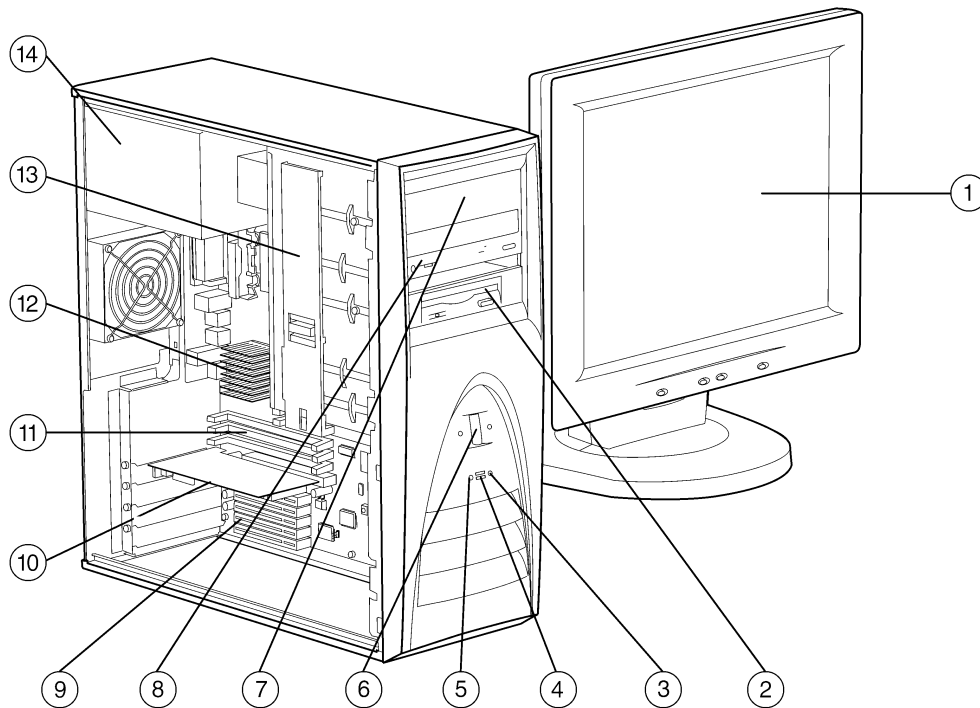


Overview

At A Glance

- Convertible minitower form factor
- Supports single Pentium 4 processor at speeds of 1.5, 1.7, or 2.0 GHz. (400 MHz Front Side Bus)
- Intel 845 chipset with 400-MHz front side bus
- 256-KB L2 cache integrated on processor
- PC133 ECC SDRAM expandable to 1.5 GB
- High-performance, Ultra ATA 7200rpm, Ultra160 SCSI 10,000 rpm or optional 15,000 rpm hard drives
- Integrated Ultra ATA/100 controller, Ultra160 SCSI controller (on SCSI models)
- Up to 216 GB of high-performance internal storage
- Choice of NVIDIA® Quadro2 EX, NVIDIA Quadro2 MXR, NVIDIA Quadro2 Pro, ATI® FireGL2, Matrox® Millennium G450, Matrox Millennium G550, or Matrox G200 Quad Multi-Monitor Series Graphics Controller
- Multiple display support
- Integrated Intel PRO/100 VM Network Connection
- Six total slots (five PCI and one AGP 4X)
- Five bays (three external and two internal)
- 48X Max CD-ROM Drive, DVD-ROM or CD-RW drive (depending on model)
- Two front USB ports and two front audio ports
- Integrated AC'97 audio with internal speaker
- Windows 2000 Professional or Windows NT Workstation 4.0 and Compaq support software pre-installed
- Protected by Compaq Services, including a three-year, limited warranty — Certain restrictions and exclusions apply. Consult the Compaq Customer Support Center for details. Three-year onsite and labor not available in all countries.



1. Compaq Monitor (optional)
2. 1.44-MB Diskette Drive
3. Audio Port
4. USB Ports
5. Audio Port
6. On-Off Button
7. 5.25-in Drive Bay (available)
8. CD-ROM, DVD-ROM or CD-RW Drive
9. PCI Slots
10. AGP 4x Slot
11. Memory Sockets
12. Processor
13. Drivelock
14. 250-Watt Power Supply

Standard Features - Pre-configured Models

Models	Compaq Evo Workstation W4000 Available in multiple configurations. Not all configurations available in all countries. Check with your Authorized Compaq Reseller or Compaq.	
Processor <i>One of the following:</i>	Intel Pentium 4 processor 1.5 GHz Intel Pentium 4 processor 2.0 GHz	
Cache Memory	256-KB Level 2 cache	
Upgradability	Upgradeable memory, graphics, and hard drives	
Memory <i>One of the following:</i>	Standard	512 MB PC133 ECC SDRAM
	Standard	256 MB PC133 ECC SDRAM
	Maximum	1.5 GB (3 slots)
Network Controller	Integrated Intel PRO/100 VM Network Connection	
Expansion Slots	I/O (Total/Available)	6/5
	PCI	5/5 (depending on model)
	AGP 4X	1/0 (depending on model)
Expansion Bays	(Total/Available)	5/2
	Internal	2/1
	External	3/1
Storage	Diskette Drives	1.44 MB
	ROM Drives	48X Max CD-ROM Drive 16X/40X DVD-ROM Drive
	Hard Drives	18.2-GB Ultra160 SCSI (10,000 rpm)
	Removable Storage	40-GB Ultra ATA/100 (7200 rpm)
Interfaces	Parallel	1 (front)
	USB	4 (2 front, 2 rear)
	Serial	2 (rear)
	Ultra 160 SCSI	2 (1 68-pin internal) (rear) (on SCSI models)
	Ultra ATA/100	2 (1 primary, 1 secondary)
	Keyboard (PS/2)	1 (rear)
	Pointing Device (PS/2 mouse)	1 (rear)
	Video	1 (rear)
	Microphone Jack	1 (front)
	Headphone Jack	1 (front)
	Line-In Jack	1 (rear)
	Line-Out Jack	1 (rear)
	RJ-45	1 (rear)

Standard Features - Pre-configured Models

Graphics

One of the following:

Matrox Millennium G450 (AGP)
Matrox Millennium G550 (AGP)
Matrox G200 Quad Multi-monitor Series (PCI)
NVIDIA Quadro2 EX (AGP)
NVIDIA Quadro2 MXR (AGP)
NVIDIA Quadro2 Pro (AGP)
ATI FireGL2 (AGP)

Audio

Integrated AC'97 audio
Internal Speaker

Software

Microsoft Windows 2000 Professional or NT Workstation 4.0
Microsoft Service Pack 2 for Windows 2000 Professional
Microsoft Service Pack 6 for Windows NT 4.0
Compaq Restore CD
Compaq Management Agents
Compaq PC Diagnostics via the Web
ROM-based Setup
Diagnostics for Windows 2000 and Windows NT
Microsoft Internet Explorer
System Software Manager via the Web
Altiris eXpress

Intelligent Manageability

Asset Control
Alert on LAN (AoL) hardware ready
Wake on LAN (WoL)
Fault Management
Lite Console
Security Management
Pre-Failure Warranty (processors, hard drives and memory)
Remote Management
Remote Wakeup via Magic Packet Support
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) 2.1
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 Power Supply (PFC)

Service and Support

Protected by Compaq Services including a three-year, limited warranty with three-year parts coverage, three year, on-site service, and three-year labor; 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 Compaq Customer Support Center for details. Three-year, onsite and labor not available in all countries.

