HP Z400 Memory Configuration and Optimization

Introduction: The purpose of this document is to provide an overview of the memory configuration for the HP Z400 Workstation and to provide recommendations to optimize performance.

Supported DIMMs

- The HP Z400 supports Unbuffered 1GB single rank, 2GB and 4GB dual rank PC3-10600E 1333MHZ ECC DIMMs
- The CPUs determine the speed at which the memory is clocked. Example: if a 1067MHz capable CPU is included in the system, the maximum speed the memory will run at is 1067MHz 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 3.
- Configure memory using the smallest DIMM size will sometimes optimize memory performance, if it prevents single channel configurations. Example, for a 2GB configuration, buy 2 1GB DIMMS, not 1 2GB DIMMs.

Figure 1 Optimal Configuration for HP Z400 (Note: The following table does not include all available CTO configurations)
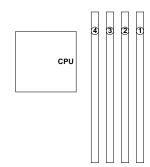
	Notes	DIMM1	DIMM2	DIMM3	DIMM4	Rating
1GB		1GB				⬡
2GB		1GB	1GB			⬣
3GB	*	1GB	1GB	1GB		⬡
4GB	*	1GB	1GB	1GB	1GB	⬡
6GB		2GB	2GB	2GB		⬡
8GB		2GB	2GB	2GB	2GB	⬡
12GB	~	4GB	4GB	4GB		⬡
16GB	~	4GB	4GB	4GB	4GB	⬡

Key ⬡
Good configuration
Better configuration
Best configuration

* For 32 bit operating systems, it is optimal to only load 3GB 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.

~ Although supported, these configurations are not CTO at this time.

Loading Order

When loading the system memory, start in the slot furthest from the CPU, DIMM1 and move towards the CPU. See illustration below.

Figure 2. Loading order for the HP Z400