

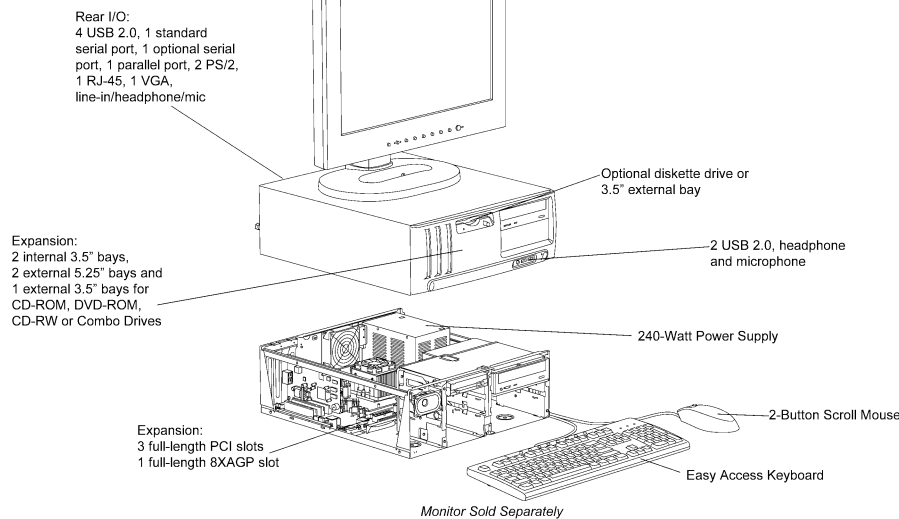
### Overview

#### At A Glance

- Intel® Pentium® 4 and Celeron™ processors
- Intel 865G chipset with Integrated Intel Extreme Graphics 2
- Integrated Broadcom NetXtreme Gigabit ethernet for HP
- 400, 533 and 800-MHz front side bus support
- Dual Channel Memory with 4 available color coded DIMM slots
- Intel HyperThread support
- SMART III Ultra ATA/100 Hard Drives
- SoundMax Digital AC97 Integrated Audio with Internal Speaker
- Color coded cables for ease of use
- Maximum serviceability with tool-less covers, drives, PCA, PCI, and AGP slots
- Energy Star compliance with energy-saving features
- Protected by HP Services, including a 3-1-1, standard warranty. Terms and conditions vary by country. Certain restrictions and exclusions apply.

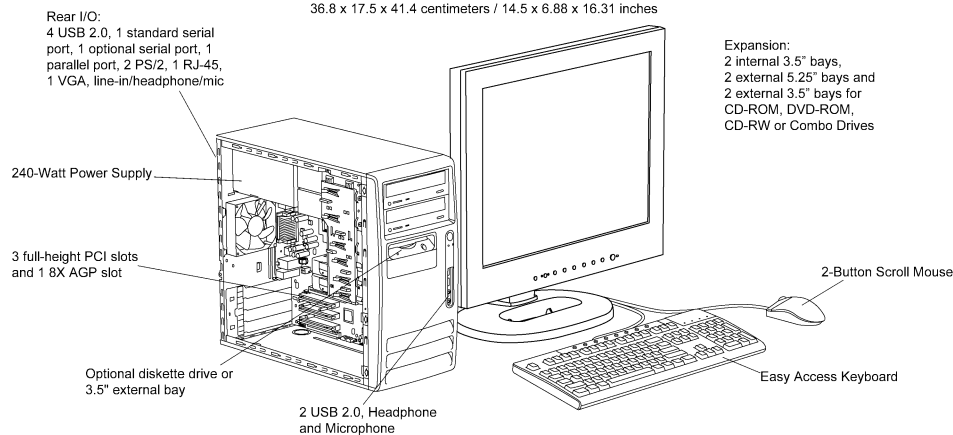
#### Desktop

13.8 x 38.7 x 45.6 centimeters / 5.45 x 15.25 x 17.95 inches



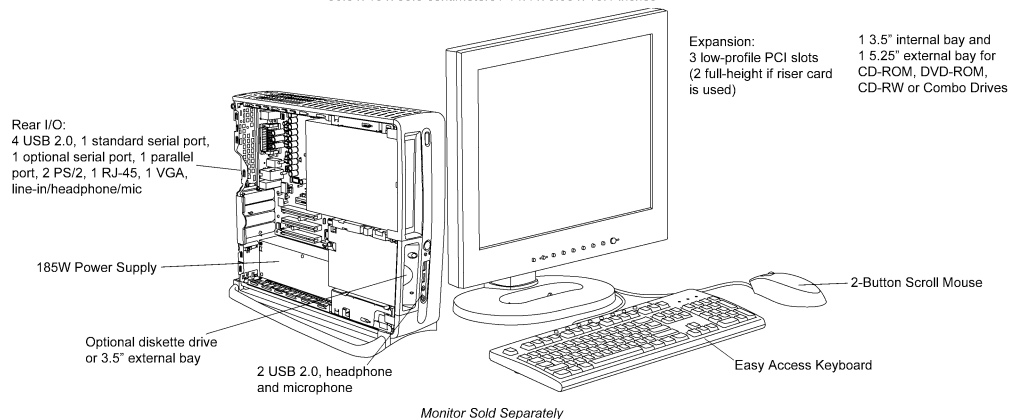
#### Microtower

36.8 x 17.5 x 41.4 centimeters / 14.5 x 6.88 x 16.31 inches



#### Slim Tower

36.5 x 10 x 38.3 centimeters / 14.4 x 3.95 x 15.1 inches



### *Standard Features – Select Models (localized by Region)*

HP Compaq Business Desktop d330

All d330's come with:

[Model Key](#)

[Example:](#)

### Standard Features – Custom Components

		Slim Tower	Desktop	Microtower
<b>Processor and Speed</b> - One of the following	<b>Intel Celeron Processors</b> with 400-MHz Front Side Bus, 128KB L2 cache			
	2.0-GHz	✓	✓	✓
	2.1-GHz	✓	✓	✓
	2.2-GHz,	✓	✓	✓
	2.3-GHz	✓	✓	✓
	2.4-GHz	✓	✓	✓
	<b>Intel Pentium 4 Processors</b> with 533-MHz Front Side Bus, 512KB L2 cache			
	2.4- GHz, (without HyperThread)	✓	✓	✓
	2.53-GHz (without HyperThread)	✓	✓	✓
	2.66-GHz (without HyperThread)	✓	✓	✓
	2.8-GHz (without HyperThread)	✓	✓	✓
	3.06-GHz (with HyperThread)	✓	✓	✓
	<b>Intel Pentium 4 Processors</b> with 800-MHz Front Side Bus, 512KB L2 cache with HyperThread			
	2.4-GHz	✓	✓	✓
	2.6-GHz	✓	✓	✓
	2.8-GHz	✓	✓	✓
	3.0-GHz	✓	✓	✓
<b>Hard Disk Drive</b> - One of the following	40-GB 5400 rpm SMART III Ultra ATA/100	✓	✓	✓
	40-GB 7200 rpm SMART III Ultra ATA/100	✓	✓	✓
	80-GB 5400 rpm SMART III Ultra ATA/100	✓	✓	✓
	80-GB 7200 rpm SMART III Ultra ATA/100	✓	✓	✓
	160-GB 7200 rpm SMART III Ultra ATA/100	✓	✓	✓
	2nd hard drive, 40-GB 5400 rpm SMART III Ultra ATA/100	✓	✓	✓
	2nd hard drive, 40-GB 7200 rpm SMART III Ultra ATA/100	✓	✓	✓
	2nd hard drive, 80-GB 5400 rpm SMART III Ultra ATA/100	✓	✓	✓
	2nd hard drive, 80-GB 7200 rpm SMART III Ultra ATA/100	✓	✓	✓
	2nd hard drive, 160-GB 7200 rpm SMART III Ultra ATA/100	✓	✓	✓