Standard Features - Pre-configured Models

W4C/2.0/18S/512S/Xd <i>470022-xxx and graphics option</i>	Processor	Intel Pentium 4 2.0-GHz
	Cache Memory	256-KB integrated L2
	Memory	512-MB ECC PC133 SDRAM
	Optical Drive	16X/40X DVD-ROM Drive
	Hard Drive	18.2-GB Ultra160 SCSI 10,000rpm
	Graphics	Choice of graphics option: Matrox G200 Quad MMS with analog cables (159513-B21) Matrox G200 Quad MMS with DVI cables (179597-B21) NVIDIA Quadro2 EX (250066-B21) NVIDIA Quadro2 MXR (221412-B21) NVIDIA Quadro2 Pro (225339-B21) ATI FireGL2 (224087-B21) Matrox Millennium G450 (AGP) (202389-B21) Matrox Millennium G550 (AGP) DH AGP DVI/VGA (250227-B21)
	Audio	Integrated AC97 audio with internal speaker
	OS	Windows 2000 Professional/Windows NT Workstation 4.0 (dual install)

W4C/1.5/40A/256S/Xc <i>47002x-xxx and graphics option</i>	Processor	Intel Pentium 4 1.5-GHz
	Cache Memory	256-KB integrated L2
	Memory	256-MB ECC PC133 SDRAM
	Optical Drive	48X Max CD-ROM Drive
	Hard Drive	40-GB Ultra ATA/100 7200 rpm
	Graphics	Choice of graphics option: Matrox G200 Quad MMS with analog cables (159513-B21) Matrox G200 Quad MMS with DVI cables (179597-B21) NVIDIA Quadro2 EX (250066-B21) NVIDIA Quadro2 MXR (221412-B21) NVIDIA Quadro2 Pro (225339-B21) ATI FireGL2 (224087-B21) Matrox Millennium G450 (AGP) (202389-B21) Matrox Millennium G550 (AGP) DH AGP DVI/VGA (250227-B21)
	Audio	Integrated AC97 audio with internal speaker
	OS	Windows 2000 Professional/Windows NT Workstation 4.0 (dual install)

Standard Features – Custom Configuration Models

Processor	Intel Pentium 4 processor 1.5 GHz Intel Pentium 4 processor 1.7 GHz Intel Pentium 4 processor 2.0 GHz	
Cache Memory	256-KB Level 2 cache standard	
Upgradability	Upgradeable memory, graphics, and hard drives	
Memory	Maximum	1.5 GB of PC133 ECC SDRAM (3 slots)
Network Controller	Integrated Intel PRO/100 VM Network Connection 3COM 3C920C-TX	
Expansion Slots	I/O(Total/available)	6/5
	PCI	5/5 (depending on model)
	AGP 4X	1/0 (depending on model)
Expansion Bays	(Total/Available)	5/2
	Internal	2/1
	External	3/1
Storage	Diskette Drives	1.44 MB
	ROM Drives	48X Max CD-ROM Drive 16X/40X DVD-ROM Drive
	Hard Drives	72-GB, 36.4-GB, 18.2-GB Ultra160 SCSI (10,000 rpm) 18.2-GB Ultra160 SCSI (15,000 rpm) 60-GB, 40-GB or 20-GB Ultra ATA/100 (7200 rpm)
	Removable Storage	16X/10X/4X CD-RW Drive 250-MB ATAPI ZIP
Interfaces	Parallel	1 (front)
	USB	4 (2 front, 2 rear)
	Serial	2 (rear)
	Ultra 160 SCSI	2 (1 68-pin internal) (rear) (on SCSI models)
	Ultra ATA/100	2 (1 primary, 1 secondary)
	Keyboard (PS/2)	1 (rear)
	Pointing Device (PS/2 mouse)	1 (rear)
	Video	1 (rear)
	Microphone Jack	1 (front)
	Headphone Jack	1 (front)
	Line-In Jack	1 (rear)
	Line-Out Jack	1 (rear)
	RJ-45	1 (rear)
Graphics	NVIDIA Quadro2 MXR (AGP) NVIDIA Quadro2 Pro (AGP) NVIDIA Quadro2 EX (AGP) ATI FireGL2 (AGP) Matrox Millennium G450 (AGP) Matrox Millennium G550 (AGP) Matrox G200 Quad Multi-monitor Series (PCI)	
	<i>One of the following:</i>	

Options

Memory (SDRAM)	512-MB Memory Module (PC133 ECC SDRAM)	254873-B21
	256-MB Memory Module (PC133 ECC SDRAM)	254872-B21
	128-MB Memory Module (PC133 ECC SDRAM)	254871-B21
	512-MB Memory Module (PC133 non-ECC SDRAM)	259039-B21
	256-MB Memory Module (PC133 non-ECC SDRAM)	174225-B21
	128-MB Memory Module (PC133 non-ECC SDRAM)	174224-B21
	Note: Do not mix ECC and non-ECC memory.	
Monitors	TFT8030 Flat Panel Color (18-inch, Carbon/Silver)	234362-001
	TFT5030 Flat Panel Color (15-inch, Carbon/Silver)	228134-001
	TFT5015 Flat Panel Color (15-inch, Multimedia)	234046-001
	TFT5015 Flat Panel Color (15-inch, Carbon/Silver)	234044-001
	TFT5015 Flat Panel Color (15-inch, Opal)	234043-001
	P1210 CRT (22-inch, Carbon/Silver)	230538-001
	P1210 CRT (22-inch, Opal)	210290-001
	P910 CRT (19-inch, Opal)	210254-011
	P910 CRT (19-inch, Carbon/Silver)	230535-001
	S920 CRT (19-inch, Carbon/Silver)	240326-xxx
	S920 CRT (19-inch, Opal)	240325-xxx
	P710 CRT (17-inch, Opal)	210189-001
	V720 CRT (17-inch, Carbon/Silver)	232944-xxx
	V720 CRT (17-inch, Opal)	232943-xxx
	S720 CRT (17-inch, Carbon/Silver)	239287-xxx
	S720 CRT (17-inch, Opal)	239286-xxx
	S710 CRT (17-inch, Carbon)	154499-002
	V570 CRT (15-inch, Carbon/Silver)	228113-xxx
		Note: AssetControl monitor. AssetControl features are accessible with Compaq Workstations featuring Intelligent Manageability.
Graphics	Matrox G200 Quad Multi-monitor Series with cables for analog output (PCI)	159513-B21
	Matrox G200 Quad Multi-monitor Series with cables for DVI output (PCI)	179597-B21
	Matrox G200 Quad MMS DVI Upgrade Cable Kit (for option kit 159513-B21)	170840-B21
	Matrox Millennium G450 (AGP)	202389-B21
	Matrox Millennium G550 (AGP) DH AGP DVI/VGA	250227-B21
	NVIDIA Quadro2 EX (AGP) (low profile)	250066-B21
	NVIDIA Quadro2 MXR (AGP)	221412-B21
	NVIDIA Quadro2 Pro (AGP)	225339-B21
	ATI FireGL2 (AGP)	224087-B21
Diskette Drives	250-MB ATAPI ZIP (carbon)	294416-B22
	250-MB ATAPI ZIP Media 3-Pack	217896-B21
Tape Drives	TR5 10/20 GB	294293-B22
	TR5 10/20 GB Media 3-Pack	125782-B21
	33/66 GB VXA-1 IDE Tape Drive	237109-B22
	33/66 GB VXA-1 SCSI Tape Drive	237108-B22
	33/66 GB VXA-1 Media (2 pack)	237111-B22
	VXA-1 Cleaning Cartridge	237110-B22

