This innovative shared resource computing solution from trusted industry leaders HP and Microsoft stretches your corporate computing budget by delivering the familiar, reliable computing experience to multiple users from a single, dedicated PC for maximum cost savings and power.

**HP MultiSeat Computing Solution components**

1. HP Compaq MultiSeat ms6000 Desktop; monitor (sold separately), keyboard and mouse
2. HP MultiSeat t100 Thin Client; monitor, keyboard and mouse (sold separately)

### Part Numbers

<table>
<thead>
<tr>
<th></th>
<th>Standard Edition</th>
<th>Academic Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(includes Microsoft CAL)</td>
<td>(does not include Microsoft CAL)</td>
</tr>
<tr>
<td>HP Compaq MultiSeat ms6000 Desktop (Essentials)</td>
<td>*BM458AW</td>
<td>BM460AW</td>
</tr>
<tr>
<td>HP Compaq MultiSeat ms6000 Desktop (Extended)</td>
<td>*BM459AW</td>
<td>BM461AW</td>
</tr>
<tr>
<td>HP MultiSeat t100 Thin Client</td>
<td>*WB215AA</td>
<td>WB216AA</td>
</tr>
</tbody>
</table>

*Emerging Countries have alternate PN's*
HP Compaq MultiSeat ms6000 Desktop

HP Compaq MultiSeat ms6000 Desktop Standard Features

1. Rear I/O: (6) USB 2.0, (1) standard serial port, (2) PS/2, (1) RJ-45, (1) VGA, audio in/out, (1) DisplayPort
2. (1) low profile PCI slot, (2) low profile PCIe x1 slots, (1) low profile PCIe x16 (SDVO/ADD2) slot
3. Front I/O: (4) USB 2.0, headphone and microphone, Dual Color Diagnostic LEDs
4. HP Optical Scroll Mouse (USB)
5. HP Standard Keyboard (USB)
6. (1) 3.5" external bay
7. (1) 5.25" external bay
8. (1) 3.5-inch internal drive bay supporting primary hard disk drive
9. 240-watt 89% efficient energy saving power supply
10. HP Monitor (sold separately)

Essentials configuration
- Form factor: Small form factor
- Operating system: Microsoft® Windows® MultiPoint™ Server
- Chipset: Intel® Q43 Express
- Processor²: Intel® Core 2™ Duo E7500
- Memory: 2GB DDR3 (1333 MHz)
- Hard drive: 320 GB SATA 3.0Gb/s
- Removable media: SATA DVD Writer Drive
- Graphics: Integrated Intel® Graphics Media Accelerator 4500
- Audio: Realtek ALC261 HD Audio
- Communications: Intel 82567LM Gigabit Network Connection
- Input devices: HP USB Standard Keyboard and USB optical scroll mouse

Extended configuration
- Form factor: Small form factor
- Operating system: Microsoft® Windows® MultiPoint™ Server
- Chipset: Intel® Q43 Express
- Processor²: Intel® Core 2™ Quad Q9500
- Memory: 6GB DDR3 (1333 MHz)
- Hard drive: 500 GB SATA 3.0Gb/s
- Removable media: SATA DVD Writer Drive
- Graphics: Integrated Intel® Graphics Media Accelerator 4500
- Audio: Realtek ALC261 HD Audio
<table>
<thead>
<tr>
<th></th>
<th>HP Compaq MultiSeat ms6000 Desktop</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communications</strong></td>
<td>Intel 82567LM Gigabit Network Connection</td>
</tr>
<tr>
<td><strong>Input devices</strong></td>
<td>HP USB Standard Keyboard and USB optical scroll mouse</td>
</tr>
</tbody>
</table>
### HP MultiSeat ms6000 Desktop

**Operating System**
Microsoft® Windows® MultiPoint™ Server
*NOTE:* FreeDOS available with Academic edition only.

**Value-added Software**
- PDF complete
- Microsoft Internet Explorer
- Firefox-HP Virtual Browser

**Service and Support**
- **On-site Warranty and Service**: This three-year (3-3-3), limited warranty and service offering delivers three years of parts, labor and on-site repair. Response time is next business-day and includes free telephone support 24 x 7. Global coverage 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. Some countries/regions do not offer one year onsite and labor. For HP Care Pack services see: [http://www.hp.com/go/lookuptool](http://www.hp.com/go/lookuptool).

