



## HP ProLiant ML330 G6 Server

Data sheet

### Performance and manageability to scale your business

You understand how tough it is to keep your IT infrastructure in sync with rapidly changing demands and in the face of competition. A growing business means growing needs—you can't avoid continuous investments and constant expenses. We also understand that, for IT managers who run remote or duplicate data centers, the lack of an efficient remote management tool can cause sleepless nights.

The HP ProLiant ML330 G6 Server was designed with a unique system architecture using a new dual-processor tower platform and built on the latest Intel® Xeon® processors with Intel QuickPath Interconnect (QPI) technology.

This unique architecture enables you to scale your business as needed and allows you to enhance your IT dollars. Besides delivering excellent performance with the latest technology, it also incorporates one of the most powerful embedded management technologies in the industry, HP Integrated Lights-Out 2 (iLO 2), which allows you to manage servers from any location at any time. This makes it the ultimate affordable remote office server.

With the latest Intel series processors with QPI technology (six core, quad core, and dual core), choice of DDR3 registered or unbuffered DIMMs, Serial Attached SCSI (SAS), and PCI Express

Gen 2 technology, the ProLiant ML330 G6 Server provides a high-performance system ideal for the rapid expansion of your business.

### Key features and benefits

#### Improved performance

An affordable tower server with a brand new design, the ProLiant ML330 G6 Server delivers outstanding performance.

- **Unique architecture:** Up to two 2.66 GHz Intel Xeon X5600 series processors with Turbo Mode or only one 2.93 GHz Intel Xeon W3500 series processors with Turbo Mode allows the improvement of both power consumption and performance. While the first processor is on board, the second processor is on the mezzanine board as an option. You can cut costs when first ordering your server and choose to add the second processor at a later date.
- **Increased memory:** 18 DIMM slots support up to 192 GB of DDR3 memory and 12 DIMM slots support up to 72 GB for DDR3 unbuffered memory—making the ProLiant ML330 G6 Server ideal for memory-intensive applications. DDR3 achieves 20 percent lower power consumption than DDR2 while delivering up to a 10 percent performance gain.<sup>1</sup>
- **Intel QPI Architecture:** Intel QPI Architecture integrates a memory controller into each microprocessor and provides high-speed

<sup>1</sup> HP Performance Engineering Team, 2010 benchmark.



connections between the microprocessors and other components like external memory and the I/O hub. It also allows a processor to access the dedicated memory of any other processor through the QPI, which links all the processors.

- **Energy efficient:** The HP Sea of Sensors technology enhances server performance while reducing energy usage and expense. Achieve up to a 90 percent reduction in power usage at the server level with the HP Sea of Sensors<sup>2</sup>—the heart of HP Thermal Logic technologies. The Sea of Sensors automatically tracks thermal activity across the server through a collection of up to 32 smart sensors. These sensors dynamically adjust system components such as fans, memory, and I/O processing to improve system cooling. In other words, the HP Sea of Sensors makes intelligent decisions about how much cooling is needed for the server to perform efficiently. The ProLiant ML330 G6 Server satisfies the **Climate Savers Computing Initiative Gold criteria**.
- **PCI Express:** Four available (PCIe) Gen 2 expansion slots (standard) with optional PCI Extended (PCIx) slots provide the latest I/O performance technologies to meet different market requirements for various applications.
- **HP Smart Array:** Embedded HP Smart Array B110i SATA RAID Controller with SAS HW RAID meets unique storage needs. An optional advanced RAID controller provides up to RAID 6/60 and battery-supported write-back cache protection adding high availability to HDD efficiency.
- **Data security:** Customer and business information stored on corporate databases is a critical business asset, vulnerable to hackers and other catastrophic mishaps. The HP ProLiant ML330 G6 Server offers an optional feature called Trusted Platform Module (TPM) that encrypts the hard drive and prevents unauthorized access from another system. It also prevents offline viewing of the files that make up the OS itself.
- **Dual-port network adaptors:** Two embedded Gigabit Ethernet network ports provide increased network throughput and redundancy.

### Manageability

The HP ProLiant ML330 G6 Server is equipped with a set of powerful management tools like HP iLO 2 and the SmartStart deployment tool to enhance and control many aspects of your infrastructure. You may also

purchase the HP Insight Control Environment (ICE) suite with new Dynamic Power Capping technology to take charge of power and cooling efficiency throughout your data center.

- The new HP iLO 2 simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of HP ProLiant ML, DL, and BL servers. The HP ProLiant Onboard Administrator functions without additional software, and functionality can be accessed locally from the server or remotely through a Web browser.
- Tools like SmartStart, HP Insight Rapid Deployment software, PxE, and ROM-Based Setup Utility (RBSU) simplify server configuration and deployment.

## Ideal environments

With its unique system architecture, the ProLiant ML330 G6 Server is suited for SMBs and remote-site applications.

## Growing businesses (SMBs)

The ProLiant ML330 G6 Server offers excellent performance with an affordable price and ease of use, making it well suited for SMB applications. With its highly flexible, modular configurations, it provides upgradability. Its modular chassis and whisper-quiet fans make it ideal for small office environments.

## Remote and replicate sites

HP iLO 2 provides the ProLiant ML330 G6 Server with enhanced security features and dedicated remote management and control for communicating with headquarters. Integrated Gigabit Ethernet equips the server with increased network throughput and redundancy. Additional memory slots provide it with flexible configuration for low-cost memory expansion.

