



HP ProLiant Gen8 Servers Turbo charge Application Performance

Overview

The demand for data-intensive and transactional workloads such as data warehousing, real-time analytics and virtualized environments is expanding dramatically. These workloads bring unpredictability to the data center requiring a fundamental change in the way compute and storage services integrate.

With the new [HP ProLiant Generation 8 \(Gen8\) servers](#), featuring HP [ProActive Insight architecture](#), HP reduces and in some cases eliminates bottlenecks by converging compute and storage services through three major innovations:

- Optimized for Solid State – delivering nearly seven times improved storage performance that reduces costs and downtime, over previous generations.⁽¹⁾
- Real-time Data Protection – adding multiple embedded data protection technologies such as Advanced Data Mirroring, which is 1,000 times safer than traditional two-drive mirroring, while improving read performance.⁽²⁾
- Intelligent Performance Analytics – to continuously optimize system performance and efficiency in real time, with the ability to analyze a variety of workload-specific data points

Optimized for performance and efficiency

Advancing [HP Converged Infrastructure](#), the HP ProLiant Gen8 servers feature a balanced system architecture consisting of HP Smart Storage, HP SmartMemory and HP Flexible Networking technology. When combined with the latest processor technologies, HP ProLiant Gen8 servers deliver application acceleration while reducing data center footprint and power utilization.

Key client benefits include:

- Improved database and video streaming application performance by as

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much as 50 percent.⁽³⁾

- Improved high-performance computing application performance by up to 20 percent with the industry's only servers running HP SmartMemory, optimized to deliver 25 percent higher memory bandwidth than the competition.⁽⁴⁾
- Keeping up with the exploding demands of information growth with a 2X improvement in storage capacity and up to 50 percent increase in storage spindles per server.⁽⁵⁾

Smart resiliency to confidently protect data

High-capacity drives are common and necessary for most servers to keep pace with data explosion, increasing digital content, data-intensive applications and real-time analytics. New [HP ProLiant Gen8](#) servers address this growth by supporting up to 50 percent more internal drives per server than previous generations. Additionally, the built-in HP Smart Array controller can support two times more total drives internally and externally over previous generations, for up to 227 drives.⁽⁶⁾

HP also embedded multiple smart data protection technologies in the HP ProLiant Gen8 servers to protect data and speed deployment, including:

- HP Advanced Data Mirroring a new technology that increases uptime and improves read performance with three-drive mirroring to ensure continuous availability.
- Built-in algorithms that initialize RAID 95 percent faster than previous storage technologies.⁽⁷⁾
- Predictive spare drive activation eliminates exposure to failed drives with built-in intelligence to identify and resolve problems before they occur.

Smart data services with real-time analytics

HP ProLiant Gen8 servers include smart analytics and workload-aware intelligence. As a result, these servers with built-in Smart Storage analyze different types of workload data and adapts in real time to optimize system performance and efficiency.

This intelligence will be the foundation for future smart caching technologies that take advantage of a wide variety of storage media. This analysis is capable of supporting different types of data and applications to dynamically



balance the use of solid state and traditional disk drives for optimized performance.

- (1) Internal testing of the new Smart Array controllers with solid state technology compared to the current generation with solid state media improves 6.7 times improved storage performance
- (2) Probability comparisons made between RAID 1(2 drives) vs. Advanced Data Mirroring (3 drives) of a potential data loss resulting from errors on an unprotected disk drive.
- (3) Comparison benchmark on DL380 G7 server using latest processors, memory and Smart Array controller vs. a similar Gen8 server using the latest processors, memory and Gen8 Smart Array controllers was performed on SQL using OLTP workload and Video Performance was performed using STREAM application.
- (4) Based on internal testing of high performance computing workloads.
- (5) 200 percent larger memory capacity is a direct comparison of G7 server memory capacity vs. Gen8 server memory capacities. Twenty-five percent faster = G7 servers supported DDR3-1333 while Gen8 servers supports DDR3-1600.
- (6) 227 drives supported on Smart Array P822 vs. 108 drives supported on Smart Array P812 controller = 2X storage scalability.
- (7) Rapid Parity Initialization of configuring 2 TB HDDs in MDS600 (70 drives) as a single RAID5 volume with Smart Array P411 controller vs. Smart Array P421 controller. New Smart Analytics allow new algorithms that start the parity initialization on all drives in parallel vs. serial method previously.

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