  **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.

---

**Chassis Dimensions**
- 3.95 x 13.30 x 14.90 in (H x W x D)
- 10.03 x 33.78 x 37.85 cm

**System weight**
- 16.0 lb (7.26 kg)

**System volume**
- 941.63 cu in

**Shipping weight**
- 26.70 lb (12.11 kg)

**Maximum supported weight (desktop orientation)**
- 77.1 lb (35 kg)

**Shipping box dimensions**
- 9.72 x 19.68 x 22.67 in (H x W x D)
- 246.9 x 499.9 x 575.8 mm

* Configured with 1 hard drive, 1 optical drive, no diskette drive, and no PCI card.

**Power Supply**
- 240W 89% efficient power supply - active PFC

**Ports**
- **USB 2.0**: 10 (4 front, 6 rear); two (2) internal headers on system board
- **Serial**: 1 standard
- **PS/2**: 2 standard
  *NOTE:* PS/2 keyboard and mouse are not compatible with Windows® MultiPoint™ Server application.

**Video**
- Analog for integrated graphics
HP Compaq MultiSeat ms6000 Desktop Technical Specifications

Audio
- Integrated High Definition audio with internal speaker
- Front - mic and headphone
- Rear - input (supports microphone or line input), line out

NIC (RJ-45)
- Integrated Intel 82567LM Gigabit Network Connection Ethernet

Chipset
- Intel Q43 Express chipset

Processor and Speed
One of these:
- Intel Core 2 Duo E7500 Processor (2.93-GHz, 3 MB L2 cache, 1066-MHz FSB)
- Intel Core 2 Quad Q9500 Processor (2.83-GHz, 6 MB L2 cache, 1333-MHz FSB)

* Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.

Memory
- Supports un-buffered non-ECC DDR3 SDRAM
  The Intel Q43 Express chipset supports un-buffered non-ECC DDR3 SDRAM (synchronous dynamic random access memory) of up to 2GB total memory (essential configuration) at a frequency of up to 1066MHz or 4GB (extended configuration) at a frequency of up to 1333MHz.

  **NOTE:** 1066MHz system memory frequency of operation requires at least PC3-8500 (DDR3-1066) memory type for all populated memory modules, and an Intel processor with FSB (front side bus) of at least 1066MHz.

  System Memory upgrades are accomplished by adding DDR3 SDRAM module(s) to empty DIMM slots on the System Board.

  **CAUTION:** Voltage is supplied to the memory modules whenever the computer is connected to an active AC outlet. Adding or removing memory modules while voltage is present may cause irreparable damage to the memory modules or system board. The computer must be shut down with the AC power removed (disconnect AC power cord at rear chassis or at AC outlet) prior to adding or removing SDRAM modules.

  HP recommends dual-channel symmetric configurations for the best memory performance. For best performance, add the same amount of total memory to each channel and do not inter-mix memory module speeds. For dual-channel symmetric performance, the total amount of memory in each channel must be equal. If memory module speeds are inter-mixed, the memory operating frequency will default to the slowest speed.
**Maximum Memory**

Supports up to 16GB of un-buffered non-ECC DDR3 SDRAM. Slot 1 is black and must always be populated. Not all possible memory configurations are represented in the table below.

**NOTE:** For systems configured with more than 3GB of memory and a 32-bit operating system, all memory may not be available to the OS due to system resource requirements. Addressing memory above 4GB requires a 64-bit operating system.

<table>
<thead>
<tr>
<th>Total Memory</th>
<th>DIMM Slot Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Channel A</td>
</tr>
<tr>
<td>2-GB (Dual Channel Symmetric)</td>
<td>1GB</td>
</tr>
<tr>
<td>2GB</td>
<td>2GB</td>
</tr>
</tbody>
</table>

* The Intel Q43 Express chipset includes an integrated Management Engine (ME) micro-controller, which requires system memory to support manageability functions. If the system memory configuration is single-channel or dual-channel asymmetric, 16MB of system memory is pre-allocated for the ME at system startup. If the memory configuration is dual-channel symmetric, 32 MB of memory is pre-allocated for the ME at system startup. This pre-allocated memory is not available to the operating system, just as pre-allocated video memory is not available.

