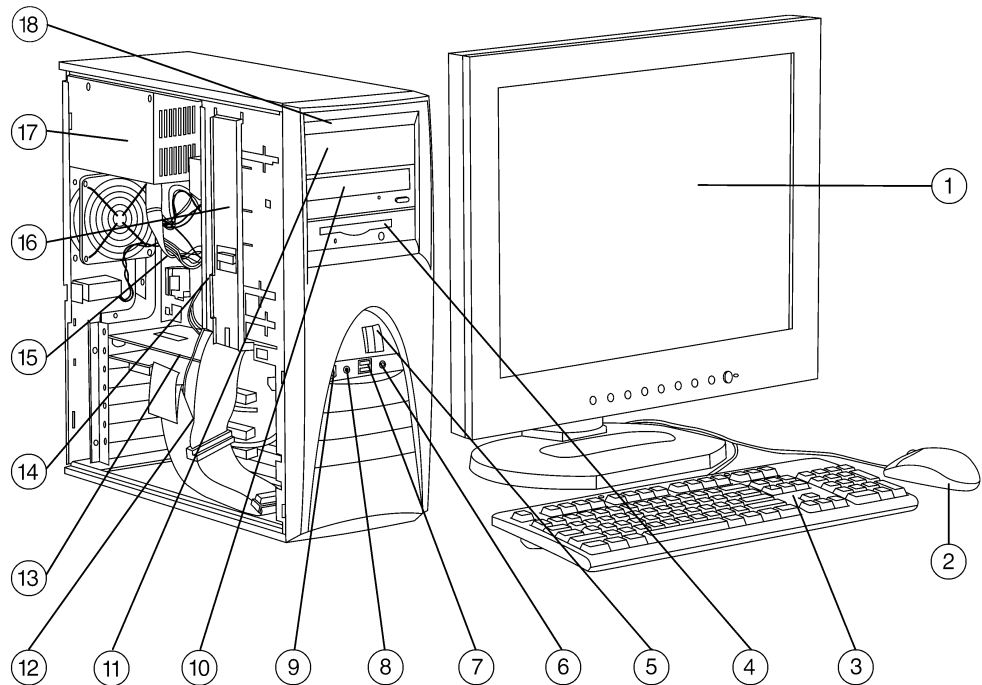


Overview

At A Glance

- Convertible mini-tower form factor
- Supports one Intel® Pentium® 4 processor, up to 2.8-GHz
- 512-KB onboard L2 cache
- Intel 845E chipset with 533-MHz front side bus
- PC2100 DDR-266 DDR SDRAM, expandable to 2-GB
- Ultra320 SCSI hard drives (10,000 or 15,000 rpm) or Ultra ATA/100 hard drives (7200 rpm)
- Ultra ATA/100 controllers, optional Ultra160 SCSI controller
- Up to 438 GB of high-performance internal storage
- Choice of leadership graphics: NVIDIA Quadro4 200 NVS, NVIDIA Quadro4 400 NVS, NVIDIA Quadro4 550 XGL, NVIDIA Quadro4 750 XGL, NVIDIA Quadro4 900 XGL, NVIDIA Quadro2 EX Integrated 10/100 Mb Ethernet adapter
- Six total slots – five PCI and one AGP 4X
- Five bays (three external and two internal)
- CD-ROM, DVD-ROM, DVD+RW, CD-RW, or DVD/CD-RW combo drive
- Windows® XP Professional or Windows 2000 Professional and HP support software pre-installed
- Protected by hp services, including a three-year limited warranty in many countries. Certain restrictions and exclusions apply. Three-year onsite labor not available in all countries.



1. HP Monitor (optional)
2. HP Scroll Mouse
3. Easy Access Keyboard
4. 1.44-MB Diskette Drive
5. On-Off Button
6. Microphone Port
7. USB 2D Ports (2)
8. Audio Port
9. IEEE 1394 Port
10. Optical Drive
11. 5.25-in Drive Bay (available)
12. PCI Slots (5)
13. AGP 4x Slot
14. Memory Sockets (2)
15. Intel Pentium 4 Processor
16. Drivelock
17. 250-Watt Power Supply
18. Rotating Drive Cage



Standard Features

Processor <i>One of the following:</i>	Intel Pentium 4 processor 2.0-GHz (400-MHz front side bus), 2.4-GHz, 2.66-GHz, and 2.8-GHz (533-MHz front side bus)	
Cache Memory	512-KB integrated, full speed Level 2 cache per processor	
Memory:	Maximum	2 GB of PC2100 DDR-266
Network Controller	Integrated Intel LAN 10/100 Network Interface	
Expansion Slots	I/O (Total)	6/5 total slots available
	PCI - 32-bit/33-MHz	5/5 slots available
	AGP 4X	1/0 slot available
Expansion Bays	(Total/Available)	5 total/2 available
	Internal	2, 3.5-inch bays/1 available
	External	2 external 5.25-inch bays/1 available 1 external 3.5-inch floppy
Storage	Diskette Drive	1.44-MB
	Removable Media	CD-ROM, CD-RW, DVDROM, CD-RW/DVD-ROM combo, or DVD+RW/+R
	Hard Drive	40, 80, or 120-GB Ultra ATA (7200 rpm) 36, 72, or 146-GB Ultra320 SCSI (10K rpm) 18, 36, 72-GB Ultra320 SCSI (15K rpm) Ultra320 drives have Ultra160 performance with Ultra160 controller
Interfaces	Parallel	1 25-pin port (rear)
	USB	4 USB ports (2 front, 2 rear)
	Serial	2 9-pin connectors (rear)
	Ultra160 SCSI (optional)	1 with external connector (rear)
	Ultra ATA/100	2 connectors (internal)
	Keyboard	1 PS/2 keyboard port (rear)
	Pointing Device	1 PS/2 mouse port (rear)
	Network interface	1 RJ-45 connector (rear)
	Microphone Jack	1 (front)
	Headphone Jack	1 (front)
	Line-In Jack	1 (front)
	Line-Out Jack	1 (front)
	IEEE 1394 Firewire	Optional – 3 (1 front, 2 rear)

Standard Features

Graphics <i>One of the following:</i>	NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX NVIDIA Quadro4 550 XGL ATI Fire GL 8800 NVIDIA Quadro4 750 XGL NVIDIA Quadro4 900 XGL
Audio	AC97/16-bit stereo full-duplex
Operating System	Microsoft Windows XP Professional preinstall Microsoft® Windows 2000 Professional, service pack 2, preinstall Red Hat® Linux® 8.0 preinstalled (coming in early 2003)
Management	System Software Manager Insight Management Agent Altiris Express Asset Control Alert on LAN (AoL) Wake on LAN (WoL) Fault Management Security Management Pre-Failure Warranty (hard drives and memory) Remote Management Remote Wakeup Remote ROM Flash Remote Security Remote Shut Down Bios Features Advanced Configuration and Power Interface (ACPI) 1.0b Advanced Power Management (APM) 1.2 Desktop Management Interface (DMI) 2.0 System Management (SM) Bios 2.3
Security	Diskette write and boot control Flash ROM lock Keyboard password Network server mode Parallel interface control Power-on password Serial interface control Setup password Cable lock provision
Power Supply	250-Watt, with Power Factor Correction
Service and Support	Protected by HP Services including a three-year, limited warranty with three-year parts coverage, three year, on-site service, and three-year labor (in many countries); 7 x 24 hardware technical phone support and on-line support through the Internet; Pre-Failure Warranty coverage of hard drives, memory, and processors. Note: Certain restrictions and exclusions apply. Consult the customer support center for details. Three-year, onsite and labor not available in all countries.

Standard Features – Pre-configured Global Models

xw4k/2.0/80/256/EXv 470047-279	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.0-GHz with 400-MHz front side bus 512-KB 256-MB ECC DDR Combo Drive CD-RW/DVD 80-GB Ultra ATA/100 EIDE (7,200 rpm) NVIDIA Quadro2 EX HP scroll mouse Windows 2000 Professional
xw4x/2.0/40/256/XcL 470047-280	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.0-GHz with 400-MHz front side bus 512-KB 256-MB ECC DDR CD-ROM 40-GB Ultra ATA/100 EIDE (7,200 rpm) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL HP scroll mouse Windows XP Professional
xw4x/2.4F/40/512/Xv 470047-281	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.4-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput Combo CD-RW/DVD-ROM 40-GB UATA/100 7200 rpm Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL HP scroll mouse Windows XP Professional

Standard Features – Pre-configured Global Models

xw4x/2.4F/36S/512/Xd 470047-282	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.4-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1GB/sec throughput DVD-ROM 36-GB Ultra320 SCSI 10,000 rpm Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows XP Professional
xw4x/2.4F/80/256/XcL 470047-283	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.4-GHz with 533-MHz front side bus 512-KB 256-MB ECC DDR CD-ROM 80-GB Ultra ATA/100 EIDE (7,200 rpm) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows XP Professional
xw4k/2.4F/36S/512/XdL 470047-284	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.4-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput DVD-ROM 36-GB Ultra320 SCSI 10,000 rpm (Ultral60 controller) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows 2000 Professional

Standard Features – Pre-configured Global Models

xw4x/2.4F/80/256/200v 470047-285	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.4-GHz with 533-MHz front side bus 512-KB 256-MB ECC DDR Combo Drive CD-RW/DVD 80-GB Ultra ATA/100 EIDE (7,200 rpm) NVIDIA Quadro4 200 NVS HP scroll mouse Windows XP Professional
xw4x/2.4F/80/512/200vL 470047-286	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.4-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput Combo Drive CD-RW/DVD 80-GB Ultra ATA/100 EIDE (7,200 rpm) NVIDIA Quadro4 200 NVS HP scroll mouse Windows XP Professional
xw4x/2.4F/36S/512/750rL 470047-287	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.4-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput CD-RW 36-GB Ultra320 SCSI 10,000 rpm (Ultral60 controller) NVIDIA Quadro4 750 XGL HP scroll mouse Windows XP Professional
xw4x/2.66F/80/256/XcL 470047-288	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.66-GHz with 533-MHz front side bus 512-KB 256-MB ECC DDR CD-ROM 80-GB Ultra ATA/100 EIDE (7,200 rpm) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL HP scroll mouse Windows XP Professional

Standard Features – Pre-configured Global Models

xw4x/2.66F/36S/512/Xd 470047-289	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.66-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput DVD-ROM 36-GB Ultra320 SCSI 10,000 rpm (Ultral60 controller) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows XP Professional
xw4k/2.66F/36S/512/XdL 470047-290	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.66-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput DVD-ROM 36-GB Ultra320 SCSI 10,000 rpm (Ultral60 controller) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows 2000 Professional
xw4k/2.66F/40/256/200v 470047-291	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.66-GHz with 533-MHz front side bus 512-KB 256-MB ECC DDR Combo Drive CD-RW/DVD 40-GB Ultra ATA/100 EIDE (7,200 rpm) NVIDIA Quadro4 200 NVS HP scroll mouse Windows 2000 Professional
xw4x/2.66F/36S/512/750v 470047-292	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.66-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput Combo Drive CD-RW/DVD 36-GB Ultra320 SCSI 10,000 rpm (Ultral60 controller) NVIDIA Quadro4 750 XGL HP scroll mouse Windows XP Professional

