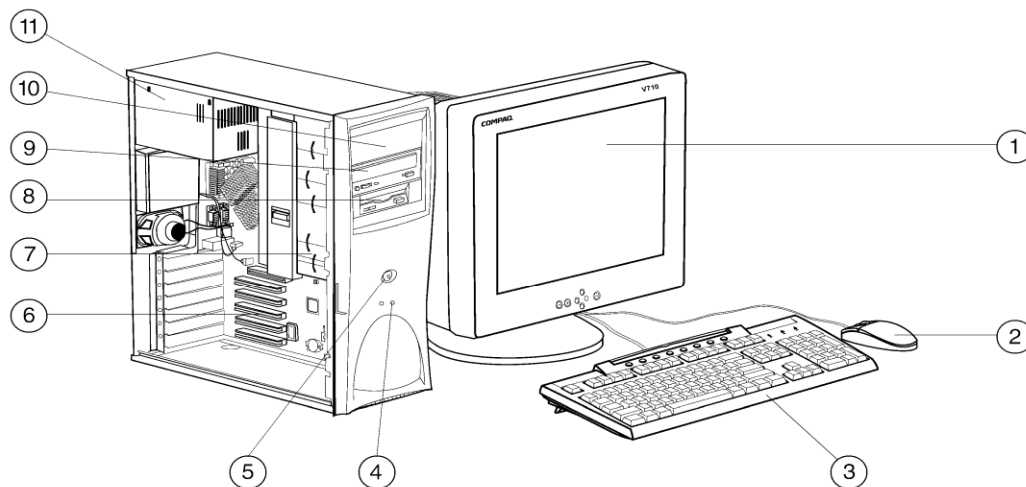


### Overview

#### At A Glance

- Intel® 815E chipset
- 133 MHz Front Side Bus
- One Intel® Pentium® III processor up to 1.2 GHz
- High-performance 10,000 rpm and optional 15,000 rpm Ultra160 SCSI and Quiet Seek 7200 rpm Ultra ATA hard drives
- Choice of graphics controllers: Matrox Millennium G450 dual, NVIDIA Quadro2 EX, ELSA Synergy II, or NVIDIA Quadro2 MXR
- Multi-display support
- Convertible minitower form factor with external drives that rotate 90°, easily converting from minitower to desktop
- Compaq Intelligent Manageability
- Windows 2000 or Windows NT 4.0 pre-installed
- Easy Access Keyboard
- Protected by Compaq Services, including a three-year, limited warranty – Terms and conditions vary by country. Certain restrictions and exclusions apply.



1. V710 Monitor (sold separately)
2. Three-button Mouse
3. Easy Access Keyboard
4. LED
5. Dual-State Power Button
6. Expansion Slots

7. SMART III Ultra ATA or SCSI Hard Drive
8. 1.44-MB diskette drive
9. CD-ROM
10. Expansion Bays
11. 200-Watt Power Supply

## Standard Features – Pre Configured Models

### Chipset – Intel 815E

<b>Processor and Speed</b>	<b>Intel Pentium III Processors</b>	<b>Standard L2 Cache</b>	256-KB Integrated ECC
<i>One of the following</i>	1 GHz	<b>Front Side Bus</b>	133 MHz

### Hard Drives

<i>One of the following</i>	20-GB 7200 rpm SMART III Ultra ATA/100 with Drive Protection System
	20-GB 7200 rpm SMART III Ultra ATA/100 with Drive Protection System <i>(Quite Seek and Idle HDD (EMEA Only))</i>
	40-GB 7200 rpm SMART III Ultra ATA/100 with Drive Protection System
	18-GB Ultra160/10K RPM SCSI HDD
	Adaptec 29160 U160 SCSI Controller on SCSI models

<b>Memory</b>	Standard	128 MB (PC133MHz SDRAM Memory)
<i>One of the following</i>	Standard	256 MB (PC133MHz SDRAM Memory)
	Maximum	512 MB (PC133MHz SDRAM Memory)

<b>Removable Storage</b>	1.44-MB Diskette Drive
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<b>Optical Storage</b>	48X CD-ROM Drive
<i>One of the following</i>	8X/4X/32X CD-RW

<b>Keyboard/Mouse</b>	Easy Access Keyboard
	3-Button Mouse

<b>Audio</b>	Integrated Intel Audio with Premium Internal Speaker
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<b>Network Controller</b>	Integrated Intel PRO/100 VM Network Connection
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<b>Graphics</b>	Matrox G450 AGP
<i>One of the following:</i>	ELSA Synergy II (AGP)
	NVIDIA Quadro2 EX
	NVIDIA Quadro2 MXR

<b>Expansion Capability</b>	Memory Expansion Slots (DIMMS)	3 DIMMS
	Memory Type	SDRAM
	Maximum Memory	512MB

<b>Expansion Slots</b>	(Total/Available)	6/4
	AGP	1/ up to 1 depending on model
	PCI	5/ up to 4 depending on model

<b>Expansion Bays</b>	(Total/Available)	5/2
	Internal	2/1
	External	3/1

<b>Operating System</b>	Dual Installation Windows 2000 with selectable Service Pack 1/Windows NT 4.0 with Service Pack 6a
	<i>Note: Dual Installation- End-user must make a one-time selection between Windows 2000 and Windows NT 4.0. If end-user desires the rejected product(s) after selection is made, the end-user must acquire and pay for rejected product separately.</i>

## Standard Features – Pre Configured Models

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### Chipset – Intel 815E (continued)

<b>Interfaces</b>	I/O Chip	Socket 370, Coppermine 128K/256K FC-PGA 66/100/133 FSB
	Serial Port / UART Type	Yes
	Parallel Port	Yes
	USB	2 ports
	Infrared Port	No
	Network	RJ-45 (with integrated LEDs)
	Keyboard	Yes
	Mouse	Yes; PS/2
	Video	Yes
	Audio	Yes

<b>Power Conservation ‘Energy Saver’</b>	Energy Star Compliant	Yes (on select models)
	Power Consumption in ES Mode	<a href="http://www.eng.hou.compaq.com/agency/e-star.htm">http://www.eng.hou.compaq.com/agency/e-star.htm</a> Note: This Web site is available in English only.
	APM Support	Version 1.2
	Screen Blanking	Yes
	Hard Disk “Idle” Mode	Yes
	System Idle Mode	Yes
	Cache Memory Power-Down	No
	CD-Rom Down	Yes
	System Environmental Specifications Temperature, Acoustics, Shock, Vibration, and Altitude	<a href="http://envwebserver.eng.hou.compaq.com/envtestlab/prod02.htm">http://envwebserver.eng.hou.compaq.com/envtestlab/prod02.htm</a> Note: This Web site is available in English only.

