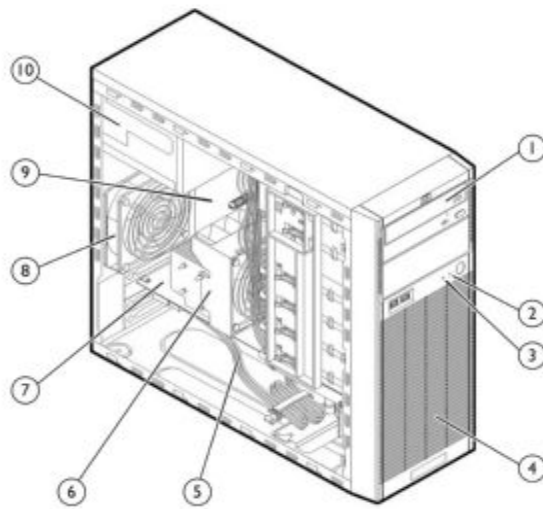
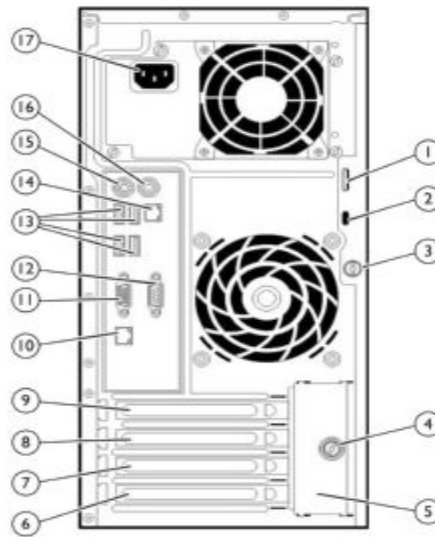


Overview



Front View:

1. DVD-ROM Drive
2. Power LED
3. Drive Activity LED
4. Front Bezel
5. SAS Cable (SAS model only)
6. CPU Heatsink
7. Hard Drive Controller Card (Optional)
8. System Fan
9. System Board
10. 300W Power Supply



Rear View:

1. Kensington lock notch
2. Cable lock provision notch
3. Access panel thumbscrew
4. Expansion slot cover retainer thumb screw
5. Expansion slot cover
6. Expansion slot 1
7. Expansion slot 2
8. Expansion slot 3
9. Expansion slot 4
10. Management NIC port (RJ-45)
11. Video port
12. Serial port
13. USB ports
14. Embedded NIC port (RJ-45)
15. PS/2 keyboard port
16. PS/2 mouse port
17. Power supply cable socket

What's New

- Support for Intel® i3-550 FIO Processor Kit and Intel® Xeon® X3470 FIO Processor Kit
- Support for 2TB non hot-plug SATA drive

At A Glance

- **Processor:**
 - Intel® Xeon® processor X3400 series
 - Intel® Core™ i3 processors
 - Intel® Pentium® processor
 - Intel® Celeron® processor
 - Intel® 3420 chipset
- **Memory:**
 - Four (4) DIMM slots
 - 2GB (1x2GB) or 4GB (2x2GB) Standard/16GB Maximum, using PC3-10600E DDR3 Unbuffered (UDIMM) ECC memory, operating up to 1333MHz
- **Storage Controller:**
 - HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10)
 - NOTE: Supports up to four (4) 3.0Gb/s SATA hard disk drives only**
- **Internal Drive Support:**
 - Internal SAS storage capacity of up to 2.4TB (4 x 600GB 3.5" SAS drives)
 - Internal SATA storage capacity of up to 8.0TB (4 x 2TB 3.5" SATA drives)
- **Network Controller:**
 - Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
- **Expansion Slots:**
 - Slot 1: PCI-e Gen 1, x1 (x4 connector) Full-height & Half-length
 - Slot 2: PCI 32-bit/33 MHz at 3.3V Full-height & Full-length
 - Slot 3: PCI-e Gen 1, x4 (x8 connector) Full-height & Full-length
 - Slot 4: PCI-e Gen 2, x16 (x16 connector) Full-height & Full-length
- **USB 2.0 Ports:**
 - Eight (8) USB 2.0 ports: 2 front , 4 rear, 2 internal (one for tape, one for standard USB device)

Overview

- **Security - Trusted Platform Module:**
 - One (1) internal TPM 1.2 module connector (Optional)
- **Power Supply:**
 - 300 Watts Non-Hot Plug, Non Redundant Power Supply (80% efficiency)
- **Management:**
 - Standard Lights Out 100 IPMI 2.0 reporting
 - Standard HP ProLiant ML110 G6 Easy Set-up CD
 - Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
- **Operating System:**
 - Supports Windows including Hyper-V, RHEL and SLES
- **Form Factor:**
 - Micro ATX tower (4U)
NOTE: Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs
- **Warranty:**
 - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair are available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
NOTE: Server Warranty includes 1 year parts, 1 year labor, 1-year on-site support with next business day response. (3-1-1 warranty offered in Brazil only). Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
<http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Standard Features

Processor

One of the following depending on Model

Quad-Core Processors

Intel® Xeon® processor X3470 (2.93GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Xeon® processor X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Xeon® processor X3450 (2.66GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4)

Intel® Xeon® processor X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3)

Dual-Core Processors

Intel® Core™ processor i3-550 (3.20GHz, 73W, 4MB, 1333, HT)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Core™ processor i3-540 (3.06GHz, 73W, 4MB, 1333, HT)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Core™ processor i3-530 (2.93GHz, 73W, 4MB, 1333, HT)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

Intel® Pentium® processor G6950 (2.80GHz, 73W, 3MB, 1066)

Intel® Celeron® processor G1101 (2.26GHz, 73W, 2MB, 1066)

NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.

NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology.

NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active.