**Expandability**

<table>
<thead>
<tr>
<th>Expandability</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI slots</td>
<td>1 low-profile</td>
</tr>
<tr>
<td>Max power per slot</td>
<td>35W</td>
</tr>
<tr>
<td>PCIe x1 slot</td>
<td>2</td>
</tr>
<tr>
<td>Max power per slot</td>
<td>10W</td>
</tr>
<tr>
<td>PCIe x16 slot (also functions as SDVO/ADD2 slot)</td>
<td>1 low-profile</td>
</tr>
<tr>
<td>Max power per slot</td>
<td>35W</td>
</tr>
<tr>
<td>External Bays</td>
<td>External Bays</td>
</tr>
<tr>
<td>3.5&quot;</td>
<td>1</td>
</tr>
<tr>
<td>5.25&quot;</td>
<td>1</td>
</tr>
<tr>
<td>IDE</td>
<td></td>
</tr>
<tr>
<td>Internal 3.5&quot; HDD Bays</td>
<td>1</td>
</tr>
<tr>
<td>Hard Drive Controller Supported</td>
<td>SATA</td>
</tr>
<tr>
<td>Hard Drive Interfaces Supported</td>
<td>SATA 3.0Gb/s</td>
</tr>
</tbody>
</table>

**Storage - Drive Support**

<table>
<thead>
<tr>
<th>Storage - Drive Support</th>
<th>Media Card Reader</th>
<th>5.25&quot; Serial ATA Devices</th>
<th>3.5&quot; Serial ATA Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity Supported</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Position Supported</td>
<td>2</td>
<td>2</td>
<td>2,3</td>
</tr>
<tr>
<td>Controller</td>
<td>USB/Diskette</td>
<td>SATA</td>
<td>SATA</td>
</tr>
</tbody>
</table>

**NOTE:** The SATA port labeled SATA3 on the system board can be enabled by the BIOS as an eSATA port. Using it for an eSATA drive will require a separately purchased cable with an eSATA connector.
HP Compaq MultiSeat ms6000 Desktop Technical Specifications

**Hard Drive**
One or two of these:
- Essentials configuration: 320-GB SATA 3.0-Gb/s Hard Drive (16MB Cache, 10,000 RPM, NCQ, Smart III)
- Extended configuration: 500-GB SATA 3.0-Gb/s Hard Drive (16MB Cache, 10,000 RPM, NCQ, Smart III)

**NOTE:** NCQ functionality requires a user set-up BIOS setting.

**Security**
TPM 1.2 Embedded Security Chip*
* TPM module disabled where use is restricted by law; for example, Russia.

**NIC**
Intel 82567LM Gigabit Network Connection (integrated on system board)

**Graphics**
Integrated Intel Graphics Media Accelerator 4500

**Audio**
Integrated High Definition audio with Realtek ALC261 codec
(all ports are stereo)
- Microphone and Headphone front ports
- Line-out and Line-In rear ports
- Internal Speaker

**Input Devices**
- HP USB Standard Keyboard
- USB 2-Button Optical Scroll Mouse

### MultiSeat Configurations

<table>
<thead>
<tr>
<th>MultiSeat Configurations</th>
<th>2 users</th>
<th>3 users</th>
<th>4 users</th>
<th>5 users</th>
<th>6 users</th>
<th>7 users</th>
<th>8 users</th>
<th>9 users</th>
<th>10 users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host PC version</td>
<td>Ess</td>
<td>Ess</td>
<td>Ess</td>
<td>Ext</td>
<td>Ext</td>
<td>Ext</td>
<td>Ext</td>
<td>Ext</td>
<td>Ext</td>
</tr>
<tr>
<td>Qty of t100's</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Qty of Monitors</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Qty of PS/2 Keyboards/Mice</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Powered USB Hub required?</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>
General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.