<b>Boot Support</b>	Local Diskette Boot	Yes (Windows 95, Windows 98.DOS)
	Remote Diskette Boot	No
	Network Boot	Yes

<b>Initial Configuration and Deployment</b>	Alliris eXpress	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	PC Transplant/PC Transplant PRO	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	System Software Management ver 1.4	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	Novel ZenWorks 2.0	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	IM LC ver 1.6	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	Support Software CD	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a> Note: These Web sites are available in English only.
	Compaq OS Restore CD	Yes

<b>Asset Control</b>	Asset Tag	Yes
	DIMM Serial Presence Detect	Yes
	Hard drive serial number, model, and manufacturer	Yes
	Monitor serial number, model and manufacturer	Yes
	System serial number, model, and manufacturer	Yes
	ROM revision levels	Yes
	Systemboard revision level	Yes
	Compaq Fingerprint Identification Technology	Yes/Optional
	Configuration Control Hardware	No
	DMI BIOS	Yes
	Memory Change Alert	Yes
	Ownership Tag	Yes
	Kensington Lock Support	Yes

## Standard Features – Pre Configured Models

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### Chipset – Intel 815E (continued)

<b>Standard Security Features</b>	Cable Lock Provision	Yes
	Power-On Password	Yes
	QuickBlank/QuickLock	No
	Serial, Parallel, USB Port Control	Yes
	Removable Media Write/Boot Control	Yes
	Setup Password	Yes

<b>Software Updating and Management</b>	Compaq Info Messenger	Yes
	Remote Security Management	Yes
	Remote ROM Flash	Yes, requires CPQRS driver
	Remote Wakeup/Remote Shutdown	Yes
	ROM-Based Setup and Diagnostics	Yes
	Support Software CD and WWW site	Yes

<b>Fault Notification and Recovery</b>	DMI BIOS	Yes
	SMART Hard Drives, Fault Notification, and Prefailure Warranty	Yes
	Proactive Backup	Yes
	ECC Memory, Fault Notification, and Prefailure Warning	Not Supported; 815E does not support ECC memory
	Processor Fault Notification and Prefailure Warranty	Yes
	Surge Tolerant Power Supply	Yes
	Thermal Sensor	Yes
	Ultra ATA Integrity Monitoring	Yes

<b>Other Features</b>	ACPI-Ready Hardware	Yes
	Compaq Insight Manager LC and XE Agents	Yes
	Altiris agent	Yes
	Compaq Management Solutions Partners Program	Yes
	Dual-State Power Button	Yes
	Compaq Management Solutions Partners Program	Yes
	Wired for Management Support	Yes

**Intelligent Manageability** Compaq Intelligent Manageability, a key component of PC Lifecycle Solutions, is the broad set of manageability features found on all Compaq Deskpro desktops, *Armada™* portables, Deskpro Workstation, *Professional Workstation™*, and *ProLiant™* server products. These best-in-class features on PC clients comply with industry standards, such as DMI and Wired for Management, while pioneering new ground in client manageability. Compaq introduced the industry's first line of manageable clients in 1995 and has been driving the industry ever since. With Compaq's lifecycle management philosophy, enterprises have all of the pieces for end-to-end management and proven tools for hassle-free management of PCs and significantly lower total cost of ownership.

Intelligent Manageability offers solutions in the areas of Initial Configuration and Deployment, Asset Tracking and Security, Software Updating and Management, and Fault Notification and Recovery. For more information, visit our Web site: [www.compaq.com/im](http://www.compaq.com/im). Note: This Web site is available in English only.

## Standard Features – Pre Configured Models

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### Chipset – Intel 815E (continued)

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<b>Software</b>	Windows 3.1	No
	Windows NT 4.X	Yes
	Windows 2000	Yes
	Windows NT 4.X/Windows 2000	Yes
	Computer Setup Utility	Yes
	Insight Personal Edition	Yes
	Diagnostics for Windows	Yes
	Microsoft Internet Explorer	Yes
	Compaq Information Center	No
	Intelligent Manageability Agent	Yes

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**Power Supply**      **Convertible Minitower**  
200 Watts

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### Service and Support

On-site Warranty and ServiceNo <sup>Note 1:</sup> This three-year, limited warranty and service offering delivers three years of on-site, next business-day<sup>Note 2</sup> service for parts and labor and includes free telephone support <sup>Note 3</sup> 24 x 7. Global coverage <sup>Note 2</sup> ensures that any product purchased in one country and transferred to another, non-restricted country will remain fully covered under the original warranty and service offering.

**Note 1:** Terms and conditions may vary by country. Certain restrictions and exclusions apply.

**Note 2:** On-site service may be provided pursuant to a service contract between Compaq and an authorized Compaq third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

**Note 3:** Technical telephone support applies only to Compaq-configured, Compaq and Compaq-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

### Standard Features – Pre Configured Models

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D23/1.0/20A/256/2+C 470012-811	<b>Processor</b>	1GHz Pentium III w/ 133MHz FSB
	<b>Cache Memory</b>	256-KB Integrated ECC
	<b>Memory</b>	256MB PC133 SDRAM (1x256)
	<b>Optical Drive</b>	48X CD-ROM
	<b>Hard Drive</b>	20-GB Ultra ATA 7200 rpm
	<b>Controller</b>	Integrated Ultra ATA/100
	<b>Graphics</b>	nVIDIA Quadro2 MXR
	<b>Audio</b>	Integrated AC97 <i>Premier•Sound</i>
	<b>OS</b>	Dual Windows NT 4.0 SP6a/Windows 2000 SP1 pre-install

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D23/1.0/18S/256/2XC 470012-856	<b>Processor</b>	1GHz Pentium III w/ 133MHz FSB
	<b>Cache Memory</b>	256-KB Integrated ECC
	<b>Memory</b>	256MB PC133 SDRAM (1x256)
	<b>Optical Drive</b>	48X CD-ROM
	<b>Hard Drive</b>	18.2-GB Ultra 160 SCSI (10,000 rpm)
	<b>Controller</b>	Integrated Ultra ATA/100 and Ultra160 SCSI PCI
	<b>Graphics</b>	Matrox Millennium G450 (AGP)
	<b>Audio</b>	Integrated AC97 <i>Premier•Sound</i>
	<b>OS</b>	Dual Windows NT 4.0 SP6a/Windows 2000 SP1 pre-install