## Applications

The ProLiant ML330 G6 Server is suited for various applications like:

- Application/messaging server
- Microsoft® Windows® 2008 Small Business Server
- Microsoft Windows Embedded Server
- Mailing/printing server
- Red Hat/SUSE Linux Enterprise Server

<sup>2</sup> Energy efficiency based on HP testing.

# HP ProLiant ML330 G6 Server

## Technical specifications

<b>Processor type</b>	Intel Xeon 5600, 5500, and 3500 series processors
<b>Available processors</b>	<b>Six-core processors</b> Intel Xeon Processor X5650 (2.66 GHz, 12 MB L3 cache, 95 W) Intel Xeon Processor E5649 (2.53 GHz, 12 MB L3 cache, 80 W) Intel Xeon Processor E5645 (2.40 GHz, 12 MB L3 cache, 80 W) <b>Quad-core processors</b> Intel Xeon Processor E5640 (2.66 GHz, 12 MB L3 cache, 80 W) Intel Xeon Processor E5630 (2.53 GHz, 12 MB L3 cache, 80 W) Intel Xeon Processor E5620 (2.40 GHz, 12 MB L3 cache, 80 W) Intel Xeon Processor E5607 (2.26 GHz, 12 MB L3 cache, 80 W) Intel Xeon Processor E5606 (2.13 GHz, 12 MB L3 cache, 80 W) Intel Xeon Processor E5603 (1.60 GHz, 12 MB L3 cache, 80 W) Intel Xeon Processor E5540 (2.53 GHz, 8 MB L3 cache, 80 W) Intel Xeon Processor E5530 (2.40 GHz, 8 MB L3 cache, 80 W) Intel Xeon Processor E5520 (2.26 GHz, 8 MB L3 cache, 80 W) Intel Xeon Processor E5507 (2.26 GHz, 4 MB L3 cache, 80 W) Intel Xeon Processor E5506 (2.13 GHz, 4 MB L3 cache, 80 W) Intel Xeon Processor E5504 (2.00 GHz, 4 MB L3 cache, 80 W) <b>Dual-core processors</b> Intel Xeon Processor E5503 (2.00 GHz, 4 MB L3 cache, 80 W) Intel Xeon Processor E5502 (1.86 GHz, 4 MB L3 cache, 80 W) <b>Intel Xeon W3500 (UP) family:</b> <b>Quad-core processors</b> Intel Xeon Processor W3540 (2.93 GHz, 8 MB L3 cache, 130 W) Intel Xeon Processor W3520 (2.66 GHz, 8 MB L3 cache, 130 W) <b>Dual-core processors</b> Intel Xeon Processor W3505 (2.53 GHz, 4 MB L3 cache, 130 W) Intel Xeon Processor W3503 (2.40 GHz, 4 MB L3 cache, 130 W)
<b>Processor core</b>	6, 4, and 2
<b>Cache memory</b>	4 MB, 8 MB, or 12 MB
<b>Maximum processor speed</b>	2.93 GHz
<b>Multiprocessor</b>	Up to 2
<b>Memory type</b>	PC3-8500R/10600R DDR3 registered memory PC3-10600E DDR3 unbuffered memory
<b>Standard memory</b>	2 GB for entry model, 2–4 GB for base model, 6 GB for performance model
<b>Maximum memory</b>	192 GB DDR3 registered DIMM, 72 GB DDR3 unbuffered DIMM
<b>Memory slots</b>	18 <ul style="list-style-type: none"><li>• 9 slots on system board</li><li>• 9 slots on mezzanine board in processor option kit</li></ul>
<b>Maximum internal storage</b>	16 TB LFF 3.5 in.
<b>Advanced memory protection</b>	Advanced ECC, mirrored memory
<b>Storage type</b>	Hot-plug 3.5 in. SATA Hot-plug 3.5 in. SAS Non-hot plug 3.5 in. SATA Non-hot plug 3.5 in. SAS
<b>Removable media bays</b>	3 (1 for DVD-ROM)
<b>Expansion slot</b>	4 total: 3 PCIe Gen 2, 1 PCIe Gen 1, optional 2 PCIx
<b>Storage controller</b>	HP Smart Array B110i SATA RAID Controller (integrated) HP Smart Array P212/Zero Memory Controller HP Smart Array P410/256 MB Controller HP Smart Array P411/256 MB Controller
<b>Form factor</b>	5U tower
<b>Networking</b>	HP NC326i Integrated Dual Port PCI Express Gigabit Server Adapter, HP NC112T PCI Express Gigabit Server Adapter, HP NC360T PCI Express Dual Port Gigabit Server Adapter
<b>Remote management</b>	HP Integrated Lights-Out 2 (iLO 2), HP Insight Control Environment (ICE) suite, HP Systems Insight Manager, HP ProLiant Essentials Foundation Pack
<b>Operating systems supported*</b>	Microsoft Windows Server, Microsoft Windows Hyper-V Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), Oracle Enterprise Linux (OEL), VMware, Citrix Essentials for XenServer
<b>Redundant power supply</b>	Optional
<b>Redundant fans</b>	Optional
<b>Warranty</b>	3-year parts/1-year labor/1-year onsite

\* For a complete list of supported operating systems, visit: [www.hp.com/go/ossupport](http://www.hp.com/go/ossupport)

## Enhance performance with additional HP solutions

You can gain even greater performance from your ProLiant ML330 G6 Server by combining it with these HP solutions:

- **HP Insight Control software:** HP Insight Control software lets you build infrastructure management capabilities as you need them:
  - The HP Insight Control Environment suite allows you to deploy servers rapidly, monitor system health and performance, enhance power consumption, and remotely control your entire server environment from any location.
  - At the advanced level, HP Insight Dynamics (VSE suite for ProLiant) delivers comprehensive functions for enhancing and balancing resources and workloads in real time.

