

Power Configurator

Lenovo ThinkStation P360 Ultra





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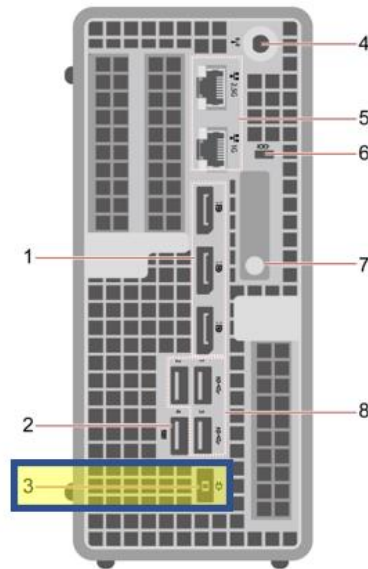
Overview

The ThinkStation P360 Ultra platform is a new form factor desktop workstation in the Lenovo ThinkStation family. Unlike most ThinkStation desktop systems, the P360 Ultra does not have an internal power supply. Instead, it is powered by an external power adapter, similar to that from a ThinkPad or ThinkStation Tiny computer. There are three different power adapters available for P360 Ultra, each with a different power (Watts) rating: [170W](#), [230W](#), and [300W](#).

The goal of this document is to highlight the specs of the system components with the highest power demand and allow you to make the best decisions when choosing the correct PSU for your hardware configuration.

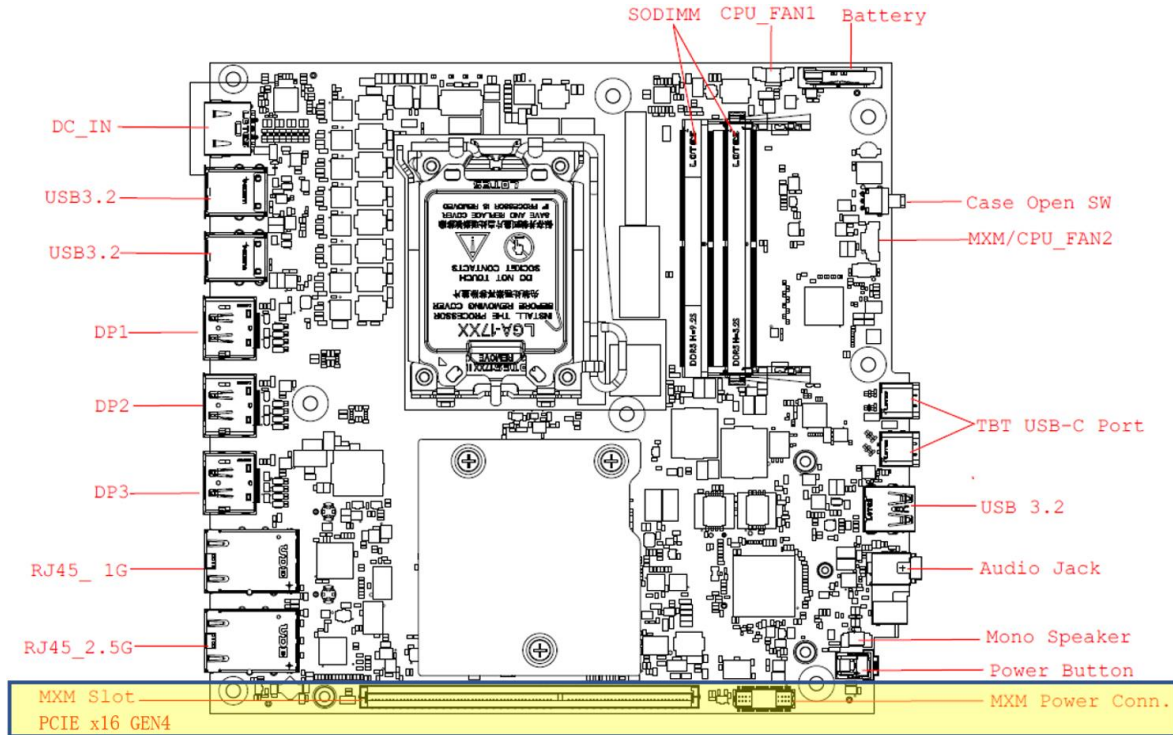
Section 1 – Key Architectural Design

As mentioned above, the P360 Ultra is powered by an external power adapter that is connected to the rear of the system. Each of the three available power adapters are rated at 100-240V AC input with 20V DC output. The power cord connector is a standard 20V connector, available on most ThinkPad notebook computers. The P360 Ultra rear 20V connector is shown in the following diagram:

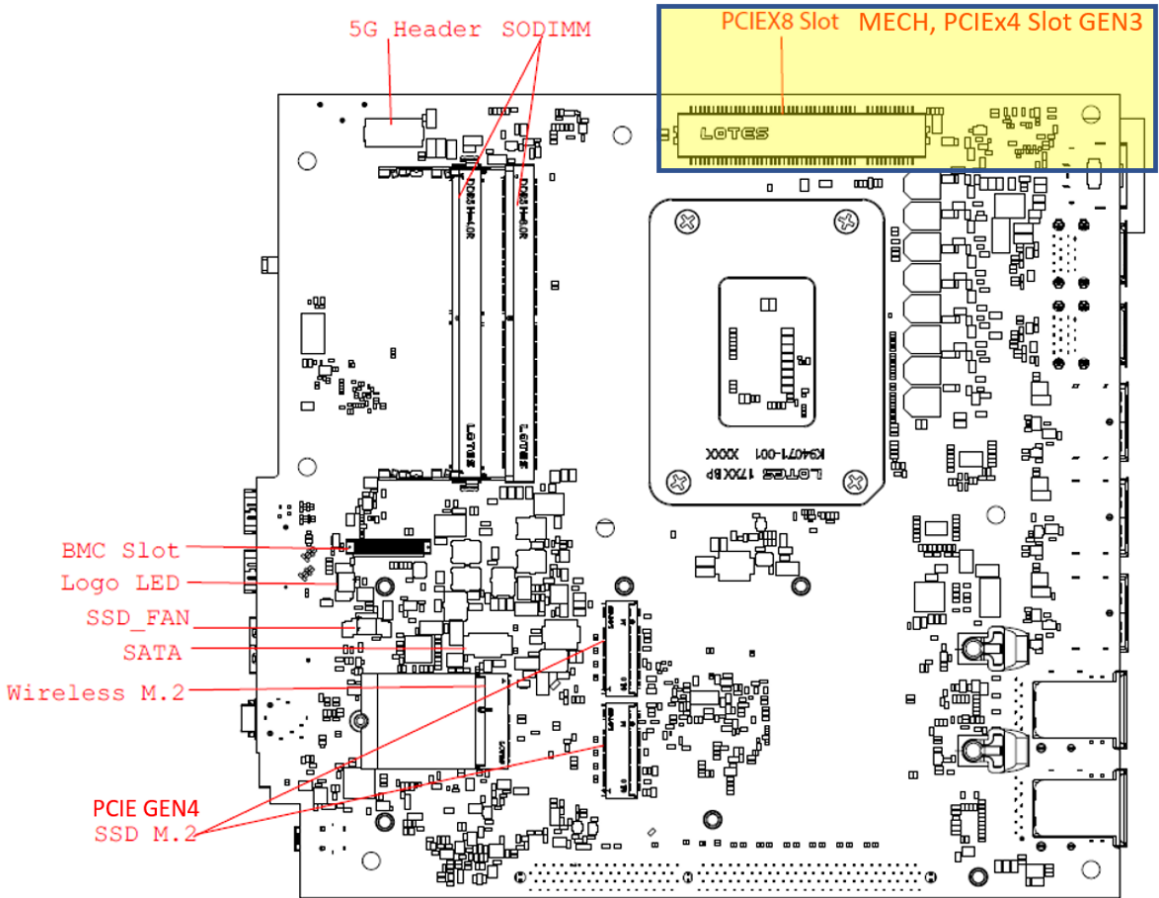


1. DisplayPort™ out connectors	2. USB 3.2 connector Gen 2 (with smart power-on feature)
3. Power cord connector	4. Wi-Fi® antenna slot
5. Ethernet connectors	6. Security-lock slot
7. Chassis latch	8. USB 3.2 connectors Gen 2

Another unique feature of the P360 Ultra is that it has PCIe connectors on both the top and bottom of the system motherboard. As shown in the figures below, the top of the board contains a PCIe x16 MXM slot and the bottom has a PCIe x8 slot (limited to x4 electrically).

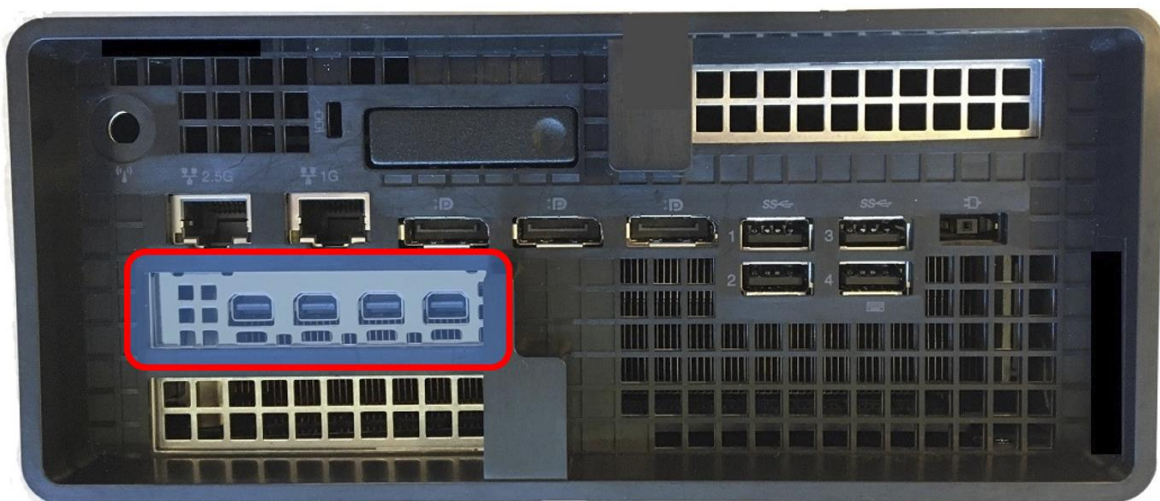


P360 Ultra Motherboard (top)