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D23/1.0/20A/256/2+C 470014-563	<b>Processor</b>	1GHz Pentium III w/ 133MHz FSB
	<b>Cache Memory</b>	256-KB Integrated ECC
	<b>Memory</b>	256MB PC133 SDRAM (1x256)
	<b>Optical Drive</b>	48X CD-ROM
	<b>Hard Drive</b>	20-GB Ultra ATA 7200 rpm
	<b>Controller</b>	Integrated Ultra ATA/100
	<b>Graphics</b>	ELSA Synergy II
	<b>Audio</b>	Integrated AC97 <i>Premier•Sound</i>
	<b>OS</b>	Dual Windows NT 4.0 SP6a/Windows 2000 SP1 pre-install

## Standard Features – Custom Configuration Models

### Deskpro Workstation AP230-Flexible Solutions Configured to Order

Order the Compaq Deskpro Workstation the way the customer wants it by selecting the processor, hard drive, memory, graphics controller, and more. Purchase directly from Compaq or a Compaq Authorized Agent. Configurable components and Options change frequently. Check the Compaq Product Bulletin or [www.compaq.com](http://www.compaq.com) for the latest options available from Compaq. **Note:** This Web site is available in English only.

#### Chipset – Intel 815E

<b>Processor and Speed</b>	<b>Intel Pentium III Processors</b>	<b>Standard L2 Cache</b>	256-KB Integrated ECC
<i>One of the following</i>	1.2GHz	<b>Front Side Bus</b>	133 MHz
	1 GHz	<b>Maximum Memory</b>	512MB
	933 MHz		

<b>Hard Drive</b>	18.2-GB 10,000 rpm Ultra160 SCSI with PCI Ultra160 Controller
<i>One of the following</i>	18.2-GB 15,000 rpm Ultra160 SCSI with PCI Ultra160 Controller
	20-GB 7200 rpm SMART III Ultra ATA/100 with Drive Protection System
	20-GB 7200 rpm SMART III Ultra ATA/100 with Drive Protection System ( <i>Quite Seek and Idle HDD (EMEA ONLY)</i> )
	40-GB 7200 rpm SMART III Ultra ATA/100 with Drive Protection System

<b>Memory</b>	128-MB SDRAM (PC133) (utilizes one DIMM slot)
<i>One of the following</i>	256-MB SDRAM (PC133) (utilizes one DIMM slot)
	384-MB SDRAM (PC133) (utilizes two DIMM slots)
	512-MB SDRAM (PC 133) (utilizes two DIMM slots)

<b>Removable Storage</b>	1.44-MB Diskette Drive
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<b>Optical Storage</b>	48X CD-ROM Drive
	16X DVD-ROM Drive
	8X/4X/32X CD-RW Drive

<b>Keyboard/Mouse</b>	Easy Access Keyboard
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<b>Audio</b>	Integrated Intel Audio with Premium Internal Speaker
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<b>Network Controller</b>	Integrated Intel PRO/100 VM Network Connection
	V.90 56K PCI Modem

<b>Graphics</b>	Matrox G450 Dual Head 32-MB AGP
<i>One of the following:</i>	ELSA Synergy II 32-MB AGP
	NVIDIA Quadro2 EX
	NVIDIA Quadro2 MXR

<b>Expansion Slots</b>	(Total/Available)	
	AGP	1/ up to 1 depending on model
	PCI	5/ up to 4 depending on model

<b>Expansion Capability</b>	Memory Expansion Slots (DIMMS)	3 DIMMS
	Memory Type	SDRAM
	Maximum Memory	512MB

<b>Expansion Bays</b>	(Total/Available)	5/2
	Internal	2
	External	3

## Standard Features – Custom Configuration Models

### Chipset – Intel 815E (continued)

**Operating System** Dual Installation Windows 2000 with selectable Service Pack 1/Windows NT4.0 with Service Pack 6a

Note: Dual Installation- End-user must make a one-time selection between Windows NT 4.0 and Windows 2000. If end-user desires the rejected product(s) after selection is made, the end-user must acquire and pay for rejected product separately.

<b>Interfaces</b>	I/O Chip	Socket 370, Coppermine 128K/256K FC-PGA 66/100/133 FSB
	Serial Port/UART Type	Yes
	Parallel Port	Yes
	USB	2 ports
	Infrared Port	No
	Network	RJ-45 (with integrated LEDs)
	Keyboard	Yes
	Mouse	Yes; PS/2
	Video	Yes
	Audio	Yes

<b>Power Conservation “Energy Saver”</b>	Energy Star Compliant	Yes (on select models)
	Power Consumption in ES Mode	<a href="http://www.eng.hou.compaq.com/-agency/e-star.htm">http://www.eng.hou.compaq.com/-agency/e-star.htm</a> Note: This Web site is available in English only.
	APM Support	Version 1.2
	Screen Blanking	Yes
	Hard Disk ‘Idle’ Mode	Yes
	System Idle Mode	Yes
	Cache Memory Power-Down	No
	CD-ROM Down	Yes
	System Environmental Specifications Temperature, Acoustics, Shock, Vibration, and Altitude	<a href="http://envwebserver.eng.hou.compaq.com/envtestlab/prod02.htm">http://envwebserver.eng.hou.compaq.com/envtestlab/prod02.htm</a> Note: This Web site is available in English only.

<b>Boot Support</b>	Local Diskette Boot	Yes (Windows 95, Windows 98.DOS)
	Remote Diskette Boot	No
	Network Boot	Yes

<b>Initial Configuration and Deployment</b>	Altiris eXpress	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	PC Transplant/PC Transplant PRO	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	System Software Management ver 1.4	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	Novel ZenWorks 2.0	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	IM LC ver 1.6	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a>
	Support Software CD	<a href="http://www.compaq.com/im">http://www.compaq.com/im</a> Note: These Web sites are available in English only.
	Compaq OS Restore CD	Yes



## Standard Features – Custom Configuration Models

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### Chipset – Intel 815E (continued)

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<b>Asset Control</b>	Asset Tag	Yes
	DIMM Serial Presence Detect	Yes
	Hard drive serial number, model, and manufacturer	Yes
	Monitor serial number, model and manufacturer	Yes
	System serial number, model, and manufacturer	Yes
	ROM revision levels	Yes
	Systemboard revision level	Yes
	Compaq Fingerprint Identification Technology	Yes/Optional
	Configuration Control Hardware	No
	DMI BIOS	Yes
	Memory Change Alert	Yes
	Ownership Tag	Yes
	Kensington Lock Support	Yes

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<b>Standard Security Features</b>	Cable Lock Provision	Yes
	Power-On Password	Yes
	QuickBlank/QuickLock	No
	Serial, Parallel, USB Port Control	Yes
	Removable Media Write/Boot Control	Yes
	Setup Password	Yes