### Standard Features – Custom Components

		Slim Tower	Desktop	Microtower
<b>Memory</b> - One of the following	128-MB DDR Sync Dram PC2100 (266-MHz) Non ECC (1x128)	✓	✓	✓
	256-MB DDR Sync Dram PC2100 (266-MHz) Non ECC (1x128)	✓	✓	✓
	512-MB DDR Sync Dram PC2100 (266-MHz) Non ECC (1x128)	✓	✓	✓
	128-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 128)	✓	✓	✓
	256-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 256)	✓	✓	✓
	256-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 128)	✓	✓	✓
	512-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 512)	✓	✓	✓
	512-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 256)	✓	✓	✓
	1-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 1GB)	✓	✓	✓
	1-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 512)	✓	✓	✓
	2-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 1GB)	✓	✓	✓
	2-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (4 x 512)	✓	✓	✓
	4-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (4 x 1GB)	✓	✓	✓
	128-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (1 x 128)	✓	✓	✓
	256-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (1 x 256)	✓	✓	✓
	256-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 128)	✓	✓	✓
	512-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (1 x 512)	✓	✓	✓
	512-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 256)	✓	✓	✓
	1-GB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 512)	✓	✓	✓
	2-GB DDR Synch Dram PC3200 (400-MHz) Non ECC (4 x 512)	✓	✓	✓
	<b>NOTE:</b> memory speeds and sizes should not be mixed			
<b>Removable Storage</b>	Optional 1.44-MB Diskette Drive	✓	✓	✓
	16MB USB HP Drive Key	✓	✓	✓
	64MB USB HP Drive Key	✓	✓	✓
	128MB USB HP Drive Key	✓	✓	✓
	48X CD-ROM Drive	✓	✓	✓
	48X/24X/48X CD-RW Drive	✓	✓	✓
	16X/40X DVD-ROM with +R Read	✓	✓	✓
	48X/24X/48X/16X Combo CD-RW/DVD-ROM Drive	✓	✓	✓
	Zip 250 for 3.5" drive bay	✓		
	Zip 250 for 5.25" drive bay	✓	✓	✓
<b>Keyboard</b> - One of the following	PS/2 Easy Access Keyboard	✓	✓	✓
	PS/2 Easy Access Keyboard BG1650 compliant (gray)	✓	✓	✓
	USB Easy Access Keyboard	✓	✓	✓
	Wireless Keyboard with USB transceiver	✓	✓	✓
<b>Mouse</b> - One of the following	PS/2 2-Button Scroll Mouse	✓	✓	✓
	USB 2-Button Optical Mouse	✓	✓	✓
	USB 2-Button Scroll Mouse	✓	✓	✓
	Wireless Optical Mouse	✓	✓	✓
<b>Modem</b>	Lucent V.90 controllerless 56K Win PCI Fax/Modem	✓	✓	✓
<b>Audio</b>	SoundMax Digital AC97 Integrated Audio with Internal Speaker	✓	✓	✓

### Standard Features – Custom Components

		Slim Tower	Desktop	Microtower
NIC	Integrated Broadcom NetXtreme Gigabit ethernet for HP	✓	✓	✓
	Intel Pro 1000 MT NIC	✓	✓	✓
	HPWL220 Wireless 802.11b PCI Network Card	✓	✓	✓
Miscellaneous	IEEE 1394 Firewire PCI (firewire 400)	✓	✓	✓
	2nd serial port option	✓	✓	✓
	PCMCIA adapter with PCI card (Japan only)	✓	✓	✓
	Tower stand	✓	✓	
Graphics	Intel Extreme Graphics 2 (integrated with Intel 865G chipset)	✓	✓	✓
	DVI ADD card for Extreme Graphics 2 full height PCI bracket		✓	✓
	DVI ADD card for Extreme Graphics 2 low profile PCI bracket	✓		
	NVIDIA Quadro4 100NVS AGP (64MB, dual VGA) full height PCI bracket		✓	✓
	NVIDIA Quadro4 100NVS AGP (64MB, dual VGA) low profile PCI bracket	✓		
	NVIDIA GeForce2 MX400 (32MB, VGA) full height PCI bracket		✓	✓
	NVIDIA GeForce2 MX400 (32MB, VGA) low profile PCI bracket	✓		
	NVIDIA GeForce4 MX440/8 (64MB, 8XAGP, VGA, S-video) full height PCI bracket		✓	✓
	NVIDIA GeForce4 MX440/8 (64MB, 8XAGP, VGA, S-video) low profile PCI bracket	✓		
Security	Solenoid/Hood Sensor	✓	✓	✓
	Rear Port Control Bracket	✓	✓	✓
Operating System – One of the following	Microsoft Windows XP Professional with service pack 1	✓	✓	✓
	Microsoft Windows XP Home with service pack 1	✓	✓	✓
	Microsoft Windows 2000 with service pack 3	✓	✓	✓
	Mandrake 9.1 Linux - Light	✓	✓	✓
	Turbolinux 7.0 – PRC only	✓	✓	✓
	<b>NOTE:</b> Microsoft Windows NT 4.0 is not available on system, but Softpaq drivers are downloadable from <a href="http://hp.com">hp.com</a>			
Software	Norton AntiVirus 2003	✓	✓	✓
	Microsoft Office XP Professional	✓	✓	✓
	Microsoft Office XP Small Business Edition	✓	✓	✓
	For information about Intelligent Manageability visit: <a href="http://www.compaq.com/im">http://www.compaq.com/im</a>	✓	✓	✓
	Corel WordPerfect Office 2002	✓	✓	✓
	Microsoft Word 2002/Works2003		✓	✓
	Microsoft Works 2003	✓		✓
	OpenOffice.org Office Suite		✓	
	<b>NOTE:</b> Office XP Small business and Office Professional not available in all countries			
	<b>NOTE:</b> Norton AntiVirus includes FREE 60 day live update subscription			

# QuickSpecs

## HP Compaq Business Desktop d330 Series

### Standard Features

	Slim Tower	Desktop	Microtower
Processor	Intel Pentium 4		
CPU Bus Speed Supported	800-MHz, 533-MHz or 400-MHz FSB		
Standard L2 Cache – Pentium 4	512-KB ECC depending on processor speed		
Chipset	Intel 865G		
Memory Expansion Slots	4 DIMM's	4 DIMM's	4 DIMM's
Memory Type Supported	DDR (ECC not supported by Chipset)		
Memory Speed Supported	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC		
Maximum Memory	4-GB	4-GB	4-GB
Network controller	Integrated Broadcom NetXtreme Gigabit ethernet for HP		
Graphics	Integrated Intel Extreme Graphics 2		
Audio	Integrated Digital Audio with SPDif 6-channel pass-through, Stereo Microphone, Active Noise Cancellation and Yamaha XG Lite Softsynth support		
PCI	3 low-profile, or 2 full-height (if riser card is used)	3 full-length 32 bit PCI	3 full-length 32 bit PCI
AGP	1 low-profile 8XAGP	1 full-height, full-length 8XAGP	1 full-height, full-length 8XAGP
Bays	Total Bays = 3	Total Bays = 5	Total Bays = 6
Internal Bays	(1) internal hard drive bay (2nd HDD bay via external 3.5" bay)	(2) 3.5 inch hard drive bays	(2) 3.5 inch hard drive bays
External Bays	(1) full-length 5.25" (1) full-length 3.5"	(2) full-length 5.25" (1) full-length 3.5"	(2) full-length 5.25" (2) full-length 3.5"
Wireless Support	PCI card or external USB		
Front I/O	2 USB 2.0, headphone, and microphone		
Rear I/O	4 USB; 1 standard serial port, 1 optional serial port; 1 parallel port; PS/2 keyboard and mouse; 1 RJ-45; 1 VGA; rear line in/line out/mic in		
PS/2 Keyboard	1	1	1
PS/2 Mouse	1	1	1
VGA Adapter	1	1	1
Chassis Dimensions (H x W x D) Centimeters	36.5 x 10 x 38.3 (with stand)	13.8 x 38.7 x 45.6	36.8 x 17.5 x 41.4
Chassis Dimensions (H x W x D) Inches	14.4 x 3.95 x 15.1 (with stand)	5.45 x 15.25 x 17.95	14.5 x 6.88 x 16.31
System Weight	22.2 lbs.	23.4 lbs.	24.0 lbs.
System Volume	859 sq. in. (14.1 liters)	1492 sq. in. (24.45 liters)	1651 sq. in. (27.0 liters)
Shipping Weight	29 lbs.	33 lbs.	3 lbs.
Shipping Box Size	23.59" X 19.66" X 9.69"	21.00" X 16.37" X 24.25"	22.20" X 13.00" X 23.50"
Power Supply	185-watt passive PFC (user selectable 115V / 230V)	240-watt passive PFC (user selectable 115V / 230V)	240-watt passive PFC (user selectable 115V / 230V)
Hard Drive Interfaces Supported	2 Ultra ATA/100 interfaces		
Hard Drive Controller (PCI) Supported	Ultra ATA 100/66/33		
Preinstalled Software			
Windows 2000 SP3	✓	✓	✓
Windows XP Pro SP1	✓	✓	✓
Windows XP Home SP1	✓	✓	✓
Computer Setup Utility	✓	✓	✓
Diagnostics for Windows	✓	✓	✓
Microsoft Internet Explorer	✓	✓	✓