## HP Financial Services

HP Financial Services can help reduce your costs as you make a transition from legacy equipment, acquire new hardware and software, manage your data center efficiently, and dispose of equipment safely at the end of its lifecycle. For more information, visit:

[www.hp.com/go/hpfinancialservices](http://www.hp.com/go/hpfinancialservices)

## HP Factory Express

HP Factory Express is designed to help you get a better return from your IT investment by providing customization, integration, and deployment services along with your storage and server purchases. It provides predictable, trusted, and tested IT solutions tailored to your business needs. We allow you to customize hardware to your exact specifications in the factory, helping to speed up deployment and free up internal resources. For more information, visit:

[www.hp.com/go/factoryexpress](http://www.hp.com/go/factoryexpress)

To scale your business as needed and improve the efficiency of how you spend your IT dollars, visit: [www.hp.com/servers/proliantml330-g6](http://www.hp.com/servers/proliantml330-g6)

## HP Services

**HP Technology Services**—Our team of consultants and support experts can help solve your most complex infrastructure problems. We help keep your business running. Boost availability and avoid downtime; trust our expertise to enhance your HP solution.

### Recommended services

Hardware support—3-year, 13x5, same-business-day, 4-hour onsite response coverage

HP Hardware Support Onsite 4-Hour Service provides you with an HP authorized representative who will arrive at the customer's site any time and day of the year to begin hardware maintenance service within four hours of the service request being logged.

### Deployment services

HP Services offers complete implementation support to get your HP server solution up and running rapidly. Options encompass server and storage, and Microsoft, Linux, Solaris, and VMware OS software plus Insight Control management solutions.

### Related services

Hardware support—3-year, 24x7, same-business-day, 4-hour onsite response coverage

Fast, reliable 4-hour response onsite support—Get product expertise for fast and accurate problem resolution with integrated high-quality remote monitoring and problem diagnosis, helping to maintain predictable service levels and reduce unplanned downtime.

Hardware support—3-year, 6- or 24-hour call to repair

This support provides you with a team of support specialists who will quickly begin troubleshooting your system to validate that the hardware is operational within a maximum of 6 hours or 24 hours from your initial service request.

### Proactive Select

Proactive Select is a flexible way to purchase HP first-rate consultancy and services. You can buy Proactive Select service credits when you purchase your hardware, then use the credits over the next 12 months or 3 to 5 years.

Trust the Services professionals at HP. For more information, contact your HP sales representative or HP authorized channel partner or visit: [www.hp.com/hps](http://www.hp.com/hps)



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# HP ProLiant ML350 G6 Server

Data sheet

## Get a competitive edge with the adaptable and reliable HP ProLiant ML350 G6 Server

As enhanced productivity translates into customer satisfaction, it is something that you cannot afford to take for granted. Similarly, you would not want downtime to affect business continuity. So an adaptable, reliable, and expandable infrastructure is a must for your business. The HP ProLiant ML350 G6 Server is designed to help you achieve these business imperatives. It comes with the latest Intel® QuickPath Interconnect (QPI) architecture six-core, quad-core, and dual-core processors; serial performance I/O; DDR3 memory; and tools that simplify management. All these features are available at an affordable price, giving your infrastructure the competitive edge in more ways than one. Additionally, the dual-processor tower server delivers excellence with performance, expandability, and availability. HP Integrated Lights-Out 2 (iLO 2), SmartStart, and HP Systems Insight Manager (SIM) give you ease of management, while the processor and memory upgrades support additional users, thus boosting response times. The HP ProLiant ML350 G6 Server addresses your business needs, whether you are a small/medium business, a large enterprise, or have remote offices.



## Key features and benefits

### A more secure foundation

Designed with best-in-class availability features, you can count on the ProLiant ML350 G6 Server to stay up and running 24x7:

- There is no need to panic if there is a system power, thermal memory, or disk error. The redundant fans, memory, power, and available disk RAID options enable your system to stay up and running.
- The ability to upgrade to the second processor provides the capability to upgrade the system memory to a 192 GB, and to 16 SFF or 8 LFF hot plug HDD that gives your system architecture the room to grow.
- Serial Attached SCSI (SAS) and Serial Advanced Technology Attachment (SATA) RAID 0/1/10/5/50/6/60, which come with the ProLiant ML350 G6 Server, make storage more reliable, versatile, and affordable.
- Your data is more secure with the Trusted Platform Module (TPM) functionalities that include performing cryptographic functions and creating and managing keys while performing digital signature operations.
- You get to plan capacity and power, provision infrastructure consistently, and balance physical/virtual resources while being able to deploy servers quickly and manage them from a remote location as well. All this is made possible by iLO 2.