Options

Hard Drives	<i>Ultra3 (Ultra160) SCSI Drives</i>	
	72-GB Ultra160 SCSI 10,000 rpm (1.0")	250023-B21
	36.4-GB Ultra160 SCSI 10,000 rpm	191189-B21
	18.2-GB Ultra160 SCSI 15,000 rpm	191188-B21
	18.2-GB Ultra160 SCSI 10,000 rpm	159764-B21
	<i>Ultra ATA Drives</i>	
	120-GB Ultra ATA 7200 rpm Quiet Seek and Quiet Idle	250021-B21
	80-GB Ultra ATA 7200 rpm Quiet Seek and Quiet Idle	250020-B21
	60-GB Ultra ATA 7200 rpm Quiet Seek and Quiet Idle	230253-B21
	40-GB Ultra ATA 7200 rpm Quiet Seek and Quiet Idle	201066-B21
	20-GB Ultra ATA 7200 rpm Quiet Seek and Quiet Idle	251974-B21
	Storage Controllers	Adaptec 29160N Ultra160 Single Channel SCSI Controller
Adaptec 2100S Ultra 160 (U3) Single Channel RAID Controller		192842-B21
Biometrics	USB Biometric ID Device	240238-B21
Multimedia	48X CD-ROM (carbon)	187217-B22
	16X/40X DVD-ROM (carbon)	237495-B22
	16X/10X/4X CD-RW Drive (carbon)	240598-B22
	8X Combo Drive CD-RW & DVD-ROM (carbon)	244885-B22
	4.7-GB DVD-RAM Drive (carbon)	294415-B22
	4.7-GB DVD RAM (Single Sided) Media Kit (3 pack)	211082-B21
	Labtec Spin-22 Carbon Speakers (NA)	246637-001
	Labtec Spin-22 Carbon Speakers (EMEA)	246637-022
	Labtec Spin-22 Carbon Speakers (APD)	246637-031
	1394 DVE Adobe kit	229966-B21
	4.7-GB DVD-RW drive (carbon)	246625-B22
	4.7-GB DVD-R Media (5 pack)	239405-001
	4.7-GB DVD-RW Media	249142-001
	Communications	Intel PRO/100+ Management Adapter w/ IPSecurity
Intel PRO/100+ Management Adapter w/ IPSecurity (20 pack)		212954-B21
Compaq NC7131 Gigabit Server Adapter PCI, 64/66 10/100/1000-T		158575-B21
Compaq WL215 Wireless USB		191810-B21
V90 56K PCI WIN Modem		225745-xx1
Uninterruptible Power Systems	Compaq Tower UPS Model T1500h (high voltage, not available in North America)	242688-004
	Compaq Tower UPS Model T1500 (low voltage)	242688-003
	Compaq Tower UPS Model T1000h (high voltage, not available in North America)	242688-002
	Compaq Tower UPS Model T1000 (low voltage)	242688-001
	Compaq Tower UPS Model T700h (high voltage, not available in North America)	295372-B22
	Compaq Tower UPS Model T700 (low voltage)	295372-B21

Options

Other	Compaq Scroll Mouse	170299-B22
	3 Button Mouse (carbon)	269192-B23
	External SCSI Adapter 68-/50-Pin	270187-B21
	Easy Access Keyboard (carbon)	202109-xx8
	Sliding Shelf Kit for Rack	332564-B21
	Spaceball 4000 3D Motion Controller (carbon)	112138-B22
	Compaq Basic Smart Card Keyboard (L2 Security) (carbon)	115506-xx8
	Solenoid Hood lock/sensor	252076-B21
Support Software CD	Annual Subscription	183426-xxx
	Single CD-ROM (current month)	272505-001

Memory

Compaq Evo Workstation W4000 (128 MB)

STANDARD MEMORY

128-MB of PC133 ECC SDRAM is standard.

STANDARD MEMORY PLUS OPTIONAL MEMORY

Support for up to 1152 MB of PC133 ECC SDRAM is available with the installation of optional Memory Kits.

STANDARD MEMORY REPLACED WITH OPTIONAL MEMORY

Support for up to 1.5 GB of PC133 ECC SDRAM is available with the removal of the standard 128-MB PC133 ECC SDRAM module and the installation of optional Memory Kits.

Following are memory options available from Compaq:

- 512-MB Memory Kit (PC133 ECC SDRAM) 254873-B21
- 256-MB Memory Kit (PC133 ECC SDRAM) 254872-B21
- 128-MB Memory Kit (PC133 ECC SDRAM) 254871-B21

Memory

Compaq Evo Workstation W4000 (256 MB)

STANDARD MEMORY

256-MB of PC133 ECC SDRAM is standard.

STANDARD MEMORY PLUS OPTIONAL MEMORY

Support for up to 1280 MB of PC133 ECC SDRAM is available with the installation of optional Memory Kits

STANDARD MEMORY REPLACED WITH OPTIONAL MEMORY

Support for up to 1.5 GB of PC133 ECC SDRAM is available with the removal of the standard 256-MB PC133 ECC SDRAM module and the installation of optional Memory Kits.

Following are memory options available from Compaq:

- 512-MB Memory Kit (PC133 ECC SDRAM) 254873-B21
- 256-MB Memory Kit (PC133 ECC SDRAM) 254872-B21
- 128-MB Memory Kit (PC133 ECC SDRAM) 254871-B21

Memory

Compaq Evo Workstation W4000 (512 MB)

STANDARD MEMORY

512 GB of PC133 ECC SDRAM is standard.

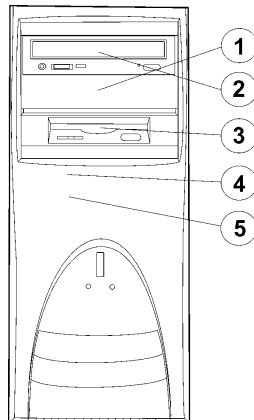
STANDARD MEMORY PLUS OPTIONAL MEMORY

Support for up to 1.5 GB of PC133 ECC SDRAM.

Following are memory options available from Compaq:

- 512-MB Memory Kit (PC133 ECC SDRAM) 254873-B21
- 256-MB Memory Kit (PC133 ECC SDRAM) 254872-B21
- 128-MB Memory Kit (PC133 ECC SDRAM) 254871-B21

Storage



DRIVE SUPPORT

	Quantity Supported	Position Supported	Controller
Removable Media			
1.44-MB Diskette Drive	Up to 1	1, 2, 3	Integrated
CD-ROM Drive	Up to 1	1, 2	Integrated EIDE
250-MB ATAPI ZIP 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
4.7-GB DVD-RAM Drive	Up to 1	1, 2	Integrated EIDE
4.7-GB DVD-RW Drive	Up to 1	1	Integrated EIDE
Combo Drive CD-RW & DVD-ROM	Up to 1	1,2	Integrated EIDE
TR5 10/20-GB tape drive	Up to 1	1, 2	Integrated EIDE
33/66GB VXA-1 IDE tape drive	Up to 1	1, 2	Integrated EIDE
33/66GB VXA-1 SCSI tape drive	Up to 1	1, 2	Ultra160 SCSI Controller (PCI)
Hard Drives			
<i>Ultra3 (Ultra 160) SCSI Drives</i>			
1-inch	Up to 3	1, 2, 3, 4, 5	Ultra160 SCSI Controller (PCI)
72-GB 10,000 rpm			
36.4-GB 10,000 rpm			
18.2-GB 15,000 rpm			
18.2-GB 10,000 rpm			
<i>Ultra ATA Drives</i>			
1-inch	Up to 3	1, 2, 3, 4, 5	Integrated EIDE
60-GB 7200 rpm			
40-GB 7200 rpm			
20-GB 7200 rpm			
Maximum Storage Capacity			
Internal	216 GB (assumes two removable media drives installed)		

Technical Specifications

System Unit	Tower Dimensions (HxWxD)	17.65 x 6.6 x 17.61 in/44.83 x 16.76 x 44.73 cm		
	Weight (standard configuration)	26 lbs/12 kg		
	Power Supply	Operating Voltage Range	90 VAC to 264 VAC	
		Rated Voltage Range	100 VAC to 120 VAC; 200 VAC to 240 VAC	
		Rated Line Frequency	47 Hz to 63 Hz	
		Rated Input Current	4.5A @ 115 VAC; 3.0A @ 230 VAC	
		Maximum Rated Power	250-Watt output;	
		Physical Dimensions	5.15 x 3.85 x 6.05 in/13 x 9.8 x 15.4 cm	
		Weight	4.5 lbs/2.05 kg	
	Temperature (Values are subject to change)	Operating	50° to 95°F/10° to 35°C	
		Non-operating	4° to 140°F/-15° to 60°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		
Compaq Easy Access Keyboard	Dimensions (HxWxD)	18.3 x 6.3 x 1.4 in/465 x 160 x 36 mm		
	Weight	Approximately 2 lbs/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		
	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			
Compaq 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°C 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	
	Regulatory Approvals	Compliant	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick	