**NOTE:** Windows NT 4.X drivers available on web - Softpaqs only

### After Market Options

		Slim Tower	Desktop	Microtower	Part Number
Communications	<b>Modems</b>				
	PCI v.90 56k modem	✓	✓	✓	DC131A
	USB v.92 56k modem	✓	✓	✓	DE585A
	<b>NICs</b>				
	Broadcom NetXtreme Gb Ethernet PCI NIC	✓	✓	✓	DC194A
	Intel Pro/1000 MT Gb Ethernet PCI NIC	✓	✓	✓	DC193A
	Wireless 802.11b PCI (WL220) (full height and low profile brackets) WiFi compliant	✓	✓	✓	DC756B
	Wireless 802.11b USB (WL215) WiFi compliant	✓	✓	✓	DC758A
Graphics	<b>2D Graphics</b>				
	Intel DVI ADD card	✓	✓	✓	DD505A
	NVIDIA GeForce2 MX400 32-MB DDR AGP VGA (includes low profile bracket for Small Form Factor)	✓	✓	✓	DC155A
	NVIDIA GeForce4 MX440/8 64-MB DDR 8XAGP DVI & S-video	✓	✓	✓	DC663A
	<b>2D Multi-Display Graphics</b>				
	NVIDIA Quadro4 100NVS 64-MB AGP VGA dualhead		✓	✓	DC665A
	NVIDIA Quadro4 100NVS 64-MB PCI VGA, DVI-I, S-video	✓			DC664A
	<b>Cables</b>				
	NVIDIA Quadro4 100NVS DVI Cables for use with DC665A		✓	✓	DC157A
Hard Drives	<b>Ultra ATA/100 SMART Hard Drives</b>				
	250-GB 7200 rpm Ultra AT/100 Hard Drive	✓	✓	✓	DC516A
	160-GB 7200 rpm Ultra ATA/100 Hard Drive	✓	✓	✓	DC189A
	80-GB 7200 rpm Ultra ATA/100 Hard Drive	✓	✓	✓	DC181A
	40-GB 7200 rpm Ultra ATA/100 Hard Drive	✓	✓	✓	DC180A
	<b>Cables</b>				
	2 Device IDE Cable	✓	✓	✓	DC183A
Input/Output Devices	<b>Keyboards</b>				
	PS/2 Easy Access Keyboard	✓	✓	✓	DC167B
	USB Easy Access Keyboard – wireless keyboard and mouse kit	✓	✓	✓	DC170B
	USB Easy Access SmartCard Keyboard	✓	✓	✓	DC169B
	USB Easy Access Keyboard	✓	✓	✓	DC168B
	<b>Mice</b>				
	PS/2 2-button Scroll Mouse	✓	✓	✓	DD440B
	USB 2-button Scroll Mouse	✓	✓	✓	DD441B
	USB 2-button Optical Scroll Mouse	✓	✓	✓	DC172B
	Wireless Optical mouse	✓	✓	✓	DC210B
	<b>Other</b>				
	IEEE1394 Firewire PCI card	✓	✓	✓	DE471A

### After Market Options

	Slim Tower	Desktop	Microtower	Part Number		
Memory (DIMMs)	266-MHz (PC2100) DDR DIMMs Non-ECC					
	512-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	✓	✓	✓	DC165A	
	256-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	✓	✓	✓	DC164A	
	128-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	✓	✓	✓	DC163A	
	333-MHz (PC2700) DDR DIMMs Non-ECC					
	1-GB DDR Synch Dram PC2700 (333-MHz) Non-ECC	✓	✓	✓	DC341A	
	512-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	✓	✓	✓	DC340A	
	256-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	✓	✓	✓	DC339A	
	128-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	✓	✓	✓	DC338A	
	400-MHz (PC3200) DDR DIMMs Non-ECC					
	512-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	✓	✓	✓	DE467A	
	256-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	✓	✓	✓	DE466A	
	128-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	✓	✓	✓	DE465A	
	Monitors	TFTs				
TFT1501 – 15 inch Flat Panel TCO (VGA)						
TFT1520 - 15 inch Flat Panel TCO (VGA and DVI)						
TFT1520m - 15 inch Flat Panel plus Comm Station TCO (VGA and DVI)						
TFT1701 - 17 inch Flat Panel TCO						
TFT1720 - 17 inch Flat Panel TCO (VGA and DVI)						
TFT1720m - 17 inch Flat Panel plus Comm Station TCO (VGA and DVI)						
L1825 and TFT1825 - 18 inch Flat Panel TCO (VGA and DVI)						
L1925 and TFT1925 - 19 inch Flat Panel TCO (VGA and DVI)						
TFT2025 - 20 inch Flat Panel TCO (VGA and DVI)						
CRTs						
P930 - 19" Aperture Grille Monitor						
P1130 - 21" Aperture Grille Monitor						
V7550 - 17 inch Flat Screen						
S9500 - 19 inch CRT						
S7500 - 17 inch CRT						
S5500 - 15 inch CRT						
Multimedia		Labtec Spin-22 speakers	✓	✓	✓	DC186A
		JBL Platinum Series Speakers (NA & Japan only)	✓	✓	✓	DE893B
	PC headset	✓	✓	✓	DE640A	
	PC Comm station (no keyboard or mouse)	✓	✓	✓	P8814A	
	PC Comm station pro (with wireless keyboard and optical mouse)	✓	✓	✓	P8815A	



### After Market Options

		Slim Tower	Desktop	Microtower	Part Number
Optical Drives	<b>DVD-ROM Drive</b>				
	16X/40X DVD-ROM w/ +R read	✓	✓	✓	DC151B
	<b>CD-ROM Drive</b>				
	48X Max CD-ROM Drive	✓	✓	✓	DC143B
	<b>DVD+R/+RW Drive</b>				
	4X DVD+R/+RW Drive	✓	✓	✓	DC517B
	<b>CD-RW Drive</b>				
	48X/24X/48X CD-RW Drive	✓	✓	✓	DC196B
Removable Storage	<b>Combo Drive</b>				
	48X Combo DVD-ROM/CD-RW Drive	✓	✓	✓	DC197B
	<b>Diskette Drives and Media</b>				
	ZIP 250 Drive	✓	✓	✓	DC140B
	ZIP 250 media 3-pack	✓	✓	✓	DC138A
	ZIP 750 Drive	✓	✓	✓	DC518B
	ZIP 750 media 3-pack	✓	✓	✓	DC519A
	1.44MB USB Floppy drive - external	✓	✓	✓	DC141B
	16-MB USB Disk-on-Key	✓	✓	✓	DC192B
	64-MB USB Disk-on-Key	✓	✓	✓	DC191B
	128-MB USB Disk-on-Key	✓	✓	✓	DC190B
	<b>Tape Drives and Media</b>				
Security	TR5 10/20 GB IDE Tape Drive	✓	✓	✓	DC139B
	TR5 10/20 GB Media 3-Pack	✓	✓	✓	DC137A
	Rear Port Controller Cover	✓			DE897A
	Rear Port Controller Cover		✓		DE898A
	Rear Port Controller Cover			✓	DE899A
	Solenoid Hood Lock Kit	✓			DE472A
	Solenoid Hood Lock Kit		✓		DK415A
	Solenoid Hood Lock Kit			✓	DK414A
	Kensington Security Lock	✓	✓	✓	DC368A
	Chassis clamp lock (no cable)	✓	✓	✓	DE817A
Brackets/Stand	Chassis clamp lock (with 6 foot cable)	✓	✓	✓	DE818A
	Tower stand		✓		DE621B
	Tower Stand d330 DT 100 unit bulk pack (50 pairs)		✓		DC620B
	Tower Stand	✓			DE870A
	Tower Stand (Carbonite) d530SFF, d330ST 50-stand bulk-pack	✓			DE999A
	Wall Mount Bracket / Security Sleeve	✓			DK412A
Common Chassis Enhancements	Assorted 3.5" bezel kit d330ST (floppy, HDD, ZIP)	✓			DF783B
	5.25" Blank Bezel Kit (Carbonite 50/PK) uT, DT,ST	✓	✓	✓	DC177B
	3.5"FDD bezel kit d330uT			✓	DF782B

### Memory

865G chipset

#### DDR SYNCH DRAM NON-ECC MEMORY

It is not necessary to add memory in pairs. 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. The Intel 865G chipset supports non-ECC 266MHz (PC2100), 333MHz (PC2700) and 400MHz (PC3200) DDR memory.

For best performance, add in pairs, add in different channel in matching slots (color coded), and do not mix speeds.

#### MAXIMUM MEMORY (SLIM TOWER, DESKTOP, AND MICROTOWER)

Supports up to 4-GB of DDR SYNCH DRAM.