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

Cache Memory

Integrated 8MB Intel® Smart Cache (Xeon 3400 series)

Integrated 4MB Intel® Smart Cache (Core i3 series)

Integrated 3MB Intel® Smart Cache (Pentium G6950)

Integrated 2MB Intel® Smart Cache (Celeron G1101)

Chipset

Intel® 3420 chipset

NOTE: For more information regarding Intel chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>

Memory Protection

ECC

Memory

Type PC3-10600E unbuffered DDR3 ECC up to 1333MHz

Standard 2GB (1x2GB) or 4GB (2x2GB)

Maximum 16GB

Network Controller

Embedded NC107i PCI Express Gigabit Ethernet Server Adapter

Standard Features

Expansion Slots #	Technology	Bus Width***	Connector Width	Bus Number*	Device Number**	Form Factor	Notes
1	PCIe	X1	X4	16	0	Full height, half length slot	Gen.1, NHP
2	PCI	32 bit	N/A	48	0	Full height & Full-length slot	33MHz/3.3V, NHP
3	PCIe	X4	X8	32	0	Full height & Full-length slot	Gen.1, NHP
4	PCIe	X16	X16	1	0	Full height & Full-length slot	Gen.2, NHP

*Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

*** Indicates the number of physical electrical lanes running to a PCI-e connector.

Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10) NOTE: Supports up to four (4) 3.0Gb/s SATA hard disk drives only NOTE: For set up instructions, please refer to the HP ProLiant ML100 series server user guide at: http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c01708878/c01708878.pdf NOTE: For general information about HP Smart Array B110i SATA RAID Controller, please go to: http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb110i/index.html
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Storage	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive ships standard
	Hard Drives	1x160 GB NHP SATA 7200 rpm Drive (Entry Model) 1x250 GB NHP SATA 7200 rpm Drive (Base Model) 2x250 GB NHP SATA 7200 rpm Drive (Performance Model)

Maximum Internal Storage	Non-Hot Plug SAS	2.4TB (4 x 600GB) 3.5" SAS
	Non-Hot Plug SATA	8.0TB (4 x 2TB) 3.5" SATA

Interfaces	Parallel	0
	Serial	1
	Pointing Device (Mouse, PS2)	1
	Graphics	1
	Keyboard (PS2)	1
	USB 2.0 Ports	8 total (4 rear, 2 front panel, 2 internal (one for USB Tape connectivity))
	NOTE: 1 Dedicated USB port available for internal USB tape connectivity	
	NOTE: Please see the following URL for additional information regarding USB support http://h18004.www1.hp.com/products/servers/platforms/usb-support.html	
	Network RJ-45 (Ethernet)	1(10/100/1000 bits/s)
	Remote Management	HP Lights-Out 100i

Graphics	64MB shared supporting all display resolutions up to 1600 x 1200 16bpp @ 75Hz NOTE: 8MB is dedicated to video memory.
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Form Factor	Micro ATX Tower (4U) NOTE: Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs.
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Standard Features

Embedded Manageability

HP LO100i Advanced

HP LO100i Lights-Out 100 with Optional LO100i Advanced Licenses for Virtual KVM and Virtual Media.

Features:

- Embedded IPMI standard reporting
- System event log access
- Remote Serial console (serial redirection)
- Browser, Telnet access
- SMASH-CLP compliant
- DCMI 1.0 compliant
- IPMI 2.0 compliant
- Secure Socket Layer Encryption
- Secure Shell Encryption
- Virtual media (Floppy, CD, DVD, ISO image, USB 2.0) with Advanced License
- Virtual KVM with Advanced License

NOTE: For more information, please refer to the QuickSpecs for the LO100i found at: www.hp.com/go/lo100

Core Infrastructure Management

HP ProLiant ML110 G6 Easy Set-up CD

The HP ProLiant Easy Set-up CD optimizes single-server setup, providing a simple way to deploy reliable and consistent server configurations. The HP ProLiant 100 Series Easy Set-up CD ships standard with the ML110 G6.

It offers essential single-server deployment tools for HP ProLiant 100 series servers that simplify HP entry server setup, providing a repeatable way to deploy reliable and consistent single-server configurations. The HP ProLiant Easy Set-up CD assists with the OS installation process by preparing the system for installing "off-the-shelf" versions of Windows operating system software and automatically integrating optimized HP ProLiant server software drivers and utilities. Users enjoy the following benefits:

- An easy-to-use, intuitive graphical interface that prepares your system for the OS installation process.
- Integration of key server software drivers with assisted installation.
- Dependency and validity checks to ensure that all supported ProLiant software can be installed.

NOTE: For the latest information about other related software; please visit the HP Insight Control Management Software Portfolio at: <http://h18004.www1.hp.com/products/servers/management/> and the HP ProLiant Easy Set-up CD Web site at: www.hp.com/servers/easysetup

Industry Standard Compliance

ACPI V3.0a Compliant
 PCI 2.3 Compliant
 PXE Support
 WOL Support
 IPMI 2.0 compliance
 DCMI 1.0
 Microsoft® Logo certifications
 Red Hat Enterprise Linux Logo certifications
 SUSE Linux Enterprise Server Logo certifications
 USB 2.0

Standard Features

Manageability HP Integrated Lights-Out 100i with optional LO100i Advanced Licenses for Virtual KVM and Virtual Media
 Embedded Lights Out 100 IPMI 2.0 standard reporting
 Standard HP ProLiant ML110 G6 Easy Set-Up CD
 Array Configuration Utility (ACU)
 Array Diagnostics Utility (ADU)
 HP Insight Diagnostics
 HP Insight Management Agents and Insight Management Providers for Systems Insight Manager (SIM) Integration

Security Power-on password
 Setup password
 Secure Sockets Layer (SSL)
 Secure Shell (SSH)

Security - TPM The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline.

NOTE: For more information about TPM, please visit: www.hp.com/go/TPM
NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.
NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

Server Power Cords 6' country specific, lowline NEMA power cord.