### Enterprise-class performance

Combining the latest Intel QPI architecture, six-core, quad-core, and dual-core processors, PCI Express Gen 2, and DDR3 memory technology, the ProLiant ML350 G6 Server provides enterprise-class performance that enables your IT administrators to:

- Get high-performance and enhanced throughput with advanced ECC and mirroring and with the DDR3, while SAS simplifies cabling up to 16 TB of data storage capacity
- Speed up execution with the Intel ultimate processor, which has the latest QPI technology and multi-threaded applications
- Take high availability to HDD efficiency with the protection awarded by advanced RAID 0/1/10/5/6/60 with 512 MB BBWC or 1 GB FBWC
- Get increased network throughput and redundancy with integrated dual Gigabit Ethernet



Watch the demo of the HP ProLiant ML350 G6 Server by the HP product marketing manager.



#### Compatible with virtualized environments

Will this server work in tandem with your virtualized IT infrastructure, you may wonder. Put your fears to rest, as the ProLiant ML350 G6 Server is a virtualization-ready server system. Compatible with VMware, Microsoft®, Red Hat, and Linux, your IT administrators get a “single pane of glass” for physical and virtual machine management through which they can provision, configure, start, stop, delete, relocate, and remotely access virtual machines with keyboard and mouse control. Advantages include:

- Server consolidation
- Resource management and high availability
- Cost reduction
- Business continuity through improved disaster recovery solutions

#### Ease of management with SIM and iLO 2 management processor

Tools like SIM, iLO 2, and the ProLiant Essentials software ICE help reduce downtime and improve productivity. In fact, iLO 2 is a key enabling element for Insight Control and Insight Dynamics. Insight Dynamics enables advanced management that includes planning capacity and power, consistently provisioning infrastructure, and balancing physical/virtual resources. Correspondingly, Insight Control facilitates essential management that helps IT administrators to deploy servers quickly, proactively manage performance control from anywhere, and enhance power confidently. This is referred to as unified management across the server infrastructure, which provide for better business outcomes. Forming the core of ProLiant manageability, iLO 2 helps you:

- Get hassle-free setup, health monitoring, and remote administration. You can also access the iLO 2 remotely through a Web browser.

- Enjoy the power and thermal control features that help you get a peek into the power usage pattern of your IT architecture, thus helping you regulate power supply in your IT architecture. The Dynamic Power Capping feature enables enhanced utilization of power and cooling capacity, which controls the total power consumption for a fixed power input in a rackmount server.
- Benefit from the SmartStart (included in the HP ProLiant Essentials Foundation Pack shipped with the ProLiant ML350 G6 Server) and get the server up and running in three easy steps. It provides a stable and reliable configuration for all ProLiant ML and DL 300, 500, and 700 series and BladeSystem servers.
- Take advantage of SIM and get your staff to concentrate on priority projects. You can also receive alerts on system status.

#### Adaptable and reliable

Intense competition and an ever-changing business landscape underscore the need for you to have an infrastructure that is reliable and adaptable. The ProLiant ML350 G6 Server helps you achieve that by:

- Choosing processor and memory upgrades that support additional users and boost response times
- Allowing you to opt for the HP ProLiant ML350 G5 Server rack when physical location needs change
- Incorporating tape backup solutions to protect business data
- Attaching a wide array of external storage and backup devices as data storage needs increase
- Offering redundancy for power supply and fans for reliability
- Enforcing HP strict worst-case scenario environment testing processes for quality

[Click here to view the demo and get an overview of the HP ProLiant ML350 G6 Server](#)



