



## New HP Scale-up Servers Automate Converged Infrastructure Environments

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### Overview

[HP ProLiant servers](#) are key building blocks for the [HP Converged Infrastructure](#), which provides clients with the foundation for the data center of the future.

The new G7 ProLiant line-up features a number of innovations in automation that allow clients to speed application delivery more effectively, better utilize IT resources and achieve improved return on investments. These include:

- Increased energy efficiency and improved administrator productivity delivered by the new [Integrated Lights-Out Advanced \(iLO 3\)](#), [Intelligent Power Discovery](#) and [HP Insight Control](#) with Dynamic Power Capping technologies. Together, these provide industry-first levels of management automation as well as energy awareness and control across the data center that lowers energy costs by 96 percent.<sup>(1)</sup>
- Industry-leading resiliency and server availability with the unique ability to isolate memory in virtual machines and automatically repair it without bringing the physical server and other virtual machines down.<sup>(2)</sup>
- Optimized performance through an architecture that is balanced and scalable across CPU, memory and input/output (I/O) to eliminate bottlenecks in the most demanding application workloads. This reduces the data center footprint with a consolidation ratio up to 91:1.<sup>(3)</sup>
- Reduced complexity and sprawl at the network edge by automating and virtualizing server connectivity to data and storage networks with [HP Virtual Connect FlexFabric](#). This allows clients to eliminate 95 percent of network sprawl at the server edge and dramatically simplifies change-management.<sup>(4)</sup>

HP's ability to deliver these and other innovations on top of industry standards has driven customer confidence in HP ProLiant as demonstrated in our market share leadership with a 56.1 percent market share in blade servers and 39.2 percent share in x86 servers, according to IDC's Worldwide Quarterly Server Tracker.<sup>(5)</sup>

New additions to the industry's most comprehensive HP ProLiant server portfolio include seven blade servers and three rack-mount systems, many of which are optimized for scale-up environments with the most demanding, data-intensive

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workloads. Based on the latest AMD® Opteron 6100 Series and Intel® Xeon® 5600 and 7500 Series processors, these new x86 servers maximize application uptime with a 100 to 200 percent boost in server availability, depending on the model.<sup>(6)</sup>

The new eight-processor system, the [HP ProLiant DL980 G7](#) provides advancements in performance, reliability and scalability through a unique HP PREMA architecture that combines HP Smart CPU caching technology with a redundant system fabric. By significantly reducing system overhead, the server delivers two times the performance for data-intensive business applications and a 20 percent performance improvement over the previous generation.<sup>(7)</sup>

### **HP ProLiant server blades deliver increased virtualization performance**

Limits in either server memory or I/O capacity can prevent clients from fully exploiting server virtualization efficiencies. The seven new HP ProLiant G7 server blades deliver an architecture that balances processors, memory and I/O to maximize application performance and lower licensing costs.

The new server blades support up to one terabyte of memory and up to four times more virtual machines than other blades.<sup>(8)</sup> They also are the industry's first to include integrated [HP Virtual Connect FlexFabric](#) technology to simplify connections to storage and networking, further lowering infrastructure costs.

New blades with Virtual Connect FlexFabric technology offer benefits that include:

- Increased virtualization performance with the industry's first server blade to feature one terabyte of memory per server and 16 terabytes per rack. [HP ProLiant BL680c G7](#) supports up to three times more virtual machines per blade server and requires 73 percent less hardware per 1,000 virtual machines.<sup>(8)</sup>
- Greater virtualization efficiency with the largest memory footprint of any two processor server blade. The new [HP ProLiant BL620c G7](#) supports up to four times more virtual machines per server blade and requires 66 percent less hardware per 1,000 virtual machines.<sup>(8)</sup>
- Improved virtualization return on investment (ROI) with the new [HP ProLiant BL465c G7](#) and [HP ProLiant BL685c G7 servers](#). The ProLiant BL685c G7 delivers twice the performance at prices starting at 30 percent lower than the previous generation.<sup>(9)</sup>
- Simplified network integration with HP Virtual Connect FlexFabric adapters included with the world's best selling server blade, the [HP ProLiant BL460c G7](#), and the world's first virtualization blade, the [HP ProLiant BL490c G7](#).<sup>(10)</sup>

Additionally, HP announced the [HP ProLiant BL2x220c G7](#) for high-performance computing environments. The HP ProLiant BL2x220c G7 provides 20 times more bandwidth with integrated Infiniband technology and two times the performance per rack of other blades.<sup>(11)</sup>

### **HP ProLiant servers maximize application uptime and performance**

The new HP ProLiant DL980 G7 server with HP PREMA architecture supports complex enterprise applications while delivering "self-healing resiliency" to protect



virtual machines and applications. Together with the new [HP ProLiant DL580 G7](#) and [HP ProLiant DL585 G7](#), the servers are ideal for the most demanding, data-intensive scale-up workloads.