Technical Specifications

Ultra160 SCSI Hard Drives	72 GB 250023-B21	Capacity	72,000 MB		
		Height	1 in/25.4mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra160 SCSI		
		Synchronous Transfer Rate (Maximum)	160 MB/s		
		Seek Time (typical reads, including settling)	Single Track	0.6 ms	
			Average	5.2 ms	
			Full-Stroke	12 ms	
			Rotational Speed	10,000 rpm	
		Logical Blocks	142,264,000		
Operating Temperature	50° to 95°F/10° to 35°C				
	36.4 GB 191189-B21	Capacity	36,400 MB		
		Height	1.0 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra160 SCSI		
		Synchronous Transfer Rate (Maximum)	160 MB/s		
		Seek Time (typical reads, including settling)	Single Track	0.6 ms	
			Average	4.7 ms	
			Full-Stroke	12 ms	
			Rotational Speed	10,000 rpm	
		Logical Blocks	71,132,000		
Operating Temperature	50° to 95°F/10° to 35°C				
	18.2 GB 191188-B21	Capacity	18,209 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra160 SCSI		
		Synchronous Transfer Rate (Maximum)	160 MB/s		
		Seek Time (typical reads, including settling)	Single Track	0.8 ms	
			Average	4.1 ms	
			Full-Stroke	7.7 ms	
			Rotational Speed	15,000 rpm	
		Logical Blocks	35,566,000		
Operating Temperature	50° to 95°F/10° to 35°C				

Technical Specifications

Ultra160 SCSI Hard Drives <i>(continued)</i>	18.2 GB 159764-B21	Capacity	18,209 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra160 SCSI		
		Synchronous Transfer Rate (Maximum)	160 MB/s		
		Seek Time (typical reads, including settling)	Single Track	0.6 ms	
			Average	4.7 ms	
			Full-Stroke	12 ms	
			Rotational Speed	10,000 rpm	
		Logical Blocks	35,566,000		
Operating Temperature	50° to 95°F/10° to 35°C				
Ultra ATA Hard Drives	60 GB 230253-B21	Capacity	60,000 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra ATA/100		
		Synchronous Transfer Rate (Maximum)	100 MB/s		
		Seek Time (typical reads, including settling)	Single Track	1.2 ms (2.7 ms quiet seek)	
			Average	8 ms (10.1 ms quiet seek)	
			Full-Stroke	18.0 ms (21.1 ms quiet seek)	
			Rotational Speed	7200 rpm	
		Logical Blocks	117,231,408		
Operating Temperature	41° to 131°F/5° to 55°C				
	40 GB 201066-B21	Capacity	40,000 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra ATA/100		
		Synchronous Transfer Rate (Maximum)	100 MB/s		
		Seek Time (typical reads, including settling)	Single Track	1.2 ms (2.7 ms quiet seek)	
			Average	8 ms (10.1 ms quiet seek)	
			Full-Stroke	18.0 ms (21.1 ms quiet seek)	
			Rotational Speed	7200 rpm	
		Logical Blocks	78,165,360		
Operating Temperature	41° to 131°F/5° to 55°C				
	20 GB 251974-B21	Capacity	20,000 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra ATA/100		
		Synchronous Transfer Rate (Maximum)	100 MB/s		
		Seek Time (typical reads, including settling)	Single Track	1.2 ms (2.7 ms quiet seek)	
			Average	8 ms (10.1 ms quiet seek)	
			Full-Stroke	18.0 ms (21.1 ms quiet seek)	
			Rotational Speed	7200 rpm	
		Logical Blocks	39,102,336		
Operating Temperature	41° to 131°F/5° to 55°C				

Technical Specifications

16X/10X/40X CD-RW Drive	Interface	ATAPI IDE		
	Media formats read	Any industry standard compact disc media		
	Media formats written	CD-R and CD-RW		
	Media capacity	650 MB		
	Write methods	Disc-at-once, track-at-once, session-at-once, fixed packet, and variable packet		
	Recording/playing time	More than 74 minutes		
	Data transfer rates	Sustained	CD-R write—2,400 Kbps (16X) CD-RW write (1-4X media) —1,500 Kbps (4X) CD-RW write (4-10X media) —1,500 Kbps (10X)	
		Variable	CD-RW read—1,500 Kbps (10X) Digital audio extraction (minimum) —1,500 Kbps (10X) CD-ROM, CD-R read—1,500 to 6,000 Kbps (10X to 40X)	
	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 (mandatory and default setting)		
		ATA UltraDMA mode 1—24 Mbps (optional); mode 2—33 Mbps (optional)		
	Media formats read	CD-audio, CD-ROM (modes 1 and 2), CD-ROM XA (mode 2, forms 1 and 2), single- or multi-session photo CD, CD-I, video CD, CD-text		
	Access times	Random	<120 ms typical	
		Full stroke	<200 ms typical	
	Rotational speed	17X—40X CAV	8,350 RPM, constant	
		16X CLV	3,424—7,952 RPM	
		10X CLV	2,140—4,970 RPM	
		8X CLV	1,712—3,976 RPM	
		4X CLV	856—1,988 RPM	
	Start-up time	Single	<7 seconds typical	
		Multi-session	<30 seconds typical	
Stop time	<4 seconds			
Block size	Mode 1—2,048 / 2,352 bytes			
	Mode 2, Form 1—2,048 / 2,328 / 2,336 / 2,340 / 2,352 bytes			
	Mode 2, Form 2—2,328 / 2,336 / 2,340 / 2,352 bytes			
	CD-DA—2,352 / 2,368 bytes			
Thickness	1.2 mm			
Dimensions	Fits in a standard 5.25-inch drive bay			
Disc diameter	120 mm or 80 mm			
Track pitch	1.6 µm			
Disc loading mechanism	Half-height, tray load			
Operating conditions	Temperature	41° to 113° F (5° to 45° C) operating; -4° to 140° F		
	Humidity	10% to 80%		
Mounting orientation	Horizontal or vertical			
Weight	2.6 pounds (1.2 kg)			
Approvals/ environmental	UL 94 and 1950, CSA, CE, FDA, FCC			
Operating systems supported	Microsoft Windows 98, Microsoft Windows NT 4.0, Microsoft Windows 2000			
Kit contents	16X CD-RW media, CD-RW high speed media, Roxio™ EasyCD Creator version 4.05, Dantz Retrospect Express version 5.5 for CD-RW, IDE and audio cable			

Technical Specifications

48X CD-ROM Drive	Disk	Applicable Disk	CD-ROM (Mode 1 and 2), CD-RW, 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/15 mm diameter	
		Thickness	0.05 in/1.2 mm	
		Track Pitch	1.6 μ m	
		Block Size	Mode 1	2,048 bytes
			Mode 2	2,340, 2,336 bytes
			CD-DA	2,352 bytes
		CD-XA	2,328 bytes	
	Interface	IDE		
	Access Times (typical)	Random	< 100 ms	
		Full-Stroke	< 150 ms	
	Audio Output Level	Line-Out	0.7 VRMS	
	Data Transfer Rate	Sustained	150 KB/s (1X, using audio disc)	
		Variable	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	41° to 113°F/5° to 45°C	
		Humidity	10% to 80%	
	Dimensions	(HxWxD, maximum)	1.7 x 5.9 x 8.19 in/4.29 x 15 x 20.8 cm	
		Weight	2.65 lbs/1.2 kg	