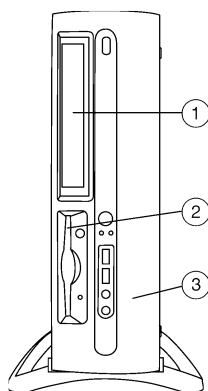
#### POSSIBLE MEMORY CONFIGURATIONS (SLIM TOWER, DESKTOP, AND MICROTOWER)

NOT ALL MEMORY CONFIGURATIONS POSSIBLE ARE REPRESENTED BELOW

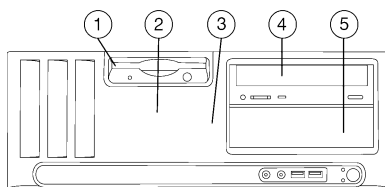
DIMM Size	Slot			
	Channel A		Channel B	
	1	2	3	4
128-MB	128-MB			
256-MB	128-MB		128-MB	
512-MB	512-MB			
512-MB	256-MB		256-MB	
1-GB	1-GB			
1-GB	512-MB		512-MB	
2-GB	1-GB		1-GB	
2-GB	512-MB	512-MB	512-MB	512-MB
4-GB Maximum	1-GB	1-GB	1-GB	1-GB

### Storage

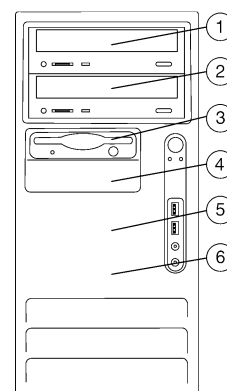
**Slim Tower**



**Desktop**



**Microtower**



	Quantity Supported	Position Supported	Controller
<b>Slim Tower</b>			
Diskette Drive	1	2	Diskette
5.25" Storage Bays	1	1	IDE
3.5" Storage Bay	1	3	IDE
<b>Desktop</b>			
Diskette Drive	1	1	Diskette
5.25" Storage Drive Bays	2	4, 5	IDE
3.5" Storage Drive Bays	2	2, 3	IDE
<b>Microtower</b>			
Diskette Drive	1	3	Diskette
5.25" Storage Drive Bays	2	1, 2	IDE
3.5" Storage Drive Bays	3	4, 5, 6	IDE

### Technical Specifications

Base Unit Contents	slim tower	desktop	microtower
Processor	Intel Pentium 4 Socket N – 478	Intel Pentium 4 Socket N – 478	Intel Pentium 4 Socket N - 478
CPU Bus Speed Supported	800-MHz, 533-MHz or 400-MHz FSB	800-MHz, 533-MHz or 400-MHz FSB	800-MHz, 533-MHz or 400-MHz FSB
Coprocessor	Integrated	Integrated	Integrated
CPU Package	FC-PGA2	FC-PGA2	FC-PGA2
Standard L2 Cache – Pentium 4	512-KB ECC depending on processor speed	512-KB ECC depending on processor speed	512-KB ECC depending on processor speed
L2 Cache Architecture / Speed – Pentium 4	Full core clock speed	Full core clock speed	Full core clock speed
Cache Upgradeable – Pentium 4 and Celeron	Not upgradeable – Integrated into Processor	Not upgradeable – Integrated into Processor	Not upgradeable – Integrated into Processor
System board with Intel 865G Chipset with Integrated Intel Extreme Graphics 2	✓	✓	✓
Cables	ATA Cable	ATA Cable	ATA Cable
Quick Setup Poster	✓	✓	✓
Product Documentation on CD	✓	✓	✓
Operating System CD	✓	✓	✓
Restore CD	✓	✓	✓
Power Cord	✓	✓	✓
Keyboard	✓ (PS/2)	✓ (PS/2)	✓ (PS/2)
Mouse	✓ (PS/2)	✓ (PS/2)	✓ (PS/2)
Memory Expansion Slots	4 DIMMs	4 DIMMs	4 DIMMs
Memory Type Supported	DDR (ECC not supported by Chipset)	DDR (ECC not supported by Chipset)	DDR (ECC not supported by Chipset)
Memory Speed Supported	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC
Maximum Memory	4-GB	4-GB	4-GB
Memory Parity	Not Needed for non-ECC	Not Needed for non-ECC	Not Needed for non-ECC
ECC Memory	Not Supported by chipset	Not Supported by chipset	Not Supported by chipset
Serial Presence Detect Support	Supported	Supported	Supported
PCI	3 low-profile, or 2 full-height (if riser card is used) PCI	3 full-length PCI	3 full-length PCI
AGP	1 low-profile AGP 8X	1 full-length, full-height 8X AGP	1 full-length, full-height 8X AGP
Bays	Total Bays = 3	Total Bays = 5	Total Bays = 6
Internal	(1) 3.5 inch ATA Hard Drive (2 <sup>nd</sup> HDD bay via external 3.5" bay)	(2) 3.5 inch ATA Hard Drive	(2) 3.5 inch ATA Hard Drive
External:	(1) 5.25 inch full-length (1) 3.5 inch full length	(2) 5.25 inch full-length (1) 3.5 inch full length	(2) 5.25 inch full-length (2) 3.5 inch full length
Wireless Support	PCI card or external USB	PCI card or external USB	PCI card or external USB
Parallel Port	1	1	1
Serial Port	1 standard with 2 <sup>nd</sup> optional	1 standard with 2 <sup>nd</sup> optional	1 standard with 2 <sup>nd</sup> optional
USB Keyboard	Optional	Optional	Optional
USB Mouse	Optional	Optional	Optional
PS/2 Keyboard	1	1	1
PS/2 Mouse	1	1	1
VGA Adapter	1	1	1
Chassis Dimensions (H x W x D) Centimeters	10 x 36.5 x 38.3	13.8 x 38.7 x 45.6	36.8 x 17.5 x 41.4
Chassis Dimensions (H x W x D) Inches	3.95 x 14.4 x 15.1	5.45 x 15.25 x 17.95	14.5 x 6.88 x 16.31
Hard Drive Interfaces Supported	2 ULTRA ATA/100 interfaces	2 ULTRA ATA/100 interfaces	2 ULTA ATA/100 interfaces
Hard Drive Controller (PCI) Supported	ULTRA ATA 100/66/33	ULTRA ATA 100/66/33	ULTRA ATA 100/66/33

### Technical Specifications

System Board	slim tower	desktop	microtower
Architecture	P4 / PCI / AGP 8X	P4 / PCI / AGP 8X	P4 / PCI / AGP 8X
Chipset	Intel 865G Chipset	Intel 865G Chipset	Intel 865G Chipset
I/O Controller	SMSC LPC47B387	SMSC LPC47B387	SMSC LPC47B387
System Board Form Factor	UATX	UATX	UATX
Processor Socket - 478 Pin ZIF	✓	✓	✓
DIMM Connectors (2.5V)	4	4	4
AGP Connector (1.5V)	1 (8X)	1 (8X)	1 (8X)
Integrated Intel Extreme Graphics 2	✓	✓	✓
PCI Connectors	3 low profile, or 2 full height with riser card	2 full height, full length	2 full height, full length
Flash ROM	✓	✓	✓
Audio (AC97 Integrated Audio)	✓	✓	✓
CD ROM IN (Audio)	✓	✓	✓
AUX IN (Audio)	✓	✓	✓
Clear CMOS Button	✓	✓	✓
CPU Fan Header	✓	✓	✓
Chassis Fan Header	✓	✓	✓
Chassis Speaker Header	✓	✓	✓
CMOS Battery Holder - Lithium	✓	✓	✓
Hood Lock Header	✓	✓	✓
Hood Sensor Header	✓	✓	✓
Integrated Broadcom NetXtreme Gigabit ethernet for HP	✓	✓	✓
Wake-On-Lan®	✓	✓	✓
ASF 1.0 (Alert Standard Format)	✓	✓	✓
Power Supply Header	✓	✓	✓
Power Switch, Power LED & Hard Drive LED Header	✓	✓	✓
Password Clear Header	✓	✓	✓
Riser Connector	✓	x	x
SCSI LED Header	✓	✓	✓
<b>Chassis</b>			
Color	Carbonite/Silver	Carbonite/Silver	Carbonite/Silver
System Board Form Factors Supported	Standard µATX	Standard µATX	Standard µATX
Cooling Solutions Supported	✓	✓	✓
Power Supply Fan (Variable Speed)	✓	✓	✓
Processor Fan-Heatsink (Variable Speed)	✓	✓	✓
Chassis Fan	✓	x	✓
Internal Speaker	✓	✓	✓
Security Locks Supported	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)

