Memory Configurator

Lenovo ThinkStation P360 Tower, Tiny

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Overview

The ThinkStation P360 Intel Alder Lake-S platform is the new replacement desktop workstation for the ThinkStation P350 Intel Rocket Lake-S platform.

The purpose of this document is to highlight the major differences between the different memory platform architectures from the previous platforms and to help guide users to optimally configure their memory configuration in the ThinkStation P360 platform.

Section 1 – P360 Tower Memory Architectural Design

The ThinkStation P360 Tower platform is the first Lenovo workstation platform to introduce DDR5 memory with higher top memory bus speeds of 4800MHz, depending on the system processor and number of DIMMs per channel. This platform offers a dual memory channel design based on Intel Alder Lake processors. There are a total of four memory DIMM slots, allowing the P360 to take full advantage of supporting a two DIMM per channel design.

Figure 1 - P360 Tower Motherboard Layout
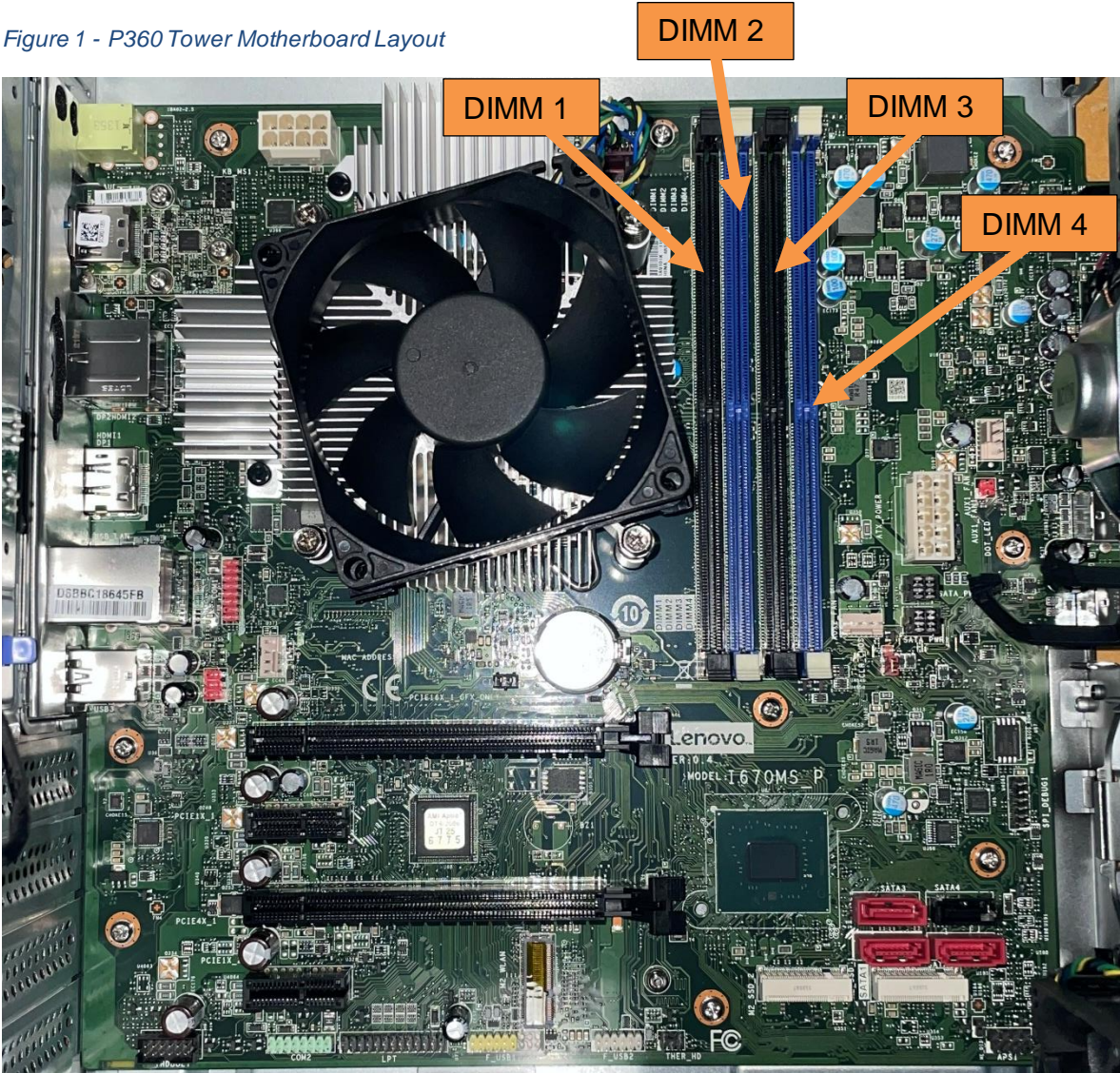
Section 2 – P360 Tower Memory Configurations