If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

**Temperature Range**

- Operating: 50° to 95° F (10° to 35° C)*
- Non-operating: -22° to 140° F(-30° to 60° C)

**Relative Humidity**

- Operating: 10% to 90% (non-condensing at ambient)
- Non-operating: 5% to 95% (non-condensing at ambient)

**Maximum Altitude**

- Operating: 10,000 ft (3048 m)
- Non-operating: 30,000 ft (9144 m)

* Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

**Power Supply**

- 240-watt 89% efficient* BTX power supply - Active PFC

**Operating Voltage Range**

- 100-240VAC

**Rated Voltage Range**

- 115V/230V

**Rated Line Frequency**

- 50/60 Hz

**Operating Line Frequency Range**

- 47-63 Hz

**Rated Input Current**

- 4A

**Heat Dissipation**

- Typical 270 btu/hr (68 kg-cal/hr)
- Maximum 1025 btu/hr (258 kg-cal/hr)

**Power Supply Fan**

- Variable speed fan

**ROM BIOS Information**

Key features of the HP BIOS include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the HP Business desktop computer into the enterprise, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
Security – HP BIOS offers a robust and flexible set of security features to help the system administrator secure their systems from removal of sensitive data, and help prevent access by unauthorized users. Ability to disable USB ports.

Tracking and tracing capabilities in case of theft available in select countries (subscription sold separately).

Thermal and power management – The HP BIOS provides and enables thermal and power management technologies to assist in operating the HP Business Desktop computer in any enterprise environment.

Serviceability – HP BIOS provides diagnostic and detailed service information.

Additional HP BIOS Features

- Administrator password - Also known as the setup password, this helps prevent unauthorized changes to the system configuration. If the administrator password is not known, the BIOS version cannot be changed and changes cannot be made to BIOS settings using F10 setup or under the OS.
- Advanced Configuration and Power Interface (ACPI) - Represents a significant innovation in power and configuration management, allowing operating systems and applications to manage power based on activity and usage.
- Mute internal speaker
- Disable USB ports

Other Features

- **ACPI-Ready Hardware**: Advanced Configuration and Power Management Interface (ACPI).
  - Allows the system to wake from a low power mode.
  - 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.

- **SMBIOS Ver. 2.6**: 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 both an on/off button and suspend-to-sleep button.

- **Serviceability Features - System**
  - System/Emergency ROM
  - Flash ROM
  - CMOS Battery Holder for easy Replacement
  - Flash Recovery with Video
  - 5 Aux Power LED on System PCA
  - Processor ZIF Socket for easy Upgrade
  - Over-Temp Warning on Screen (Requires IM Agents)
  - Clear Password Jumper
  - DIMM Connectors for easy Upgrade
  - Restore CD
  - Clear CMOS Switch
  - NIC LEDs (integrated) (Green & Amber)
  - 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
## HP Compaq MultiSeat ms6000 Desktop Technical Specifications

### Serviceability Features - Chassis
- Dual Color Power and HD LED – To Indicate Normal Operations and Fault Conditions
- Color coordinated cables and connectors
- Tool-less Hood Removal – spring-loaded latch
- Front power switch
- Tool-less Hard Drive, CD & Diskette Removal

### Additional Features

<table>
<thead>
<tr>
<th><strong>Description</strong></th>
<th><strong>Feature</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Form Factor can be oriented as a tower (in addition to desktop orientation)</td>
<td>Towerable</td>
</tr>
<tr>
<td>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.</td>
<td>Drive Self Tests (DPS)</td>
</tr>
<tr>
<td>Running independently of the operating system, it may be accessed 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.</td>
<td>DPS Access through F10 Setup during Boot</td>
</tr>
<tr>
<td>Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted</td>
<td>SMART IV Technology* (Self-Monitoring, Analysis and Reporting Technology)</td>
</tr>
<tr>
<td>Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count</td>
<td></td>
</tr>
<tr>
<td>By avoiding actual hard drive failures, SMART hard drives act as “insurance” against unplanned user downtime and potential data loss from hard drive failure</td>
<td></td>
</tr>
<tr>
<td>All models feature Intel Standard Manageability technology including the following*:</td>
<td>Intel® Standard Manageability</td>
</tr>
<tr>
<td>Supports industry standards including DASH 1.1 and WSMAN.</td>
<td></td>
</tr>
<tr>
<td>Enables IT to manage and secure PCs even if they are off or the OS is inoperable.</td>
<td></td>
</tr>
<tr>
<td>Remotely manage power states, boot to a diagnostic image, edit the PC BIOS, and inventory software and hardware.</td>
<td></td>
</tr>
<tr>
<td>Hardware-level filtering can automatically remove an infected PC from the network while still keeping a connection to the management console for remote remediation.</td>
<td></td>
</tr>
</tbody>
</table>