### Technical Specifications

Power Supply	slim tower	desktop	microtower
Power Supply	185 Watt Power Supply – PFC (115v / 230v line switch)	240 Watt Power Supply – PFC (115v / 230v line switch)	240 Watt Power Supply – PFC (115v / 230v line switch)
Maximum Rated Power	185 Watt	240 Watt	240 Watt
Full Ranging Input (No Line Select Switch)	✗	✗	✗
Active Power Factor Correction (APFC) (Input Current is nearly 1/2 a non-APFC PS)	✗	✗	✗
Passive Power Factor Correction (PFC)	✓	✓	✓
Operating Voltage Range	90 – 132 / 180 – 264 VAC	90 – 132 / 180 – 264 VAC	90 – 132 / 180 – 264 VAC
Rated Voltage Range	100 – 127 / 200-240 VAC	100 – 127 / 200-240 VAC	100 – 127 / 200-240 VAC
Rated Line Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Operating Line Frequency Range	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz
Rated Input Current	5A / 2.5A	6A / 3A	6A / 3A
Heat Dissipation	Typical 256 btu/hr (65 kg-cal/hr) Maximum 971 btu/hr (245 kg-cal/hr)	Typical 256 btu/hr (65 kg-cal/hr) Maximum 1260 btu/hr (318 kg-cal/hr)	Typical 256 btu/hr (65 kg-cal/hr) Maximum 1260 btu/hr (318 kg-cal/hr)
Power Supply Fan	60mm variable speed	92mm variable speed	92mm variable speed
Processor Fan			
Energy Star Compliant	✓	✓	✓
Power Management			
Screen Blanking			
Hard Disk 'Idle' Mode			
System Idle Mode			
Cache Memory Power-Down			
Blue Angel Compliant (<5w in S5-- Power Off)	✓	✓	✓
FEMP Standby Power Compliant (<2W in S5 – Power Off) <b>NOTE:</b> User must disable the "S5 Wake on LAN" in the F10 setup (default is enabled)	✓	✓	✓
Power Consumption in ES Mode - Suspend to RAM (S3) (Instantly Available PC)	2.5W to 3W	2.5W to 3W	2.5W to 3W
Processor/Cache Memory Power -Down (S3)	< 3W	< 3W	< 3W
CD-Rom Spins Down when not in use			
<b>Environmental and Mechanical Engineering Support Center</b>	<a href="http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm">http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm</a>		

### Technical Specifications

ROM Features	Description	slim tower	desktop	microtower
Instantly Available PC (Suspend to RAM - S3)	Allows for very low power consumption with quick resume time	✓	✓	✓
ROM Based F10 Setup	Review and customize BIOS settings	✓	✓	✓
Remote System Installation via F12 (PXE) (Remote Boot from Server)	Allows a new or existing system to boot over the network and download software, including the operating system	✓	✓	✓
System/Emergency ROM Flash Recovery with Video	Recovers corrupted system BIOS	✓	✓	✓
CMOS Archive and CMOS Restore	Holding down the power button restores the last known good BIOS settings (from previous restart) if the system gets into a locked state after configuration changes are made	✓	✓	✓
Auto Setup when New Hardware Installed	System automatically detects addition of new hardware	✓	✓	✓
Serial, Parallel, USB, Audio, Network, Enable/Disable Port Control	Enable or disables serial, parallel, USB, audio, and network ports	✓	✓	✓
Removable Media Write/Boot Control	Prevents ability to boot from removable media on supported devices (and can disable writes to media on supporting devices)	✓	✓	✓
Network Server Mode	Allows for secured keyboard-less operation	✓	✓	✓
Power-On Password	Prevents an unauthorized person from booting up the computer	✓	✓	✓
Setup Password	Prevents an unauthorized person from changing the system configuration	✓	✓	✓
Replicated Setup	Saves BIOS settings to diskette or USB disk-on-key in human readable file. SSM and Repset.exe utility can then replicate these settings on machines being deployed without entering ROM-based F10 setup	✓	✓	✓
Memory Change Alert (Requires Insight Management Agent)	Alerts management console if memory is removed or changed	✓	✓	✓
Thermal Protection	Protects system components from thermal damage. If excessive temperatures are encountered the computer automatically shuts down without warning before hardware component damage occurs.	✓	✓	✓
Thermal Alert (Requires Insight Management Agent)	Monitors the temperature state within the chassis. Three modes: <ul style="list-style-type: none"> <li>NORMAL – normal temperature ranges</li> <li>ALERTED - excessive temperatures are detected. Raises a flag so action can be taken to avoid shutdown or provide for a smoother system shutdown</li> <li>SHUTDOWN – excessive temperatures are encountered. Automatically shuts down the computer without warning before hardware component damage occurs</li> </ul>	✓	✓	✓
<b>ROM Features</b>				
Cover Removal Alert (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the computer. Can be set to one-of-three modes: <ul style="list-style-type: none"> <li>DISABLED - user/network administrator does not want to be made aware of the computer hood removal</li> <li>NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer</li> <li>UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot</li> </ul>	x	Optional	Optional
Master Boot Record Security	Detects changes to MBR and optional restoration, useful in protecting from viruses	✓	✓	✓
Remote ROM Flash	Provides secure, fail-safe ROM image management from a central network console	✓	✓	✓

### Technical Specifications

	Description	slim tower	desktop	microtower
Remote Wakeup	<ul style="list-style-type: none"> <li>System administrators can power on, restart, and power off a client computer from a remote location.</li> <li>Enables cost-effective power consumption when the administrator needs to distribute software, perform security management, or update the ROM.</li> </ul>	✓	✓	✓
ACPI (Advanced Configuration and Power Management Interface)	<ul style="list-style-type: none"> <li>Allows the system to wake from a low power mode</li> <li>Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system</li> </ul>	✓	✓	✓
Keyboard-less Operation	The system can be operated without a keyboard	✓	✓	✓
SMBIOS	System Management BIOS, previously known as DMI BIOS, for system management information	✓	✓	✓
<b>System Environmental Specs</b>				
Acoustics: Advanced Power Management - On	-----			
Operating (*Using 11ms half-sine shock pulse)	-----			
Non-Operating (*Using 11ms half-sine shock pulse)	-----			
Operating	-----			
Non-Operating	-----			
Operating (maximum wet bulb temp., non-condensing)	-----			
Non-operating (maximum wet bulb temp., non-condensing)	-----			
Operating	-----			
Non-operating (Maximum allowable altitude change rate is 1500 ft/min)	-----			
Environmental and Mechanical Engineering Support Center (EMESC) - Intranet Web Site only	<a href="http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm">http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm</a>			
<b>Software</b>				
<b>Preinstalled Software</b>				
Windows 3.1		x	x	x
Windows 95		x	x	x
Windows 98		x	x	x
Windows NT 4.X (drivers available on web - Softpaqs only)		x	x	x
Windows 2000 SP3		✓	✓	✓
Windows XP Pro SP1		✓	✓	✓
Windows XP Home SP1		✓	✓	✓
Computer Setup Utility		✓	✓	✓
Diagnostics for Windows		✓	✓	✓
Microsoft Internet Explorer		✓	✓	✓



### Technical Specifications

Pre-loaded Software	Description	slim tower	desktop	microtower
Altiris Deployment Solution Agent	Downloadable from <a href="http://www.altiris.com/">http://www.altiris.com/</a>	✓	✓	✓
Insight Management Agent	Downloadable from <a href="http://www.hp.com/go/easydeploy">http://www.hp.com/go/easydeploy</a>	✓	✓	✓
Local Diskette Boot		✓	✓	✓
Network Boot		✓	✓	✓
Disk-on-Key Boot		✓	✓	✓
<b>Initial Configuration and Deployment</b>				
HP Client Manager Software (free)	A FREE solution that provides asset tracking, alerting, diagnostics, and SoftPaq BIOS and driver distribution for business desktops, notebooks, and workstations. HP Client Manager Software "plugs" into the Altiris Notification Server infrastructure to provide value-add information that can be leveraged by all Altiris solutions	✓	✓	✓
Altiris Solutions (30-day trial version)	A suite of solutions that focus on business needs in four areas, saving time and freeing resources to address other crucial issues: <ul style="list-style-type: none"> <li>• Deployment &amp; Migration</li> <li>• Software &amp; Operations Management</li> <li>• Inventory &amp; Asset Management</li> <li>• Help Desk &amp; Problem Resolution</li> </ul>	✓	✓	✓
PC Transplant Pro (30-day trial version)	Makes transferring the files and settings that make your PC unique quick and intuitive process	✓	✓	✓
System Software Manager (free)	Detects and updates BIOS, device drivers, and management agent versions on your networked PCs	✓	✓	✓
Replicated Setup	Saves BIOS settings to diskette or USB disk-on-key in human readable file. Repset.exe utility and SSM can then replicate these settings on machines being deployed without entering ROM-based F10 setup	✓	✓	✓
Insight Manager	-----	✓	✓	✓
Support Software CD	-----	✓	✓	✓
Software Restore CD	Restores computer to its original factory shipping image	✓	✓	✓
Asset Tag	<ul style="list-style-type: none"> <li>• Repository for storing company-specific property asset numbers for easy tracking</li> <li>• Initially set equal to the system serial number</li> <li>• Stored in a protected section of non-volatile memory that can be accessed and modified with the F10 Setup program</li> </ul>	✓	✓	✓
DIMM Serial Presence Detect	Detects whether or not memory DIMMs are present and their type	✓	✓	✓
Hard drive serial number, model, and manufacturer	Hard drive manufacturer, model, and serial number is stored in the hard drive firmware and reported in ROM-based F10 setup	✓	✓	✓
Monitor serial number, model & manufacturer	-----	✓	✓	✓