<b>Processor type</b>	Intel Xeon® 5600 and 5500 series processors
<b>Available processors</b>	<p><b>Six-core processors</b></p> <p>Intel Xeon processor X5675 (3.06 GHz, 12 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)</p> <p>Intel Xeon processor X5670 (2.93 GHz, 12 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)</p> <p>Intel Xeon processor X5660 (2.80 GHz, 12 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)</p> <p>Intel Xeon processor X5650 (2.66 GHz, 12 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)</p> <p>Intel Xeon processor E5649 (2.53 GHz, 12 MB L3 Cache, 80 W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)</p> <p>Intel Xeon processor E5645 (2.40 GHz, 12 MB L3 Cache, 80 W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)</p> <p><b>Quad-core processors</b></p> <p>Intel Xeon processor X5672 (3.20 GHz, 12 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)</p> <p>Intel Xeon processor E5640 (2.66 GHz, 12 MB L3 Cache, 80 W, DDR3-1066, HT, Turbo NA/NA/1/1/2/2)</p> <p>Intel Xeon processor E5630 (2.53 GHz, 12 MB L3 Cache, 80 W, DDR3-1066, HT, Turbo NA/NA/1/1/2/2)</p> <p>Intel Xeon processor E5620 (2.40 GHz, 12 MB L3 Cache, 80 W, DDR3-1066, HT, Turbo NA/NA/1/1/2/2)</p> <p>Intel Xeon processor E5607 (2.26 GHz, 12 MB L3 Cache, 80 W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)</p> <p>Intel Xeon processor E5606 (2.13 GHz, 12 MB L3 Cache, 80 W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)</p> <p>Intel Xeon processor E5603 (1.60 GHz, 12 MB L3 Cache, 80 W, DDR3-1333, HT, Turbo 1/1/2/2/3/3)</p> <p>Intel Xeon processor X5570 (2.93 GHz, 8 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 2/2/3/3)</p> <p>Intel Xeon processor X5560 (2.80 GHz, 8 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 2/2/3/3)</p> <p>Intel Xeon processor X5550 (2.66 GHz, 8 MB L3 Cache, 95 W, DDR3-1333, HT, Turbo 2/2/3/3)</p> <p>Intel Xeon processor E5540 (2.53 GHz, 8 MB L3 Cache, 80 W, DDR3-1066, HT, Turbo 1/1/2/2)</p> <p>Intel Xeon processor E5530 (2.40 GHz, 8 MB L3 Cache, 80 W, DDR3-1066, HT, Turbo 1/1/2/2)</p> <p>Intel Xeon processor E5520 (2.26 GHz, 8 MB L3 Cache, 80 W, DDR3-1066, HT, Turbo 1/1/2/2)</p> <p>Intel Xeon processor E5507 (2.26 GHz, 4 MB L3 Cache, 80 W, DDR3-800)</p> <p>Intel Xeon processor E5506 (2.13 GHz, 4 MB L3 Cache, 80 W, DDR3-800)</p> <p>Intel Xeon processor E5504 (2.00 GHz, 4 MB L3 Cache, 80 W, DDR3-800)</p> <p>Intel Xeon processor L5630 (2.13 GHz, 12 MB L3 Cache, 40 W, DDR3-1066, HT, Turbo NA/NA/1/1/2/2)</p> <p>Intel Xeon processor L5520 (2.26 GHz, 8 MB L3 Cache, 60 W, DDR3-1066, HT, Turbo 1/1/2/2)</p> <p>Intel Xeon processor L5506 (2.13 GHz, 4 MB L3 Cache, 60 W, DDR3-800)</p> <p><b>Dual-core processors</b></p> <p>Intel Xeon processor E5503 (2.00 GHz, 4 MB L3 Cache, 80 W, DDR3-800)</p> <p>Intel Xeon processor E5502 (1.86 GHz, 4 MB L3 Cache, 80 W, DDR3-800)</p>
<b>Processor core</b>	Dual, quad, and six
<b>Cache memory</b>	4 MB, 8 MB, and 12 MB
<b>Maximum processor speed</b>	3.20 GHz
<b>Multiprocessor</b>	1 or 2
<b>Memory type</b>	PC3-6400/8500/10600 (DDR3 800/1066) Registered or Unbuffered memory
<b>Standard memory</b>	4 GB for entry model, 6 GB for base model, and 12 GB for performance model
<b>Maximum memory</b>	192 GB DDR3 Registered Memory 48 GB DDR3 Unbuffered Memory
<b>Memory slots</b>	18
<b>Maximum internal storage</b>	16 TB
<b>Advanced memory protection</b>	Advanced ECC, Mirroring
<b>Storage type</b>	Hot-plug 3.5-inch SAS Hot-plug 3.5-inch SATA Hot-plug 2.5-inch SAS Hot-plug 2.5-inch SATA
<b>Removable media bays</b>	5 (1 for DVD-ROM)
<b>Expansion slots</b>	1 x PCI Express Gen 2 x16 (x8 speed) 1 x PCI Express Gen 2 x8 (x8 speed) 4 x PCI Express Gen 2 x8 (x4 speed) Optional: 2 x PCI-X 100 MHz (replaces 1 x PCI Express slot)
<b>Storage controller</b>	HP Smart Array P410i SAS/SATA controller (integrated)
<b>Form factor</b>	5U Tower
<b>Networking</b>	HP Embedded NC326i PCI Express Dual Port Gigabit Server Adapter HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter HP NC522SFP Dual Port 10GbE Server Adapter
<b>Remote management</b>	HP Integrated Lights-Out 2 (iLO 2) HP Insight Control Environment suite HP Systems Insight Manager HP Foundation Pack
<b>Operating systems supported*</b>	Microsoft Windows® Server 2003 R2 Microsoft Windows Server 2008 Microsoft Windows Small Business Server 2008 and Microsoft Windows Essential Business Server 2008 Microsoft Windows Hyper-V Server 2008 Novell NetWare Red Hat Enterprise Linux SUSE Linux Enterprise Server VMware ESX Citrix XenServer Red Hat and SLEX Xen
<b>Redundant power supply</b>	Optional
<b>Redundant fans</b>	Optional
<b>Warranty (parts/labor/onsite)</b>	3-year/3-year/3-year

\* For a complete list of supported operating systems, visit: [www.hp.com/go/ossupport](http://www.hp.com/go/ossupport)

## Energy efficient—Sea of Sensors

The HP Sea of Sensors technology enhances server performance while reducing energy usage and expense. Achieve up to a 90 percent<sup>1</sup> reduction in power usage at the server level with the HP Sea of Sensors—the heart of HP Thermal Logic technologies. The Sea of Sensors automatically tracks thermal activity across the server through a collection of up to 32 smart sensors. These sensors dynamically adjust system components such as fans, memory, and input/output processing to enhance system cooling. In other words, the HP Sea of Sensors makes intelligent decisions about how much cooling is needed for the server to perform efficiently.

## Ideal environments and applications

### Growing businesses

Easy on your pocket, the ProLiant ML350 G6 Server's modular chassis provides both the flexibility to deploy in a tower or rack environment and the ability to expand—you can add a second processor, additional hard drive space, more memory, and more storage.

### Remote and branch office deployment

Security is the key issue in remote and branch office deployments. The HP Onboard Administrator provides more secure and dedicated remote management, and control for communicating with the head office. In addition, the TPM functionalities make your data more secure.