* PCs with Intel Standard Manageability include features of Intel Active Management Technology (Intel AMT). Intel AMT requires the computer system to have an Intel AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. For more information, see [www.intel.com/technology/platform-technology/intel-amt/](http://www.intel.com/technology/platform-technology/intel-amt/).

**DASH 1.1 support (Desktop and Mobile Architecture for System Hardware)**

- A standards initiative for representing out-of-band management capability for computer systems. It is a secure, web-services based successor to ASF.

**ASF 2.0 support (Alert Standard Format)**

- Industry-standard specification for network alerting in operating system-absent environments
High Definition Audio

<table>
<thead>
<tr>
<th>Type</th>
<th>Integrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Definition Stereo Codec</td>
<td>Yes – 4-channel Realtek ALC261 codec</td>
</tr>
</tbody>
</table>
| Audio Jacks        | Front microphone-In (150-K ohm Input Impedance)  
                      Rear Line-In/Microphone input (150-K ohm Input Impedance, function is configurable by audio driver)  
                      Rear Line-Out* (190 ohms Output Impedance, expects at least a 10-K ohm load)  
                      Front Headphone-Out (0.5 Ohm Output Impedance, expects at least a 32 ohm load) |

**NOTES:**
Internal Speaker Amplifier is for Internal Speaker only. External Speakers need to be powered externally.  
(Microsoft MultiPoint Server 2010 does not currently support Audio in and out on the host PC)

<table>
<thead>
<tr>
<th>Sampling</th>
<th>8 kHz – 192 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavetable Syntheses</td>
<td>Yes – Uses OS soft wavetable</td>
</tr>
<tr>
<td>Analog Audio</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of Channels on Line-Out (mono/stereo)</td>
<td>Stereo (Left &amp; Right channels)</td>
</tr>
<tr>
<td>Internal Audio Speaker Power Rating</td>
<td>1.5 W</td>
</tr>
<tr>
<td>Internal Speaker</td>
<td>Yes; ability to mute internal speaker through F10 Setup</td>
</tr>
<tr>
<td>External Speaker Jack (Line-Out)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Integrated Intel 82567LM Gigabit Network Connection

<table>
<thead>
<tr>
<th>Connector</th>
<th>RJ-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller</td>
<td>Intel 82567LM Gigabit platform LAN Connect Networking Controller</td>
</tr>
<tr>
<td>Memory</td>
<td>Integrated 96KbB on chip buffer memory</td>
</tr>
<tr>
<td>Data rates supported</td>
<td>10/100/1000 Mbps</td>
</tr>
<tr>
<td>Compliance</td>
<td>IEEE 802.1P, 802.1Q, 802.2, 802.3, 802.3 ab and 802.3u compliant</td>
</tr>
<tr>
<td>Bus architecture</td>
<td>GLCI, LCI interface. Intel specific MAC to PHY interface</td>
</tr>
<tr>
<td>Data transfer mode</td>
<td>At gigabit GLCI (802.3 serdes) is for Data, LCI (parallel bus) for MDIO, at 10/100 LCI for both data and MDIO, GLCI is idle.</td>
</tr>
</tbody>
</table>
| Power requirement | Require 3.3Vaux, 1.8V and 1.0V or just 3.3V with integrated regulators  
                      Power consumption 1.16 Watts for 82566, whole LOM 2.53 Watts |
| Boot ROM support | Yes |
| Network transfer mode | Full-duplex  
                      Half-duplex (not available for the 1000BASE-T transceiver) |
### HP Compaq MultiSeat ms6000 Desktop Technical Specifications

| 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 (full-duplex) 2000 Mbps |
|------------------------|---------------------------------|
| Environmental          | Operating temperature 32° to 131°F (0° to 55° C)  
To 70° C for external regulator |
| Management capabilities | WOL, auto MDI crossover, PXE, Muti-port teaming, RSS, Advanced cable diagnostic. |
| Alerting               | ASF 2.0 support, AMT 3.0 support |

