Comparison of HP Z600 Workstation and HP xw6600 Personal Workstation Architectures

The HP Z600 Workstation is the successor to the HP xw6600 Personal Workstation. Its architecture introduces several improvements. The most significant of these are processor microarchitecture, memory attachment and capacity, and performance.

Processor Technology:
The HP Z600 Workstation uses the Intel® 5520 chipset to support the latest quad-core Intel® Xeon® 5500 Series and six-core 5600 Series processors, with power up to 95W. These 45nm and 32nm processors incorporate an integrated three-channel memory controller, microarchitecture improvements, and large L3 cache to provide significantly better performance than the previous generation processors. The HP Z600 Workstation uses the Intel® QuickPath Technology to connect the processors and I/O controller with speeds up to 6.4 GT/s, significantly increasing peak aggregate data bandwidth over the HP xw6600 Personal Workstation.

Memory technology:
The HP Z600 Workstation’s DIMMs are based on DDR3 1333 MHz technology, and are still ECC-protected. Six direct-attach memory channels (three per CPU) enable low latency access and fast data transfer, providing significant performance advantages over the HP xw6600 Personal Workstation architecture. Configurations with one processor provide access to three DIMM slots, while the addition of a second processor offers access to three more DIMM slots, supporting a total system memory size up to 48 GB (using 8 GB DIMMs).

Graphics:
The HP Z600 Workstation continues support for PCIe Gen2 (PCIe2) bus speeds and can support dual PCIe Gen2 graphics cards in PCIe2 x16 slots. The HP Z600 Workstation supports graphics cards up to 150W in the primary graphics slot, to enabling cutting-edge graphics. A second graphics card may be supported in the second PCIe2 x16 slot, subject to overall system power limitations. The HP Z600 Workstation also supports up to eight 2D displays or four 3D displays.

I/O slots:
The HP Z600 Workstation implements one Intel 5520 chip to provide a total of six high-performance graphics and I/O slots. One of the PCIe x8 (4) slots on the HP Z600 Workstation has been upgraded to PCIe Gen2, an improvement over Gen1 on the HP xw6600 Personal Workstation.

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Other features:
SATA RAID\(^5\) modes 0, 1, 5, and 10 are supported. eSATA (3.0 Gbps) is supported using an optional adapter. The HP Z600 Workstation has nine external and three internal USB 2.0 ports vs. the eight total USB ports offered on the HP xw6600 Personal Workstation. Integrated 1394a provides additional I/O capability over the HP xw6600 Personal Workstation. The 650W power supply is 85% efficient and enables ENERGY STAR\(^5\) v5 qualified configurations. HP WattSaver technology helps support the European Union EuP power limit of 1W in off mode. HP Quiet Fan Technology ensures quiet system operation.

1 Quad- and sixcore technologies are designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefits; check with software provider to determine suitability. Not all customers or software applications will necessarily benefit from use of these technologies.

2 64-bit computing on Intel architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See http://www.intel.com/info/em64t for more information.

3 Intel’s numbering is not a measurement of higher performance.

4 Each processor supports up to 3 channels of DDR3 memory. To realize full performance at least 1 DIMM must be inserted into each channel. To get full 6 channel support, 2 processors MUST be installed.

5 SATA hardware RAID is not supported on Linux systems. The Linux kernel, with built-in software RAID, provides excellent functionality and performance. It is a good alternative to hardware-based RAID. Please visit http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf for RAID capabilities with Linux.

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