Standard Features – Pre-configured Global Models

xw4x/2.8F/80/512/Xv 470047-293	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.8-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput Combo CD-RW/DVD-ROM 80-GB UATA/100 7200 rpm Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows XP Professional
xw4x/2.8F/36S/512/Xd 470047-294	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.8-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput DVD-ROM 36-GB Ultra320 SCSI 10,000 rpm (Ultra160 controller) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows XP Professional
xw4x/2.8F/40/512/Xd 470046-808	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.8-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput DVD-ROM 40-GB UATA/100 7200 rpm Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows XP Professional

Standard Features – Pre-configured Global Models

xw4k/2.8F/80/512/Xv 470047-295	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.8-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput Combo Drive CD-RW/DVD 80-GB UATA/100 7200 rpm Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows 2000 Professional
xw4k/2.8F/36S/512/Xv 470047-296	Processor Cache Memory Memory Optical Drive Hard Drive Graphics	Intel Pentium 4 processor 2.8-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput Combo Drive CD-RW/DVD 36-GB Ultra320 SCSI 10,000 rpm (Ultra160 controller) Choice of graphics option: Note: Please see Part Numbers in After market options/Standalone accessories section on Page 12. NVIDIA Quadro4 200 NVS NVIDIA Quadro4 400 NVS NVIDIA Quadro2 EX ATI Fire GL 8800 NVIDIA Quadro4 750 XGL Mouse HP scroll mouse OS Windows 2000 Professional
xw4x/2.8F/80/512/EXv 470047-297	Processor Cache Memory Memory Optical Drive Hard Drive Graphics Mouse OS	Intel Pentium 4 processor 2.8-GHz with 533-MHz front side bus 512-KB 512-MB ECC DDR; 2.1-GB/sec throughput Combo Drive CD-RW/DVD 80-GB UATA/100 7200 rpm NVIDIA Quadro2 EX HP scroll mouse Windows XP Professional

Configure to order options

hp workstation xw4000 Base System	When buying a basic system, you have many configuration options. The basic system includes: Convertible Mini-tower Chassis, System Board, Floppy Drive, Cable, etc.
Operating System	Windows XP Professional preloaded; incl. Win XP recovery CD Windows 2000 Professional SP2 preloaded; incl. Win 2000 recovery CD Red Hat Linux 8.0 preloaded; incl recovery CD
Processor	Intel Pentium 4 processor 2.0-GHz, 512-KB cache, 400-MHz front side bus Intel Pentium 4 processor 2.4-GHz, 512-KB cache, 533-MHz front side bus Intel Pentium 4 processor 2.66-GHz, 512-KB cache, 533-MHz front side bus Intel Pentium 4 processor 2.8-GHz, 512-KB cache, 533-MHz front side bus
Graphic Card (Video Card)	No Video Card NVIDIA Quadro4 200 NVS (AGP) NVIDIA Quadro4 400 NVS (PCI) NVIDIA Quadro2 EX LP (AGP) ATI Fire GL 8800 (AGP) NVIDIA Quadro4 750 XGL (AGP)
Memory (DDR-SDRAM)	128-MB (1X128-MB) PC2100 DDR-266 ECC 256-MB (1X256-MB) PC2100 DDR-266 ECC 512-MB (1X512-MB) PC2100 DDR-266 ECC 512-MB (2x256-MB) PC2100 DDR-266 ECC 1-GB (2x512-MB) PC2100 DDR-266 ECC 1-GB (1X1-GB) PC2100 DDR-266 ECC 1.5-GB (1x1-GB + 1x512-MB) PC2100 DDR-266 ECC 2-GB (2x1GB) PC2100 DDR-266 ECC
Monitors	HP L1825 Flat Panel Color Monitor (18-inch, Carbon/Silver) HP L2025 Flat Panel Color Monitor (20-inch, Carbon/Silver) HP p930 Flat screen (19-inch, Carbon/Silver) HP p1130 Flat screen (21-inch, Carbon/Silver) Note: AssetControl monitor. AssetControl features are accessible with hp workstations featuring Intelligent Manageability.
Base system	Convertible Mini-tower Chassis, System Board, Floppy Drive, Cable, etc.

Configure to order options

Primary hard disks	40-GB Ultra ATA/100 EIDE (7,200 rpm)
	80-GB Ultra ATA/100 EIDE (7,200 rpm)
	120-GB Ultra ATA/100 EIDE (7,200 rpm)
	36-GB Ultra320 SCSI (10,000 rpm)
	73-GB Ultra320 SCSI (10,000 rpm)
	146-GB Ultra320 SCSI (10,000 rpm)
	18-GB Ultra320 SCSI (15,000 rpm)
	36-GB Ultra320 SCSI (15,000 rpm)
73-GB Ultra320 SCSI (15,000 rpm)	
Secondary hard disks	40-GB Ultra ATA/100 EIDE (7,200 rpm)
	80-GB Ultra ATA/100 EIDE (7,200 rpm)
	120-GB Ultra ATA/100 EIDE (7,200 rpm)
	36-GB Ultra320 SCSI (10,000 rpm)
	73-GB Ultra320 SCSI (10,000 rpm)
	146-GB Ultra320 SCSI (10,000 rpm)
	18-GB Ultra320 SCSI (15,000 rpm)
	36-GB Ultra320 SCSI (15,000 rpm)
73-GB Ultra320 SCSI (15,000 rpm)	
Controller Card	Adaptec 29160N single-channel Ultra160 SCSI controller
Primary removable media	HP 48X CD-ROM
	HP 48X CD-RW
	HP 16X DVD-ROM
	HP 16X CDRW/DVD Combo (not compatible with other writeable media drives)
	HP DVD-Writer 200i (DVD+R/+RW/CD-RW Combo)
Secondary removable media	HP 48X CR-RW
	HP 16X DVD
	HP 16X CDRW/DVD Combo (not compatible with other writeable media drives)
	HP DVD-Writer 200i (DVD+R/+RW/CD-RW Combo)
Keyboard	HP Easy Access Keyboard (PS/2)
Input devices	HP 3-Button Mouse (PS/2)
	HP Scroll Mouse (PS/2)
I/O PCI Cards and Other	IEEE 1394 Firewire Card
	USB 2.0 PCI Card
	Solenoid/Hood Lock
	Lucent V90 56K Modem PCI card

After market options/Standalone accessories

		<i>Part #:</i>	
Memory (DDR-SDRAM unbuffered)	128-MB PC-2100 DDR-266 ECC	267905-B21	
	256-MB PC-2100 DDR-266 ECC	267906-B21	
	512-MB PC-2100 DDR-266 ECC	267907-B21	
	1-GB PC-2100 DDR-266 ECC	267908-B21	
Monitors	HP L2025 flat panel color monitor (21-inch, carbon/silver)	303486-003	
	HP L1825 flat panel color monitor (18-inch, carbon/silver)	303102-003	
	HP p930 flat screen CRT color monitor (19-inch, carbon/silver)	302268-003	
	HP p1130 flat screen CRT color monitor (21-inch, carbon/silver)	302270-003	
	Note: AssetControl features are accessible with hp workstations featuring Intelligent Manageability.		
Graphics	NVIDIA Quadro4 200 NVS (AGP)	273304-B21	
	NVIDIA Quadro4 200 NVS DVI Cables	284281-B21	
	NVIDIA Quadro4 400 NVS (PCI)	273305-B21	
	NVIDIA Quadro4 400 NVS DVI Cables	284282-B21	
	NVIDIA Quadro4 380 XGL (AGP)	310477-B21	
	NVIDIA Quadro4 550 XGL (AGP)	290648-B21	
	NVIDIA Quadro2 EX LP (AGP)	250066-B21	
	ATI Fire GL 8800 (AGP)	314650-B21	
	NVIDIA Quadro4 750 XGL (AGP)	270731-B21	
	NVIDIA Quadro4 900 XGL (AGP)	284279-B21	
Hard Drives	Ultra320 SCSI Drives		
	36-GB Ultra320 SCSI 10,000 rpm	310503-B21	
	73-GB Ultra320 SCSI, 10,000 rpm	310504-B21	
	146 GB Ultra320 SCSI, 10,000 rpm	310505-B21	
	18-GB Ultra320 SCSI 15,000 rpm	310506-B21	
	36-GB Ultra320 SCSI 15,000 rpm	310507-B21	
	73-GB Ultra320 SCSI, 15,000 rpm	310508-B21	
	Ultra ATA/100 Drives		
	40 GB ATA/100, 7,200 rpm	310498-B21	
	80 GB ATA/100, 7,200 rpm	310499-B21	
	120 GB ATA/100, 7,200 rpm	310500-B21	
	Storage Controllers	Adaptec 29160N Ultra160 Single Channel SCSI Controller (PCI)	310501-B21
		Ultra320 Dual Channel SCSI Controller Card (PCI)	310502-B21
		StorageWorks™ Smart Array Controller 5304/128	158939-B21
StorageWorks Smart Array Controller 5302/64		124992-B21	
Cable, 3 part SCSI		312750-B21	
Backup Devices	Exabyte 33/66-GB VXA-1 IDE Tape Drive	237109-B22	
	Exabyte 33/66-GB VXA-1 SCSI Tape Drive	237108-B22	
	TR5 10/20-GB iTape Drive (IDE, carbon)	294243-B22	
	lomega ZIP 250-MB (internal, IDE, carbon)	294416-B22	

After market options/Standalone accessories

		<i>Part #</i>
Multimedia	HP 48x CD-ROM Drive (carbon)	310509-B21
	48x/12x/48x CD-RW Drive (carbon – Veritas software)	310510-B21
	HP 16x DVD Drive (carbon)	303123-B22
	HP 16x Combo Drive CD-RW and DVD-ROM (carbon – Roxio CDRW and WinDVD SW)	273504-B22
	HP 4.7GB DVD+RW/DVD+R/CD-RW dvd200i Combo Drive (Veritas software, myDVD, PowerDVD)	310513-B21
I/O cards	HP IEEE 1394/Firewire Card (PCI)	310488-B21
	USB 2.0 PCI Card	310489-B21
Communications	Broadcom NetXtreme 10/100/1000 Gigabit NIC	266997-B21
	Intel 10/100 S Management Adapter	212953-B21
	V90 56K PCI WIN Modem	239137-xxx
	V90 56K International Soft WIN Modem	259032-B24
Speakers	Labtec Spin-22 Carbon Speakers	246637-0xx
Input devices & other	Easy Access keyboard - carbon/silver (PS/2)	267145-xx5
	Three button mouse-carbon (PS/2)	269192-B24
	Scroll Mouse-Carbon (PS/2)	170299-B23
	Spaceball 4000 (carbon)	112138-B23
	Solenoid/Hood Lock	252076-B21
	Bracket HDD 3.5 to 5.25-WS	313039-B21
	USB optical mouse (carbon/silver)	265985-B21
	USB scroll mouse (carbon)	195255-B25
	Mercury wireless keyboard with wireless optical mouse	300403-xx8
Security	USB Fingerprint Identification	240238-B21
	USB SmartCard Keyboard	267147-008
	Corvadis USB Enhanced SmartCard Reader	240154-B21
Rack kits	Rack mounting kits (IT & broadcast)	308288-B21
	Fixed shelf kit	253449-B21
	Sliding Shelf Kit	234672-B21
	Depth Adjustable Rails	332558-B21
	StorageWorks Enclosure 4314R	190209-001

Memory

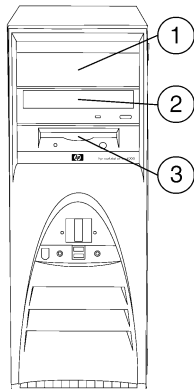
STANDARD MEMORY

This system supports PC-2100 266-MHz DDR ECC. The mainboard is based on the i845E chipset and has 2 DIMM slots (2.1-GB/s throughput). It can support a maximum of 2-GB of RAM when optional memory upgrades are included.