Other client benefits include:

- Improved reliability with scalable four-processor performance and robust security features such as Intel's Machine Check Architecture (MCA) recovery with the HP ProLiant DL580 G7 server.
- Three times greater database performance for data-intensive business applications with the HP ProLiant DL980 G7, when compared to the previous generation eight-socket server. The server enables clients to scale up while extending the performance gains offered by the Intel 7500 Series processors.
- ROI in less than 30 days with the HP ProLiant DL585 G7 through a combination of energy-efficiency innovations<sup>(12)</sup> and [HP Thermal Logic](#) technology.

HP ProLiant x86 servers feature significant efficiencies, including:

- [HP Intelligent Power Discovery](#) available in HP ProLiant DL series G7 servers, eliminates overprovisioning of power capacity by creating an automated, energy-aware network between servers and third-party facility management. Linking HP ProLiant servers to the data center power grid, it provides a graphical map of energy usage.<sup>(13)</sup> The solution enables clients to save up to \$50,000 per rack and up to \$5 million for 1,000 servers of overprovisioned energy.<sup>(14)</sup>
- [Integrated Lights-Out Advanced \(iLO 3\)](#), delivered through HP Insight Control, speeds remote server management tasks. The iLO 3 remote console is eight times faster than the previous version, increasing administrator productivity.<sup>(15)</sup>
- [HP Insight Control with Dynamic Power Capping technology](#) improves data center utilization, reclaims overprovisioned energy and triples data center capacity by enabling IT managers to accurately monitor and control the power used by each server.
- Expanded [HP Mission Critical Services](#) for HP ProLiant servers minimize business downtime and reduce the ongoing burden of operational costs through increasing application availability.

### **Pricing and availability**

HP ProLiant DL580 and DL585 G7 rack-optimized servers and the HP ProLiant BL465c and BL685c G7 server blades are now available worldwide. The HP ProLiant DL980, BL2x220, BL460c, BL490c, BL620c and BL680c G7 servers will be available in the coming months.

Prices for HP ProLiant G7 servers start at \$2,279 and vary based on specific configurations.<sup>(16)</sup>



More information on HP ProLiant servers is available at [www.hp.com/go/proliant](http://www.hp.com/go/proliant).

- (1) Based on HP internal testing of 91 ProLiant DL360 G4 @248w (at 30 percent load) – 1 DL580 G7 853w (at 80 percent load) = 21,715 watts eliminated;  $21,715 \div 22,588 = .96$ .
- (2) Broader technology with updates to operating system software available later this year.
- (3) Based on HP internal testing of 91 ProLiant servers at 30 percent load.
- (4) Based on cost difference between eight Virtual Connect FlexFabric modules per rack and the cost of traditional top-of-rack switch connectivity for rack-mount servers (28 24-port Ethernet switches, 64 quad-port 1Gb NICs, 1,448 cat-5 cables, eight 24-port FC SAN switches, 64 HBAs, 128 LC-LC cables, and 128 4Gb transceivers).
- (5) IDC Worldwide Quarterly Server Tracker for 2010 (1Q10).
- (6) Based on HP internal research comparing HP ProLiant DL785 G5 to DL980 G7 with configurations normalized to address similar performance; defined as MTBCF (mean time between critical failures); availability varies according to specific model.
- (7) HP PREMA Architecture extends the Intel 7500 Series processors by combining HP Smart CPU caching technology and a redundant system fabric to boost reliability, scalability and performance using Standard Application Benchmark results.
- (8) Total VMs per server and hardware to support 1000 VMs based on HP best practices of 3 GB of memory and 300Gb/s I/O per virtual machine.
- (9) Based on HP internal testing between the ProLiant BL685 G6 and the BL685 G7.
- (10) IDC Worldwide Quarterly Server Tracker, 1996Q1-2010Q1, May 26, 2010.
- (11) Based on HP internal testing comparing HP ProLiant BL2x220c and IBM HS22 9.
- (12) Based on HP internal testing between ProLiant DL360 G4 and DL585 G7.
- (13) Based on HP internal testing of built-in instrumentation accuracy vs. separate mechanical system measurement.
- (14) Assumes capping and recovering 200 watts per server on average. 1,000 servers in a mid-sized DC. 200 watts per server = 200 kw. Uptime Institute states 1 MW of redundant infrastructure equates to \$25 million. 200 kw = \$5 million. 1 percent accuracy = approximately \$50,000 per rack and provides higher confidence in the data. 1 percent of \$5 million = \$50,000 per rack.
- (15) Based on HP internal testing comparing to iLO 2.
- (16) Estimated U.S. street prices. Actual prices may vary.

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