HP Z400 Workstation
Memory configuration and optimization (June 2010)

The purpose of this document is to provide an overview of the memory configuration for the HP Z400 Workstation (May 2010 refresh) and to provide recommendations to optimize performance.

Windows®. Life without Walls™. HP recommends Windows 7.

Supported DIMMs

- The HP Z400 Workstation supports Unbuffered 1-GB single-rank and 2-GB and 4-GB dual-rank PC3-10600E 1333 MHZ ECC DIMMs.

- The CPUs determine the speed at which the memory is clocked, i.e. if a 1067 MHz-capable CPU is included in the system, the maximum speed at which the memory will run is 1067 MHz, regardless of the specified speed of the memory.

Best performance optimization tips

Since the memory controller is based on a three-channel design, the following rules should be used for best performance:

- Configure memory in sets of three.

- Configuring the memory using the smallest DIMM size will sometimes optimize memory performance, if it prevents single-channel configurations. As an example, for a 2 GB configuration, buy two 1 GB DIMMS, not one 2 GB DIMM.

Figure 1. Optimal configuration for the HP Z400 Workstation (Note: The following table does not include all available CTO configurations)

	DIMM1	DIMM2	DIMM3	DIMM4	DIMM5	DIMM6	Configuration rating
1 GB	1 GB						Good
2 GB	1 GB		1 GB				Better
3 GB*	1 GB		1 GB		1 GB		Best
4 GB*	1 GB	1 GB	1 GB		1 GB		Good
6 GB	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB	Best
	2 GB		2 GB		2 GB		
8 GB	2 GB	2 GB	2 GB		2 GB		Good
12 GB	2 GB	2 GB	2 GB	2 GB	2 GB	2 GB	Best
	4 GB		4 GB		4 GB		
16 GB	4 GB	4 GB	4 GB		4 GB		Good
24 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	Best

* For 32 bit operating systems, it is desirable to only load 3 GB of memory because it gives the optimal performance in 3 channel design and, because the 4th GB isn't fully accessible by the operating system, it optimizes the cost per usable memory.

Loading order

When loading the system memory, start in the slot furthest from the CPU, DIMM1, and move toward the CPU, first filling the black slots and then filling the white slots.

Figure 2. Loading order for the HP Z400 Workstation