Power Supply 300 Watts Non-Hot Plug, Non redundant Power Supply (80% efficiency)

System Fans One (1) - Non-redundant system fan ships standard
 One (1) - Non-redundant CPU heatsink fan ships standard

Operating Systems and Virtualization Software [Microsoft Windows Server](#)
[Red Hat Enterprise Linux \(RHEL\)](#)
Support for ProLiant Servers [SUSE Linux Enterprise Server \(SLES\)](#)

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/supportos> and our driver download page <http://www.hp.com/support/ML110G6>

Factory Express Portfolio for Servers and Storage HP Factory Express offers configuration, customization, integration and deployment services for HP servers and/or storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging and custom packaging HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers, as well as, the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>

HP Enterprise Configurator The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.
<http://www.hp.com/products/configurator>.



Service and Support

Service and Support For increased uptime, productivity and ROI - HP Care Pack packaged services for Servers

These days, you need to get the most out of your server investment - you can't afford not to. When you buy HP server products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as: flexible, reliable and scalable as your server. Unlike server-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Servers.

Protect your business beyond the warranty

When it comes to robustness and reliability, standard warranties on today's computing equipment have matured just as the technologies have matured. Good news on some fronts - but also a source of potential problems and subsequent consequences that come from depending on standard warranties alone. Standard warranty protects against product defects and some causes of downtime - but not the business. By using a standard approach to warranty uplifts, such as HP Care Pack Services, you can reduce downtime risks and be more certain of operational consistency for both mission-critical and standard business computing. Simply put, HP Care Pack Services normalize the warranty of combined products - helping you proactively guard against unplanned downtime.

Extending warranties with HP Care Pack Services

For cost-effective upgrading or extending your standard warranty, HP Care Pack Services offer a suite of standard reactive hardware and software support services that are sold separately, or combined as with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition, with HP Proactive Select we offer an innovative approach to service delivery that gives you the flexibility to acquire the specific proactive services you need today, then add services as your needs evolve. HP Proactive Select offers a broad set of technical or per-event type service options - including server, storage, and network, SAN device, and software, environment, installation and education services. Services that you can mix and match depending on your specific requirements, from preliminary planning and equipment delivery to installation, configuration, integration, and testing, through every level of ongoing support. Our HP Care Pack packaged services for Servers assures help when you need it most. And for many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

HP Server Services: Offering reliability, flexibility and value - just like your storage

HP Server Services offers a full spectrum of customer care, from technology support to complex migrations to complete completely managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education offers flexible, comprehensive training on server networking and server software to help your IT staff get the most out of your investments. And HP Financial solutions extend innovative financing and asset management programs to cost-effective buy, manage and eventually retire your older equipment.

HP Server Services, the trusted business technology experts who manage your technology in action, because when technology works, business works. <http://www.hp.com/services/servers>, <http://www.hp.com/services/storage>

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at: <http://www.hp.com/go/lookuptool>

NOTE: Care Pack Services availability may vary by product and country.

*Service and Support***Recommended HP Care Pack Services for optimal satisfaction with your HP product****Recommended Services****3-Year HP Hardware Support Onsite Service, 4-hour response, 13x5**

Delivering increased equipment availability and productivity with rapid-response onsite and remote support for your HP hardware, as well as selected multivendor equipment, this flexible HP Care Pack Service covers desktops, workstations, servers, storage systems, network equipment, and printing.

Choose 4-Hour Same Business Day Hardware Support when you need to:

- Extend your hardware warranty coverage with prompt service for key systems and devices
- Obtain easy-to-buy, easy-to-use onsite services
- Improve hardware performance and uptime
- Increase the return on your HP and multivendor hardware investments
- Enjoy consistent service coverage across geographically dispersed sites
- Optional Defective Media Retention Service

Service feature highlights

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

3-Year HP Hardware Support Onsite Service, Next-day response (9x5)

HP ProLiant services: Our integrated service portfolio covers the entire solution lifecycle for x86 server environments - from installation and support through the design, deployment, and management of complex IT environments - so that you can confidently address any IT and business need.

HP Hardware Support Onsite Service provides high-quality remote assistance and onsite support for your covered hardware, helping you to improve product time.

Service feature highlights

- Help improve or maintain system uptime
- Convenient onsite support
- Reliable response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

HP ProLiant Server Hardware Installation

HP Installation Service provides for the basic installation of HP branded servers, workstations, desktop systems, notebook PCs, thin clients, storage devices, printers, networking, and software products. The Installation Service is part of a suite of HP deployment services that are designed to give you the peace of mind that comes from knowing your HP and HP-supported products have been installed by an HP specialist in accordance with the manufacturer's product documentation.

- Expedited installation, with all service prerequisites met before the installation is performed
- Installation in accordance with manufacturer's specifications, enhancing the supportability of your HP-installed hardware and software
- Service delivery at a mutually scheduled time
- Allows your IT resources to stay focused on their core tasks and priorities
- Availability of an HP service specialist to answer questions during the onsite delivery of this service

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

Service and Support

Optional HP Care Pack Services that will enhance your HP product experience

Optional Services **3-Year HP Hardware Support Onsite Service, 4-hour response, 24x7**

As an alternative to our recommended support level, for customers who need same day response server level 24x7.

Provides high-quality remote assistance and onsite support for your covered hardware, helping you to improve product uptime.

Service benefits:

- Help improved system uptime
- Convenient onsite support
- Reliable response time
- Remote problem diagnosis and support
- Onsite hardware support
- Materials included
- Service-level options with different coverage windows and response times
- Work to completion
- Escalation management
- Access to electronic support information and services
- HP electronic remote monitoring and support solution (for eligible products only)

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service - 24-hour CTR

As an alternative to our recommended support level, for customers who need committed call-to-repair for server hardware.