### Technical Specifications

Security Features	Description	slim tower	desktop	microtower
Smart Cover Lock	Remote operated system lock	✓	✓	✓
Smart Cover Sensor (Requires Insight Management Agent for network alerts)	<p>Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the computer. Can be set to one-of-three modes:</p> <ul style="list-style-type: none"> <li>DISABLED -user/network administrator does not want to be made aware of the computer hood removal</li> <li>NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer</li> <li>UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot</li> </ul>	✓	✓	✓
Mechanical Hood Security Provision	Security Loop	✓	✓	✓
Kensington Lock Support	Kensington lock slot on the chassis	✓	✓	✓
Cable Lock Provision	Physically secure computer hardware from theft	✓	✓	✓
Serial, Parallel, USB Enable/Disable	Enable or disable serial, parallel or USB ports and hide them from the operating system	✓	✓	✓
Port Control	Attaches to back of chassis covering external ports and thereby preventing unauthorized access; also aids in cable management	✓	✓	✓
Removable Media Write / Boot Control	Prevents the computer from being booted from removable media on supported devices (and can disable writes to media)	✓	✓	✓
Power-On Password	Prevents an unauthorized person from booting up the computer	✓	✓	✓
Setup Password	Prevents an unauthorized person from changing the system configuration	✓	✓	✓
<b>Fault Notification and Recovery</b>				
SMART Hard Drives, Fault Notification, & Prefailure Warranty	<ul style="list-style-type: none"> <li>Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted</li> <li>Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count</li> <li>By avoiding actual hard drive failures, SMART hard drives act as “insurance” against unplanned user downtime and potential data loss from hard drive failure</li> </ul>	✓	✓	✓
Proactive Backup	<ul style="list-style-type: none"> <li>Initiates an automatic backup of the computers SMART hard (to a local tape device for example) when an imminent failure is predicted</li> <li>Prevents data loss and end-user down time due to a failing hard drive</li> </ul>	✓	✓	✓
Surge Tolerant Full Ranging Power Supply	Withstands power surges up to 2000V	✓	✓	✓
Thermal Sensor	<p>Monitors the temperature within the chassis</p> <ul style="list-style-type: none"> <li>NORMAL –normal temperature ranges</li> <li>ALERTED - excessive temperatures are detected. Raises a flag so that appropriate action can be taken to avoid shutdown or provide for a smoother system shutdown</li> <li>SHUTDOWN – excessive temperatures are encountered. Automatically shuts down the computer without warning before hardware component damage occurs</li> </ul>	✓	✓	✓

### Technical Specifications

Fault Notification and Recovery (continued)	Description	slim tower	desktop	microtower
System serial number, model, & manufacturer	System serial number, model, & manufacturer stored in a non-volatile memory and can be retrieved with management SW or viewed in ROM-based F10 setup	✓	✓	✓
ROM revision levels	<ul style="list-style-type: none"> <li>Identifies system ROM revision levels and reports in ROM-based F10 setup</li> <li>Version is stored in an industry standard memory location (SMBIOS) so that management SW applications can use and report this information</li> </ul>	✓	✓	✓
System board revision level	<ul style="list-style-type: none"> <li>Allows management SW to read the revision level of the system board</li> <li>Revision level is digitally encoded into the hardware and cannot be modified</li> </ul>	✓	✓	✓
Memory Change Alert	Alerts management console if memory is removed or changed	✓	✓	✓
Ownership Tag	A user-defined string stored in non-volatile memory that is displayed in the BIOS splash screen	✓	✓	✓
Ultra ATA Integrity Monitoring (CRC Checking)	Provides data transfer verification and proactive notification of hard drive data transmission problems with recommendations for enhancing system performance. It detects all the following errors types: <ul style="list-style-type: none"> <li>single bit errors</li> <li>double bit errors</li> <li>an odd number of errors</li> <li>error bursts up to 32-bits long</li> </ul>	✓	✓	✓
<b>System Software Updating</b>				
Active Update	<ul style="list-style-type: none"> <li>Advanced web-based application that provides proactive notification and automatic download of software updates for most Compaq commercial products</li> <li>Updates may be deployed using Compaq or third-party deployment tools</li> <li>Software subscription filters automatically identify and download only relevant content based on the user-defined subscription information</li> </ul>	✓	✓	✓
Remote ROM Flash	Provides secure, fail-safe ROM image management from a central network console	✓	✓	✓
Remote Wakeup / Remote Shutdown	<ul style="list-style-type: none"> <li>System administrators can power on, restart, and power off a client computer from a remote location.</li> <li>Enables cost-effective power consumption when the administrator needs to distribute software, perform security management, or update the ROM.</li> </ul>	✓	✓	✓
Support Software CD & WWW	-----	✓	✓	✓
<b>Other Features</b>				
ACPI-Ready Hardware	Advanced Configuration and Power Management Interface (ACPI). <ul style="list-style-type: none"> <li>Allows the system to wake from a low power mode.</li> <li>Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system</li> </ul>	✓	✓	✓
SMBIOS	System Management BIOS, previously known as DMI BIOS, for system management information	✓	✓	✓
Wired for Management Support	Intel-driven, industry-wide initiative to make Intel architecture-based PCs, servers and mobile computers more inherently manageable right out of the box and over the network	✓	✓	✓
Dual-State Power Button	Power button acts as either an on/off button and suspend-to-sleep button	✓	✓	✓

### Technical Specifications

Serviceability Features of System	Description	slim tower	desktop	microtower
Dual Color Power LED on Front of Computer (Indicates Normal Operations and Fault Conditions)	-----	✓	✓	✓
Diagnostic LED Explanation Table	Number of 1-second red LED blinks followed by 2-second pause, then repeats: 2-processor thermal protection activated 3-processor not installed 4-power supply failure 5-memory error 6-video error 7-PCA failure (ROM detected failure prior to video) 8-invalid ROM, bootblock recover mode	✓	✓	✓
System/Emergency ROM Flash Recovery with Video	Recovers corrupted system BIOS.	✓	✓	✓
Compaq Diagnostic for Windows Software	-----	✓	✓	✓
Compaq Configuration Record SW	-----	✓	✓	✓
Over-Temp Warning on Screen (Requires IM Agents)	-----	✓	✓	✓
Compaq OS CD (Restore OS CD)	Restores computer to its original factory shipping image	✓	✓	✓
Compaq Restore CD	Restores the computer to its original factory shipping image	✓	✓	✓
Flash ROM	-----	✓	✓	✓
3.3V Aux Power LED on System PCA	-----	✓	✓	✓
Dual Function 5V Aux Power LED (ON) / PS_ON LED (OFF) on System PCA	-----	✓	✓	✓
Diagnostic Power Switch LED on board	-----	✓	✓	✓
Clear Password Jumper	-----	✓	✓	✓
Clear CMOS Button	-----	✓	✓	✓
CMOS Battery Holder for easy Replacement	-----	✓	✓	✓
Processor ZIP Socket for easy Upgrade	-----	✓	✓	✓
DIMM Connectors for easy Upgrade	-----	✓	✓	✓
NIC LEDs (integrated) (Green & Amber)	Used to determine NIC status	✓	✓	✓

### Technical Specifications

Serviceability Features of Chassis	Description	slim tower	desktop	microtower
Dual Color Power and HD LED - To Indicate Normal Operations and Fault Conditions	-----	✓	✓	✓
ASF 1.0 support (Alert Standard Format)	Industry-standard specification for network alerting in operating system-absent environments	✓	✓	✓
Smart Cover Sensor (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the compute. Can be set to one-of-three modes: <ul style="list-style-type: none"> <li>DISABLED - user/network administrator does not want to be made aware of the computer hood removal</li> <li>NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer</li> <li>UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot</li> </ul>	x	Optional	Optional
Smart Cover Lock	Remote operated system lock	x cover can be locked with security loop or kensington	✓ (Option)	✓ (Option)
Front power switch	-----	✓	✓	✓
Green Pull Tabs, and Quick Release Latches for easy Identification	-----	✓	✓	✓
Color coordinated cables and connectors		✓	✓	✓
System memory can be upgraded without removing the system board or any internal components	Eases memory upgrading	✓	✓	✓
Tool-less Hood Removal	Eases entry to the chassis without use of special tools	✓ (single latch)	✓ (2 thumbscrews)	✓ (2 thumbscrews)
Tool-less Hard Drive, CD & Diskette Removal	-----	✓	✓	✓

### Technical Specifications

Serviceability Features of Chassis (continued)	Description	slim tower	desktop	microtower
Tool-less System Board Removal	No special tools required for system board removal or maintenance	✓	✓	✓
Universal Tower Stand	Necessary to safely orient as a tower	✓ (Standard)	✗	✗
Drive Self Tests (DPS)	Drive Protection System	✓	✓	✓
DPS Access through F10 Setup during Boot	A diagnostic hard drive self test. It scans critical physical components and every sector of the hard drive for physical faults and then reports any faults to the user.	✓	✓	✓
DPS Access through Diagnostics for Windows	Running independently of the operating system, it can be accessed through a Windows-based diagnostics utility or through the computer's setup procedure. It produces an evaluation on whether the hard drive is the source of the problem and needs to be replaced. The system expands on the Self-Monitoring, Analysis, and Reporting Technology (SMART), a continuously running systems diagnostic that alerts the user to certain types of failures	✓	✓	✓
SMART Technology (Self-Monitoring, Analysis and Reporting Technology)	Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted	✓	✓	✓
SMART I - Drive Failure Prediction	Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count	✓	✓	✓
SMART II - Off-Line Data Collection	By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure	✓	✓	✓
SMART III - Off-Line Read Scanning with Defect Reallocation		✓	✓	✓

### Service and Support

On-site Warranty and Service **Note 1**: This three-year (3-1-1), limited warranty and service offering delivers three years of parts and one year of both labor and on-site repair. Response time is next business-day **Note 2** and includes free telephone support **Note 3** 24 x 7. Global coverage **Note 2** 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.