The ThinkStation P360 Tower platform can be a bit overwhelming when trying to figure out how to optimally configure memory for best overall system performance. The following recommended guidelines will help obtain the best overall memory bandwidth from the P360 Tower system.

- Install DIMM slots in multiples of two to fully take advantage of both memory channels. Utilizing one DIMM per channel (DPC) will allow for full maximum memory bandwidth performance.
- DIMM slots should be filled in the order listed in *Figure 2*.
- Mixing ECC and non-ECC memory UDIMMs are not supported.
- Registered DIMMs (RDIMMs) are not supported in the P360 platform.
- Lenovo does not recommend installing three (3) DIMMs resulting in an unbalanced memory channel configuration.
- Lenovo does not recommend mixing memory DIMM vendors within a DIMM channel.
- Lenovo does not recommend mixing different memory DIMM capacities.
- Lenovo does not recommend mixing single rank (1R) and dual rank (2R) memory DIMMs.

Figure 2 - P360 Tower Slot Fill Order Recommendations

# of DIMMs	DIMM slots used
1 DIMM	DIMM slot 2
2 DIMMs	DIMM slot 2, DIMM slot 4
3 DIMMs[1]	DIMM slot 2, DIMM slot 4, DIMM slot 1
4 DIMMs	DIMM slot 2, DIMM slot 4, DIMM slot 1, DIMM slot 3

*Figure 3 – 1R (single rank) and 2R (dual rank) Memory Installation and Maximum Frequency*

Slot 1	Slot 2	Slot 3	Slot 4	Actual Speed
	1R			4400 MHz
	1R		1R	4400 MHz
1R	1R	1R	1R	4000 MHz
	2R			4400 MHz
	2R		2R	4400 MHz
2R	2R	2R	2R	3600 MHz

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[1] Lenovo does not support or recommend this number of DIMM quantity as it results in an unbalanced memory configuration across the dual channels.

Section 3 – P360 Tiny Memory Architectural Design

The ThinkStation P360 Tiny platform is the first Lenovo Tiny workstation platform to introduce DDR5 memory with higher top memory bus speeds of 4800MHz, depending on the system processor and number of DIMMs per channel. This platform offers a dual memory channel design based on Intel Alder Lake processors. There are a total of two memory DIMM slots, allowing the P360 Tiny to take advantage of supporting a single DIMM per channel design.