HP Hardware Support Onsite 24x7 24-Hour Call-to-Repair Service provides your IT manager access to a team of support specialists. They will quickly begin troubleshooting the system to help return the hardware to operating condition within a maximum of 24 hours from the initial service request.

HP is committed to repairing your hardware within a maximum of six hours. The benefits include:

- Improved system uptime
- Predictable repair times
- More effective IT resource planning
- Consistent level of hardware support across your multi-technology systems
- Optional defective media retention service

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN>

3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service - 6-hour CTR

As an alternative to our recommended support level, for customers who need committed call-to-repair for server hardware.

HP Hardware Support Onsite 24x7 6-Hour Call-to-Repair Service provides your IT manager access to a team of support specialists. They will quickly begin troubleshooting the system to help return the hardware to operating condition within a maximum of six hours from the initial service request.

HP is committed to repairing your hardware within a maximum of six hours. The benefits include:

- Improved system uptime
- Predictable repair times
- More effective IT resource planning
- Consistent level of hardware support across your multi-technology systems
- Optional defective media retention service

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN>

Service and Support

eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: <http://www.hp.com/support>

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

Customer Technical Training

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit: <http://h20219.www2.hp.com/services/cache/433028-0-0-225-121.htm>

HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit: <http://h20219.www2.hp.com/services/cache/433028-0-0-225-121.htm>

Additional Services Information

For more information about HP Care Pack Services for Servers, please visit: <http://www.hp.com/services/servers>

To learn more on HP ProLiant servers and HP BladeSystem, please contact your HP sales representative or HP Authorized Channel Partner, or visit: www.hp.com/services/proliant or www.hp.com/services/bladeSystem.

Models

SATA Models

NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.

NOTE: HP NHP Internal SAS/SATA 4 port cable kit (487734-B21) is required when Smart Array Controller is ordered with a BTO configuration

NOTE: For general information about HP Smart Array B110i SATA RAID Controller, please visit:

<http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smarraysb110i/index.html>

Entry Model	Processor	(1) Intel® Pentium® processor G6950 (2.80GHz, 73W, 3MB, 1066)
HP ML110 G6 G6950 NHP SATA Server 506666-xx1	Cache Memory	3MB Intel® Smart Cache
	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10) (4 ports for HDD)
	Hard Drive	1 x 160GB Non-hot-plug LFF SATA
	Internal Storage	8.0TB (4 x 2.0TB) Non-hot plug LFF SATA (Maximum)
	Power Supply	300W Non-Hot Plug, Non-Redundant Power Supply (80% efficiency)
	Networking	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
	Management	Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Mouse & Keyboard	None ships standard
Form Factor	Micro ATX Tower (4U)	

Base Model	Processor	(1) Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3)
HP ML110 G6 X3430 NHP SATA Server 506667-xx1	Cache Memory	8MB Intel® Smart Cache
	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10) (4 ports for HDD)
	Hard Drive	1 x 250GB Non-hot-plug LFF SATA
	Internal Storage	8.0TB (4 x 2.0TB) Non-hot plug LFF SATA (Maximum)
	Power Supply	300W Non-Hot Plug, Non-Redundant Power Supply (80% efficiency)
	Networking	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
	Management	Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Mouse & Keyboard	None ships standard
Form Factor	Micro ATX Tower (4U)	

Performance model	Processor	(1) Intel® Xeon® processor X3450 (2.66GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4)
HP ML110 G6 X3450 NHP SATA Server 506668-xx1	Cache Memory	8MB Intel® Smart Cache
	Memory	4GB (2x2GB) PC3-10600E DDR3 UB ECC
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10) (4 ports for HDD)
	Hard Drive	2 x 250GB Non-hot-plug LFF SATA
	Internal Storage	8.0TB (4 x 2.0TB) Non-hot plug LFF SATA (Maximum)
	Power Supply	300W Non-Hot Plug, Non-Redundant Power Supply (80% efficiency)
	Networking	Embedded NC107i PCI Express Gigabit Ethernet Server Adapter
	Management	Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Mouse & Keyboard	None ships standard
Form Factor	Micro ATX Tower (4U)	

Country Code Key	xx=00	NA
	xx=01	Australia
	xx=03	UK
	xx=04	Germany
	xx=05	France
	xx=37	AP
	xx=42	Euro
	xx=AA	PRC (Excludes P/N 506666-xx1)

Configuration Information-Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.

NOTE: HP does not allow factory integration of options into standard models listed above.

NOTE: Configure-to-order servers must start with a CTO Chassis.

NOTE: FIO indicates that this option is a Factory Installable Option.

Step 1: Base Configuration

HP Models	HP ProLiant ML110G6 CTO Chassis 510078-B21 Factory Integrated Models ship with: Embedded NC107i PCI Express Gigabit Ethernet Server Adapter Integrated HP ProLiant 100 G6 Lights Out 100i Remote Management HP Embedded Smart Array B110i SATA RAID Controller (RAID 0/1/10), 4 ports for HDD NOTE: For set up instructions for HP Smart Array B110i SATA Controller please refer to the HP ProLiant ML100 series server user guide at: http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c01708878/c01708878.pdf NOTE: For general information about HP Smart Array B110i SATA RAID Controller, please visit: http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb110i/index.html Non hot-plug SAS/SATA 4 port cable Easy set up CD PCA Power cord Micro ATX Tower (4U)
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Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