Technical Specifications

16X/40X DVD-ROM Drive with RAM read	Bus	Ultra DMA 33		
	Data Transfer Rate (1 KB = 1024 bytes)	Sustained	DVD = 8.1 MB/s to 21.6 MB/s CD-ROM = 2.55 KB/s to 6.00 KB/s	
	Disk Rotation Technology	DVD: CAV - Constant Angular Velocity CD: CAV - Constant Angular Velocity		
	Access Time (ms)	Random	DVD = <100 ms; CDROM = < 80 ms	
		Full Stroke Seek	DVD = <240 ms; CDROM = <160 ms	
	Cache Buffer Standard / Max	512 KB		
	ATAPI Interface	ATAPI		
	Disk Formats Read	DVD-ROM	Yes	
		DVD-Video	Yes	
		DVD-R	Yes	
DVD-RW		Yes		
DVD-RAM		Yes		
Photo-CD/Multi-session		Yes		
CD-ROM		Yes		
CD TEXT		Yes		
Audio CD		Yes		
CD-I		Yes		
CD-RW		Yes		
CD-R		Yes		
CD-DA		Yes		
Video CD		Yes		
CD EXTRA		Yes		
CD-ROM XA	Yes			
MPEG	Yes			
MPC Level 2	Yes			
Disk Formats Written	None			
Disk	Capacity	CD = 650 MB		
		DVD: 4.7 GB, 8.5 GB, 9.4 GB		
	Block Size	Mode 0 2352 (bytes)		
		Mode 1 2352, 2340, 2336, 2048 (bytes)		
		Mode 2 2352, 2340, 2336, 2048 (bytes)		
Diameter	DVD – 2048 (bytes)			
Thickness	12 cm, 8 cm			
	1.2 mm (CD-ROM) 1.2 mm (DVD)			

Technical Specifications

16X/40 DVD-ROM Drive with RAM read <i>(continued)</i>	Audio Output Level	Line Out	0.7± 0.1 Vrms
		Headphones	0.45 ± 0.2 Vrms
Operating Conditions		Temperature	41° to 113°F/5° to 45°C
		Humidity	5% to 85% relative humidity
Dimensions (HxWxD)		Inches	1.67 x 5.83 x 8.18
		Centimeters	4.23 x 14.8 x 20.75
Weight		Pounds	2.22
		Kilograms	1
Agency Approvals / Environmentals	UL, CSA, TUV, FDA, FCC, CE, EMI		
OS Support	Windows 98/98SE, Windows ME, Windows 2000, and Windows NT 4.0 (for data applications only)		
MPEG Video playback compatibility	Please refer to the platform for support		
RPC2 (Regional Protection Yes Control)			
Minimum CPU Supported	Pentium II 400 MHz or Celeron 466 MHz		
Mounting Orientation	Operates in horizontal or vertical position.		
Kit Contents	DVD-ROM Drive, MPEG playback software, ReadDVD™ software, IDE Cable, audio cable, installation instructions, and warranty card.		

Technical Specifications

Compaq Premier•Sound featuring AC'97 Audio	Type	Embedded AC'97 2.1 Codec		
	Sound Quality	16-Bit Stereo Full-Duplex (CD Quality)		
	Sampling	Variable 7 kHz to 48 kHz		
	Audio Compression/Decompression	ESPCM and ADPCM compression		
	Full Scale Input Voltage (RMS)	Microphone Input	100 mVolts	
		Line Input	2.2 Volts	
	Full Scale Output Voltage (RMS)	Line Output	1.4 Volts	
	Impedance (nominal)	Line Output	800 ohms (typical)	
		Line Input	10 Kohms (typical)	
	Playback (PC-D-A)	Dynamic Range	-91 dB (typical)	
		Total Harmonic Distortion + Noise	-69 dB (typical)	
		Frequency Response (-3 dB)	20 Hz to 20 kHz	
	Line Output Crosstalk (10 kHz)	-74 dB		
	Headphone Maximum Output (1 kHz)	60 mWrms into 32 ohms (THD+N < 1%)		
	Internal Power Amplifier Rating	Nominal: 1.5 Watts RMS @ 8 ohms Maximum: 5 Watts RMS @ 8 ohms		
	Speaker	Frequency Response	200 Hz to 15 kHz	
Equalizer		5 stages of fixed equalization		
Design		High-performance, infinite baffle loudspeaker		
Connectors	Line-in, line-out, microphone-in, headphone-out			
Operating System Driver Support	Windows NT 4.0, Windows 98, Windows 2000			

Technical Specifications

Integrated Intel PRO/100 VM Network Connection	Connectors	RJ-45								
	Expansion Bus Architecture	PCI 2.2								
	Network Transfer Rate	<table border="0"> <tr> <td>10Base-T (Half-Duplex)</td> <td>10 Mb/s</td> </tr> <tr> <td>10Base-T (Full-Duplex)</td> <td>20 Mb/s</td> </tr> <tr> <td>100Base-TX (Half-Duplex)</td> <td>100 Mb/s</td> </tr> <tr> <td>100Base-TX (Full-Duplex)</td> <td>200 Mb/s</td> </tr> </table>	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
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									
	Standards Compliance	IEEE VLAN Support (802.1A) IEEE 802.2 IEEE 802.3 & IEEE 802.3u (100-Mb/s Ethernet) IEEE Intel Priority Packet (801.1p)								
	Remote Wakeup	Yes								
	Boot PROM Support	Yes, Intel PRO/100 Boot Agent (PXE 2.0, RPL)								
	F12 BIOS Support	Yes								
	Proactive Alert Technology	Yes, alert on LAN (transmit functionality only) requires management console software, such as HP OpenView. It also requires alert utilities for the management console, proxy client software, and client configuration software.								
Environmental Requirements										
Operating	Temperature	32° to 131°F/0°C to 55°C								
	Humidity (non-condensing)	85% at 131°F/55°C								
	Altitude	10,000 ft/3,048 m								
Non-Operating	Temperature	40° to 158°F/°40 to 70°C								
	Humidity (non-condensing)									
	Altitude	5,000 ft/15,240 m								
	OS Driver Support	Microsoft Windows NT 3.51 and 4.0 Microsoft Windows 95, 98, and 2000 Novell Netware 3.11, 3.12, & 4.1x 5 Server Sun Solaris™ SCO UnixWare OpenDesktop OpenServer								

Technical Specifications

3COM 3C920C-TX Network Connection	Manufacturer	3ComOL		
	Connector	RJ-45		
	Expansion bus architecture	PCI 2.2		
	Configuration	Network transfer rate	10BaseT (half-duplex) 10 Mbps 10BaseT (full-duplex) 20 Mbps 100BaseTX (half-duplex) 100 Mbps 100BaseTX (full-duplex) 200 Mbps	
		Data interface	PCI, 32-bit bus mastering	
		I/O address	Automatic I/O address	
		Interrupt level	Automatic IRQ setup	
		Standards compliance	IEEE 802.3 (10-Mbps Ethernet), IEEE 802.3u (100-Mbps Ethernet)	
	OS driver support	Microsoft Windows 95, Microsoft Windows 98, Microsoft Windows 2000, Microsoft Windows NT 3.5/x and 4.0,		
	Remote wakeup	Yes, WAKE signal		
	Proactive alert technology	No		
	Environmental operating requirements	Temperature	32° to 131° F (0° to 55° C)	
		Humidity (non-condensing)	10% to 90%	
	Power management	ACPI		
	Network management	DMI 2.0, WfM 2.x, PCI 2.2		
Power	+3.3 V, 340 mA			
LED indicators	100-Mbps link, 10-Mbps link, activity			
Dimensions	4.7 x 2.2 inches (12.0 x 5.6 cm)			
Certifications	CE Mark, FCC Class B, VCCI Class B, CISPR 22 Class B			