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<b>Software Updating and Management</b>	Compaq Info Messenger	Yes
	Remote Security Management	Yes
	Remote ROM Flash	Yes, requires CPQRS driver
	Remote Wakeup/Remote Shutdown	Yes
	ROM-Based Setup and Diagnostics	Yes
	Support Software CD & WWW site	Yes

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<b>Fault Notification and Recovery</b>	DMI BIOS	Yes
	SMART Hard Drives, Fault Notification, & Prefailure Warranty	Yes
	Proactive Backup	Yes
	ECC Memory, Fault Notification, and Pre-failure Warning	Not Supported: 815E does not support ECC memory
	Processor Fault Notification and Prefailure Warranty	Yes
	Surge Tolerant Power Supply	Yes
	Thermal Sensor	Yes
	Ultra ATA Integrity Monitoring	Yes

## Standard Features – Custom Configuration Models

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### Chipset – Intel 815E (continued)

<b>Other Features</b>	ACPI-Ready Hardware	Yes
	Compaq Insight Manager LC and XE Agents	Yes
	Altiris agent	Yes
	Compaq Management Solutions Partners Program	Yes
	Dual-State Power Button	Yes
	Compaq Management Solutions Partners Program	Yes
	Wired for Management Support	Yes

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### Intelligent Manageability

Compaq Intelligent Manageability, a key component of PC Lifecycle Solutions, is the broad set of manageability features found on all Compaq Deskpro desktops, *Armada* portables, Deskpro Workstation, *Professional Workstation*, and *ProLiant* server products. These best-in-class features on PC clients comply with industry standards, such as DMI and Wired for Management, while pioneering new ground in client manageability. Compaq introduced the industry's first line of manageable clients in 1995 and has been driving the industry ever since. With Compaq's lifecycle management philosophy, enterprises have all of the pieces for end-to-end management and proven tools for hassle-free management of PCs and significantly lower total cost of ownership.

Intelligent Manageability offers solutions in the areas of Initial Configuration and Deployment, Asset Tracking and Security, Software Updating and Management, and Fault Notification and Recovery. For more information, visit our Web site: [www.compaq.com/im](http://www.compaq.com/im). Note: This Web site is available in English only.

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<b>Software</b>	Windows 3.1	No
	Windows NT 4.X	Yes
	Windows 2000	Yes
	Windows NT 4.X/Windows 2000	Yes
	Computer Setup Utility	Yes
	Insight Personal Edition	Yes
	Diagnostics for Windows	Yes
	Microsoft Internet Explorer	Yes
	Compaq Information Center	No
Intelligent Manageability Agent	Yes	

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**Power Supply** 200 Watts

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### Service and Support

On-site Warranty and Service <sup>Note 1</sup>: This three-year, limited warranty and service offering delivers three years of on-site, next business-day <sup>Note 2</sup> service for parts and labor and includes free telephone support <sup>Note 3</sup> 24 x 7. Global coverage <sup>Note 2</sup> ensures that any product purchased in one country and transferred to another non-restricted country will remain fully covered under the original warranty and service offering.

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Note 2: On-site service may be provided pursuant to a service contract between Compaq and an authorized Compaq third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

Note 3: Technical telephone support applies only to Compaq-configured, Compaq and Compaq-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

### After-Market Options

Memory (DIMMs)	<b>133-MHz SDRAM DIMMs</b>		
	256-MB Memory Kit (1 x 256-MB SDRAM DIMM, 133 MHz)	174225-B21	
	128-MB Memory Kit (1 x 128-MB SDRAM DIMM, 133 MHz)	174224-B21	
	<b>Bulk</b>		
	256-MB Memory Kit (1 x 256-MB SDRAM DIMM, 133-MHz)	174233-B21	
	128-MB Memory Kit (1 x 128-MB SDRAM DIMM, 133-MHz)	174232-B21	
	Monitors	<b>TFTs</b>	
		Compaq TFT8020 Monitor (18-inch, Opal)	326100-001
Compaq TFT8020 Monitor (18-inch, Carbon)		159244-001	
Compaq TFT5010 Monitor (15-inch, Opal)		104741-001	
Compaq TFT5010 Monitor (15-inch, Carbon)		154486-001	
Compaq TFT5005 Monitor (15-inch, Opal)		201431-001	
Compaq TFT5005 Monitor (15-inch, Carbon)		201430-001	
<b>CRTs</b>			
<b>Professional Series</b>			
Compaq P1210 CRT Monitor (21-inch, Opal)		210290-001	
Compaq P910 CRT Monitor (19-inch, Opal)		210254-001	
Compaq P710 CRT Monitor (17-inch, Opal)		210189-001	
<b>Value Series</b>			
Compaq V1100 CRT Monitor (21-inch, Opal)		386472-001	
Compaq V710 CRT Monitor (17-inch, Opal)		187895-001	
<b>Standard Series</b>			
Compaq S910 CRT Monitor (19-inch, Opal)		138485-001	
Compaq S710 CRT Monitor (17-inch, Opal)		152991-001	
Compaq M710 CRT Monitor (17-inch, Opal)		154499-005	
Compaq S710 CRT Monitor (17-inch, Carbon)		154499-002	
Compaq S510 CRT Monitor (15-inch, Carbon)		168636-002	
Graphics		<b>Controller Cards</b>	
		Matrox G450 32-MB AGP	202389-B21
	ELSA Synergy II 32-MB AGP	103382-B21	
	NVIDIA Quadro2 EX	232090-B21	
	NVIDIA Quadro2 MXR	221412-B21	
Tape Drives	33/66 GB VXA-1 SCSI Tape Drive (Opal)	237108-B21	
	33/66 GB VXA-1 IDE Tape Drive (Opal)	237109-B21	
	33/66 GB VXA-1 Media (2-Pack)	237111-B21	
	VXA-1 Cleaning Cartridge	237110-B21	