Following are memory options available from HP:

	<i>Part #</i>
• 128-MB upgrade kit PC-2100 DDR-266 ECC (unbuffered)	267905-B21
• 256-MB upgrade kit PC-2100 DDR-266 ECC (unbuffered)	267906-B21
• 512-MB upgrade kit PC-2100 DDR-266 ECC (unbuffered)	267907-B21
• 1-GB upgrade kit PC-2100 DDR-266 ECC (unbuffered)	267908-B21

Storage



DRIVE SUPPORT

	Quantity Supported	Position Supported	Controller
1.44-MB Diskette Drive	Up to 1	3	Integrated
CD-ROM Drive	Up to 1	1, 2	Integrated EIDE
DVD-ROM Drive	Up to 1	1, 2	Integrated EIDE
CD-RW Drive	Up to 1	1, 2	Integrated EIDE
DVD+RW	Up to 1	1, 2	Integrated EIDE
Combo CD-RW/DVD-ROM	Up to 1	1, 2	Integrated EIDE

Hard Drives

Ultra320 SCSI Drives

1-inch	Quantity Supported	Position Supported	Controller
Up to 3	Up to 3	1, 2, 4, 5	Optional Ultra160 SCSI Controller
36-GB Ultra320 SCSI (10K rpm)			
72-GB Ultra320 SCSI (10K rpm)			
146-GB Ultra320 SCSI (10K rpm)			
18-GB Ultra320 SCSI (15K rpm)			
36-GB Ultra320 SCSI (15K rpm)			
73-GB Ultra320 SCSI (15K rpm)			

Ultra ATA Drives

1-inch	Quantity Supported	Position Supported	Controller
Up to 2	Up to 2	1, 2, 4, 5	Integrated EIDE Controller
40-GB (7200 rpm)			
80-GB (7200 rpm)			
120-GB (7200 rpm)			

Maximum Storage Capacity

Internal	438-GB (SCSI) 240-GB (Ultra ATA)
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Technical Specifications

System Unit	Tower Dimensions (HxWxD)	17.65 x 6.6 x 17.61 in/44.8 x 17 x 44.7 cm	
	Weight (standard configuration)	26 lb/12 kg	
	Power Supply	Input current	4.5 A @ 115 VAC 3.0 A @ 230 VAC
		Line Frequency	47 to 63 Hz
		Maximum Rated Power	385-Watt input, 250-Watt output
	Temperature (Values are subject to change)	Operating	50° to 95°F/10° to 35°C
		Non-operating	-40° to 158°F/-40° to 70°C
	Humidity (non-condensing) (Values are subject to change)	Operating	20% to 80%
		Non-operating	10% to 90%
	Maximum Altitude (nonpressurized)	Operating	10,000 ft/3,048 m
Non-operating		30,000 ft/9,144 m	
HP Easy Access Keyboard	Dimensions (HxWxD)	18.3 x 6.3 x 1.4 in/46.48 x 16.0 x 3.56 cm	
	Weight	Approximately 2 lb/0.9 kg	
	Electrical	Operating Voltage	+5VDC ± 5%
		Power Consumption	50 mA maximum (with 3 LEDs on)
		System Interface	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
		EMI-RFI	Conforms to FCC rules for a Class B computing device
		PC98	Functionally compliant
	Mechanical	Languages	30+ available
		Keycaps	Low-profile design
		Switch Actuation	55 g nominal peak force with tactile feedback
		Switch Life	20 million keystrokes (using Hasco modified tester)
		Switch Type	Contamination resistant membrane
		Key Leveling Mechanism	For all double wide and greater length keys
		Cable Length	6 ft/1.8 m
		PC98-99	Mechanically compliant
		Acoustics	50 dBA maximum sound pressure level
	Environmental	Operating Temperature	50° to 122° F/10° to 50° C
		Non-operating Temperature	-22° to 140° F/-30° to 60° C
		Operating Humidity	10% to 90% (non condensing at ambient)
Non-operating Humidity		20% to 80% (non condensing at ambient)	
Operating Shock		40 g, 6 surfaces	
Non-operating Shock		80 g, 6 surfaces	
Operating Vibration		2 g peak acceleration	
Non-operating Vibration		4 g peak acceleration	

Technical Specifications

1.44-MB Diskette Drive	Diskette Size	3.5 in/8.89 cm		
	LED Indicators (front panel)	Green		
	Read/Write Capacity per Diskette (high/low)	1.44-MB/720 KB		
	Drive Height	One-third		
	Drive Rotation	300 rpm		
	Transfer Rate (high/low)	500/250 Kb/s		
	Bytes/Sector	512		
	Sectors/Track (high/low)	18/9		
	Tracks/Side (high/low)	80/80		
	Access Times	Track-to-Track (high/low)	3/6 ms	
		Average (high/low)	94/173 ms	
		Settling Time	15 ms	
		Latency Average	100 ms	
Cylinders (high/low)	80/80			
Read/Write Heads	Two			
HP 3-Button Mouse	Dimensions/Weight	Height	1.42 in/3.6 cm	
		Length	4.17 in/10.7 cm	
		Width	2.87 in/7.4 cm	
		Weight	5.20 oz/150 g	
	Environmental	Operating Temperature	32° to 104° F/0° to 40° C	
		Non-operating Temperature	-4° to 140° F/-20° to 60°C	
		Operating Humidity	10% to 90% (non condensing at ambient)	
	Mechanical	Resolution	400 ± 20% DPI	
		Tracking Speed	10 in/s Maximum	
		Switch Life	1,000,000 operations (using Hasco modified tester)	
		Switch Type	Micro-switches	
		Tracking Mechanism Life	155 miles/250 km at average speed of 10 in/s	
		Cable Length	6 ft/1.8 m	
PC98-99	Mechanically compliant			

Technical Specifications

HP 2-button scroll mouse	Scroll Wheel	8 mm	
	Maximum Rotation Speed	30 mm/s	
	Switch Type	Light force micro-switch	
	Switch Life	1 million operations	
	Mechanical Life	Minimum 200,000 revolutions	
	Environmental	Operating Temperature	50° to 122° F/10° to 50° C
		Non-operating Temperature	-22° to 140° F/-30° to 60° C
		Operating Humidity	10% to 90% (non condensing at ambient)
		Non-operating Humidity	20% to 80% (non condensing at ambient)
		Operating Shock	40 g, 6 surfaces
		Non-operating Shock	80 g, 6 surfaces
		Operating Vibration	2 g peak acceleration
		Non-operating Vibration	4 g peak acceleration
	Electrical	Operating Voltage	+5VDC ± 10%
		Power Consumption	15mA
		System Consumption	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
EMI-RFI		Conforms to FCC rules for a Class B computing device	
PC98		Functionally compliant	
Mechanical	Resolution	400 ± 20% DPI	
	Tracking Speed	10 in/s maximum	
	Acceleration	100 in/s	
	Switch Actuation	85 g nominal peak force	
	Switch Life	1,000,000 operations (using Hasco modified tester)	
	Cable Length	2 m	
	PC98-99	Mechanically compliant	
Regulatory approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BCIQ, C -Tick		
SpaceBall 4000	Features	Six degrees of freedom motion control through the X, Y, Z axis (pitch, roll, yaw) Certified for leading CAD and DCC applications	
	Dimensions/Weight	Height	3.0 in/7.6 cm
		Length	8.4 in/21.3 cm
		Width	6.0 in/15.2 cm
		Weight	1.4 lb/0.64 kg
	Mechanical	Force range	0.5 - 8.2N (1.8 – 29.5 oz)
		Torque range	6.91 Nmm (0.085 – 0.33 oz-in.)
		Resolution	10-bits
	Serial Specifications	Connector	9-pin D-subminiature receptacle (DB9S)
		Cable Length	Approx. 12.8 ft/3.9 m captive
Data rate		9600 bps	
Flow control		Xon/Xoff	
Regulatory Approvals	Compliant	UL, cUL, EN 950, EN 60950, CSA, FCC, CE Mark, TUV, CISPR 22, EN 50082, IEC 1000 4-2, IEC 1000-4-3, AS/NZS, VCCI, BSMI, C-Tick	

Technical Specifications

Ultra320 SCSI Hard Drive	146-GB	Capacity	146,000-MB	
		Height	1 in/2.54 cm	
		Width	3.5 in/8.89 cm	
		Interface	Ultra320 SCSI	
		Transfer rate synchronous (maximum)	320-MB/s	
		Seek time (typical reads, including settling)	Single track	0.55 ms
			Average	4.9 ms
			Full-stroke	9.2 ms
		Rotational speed	10,000 rpm	
		Logical blocks	289,749,488	
		Operating temperature	41° to 131° F/5° to 55° C	

73-GB	73-GB	Capacity	73,000-MB	
		Height	2.5cm (1.0 in)	
		Width	8.9 cm (3.5 in)	
		Interface	Ultra320 SCSI	
		Transfer rate synchronous (maximum)	320-MB/s	
		Seek time (typical reads, including settling)	Single track	0.55 ms
			Average	4.9 ms
			Full-stroke	9.2 ms
		Rotational speed	10,000 rpm	
		Logical blocks	143,374,744	
		Operating temperature	41° to 131° F/5° to 55° C	

73-GB	73-GB	Capacity	73,000-MB	
		Height	1 in/2.54 cm	
		Width	3.5 in/8.89 cm	
		Interface	Ultra320 SCSI	
		Transfer rate synchronous (maximum)	320-MB/s	
		Seek time (typical reads, including settling)	Single track	0.4 ms
			Average	3.8 ms
			Full-stroke	6.7 ms
		Rotational speed	15,000 rpm	
		Logical blocks	143,337,744	
		Operating temperature	41° to 131° F/5° to 55° C	

Technical Specifications

Ultra320 SCSI Hard Drive (continued)	36-GB	Capacity	36,400-MB			
		Height	1 in/2.54 cm			
		Width	3.5 in/8.89 cm			
		Interface	Ultra320 SCSI			
		Transfer rate synchronous (maximum)	320-MB/s			
		Seek time (typical reads, including settling)	Single track	0.6 ms		
			Average	4.5 ms		
			Full-stroke	11.0 ms		
		Rotational speed	10,000 rpm			
		Logical blocks	71,631,920			
		Operating temperature	41° to 131° F/5° to 55° C			
		<hr/>				
			36-GB	Capacity	36,400-MB	
	Height	1 in/2.54 cm				
	Width	3.5 in/8.89 cm				
	Interface	Ultra320 SCSI				
	Transfer rate synchronous (maximum)	320-MB/s				
	Seek time (typical reads, including settling)	Single track		0.4 ms		
		Average		3.7 ms		
		Full-stroke		7.0 ms		
	Rotational speed	15,000 rpm				
	Logical blocks	71,132,000				
	Operating temperature	41° to 131° F/5° to 55° C				
<hr/>						
	18-GB	Capacity		18,209-MB		
		Height	1 in/2.54 cm			
		Width	3.5 in/8.89 cm			
		Interface	Ultra320 SCSI			
		Transfer rate synchronous (maximum)	320-MB/s			
		Seek time (typical reads, including settling)	Single track	0.4 ms		
			Average	3.7 ms		
			Full-stroke	7.0 ms		
		Rotational speed	15,000 rpm			
		Logical blocks	35,566,000			
		Operating temperature	41° to 131° F/5° to 55° C			