### Midmarket and entry enterprise

The 2.66 GHz, six-core with 12 MB cache, and 6.4 GT/s QPI technology with Turbo Mode, coupled with advanced RAID protection, makes the ProLiant server an ideal choice for highly available environments. In addition, the redundant power and fan maintain the system's performance, thereby reducing downtime. Also, where SIM enhances system health and uptime, the HP Insight Control suite delivers comprehensive system health monitoring, remote control, vulnerability scanning, and patch management, as well as flexible deployment, virtual machine management, and power management in one easy-to-install package.

<sup>1</sup> Energy efficiency based on HP testing.

## HP Services

### When technology works, business works.

The challenge of virtually every IT organization is similar: to develop and maintain an agile, efficient server infrastructure that delivers the service levels your business needs. HP Technology Services offers a comprehensive portfolio of HP Care Pack services to help design, deploy, manage, and support your IT environment, enabling cost-effective upgrades to standard warranty with easy-to-buy, easy-to-use support packages.

#### Minimum recommended HP Care Pack offerings:

- 3-year, 4-hour response onsite 24-hour x 7-day hardware support
- Server Installation and Startup service

#### Enhanced service-level HP Care Pack offerings:

- 3-year Support Plus 24: 24-hour x 7-day coverage, integrated hardware and software OS support
- 3-year, Proactive Select delivers a flexibly priced consultancy portfolio

#### Benefit from HP Care Pack services, helping you:

- Reduce deployment time and manage ProLiant server solutions smoothly and efficiently
- Increase server uptime, performance, and availability to your business
- Detect, diagnose, and repair problems quickly, saving time, money, and resources

For more information, visit: [www.hp.com/services/proliantservices](http://www.hp.com/services/proliantservices) or [www.hp.com/go/proliant/carepack](http://www.hp.com/go/proliant/carepack)

## HP Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information on these services, visit: [www.hp.com/go/hpfinancialservices](http://www.hp.com/go/hpfinancialservices)

To understand how the HP ProLiant ML350 G6 Server delivers excellence with performance, expandability, and availability, visit:

[www.hp.com/servers/proliantml350-g6](http://www.hp.com/servers/proliantml350-g6)

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**HP ProLiant DL370 G6 Server**



**HP ProLiant ML370 G6 Server**

## HP ProLiant DL370 G6 and HP ProLiant ML370 G6 Servers

Data sheet

Enhance data center efficiency and get better return for your budget with the HP ProLiant DL370 G6 (4U optimized rack) and the HP ProLiant ML370 G6 (4U expandable tower) Servers.

Data centers have grown in size and complexity, and are characterized more by diversity than standardization. This means that your IT administrators have more on their hands than ever before. As they struggle to enhance data center efficiency, they also need to rein in rising power costs.

The HP ProLiant DL370 G6 and the HP ProLiant ML370 G6 Servers help strike that balance. HP Insight Control suite with the new Dynamic Power Capping technology can triple<sup>1</sup> the capacity of the data center and tailor the power supply to the desired configuration. Talking about efficiency, both the DL370 G6 and the ML370 G6 offer the broadest range of Intel's latest processors—Intel® Xeon® 5600 and 5500 series processors. Additionally, the HP ProLiant Onboard Administrator powered by the Integrated Lights-Out 2, offers features like simplified server setup, health monitoring, power optimization, thermal control, and remote management.

### Key features and benefits

The DL370 (4U rack-optimized chassis) and the ML370 (expandable tower chassis) servers deliver industry-leading management tools, performance, expandability, flexibility, and the latest energy-efficient technologies. These servers have been optimized for

virtualization and consolidation environments, and are well-suited for deployment in growing businesses, remote office sites, or data centers and have also been designed to bring you the utmost confidence to run your business.

### Enhanced performance

The DL370 G6 and the ML370 G6 promise to deliver enterprise-class performance. Both of these servers come equipped with Intel Xeon 5600 and 5500 series processors. The DDR3 memory technology offers twice<sup>2</sup> the bandwidth, double the capacity, and 25% less power, and since both of these servers support 18 DIMM slots, customers can achieve up to 192 GB of DDR3 registered memory. Both the DL370 G6 and the ML370 G6 include the new generation of HP Smart Array Modular Controllers delivering 200% greater performance<sup>3</sup> and enhanced backward compatibility.

<sup>1</sup> HP Performance Engineering Team, 2008 Benchmark. For more details, visit: [www.hp.com/go/reclaimcapacity](http://www.hp.com/go/reclaimcapacity)

<sup>2</sup> When moving from DDR2 to DDR3, memory bandwidth doubled from 667 to 1333 MHz. JEDEC is the governing body of memory standards. For more information, visit: <http://www.jedec.org/standards-documents/docs/jesd-79-3d>

<sup>3</sup> The bandwidth of the controller has doubled from 3 Gb/s SAS to 6 Gb/s SAS, equaling 2x the bandwidth or 200% faster. Workloads, applications, and environments may affect actual performance. For more information, visit: [www.scsita.org/aboutscsi/sas/definition.html](http://www.scsita.org/aboutscsi/sas/definition.html)



Configure an optimized server—with the confidence of knowing it's right. Use ProLiant Solution Blocks and HP configuration tools co-designed and validated with leading software vendors and their energy-efficient leadership.