### Integrated Intel Graphics Media Accelerator 4500

- **3D/2D Controller**: Microsoft DirectX® 10 based with support for Pixel Shader 3.0
- **VGA Controller**: Integrated VGA is physically limited to 1680x1050@60Hz (widescreen), 32 bits or 1600x1200 (Standard screen), 32 bits
- **DisplayPort**: Integrated, Multimode capable; supports HDCP
- **Bus Type**: PCI Express™ x16
- **RAMDAC**: Integrated, 350 MHz
- **Memory**: Graphics memory is shared with system memory. Graphics memory usage varies depending on the amount of system memory installed, BIOS settings, operating system, and system load. 32 MB is pre-allocated for graphics use at system boot time. Additional memory can be allocated at boot time by the BIOS for PAVP (Protected Audio Video Playback) support for playback of protected video content. For Vista, use of PAVP heavy mode preallocates an additional 96MB. Additional memory is allocated for graphics as needed using Intel’s Dynamic Video Memory Technology (DVMT), to provide an optimal balance between graphics and system memory use.
  - **Maximum Color Depth**: 32 bits/pixel
  - **Maximum Vertical Refresh Rate**: 85 Hz at up to 1920x1440, 75 Hz at 2048x1536. Varies with mode and configuration. See table below.
  - **Graphics/Video API Support**: Microsoft DirectX® 10, OpenGL® 1.5 (OpenGL® 2.0 available in a driver update)

### Resolutions Supported

**NOTE**: Other resolutions may be available but are not recommended as they may not have been tested and qualified by HP.
**Maximum Refresh Rate**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Analog Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>800x600</td>
<td>85</td>
</tr>
<tr>
<td>1024x768</td>
<td>85</td>
</tr>
<tr>
<td>1280x720</td>
<td>85</td>
</tr>
<tr>
<td>1280x1024</td>
<td>85</td>
</tr>
<tr>
<td>1440x900</td>
<td>75</td>
</tr>
<tr>
<td>1600x1200</td>
<td>85</td>
</tr>
<tr>
<td>1680x1050</td>
<td>75</td>
</tr>
<tr>
<td>1920x1080</td>
<td>85</td>
</tr>
</tbody>
</table>

**Eco-Label Certifications & declarations**
This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- IT ECO declaration (pending R&D testing)

**System Configuration**
The configuration used for the Energy Consumption and Declared Noise Emissions data is based on a typically configured product.

**Energy Consumption**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Normal Operation</th>
<th>Sleep (Energy Star low power mode)</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 VAC</td>
<td>29.5659 W</td>
<td>2.4243 W</td>
<td>0.7496 W</td>
</tr>
<tr>
<td>230 VAC</td>
<td>28.7916 W</td>
<td>2.6419 W</td>
<td>0.9092 W</td>
</tr>
<tr>
<td>100 VAC</td>
<td>29.1392 W</td>
<td>2.4196 W</td>
<td>0.7371 W</td>
</tr>
</tbody>
</table>

FEMP Standby Power Compliant (<1W in S5 - Power Off)**
Power Consumption in ENERGY STAR Mode - Suspend to RAM (S3) (Instantly Available PC) <3W

* Energy efficient power supply is a requirement for ENERGY STAR qualification in conjunction with a select range of processors and modules

** Power consumption in the Off/Apparent Off mode is measured and reported with the network interface controller "Wake on LAN" feature disabled in F10 Setup (default is "enabled").