Technical Specifications

Ultra ATA Hard Drives	120 GB	Capacity	120,000-MB			
		Height	1 in/2.54 cm			
		Width	3.5 in/8.89 cm			
		Interface	Ultra ATA/100			
		Synchronous Transfer Rate (Maximum)	100-MB/s			
		Seek Time (typical reads, including settling)	Single Track	1.2 ms		
			Average	8.0 ms		
			Full-Stroke	18.0 ms		
			Rotational Speed	7200 rpm		
		Logical Blocks	234,441,648			
		Operating Temperature	41° to 131° F/5° to 55° C			
			80 GB	Capacity	80,000-MB	
				Height	1 in/2.54 cm	
Width	3.5 in/8.89 cm					
Interface	Ultra ATA/100					
Synchronous Transfer Rate (Maximum)	100-MB/s					
Seek Time (typical reads, including settling)	Single Track			1.2 ms		
	Average			8.0 ms		
	Full-Stroke			18.0 ms		
	Rotational Speed			7200 rpm		
Logical Blocks	157,278,240					
Operating Temperature	41° to 131° F/5° to 55° C					
	40 GB			Capacity	40,000-MB	
				Height	1 in/2.54 cm	
		Width	3.5 in/8.89 cm			
		Interface	Ultra ATA			
		Synchronous Transfer Rate (Maximum)	100-MB/s			
		Seek Time (typical reads, including settling)	Single Track	1.2 ms		
			Average	8 ms		
			Full-Stroke	18.0 ms		
			Rotational Speed	7200 rpm		
		Logical Blocks	78,165,360			
		Operating Temperature	41° to 131° F/5° to 55° C			

Technical Specifications

4.7GB DVD+RW dvd200i	Interface	Atapi IDE	
	Media formats written	CD-R, CD-RW, DVD+RW, DVD+R	
	Media capacity	4.7 GB DVD disc/700-MB CD disc	
	Write methods	Disc-at-once, track-at-once, incremental fixed and variable packet	
	Recording/playing time	3 hours DVD (3.3-Mbps)/80 minutes CD	
	Data transfer rates	Write	DVD+R write — 3247 KB/s (2.4X) DVD+RW write — 3247 KB/s (2.4X) CD-R write — 300 KB/s (2X) CD-R write — 600 KB/s (4X) CD-R write — 1200 KB/s (8X) CD-R write — 1,800 KB/s (12X) CD-RW write — 300 KB/s (2X) CD-RW write — 600 KB/s (4X) CD-RW write — 1500 KB/s (10X)
		Read	Digital audio extraction (minimum) —1,200 KB/s (8X) CD-ROM, CD-R, CD-RW read — up to 4,800 KB/s (32X) DVD-ROM, DVD+R, DVD+RW read — up to 10,800 KB/s (8X)
	Data transfer modes	ATA PIO mode 4—16.7-Mbps ATA multi-word DMA mode 2—16.7-Mbps ATA UltraDMA mode 0—16.7-Mbps ATA UltraDMA mode 1—24-Mbps mode 2—33-Mbps (default)	
	Media formats read	CD CD-R/CD-ROM, CD-RW, CD-Digital Audio (Red Book) and CD Extra, CD-ROM (Mode 1 - Yellow Book), CD-ROM XA and CD-I (Mode 2/Form 1 - Green Book), CD-ROM XA and CD-I (Mode 2/Form 2 - Green Book), CD-Bridge and Photo-CD (single and multi-session), CD-Video, DVD-ROM, DVD+RW, DVD+R	
	Access times	Random	< 125 ms typical
		Full stroke	< 250 ms typical
	Start-up time	< 4 seconds typical	
	Buffer size	2-MB	
	Disc diameter	120 mm or 80 mm	
	Operating conditions	Temperature	41° to 104°F/5° to 40°C
		Humidity	10% to 90% (non-condensing)
	Mounting orientation	Horizontal or vertical	
	Weight	2.0 lb/0.9 kg	
	Approvals/environmental	UL 1695 (US and Canada), CE, FDA, FCC, TUV, C-TICK	
	Operating systems supported	Microsoft Windows XP Professional, Microsoft Windows 2000 SP2	

Technical Specifications

48X CD-ROM Drive	Disk	Applicable Disk	CD-ROM (Mode 1 and 2), CD-R/W, CD-R Photo CD (Single and Multi-session), Mixed Mode (Audio and Data combined), CDI Ready, CD-XA Ready, CD TEXT, CD EXTRA	
		Capacity	540-MB (Mode 1, 12 cm) 650-MB (Mode 2, 12 cm)	
		Rotational Speed	8750 maximum	
		Diameter	4.7 in, 3.15 in/12 cm, 8 cm	
		Center Hole	0.6 in/1.52 cm diameter	
		Thickness	0.05 in/0.13 cm	
		Track Pitch	1.6 µm	
		Block Size	Mode 1 Mode 2 CD-DA CD-XA	2,048 bytes 2,340, 2,336 bytes 2,352 bytes 2,328 bytes
		Interface	IDE	
		Access Times (typical)	Random Full-Stroke	< 100 ms < 150 ms
	Audio Output Level	Line-Out	0.7 VRMS	
	Data Transfer Rate	Sustained Variable	150 KB/s (1X, using audio disc) 3,000 to 7,200 KB/s	
	Cache Buffer	128 KB minimum		
	Start-up Time (typical)	< 7 s		
	Stop Time	< 4 s		
	Operating Conditions	Temperature Humidity	41° to 113° F/5° to 45° C 10% to 80%	
	Dimensions	(HxWxD, maximum) Weight	1.7 x 5.9 x 8.19 in/4.29 x 15 x 20.8 cm 2.65 lb/1.2 kg	

Technical Specifications

48X/12X/48X CD-RW Drive	Orientation	Either horizontal or vertical	
	Disc Loading Mechanism	Half-height, tray load	
	Interface Type	ATAPI IDE	
	Dimensions—external (W x H x D)	7.99 x 5.88 x 1.71 in/20.29 x 14.94 x 4.34 cm	
	Weight	2.6 lb/1.2 kg	
	Disc Diameter	12 cm, 8 cm	
	Disc Thickness	1.2 mm	
	Track Pitch	1.6 μ m	
	Disc Center Hole Diameter	15 mm	
	Reference Scanning Velocity	1.2 m/s	
	Recording/Playing Time	80 minutes with CD-R media	
	Read Only Disc Parameters	Formats and Modes Supported	CD-ROM—Mode 1; CD-ROM XA—Mode 2 (forms 1 and 2); CD digital audio; CD Extra; CD-I—Mode 2 (forms 1 and 2) and CD-I-Ready; Photo CD (single and multi-session); video CD
		Capacity	185-MB (Mode 2, 8cm); 540-MB (Mode 1, 12 cm); 650-MB (Mode 2, 12 cm); 700-MB (Mode 2, 12 cm)
		Block Size	Mode 1—2,048 and 2,352 bytes; mode 2, form 1—2,048; 2,328; 2,336; 2,340 and 2,352 bytes; mode 2, form 2—2,328; 2,336; 2,340 and 2,352 bytes; CD-DA—2,352 and 2,368 bytes
Writeable Disc Parameters			
	Disc Type	CD-R and CD-RW	
	Write Methods	Disc at Once, Track at Once, Session at Once, Variable Packet, Fixed Packet	
	Format and Modes Supported	CD-ROM (mode 1); CD-ROM XA (mode 2, forms 1 and 2); CD digital audio, CD-I (mode 2, forms 1 and 2); video CD	
	Capacity	185-MB (Mode 2, 8cm); 540-MB (Mode 1, 12 cm); 650-MB (Mode 2, 12 cm); 700-MB (Mode 2, 12 cm)	
	Block Size	Mode 1—2,048 bytes; mode 2, form 1—2,048 and 2,352 bytes; mode 2, form 2—2,352 bytes; CD-DA ---2,352 bytes	
Access Times (typical)	Random	< 120 ms	
	Full Stroke	< 200 ms	

Technical Specifications

48X/12X/48X CD-RW Drive <i>(continued)</i>	Data Transfer Rates	Sustained	CD-R write—1,800 KB/s (12X)	
			CD-R write—2400 KB/s (16X)	
				CD-RW write (1-4X media) —600 KB/s (4X)
				CD-RW write (4-10X media) —1,500 KB/s (10X)
				CD-RW write (4-12X media) —1,800 KB/s (12X)
				CD-RW read—3,600 KB/s (24X)
				Digital audio extraction (minimum) —7,200 KB/s (48X)
		Variable		CD-RW write—2,400 to 3,600 KB/s (16X to 24X)
				CD-RW write—2,400 to 4,800 KB/s (16X to 32X)
				CD-RW write—2,400 to 6,000 KB/s (16X to 40X)
				CD-RW write—2,400 to 7,200 KB/s (16X to 48X)
				CD-ROM, CD-R read—1,500 to 7,200 KB/s (10X to 48X)
	Data Transfer Modes	ATA PIO mode 4 (16.7MB/s) ; ATA multi-word DMA mode 2 (16.7-MB/s); ATA UltraDMA mode 0 (16.7-MB/s) ;ATA UltraDMA mode 1 (24-MB/s) ; ATA UltraDMA mode 2 (33-MB/s) – default.		
Cache Buffer	2-MB (minimum)			
Start-up Time (single)	< 7 seconds typical			
Start-up Time (multi-session)	< 30 seconds typical			
Stop Time	< 4 seconds			
Power	Source	Four-pin, DC power receptacle		
	DC power requirement	5 VDC \pm 5%—100 mV ripple p-p		
		12 VDC \pm 5%—200 mV ripple p-p		
	DC current	5 VCD	< 1A (typical) < 1200 mA (maximum)	
		12 VCD	< 600 mA (typical) < 1.2A (maximum)	
	Total Drive Power (Standby mode)	< 2.5 watt		
Audio Output Level	0.7 Vrms			
Configuration Jumper Block	Master, slave and cable select modes			
Data Interface Connector	50-pin IDE interface			
Environmental (all conditions, non-condensing)	Temperature (operating)	Operating 41° to 122° F/5° to 50° C		
	Relative Humidity (operating)	10% to 85%		
	Maximum Wet Bulb Temperature (operating)	84° F/29° C		
Certifications, Requirements	ACA AS/NZS 3548, ANSI C63.4–1992, CB Test Certificate for IEC 950, CE Mark, CFR 47 part 15, CNS 13438, CSA C22.2 No. 60950, DHHS/FDA - 1040, EN60825, EN55022: 1998, EN55024, EN60 950:2000, ICES-003 class B, IEC 61000 4-2 – 4-11, Nordic EN60 950, TUV or VDE EN60 950, UL 60950, C.I.S.P.R. Publication 22 Class B, BSMI, Microsoft P2001, Microsoft Logo for Windows XP, 2000, NT4, ME, 98			
Operating Systems Supported	Microsoft Windows XP, Microsoft Windows 2000, Microsoft Windows NT® 4.0			