HP Processors	Quad-Core Processor Intel® Xeon® processor X3470 (2.93GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5), FIO 622187-L21 Intel® Xeon® processor X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5), FIO 578348-L21 Intel® Xeon® processor X3450 (2.66GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4), FIO 578347-L21 Intel® Xeon® processor X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3), FIO 578346-L21 Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3), FIO 578345-L21 Dual-Core Processor Intel® Core™ processor i3-550 (3.20GHz, 73W, 4MB, 1333, HT), FIO 622185-L21 Intel® Core™ processor i3-540 (3.06GHz, 73W, 4MB, 1333, HT), FIO 578352-L21 Intel® Core™ processor i3-530 (2.93GHz, 73W, 4MB, 1333, HT), FIO 578351-L21 Intel® Pentium® processor G6950 (2.80GHz, 73W, 3MB, 1066), FIO 578350-L21 Intel® Celeron® processor G1101 (2.26GHz, 73W, 2MB, 1066), FIO 578349-L21
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HP Memory	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500672-B21 HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500670-B21 HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500668-B21 NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator .
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HP Optical Drives	HP Half-Height SATA DVD ROM Kit 447326-B21 HP Half-Height SATA DVD-RW Optical Kit 447328-B21
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Configuration Information-Factory Integrated Models

HP Hard Drives	SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
	HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21
	SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
	HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21
	HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21
	SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	NOTE: Support for SAS non-hot plug drives requires HP SAS/Smart Array Controller. See Step 3 below.	
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
	HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516824-B21
	HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	454234-B21
	HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417950-B21
HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417855-B21	

Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)

HP Storage Controllers SAS Controller

NOTE: Support for SAS hard drives/tape drive requires selection of a SAS controller.

NOTE: Support for hardware RAID requires selection of a SAS controller.

Smart Array P212 Controller

HP P212/256 MB Smart Array Controller FIO Kit 491191-B21

NOTE: Additional SAS controller selections can be viewed in the "Additional Options" section of this QuickSpecs.

HP USB and SD Options

NOTE: Both can be selected.

HP ProLiant Server PS/2 Mouse, FIO AC105A

HP ProLiant Server PS/2 Keyboard, FIO AC110A

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional "Core Options" and "Additional Options", please refer to the "Options" sections below.

Core Options

NOTE: Some options may not be factory integratable. Please contact your local sales representative for additional information.

HP Memory	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

HP Optical Drives	HP Half-Height SATA DVD ROM Kit	447326-B21
	HP Half-Height SATA DVD-RW Optical Kit	447328-B21

HP Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and firmware) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

NOTE: Support for SAS non-hot plug drives requires HP SAS/Smart Array Controller.

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516824-B21
HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	454234-B21
HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417950-B21
HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	417855-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)

HP Networking

HP NC112T PCI Express Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC373T PCI Express Multi-function Gigabit Server Adapter	394791-B21
HP NC382T PCI Express Dual Port Multi-function Gigabit Server Adapter	458492-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs



Additional Options

HP Entry-Level Server Management	HP LO100i Advanced Pack, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: For additional License Kits please see the Lights-Out 100i QuickSpecs at: www.hp.com/go/lo100 .	530521-B21
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HP Security (TPM)	HP Trusted Platform Module Option Kit www.hp.com/go/TPM	488069-B21
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HP Storage Controllers SAS Controllers

NOTE: Support for SAS hard drives/tape drive requires selection of a SAS controller.

NOTE: Support for hardware RAID requires selection of a SAS controller.

Smart Array P212 Controller

HP Smart Array P212/Zero Memory Controller	462828-B21
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HP Smart Array P212/256MB Controller	462834-B21
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Optional Upgrades

256 MB Cache Module	462968-B21
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Battery Kit upgrade	462969-B21
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NOTE: Required to enable BBWC on the 256MB cache.

NOTE: Please see the following QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html
(Smart Array P212 Controller)

SCSI HBA

HP SC11Xe U320 Host Bus Adapter	412911-B21
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NOTE: Supports SCSI Tapes only, no RAID support.

NOTE: HBA is recommended for SCSI tape drive support.

NOTE: Please see the following QuickSpecs for Technical Specifications and additional information:

http://h18004.www1.hp.com/products/quickspecs/12566_div/12566_div.html
(SC11Xe HBA)

HP Port Options	HP NHP Internal SAS/SATA 4 Port Cable Kit NOTE: This cable will only be required when Smart Array Controller is ordered with a pre-configured model (PN: 5066660xx1, 506667-xx1 or 506668-xx1).	487734-B21
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HP Backup & Recovery Data Protector Express

Software	HP Data Protector Express 4.0 SP1 Backup Server	BB117BA
	HP Data Protector Express 4.0 SP1 for Microsoft Small Business Server	BB118BA
	HP Data Protector Express Backup Server 4.0 SP1 Upgrade from Data Protector Express Single Server Edition	BB117BT

NOTE: Only of these Data Protector Express base products is required. For more information on Data Protector Express and to see available options please visit: <http://www.hp.com/go/dataprotectorexpress>

Additional Options

HP Tape Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP StorageWorks tape backup products see: <http://www.hp.com/go/connect>.

HP StorageWorks DAT 320 USB Internal Tape Drive	AJ825A
HP StorageWorks DAT 320 SAS Internal Tape Drive	AJ830A
NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	
HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	
HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A
NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	
HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Tape Autoloader	AH558A
NOTE: Requires HP 1U Tape Autoloader Rack-Mount Kit (AH166A) for rack installation. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	
HP StorageWorks MSL2024 Tape Library with one LTO-3 Ultrium 920 SAS Drive	AH559A
NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	

HP Disk Backup

NOTE: For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk backup products see: <http://www.hp.com/go/connect>.

HP StorageWorks D2D Backup Systems with Backup Data Deduplication

NOTE: These are network connected appliances with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

HP StorageWorks D2D2502i Backup System	EJ001B
NOTE: 1.5TB of usable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP StorageWorks D2D2504i Backup System	EJ002B
NOTE: 3.0TB of usable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
USB Removable Media RDX Disk Backup Systems	
HP StorageWorks RDX320 Internal Removable Disk Backup System	AJ767A
NOTE: 320GB of disk capacity per data cartridge.	
HP StorageWorks RDX500 Internal Removable Disk Backup System	AJ934A
NOTE: 500GB of disk capacity per data cartridge.	
HP StorageWorks RDX750 Internal Removable Disk Backup System	AW577A
NOTE: 750GB of disk capacity per data cartridge.	