Technical Specifications

NVIDIA Quadro2 Pro Graphics Controller	3D/2D Controller	Integrated Quadero2 Pro 2D/3D 128-bit graphics processor unit (GPU)			
	VGA Controller	Integrated into the Quadro2 Pro GPU			
	Bus type	AGP 4X			
	RAMDAC	350 MHz			
	Memory type	400 MHz 4Mx16DDR-5ns			
	Memory amount	64 MB			
	Memory Speed	400 MHz (DDR)			
	Controller clock speed	250 MHz			
	Color planes	32-bit color buffer			
	Overlay planes	1 16-bit Video overlay plane, software emulation for OpenGL overlay planes			
	Stencil planes	8-bit stencil buffer			
	Alpha planes	8-bit alpha buffer			
	Z-buffer	24-bit			
	Total bits/pixel	64			
	Maximum vertical refresh rate	240 Hz			
	Maximum pixel clock	350 MHz			
	Multi-display support	No			
	Operating systems	Microsoft Windows 2000, Windows NT 4.0 available from Compaq			
	Resolution	Maximum Colors Supported	Maximum Refresh Rate	Memory Dedicated to Texture Support	
	640 x 480	16.7 M	240 Hz	60.4 MB	
800 x 600	16.7 M	240 Hz	58.4 MB		
1024 x 768	16.7 M	240 Hz	54.8 MB		
1152 x 864	16.7 M	200 Hz	52.3 MB		
1280 x 1024	16.7 M	150 Hz	48.6 MB		
1600 x 1000	64 K	120 Hz	54.6 MB		
1600 x 1000	16.7 M	120 Hz	45.3 MB		
1600 x 1200	64 K	100 Hz	52.8 MB		
1600 x 1200	16.7 M	100 Hz	41.5 MB		
1600 x 1280	64 K	100 Hz	52 MB		
1600 x 1280	16.7 M	100 Hz	40 MB		
1920 x 1080	64 K	85 Hz	51.9 MB		
1920 x 1080	16.7 M	85 Hz	39.7 MB		
1920 x 1200	64 K	85 Hz	50.5 MB		
1920 x 1200	16.7 M	85 Hz	37 MB		

Technical Specifications

Matrox Millennium G550 AGP Graphics Controller	Form factor	Low profile (LP) board with ATX bracket attached (kit also includes a Small Form Factor (SFF) bracket)
	Bus type	AGP 4X, AGP 2X, and AGP 1X
	Standard memory	32-MB, high-speed DDR
	DAC speed	360-MHz RAMDAC; secondary 230-MHz RAMDAC
	Data path	64-bit DDR external bus to frame buffer memory/256-bit internal
	Internal bus width	256-bit DualBus
	Memory interface	64-bit DDR Memory
	Frame buffer	32 MB
	Operating systems supported	Microsoft Windows 2000, Microsoft Windows 98, Microsoft Windows NT 4.0
	Two integrated RAMDACs	Yes
3-D engine acceleration	Matrox HeadCasting* engine, two dual-textured 3-D pixels/clock for fast 3-D game play, dual pixel pipelines with dual texturing units per pipeline, floating point 3-D setup engine with dynamically re-allocatable resources; Microsoft DirectX Environment-Mapped Bump Mapping; Vibrant Color Quality rendering; bilinear, 8-sample-per-pixel trilinear, and anisotropic filtering; Microsoft DirectX and OpenGL® alpha blending modes; Z-buffer support	
3-D features	Single cycle multi-texturing	Yes
	Environment-mapped bump mapping	Yes
	Internal rendering	32-bit
	Source textures	Up to 32-bit
	Maximum texture size	2048 x 2048
	32-bit color output	Yes
	32-bit independent Z-buffer	Yes
	Stencil buffering	Yes
	AGP texturing	Yes
	Trilinear filtering	Yes
Microsoft DirectX support	Yes	
OpenGL support	Yes, through Matrox	
DualHead 3-D display features	HeadCasting, Microsoft DirectX compliant, dual texturing units per pixel pipeline, two pixel pipelines, single-cycle multi-texturing, environment-mapped bump mapping, 32-bit internal rendering precision, up to 32-bit source textures, 32-bit color output, bilinear, trilinear and anisotropic 3-D filtering, 32-bit independent Z-buffer, OpenGL support	
Other 3-D features	Alpha blending, fogging, specular highlighting, environment mapping, stencil buffering, triple buffering, AGP texturing	
Other	Texture mapping support; true color RGB, flat, and Gouraud shading; Direct3-D support; anisotropic filter; perspective-correct texture mapping; specular highlighting (any color); hardware dithering (including dithering of LUT textures); sort-dependent antialiasing; vertex and table fogging; dual texture mapping; Plug-and-Play; 0.18-micron technology (lower heat/power consumption); high-quality DVD playback with DVDMAX; color space conversion; QuickDraw supported DCI and Microsoft DirectX and OpenGL blend modes; Microsoft DirectDraw support; support for picture-in-picture and multiple video windows; Unique Motion Video Rendering support	
Optional software bundles (not included)	Matrox Virtual Presenter for Microsoft PowerPoint; Digimask™ System, HeadFone™ by LipSinc; The Matrox Software DVD Player; eDualHead browser enhancements (PageWrap, PageLog, and PageJump); Matrox PowerDesk	

Technical Specifications

Matrox Millennium G550 AGP Graphics Controller <i>(continued)</i>	DualHead configurations	VGA monitor/analog flat panel + VGA monitor/analog flat panel VGA monitor/analog flat panel + television Digital flat panel + VGA monitor/analog flat panel Digital flat panel + television
	DualHead 2-D display features	DualHead Multi-Display support; DualHead Browser Enhancement Suite, DualHead DVDMax, DualHead Zoom, DualHead Clone, DVDMax, DualHead MultiDesk, DualHead TV-out, DualHead Snapshot, Dual DVI support, ; True Multi-Display support with Microsoft Windows 2000
	DualHead display technology chip specifications	Multiple independent displays with a single AGP card: analog flat panel (RGB monitor)/analog flat panel (RGB monitor); digital flat panel/digital flat panel

Note: System recommendations for HeadCasting and DVD—450-MHz or higher computer; 128 MB RAM; 56-K or higher modem with minimum 40-K connection, microphone, and DVD-ROM; Internet Explorer 5.5 or higher, Microsoft PowerPoint 2000 or Microsoft PowerPoint XP (for Matrox Virtual Presenter)

Resolutions Supported	Maximum Colors Supported	Refresh Rates
640 x 480	16 million	200 Hz vertical, 130 kHz horizontal
800 x 600	16 million	200 Hz vertical, 130 kHz horizontal
1024 x 768	16 million	160 Hz vertical, 130 kHz horizontal
1152 x 864	16 million	150 Hz vertical, 130 kHz horizontal
1280 x 1024	16 million	120 Hz vertical, 130 kHz horizontal
1600 x 1200	16 million	100 Hz vertical, 130 kHz horizontal
1800 x 1440	16 million	90 Hz vertical, 120kHz horizontal
1920 x 1440	16 million	85 Hz vertical, 115 kHz horizontal
2048 x 1536	16 million	85 Hz vertical, 110 kHz horizontal
Secondary Resolutions Supported	Maximum Color Depths (bpp)	Refresh Rates
640 x 480	16 million	200 Hz vertical, 130 kHz horizontal
800 x 600	16 million	200 Hz vertical, 130 kHz horizontal
1024 x 768	16 million	160 Hz vertical, 130 kHz horizontal
1152 x 864	16 million	140 Hz vertical, 130 kHz horizontal
1280 x 1024	16 million	120 Hz vertical, 130 kHz horizontal
1600 x 1200	16 million	100 Hz vertical, 130 kHz horizontal

