HP Z600 Memory Configuration and Optimization

Introduction: The purpose of this document is to provide an overview of the memory configuration for the HP Z600 Workstation and to provide recommendations to optimize performance.

Supported DIMMs

- The Z600 supports Unbuffered 1GB single rank, 2GB and 4GB dual rank PC3-10600E 1333MHZ ECC DIMMs
- In dual processor configurations, each processor must have memory connected to it.
- 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 three channel design, the following rules should be used for best performance:

- For single processor configurations, configure memory in sets of 3.
- For dual processor configurations, configure memory in sets of 6
- Configure memory using the smallest DIMM size will sometimes optimize memory performance, if it prevents single channel configurations. Example, for a 2GB single processor configuration, buy 2 1GB DIMMS, not 1 2GB DIMMs.

Figure 1 Optimal Configuration for Z600 (Note: The following tables do not include all available CTO configurations)

	Notes	DIMM1	CPU0 DIMM2	DIMM3	Rating
1GB		1GB			
2GB		1GB	1GB		
3GB	*	1GB	1GB	1GB	
4GB	*	2GB	2GB		
6GB		2GB	2GB	2GB	
8GB	~	4GB	4GB		
12GB	~	4GB	4GB	4GB	



* 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.

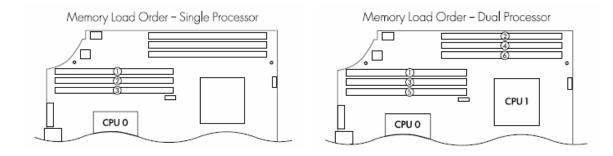
 $\scriptstyle \sim$ Although supported, these configurations are not CTO at this time.

	Dual Processor Configurations								
			CPUO			CPU1			
	Notes	DIMM1	DIMM2	DIMM3	DIMM1	DIMM2	DIMM3	Rating	
2GB		1GB			1GB			\bigcirc	
4GB		2GB			2GB				
	~	1GB	1GB		1GB	1GB			
6GB		1GB	1GB	1GB	1GB	1GB	1GB		
8GB~	~	2GB	1GB	1GB	2GB	1GB	1GB	\bigcirc	
10GB	~	2GB	2GB	1GB	2GB	2GB	1GB		
12GB		2GB	2GB	2GB	2GB	2GB	2GB		
16GB	~	4GB	2GB	2GB	4GB	2GB	2GB		
24GB	~	4GB	4GB	4GB	4GB	4GB	4GB		

Loading Order

When loading the system memory, for single processor configuration, start in the slot furthest from the CPU, DIMM1 and move towards the CPU. For dual processor configuration, load the memory as above, alternating between the two processors. See illustration below.

Figure 2



There is an BIOS setting to change between 2 different types of NUMA and Non-NUMA. See Memory Architecture and Efficiency White Paper for more information.