HP Uninterruptible Power Systems

HP Tower UPS

HP T750 G2 UPS Models

HP T750 G2 UPS, INTL	AF447A
HP T750 G2 UPS, NA	AF446A
HP T750J UPS, Japan	AF456A

HP T1000 G3 UPS Models

HP T1000 G3 UPS, INTL	AF449A
HP T1000 G3 UPS, NA	AF448A
HP T1000J UPS, Japan	AF457A

NOTE: For additional information regarding HP Uninterruptible Power Systems, please see the following URL: www.hp.com/go/rackandpower (Worldwide)

NOTE: For additional information on sizing your server, please reference: <http://www.upssizer.com>

Additional Options

HP Rack Series	<p>HP Rack 10000 G2 Series (Graphite Metallic)</p> <p>10642 G2 (42U) Rack Cabinet - Pallet AF001A</p> <p>10642 G2 (42U) Rack Cabinet - Shock Pallet AF002A</p> <p>NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.</p> <p>NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)</p> <p>NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower (Worldwide)</p>
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HP Rack Options	<p>HP KVM Switch Options</p> <p>Server console switch 0x2x8 AF616A</p> <p>Server console switch 0x2x16 AF617A</p> <p>0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC AF618A</p> <p>0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC AF619A</p> <p>1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC AF620A</p> <p>2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC AF621A</p> <p>4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC AF622A</p> <p>NOTE: For additional information regarding KVM Switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.</p> <p>HP Rack Options</p> <p>HP Tower to Rack Conversion Tray, Universal Kit 417705-B21</p>
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HP USB and SD Options	<p>HP USB 2-Button Optical Mouse ALL DC172B</p> <p>HP USB 04 Standard Keyboard DT528A#xxx</p> <p>NOTE: For the installation of Windows and other OS's, a floppy drive or the HP USB Floppy Drive Key may be required to complete driver installation. A standard USB drive key may not work to complete driver installation.</p>
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HP Care Pack Services	<p>Hardware Services Next Business Day On-Site Service</p> <p>9-Hour x 5-Day Coverage, 3 Years, Electronic U4433E</p> <p>Hardware Services - 4-Hour On-site Service</p> <p>13-Hour x 5-Day Coverage, 3 Years, Electronic U4434E</p> <p>24-Hour x 7-Day Coverage, 3 Years, Electronic U4435E</p> <p>Hardware Services 6-Hour Call to Repair On-Site Service</p> <p>6-Hour Call to Repair, On-Site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4436E</p> <p>Hardware Installation</p> <p>Hardware Installation, Electronic U4444E</p> <p>NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack.</p>
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Memory

HP ProLiant ML110 G6 Models

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Standard Memory

SATA Models:

2GB or 4 GB of PC3-10600E DDR3 UDIMM running up to 1333MHz with memory kits installed.

Standard Memory with Optional Memory

Up to 8GB of memory is available with the installation of standard and optional memory, 4x 2 GB PC3-10600E un-buffered ECC DDR3 SDRAM DIMM Memory kits.

NOTE: The below chart does not represent all possible memory configurations.

NOTE: For best performance, it is recommended that customer installs memory in identical pairs (Slots 1C and 3D are interleaving pair. Slots 2A and 4B are interleaving pair).

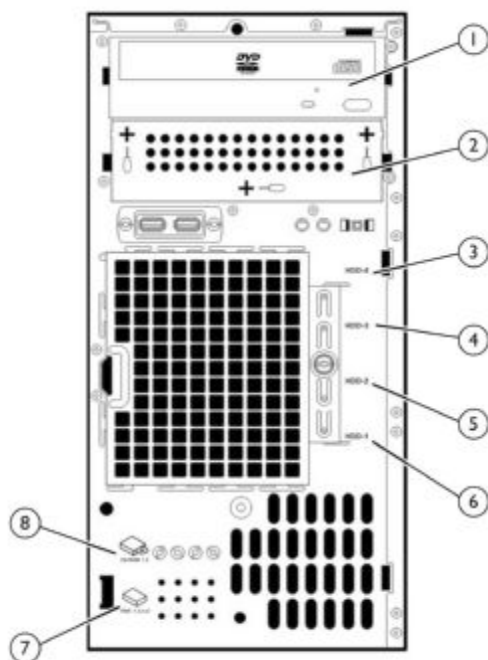
Memory		Slot			
		DIMM1C	DIMM2A	DIMM3D	DIMM4B
Standard (Entry Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Base Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Performance Model)	4 GB	Empty	2 GB	Empty	2 GB
Maximum	16 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

HP Memory	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

Storage



1. 1st removable media drive
2. 2nd removable media drive
3. 4th SAS/SATA hard drive
4. 3rd SAS/SATA hard drive
5. 2nd SAS/SATA hard drive
6. 1st SAS/SATA hard drive
7. HDD spare screws
8. Removable media drive spare screws

Drive Support

Removable Media

	Quantity Supported	Position Supported	Controller
DVD Drive	2	1 or 2	Integrated SATA
DVD-RW Drive	2	1 or 2	Integrated SATA

Hard Drives (SATA Models only)

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and firmware) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 3G 7.2K	Up to 4	3,4,5,6	Smart Array B110i SATA RAID Controller (RAID 0/1/10) NOTE: Hardware RAID support requires purchase of HP Smart Array P212 Controller.
1TB 3G 7.2K			
500GB 3G 7.2K			

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G 7.2K	Up to 4	3,4,5,6	Smart Array B110i SATA RAID Controller (RAID 0/1/10) NOTE: Hardware RAID requires purchase of HP Smart Array P212 Controller.
160GB 3G 7.2K			

Hard Drives (SAS Models only)

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

NOTE: SAS non-hot plug drives require HP SAS/Smart Array Controller.