Technical Specifications

Matrox Millennium G450 Graphics Controllers	Form Factor	ATX																									
	Bus Type	AGP 1X, 2X, 4X: PCI rev 2.2 bus specification																									
	Standard Memory	AGP: 32 MB / PCI: 16 MB																									
	DAC Speed	360 MHz (secondary DAC: 200 MHz)																									
	Data Path	64-bit DDR External/256-bit Internal																									
	Internal Bus Width	256-bit DualBus																									
	Memory Interface	64-bit DDR Memory																									
	Frame Buffer	AGP: 32 MB / PCI: 16 MB																									
	Two Integrated RAMDACs	Yes																									
	Engine Acceleration	3 ROP bitBLT, line draw, text, color expansion, basic video color conversion and scaling, triangle setup engine																									
	Output	Analog, 2 ports																									
	OS Support	Microsoft Windows 2000, Windows 98 and Windows NT 4.0 available from Compaq.																									
	Other	PCI bus mastering, texture mapping support, flat and Gouraud shading, direct 3D support, Anisotropic Filter, perspective texture, specular highlighting, wireframe, dithering, full scene anti-aliasing, vertex fog, dual texture mapping, Plug-and-Play AGP 2X and AGP 4X, 0.18-micron technology (lower heat/power consumption), high-quality DVD playback with full access to Windows, Color Space Conversion, Quick Draw support, DCI and DirectX video playback, MS DirectDraw support																									
	3D Features	<table border="0"> <tr> <td>Single-cycle multi-texturing</td> <td>Yes</td> </tr> <tr> <td>Environment-Mapped Bump Mapping</td> <td>Yes</td> </tr> <tr> <td>Internal Rendering</td> <td>32-bit</td> </tr> <tr> <td>Source Textures</td> <td>Up to 32-bit</td> </tr> <tr> <td>Maximum Texture Size</td> <td>2048 x 2048</td> </tr> <tr> <td>Hardware non-power-of- 2 textures</td> <td>Yes</td> </tr> <tr> <td>32-bit Color Output</td> <td>Yes</td> </tr> <tr> <td>32-bit Independent Z-buffer</td> <td>Yes</td> </tr> <tr> <td>Stencil Buffering</td> <td>Yes</td> </tr> <tr> <td>AGP Texturing</td> <td>Yes</td> </tr> <tr> <td>Trilinear Filtering</td> <td>Yes</td> </tr> <tr> <td>DirectX Support</td> <td>Yes</td> </tr> <tr> <td>OpenGL Support</td> <td>Yes</td> </tr> </table>	Single-cycle multi-texturing	Yes	Environment-Mapped Bump Mapping	Yes	Internal Rendering	32-bit	Source Textures	Up to 32-bit	Maximum Texture Size	2048 x 2048	Hardware non-power-of- 2 textures	Yes	32-bit Color Output	Yes	32-bit Independent Z-buffer	Yes	Stencil Buffering	Yes	AGP Texturing	Yes	Trilinear Filtering	Yes	DirectX Support	Yes	OpenGL Support
Single-cycle multi-texturing	Yes																										
Environment-Mapped Bump Mapping	Yes																										
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32-bit Independent Z-buffer	Yes																										
Stencil Buffering	Yes																										
AGP Texturing	Yes																										
Trilinear Filtering	Yes																										
DirectX Support	Yes																										
OpenGL Support	Yes																										
DualHead Display Features	Multi-Display Mode, DVD Max Mode, DualHead Zoom Mode, DualHead Clone Mode, DualHead TV Output Mode, Single Chip Multi-Monitor Support																										

Technical Specifications

Matrox Millennium G450

Graphics Controllers

(continued)

Supported Modes

This list assumes setup to be DualHead multi-display running Microsoft Windows 98. If using Windows NT 4.0 or Windows 2000 while in multi-display, primary CRT is limited to modes supported by 2nd CRT.

<i>Primary CRT Color Depths</i>	<i>Color Depths (bpp)</i>	<i>Refresh Rates</i>
640 x 480	8, 16, 24, 32	60 Hz, 72 Hz, 75 Hz, 85 Hz
800 x 600	8, 16, 24, 32	60 Hz, 72 Hz, 75 Hz, 85 Hz
1024 x 768	8, 16, 24, 32	60 Hz, 70 Hz, 75 Hz, 85 Hz
1152 x 864	8, 16, 24, 32	75 Hz
1280 x 960	8, 16, 24, 32	60 Hz, 75 Hz, 85 Hz
1280 x 1024	8, 16, 24, 32	60 Hz, 75 Hz, 85 Hz
1600 x 1200	8, 16, 24, 32	60 Hz, 65 Hz, 70 Hz, 75 Hz, 85 Hz
		(available in single monitor configuration only)
1800 x 1440	8, 16, 24	60 Hz, 72 Hz, 75 Hz, 85 Hz
1856 x 1392	8, 16, 24	60 Hz, 75 Hz, 85 Hz
1920 x 1440	8, 16, 24	60 Hz, 75 Hz, 85 Hz
2048 X 768	8, 16	60 Hz, 75 Hz
<i>Secondary CRT Color Depths</i>	<i>Color Depths (bpp)</i>	<i>Refresh Rates</i>
640 x 480	16, 32	60 Hz, 72 Hz, 75 Hz, 85 Hz
800 x 600	16, 32	60 Hz, 72 Hz, 75 Hz, 85 Hz
1024 x 768	16, 32	60 Hz, 70 Hz, 75 Hz, 85 Hz
1152 x 864	16, 32	75 Hz
1280 x 960	16, 32	60 Hz, 75 Hz, 85 Hz
1280 x 1024	16, 32	60 Hz, 75 Hz, 85 Hz
1600 x 1200	16, 32	60 Hz, 65 Hz, 70 Hz, 75 Hz, 85 Hz

Technical Specifications

Matrox G200 Quad Multi-Monitor Series (MMS) Graphics Controller	Dimensions (HxW)	4.5x8 in/11.43x20.32 cm		
	Refresh Rate (per display)			
	Aspect Ratio	Resolution	Vertical	Horizontal
	4:3/5:4	640 x 480	60 to 200 Hz	31 to 102 kHz
		800 x 600	60 to 200 Hz	38 to 114 kHz
		1024 x 768	60 to 140 Hz	48 to 113 kHz
		1152 x 864	60 to 120 Hz	54 to 110 kHz
		1280 x 1024	60 to 100 Hz	64 to 107 kHz
		1600 x 1200	60 to 90 Hz	75 to 113 kHz
	16:9/16:10	1800 x 1440	60 to 70 Hz	89 to 104 kHz
856 x 480		60 to 200 Hz	30 to 108 kHz	
1280 x 720		60 to 100 Hz	44 to 76 kHz	
1600 x 1024		60 to 100 Hz	64 to 108 kHz	
1920 x 1080		60 to 80 Hz	70 to 94 kHz	
1920 x 1200		60 to 76 Hz	75 to 95 kHz	
With DVI digital flat panel displays, the maximum display resolution is 1280 x 1024. Maximum refresh rates may not be attainable at the highest display resolutions with 24 or 32-bit color palettes.				
Interface	PCI			
Standard Memory	32-MB SGRAM (8 MB per port)			
DAC Speed	250 MHz			
Data Path	128-bit Internal/64-bit External			
Color Space Conversion	Yes			
Scaling	Yes			
Quick Draw Support	Yes			
DCI & DirectX Video Playback	Yes			
Direct3D Support	Yes			
Engine Acceleration	3 ROP bitBLT, Line Draw, Text, Color Expansion, Basic Video Color Conversion and Scaling, Triangle Setup Engine			
Output	Two output ports, which require 2 adapter cables to connect analog or digital output displays			
	Analog Display Support	2 RGB cables support two DB-15 analog displays per cable		
	DVI (Digital Visual Interface) Display Support	DVI cable option kit provides two DVI cables for connecting two DVI compliant displays per cable		
	Display options supported	Four analog displays via two RGB cables Four DVI displays via two DVI cables Two analog displays via one RGB cable and two DVI displays via one DVI cable		
Other	PCI bus-mastering, texture mapping support, flat and Gouraud shading, Anisotropic Filter, perspective texture, specular highlighting, dithering, full scene anti-aliasing, Vertex fog			
OS Support	Windows 2000 and Windows NT 4.0			