## After-Market Options

<b>Optical Drives</b>	<i><b>DVD-ROM Drives</b></i>	
	16X/40X DVD-ROM Drive	211055-B21
	<i><b>CD-ROM Drives</b></i>	
	48X CD-ROM Drive	187217-B21
	<i><b>CD-RW Drives</b></i>	
	8X/4X/32X CD-RW Drive	294407-B21
<b>Hard Drives</b>	<i><b>Ultra ATA/100 Hard Drives with Drive Protection System (DPS)</b></i>	
	20-GB Ultra ATA 100 (7200 rpm) Hard Drive w/DPS - Quiet Seek and Quiet Idle	176275-021
	20-GB Ultra ATA 100 (7200 rpm) Hard Drive w/DPS - Quiet Seek	176272-B21
	40-GB Ultra ATA 100 (7200rpm) Hard Drive w/DPS - Quiet Seek and Quiet Idle	201066-B21
	<i><b>SCSI Hard Drives</b></i>	
	18-GB 10K rpm Ultra 160 SCSI Hard Drive	159764-B21
	18GB 15K rpm Ultra 160 SCSI Hard Drive	191188-B21
	<b>Controllers/Cables/Adapters</b>	Adaptec 29160N Ultra 160 Single Channel SCSI Controller
<b>Multimedia</b>	Premier•Sound™ PS330 Speakers	160992-001
	Altec Lansing ACS21 Speakers	194839-001
	Altec Lansing ACS33 Speakers	203621-001
<b>Communications</b>	Compaq V.90 56K PCI Modem	171914-001
<b>Input/Output Devices</b>	Compaq Easy Access Keyboard	122660-006
<b>Support Software CD</b>	Annual Subscription	183426-001
	Single CD-ROM (current month)	272505-001
<b>Other</b>	Rack Mount Conversion Kit, fixed Rails	303606-B21
	Sliding Shelf Kit	332564-B21
	Depth Adjustable Rails	332558-B21

## Memory

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815E chipset (128 MB)

### 133-MHz SDRAM DIMM MEMORY

#### STANDARD MEMORY

128-MB DIMM Standard

#### STANDARD MEMORY PLUS OPTIONAL MEMORY

Support for up to 512 MB of DIMM memory is available with the installation of optional SDRAM Memory Kits.

#### STANDARD MEMORY REPLACED WITH OPTIONAL MEMORY

Support for up to 512 MB of DIMM memory is available with the removal of the standard 128-MB DIMM and the installation of optional SDRAM Memory Kits.

Memory		Slot		
		1	2	3
Standard	128 MB	128 MB	Empty	Empty
Optional	512 MB	128 MB	128 MB	256 MB
Maximum	512 MB	256 MB	256 MB	Empty

Note: All Compaq Deskpro Workstation AP230 series contain three DIMM slots, but can only be upgraded to a maximum of 512 MB. The limitation of 512 MB maximum is a limitation of the memory controller in the 815E chipset.

Note: It is not necessary to add memory in pairs or kits. Memory upgrades are accomplished by adding single or multiple DIMMs of the same or varied sizes. This chart does not represent all possible memory configurations.

## Memory

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815E chipset (256 MB)

### 133-MHz SDRAM DIMM MEMORY

#### STANDARD MEMORY

256-MB DIMM Standard

#### STANDARD MEMORY PLUS OPTIONAL MEMORY

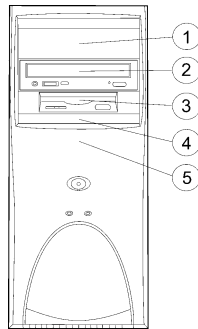
Support for up to 512 MB of DIMM memory is available with the installation of optional SDRAM Memory Kits.

Memory		Slot	
		1	2
Standard	256 MB	256 MB	Empty
Optional	512 MB	256 MB	256 MB

Note: All Compaq Deskpro Workstation AP230 series contain three DIMM slots, but can only be upgraded to a maximum of 512 MB. The limitation of 512 MB maximum is a limitation of the memory controller in the 815E chipset.

Note: It is not necessary to add memory in pairs or kits. Memory upgrades are accomplished by adding single or multiple DIMMs of the same or varied sizes. This chart does not represent all possible memory configurations.

## Storage



### DESKPRO WORKSTATION AP230 SERIES DRIVE SUPPORT

	Quantity Supported	Position Supported	Controller
<b>CONVERTIBLE MINITOWER</b>			
Diskette Drives	1	3	Floppy
Floppy Drives	1	3	IDE
CD-ROM Drives	2	1,2	IDE
DVD-ROM Drives	2	1,2	IDE
CD-RW Drives	2	1,2	IDE
SMART III Ultra ATA Hard Drives	Up to 2	4,5	Ultra ATA
SCSI Hard Drives	Up to 2	4,5	SCSI

### Technical Specifications

<b>System Unit</b>	<b>Chassis</b>	Color	Opal
		Architecture	PCI/AGP
		System Board Form Factor	Standard ATX wit custom power supply
		Flash ROM	Yes
<b>Dimensions (HxWxD)</b>		17.65 x 6.6 x 17.11 in/44.83 x 16.76 x 43.46 cm	
<b>Weight (approximate)</b>		26 lbs/11.8 kg	
<b>Weight Supported</b>		100 lbs/45.5 kg	
<b>Power Supply</b>		Operating Voltage Range	90 to 132 VAC/180 to 264 VAC
		Rated Voltage Range	100 to 127 VAC/200 to 240 VAC
		Rated Line Frequency	50 to 60 Hz
		Rated Input Current	6A/3A
		Maximum Rated Power	200W
		Power Supply Fan	Variable speed fan integrated into power supply
		Processor Fan	Fixed Speed
		Chassis Fan	Variable speed fan mounted to chassis (Convertible Minitower and Slim Desktop only)
<b>Temperature</b>		Operating	50° to 95°F/10° to 35°C
		Non-operating	-4° to 140°F/-20° to 60°C
<b>Humidity</b>		Operating	20% to 80%
		Non-operating	10% to 90%
<b>Maximum Altitude</b>		Operating	0 to 10,000 ft/0 to 3,048 m
		Non-operating	0 to 30,000 ft/0 to 9,144 m
		Maximum Rate of Change	1500 feet per minute/457 meters per minute



## Technical Specifications

<b>Compaq Easy Access Keyboard</b>	<b>Dimensions (HxWxD)</b>	18.3 x 6.3 x 1.4 in/465 x 160 x 36 mm	
	<b>Weight</b>	Approximately 2 lbs/0.9 kg	
<b>Electrical</b>	Operating Voltage	+5VDC $\pm$ 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	
	<b>Mechanical</b>	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	
<b>Environmental</b>	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

<b>Compaq 3-Button Mouse</b>	<b>Dimensions/Weight</b>	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
<b>Environmental</b>	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)	
<b>Mechanical</b>	Resolution	400 ± 20% DPI	
	Tracking Speed	10 in/s Maximum	
	Tracking Mechanism Life	300 miles/483 km at average speed of 10 in/s	
	Switch Life	1,000,000 operations (using Hasco modified tester)	
	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	
<b>Regulatory Approvals</b>	Compliant	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick	