Technical Specifications

16X/40X DVD-ROM Drive with +R Read Support	Height	5.25-in, half-height		
	Interface Type	ATAPI		
	Dimensions— External, Excluding Bezel (W x H)	5.88 x 1.71 in/14.94 x 4.34 cm		
	Disc Diameter	12 cm, 8 cm		
	Disc Thickness	1.2 mm		
	Track Pitch	1.6 μ m (CD), 0.74 μ m (DVD)		
	Disc Center Hole Diameter	15 mm		
	Disc Formats	DVD-ROM (single and dual layer); DVD-video; DVD-R version 1.0 and 2.0; DVD-RW version 1.0 and 1.1; DVD-R multi-border; DVD+RW; DVD+R; CD-ROM Mode 1 and 2; CD-DA; CD-ROM XA Mode 2, Form 1 and 2; CD-extra; CD-text; CD-I Mode 2, Form 1 and 2; CD-I ready; video CD, CD-bridge; PhotoCD (single and multi-session); CD-R; CD-RW		
	Disc Capacity	DVD-ROM	4.7 GB (DVD-5), 8.54 GB (DVD-9), 9.4 GB (DVD-10), 3.95 GB (DVD-R version 1.0), 4.7 GB (DVD-R version 2.0), 4.7 GB (DVD-RW version 1.0 and 1.1), 4.7 GB (DVD+RW), 4.7 GB (DVD+R)	
		CD-ROM	540-MB (Mode 1, 12 cm), 640-MB (Mode 2, 12 cm), 700-MB (80 minimum CD-R and CD-RW), 180-MB (8 cm)	
	Block Size (bytes)	DVD-ROM – 2048; CD-ROM Mode 0 – 2352; CD-ROM Mode 1 – 2352, 2340, 2336, 2048; CD-ROM Mode 2 – 2352, 2340, 2336, 2048		
	Access Times (typical reads, including settling)	DVD-ROM Single Layer	< 120 ms	
		CD-ROM Mode 1	< 90 ms	
		Full Stroke DVD	< 240 ms (seek)	
		Full Stroke CD	< 160 ms (seek)	
Data Transfer Rates	2600 – 6000 KB/s (40X CAV CD-ROM mode)			
	8100 – 21,600 KB/s (16X CAV DVD-ROM mode)			
Data Transfer Modes	PIO Mode 4 (16.6-MB/s); Multi-word DMA mode 2 (16.6-MB/s); UltraDMA Mode 3 (44.4-MB/s)			
Power	Source	Four-pin, DC power receptacle		
	DC Power Requirement	5 VDC \pm 5% – 100 mV ripple p-p		
		12 VDC \pm 5% – 200 mV ripple p-p		
	DC Current	5 VDC – <800 mA typical, < 1000 mA maximum		
12 VDC – < 870 mA typical				
Audio Output Level	0.7 Vrms (typical)			
Configuration Jumper Block	Master, slave, and cable select modes			
Data Interface Connector	40-pin, shrouded and keyed, flat ribbon			
Environmental (all conditions non-condensing)	Temperature (operating)	41° to 122° F/5° to 50° C		
	Relative Humidity (operating)	10% to 85%		
	Maximum Wet Bulb Temperature (operating)	86° F/30° C		
	Certifications, Approvals	MMC II support, multi-read certification, Microsoft WHQL certification, ACA AS/NZS 3548 class B, CNS 13438, C.I.S.P.R. Pub 22, TUV or VDE EN60950, EN 55022, EN55024, SEMKO, NEMKO, DEMKO, FIMKO, EN 60825-1, UL 60950, and CSA C22.2 60950-2000.		
Operating Systems Supported	Microsoft Windows NT, Microsoft Windows 2000, and Microsoft Windows XP.			

Technical Specifications

16X Combo CD-RW/DVD-ROM	5.25-inch, half-height, tray-load	
	Orientation	Either horizontal or vertical
	Interface Type	ATAPI
	Dimensions—External, Excluding Bezel (W x H x D)	5.8 x 1.7 x 7.7 in/14.7 x 4.3 x 19.56 cm
	Disc Diameter	5 in, 3 in (12 cm, 8 cm)
	Disc Thickness	0.05 in (1.2 mm)
	Track Pitch	1.6 μ m (CD), 0.74 μ m (DVD)
	Disc Center Hole Diameter	0.6 in (15 mm)
	Reference Scanning Velocity	1.2 m/s (CD); 3.49 m/s (DVD SL); 3.84 m/s (DVD DL)
	Read Only Disc Parameters	Formats and modes supported
Capacity		540-MB (mode 1, 12 cm); 650-MB (mode 2, 12 cm); 700-MB (Mode 2, 12 cm); 180-MB (mode 2, 8 cm); 4.7 GB (DVD-5); 8.54 GB (DVD-9); 9.4 GB (DVD-10)
Block size		Mode 1—2,048 and 2,352 bytes; mode 2, form 1—2,048; 2,328; 2,336; 2,340 and 2,352 bytes; mode 2, form 2—2,328; 2,336; 2,340 and 2,352 bytes; CD-DA—2,352 bytes; DVD—2,048 bytes
Writeable Disc Parameters		
	Disc type	CD-R and CD-RW
	Write methods	Disc at Once, Track at Once, Session at Once, Variable Packet, Fixed Packet
	Format and modes supported	CD-ROM (mode 1); CD-ROM XA (mode 2, forms 1 and 2); CD digital audio, CD-I (mode 2, forms 1 and 2); video CD; CD-Bridge
	Capacity	540-MB (mode 1, 12 cm); 650-MB (mode 2, 12 cm); 700-MB (mode 2, 12 cm); 180-MB (mode 2, 8 cm)
	Block size	CD-DA—2,352 bytes; mode 0—2,336 and 2,352 bytes; mode 1—2,048 and 2,352 bytes; mode 2—2,336 and 2,352; mode 2, form 1—2,048 and 2,352 bytes; mode 2, form 2—2,324 and 2,352 bytes

Technical Specifications

16X Combo CD-RW/DVD-ROM (continued)	Access Times (typical reads, including settling)	Random DVD	< 130 ms (typical)
		Random CD	< 110 ms, (typical)
		Full stroke DVD	< 210 ms (seek)
		Full stroke CD	< 180 ms (seek)
	Data Transfer Rates	Sustained — CD-R write	600 KB/s (4X), 1800 KB/s (12X)
		Sustained — CD-RW write	600 KB/s (4X, 1-4X media), 1500 KB/s (10X, 4-10X media)
		Sustained — CD-RW read	1500 KB/s (10X)
		Sustained — Digital audio extraction (minimum)	1500 KB/s (32X)
		Variable — CD-R write	2400 KB/s (16X)
		Variable — CD-ROM, CD-R read	1500 – 6000 KB/s (10X to 40X)
		Variable — DVD ROM	8100 – 16,200 KB/s (12X)
		Variable — DVD Video	1352 – 3268 KB/s (2.4X)
	Data Transfer Modes	ATA PIO mode 4 (16.7-MB/s); ATA Multi-word DMA mode 2 (16.7-MB/s); ATA UltraDMA mode 0 (16.7-MB/s); ATA UltraDMA mode 1 (24-MB/s), mode 2 (33-MB/s, default)	
		Cache buffer	2-MB (minimum)
		Startup time (single)	< 7 seconds (typical)
		Startup time (multi-session)	< 30 seconds (typical)
		Stop time	< 4 seconds
		Power	Source
	DC power requirement		5 VDC \pm 5%—100 mV ripple p-p 12 VDC \pm 5%—200 mV ripple p-p
DC current	5 VDC (< 1000 mA typical, < 1500 mA maximum) 12 VDC (< 600 mA typical, < 1200 mA maximum)		
Total drive power (standby mode)	< 2.5 watt		
Audio Output Level	0.7 Vrms (typical)		
Configuration Jumper Block	Master, slave, and cable select modes		
Data Interface Connector	40-pin, shrouded and keyed, flat ribbon		
Environmental (all conditions non-condensing)	Temperature (operating)	41° to 122° F/5° to 50° C	
	Relative humidity (operating)	10% to 85%	
	Maximum wet bulb temperature (operating)	86° F/30° C	
Certifications, Requirements	MPC-3 compliant, multi-read requirements, ACA AS/NZS 3548, ANSI C63.4–1992, ATAPI Spec SFF-8020, ATA Spec X3T9.2, CB Bulletin No. 92A, CSA C22.2 No. 950-1995, C.I.S.P.R. Pub 22, EMKO-TSE 207/94, TUV or VDE EN60 950, EN60825-1, Microsoft PC2001 certification, Microsoft Logo for Windows XP, 2000, NT4, and 98		
Operating Systems Supported	Microsoft Windows 98, Microsoft Windows NT 4.0, Microsoft Windows 2000, Windows XP Note: MPEG video playback is not supported on Microsoft Windows NT.		

Technical Specifications

Integrated Intel PRO/100 + Management Adapter	Network Interface	10Base-T or 100Base-TX		
	Expansion Bus Architecture	PCI 2.2		
	Network Transfer Rate	10Base-T (Half-Duplex)	10-Mb/s	
		10Base-T (Full-Duplex)	20-Mb/s	
		100Base-TX (Half-Duplex)	100-Mb/s	
		100Base-TX (Full-Duplex)	200-Mb/s	
	Connectors	RJ-45		
	Standards Compliance	IEEE 802.2		
		IEEE 802.3		
	I/O Address	Auto-configured		
	Remote Wakeup	Yes		
	Operating Temperature	32° to 131° F/- 0° to 55°C		
	Operating Humidity (non-condensing)	85% at 131° F/55° C		
	Operating Altitude	10,000 ft/3,048 m		
	Communication Processor	Intel 82559		
	OS Driver Support	Windows NT 4.0	NDIS 3.0, 4.0 Compliant	
		Windows 95, 98, 2000, XP Pro	NDIS 3.0, 4.0, 5.0 Compliant	
Novell® NetWare® Server v. 3.x, 4.x and 5.0		ODI Compliant		
SunSoft Solaris™		Not supported		
SCO® UnixWare®, OpenDesktop, OpenServer®		Supported		
Broadcom NetXtreme Based 10/100/1000 Management Gb Adapter	Network Interface	10Base-T, 100Base-TX, 1000Base-T		
	Expansion Bus Architecture	PCI 2.2		
	Network Transfer Rate	10Base-T (Half-Duplex)	10-Mb/s	
		10Base-T (Full-Duplex)	20-Mb/s	
		100Base-TX (Half-Duplex)	100-Mb/s	
		100Base-TX (Full-Duplex)	200-Mb/s	
		1000Base-T (Full-Duplex)	1000-Mb/s	
		1000Base-T (Full-Duplex)	2000-Mb/s	
	Connectors	RJ-45		
	Standards Compliance	IEEE 802.3, IEEE802.3u, IEEE802.3ab		
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union		
	I/O Address	Auto-configured		
	Remote Wakeup	Yes		
	Management capabilities	ACPI, WOL and DMI 2.0, PXE 2.0, WfM 2.0, Broadcom mgmt utility		
	Operating Temperature	32° to 131° F/- 0° to 55°C		
	Operating Humidity (non-condensing)	85% at 131° F/55° C		
	Dimensions	4.721 x 2.0 x 0.08 in/12.02 x 5.09 x 1.9 cm		
Communication Processor	Broadcom 5702 PCI LAN Controller			
Memory	Integrated 96Kb frame buffer memory			
OS Driver Support	Windows NT 4.0	NDIS 3.0, 4.0 Compliant		
	Windows 98, 2000, XP Pro	NDIS 3.0, 4.0, 5.0 Compliant		
	Linux 2.2, 2.4			