**Heat Dissipation**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Normal Operation</th>
<th>Sleep</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 VAC</td>
<td>101 BTU/hr</td>
<td>8 BTU/hr</td>
<td>3 BTU/hr</td>
</tr>
<tr>
<td>230 VAC</td>
<td>98 BTU/hr</td>
<td>9 BTU/hr</td>
<td>3 BTU/hr</td>
</tr>
<tr>
<td>100 VAC</td>
<td>100 BTU/hr</td>
<td>8 BTU/hr</td>
<td>3 BTU/hr</td>
</tr>
</tbody>
</table>

* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

**Declared Noise Emissions** (in accordance with ISO 7779 and ISO 9296)

<table>
<thead>
<tr>
<th>System Fan Off</th>
<th>Sound Power (LWAd, bels)</th>
<th>Sound Pressure (LpAm, decibels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idle</td>
<td>3.8</td>
<td>27</td>
</tr>
<tr>
<td>Fixed Disk (random writes)</td>
<td>3.9</td>
<td>28</td>
</tr>
</tbody>
</table>
Batteries

This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:
- Mercury greater than 5ppm by weight
- Cadmium greater than 10ppm by weight

Battery size: CR2032 (coin cell)
Battery type: Li Ion

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 0% post consumer recycled plastic (by wt.)
- This product is 95.1% recyclable when properly disposed of at end of life.

Packaging Materials

- External:
  - Corrugated Carton: 1705 g
- Internal:
  - EPE-Expanded Polyethylene: 198 g
  - Polyethylene low density foam: 39 g
- The EPE-Expanded Polyethylene packaging material is made from 100% recycled content.
- The Polyethylene low density foam packaging material is made from 100% recycled content.
- The Corrugated Carton packaging materials contains at least 75% recycled content.

RoHS Compliance

Hewlett-Packard is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP’s goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis. As of July 1, 2006, RoHS substances are virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive).

Material Usage

This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at: http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
Halogenated Diphenyl Methanes
Lead carbonates and sulfates
Lead and Lead compounds
Mercuric Oxide Batteries
Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
Ozone Depleting Substances
Polybrominated Biphenyls (PBBs)
Polybrominated Biphenyl Ethers (PBBEs)
Polybrominated Biphenyl Oxides (PBBOs)
Polychlorinated Biphenyl (PCB)
Polychlorinated Terphenyls (PCT)
Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
Radioactive Substances
Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Packaging

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment:

HP MultiSeat t100 Thin Client

Front
1. Mounting bracket
2. LED indicator
3. Audio connector (headphone out)
4. Audio connector (mic in)
5. PS/2 keyboard connector
6. PS/2 mouse connector

Back
1. Cable lock slot
2. VGA display connector
3. USB Type A connector
4. Locking security loop clip (can be manually installed)

Software Licensing
Microsoft Client Access License (CAL)

Power
- Power supply: No external power supply
- Power output (max): 2.5W max
- LED: One blue LED to indicate power is on

Input/output connectors
- USB input: 1 USB in (Type B) to connect to host PC
- Keyboard: PS/2
- Mouse: PS/2
- Video: VGA-type video output (DB-15)
- Audio output: 1/8-inch mini-jack, stereo
- Audio input: 1/8-inch microphone mini-jack, stereo

Maximum recommended video resolution
- 1280x1024 (standard screen); 1440x900 (widescreen)
- 32 bit
### HP MultiSeat t100 Thin Client Standard Features