	Quantity Supported	Position Supported	Controller
600GB 6G 15K DP	Up to 4	3,4,5,6	Smart Array P212 Controller NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the Controller. Refer to the Controller technical specifications for details.
450GB 6G 15K DP			
300GB 6G 15K DP			
450GB 3G 15K DP			
300GB 3G 15K DP			
146GB 3G 15K DP			

Maximum Storage Capacity - SATA/SAS Models

Internal	SATA	8.0TB (4 x 2TB)
	SAS	2.4TB (4 x 600GB)

Storage

Tape and Disk-Based Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media, including the internal fitting models, see: <http://www.hp.com/go/tape>. For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk and tape backup products see: <http://www.hp.com/go/connect>.

	Position	Recommended Controller	Part Number
HP StorageWorks SCSI Tape Drives LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160	Internal or External	HP SC11Xe Host Bus Adapter Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks SCSI Rack Mount Kits 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks USB Tape Drives DAT 40 DAT 72 DAT 160 DAT 320	Internal or External	USB 2.0 Port	N/A
HP StorageWorks USB Rack Mount Kits 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 LTO-5 Ultrium 3000 LTO-5 Ultrium 3280	Internal or External	HP Smart Array P212 SAS controller Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP StorageWorks SAS Rack Mount Kits 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP Smart Array P212 SAS controller Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP StorageWorks SCSI Tape Autoloaders DAT 72x10 Autoloader 1/8 G2 Autoloader	External	HP SC11Xe Host Bus Adapter Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21
HP StorageWorks SCSI Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Controller Please check the full compatibility information at: http://www.hp.com/go/connect	AH627A
HP StorageWorks SAS Tape Autoloaders and Libraries 1/8 G2 Autoloader MSL2024 MSL4048	External	HP Smart Array P212 SAS controller Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21



Storage

MSL8096

HP StorageWorks Fibre Channel Tape Libraries External Please consult the EBS connectivity matrix at: <http://www.hp.com/go/ebs> for connectivity information and the supported Fibre Channel HBAs shown in this QuickSpecs.

MSL2024
MSL4048
MSL8096
MSL6000

HP StorageWorks USB RDX Removable Disk Backup System Internal or External USB 2.0 port N/A

RDX160
RDX320
RDX500
RDX750

HP StorageWorks D2D Backup Systems, iSCSI External Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

D2D2500i
D2D4000i

HP StorageWorks D2D Backup Systems, Fibre Channel External Direct server attach is not supported, requires connection via SAN fabric. See: <http://www.hp.com/go/connect>

D2D4000fc

Power Specifications

Part Number 445067-001
Operational Input Voltage Range (Vrms) 100 to 127 and 200 to 240 V auto ranging
Frequency Range (Nominal) (Hz) 50 to 60 Hz

Nominal Input Voltage (Vrms)	100	120	200	230	240
Max Rated Output Wattage Rating	300	300	300	300	300
Nominal Input Current (A rms)	5	5	2.5	2.5	2.5
Max Rated Input Wattage Rating (Watts)	400	N/A	N/A	400	N/A
Max. Rated VA (Volt-Amp)	400	N/A	N/A	400	N/A
Efficiency (%)	80%	80%	80%	80%	80%
Power Factor	0.9	N/A	N/A	0.9	N/A
Leakage Current (mA)	3.5mA	N/A	N/A	N/A	N/A
Maximum Inrush Current (A peak)	N/A	No component was damaged and input fuse shall not blow	N/A	No component was damaged and input fuse shall not blow	N/A
Maximum Inrush Current duration (mS)	N/A	N/A	N/A	N/A	N/A

System Specifications

	Power **
HP ProLiant ML110 G6 Fully Configured	(see **)
Fully Loaded System output Wattage (W)	300W
Fully Loaded System Input Current (A rms)	5A @ 100V, 2.5A @ 200V
Fully Loaded System Thermal (BTU-Hr)	1277BTU
Fully Loaded System VA (Volt-Amp)	400 VA
System Leakage with all power supplies loaded (mA)	3.5mA@110V 3.5mA@220V
System Inrush Current with all power supplies loaded (A)	<150A@240Vac
Power cord requirements	Nema 5-15P to IEC320-C13
	IEC320-C13 to IEC320-C14
	**Power shown is for a fully configured system consisting of (1) CPU, (4) double-sided DIMMs, (4) HDDs, (1) DVD-ROM, (4) PCI cards, and (1) power supply.
Power Cords (13 Cord Sets)	Power Cord Part Number
Country	
Taiwan	393312-001
Japan	139867-005
India	397138-002
Brazil	285052-001
Australia	100661-001
Euro	100614-009
PRC	286496-001
UK	100613-008
US	121565-001
ITL	109197-008

NOTE: To review typical system power ratings use the Active Answers HP Power Advisor which is available via the online tool located at URL: <http://www.hp.com/go/hppoweradvisor>

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: ML110 G6
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