Figure 4 - P360 Tiny Motherboard Layout
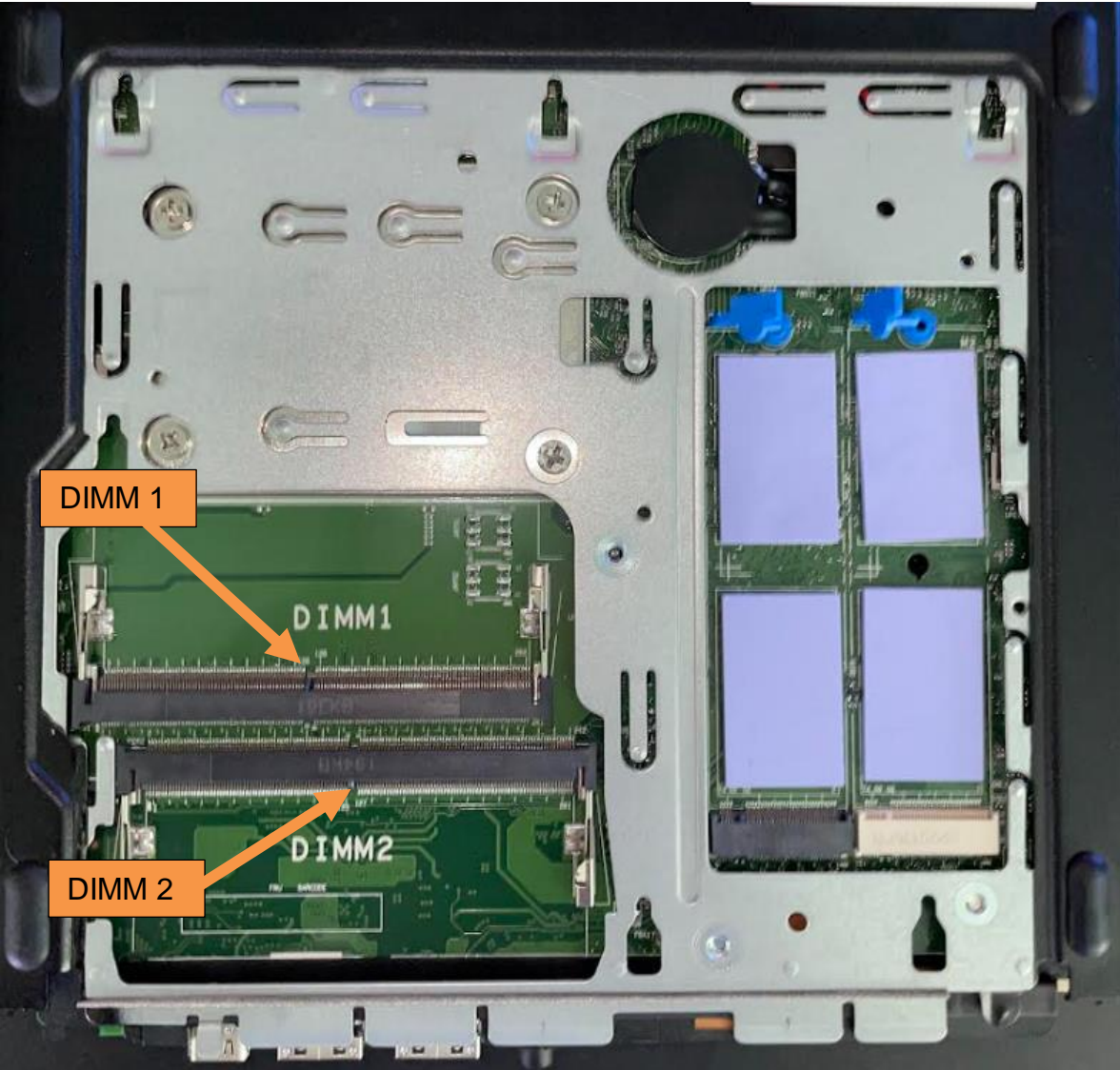
Section 4 – P360 Tiny Memory Configurations

The ThinkStation P360 Tiny platform is fairly straight-forward when trying to figure out how to optimally configure memory for best overall system performance. The following recommended guidelines will help obtain the best overall memory bandwidth from the P360 Tiny system.

- Utilizing one DIMM per channel (DPC) will allow for full maximum memory bandwidth performance.
- DIMM slots should be filled in the order listed in *Figure 5*.
- Small Outline Dual In-Line Memory Modules (SODIMMs) only are supported in the P360 Tiny platform.
- Mixing ECC and non-ECC memory SODIMMs are <u>not</u> supported.
- Lenovo does <u>not</u> recommend mixing memory DIMM vendors within a DIMM channel.
- Lenovo does <u>not</u> recommend mixing different memory DIMM capacities.
- Lenovo does <u>not</u> recommend mixing single rank (1R) and dual rank (2R) memory DIMMs.

Figure 5 - P360 Tiny Slot Fill Order Recommendations

# of DIMMs	DIMM slots used
1 DIMM	DIMM slot 1
2 DIMMs	DIMM slot 1, DIMM slot 2

Figure 6 – 1R (single rank) and 2R (dual rank) Memory Installation and Maximum Frequency

Slot 1	Slot 2	Actual Speed
1R		4400 MHz
	1R	4400 MHz
1R	1R	4400 MHz
2R		4400 MHz
	2R	4400 MHz
2R	2R	4400 MHz

Revision History

Version	Date	Author	Changes/Updates
0.3	5/31/2022	Jason Moebs	Added P360 Tiny config rules.
0.2	4/22/2022	Jason Moebs	Edit memory config rules.
0.1	4/13/2022	Jason Moebs	Initial draft.