On-site Warranty **Note 1**: This one-year (1-1-1), limited warranty delivers one year of on-site, next business-day **Note 2** service for parts and labor and includes free telephone support **Note 3** 24 x 7. Global coverage **Note 2** 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. One-year onsite and labor are not available in all countries.

**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 HP and an authorized HP 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 HP-configured, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries

### Technical Specifications – Audio

AC97 Integrated Audio	Type	Integrated ADI 1981B
	AC97 Stereo Codec	Yes
	FM Synthesis Support	Yamaha XG Lite
	Sound Blaster Compatibility	Yes
	Audio Jacks	Mic-In (20-K ohm Input Impedance); Rear Stereo and Front Analog Mic ports available
		Line-In (12-K ohm Input Impedance)
		Headphone-Out (2.5 Ohms Output Impedance, expects at least a 32 ohm load)
	<b>NOTE:</b> *Internal Speaker Amplifier is for Internal Speaker only. External Speakers need to be powered externally	
	Sampling	7 kHz – 48 kHz
	Wavetable Syntheses (software)	GM and FM Midi Support, Direct Music and Down Loadable Soundset (4 Meg DLS Level 1 and 2 Support)
	3D Positional Sound	No
	Digital Audio via (S/Pdif)	Yes
	Analog Audio:	Yes
	Number of Channels on Line-Out (mono/stereo)	Stereo (Left & Right channels)
	Internal Audio Speaker Power Rating	3W
	Internal Speaker	Yes
	Hardware Equalizer for Internal Speaker	Fixed 7 Band Parametric DigitalEQ
	External Speaker Jack (Headphones/Line-Out)	Yes

### Technical Specifications – Communications

Broadcom NetXtreme Gigabit Ethernet	Connector	RJ-45
	Controller	Broadcom 5782 PCI LAN Controller
	Memory	Integrated 96Kb frame buffer memory
	Data rates supported	10/100/1000 Mbps
	Compliance	IEEE 802.1A, 802.1P, 802.1Q, 802.2, 802.3, 802.3AB and 802.3u compliant, 802.3x flow control
	Bus architecture	PCI 2.2
	Data path width	32-bit, 33/66 MHz bus interface
	Data transfer mode	Bus-master DMA
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union
	Power requirement	1.48 watts @ +3.3V AUX supply with 5V tolerance
	Boot ROM support	Yes
	Network transfer rate	10BASE-T (half-duplex) 10 Mbps
		10BASE-T (full-duplex) 20 Mbps
		100BASE-TX (half-duplex) 100 Mbps
		100BASE-TX (full-duplex) 200 Mbps
		1000BASE-T, 1000 Mbps
	Environmental	Operating temperature 32° to 131°F (0° to 55° C)
		Operating humidity 85% at 131° F (55° C)
	Dimensions	4.7 x 2.0 x 0.08 inches (12 x 5 x 1.9 cm)
	Operating system driver support	Microsoft Windows NT 4.0, Microsoft Windows 98, Microsoft 2000, Microsoft XP, Linux 2.2, Linux 2.4
	Management capabilities	ACPI, WOL and DMI 2.0, PXE 2.0, WfM 2.0, Broadcom mgmt utility
	Alerting	ASF 1.0 with Remote Management and Control Protocol (RMCP) disabled



### Technical Specifications – Graphics

Integrated Intel Extreme Graphics 2	<b>3D/2D Controller</b>	Support is fully compliant with Microsoft standard API such as Direct Draw, GDI/GDI+ and Direct Show
	<b>VGA Controller</b>	Integrated
	<b>Bus Type</b>	AGP8X (Internal graphics is disabled if external AGP Graphics card is installed)
	<b>RAMDAC</b>	Integrated 350-MHz DAC
	<b>Memory</b>	Graphics memory is shared with system memory. Graphics memory usage can vary from 8 – 64MB depending on the amount of system memory installed and system load. 16MB is pre-allocated for graphics use at system boot time. Additional memory is allocated for graphics using Intel's Dynamic Video Memory Technology (DVMT) to balance the optimum amount of memory between graphics and other system use. With a 128MB system, graphics memory usage will be 8MB -32MB depending on system load. With 256MB or more, graphics memory usage will be 8MB - 64MB depending on system load.
	<b>Controller Clock Speed</b>	266 MHz
	<b>Overlay Planes</b>	Single Overlay support with 5x3 filtering
	<b>Max Color Depth</b>	32-bits/pixel
	<b>Maximum Vertical Refresh Rate</b>	85Hz at up to 1920 x 1440, 75Hz at 2048 x 1536. Varies with mode and configuration. See table below
	<b>Multi-display Support</b>	Support for one CRT via the motherboard's VGA connector. Support for an additional DVI-D display via the optional DVI ADD card. Intel's Dual Display Twin mode allows for displaying the same image on both the displays.
	<b>Operating Systems</b>	Microsoft Windows XP and Windows 2000
<b>Graphics API Support</b>		Complete Microsoft DirectX® support, including DirectX 8.1; complete OpenGL® 1.3 support. Compatible with DirectX 9.

Resolutions Supported (At various color depths & memory configurations)  (NOTE: Refresh rates higher than 85Hz may be obtainable in some modes and configurations but are not recommended)	Resolution	Maximum Refresh Rate (Hz)	Maximum Refresh Rate (Hz)	Maximum Refresh Rate (Hz)
		DR266 Single Channel (8/16/32 bits/pixel)	DDR 266 Dual / DDR 333 Single Channel (8/16/32 bits/pixel)	DDR 333 Dual Channel (8/16/32 bits/pixel)
	640 x 480	85/85/85	85/85/85	85/85/85
	800 x 600	85/85/85	85/85/85	85/85/85
	1024 x 768	85/85/85	85/85/85	85/85/85
	1152 x 864	85/85/85	85/85/85	85/85/85
	1280 x 720	85/85/85	85/85/85	85/85/85
	1280 x 768	85/85/85	85/85/85	85/85/85
	1280 x 960	85/85/85	85/85/85	85/85/85
	1280 x 1024	85/85/85	85/85/85	85/85/85
	1400 x 1050	85/85/85	85/85/85	85/85/85
	1600 x 900	85/85/85	85/85/85	85/85/85
	1600 x 1200	85/85/85	85/85/85	85/85/85
	1856 x 1392	75/75/60	75/75/60	75/75/60
	1920 x 1080	85/85/75	85/85/85	85/85/85
	1920 x 1200	75/75/60	75/75/75	75/75/75
	1920 x 1440	85/85/60	85/85/60	85/85/60
	2048 x 1536	75/75/NA	75/75/NA	75/75/60

### Technical Specifications – Hard Drives

7200 rpm SMART III Ultra ATA/100 40-GB  
Hard Drives

Capacity	40,000 MB	
Rotational Speed	7200 rpm	
Interface	Ultra ATA/100	
Height	1 in (25.4 mm)	
Width	3.5 in (88.9 mm)	
Transfer Rate Synchronous (Maximum)	100 MB/s	
Seek Time (typical reads, including settling)	Single Track	1.2 ms
	Average	8 ms
	Full-Stroke	18 ms
Physical Configuration	Logical Blocks	78,165,360
Operating Temperature	41° to 131°F (5° to 55°C)	