Technical Specifications

NVIDIA Quadro4 200 NVS Graphics Card	Form Factor	Low profile
	Graphics Controller	Integrated Quadro4 2D/3D 128-bit graphics processor unit (GPU)
	Bus Type	AGP 4x
	RAMDAC	Dual 350-MHz
	Memory	64-MB 166-MHz 4 M x 16 SDR 6ns unified frame buffer
	Connectors	Single LFH-60
	Dimensions	low-profile form factor
	Multi-monitor support	Dual monitors with NVIDIA's nView
	nView Hardware Architecture	Dual 350-MHz RAMDACs Integrated TMDS Digital Vibrance Control (DVC) 32-bit color 2048 x 1536 @ 60 Hz maximum resolution 2D rendering engine optimized for 32-, 24-, 16-, 15-, and 8-bpp modes Unified driver architecture (UDA) provides easy installation and manageability
	High definition video processor	Full-screen, full-frame video playback of HDTV and DVD content DVD-ready motion compensation for MPEG-2 Independent hardware color controls for video overlay Hardware color-space conversion (YUV 4:2:2 and 4:2:0) IDCT motion compensation 5-tap horizontal by 3-tap vertical filtering 8:1 up/down scaling
	Supported graphics APIs	Fully compliant with OpenGL 1.3 and DirectX 8.1
	Available graphics drivers	Microsoft Windows XP and Microsoft Windows 2000

NVIDIA Quadro4 200 NVS display resolutions & refresh rates	SINGLE CRT DISPLAY		
	Resolution	Maximum Refresh Rate	Bits per Pixel
	640 x 480	120 Hz	8, 16, 24
	800 x 600	120 Hz	8, 16, 24
	1024 x 768	120 Hz	8, 16, 24
	1152 x 864	120 Hz	8, 16, 24
	1280 x 1024	120 Hz	8, 16, 24
	1600 x 1200	100 Hz	8, 16
	1600 x 1200	85 Hz	8, 16, 24
	1920 x 1080	100 Hz	8, 16
	1920 x 1080	75 Hz	8, 16, 24
	1920 x 1200	85 Hz	8, 16
	1920 x 1200	70 Hz	8, 16, 24
	1920 x 1440	75Hz	8, 16
	1920 x 1440	60Hz	8, 16, 24
2048 x 1536	60Hz	8, 16	

Technical Specifications

NVIDIA Quadro4 400 NVS Graphics Card	Form Factor	ATX
	Graphics Controller	Integrated Quadro4 2D/3D 128-bit graphics processor unit (GPU)
	Bus Type	PCI
	RAMDAC	Dual 350-MHz
	Memory	64-MB 220-MHz, 4mx 32 DDR per GPU, 32-MB per GPU unified frame buffer
	Connectors	Dual LFH-60
	Dimensions	4.2 x 8 in/10.67 x 20.32 cm
	Multi-monitor support	1 to 4 displays with nView – with two cards (1 PCI per card), up to 8 monitors can be driven
	nView Hardware Architecture	32-bit color 2048x1536 @ 75Hz maximum resolution Dual 350-MHz RAMDACs Integrated TMDS Digital Vibrance Control (DVC) High-performance 2D rendering engine Optimized for 32-, 24-, 16-, 15- and 8-bpp modes
	High-definition video processor (HDVP)	Full-screen, full-frame video playback of HDTV and DVD content DVD-ready motion compensation for MPEG-2 Independent hardware color controls for video overlay Hardware color-space conversion (YUV 4:2:2 and 4:2:0) IDCT Motion compensation 5-tap horizontal by 3-tap vertical filtering 8:1 up/down scaling
	Supported graphics APIs	Fully compliant with OpenGL 1.3 and DirectX 8.1
	Available graphics drivers	Microsoft Windows XP and Microsoft Windows 2000

NVIDIA Quadro4 400 NVS display resolutions & refresh rates	SINGLE CRT DISPLAY		
	Resolution	Maximum Refresh Rate	Bits per Pixel
	640 x 480	120 Hz	8, 16, 24
	800 x 600	120 Hz	8, 16, 24
	1024 x 768	120 Hz	8, 16, 24
	1152 x 864	120 Hz	8, 16, 24
	1280 x 1024	120 Hz	8, 16, 24
	1600 x 1200	100 Hz	8, 16
	1600 x 1200	85 Hz	8, 16, 24
	1920 x 1080	100 Hz	8, 16
	1920 x 1080	75 Hz	8, 16, 24
	1920 x 1200	85 Hz	8, 16
	1920 x 1200	70 Hz	8, 16, 24
	1920 x 1440	75Hz	8, 16
	1920 x 1440	60Hz	8, 16, 24
	2048 x 1536	60Hz	8, 16

Technical Specifications

NVIDIA Quadro2 EX Graphics Card	Form Factor	ATX
	Graphics Controller	NVIDIA NV11GL GPU
	Bus Type	AGP 2x/4x Version 2.0 compliant
	RAMDAC	350-MHz
	Memory	32MB SDR SDRAM unified frame buffer, Z-buffer and Texture storage
	Connectors	DB-15 analog monitor output
	Dimensions (LxWxH)	Single short form factor AGP Low Profile card. 6.5 x 2.5 x 0.6 in/16.51 x 6.35 x 1.52 cm
Multi-monitor support		
Additional product features	32MB SDR SDRAM unified frame buffer, Z-buffer and Texture storage VESA 3 (flash ROM) BIOS 24-bit Z, 8-bit stored alpha and 8-bit Stencil planes Compliant with Microsoft/Intel PC2001 Workstation requirements Video Timings compliant with VESA DMT 1.0 and VESA GTF 1.0 specifications DDC2B+ Monitor support on all OS platforms ACPI Version 1.0b Power Management support (all modes)	
AGP 2x/4x Version 2.0 compliant including	Sideband Addressing AGP Texturing (Execute Mode) Fast writes support	
NVIDIA NV11GL GPU featuring:	175-MHz engine clock rate 128-bit external frame buffer interface running at a clock rate of 166-MHz VGA controller 2D Engine with 128-bit datapath processing multiple pixels per clock Integrated transform and lighting engines NVIDIA Shading Rasterizer enabling real-time per-pixel effects Cube environment mapping Microsoft DirectX and S3TC Texture compression High performance 2D rendering engine High-Definition Video Processor for full-screen, full-frame DVD playback	
Supported graphics APIs	OpenGL 1.2 and below DirectX 7 and below	
Available graphics drivers	HP-tested Windows 2000 HP-tested Windows XP HP qualified drivers may be preloaded or available from the HP support web site: http://www.hp.com/workstations/support	

Technical Specifications

NVIDIA Quadro2 EX Graphics Card display resolutions & refresh rates	SINGLE CRT DISPLAY		
	Resolution	Maximum Refresh Rate	Bits per Pixel
	640x480	240Hz	8, 16, 24/8
	800x600	240Hz	8, 16, 24/8
	1024x768	200Hz	8, 16, 24/8
	1152x864	170Hz	8, 16, 24/8
	1280x1024	150Hz	8, 16, 24/8
	1600x900	120Hz	8, 16, 24/8
	1600x1200	100Hz	8, 16, 24/8
	1600x1280	127Hz	8, 16, 24/8
	1920x1080	85Hz	8, 16, 24/8
	1920x1200	85Hz	8, 16, 24/8
	1920x1440	85Hz	8, 16
	1920x1440	75Hz	24/8
	2048x1536	75Hz	8, 16
	2048x1536	60Hz	24/8

Technical Specifications

ATI Fire GL 8800 Graphics Card	Form Factor	ATX
	Graphics Controller	ATI Radeon 8800 GPU
	Bus Type	AGP 1x/2x/4x Version 2.0 compliant
	RAMDAC	400-MHz/30-bit
	Memory	128MB DDR SGRAM unified frame buffer, Z-buffer and Texture storage
	Connectors	DB-15 analog and DVI-I analog/digital monitor outputs
	Dimensions	Single short form factor AGP/ATX card. 6.874 x 4.25 in/17.46 x 10.796 cm
	Multi-monitor support	Dual Screen output for resolutions up to 2x1600x1200x32 bit
	Additional product features	<p>128-MB DDR SGRAM unified frame buffer, Z-buffer and Texture storage</p> <p>64 KB BIOS Serial Flash ROM, reprogrammable by SW, 3.3V only, no Jumpers</p> <p>2D and 3D acceleration provided for 16-bit and 32-bit RGB modes</p> <p>Hardware cursor with full color alpha channel (64x64x32bpp)</p> <p>24-bit Z, 8-bit stored alpha and 8-bit Stencil planes</p> <p>Bus mastering support for 2D/3D display lists and local memory vertex list execution</p> <p>Hardware lighting support for up to 8 lights</p> <p>Cubic Environment Mapping and 3D Texture support</p> <p>Full Scene Anti-Aliasing (FSAA) support with multisampling up to 6x</p> <p>Video Engine supports YCrCb (4:2:2, 4:1:0, 4:2:0) conversion</p> <p>Video scaling and up to 8x4 tap filtering supported for all YUV and RGB16/32 formats</p> <p>Dual Screen output for resolutions up to 2x1600x1200x32 bit</p> <p>Per window double buffering on all screen resolutions</p> <p>Compliant with Microsoft/Intel PC2001 Workstation requirements</p> <p>Video Timings compliant with VESA DMT 1.0 and VESA GTF 1.0 specifications</p> <p>DDC2B+ Monitor support on all OS platforms</p> <p>ACPI Version 1.0b Power Management support (all modes)</p>
	AGP1x/2x/4x Version 2.0 compliant including:	<p>Sideband Addressing</p> <p>AGP Texturing (Execute Mode)</p> <p>Fast writes support</p>
	Radeon™ 8800 GPU featuring:	<p>275-MHz engine clock rate</p> <p>VGA controller</p> <p>2D Engine with 128-bit datapath processing multiple pixels per clock</p> <p>PIXEL TAPESTRY™ II, 3D rendering engine utilizing 4 parallel pipelines each capable of handling up to 6 textures in a single pass, delivering 2.4 Gigatexels/s fill rate</p> <p>CHARISMA ENGINE™ II, geometry engine delivering up to 75 million transformed, clipped and lit triangles per second peak processing capability</p> <p>VIDEO IMMERSION™ II, industry leading video technology</p> <p>Dual independent display controllers</p> <p>128-bit external frame buffer interface running at a clock rate of 300-MHz DDR provides a memory bandwidth of up to 9.6 GB per second</p>
	Supported graphics APIs	<p>OpenGL 1.3 ICD with immediate mode support for all OGL primitive types</p> <p>DirectX 8.1</p>
	Available graphics drivers	<p>HP-tested Windows 2000</p> <p>HP-tested Windows XP</p> <p>HP-tested Linux</p> <p>HP qualified drivers may be preloaded or available from the HP support web site: http://www.hp.com/workstations/support</p>

Technical Specifications

ATI Fire GL 8800 Graphics Card
display resolutions & refresh
rates

SINGLE CRT DISPLAY

Resolution	Maximum Refresh Rate	Bits per Pixel
640x480	100Hz	16, 24
800x600	100Hz	16, 24
1024x768	100Hz	16, 24
1152x864	100Hz	16, 24
1280x960	100Hz	16, 24
1280x1024	100Hz	16, 24
1600x1000	100Hz	16, 24
1600x1024	100Hz	16, 24
1600x1200	100Hz	16, 24
1792x1344	85Hz	16, 24
1920x1080	100Hz	16, 24
1920x1200	100Hz	16, 24
2048x1536	75Hz	16, 24