## Technical Specifications

1.44-MB Diskette Drive	Diskette Size	3.5 in	
	LED Indicators (front panel)	Green	
	Read/Write Capacity per Diskette (high/low density)	1.44 MB/720 KB	
	Drive Supported	One	
	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)	169/94 ms
		Settling Time	15 ms
		Latency Average	100 ms
Cylinders (high/low)	80/80		
Read/Write Heads	Two		

### Technical Specifications

Ultra 160 SCSI Hard Drives	18.2 GB 10K	Capacity	18,200 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra 160 SCSI		
		Transfer Rate Synchronous (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		
		Physical Configuration	Logical Blocks	35,566,000	
Operating Temperature	50° to 95°F/10° to 35°C				
<hr/>					
	18.2 GB	Capacity	18,200 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra 160 SCSI		
		Transfer Rate Synchronous (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		
		Physical Configuration	Logical Blocks	35,566,000	
	Operating Temperature	50° to 95°F/10° to 35°C			
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SMART III Ultra ATA/100 Hard Drives	40 GB	Capacity	40,000 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra ATA/100		
		Transfer Rate Synchronous (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 ms (21.1 ms quiet seek)	
		Rotational Speed	7200 rpm		
		Physical Configuration	Logical Blocks	78,165,360	
Operating Temperature	41° to 131°F/5° to 55°C				
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20-GB 7200rpm drives shipping in EMEA with Quiet Seek also have Quiet Idle technology, which reduces acoustic levels by approximately 5 decibels	20 GB	Capacity	20,000 MB		
		Height	1 in/25.4 mm		
		Width	3.5 in/88.9 mm		
		Interface	Ultra ATA/100		
		Transfer Rate Synchronous (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 ms (21.1 ms quiet seek)	
		Rotational Speed	7200 rpm		
		Physical Configuration	Logical Blocks	39,102,336	
Operating Temperature	41° to 131°F/5° to 55°C				

## Technical Specifications

<b>48X CD-ROM Drive</b>		
<b>Bus</b>		
<b>Data Buffer</b>	16.6 MB/s	
<b>Data Transfer Rate Rate</b> (1 KB = 1,024 bytes)	Sustained Variable	150 KB/s Minimum (audio) CD: 3,000 to 7200 KB/s
<b>Disk Rotation Technology</b>	CAV-Constant Angular Velocity	
<b>Access Time (ms)</b>	Random	< 100 ms
	Full-Stroke Seek	< 150 ms
<b>Access Seek Time</b>		
<b>Cache Buffer</b> Standard/Maximum	128 KB	
<b>Interface</b>	ATAPI	
<b>Disk Formats Read</b>	Photo-CD/Multi-session, CD-ROM, Multi Read, CD TEXT, Audio CD, CD-I, CD-RW and CD-R CD-EXTRA and CD-ROM XA	
<b>Disk Formats Written</b>	None	
<b>Disk</b>	Capacity	CD: 650 MB
	Block Size	Mode 1 – 2,048 bytes Mode 2 – 2,340, 2,336 bytes CD-DA – 2,352 bytes CD-XA – 2,328 bytes
	Diameter	12 cm; 8 cm
	Thickness	1.2 mm
	Track Pitch	1.6 µm
<b>Audio Output Level</b>	Line-out	0.7 V @ 47 Kohm
	Headphone	0.6 V @ 32 ohm
<b>Startup Time</b>	< 7 seconds (typical); < 30 seconds with multi-session	
<b>Operating Conditions</b>	Temperature	41° to 113°F/5° to 45°C
	Humidity	10% to 80% relative humidity
<b>Dimensions</b>	(HxWxD, maximum)	1.7 x 5.9 x 8.2 in/42.9 x 150.1 x 208 mm
	Weight	2.6 lbs/1200 g
<b>Approvals/Environmentals</b>		
<b>OS support</b>	Windows NT 3.51/4.0 Windows 3.51/95/98/2000 OS/2	
<b>MPEG playback graphics solution support</b>	None	
<b>Compaq Products Supported</b>	Deskpro 2000, 4000, 6000, and Deskpro EP and EN Series	
<b>Other</b>	Operates in horizontal or vertical position	

## Technical Specifications

<b>16X DVD-ROM Drive</b>	<b>Bus</b>	Ultra DMA 33
	<b>Data Transfer Rate</b> (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
	<b>Disk Rotation Technology</b>	DVD: CAV - Constant Angular Velocity CD: CAV - Constant Angular Velocity
	<b>Access Time (ms)</b>	Random DVD = <100 ms; CDROM = < 80 ms Full Stroke Seek DVD = <240 ms; CDROM = <160 ms
	<b>Cache Buffer Standard / Max</b>	512 KB
	<b>ATAPI Interface</b>	ATAPI
	<b>Disk Formats Read</b>	DVD-ROM Yes DVD-Video Yes DVD-R Yes DVD-RW Yes DVD-RAM No 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
	<b>Disk Formats Written</b>	None
	<b>Disk</b>	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) DVD – 2048 (bytes)  Diameter 12 cm, 8 cm  Thickness 1.2 mm (CD-ROM) 1.2 mm (DVD)  Track Pitch 1.6 µm (CD-ROM) 0.74 µm (DVD)
	<b>Audio Output Level</b>	Line Out 0.7± 0.1 Vrms Headphones 0.45 ± 0.2 Vrms
	<b>Operating Conditions</b>	Temperature 41° to 113°F/5° to 45°C Humidity 5% to 85% relative humidity

### Technical Specifications

<b>16X DVD-ROM Drive</b> <i>(continued)</i>	<b>Dimensions (HxWxD)</b>	1.67 x 5.83 x 8.18 in/4.23 x 14.8 x 20.75 cm
	<b>Weight</b>	2.22 lbs/1 kg
	<b>Agency Approvals / Environmentals</b>	UL, CSA, TUV, FDA, FCC, CE, EMI
	<b>OS Support</b>	Windows 98/98SE, Windows ME, Windows 2000, and Windows NT 4.0 (for data applications only)
	<b>MPEG Video playback Compatibility</b>	Please refer to the platform for support
	<b>RPC2 (Regional Protection Control)</b>	Yes
	<b>Minimum CPU Supported</b>	Pentium II 400 MHz or Celeron 466 MHz
	<b>Mounting Orientation</b>	Operates in horizontal or vertical position.
	<b>Kit Contents</b>	DVD-ROM Drive, MPEG playback software, IDE Cable, audio cable, installation instructions, and warranty card.