#### **Improved power management**

Struggling to get your soaring power bills under control? Not only do the right-sized ProLiant power supplies help reclaim lost data center power, but the Intelligent Power and Cooling Savers can tell when power is being wasted. Correspondingly, you get to improve your IT architecture's capacity up to 3x with Dynamic Power Capping, which is available as part of the Insight Control suite. In addition, the Intel 45 nanometer technology and dynamic resource scaling further enable more efficient power management.

Supporting the high-efficiency power supplies, both the DL370 G6 and the ML370 G6 servers put a check on your undesirable power consumption. Improved power efficiency enabled by HP ProLiant Common Slot Power Supplies (460 W and 750 W)<sup>4</sup> and HP ProLiant Common Slot Power Supplies (1200 W)<sup>5</sup> has earned the servers various energy saving certifications.

#### **Deploy easily, manage seamlessly**

The ProLiant portfolio of deployment tools, such as SmartStart, Preboot Execution Environment (PXE), Array Configuration Utility (ACU), and ROM-Based Setup Utility (RBSU), enables a hassle-free setup. The HP ProLiant Onboard Administrator and HP Systems Insight Manager give you the flexibility to manage and monitor all your DL370 G6 and ML370 G6 servers seamlessly, and make them an ideal fit for remote deployments.

#### **Enterprise-class redundancy features**

Business continuity is a must for businesses, both big and small. Intolerant to downtime as your business is, you can count on the DL370 G6 and the ML370 G6 servers to deliver 24x7 accessibility and proven data integrity. There are three hot-plug fans, which are a standard offering with every system. For full redundancy features, you can purchase the DL370 G6 and ML370 G6 redundant fan kit. Combined with this is the availability of two processors and support for redundant power supplies delivering high-availability and high-performance system processing.

#### **Increased flexibility**

Both of these servers support PCI Express Gen2 slots (nine available), which, coupled with the 8-bay drive cage, provide room for expansion. Another outstanding feature is the flexibility of the tower models to convert to rack configurations, providing your infrastructure with additional deployment flexibility.

#### **Enhance system performance and ease of serviceability**

With their inherent features that enhance business outcomes and facilitate ease of serviceability, the ProLiant DL370 G6 and the ML370 G6 Servers have achieved numerous #1 benchmarks—VMmark, TPC-C, SPECweb2005, and SPECweb2009. Feature enhancements like nine available PCI Express Gen2 slots, 18 DIMM memory slots supporting Advanced ECC, mirroring mode, and lock-step mode give these two servers a visible competitive advantage. For tool-free internal serviceability, snap-on quick deploy slide rails are included with rack models and tower-to-rack conversion kits. They enable rapid installation and save valuable time.

#### **Watch the HP product marketing manager demo the HP ProLiant ML/DL370 G6 Server**



#### **Ideal environments**

##### **A variety of environments from corporate workgroups to critical remote sites**

With their large internal storage capacity—accommodating everything from web applications to databases—24x7 accessibility, and ease of serviceability, the DL370 G6 and the ML370 G6 servers are ideal choices for virtualization and consolidation environments spanning across corporate workgroups to critical remote sites.

#### **Click here to view the demo and get an overview of the HP ProLiant ML/DL370 G6 Server**



<sup>4</sup> Meet Climate Savers Computing Initiative GOLD, ECOS Consulting 80 PLUS GOLD, and the standard specifications for Energy Star for Servers Power Supply requirements

<sup>5</sup> Meet Climate Savers Computing Initiative BRONZE, ECOS Consulting 80 PLUS BRONZE Power Supply requirements