SINGLE DIGITAL DISPLAY

Single CRT Display Resolution	Maximum Refresh Rate	Bits per Pixel
640x480	75Hz	16, 24
800x600	75Hz	16, 24
1024x768	75Hz	16, 24
1152x864	75Hz	16, 24
1280x960	75Hz	16, 24
1280x1024	75Hz	16, 24
1600x1000	75Hz	16, 24
1600x1024	75Hz	16, 24
1600x1200	75Hz	16, 24

DUAL DISPLAY

Resolution	Monitor 1 Maximum Refresh Rate	Monitor 2 Analog/Digital Maximum Refresh Rate	Bits per Pixel
640x480	100Hz	100Hz/75Hz	16, 24
800x600	100Hz	100Hz/75Hz	16, 24
1024x768	100Hz	100Hz/75Hz	16, 24
1280x1024	100Hz	85Hz/75Hz	16, 24
1600x1200	100Hz	85Hz/75Hz	16, 24

Technical Specifications

NVIDIA Quadro4 750 XGL Graphics Card	Form Factor	ATX
	Graphics Controller	Integrated Quadro4 2D/3D 128-bit graphics processor unit
	Bus Type	AGP4x
	RAMDAC	350-MHz dual
	Memory	128-MB 275-MHz 4Mx32DDR 5ns
	Connectors	1 HD15 (VGA), 1 DVI-I
	Dimensions (LxWxH)	9.75 x 6.50 x 2.00 in/24.8 x 16.51 x 5.08 cm
	Multi-monitor support	Dual monitors supported through NVIDIA nView with 2048 x 1536 resolution per display
	Additional product features	Features hardware overlay planes and hardware antialiased lines Offers two-sided lighting Full-scene antialiasing Provides second-generation occlusion culling Delivers 2048 x 1536 resolution per display OpenGL quad-buffered stereo
	XGL GPU Special Features:	Integrated Transformation & Lighting (T&L) Fully programmable nfiniteFX II Graphics Engine
	Lightspeed Memory Architecture II	Supports 128-MB of DDR unified graphics memory Uses memory at peak efficiency by dynamically allocating it among graphics subsystems, increasing performance
	Supported graphics APIs	OpenGL 1.3 ICD with immediate mode support for all OGL primitive types DirectX 8
	Available graphics drivers	HP-tested Windows 2000 HP-tested Windows XP HP qualified drivers may be preloaded or available from the HP support web site: http://www.hp.com/workstations/support

NVIDIA Quadro4 750 XGL display resolutions & refresh rates	SINGLE CRT DISPLAY		
	Resolution	Maximum Refresh Rate	Bits per Pixel
	640 x 480	120 Hz	8, 16, 24
	800 x 600	120 Hz	8, 16, 24
	1024 x 768	120 Hz	8, 16, 24
	1152 x 864	120 Hz	8, 16, 24
	1280 x 1024	120 Hz	8, 16, 24
	1600 x 1200	100 Hz	8, 16
	1600 x 1200	85 Hz	8, 16, 24
	1920 x 1080	100 Hz	8, 16
	1920 x 1080	75 Hz	8, 16, 24
	1920 x 1200	85 Hz	8, 16
	1920 x 1200	70 Hz	8, 16, 24
	1920 x 1440	75 Hz	8, 16
	1920 x 1440	60 Hz	8, 16, 24
	2048 x 1536	60 Hz	8, 16

Technical Specifications

HP L1825 Flat Panel Monitor (Carbon/Silver)	Display Type	TFT large viewing angle
	Viewable Image Size	18.1 in/45.9 cm maximum viewable
	Screen Opening (W x H)	14.2 x 11.4 in/36.2 x 28.9 cm
	Viewing Angle	160 degrees horizontal/160 degrees vertical (10:1 minimum contrast ratio)
	Pixel Pitch	.281 mm
	Pixel Clock Speed	135 MHz
	Brightness	250 nits (cd/m ²)
	Contrast Ratio	350:1 (typical)
	Response Rate	30 ms (typical rise + fall)
	Horizontal Frequency (kHz)	30 to 82 kHz
	Vertical Frequency (Hz)	56 to 75 Hz
	Color Depth Support	16.7 million colors
	Graphics Controller	Genesis gm5020
	Factory Preset Modes	15
	Graphic Preset Modes (non-interlaced)	640 x 480 @ 60 Hz, 72 Hz, 75 Hz 800 x 600 @ 56 Hz, 60 Hz, 75Hz 1024 x 768 @ 60 Hz, 75 Hz 1280 x 1024 @ 60 Hz, 75 Hz
	Mac Compatible Modes (adapter required)	832 x 624 @ 75 Hz 1152 x 870 @ 75 Hz
	Text Mode	720 x 400 @ 70 Hz
	VGA Mode	640 x 480 @ 60 Hz, 72 Hz
	User-Programmable Modes	15
	Anti-Glare/Anti-Static	Yes/Yes
	Asset Control	Yes (accessible on Compaq desktops featuring Intelligent Manageability)
	Plug and Play	Yes (supports VESA DDC2B; PC2001 compliant)
	Protective Panel	No
	Kensington Lock-ready	Yes
	Accessories Included	VGA cable, DVI-D cable
	VESA Mounting	100 mm x 100 mm screw-mounting option; pedestal is attached
	VESA External Mounting	Yes (standard 4-hole pattern, 100 mm)
	Detachable Base	Yes
	Tilt	Yes (-5° to +35°)
	Swivel	Yes (-35° to +35°)
	Height Adjustable	Yes (130 mm adjustment range)
	Portrait Mode Supported	Yes
Touchscreen Option	No	
Fail Safe Mode	Yes	
Icon Based On-Screen Controls	Yes	

Technical Specifications

HP L1825 Flat Panel Monitor (Carbon/Silver) <i>(continued)</i>	User Controls	Brightness, contrast	Yes
		Positioning	Yes
		Color temperature	Yes (6500k, 9300k, User)
		Individual color control	Yes
		Serial number display	Yes
		Full screen resolutions	Yes (640 x 480, 800 x 600)
		Clock	Yes
		Clock phase	Yes
		Monitor management	No
		Recall	No
		Audio recall	No
		Input selection	Yes
		Factory reset	Yes
		Language Selection	English
Spanish	Yes		
French	Yes		
German	Yes		
Simplified Chinese	Yes		
Italian	Yes		
Agency Approvals/Certifications	Australian ACA Approval	Yes	
	Canadian Requirements/CSA	Yes	
	CE Marking	Yes	
	China CCIB/CCEE Approval	Yes	
	CISPR Requirements	Yes	
	Eastern European Approvals	Yes	
	Energy Star Compliant	Yes	
	FCC Approval	Yes	
	German Ergonomic (TUV and GS Mark)	Yes	
	ISO 9241-3,7,8 VDT Guidelines	Yes	
	ISO 13406-2 Compliant (Pixel Defect Guidelines)	Yes	
	Mexican NOM Approval	Yes	
	MIC Requirements (New Zealand)	Yes	
	MPR-II Compliant	Yes	
	Nordic Approvals (Nemko, Fimko, Demko, Semko)	Yes	
	PC2001 Compliant	Yes	
	PC99 Certified	Yes	
	S. Korean MIC Approval	Yes	
	Taiwan BSMI Approval	Yes	
	TCO 99 (emissions, ergonomics, environment)	Yes	
	TUV-Ergo	Yes	
UL Listed	Yes		
VCCI Approvals	Yes		
Windows Certification	Microsoft Windows 98, Windows 2000, and Windows XP		
Input Impedance	75 ohms \pm 10%		
Input Signal	Two connectors: one 15-pin mini D-sub analog VGA; and one DVI-I (VGA analog or digital)		

Technical Specifications

HP L1825 Flat Panel Monitor (Carbon/Silver) *(continued)*

Sync Input	Separate sync (HSYNC/VSYNC); composite sync, Sync on Green	
Power Supply ALS	Auto-ranging, 90 to 264 VAC; internal power supply, 60 Hz	
Power Rating	Maximum Mode	< 60 W
	Power Saving Mode	< 5 W
	Off Mode	< 5 W
Dimensions (H x W x D)	With stand - min height	14.8 x 15.8 x 8.2 in/37.6 x 40.2 x 20.8 cm
	With stand - max height	19.9 x 15.8 x 8.2 in/50.6 x 40.2 x 20.8 cm
	Without stand	13.5 x 15.8 x 2.9 in/34.2 x 40.2 x 7.3 cm
Approximate Weight	With height-adjustable stand	22.9 lb/10.4 kg
	Without stand	13.6 lb/6.2 kg
Temperature	Operating	32° to 95° F/0° to 35° C
	Non-operating	-4° to 140° F/-20° to 60° C
Humidity	Operating	20% to 80%
	Non-operating	8% to 85%
Warranty	Limited three years parts, labor, and on-site service, including backlight. Availability varies by region. Consult HP Customer Service for details.	

COMPATIBILITY

The following graphics controllers and chipsets have been tested and proven compatible for use with the hp L1825 Flat Panel Monitor.

Graphic Controllers	Compatible with "VESA Video Signal Standard (VSI) Compliant" video cards. Note: Features are subject to change without notice.
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Technical Specifications

HP L2025 Flat Panel Monitor (Carbon/Silver)	Display Type	TFT large viewing angle
	Viewable Image Size	20.1 in/51 cm maximum viewable
	Screen Opening (W x H)	16.2 x 22 in/41.1 x 30.9 cm
	Viewing Angle	170 degrees horizontal/170 degrees vertical (10:1 minimum contrast ratio)
	Pixel Pitch	0.255 mm
	Pixel Clock Speed	202 MHz
	Brightness	250 nits (cd/m ²) typical
	Contrast Ratio	350:1 typical
	Response Rate	25 ms typical (rise + fall)
	Color Depth Support	16.7 million colors
	Horizontal Frequency (kHz)	30 to 94 kHz (analog); 30 to 92 KHz (digital)
	Vertical Frequency (Hz)	56 to 85 Hz
	Graphics Controller	Pixelworks PW171
	Factory Preset Modes	18
	Graphic Preset Modes (non-interlaced)	1600 x 1200 @ 60 Hz, 75 Hz 1280 x 1024 @ 60 Hz, 75Hz, 85 Hz 1280 x 960 @ 60 Hz 1152 x 900 @ 66 Hz 1024 x 768 @ 60 Hz, 75 Hz, 85 Hz 800 x 600 @ 60 Hz, 85Hz 640 x 480 @ 60 Hz, 75 Hz
	Mac or Other Compatible Modes (adapter may be required)	832 x 624 @ 75 Hz 1152 x 870 @ 75 Hz
	Text Mode	720 x 400 @ 70 Hz
	VGA Mode	640 x 480 @ 60 Hz
	User-Programmable Modes	18
	Anti-Glare/Anti-Static	Yes/Yes
	AssetControl	Yes (accessible on Compaq desktops featuring Intelligent Manageability)
	Plug and Play	Yes
	Kensington Lock-ready	Yes
	Accessories Included	VGA cable, DVI-D cable
	Protective Panel	No
	VESA Mounting	100 mm x 100 mm screw-mounting option; pedestal is attached
	VESA External Mounting	Yes (Standard 4 hole pattern, 100 mm)
	Portrait Mode Supported	No
	Touchscreen Option	No
	Detachable Base	Yes
	Tilt	Yes (-5° to +35°)