P360 Ultra Motherboard (bottom)

The MXM slot on the top of the board requires the use of a x16 riser card that allows the card to be positioned parallel to the motherboard. Here is a view of the rear of the system with an RTX A5000 mobile card installed:



Please refer to the P360 Ultra Hardware Maintenance Manual for detailed PCIe card installation instructions:

https://download.lenovo.com/pccbbs/thinkcentre_pdf/p360_ultra_hmm.pdf



Section 2 – Power Ratings for Key System Components

To fully understand the power capabilities of the ThinkStation P360 Ultra, it is important to know the power ratings of the individual system components.

The table below shows the power ratings for the various CPUs supported on P360 Ultra.

CPU Power Ratings

CPU Name (Core Alder Lake)	CPU Power	Additional CPU Information
Core i9 12900K vPro	125W	3.2GHz, 16 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i7 12700K vPro	125W	3.6GHz, 12 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12600K vPro	125W	3.7GHz, 10 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i9 12900 vPro	65W	2.4GHz, 16 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i7 12700 vPro	65W	2.1GHz, 12 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12600 vPro	65W	3.3GHz, 6 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12500 vPro	65W	3.0GHz, 6 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12400	65W	2.5GHz, 6 cores, DDR4-3200 DDR5-4800, Turbo, GT24
Core i3 12300	60W	3.5GHz, 4 cores, DDR4-3200 DDR5-4800, Turbo, GT24
Core i3 12100	60W	3.3GHz, 4 cores, DDR4-3200 DDR5-4800, Turbo, GT24
Core i9 12900T	35W	1.4GHz, 16 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i7 12700T	35W	1.4GHz, 12 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12400T	35W	1.8GHz, 6 cores, DDR4-3200 DDR5-4800, Turbo, GT24

The table below lists the power ratings for the various PCIe add-in cards supported on P360 Ultra.

Add-in Card Power Ratings

Max Power Rating	Card Name	Card Type
140W	RTX A5000 mobile	Graphics Card (MXM)
75W (or less)	RTX A2000(12GB), RTX A2000E(12GB)	Graphics Card (Double Wide)
	T400(4GB), T1000(8GB), T1000E(8GB), Radeon Pro WX3200	Graphics Card (Single Wide)
	I350-T2, I350-T4, Broadcom 5720 2-port Ethernet, Broadcom 5719 4-port Ethernet	Networking (Single Wide)
	Rear USB 3.1 Type C, 2-Port USB Expansion Card, 4-Port Serial Expansion Card	Miscellaneous (Single)



Section 3 – P360 Ultra Power Configurations

As mentioned previously, P360 Ultra supports 170W, 230W and 300W power adapters, which allow customers to tailor their system to best meet the requirements of the components they intend to support. The following diagrams and notes show allowable hardware configurations for systems with either power supply.

170 Watt Adapter

- Single graphics card configs only
- Provides single dedicated 12V rail

CPU - up to 65W	All UDIMM Memory	No Storage Limitations	GPU Support 1x Single Wide GPU
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230 Watt Adapter

- Single graphics card configs only
- Provides single dedicated 12V rail

CPU - up to 65W	All UDIMM Memory	No Storage Limitations	GPU Support 1x Single Wide GPU or 1x Double Wide GPU
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300 Watt Adapter w/ 35W or 65W CPU

- Single graphics card configs only
- Provides single dedicated 12V rail

CPU – 35W or 65W

All UDIMM Memory

No Storage Limitations

GPU Support

1x Single Wide GPU

or

1x Double Wide GPU

300 Watt Adapter w/ 125W CPU

- GPU support limited by CPU heatsink size
- Single graphics card configs only
- Provides single dedicated 12V rail

CPU – 125W

All UDIMM Memory

No Storage Limitations

GPU Support

1x Single Wide GPU

P360 Ultra Power Supply Configuration Notes:

- **For configurations that are not listed above but appear to be feasible, please work with the Technical Solutions Team to have the configuration validated/vetted.**
- Officially supported configurations could still be limited by additional factors not defined within this document.
- The I350-T4 adapter is only available via Special Bids



Section 4 – Revision History

Version	Date	Author	Changes/Updates
1.0	7/25/2022	Jim Pfaltzgraff	Initial launch release