Comparison of the Z600 and xw6600 Architectures

Introduction: The Z600 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 Z600 uses the Intel® 5520 chipset to support the latest Quad Core Intel® Xeon™ processor 5500 Series (Nehalem), including processors up to 95W. These 45nm processors incorporate an integrated 3-channel memory controller, microarchitecture improvements and large L3 cache to provide significantly better performance than the previous generation (Penryn). The Z600 uses the Intel QuickPath Interconnect (QPI) to connect the processors and I/O controller with speeds up to 6.4 GT/s, significantly increasing peak aggregate data bandwidth over the xw6600.

Memory Technology: The Z600’s DIMMs are based on DDR3 1333MHz technology, and are still ECC-protected. Six direct attach memory channels (three per CPU) enable low latency accesses and fast data transfer, providing significant performance advantages over the xw6600 architecture. Configurations with one processor provide access to three DIMM slots, while addition of a second processor provides access to three more DIMM slots, supporting a total system memory size up to 24GB1 (using 4GB DIMMs).

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

I/O Slots: The Z600 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 Z600 has been upgraded to PCIe Gen2 as compared with Gen1 on the xw6600.

Other Features: SATA RAID modes 0, 1, 5 and 10 are supported. eSATA (3.0 Gbps) is supported using an optional adapter. The Z600 provides 9 external and 3 internal USB 2.0 ports, as compared with 8 ports total on the xw6600. The 650W power supply is 85% efficient and enables ENERGY STAR v5 certified configurations. HP WattSaver technology enables support of the European Union EuP power limit of 1W in off mode. HP Quiet Fan Technology enables quiet system operation.

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1 Maximum memory capacities assume 64-bit operating systems. Microsoft® Windows® XP (32-bit) and Vista (32-bit) support 4GB (with Microsoft 32-bit, the amount of usable memory will be dependent upon your system configuration - it may be less than 4GB); 32-bit Linux can support up to 8GB. The Z600 supports unbuffered DIMMs (UDIMM), while the xw6600 supports fully buffered DIMMs (FB-DIMM).