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HP ProLiant and Integrity Servers in a Windows Environment

Recent advancements in processor technology have resulted in a proliferation of server platforms and customer choices. Only a couple of years ago an IT organization had two primary choices for server platform: the 32-bit x86 processor or the 64-bit Itanium processor. The 32-bit platform was the choice for general-purpose tasks; the Itanium-based systems were primarily oriented toward mission-critical enterprise workloads. The emergence of the x64 platform has added a second 64-bit computing platform to this list of customer choices. Today, HP's ProLiant and Integrity line of servers span three primary computing platforms: the 32-bit x86 architecture, the 64-bit x86 architecture, and the 64-bit EPIC architecture. This brief positions the HP ProLiant and Integrity server lines, with the goal of helping customers understand which server best fits their needs.

HP ProLiant Server Platform

The HP ProLiant Line is designed for mainstream Windows computing and should be chosen when cost is the dominant factor in server selection. The line is optimized for 32-bit performance and price/performance—providing the maximum amount of performance at the lowest price points. ProLiant servers are often implemented as front-end and network edge servers, as well as in the application tier. Based on either 64-bit x86 AMD Opteron or Intel EM64T Xeon processors, ProLiant servers are capable of handling both native 32-bit and native 64-bit processing.

The ProLiant server line is a good fit for small and medium business applications and is ideally suited for well-defined, less-complex workloads. The ProLiant DL580 and DL585 servers, at the higher end of the ProLiant DL line, are also suitable for larger businesses with more demanding workloads, provided the organization is comfortable dedicating critical production workloads to individual servers.

Because of the overall limits to the scalability of the HP ProLiant line, these servers are better suited to scale-out

Each family offers leading value in its class

ProLiant

HP ProLiant offers the best choice for building a scale-out foundation for the adaptive enterprise

Best platform for mainstream 32-bit and emerging 64-bit x86 versatility

1-4p/1-8c
Windows, Linux

Integrity

Trust HP Integrity servers for your most demanding workloads

Best platform for RISC replacement, and 64-bit Windows and Linux

1-64p/1-128c
HP-UX, Windows, Linux, OpenVMS

Consistent Manageability, Services and Storage capabilities across the portfolio

deployments involving multiple servers (e.g., when using Microsoft SQL Server clustering with distributed partitioned views). They are suited for scale-up deployments in medium and large organizations with workloads limited to 4 or fewer processors. Because of being more limited in RAM than Integrity servers, ProLiant servers are a better fit for computing workloads that tend to be less memory intensive.

The HP Integrity Server Platform

The Integrity line should be chosen when performance, scalability, and maximum reliability are the most significant considerations. The HP Integrity platform consists of entry-level Integrity servers (2-4 sockets) and the mid-range and high-end cell-based Integrity servers (8-64 sockets). While there is some overlap between the entry point of the Integrity product line (2-4 sockets) and the high end of the ProLiant DL line of servers, the Integrity line is generally a better fit for customers whose workload benefits from greater amounts of RAM and more robust reliability features or where a possible future requirement exists for greater levels of scalability. Integrity entry-level servers scale beyond the capabilities of any of the ProLiant servers, supporting twice the maximum RAM and up to 600 GB of internal storage.

Integrity servers are primarily implemented as back-end database and application tier servers. The HP Integrity servers are also a good choice for organizations wanting to replace legacy RISC-based systems. Its high-performance Itanium 2 processors and very large memory capabilities make the Integrity line of servers well suited to complex technical and commercial workloads, including very large OLTP databases, Business Intelligence, and ERP. Integrity's large memory support enables it to hold more data in RAM, plus Integrity's EPIC architecture enables it to provide superior multi-tasking and parallel processing performance.

Applications that perform a high volume of floating point operations will benefit from the superior floating point processing power of Integrity's Itanium processor. The high performance, large memory capabilities, and industry-leading scalability of the Integrity line also make it very well suited for server consolidation scenarios, which can result in improved operational and hardware efficiencies.

The HP Integrity line is best suited for scale-up scenarios where its capabilities of scaling to 64 processors with a 1TB memory capacity provide room for rapid growth of both data and the ability to handle large numbers of concurrent users. The Integrity Superdome line currently holds three of the top 10 TPC-C performance benchmarks, clearly demonstrating its high-end performance and scalability as an enterprise-level database platform. The immense RAM support makes this platform an excellent choice for both CPU and memory-intensive workloads. Using the increased RAM capabilities can enable entire relational datasets or OLAP cubes to be loaded into memory, eliminating disk I/O and sometimes cutting processing time from days to hours.

The Integrity line has been in production for more than 2 years and has been designed for maximum reliability. HP Integrity servers feature physical and electrical isolation between the hardware-defined partitions, which HP calls nPARs. Isolation provides assurance that workloads in separate nPARs will not interfere with one another. Being cell-based, Integrity servers can be partitioned into separate fault-isolated partitions. This enables the system to provide maximum availability and can also be used to run completely separate operating systems on the same system without the need for virtualization software.

Today, HP Integrity servers are the preferred choice for meeting the performance, reliability and scalability needs of customers' most demanding database, line of business, and Business Intelligence/Data Warehouse workloads. In mid-2006, Integrity servers will pack an even greater performance punch, delivering up to double the performance of today's servers with support of the Intel dual-core Montecito processor.

HP Server Selection Criteria for a Windows Environment

Choose HP Integrity servers when ...	Choose HP ProLiant servers when ...
• **Consolidating** for cost savings and operational and hardware utilization efficiencies • **Scale-up** vs. scale out (room for rapid growth in data and users) • Workload is memory intensive; using **more than 4GB** of memory with Windows • Applications that do a high volume of **floating point** operations. • **Significant headroom** may be needed to support growth	• **Cost** is dominant factor • **Less than 4GB** of memory is needed • **Scale out** configurations for individual workloads • **Small and medium workload** business applications • **Blade systems** for consolidation, manageability, and high availability