Lenovo ThinkStation

P620 Memory Configurator



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Overview

The purpose of this document is to provide guidelines for users on how to optimally configure the system memory in the ThinkStation P620 platform in order to provide the best performance.

Section 1 – Platform Memory Architecture

The launch of the AMD Threadripper Pro platform brings with it some important updates to the memory system architecture. The main feature is the 8-channel memory architecture and a higher top supported memory bus speed. The 8-channel memory architecture allows P620 to have individual memory channel for each DIMM slot, hence providing increased memory performance and bandwidth.

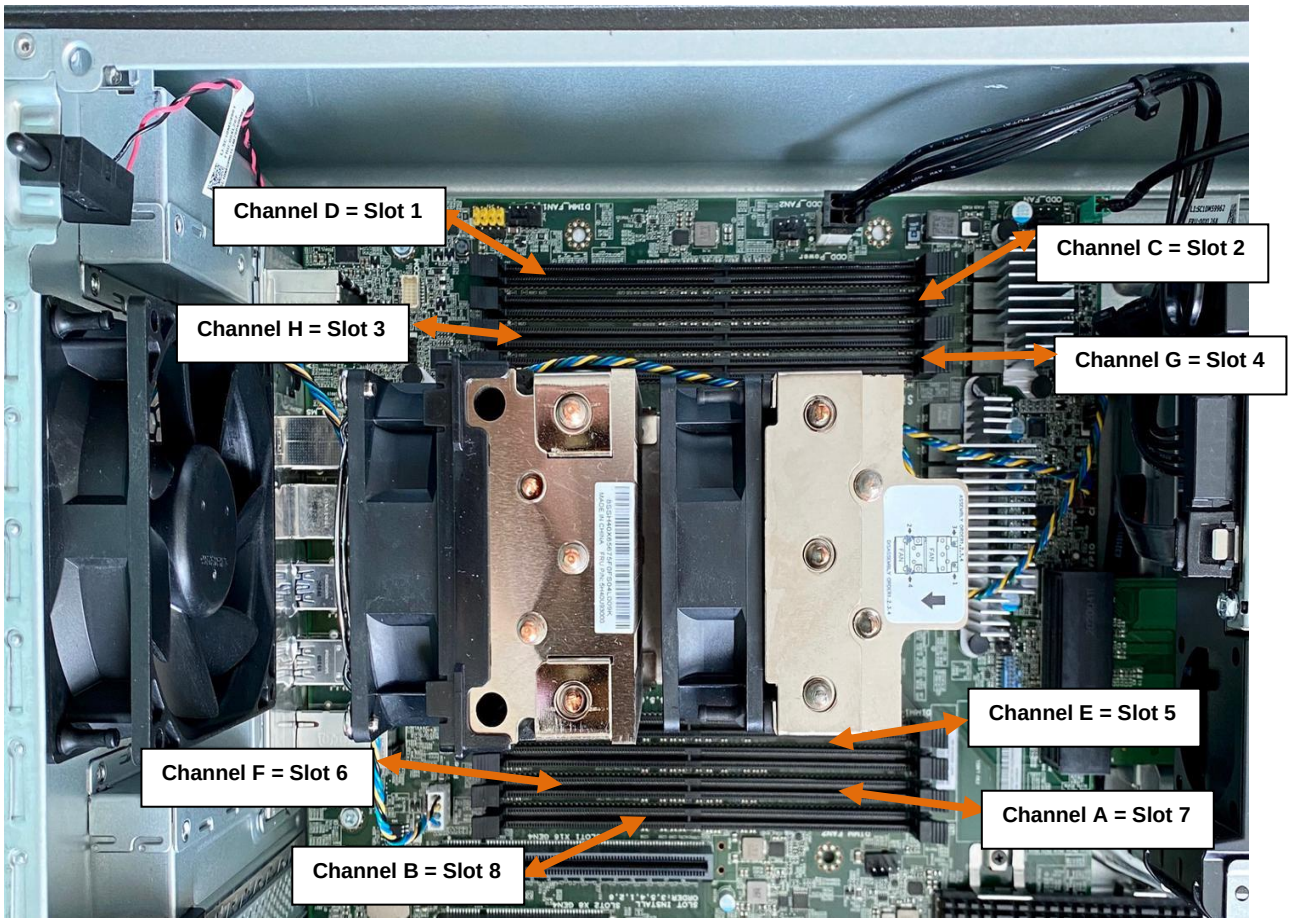
Section 2 – P620 Memory Configurations

The ThinkStation P620 is Lenovo's newest mainstream single CPU workstation. The platform has a total of 8 DIMM slots with a top supported memory bus speed of 3200MHz. The P620 takes full advantage of the 8 memory channels offered by the AMD Threadripper Pro CPU, allowing the system to offer high speed and better throughput. *Figure 1* below shows a visual reference of the DIMM slot layout for the P620 platform.

Section 3 – P620 Supported Memory

Lenovo's ThinkStation P620 supports 16/32/64GB DDR4 ECC RDIMM and 128GB 3DS RDIMM which will be available later this year, at the maximum memory bus speed of 3200MHz. P620 workstation offers a maximum memory capacity of 512GB with 8x 64GB RDIMMs and 1TB with 8x 128GB 3DS RDIMMs.

Figure 1 – P620 Motherboard DIMM Layout



Due to memory architecture within the AMD CPU and its support for memory interleaving, Lenovo recommends the following guidelines for obtaining the best memory bandwidth from the P620 workstation:

- Memory should only be installed in combinations of 1, 2, 4, or 8 DIMMs. Utilizing all 8 DIMM slots will yield maximum memory bandwidth performance.
- DIMM slots should be filled in the order listed in Figure 2.
- Lenovo recommends having at least 2 DIMMs for 12 and 16 core CPU's, and 4 DIMMs for 32 and 64 core CPU's.

Figure 2(a) – P620 Slot Fill Order Recommendations

# of DIMMs	DIMM slots used
1 DIMM	DIMM slot 7
2 DIMMs	DIMM slot 7, DIMM slot 8
4 DIMMs	DIMM slot 1, DIMM slot 2, DIMM slot 7, DIMM slot 8
8 DIMMs	DIMM slot 1, DIMM slot 2, DIMM slot 3, DIMM slot 4, DIMM slot 5, DIMM slot 6, DIMM slot 7, DIMM slot 8

Section 4 – Document Revision History

Version	Date	Author	Updates
1.0	07/14/2020	Sayali Pawar	Initial launch release