Technical Specifications

System Unit	Dimensions (HxWxD) (with feet)	14.38 x 6.9 x 16.8 in (36.52 x 17.5 x 42.6 cm)							
	Weight (approximate)	<table border="0"> <tr> <td>Maximum</td> <td>30.53 lb (13.85 kg)</td> </tr> <tr> <td colspan="2">(all hard drives, power supplies, and processors installed)</td> </tr> <tr> <td>Minimum</td> <td>25.13 lb (11.4 kg)</td> </tr> <tr> <td colspan="2">(one hard drive, power supply, and processor installed)</td> </tr> </table>	Maximum	30.53 lb (13.85 kg)	(all hard drives, power supplies, and processors installed)		Minimum	25.13 lb (11.4 kg)	(one hard drive, power supply, and processor installed)
Maximum	30.53 lb (13.85 kg)								
(all hard drives, power supplies, and processors installed)									
Minimum	25.13 lb (11.4 kg)								
(one hard drive, power supply, and processor installed)									
Input Requirements (per power supply)	Rated Line Voltage	90 to 132 VAC, 180 to 264 VAC							
	Rated Input Current	5 A (at 100 VAC), 2.5 A (at 200 VAC)							
	Rated Input Frequency	47 to 63 Hz							
	Rated Input Power	400 W (at 100 VAC), 400 W (at 200 VAC)							
Power Specifications	To review typical power ratings use the Power Advisor which is available via the online tool located at URL: http://www.hp.com/go/hppoweradvisor								
Power Supply Output (per power supply)	Rated Steady-State Power	300 W (at 100 VAC), 300 W (at 200 VAC)							
	Maximum Peak Power	300 W (at 100 VAC), 300 W (at 200 VAC)							
System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System may shut down if operating with a fan fault or above 42°C (107.6°F).							
	Non-operating	-35° to 65°C (-31° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).							
Relative Humidity (non-condensing)	Operating	10% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.							
	Non-operating	10% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.							
Altitude	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 609 m/min (2000 ft/min).							
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 609 m/min (2000 ft/min).							
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).								
	Idle								
	L _{WAd}	4.32 Bels							
	L _{pAm}	24.9 dBA							
	Operating								
	L _{WAd}	4.41 Bels							
L _{pAm}	25 dBA								
NOTE: The listed sound levels above apply to standard SATA configurations. Additional options may result in increased sound levels.									
Emissions	FCC Rating	Class B							

Technical Specifications

Classification (EMC)	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
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NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

HP 160GB 3G SATA 458947-B21
7.2K rpm LFF (3.5-inch)
Non-hot Plug Entry 1yr
Warranty Hard Drive

Capacity	160,041MB						
Height Maximum drive dimension	1.028 in. (26.1 mm)						
Width	4.00 in (101.6 mm)						
Depth Maximum drive dimension	5.787 in (147.0 mm)						
Interface	Serial ATA						
Transfer Rate (Maximum)	3Gb/s						
Native Command Queuing	Supported						
Seek Time (typical reads, including settling)	<table> <tr> <td>Single Track</td> <td>2.0 ms</td> </tr> <tr> <td>Average</td> <td><11 ms</td> </tr> <tr> <td>Full-Stroke</td> <td>22.0 ms</td> </tr> </table>	Single Track	2.0 ms	Average	<11 ms	Full-Stroke	22.0 ms
Single Track	2.0 ms						
Average	<11 ms						
Full-Stroke	22.0 ms						
Rotational Speed	7,200 rpm						
Physical Configuration	<table> <tr> <td>Bytes/Sector</td> <td>512</td> </tr> <tr> <td>Logical Blocks</td> <td>312,581,808</td> </tr> </table>	Bytes/Sector	512	Logical Blocks	312,581,808		
Bytes/Sector	512						
Logical Blocks	312,581,808						
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)						

HP 250GB 3G SATA 571232-B21
7.2K rpm LFF (3.5-inch)
Non-hot Plug Entry 1yr
Warranty Hard Drive

Capacity	250,059MB						
Height Maximum drive dimension	1.028 in. (26.1 mm)						
Width	4.00 in (101.6 mm)						
Depth Maximum drive dimension	5.787 in (147.0 mm)						
Interface	Serial ATA						
Transfer Rate (Maximum)	3Gb/s						
Native Command Queuing	Supported						
Seek Time (typical reads, including settling)	<table> <tr> <td>Single Track</td> <td>1.0 ms</td> </tr> <tr> <td>Average</td> <td>11 ms</td> </tr> <tr> <td>Full-Stroke</td> <td>18.0 ms</td> </tr> </table>	Single Track	1.0 ms	Average	11 ms	Full-Stroke	18.0 ms
Single Track	1.0 ms						
Average	11 ms						
Full-Stroke	18.0 ms						
Rotational Speed	7,200 rpm						
Physical Configuration	<table> <tr> <td>Bytes/Sector</td> <td>512</td> </tr> <tr> <td>Logical Blocks</td> <td>488,397,168</td> </tr> </table>	Bytes/Sector	512	Logical Blocks	488,397,168		
Bytes/Sector	512						
Logical Blocks	488,397,168						
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)						

Technical Specifications

HP Half-Height 16X Max SATA DVD-ROM Optical Drive	Disk	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) Photo CD (Single and Multi-session) Mixed Mode (Audio and Data combined) CD-R, CD-RW, DVD-ROM, DVD+R, DVD+RW
		Capacity	4.7 GB (DVD-5) 8.54 GB (DVD-9)
	Block Size	DVD Media	2,048 bytes
	Interface	SATA	3Gb/s
	Access Times (typical)	Random	<140 ms
		Full-Stroke	<250 ms
	Data Transfer Rate	Sustained	8100 to 21600 KB/s (6X to 16X)
	Cache Buffer	128 KB	
	Start-up Time (typical)	< 7 seconds	
	Stop Time	< 4 seconds	
	Laser Parameters	Type	Semiconductor Laser GaAlAs
		Wave Length	780 ± 25 nm
	Operating Conditions	Temperature	41° to 122° F (5° to 50° C)
		Humidity	10% to 90%
	Dimensions	(HxWxD, maximum)	1.7 x 5.85 x 8.11 in (42.9 x 150 x 195 mm)
		Weight	2.64 lb (1.2 kg)

Embedded NC107i PCIe Gigabit Server Adapter (Embedded)	Network Interface	Integrated 10/100/1000BASE-T Transceiver Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
	Data Transfer Method	Compliant to x1 PCIe Specification	
	Controller	BCM5723	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
1000Base-TX (Half and Full-Duplex)		2000Mb/s	
Connector	RJ-45 connector		
Cable Support	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UTP		

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green . To recycle your product, please go to: http://www.hp.com/go/green 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/green . 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.

Technical Specifications

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.