Technical Specifications

HP L2025 Flat Panel Monitor (Carbon/Silver)(continued)	Swivel	Yes (-35° to +35°)
	Height Adjustable	Yes (130 mm adjustment range)
	Fail Safe Mode	Yes
	Icon Based On-Screen Display Controls	Yes
User Controls	Brightness, contrast	Yes
	Positioning	Yes
	Color temperature	Yes (6500k, 9300k, User)
	Individual color control	Yes
	Serial number display	Yes
	Full screen resolutions	Yes (640 x 480, 800 x 600)
	Clock	Yes
	Clock phase	Yes
	Monitor management	No
	Recall	No
	Audio recall	No
	Video PIP	Yes (size and position)
	Input selection	Yes (includes separate direct access key for dedicated swap between inputs 1 and 2)
	Factory reset	Yes
Language Selection	English	Yes
	Spanish	Yes
	French	Yes
	German	Yes
	Simplified Chinese	Yes
	Italian	Yes
Agency Approvals/Certifications	Australian ACA Approval	Yes
	Canadian Requirements/CSA	Yes
	CE Marking	Yes
	China CCIB/CCEE Approval	Yes
	CISPR Requirements	Yes
	Eastern European Approvals	Yes
	Energy Star Compliant	Yes
	FCC Approval	Yes
	German Ergonomic (TUV and GS Mark)	Yes
	ISO 9241-3,7,8 VDT Guidelines	Yes
	ISO 13406-2 Pixel Defect Guidelines	Yes
	Mexican NOM Approval	Yes
	MIC Requirements (New Zealand)	Yes
	MPR-II Compliant	Yes
	Nordic Approvals (Nemko, Fimko, Demko, Semko)	Yes
	PC2001 Compliant	Yes
	PC99 Certified	Yes
S. Korean MIC Approval	Yes	
Taiwan BSMI Approval	Yes	

Technical Specifications

HP L2025 Flat Panel Monitor (Carbon/Silver)(<i>continued</i>)	Agency Approvals/Certifications (<i>continued</i>)	TCO 99 (emissions, ergonomics, environment)	Yes
		TUV-Ergo	Yes
		UL Listed	Yes
		VCCI Approvals	Yes
		Windows Certification	Microsoft Windows 98, Windows 2000, and Windows XP
Input Impedance	75 ohms \pm 10%		
Input Signal	Four connectors, including one 15-pin mini D-sub VGA; one DVI-I (VGA analog and digital input), one composite video, and one s-video		
Sync Input	Separate sync (HSYNC/VSYNC); composite sync, Sync on Green		
Power Supply ALS	Auto-Ranging, 90 to 264 VAC; internal power supply, 60 Hz		
Power Rating	Maximum Mode	< 70 W	
	Power Saving Mode	< 5 W	
	Off Mode	< 5 W	
Dimensions (H x W x D)	With Stand - Min height	16.3 x 19.2 x 8.2 in/41.4 x 48.8 x 20.8 cm	
	With Stand - Max height	21.4 x 19.2 x 8.2 in/54.4 x 48.8 x 20.8 cm	
	Without Stand	16.1 x 19.2 x 3.0 in/40.8 x 48.8 x 7.6 cm	
Approximate Weight	With height-adjustable stand	26.4 lb/12 kg	
	Without stand	17.2 lb/7.8 kg	
Temperature	Operating	46° to 95° F/10° to 35° C	
	Non-operating	6° to 140° F/-10° to 60° C	
Humidity	Operating	20% to 80%	
	Non-operating	5% to 85%	
Warranty	Three-year limited warranty parts, including backlight and on-site labor or 48 hour direct unit replacement. Certain restrictions apply. Some terms vary depending on sales region. Consult HP Customer Service for details.		

COMPATIBILITY

The following graphics controllers and chipsets have been tested and proven compatible for use with the HP L2025 Flat Panel Monitor.

Graphic Controllers	Compatible with "VESA Video Signal Standard (VSI) Compliant" video cards. Note: Features are subject to change without notice.
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Technical Specifications

HP 930 CRT Monitor (Carbon/Silver)	Tube Type	Diamondtron Natural Flat (NF) aperture grille tube; anti-reflection, anti-static	
	Picture Tube Size (diagonal)	19 in/48.26 cm	
	Viewable Image Area (diagonal)	18 in/45.72 cm	
	Aperture Grille Pitch	0.24 mm	
	Horizontal Frequency (kHz)	30 to 110 kHz	
	Vertical Frequency (Hz)	50 to 160 Hz	
	Maximum Resolution	1920 x 1440 @ 60 Hz	
	Preferred Flicker Free Resolution	1280 x 1024 @ 85 Hz	
	Preset Graphic Modes (non-interlaced)	1600 x 1200 @ 85 Hz and 75 Hz	
		1280 x 1024 @ 85 Hz and 75 Hz	
		1024 x 768 @ 85 Hz	
		800 x 600 @ 85 Hz	
		640 x 480 @ 85 Hz and 60 Hz	
		720 x 400 @ 70 Hz	
	User-Modes	Yes, 8 modes	
	Anti-Glare/Anti-Static	Yes/Yes	
	Asset Control	Yes	
	Plug and Play	VESA DDC2B; PC2001 compliant	
	Front Panel User Controls	Power on/off; menu button; 4 OSD adjustment buttons; OSD exit button, information button	
	On-Screen User Controls	Brightness, Contrast	Yes
Size and Positioning		Yes	
Pincushion (barrel)		Yes	
Trapezoid		Yes	
Moiré Correction		Yes	
Tilt (rotation)		Yes	
Selectable Color Temperature		Yes	
Factory Reset/Recall		Yes	
Orthogonality		Yes	
Current Display Mode		Yes	
Degauss	Yes		
Convergence	Yes		
Approvals/Certifications	UL/CSA/CUL Approval	Yes	
	ISO9241-3, -7, -8 VDT Guidelines Approval	Yes	
	MPR-II Compliant	Yes	
	TCO '99	Yes	
	FCC Approval	Yes	
	Microsoft WHQL Certified	Yes	
	Energy Star Compliant	Yes	
	CE Compliant	Yes	

Technical Specifications

HP 930 CRT Monitor
(Carbon/Silver) *(continued)*

Signal Cable	Attached 15-pin D-sub connector, 5.9 ft/1.8 m	
Maximum Pixel Clock Speed	290 MHz	
Power Supply	Universal; 100–240 V (auto-ranging), 50–60 Hz	
Maximum Power Rating	≤ 120 watts	
Low Power Sleep Mode	< 3 watts	
Off Mode	0 watts	
Dimensions (H x W x D)	Unpacked	18.8 x 18.5 x 18.5 in/47.6 x 46.9 x 46.9 cm
	Packaged	22.0 x 22.3 x 22.8 in/55.9 x 56.5 x 57.8 cm
Weight	Unpacked	55 lb/24.9 kg
	Packaged	61 lb/27.7 kg
Tilt/Swivel Base	–5 to +10 degrees vertical tilt; ±45 degrees horizontal swivel	
Operating Temperature	Non-condensing	50° to 95° F/10° to 35° C
Operating Humidity	Non-condensing	20% to 80%
Warranty	Limited three-year parts and repair labor, three-year service provider labor, and three-year on-site service warranty. Next Business Day advanced exchange direct replacement service available during warranty period. Certain restrictions and exclusions apply. For details, contact HP Customer Support at 970-635-1000 (USA) or 905-206-4663 (Canada).	

Technical Specifications

HP p1130 CRT Monitor (Carbon/Silver)	Tube Type	FD Trinitron® aperture grille tube	
	Picture Tube Size (diagonal)	21 in/53.3 cm	
	Viewable Image Area (diagonal)	19.8 in/50.3 cm	
	Aperture Grille Pitch	0.24 mm	
	Horizontal Frequency (kHz)	30 to 130 kHz	
	Vertical Frequency (Hz)	50 to 170 Hz	
	Maximum Resolution	2048 x 1536 @ 75Hz	
	Maximum Pixel Clock Speed	< 370 MHz	
	Preferred Flicker Free Resolution	1920 x 1440 @ 85 Hz	
	Preset Graphic Modes (non-interlaced)	1920 x 1440 @85Hz	
		1800 x 1440 @80Hz	
		1600 x 1200 @75, 85Hz	
		1280 x 1024 @75, 85Hz	
		1024 x 768 @75, 85Hz	
		800 x 600 @75, 85Hz	
		640 x 480 @65, 75 and 85Hz	
		640 x 400 @ 70Hz	
	User-Modes	8 preset modes and 10 additional modes	
	Anti-Glare/Anti-Static	Yes/Yes	
	AssetControl	Yes	
	Front Panel User Controls	Power on/off switch; 5-button OSD; dual-input switch	
	Languages	Nine	English, French, German, Spanish, Italian, Dutch, Swedish, Russian, Japanese
	On-Screen User Controls	Size and Positioning	Yes
Contrast		Yes	
Brightness		Yes	
Moiré Correction		Yes	
Tilt (rotation)		Yes	
Selectable Color temperature		Yes	
Orthogonality		Yes	
Degauss		Yes (automatic at power on; manual)	
Convergence (h/v/pre-set)		Yes	
Reset	Yes		
Approvals/Certifications	UL/CSA/CUL Approval	Yes	
	ISO9241-3, -7, -8 VDT Guidelines	Yes	
	MPR-II Compliant	Yes	
	TCO '99	Yes	
	FCC Approval	Yes	
	Microsoft WHQL Certified	Yes	
	Energy Star Compliant	Yes	
	CE Compliant	Yes	

Technical Specifications

HP p1130 CRT Monitor (Carbon/Silver) <i>(continued)</i>	Plug and Play	VESA DDC2Bi and DDC2B. PC2001 compliant		
	Dual Input	Yes, two 15-pin D-sub connections		
	Signal Cable	Detachable 15-pin D-sub mini connector		
	Power Supply	Universal; 100–240 V (auto-ranging), 50–60 Hz		
	Maximum Power Rating	135 watts		
	Low Power Sleep Mode	< 3 watts		
	Off Mode	0 watts		
	Dimensions (H x W x D)	Unpacked	19.7 x 19.6 x 19.3 in/50.2 x 49.7 x 49.0 cm	
		Packaged	26.0 x 26.0 x 26.0 in/66.0 x 66.0 x 66.0 cm	
	Weight	Unpacked	67.2 lb/30.5 kg	
		Packaged	72.5 lb/32.9 kg	
	Tilt/Swivel Base	–5 to +15 degrees vertical tilt; ±45 degrees horizontal swivel		
	Operating Temperature	Non-condensing	50° to 104° F/10° to 40° C	
	Operating Humidity	Non-condensing	10% to 80%	
	Altitude	Operating	0 to 13,000 ft/0 to 4,000 m	
		Non-Operating	0 to 50,000 ft/0 to 15,250 m	
	Warranty	Limited three-year parts and repair labor, service provider labor, and on-site service. Next Business Day advanced exchange direct replacement service available during warranty period. Certain restrictions and exclusions apply. For details, contact HP Customer Support at 970-635-1000 (USA) or 905-206-4663 (Canada).		

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