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum video resolution</strong></td>
<td>VGA is physically limited up to 1680x1050@60Hz (widescreen), 32 bits or 1600x1200 (standard screen), 32 bits</td>
</tr>
<tr>
<td><strong>Hardware Security</strong></td>
<td>Security lock slot (Kensington cable lock sold separately)</td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>4 VESA holes; 2 spaced at 100 mm centers and 2 spaced at 75 mm centers</td>
</tr>
</tbody>
</table>
| **Dimensions H x W x D** | Without mounting bracket: 1.11 x 4.4 x 2.56 in. (28.2 x 111.7 x 65 mm)  
With mounting bracket: 1.38 x 4.4 x 2.56 in. (34.8 x 111.7 x 65 mm) |
| **Weight (approximate)** | Without mounting bracket: 4.78 oz. (135.7 g)  
With mounting bracket: 5.71 oz. (162.0 g) |
| **In the box** | Without mounting bracket: 4.78 oz. (135.7 g)  
With mounting bracket: 5.71 oz. (162.0 g) |
| **Environmental** | **Operating temperature range** | 50º to 104º F/10º to 40º C  
Max rate of change is 18ºF/10ºC per hour |
| | **Non-operating temperature range** | Operating: 10-90% (max wet bulb temperature 84.2ºF/28ºC)  
Non-operating: 5-95% (max wet bulb temperature 101.6ºF/38.7ºC) |
| | **NOTE:** Specifications are at sea level with altitude derating of 1.8ºF/1000ft (1ºC/300m) to a maximum of 10,000 ft (3Km), with no direct, sustained sunlight. Upper range may be limited by the type and number of options installed. |
| | **Humidity (non-condensing)** | Operating: 10,000 ft/3,048 m  
Max rate of change is 1500 ft/457m per minute  
Non-operating: 30,000 ft/9,144 m  
Max rate of change is 1500 ft/457m per minute |
| | **Maximum unpressurized altitude** | Operating: 10,000 ft/3,048 m  
Max rate of change is 1500 ft/457m per minute  
Non-operating: 30,000 ft/9,144 m  
Max rate of change is 1500 ft/457m per minute |
| **Regulatory Compliances** | **Product Safety** | Certified to IEC EN 60950 and all applicable equivalent safety standards |
| | **Ergonomics** | The product has been tested and found to comply with all applicable GS ergonomic requirements |
| | **EMC** | FCC Class B; CISPR 22 (EN 55022) Class B; CISPR 24 (EN 55024) |
| **Warranty** | Three-year limited hardware warranty.  
**NOTE:** Certain restrictions apply. Consult the HP Customer Support Center for details. |
## HP MultiSeat Computing Solution Options

### Options (sold separately)  

<table>
<thead>
<tr>
<th>Options</th>
<th>t100</th>
<th>ms6000</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hard Drives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP 160-GB SATA 3.0-Gb/s 7200 rpm Hard Drive</td>
<td>X</td>
<td></td>
<td>PY277AA</td>
</tr>
<tr>
<td>HP 250-GB SATA 3.0-Gb/s 7200 rpm Hard Drive</td>
<td>X</td>
<td></td>
<td>PY278AA</td>
</tr>
<tr>
<td>HP 320-GB SATA 3.0-Gb/s 7200 rpm Hard Drive</td>
<td>X</td>
<td></td>
<td>FH963AA</td>
</tr>
<tr>
<td>HP 500-GB SATA 3.0-Gb/s 7200 rpm Hard Drive</td>
<td>X</td>
<td></td>
<td>KW347AA</td>
</tr>
<tr>
<td><strong>Input/Output Devices</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP USB Standard Keyboard</td>
<td>X</td>
<td></td>
<td>DT528A</td>
</tr>
<tr>
<td>HP PS/2 Standard Keyboard</td>
<td></td>
<td></td>
<td>DT527A</td>
</tr>
<tr>
<td>HP PS/2 2-Button Optical Scroll Mouse</td>
<td>X</td>
<td></td>
<td>EY703AA</td>
</tr>
<tr>
<td>HP USB 2-Button Optical Scroll Mouse</td>
<td></td>
<td></td>
<td>DC172B</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC3-10600 DIMMs Non-ECC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP 4-GB PC3-10600 (DDR3 1333MHz) DIMM</td>
<td>X</td>
<td></td>
<td>VH638AA</td>
</tr>
<tr>
<td>HP 2-GB PC3-10600 (DDR3 1333MHz) DIMM</td>
<td>X</td>
<td></td>
<td>AT024AA</td>
</tr>
<tr>
<td>HP 1-GB PC3-10600 (DDR3 1333 MHz) DIMM</td>
<td>X</td>
<td></td>
<td>AT023AA</td>
</tr>
<tr>
<td><strong>Monitors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supports VGA monitors including: HP monitors: 15”, 17”, 18” (dyna), 18” wide (le1851), 19”, 19” wide, 20”, 20” wide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Brackets/Stands</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP Small Form Factor Tower Stand</td>
<td></td>
<td></td>
<td>GJ118AA</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kensington lock</td>
<td>X</td>
<td>X</td>
<td>PC766A</td>
</tr>
<tr>
<td>HP Business PC Security Lock</td>
<td></td>
<td></td>
<td>PV606AA</td>
</tr>
<tr>
<td>HP Chassis Security Kit</td>
<td></td>
<td></td>
<td>AR639AA</td>
</tr>
</tbody>
</table>

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