### Technical Specifications – Input/Output Devices

<b>Easy Access Keyboard</b> (PS/2 or USB)	<b>Dimensions</b> (HxWxD)	1.4 x 18.3 x 6.3 in (36 x 465 x160 mm)
	<b>Weight</b>	Approximately 2 lbs/0.9 kg
<b>Electrical</b>	<b>Operating Voltage</b>	+5VDC $\pm$ 5%
	<b>Power Consumption</b>	50 mA maximum (with 3 LEDs on)
	<b>System Interface</b>	PS/2 mini-din connector
	<b>ESD</b>	CE level 4, 15 kV air discharge
	<b>EMI-RFI</b>	Conforms to FCC rules for a Class B computing device
	<b>PC98</b>	Functionally compliant
	<b>PC99</b>	Functionally compliant
<b>Mechanical</b>	<b>Languages</b>	30+ available
	<b>Keycaps</b>	Low-profile design
	<b>Switch Actuation</b>	55 g nominal peak force with tactile feedback
	<b>Switch Life</b>	20 million keystrokes (using Hasco modified tester)
	<b>Switch Type</b>	Contamination resistant membrane
	<b>Key Leveling Mechanism</b>	For all double wide and greater length keys
	<b>Cable Length</b>	6 ft/1.8 m
	<b>PC98-99</b>	Mechanically compliant
	<b>Acoustics</b>	50 dBA maximum sound pressure level
	<b>Operating Temperature</b>	50° to 122° F (10° to 50° C)
<b>Environmental</b>	<b>Non-operating Temperature</b>	–22° to 140° F (–30° to 60° C)
	<b>Operating Humidity</b>	10% to 90% (non condensing at ambient)
	<b>Non-operating Humidity</b>	20% to 80% (non condensing at ambient)
	<b>Operating Shock</b>	40 g, 6 surfaces
	<b>Non-operating Shock</b>	80 g, 6 surfaces
	<b>Operating Vibration</b>	2 g peak acceleration
	<b>Non-operating Vibration</b>	4 g peak acceleration

### Technical Specifications – Input/Output Devices

<b>2-Button Scroll Mouse</b> (PS/2 or USB)	<b>Scroll Wheel</b>	8 mm
	<b>Maximum Rotation Speed</b>	30 mm/s
	<b>Switch Type</b>	Light force micro-switch
	<b>Switch Life</b>	1 million operations
	<b>Mechanical Life</b>	Minimum 200,000 revolutions
	<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
	<b>Electrical</b>	Operating Voltage +5VDC ± 10%
		Power Consumption 15mA
		System Consumption PS/2 mini-din connector
		ESD CE level 4, 15 kV air discharge
		EMI-RFI Conforms to FCC rules for a Class B computing device
		PC98 Functionally compliant
	<b>Mechanical</b>	Resolution 400 ± 20% DPI
		Tracking Speed 10 in/s maximum
		Acceleration 100 in/s
		Switch Actuation 85 g nominal peak force
		Switch Life 1,000,000 operations (using Hasco modified tester)
		Cable Length 2 m
		PC98-99 Mechanically compliant
	<b>Regulatory Approvals</b>	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BCIQ, C-Tick

### Technical Specifications – Optical Storage

48X Max CD-ROM Drive	Interface	ATAPI IDE	
	Data Buffer	16.6 Mbps	
	Data Transfer Rate	Sustained—150 Kbps minimum	Variable (CD)—3,000 to 7,200 Kbps (audio)
	Disk Rotation Technology	CAV (Constant Angular Velocity)	
	Access Time (ms)	Random: <100 ms	Full-stroke seek: <150 ms
	Average Access Time	< 80 ms	
	Cache Buffer (standard/maximum)	128 KB	
	Disk Formats Read	Multi-session Photo CD, multi-read CD-ROM, CD text, audio CD, CD-I, CD-RW, CD-R, CD-Extra, CD-ROM XA	
	Disk Formats Written	None	
	Disk 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 $\mu$ m	
	Audio Output Level	Line-out—0.7 V @ 47 Kohm	Headphone—0.6 V @ 32 ohm
	Startup Time	<7 seconds (typical); < 30 seconds with multi-session	
	Operating Conditions	Temperature	41° to 113° F (5° to 45° C)
		Relative Humidity	10% to 80%
	Dimensions (H x W x D, maximum)	1.7 x 5.9 x 8.2 inches (4.3 x 15.0 x 20.8 cm)	
	Weight	2.6 pounds (1200 g)	
	Operating Systems Supported	Microsoft® Windows® NT 4.0, Microsoft Windows 2000, and Microsoft Windows XP.	
	MPEG Playback Graphics Solution Support	None	

### Technical Specifications – Optical Storage

16X/40X DVD-ROM with +R Read Drive	<b>Height</b>	5.25-in, half-height
	<b>Interface Type</b>	ATAPI
	<b>Dimensions– External, Excluding Bezel (W x H)</b>	5.88 x 1.71 in (149.5 x 43.5 mm)
	<b>Disc Diameter</b>	12 cm, 8 cm
	<b>Disc Thickness</b>	1.2 mm
	<b>Track Pitch</b>	1.6 $\mu$ m (CD), 0.74 $\mu$ m (DVD)
	<b>Disc Center Hole Diameter</b>	15 mm
	<b>Disc Formats</b>	DVD-ROM (single and dual layer); DVD-video; DVD-R version 1.0 and 2.0; DVD-RW version 1.0 and 1.1; DVD-R multi-border; DVD+RW; DVD+R; CD-ROM Mode 1 and 2; CD-DA; CD-ROM XA Mode 2, Form 1 and 2; CD-extra; CD-text; CD-I Mode 2, Form 1 and 2; CD-I ready; video CD, CD-bridge; PhotoCD (single and multi-session); CD-R; CD-RW
	<b>Disc Capacity</b>	<b>DVD-ROM</b> 4.7 GB (DVD-5), 8.54 GB (DVD-9), 9.4 GB (DVD-10), 3.95 GB (DVD-R version 1.0), 4.7 GB (DVD-R version 2.0), 4.7 GB (DVD-RW version 1.0 and 1.1), 4.7 GB (DVD+RW), 4.7 GB (DVD+R)
		<b>CD-ROM</b> 540 MB (Mode 1, 12 cm), 640 MB (Mode 2, 12 cm), 700 MB (80 minimum CD-R and CD-RW), 180 MB (8 cm)
	<b>Block Size (bytes)</b>	DVD-ROM – 2048; CD-ROM Mode 0 – 2352; CD-ROM Mode 1 – 2352, 2340, 2336, 2048; CD-ROM Mode 2 – 2352, 2340, 2336, 2048
	<b>Access Times</b> (typical reads, including settling)	<b>DVD-ROM Single Layer</b> < 120 ms
		<b>CD-ROM Mode 1</b> < 90 ms
		<b>Full Stroke DVD</b> < 240 ms (seek)
		<b>Full Stroke CD</b> < 160 ms (seek)
	<b>Data Transfer Rates</b>	2600 – 6000 KB/s (40X CAV CD-ROM mode)
		8100 – 21,600 KB/s (16X CAV DVD-ROM mode)
	<b>Data Transfer Modes</b>	PIO Mode 4 (16.6 MB/s); Multi-word DMA mode 2 (16.6 MB/s); UltraDMA Mode 3 (44.4 MB/s)
	<b>Power</b>	<b>Source</b> Four-pin, DC power receptacle
		<b>DC Power Requirement</b> 5 VDC $\pm$ 5% – 100 mV ripple p-p 12 VDC $\pm$ 5% – 200 mV ripple p-p
		<b>DC Current</b> 5 VDC – <800 mA typical, < 1000 mA maximum 12 VDC – < 870 mA typical
	<b>Audio Output Level</b>	0.7 Vrms (typical)
	<b>Configuration Jumper Block</b>	Master, slave, and cable select modes
	<b>Data Interface Connector</b>	40-pin, shrouded and keyed, flat ribbon
	<b>Environmental</b> (all conditions non-condensing)	<b>Temperature (operating)</b> 41° to 122° F (5° to 50° C)
		<b>Relative Humidity (operating)</b> 10% to 85%
		<b>Maximum Wet Bulb Temperature (operating)</b> 86° F (30° C)
	<b>Certifications, Approvals</b>	MMC II support, multi-read certification, Microsoft WHQL certification, ACA AS/NZS 3548 class B, CNS 13438, C.I.S.P.R. Pub 22, TUV or VDE EN60950, EN 55022, EN55024, SEMKO, NEMKO, DEMKO, FIMKO, EN 60825-1, UL 60950, and CSA C22.2 60950-2000.
	<b>Operating Systems Supported</b>	Microsoft Windows NT, Microsoft Windows 2000, and Microsoft Windows XP.

### Technical Specifications – Removable Storage

1.44-MB Diskette Drive	LED Indicators (front panel)	3.5 in.
	Read/Write Capacity per diskette (high/low density)	Green
	Drive Supported	1.44 MB/720 KB
	Drive Height	One
	Drive Rotation	One-third
	Transfer Rate (high/low)	300 rpm
	Bytes/Sector	500/250 Kb/s
	Sectors/Track (high/low)	512
	Tracks/Side (high/low)	18/9
	Access Times	80/80
	Track-to-Track (high/low)	3/6 ms
	Average (high/low)	169/94 ms
	Settling Time	15 ms
	Latency Average	100 ms

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