## Technical Specifications

8X CD-RW Drive	Interface	ATAPI EIDE	
	<b>Media formats read</b>	<b>CD-RW</b>	<b>CD-RW High-Speed</b>
	CD-ROM	Yes	Yes
	CD-R	Yes	Yes
	CD-Digital Audio	Yes	Yes
	CD-Extra	Yes	Yes
	CD-ROM XA	Yes	Yes
	CD-I	Yes	Yes
	Audio CD	Yes	Yes
	Video CD	Yes	Yes
	Photo CD	Yes	Yes
	Multi Read	Yes	Yes
	Multi-session	Yes	Yes
	CD-Text	Yes	Yes
	<b>Media formats written</b>	32X Max CD-R and 8X Max CD-RW	Disc at once, Track at once, Fixed packet, Variable packet
	<b>Media Capacity</b>	650 MB	
	<b>Data Transfer Rates Read</b>	Sustained	CD-R Write: 1,200 Kb/s (8X) CD-RW Write: 600 Kb/s (4X) CD-RW Read: 1,200 Kb/s (8X)
		Variable	CD-ROM and CD-R Read: up to 4,800 Kb/s (32X)
	<b>Access Times</b>	Random	120 ms (typical)
		Full Stroke Seek	200 ms (typical)
	<b>Disk Diameter</b>	12 cm, 8 cm (read only)	
	<b>Disk loading mechanism</b>	Tray	
	<b>Operating Conditions</b>	Temperature	5° to 45°C
		Relative Humidity	10% to 80%
	<b>Dimensions</b>	Fits in a Standard 5.25 inch Drive Bay	
	<b>Mounting</b>	Horizontal or Vertical	
	<b>Weight</b>	2.4 lbs	
	<b>Approvals/Environmental</b>	FCC	Yes
		UL	Yes
		CSA	Yes
		CE	Yes
		FDA	Yes
		EN60 950	Yes
	<b>Operating Systems Supported</b>	Windows 98/98SE and Windows NT 4.0	
	<b>Kit Contents</b>	CD-RW Drive, IDE Cable, High-Speed CD-R Media, CD-RW Media, Roxio Software (Easy CD Creator and Direct CD), Install Guide, Warranty Card	



### Technical Specifications

Integrated Intel Audio with Premier Internal Speakers	Card Type	PCI
	Plug and Play	Yes
	Stereo Codec	Yes
	OPL3 FM Synthesis	128 WaveTable Synthesizer
	Compatibility	Sound Blaster Sound Blaster Pro Full DOS Game Compatibility
	Ports	Microphone in (10 Kohm) Line-in (10 Kohm) Line-out/Headphone-out (33 ohm) (Note: Line out cannot drive external passive speakers.) MIDI (playback only) CD In TAD TV Tuner
	Sampling	48 KHz
	Compression	ADPCM, CCITT A-law, CCITT u-law
	OS support	Windows NT 4.0 Windows 95 Windows 98 DOS
	Wavetable Syntheses (software)	Yes
3D Positional Sound	Yes	
Analog Audio	<i>Premier•Sound™</i>	
Number of Channels (mono/stereo)	Mono	
Internal Audio Power Amp Rating	Nominal: 1.5 Watts RMS @ 8 ohms Maximum: 5 Watts RMS @ 8 ohms	
Number of Fixed Equalization Stages	6	
Speaker (Internal)	1.57 x 2.76 in/40 mm x 70 mm	

### Technical Specifications

Integrated Intel PRO/100 VM Network Connection	Connectors	RJ-45		
	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		
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)			
OS Driver Support	Microsoft Windows NT 3.51 and 4.0			
	Microsoft Windows 95, 98 and 2000 Beta Novell Netware 3.11, 3.12 & 4.1x,			
	5 Server Sun Solaris™			
	SCO UnixWare			
	OpenDesktop			
	OpenServer			
Remote Wakeup	Yes, (PME# and WAKE signals) - no cable required on 810 or 820 chipset platforms			
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.			
Boot PROM support	Yes, Intel PRO/100 Boot Agent (PXE 2.0, RPL)			
F12 BIOS Support	Yes			
<b>Environmental Requirements</b>				
<b>Operating</b>	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		
<b>Non-Operating</b>	Temperature	-40° to 158° F/-40° to 70° C		
	Humidity (non-condensing)			
	Altitude	5,000 ft/15,240 m		

## Technical Specifications

Matrox Millennium G450 DualHead Graphics Controller	<b>Form Factor</b>	ATX
	<b>Bus Type</b>	AGP 1X, 2X, 4X
	<b>Standard Memory</b>	AGP: 32 MB
	<b>DAC Speed</b>	360 MHz (secondary DAC: 200 MHz)
	<b>Data Path</b>	External 64-bit DDR Internal 256-bit
	<b>Internal Bus Width</b>	256-bit DualBus
	<b>Memory Interface</b>	64-bit DDR Memory
	<b>Frame Buffer</b>	AGP: 32 MB
	<b>Two Integrated RAMDACs</b>	Yes
	<b>Color Space Conversion</b>	Yes
	<b>Scaling</b>	Yes
	<b>Quick Draw Support</b>	Yes
	<b>DCI &amp; DirectX Video Playback</b>	Yes
	<b>MS DirectDraw Support</b>	Yes
	<b>3D Support</b>	Yes
	<b>Engine Acceleration</b>	3 ROP bitBLT Line Draw Text Color Expansion Basic Video Color Conversion and Scaling Triangle Setup Engine
	<b>Output</b>	Analog, 2 ports
	<b>OS Support</b>	Windows 2000/Windows NT 4.0, Windows 98, Linux, OS/2 Warp, and the upcoming Windows Millennium Edition
	<b>Other</b>	Texture mapping support Flat and Gouraud shading Direct 3D support Anisotropic Filter Perspective texture Specular highlighting Wireframe Dithering Full-scene anti-aliasing OpenGL support Vertex fog Dual Texture Mapping Environment-Mapped Bump Mapping Plug-and-Play AGP 2X and AGP 4X0.18-micron technology (lower heat/power consumption) High-quality DVD playback with full access to Windows

## Technical Specifications

<b>Matrox Millennium G450 DualHead Graphics Controller</b> <i>(continued)</i>	<b>3D Features</b>	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	Yes
		<b>DualHead Display Features</b>	Multi-Display Mode
DVD Max Mode	Yes		
DualHead Zoom Mode	Yes		
DualHead Clone Mode	Yes		
DualHead TV Output Mode	Yes		
<b>Supported Modes</b>	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 second CRT.		
	<b>Primary CRT Color</b>	<b>Color Depths (bpp)</b>	<b>Refresh Rates</b>
	<b>Depths</b>		
	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
	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
	<b>Secondary CRT Color</b>	<b>Color Depths (bpp)</b>	<b>Refresh Rates</b>
<b>Depths</b>			
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, 72 Hz, 75 Hz, 85 Hz	
1152 x 864	16,32	75 Hz	
1280 x 960	16,32	60 Hz, 72 Hz, 75 Hz, 85 Hz	
1280 x1024	16,32	60 Hz, 72 Hz, 75 Hz, 85 Hz	
1600 x 1200	16,32	60 Hz, 65 Hz, 70 Hz, 75 Hz, 85 Hz	