Technical Specifications

NVIDIA Quadro2 MXR Graphics Controller	Dimensions (LxHxW)	Approximately 6.5 x 3.8 x 0.6 in/16.51 x 9.65 x 1.52 cm		
	Resolution	Maximum Colors Supported	Maximum Refresh Rate	Memory Dedicated to Texture Support
	640 x 480	16.7 M	240 Hz	28.4 MB
	800 x 600	16.7 M	240 Hz	26.4 MB
	1024 x 768	16.7 M	200 Hz	22.8 MB
	1152 x 864	16.7 M	170 Hz	20.3 MB
	1280 x 1024	16.7 M	150 Hz	16.6 MB
	1600 x 1000	64 K	120 Hz	22.6 MB
	1600 x 1000	16.7 M	120 Hz	13.3 MB
	1600 x 1200	64 K	100 Hz	20.8 MB
	1600 x 1200	16.7 M	100 Hz	9.5 MB
	1600 x 1280	64 K	100 Hz	20 MB
	1600 x 1280	16.7 M	100 Hz	8 MB
	1920 x 1080	64 K	85 Hz	19.9 MB
	1920 x 1080	16.7 M	85 Hz	7.7 MB
	1920 x 1200	64 K	85 Hz	18.5 MB
	1920 x 1200	16.7 M	85 Hz	5 MB
3D/2D Controller	Integrated Quadro2 MXR 2D/3D 128-bit graphics processor unit (GPU)			
VGA Controller	Integrated into the Quadro2 MXR GPU			
Bus Type	AGP 2X, 4X Graphics Bus			
RAMDAC	350 MHz			
Memory Type	183 MHz SDR 2Mx32			
Memory Amount	32 MB			
Memory Speed	183 MHz			
Controller Clock Speed	200 MHz			
Color Planes	32-bit color buffer			
Overlay Planes	1 16-bit Video overlay plane, software emulation for OpenGL overlay planes			
Stencil Planes	8-bit stencil buffer			
Alpha Planes	8-bit alpha buffer			
Z-buffer	24-bit Z buffer			
Total bits/pixel	64-bits			
Maximum Vertical Refresh Rate	240 Hz			
Maximum Pixel Clock	350 MHz			
Multi-display support	Yes			
Operating Systems	Microsoft® Windows® 2000, Windows NT 4.0 available from Compaq			

Technical Specifications

NVIDIA Quadro2 EX Graphics Controller <i>(continued)</i>	Resolution	Maximum Colors Supported	Maximum Refresh Rate	Memory Dedicated to Texture Support
	640 x 480	16.7 M	120 Hz	28.4 MB
	800 x 600	16.7 M	120 Hz	26.4 MB
	1024 x 768	16.7 M	120 Hz	22.8 MB
	1152 x 864	16.7 M	120 Hz	20.3 MB
	1280 x 1024	16.7 M	100 Hz	16.6 MB
	1600 x 1000	16.7 M	85 Hz	10.5 MB
	1600 x 1200	64 K	100 Hz	20.8 MB
	1600 x 1200	16.7 M	85 Hz	9.5 MB
	1920 x 1080	64 K	85 Hz	19.9 MB
	1920 x 1080	16.7 M	75 Hz	7.7 MB
	1920 x 1200	64 K	85 Hz	18.5 MB
	1920 x 1200	16.7 M	70 Hz	5 MB
Dimensions (LxHxW)	Approximately 6.5 x 2.5 x 0.6 in/16.5 x 6.4 x 1.5 cm			
3D/2D Controller	Integrated Quadro2 EX 2D/3D 128-bit graphics processor unit (GPU)			
VGA Controller	Integrated into the Quadro2 EX GPU			
Bus Type	AGP 2X, 4X			
RAMDAC	350 MHz			
Memory Type	183 MHz SDR 2Mx32			
Memory Amount	32 MB			
Memory Speed	166 MHz			
Controller Clock Speed	175 MHz			
Color Planes	32-bit color buffer			
Overlay Planes	One 16-bit Video overlay plane, software emulation for OpenGL overlay planes			
Stencil Planes	8-bit stencil buffer			
Alpha Planes	8-bit alpha buffer			
Z-buffer	24-bit Z buffer			
Total bits/pixel	64-bits			
Maximum Vertical Refresh Rate	240 Hz			
Maximum Pixel Clock	350 MHz			
Multi-display support	No			
Operating Systems	Microsoft® Windows® 2000, Windows NT 4.0 available from Compaq			

Note: All drivers and enhanced software can be found on the Compaq web site at:
<http://www.compaq.com/support/files/workstations/us/index.html>.

Technical Specifications

ATI Fire GL2 Graphics Controller	Dimensions (HxW)	Approximately 6.5 x 3.8 x 0.6 in/16.51 x 9.65 x 1.52 cm		
	Resolution	Maximum Colors Supported	Maximum Refresh Rate	Memory Dedicated to Texture Support
	640 x 480	16.7 M	240 Hz	28.4 MB
	800 x 600	16.7 M	240 Hz	26.4 MB
	1024 x 768	16.7 M	200 Hz	22.8 MB
	1152 x 864	16.7 M	170 Hz	20.3 MB
	1280 x 1024	16.7 M	150 Hz	16.6 MB
	1600 x 1000	64 K	120 Hz	22.6 MB
	1600 x 1000	16.7 M	120 Hz	13.3 MB
	1600 x 1200	64 K	100 Hz	20.8 MB
	1600 x 1200	16.7 M	100 Hz	9.5 MB
	1600 x 1280	64 K	100 Hz	20 MB
	1600 x 1280	16.7 M	100 Hz	8 MB
	1920 x 1080	64 K	85 Hz	19.9 MB
	1920 x 1080	16.7 M	85 Hz	7.7 MB
	1920 x 1200	64 K	85 Hz	18.5 MB
	1920 x 1200	16.7 M	85 Hz	5 MB

Technical Specifications

ATI Fire GL2 Graphics Controller (continued)	Form Factor	ATX
	3D/2D Controller	IBM RC1000 Rasterizer Chip
	VGA Controller	IBM RC1000 Rasterizer Chip
	Bus Type	AGP 2X/4X Version 2 compliant including side band signaling support
	RAMDAC	300 MHz IBM RC1000
	Memory Type	DDR SGRAM
	Memory Amount	64 MB DDR SGRAM unified frame buffer, Z-buffer and Texture storage
	Memory Speed	120 MHz
	Controller Clock Speed	120 MHz
	Color Planes	32 bit, True Color
	Overlay Planes	8-bit
	Stencil Planes	8-bit
	Alpha Planes	8-bit
	Z-buffer	24-bit
	Video Engine support	YUV (4:2:2, 4:2:0) conversion, point and bilinear scaling
	Mini-Din Stereo Interface support	StereoGraphics CrystalEyes shutter glasses
	Monitor	15-pin D-type analog
	Flat Panel Interface	DVI-D digital (supported resolutions up to 1280x1024)
	Video Timings compliance	VESA DMT 1.0 and VESA GTF 1.0 specifications
	Total bits/pixel	117
	Maximum Vertical Refresh Rate	100 Hz / 120 Hz when Quad Buffer Stereo is enabled
	Maximum Pixel Clock	300 MHz
	Operating Systems	Microsoft® Windows® 2000 and Windows NT 4.0

Note: All drivers can be found on the Compaq web site at:

<http://www.compaq.com/support/files/workstations/us/index.html>

. Compaq PCs use genuine Microsoft® Windows®

<http://www.microsoft.com/piracy/howtotell>

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