBM P260 21" FD (19.8" viewable)Monitor (black)	655263N
IBM P76 17" FD (16" viewable) Monitor (black)	655063N
IBM T85A 18.1" TFT Flat Panel Monitor (black)	9519AG1
Radial Arm	19K4464

- *Maximum internal SCSI disk capacity:* 182GB (5 disks x 36.4GB)
- H 18" x W 10" x D 25.4"
- 84 pounds (38.8kg)
- Removable right side panel
- Configuration Manager at startup
- EFI Shell Utility at startup
- SCSISelect via CTRL+A at prompt
- Adv Config Power Interface (ACPI) 1.0
- Wired for Manageability (WfM) 2.0-compliant
- SMBIOS 2.3-compliant
- PC99A-compliant

LIMITED WARRANTY*,[3]

- **3 year parts and labor**
- **International Warranty Service[3]**
- **On site, 8 am through 5 pm, Mon through Fri excluding holidays, next business day response time**
- **3 year on site warranty service upgrade options:[9]**
  - **4 hour response, Mon-Fri 9-5** (ServicePac® part number 41L2735)
  - **4 hour response, 7 day x 24 hr** (ServicePac part number 41L2741)
- **24 hour x 7 day[12] telephone, fax, electronic, and Internet support**

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

US models announced May 29 or October 16, 2001

No warranties are expressed or implied in this summary

(6894) © IBM Corp. October 2001

[1] MHz and GHz only measures microprocessor internal clock speed; many factors also affect application performance.

[2] MB/GB/TB = 1 million/billion/trillion bytes when referring to storage capacity. Accessible capacity is less.

[3] For a copy of IBM's Statement of LImited Warranty, call 1 800 772-2227. Telephone support may be subject to additional charges. Copies available upon request. For onsite service, customer may be asked certain diagnostic questions before a technician is sent. Limited warranty includes International Warranty Service in those countries where this product is offered.

[4] CD and DVD drives list maximum rates; rates are variable and are often less than the maximum.

[5] Asset ID allows your IntelliStation to be "scanned" by various radio frequency devices supplied by independent companies. Asset ID is intended for use only with radio frequency equipment that meets ANSI/IEEE C95.1 1992 RF radiation limits.

[7] Some software may differ from its retail version (if available), and may not include user manual or all program functionality. Software license agreements may apply.

[8] Diskettes and hard copy documentation available at extra charge.

[9] These repair and exchange services are available for machines normally used for business, professional or trade purposes rather than personal, family or household purposes. Subject to IBM ServicePac Maintenance Service Agreement. 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. Service levels are response time objectives and are not guarantees; service levels may exclude some holidays. On-site service provided after IBM attempts to resolve the problem. For critical service requests, a service technician is scheduled to arrive at your location within two hours, four hours, or the next business day (depending on service) after remote problem determination is completed. For the 9x5x4 service, calls dispatched after 1:00pm local time can expect the service technician to arrive by the morning of the following business day. For non-critical service requests, a service technician will arrive by the end of the following business day. If a machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. External peripherals require their own separate service coverage; they are not covered under the attached machine's ServicePac. Service activation is required immediately following purchase. For failing non-IBM machines, customer must provide replacement part unless IBM has a Technical Support Agreement with the manufacturer. Service does not cover accessories, supply items and certain parts such as batteries, frames and covers. For information on IBM ServicePac for Warranty and Maintenance Options, visit www.ibm.com/services/its/us/servicepac.html. For a Worldwide SevicePac product matrix, visit www-1.ibm.com/services/its/us/source/spacpmww.pdf.

[10] SystemXtra is available to commercial and state and local government customers with valid credit. Leasing is based on a minimum qualifying level of $1,000 of IBM Personal Systems Group hardware. Program is subject to change without notice. Additional terms, conditions and limitations may apply. IBM Global Financing offerings are made available through IBM Credit Corporation in the US and other IBM subsidiaries and divisions worldwide.

[11] Fire GL1, Fire GL2, and Fire GL4 are trademarks of ATI Technologies, Inc., and are used under license.

[12] Response times may vary. May exclude some holidays.

[14] Requires Wake on LAN-enabled ethernet or Token-Ring adapter which may not be standard on each model and are sold separately. Requires separate Internet access account, not included.

[15] S.M.A.R.T. is defined as Self-Monitoring, Analysis and Reporting Technology.

[16] Requires Alert on LAN-enabled ethernet or Token-Ring adapter which may not be standard on each model and are sold separately.

[17] A single "U", or rack unit, is 1.75" or 44.45mm.

[20] In the Intel naming convention, E denotes Advanced Transfer Cache; B denotes 133MHz Frontside Bus.

[21] IBM makes no warranties, express or implied, regarding non-IBM products. Any support and warranties will come from the third-party vendor, not IBM.

IBM, Alert on LAN, Asset ID, IBM AntiVirus for NT, IntelliStation, LAN Client Control Manager, Light Path Diagnostics, NetBay, Predictive Failure Analysis, SMART Reaction, SystemXtra, and Wake on LAN are trademarks or registered trademarks of International Business Machines Corporation. Microsoft, Windows, Windows NT, and the Windows NT logo are trademarks or registered trademarks of Microsoft Corporation. Intel, Pentium, and MMX are trademarks or registered trademarks of Intel Corporation. UNIX is a registered trademarks in the U.S. and other countries licensed exclusively through The Open Group. Linux is a registered trademark of Linus Torvalds. Other trademarks or registered trademarks are the properties of others.

IBM reserves the right to alter specifications and other product information without notice. This publication could include technical in accuracies or typographical errors. IBM may not offer products, services or features discussed in this document in other countries and the information is subject to change without notice. Consult your local IBM representative for information on the products, services and features available in your area. International Business Machines provides this publication "as is" without warranty of any kind, either expressed of implied, including but not limited to, the implied warranties of merchantability or fitness for a particular purpose. Some jurisdictions do not allow disclaimer of express of implied warranties in certain transactions, therefore, this statement may not apply to you.

© Copyright International Business Machines Corporation, 2001. All rights reserved

IBM Server Group
Department WY3A
3039 Cornwallis Road
Research Triangle Park, NC 27709

October 2001
ibook.pdf