## Technical Specifications

<b>ELSA Synergy II Graphics Controller</b>	<b>Dimensions (HxW)</b>	3.25 x 6.25 in/8.3 x 15.9 cm		
	<b>Resolution</b>	<b>Maximum Colors Supported</b>	<b>Maximum Refresh Rate</b>	<b>Memory Dedicated to Texture Support</b>
	640 x 480	16.7M	120 Hz	29.1 MB
	800 x 600	16.7M	120 Hz	27.1 MB
	1024 x 768	16.7M	120 Hz	23.5 MB
	1152 x 864	16.7M	120 Hz	21.1 MB
	1280 x 1024	16.7M	120 Hz	17.9 MB
	1600 x 1000	16.7M	75 Hz	14 MB
	1600 x 1000	65K	85 Hz	14 MB
	1600 x 1200	16.7M	75 Hz	10.2 MB
	1600 x 1200	65K	85 Hz	10.2 MB
	1600 x 1280	16.7M	75 Hz	8.7 MB
	1600 x 1280	65K	85 Hz	8.7 MB
	1920 x 1080	16.7M	75 Hz	8.4 MB
	1920 x 1080	65K	85 Hz	8.4 MB
	1920 x 1200	16.7M	75 Hz	5.7 MB
	1920 x 1200	65K	75 Hz	5.7 MB
<b>3D/2D Controller</b>	Nvidia TNT 2			
<b>VGA Controller</b>	Integrated			
<b>Bus Type</b>	AGP 2X/4X			
<b>RAMDAC</b>	Integrated 300 MHz			
<b>Memory Type</b>	SDRAM			
<b>Memory Amount</b>	32 MB (Maximum)			
<b>Memory Speed</b>	143 MHz			
<b>Controller Clock Speed</b>	125 MHz			
<b>Color Planes</b>	24 bits double buffered			
<b>Stencil Planes</b>	8 bit			
<b>Alpha Planes</b>	0			
<b>Z-buffer</b>	24 bit			
<b>Total bits/pixel</b>	96			
<b>Maximum Vertical Refresh Rate</b>	120 Hz			
<b>Maximum Pixel Clock</b>	300 MHz			
<b>Multi-display Support</b>	No			
<b>Operating Systems</b>	Windows 2000, Windows NT 4.0, Windows 98			

**Note:** All drivers and enhanced software, including *POWERdraft*, *ELSAview*, and *MAXtreme*, can be found on the Compaq Web site at: [www.compaq.com/support/files/workstations/us/index.html](http://www.compaq.com/support/files/workstations/us/index.html).

### Technical Specifications

<b>NVIDIA Quadro2 MXR Graphics Controller</b>	<b>Dimensions (LxHxW)</b>	Approximately 6.5 x 3.8 x 0.6 in/16.51 x 9.65 x 1.52 cm		
	<b>Resolution</b>	<b>Maximum Colors Supported</b>	<b>Maximum Refresh Rate</b>	<b>Memory Dedicated to Texture Support</b>
	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
<b>3D/2D Controller</b>	Integrated Quadro2 MXR 2D/3D 128-bit graphics processor unit (GPU)			
<b>VGA Controller</b>	Integrated into the Quadro2 MXR GPU			
<b>Bus Type</b>	AGP 2X, 4X Graphics Bus			
<b>RAMDAC</b>	350 MHz			
<b>Memory Type</b>	183 MHz SDR 2Mx32			
<b>Memory Amount</b>	32 MB			
<b>Memory Speed</b>	183 MHz			
<b>Controller Clock Speed</b>	200 MHz			
<b>Color Planes</b>	32-bit color buffer			
<b>Overlay Planes</b>	1 16-bit Video overlay plane, software emulation for OpenGL overlay planes			
<b>Stencil Planes</b>	8-bit stencil buffer			
<b>Alpha Planes</b>	8-bit alpha buffer			
<b>Z-buffer</b>	24-bit Z buffer			
<b>Total bits/pixel</b>	64-bits			
<b>Maximum Vertical Refresh Rate</b>	240 Hz			
<b>Maximum Pixel Clock</b>	350 MHz			
<b>Multi-display support</b>	Yes			
<b>Operating Systems</b>	Microsoft® Windows® 2000, Windows NT 4.0 available from Compaq			

Note: All drivers and enhanced software, including ELSA POWERdraft, ELSA MAXtreme, and NVIDIA QuadroView, can be found on the Compaq web site at: [www.compaq.com/support/files/workstations/us/index.html](http://www.compaq.com/support/files/workstations/us/index.html).

### Technical Specifications

NVIDIA Quadro2 EX Graphics Controller	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
<b>Dimensions (LxHxW)</b>	Approximately 6.5 x 3.8 x 0.6 in/16.51 x 9.65 x 1.52 cm			
<b>3D/2D Controller</b>	Integrated Quadro2 EX 2D/3D 128-bit graphics processor unit (GPU)			
<b>VGA Controller</b>	Integrated into the Quadro2 EX GPU			
<b>Bus Type</b>	AGP 2X, 4X Graphics Bus			
<b>RAMDAC</b>	350 MHz			
<b>Memory Type</b>	183 MHz SDR 2Mx32			
<b>Memory Amount</b>	32 MB			
<b>Memory Speed</b>	183 MHz			
<b>Controller Clock Speed</b>	200 MHz			
<b>Color Planes</b>	32-bit color buffer			
<b>Overlay Planes</b>	1 16-bit Video overlay plane, software emulation for OpenGL overlay planes			
<b>Stencil Planes</b>	8-bit stencil buffer			
<b>Alpha Planes</b>	8-bit alpha buffer			
<b>Z-buffer</b>	24-bit Z buffer			
<b>Total bits/pixel</b>	64-bits			
<b>Maximum Vertical Refresh Rate</b>	240 Hz			
<b>Maximum Pixel Clock</b>	350 MHz			
<b>Multi-display support</b>	No			
<b>Operating Systems</b>	Microsoft® Windows® 2000, Windows NT 4.0 available from Compaq			

Note: All drivers and enhanced software, including ELSA POWERdraft, , can be found on the Compaq web site at: [www.compaq.com/support/files/workstations/us/index.html](http://www.compaq.com/support/files/workstations/us/index.html).

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