## Technical specifications

HP ProLiant DL370 G6 and HP ProLiant ML370 G6 Servers

Processor and memory						
Processor type	Intel Xeon 5600 and 5500 series processors					
Available processors	Intel naming	Speed (GHz)	L3 cache (MB)	Wattage (W)	Turbo	DDR3 memory (MHz)
Six-core processors						
	X5690	3.46	12	130 W	1/1/1/1/2/2	1333
	X5680	3.33	12	130 W	1/1/1/1/2/2	1333
	X5675	3.06	12	95 W	2/2/2/2/3/3	1333
	X5670	2.93	12	95 W	2/2/2/2/3/3	1333
	X5660	2.80	12	95 W	2/2/2/2/3/3	1333
	X5650	2.66	12	95 W	2/2/2/2/3/3	1333
	E5649	2.53	12	80 W	1/1/1/1/2/2	1333
	E5645	2.40	12	80 W	1/1/1/1/2/2	1333
Quad-core processors						
	X5687	3.60	12	130 W	1/1/2/2	1333
	X5677	3.46	12	130 W	1/1/2/2	1333
	X5672	3.20	12	95 W	2/2/3/3	1333
	X5667	3.06	12	95 W	2/2/3/3	1333
	E5640	2.66	12	80 W	1/1/2/2	1066
	E5630	2.53	12	80 W	1/1/2/2	1066
	E5620	2.40	12	80 W	1/1/2/2	1066
	W5580	3.20	8	130 W	1/1/1/2	1333
	X5570	2.93	8	95 W	2/2/3/3	1333
	X5560	2.80	8	95 W	2/2/3/3	1333
	X5550	2.66	8	95 W	2/2/3/3	1333
	E5540	2.53	8	80 W	1/1/2/2	1066
	E5530	2.40	8	80 W	1/1/2/2	1066
	E5520	2.26	8	80 W	1/1/2/2	1066
	E5607	2.26	8	80 W	N/A	1066
	E5606	2.13	8	80 W	N/A	1066
	E5506	2.13	4	80 W	N/A	800
	E5504	2.00	4	80 W	N/A	800
	E5603	1.60	4	80 W	N/A	1066
Quad-core processors (low voltage)						
	L5630	2.13	12	40 W	1/1/2/2	1066
	L5520	2.26	8	60 W	1/1/2/2	1066
Dual-core processors						
	E5502	1.86	4	80 W	N/A	800
Processor core	6-, 4-, and 2-core processors					
Processor cache	12, 8, and 4 MB Level 3 cache depending on processor (see above)					
Maximum processor speed	3.46 GHz					
Multiprocessor	Up to 2					
Memory type	PC3-10600R Registered (DDR3) Memory or PC3-10600E Unbuffered (DDR3) Memory					
Standard memory	Standard (Performance Models)—12 GB (6 x 2 GB) RDIMM Standard (Base Models)—6 GB (3 x 2 GB) RDIMM Standard (Entry Model)—4 GB (2 x 2 GB) RDIMM Note: Depending on the memory configuration and processor model, the memory speed may run at 1333 MHz, 1066 MHz, or 800 MHz. Please see the Online Memory Configuration Tool.					
Maximum memory	192 GB RDIMM 48 GB UDIMM					
Memory slots	18 DIMMs					
Advanced memory protection	Advanced ECC, mirrored memory, lock-step mode					
Storage type	Hot-plug 2.5-in SAS/SATA Hot-plug 3.5-in SAS/SATA					
Maximum number of hard drives	24					
Maximum number of hard drives noted	Supports (24) 2.5-in Small Form Factor or (14) 3.5-in Large Form Factor hard drives					
Expansion slots	9 available PCI Express Gen2 expansion slots to provide you with the latest I/O performance					
Storage controller	HP Smart Array P410i Controller with 256 MB, 512 MB battery-backed write cache (BBWC), 512 MB flash-backed write cache (FBWC), and 1 GB FBWC options					
Deployment						
Form factor	Rack or tower					
Rack height	4U					
Networking	HP NC375i Quad Port Multifunction Gigabit Server Adapter					
Infrastructure management	HP ProLiant Onboard Administrator powered by the HP Integrated Lights-Out 2 HP Insight Control suite with new Dynamic Power Capping technology					
Redundant power supply	Optional					
Redundant fans	Optional					
Warranty	3-year parts/3-year labor/3-year onsite					

## Growing businesses with expandability requirements

Designed to meet the requirements of growing businesses, the DL370 G6 and the ML370 G6 servers have nine available I/O slots that support PCI Express Gen2. And what about storage capacity, you may ask. Put your fears to rest, as the 8-bay standard drive cage provides up to 4.8 TB of storage (8 x 600 GB).

### Critical remote sites

You need not worry about connectivity or performance when you are working in a remote location. The new HP ProLiant Onboard Administrator and HP Systems Insight Manager (SIM) make sure that you get enterprise-class management features, providing proven availability and uptime for critical applications.

### Rendering and visualization requirements

The HP ProLiant DL370 G6 and the HP ProLiant ML370 G6 Servers support 3 x 16 PCI Express slots, allowing support for up to three 300 W graphic cards, making these servers ideal solutions for rendering and visualization requirements.

### Options include

- Easy tower-to-rack conversion in the case of the ProLiant ML370 G6 Servers, which includes a tower-to-rack conversion kit
- USB 2.0 support—five total USBs (two front; two rear; and, for security purposes, one internal)
- Up to 24 Small Form Factor drives and up to 14 Large Form Factor drives
- Hot-plug fans and power with optional redundancy
- HP Graphic Card Adapter Kit enabling support for up to three 300 W graphic cards

For more information about the HP ProLiant DL370 G6 and the HP ProLiant ML370 G6 Servers, visit: [www.hp.com/servers/dl370-g6](http://www.hp.com/servers/dl370-g6) or [www.hp.com/servers/ml370-g6](http://www.hp.com/servers/ml370-g6)

## HP Services

### When technology works, business works

The challenge of virtually every IT organization is similar: to develop and maintain an agile, efficient server infrastructure that delivers the service levels your business needs. HP Technology Services offers a comprehensive portfolio of HP Care Pack Services to help design, deploy, manage, and support your IT environment.

### Minimum recommended HP Care Pack offerings

- 3-year, same business day, 4-hour response onsite; 24x7 coverage, hardware support
- Integrated hardware plus operating system installation and startup

### Enhanced service level Care Pack offerings

- **3-year Support Plus 24:** Integrated 24x7 hardware and software operating support
- **Proactive Select:** Access to HP technical consultants, purchase service credits, and obtain expertise when needed

### Benefit from HP Care Pack Services, helping you:

- Reduce deployment time and manage ProLiant server solutions smoothly and efficiently
- Increase uptime and performance of server availability to your business
- Detect, diagnose, and repair problems quickly to save time, money, and resources

For more information, visit:

[www.hp.com/services/proliantservices](http://www.hp.com/services/proliantservices) or [www.hp.com/go/proliant/carepack](http://www.hp.com/go/proliant/carepack)

- High-performance models with a second processor, SAS controller, extra memory, redundant fans, and power supplies
- HP Insight Control suite helps you deploy servers rapidly, proactively monitor system health and performance, improve power consumption, and take total remote control of your infrastructure

## HP Financial Services

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