Power Configurator

Lenovo ThinkStation P360 Tower

Contents

Overview

The ThinkStation P360 Tower platform is the new desktop workstation that replaces the P350 Tower. From a base power perspective, the power supply (PSU) options have remained unchanged from the P350 Tower, as shown here:

P360 Tower PSU options: 500W and 750W

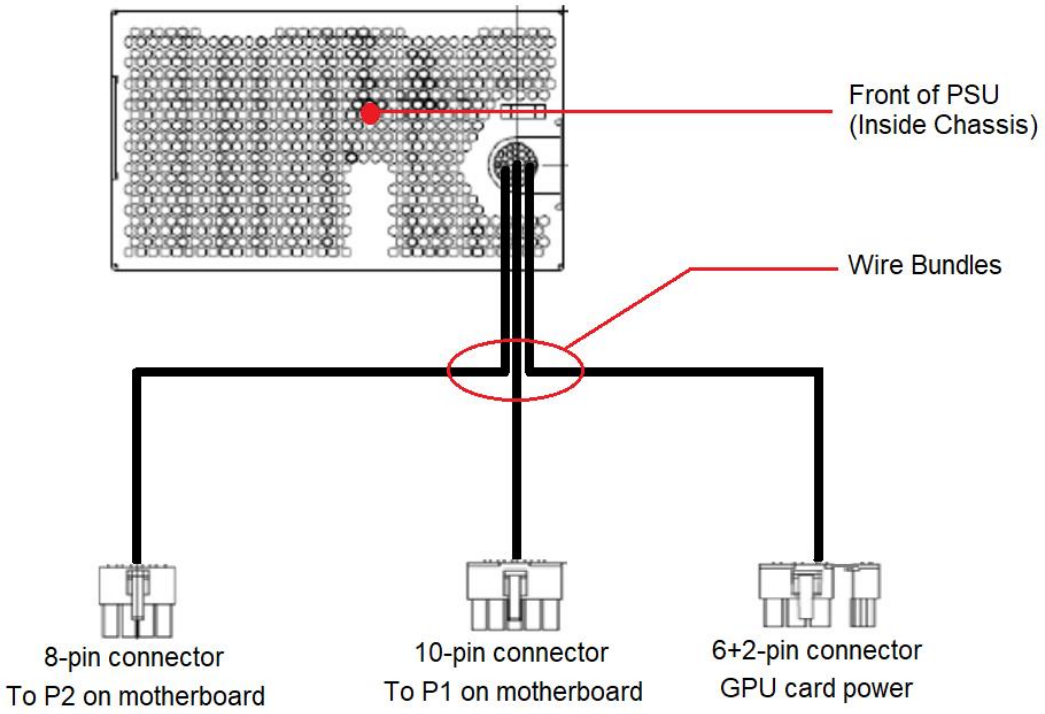
These power supplies allow the P360 platform to support an expanded configuration of system components -- notably the Intel Alder Lake CPU family.

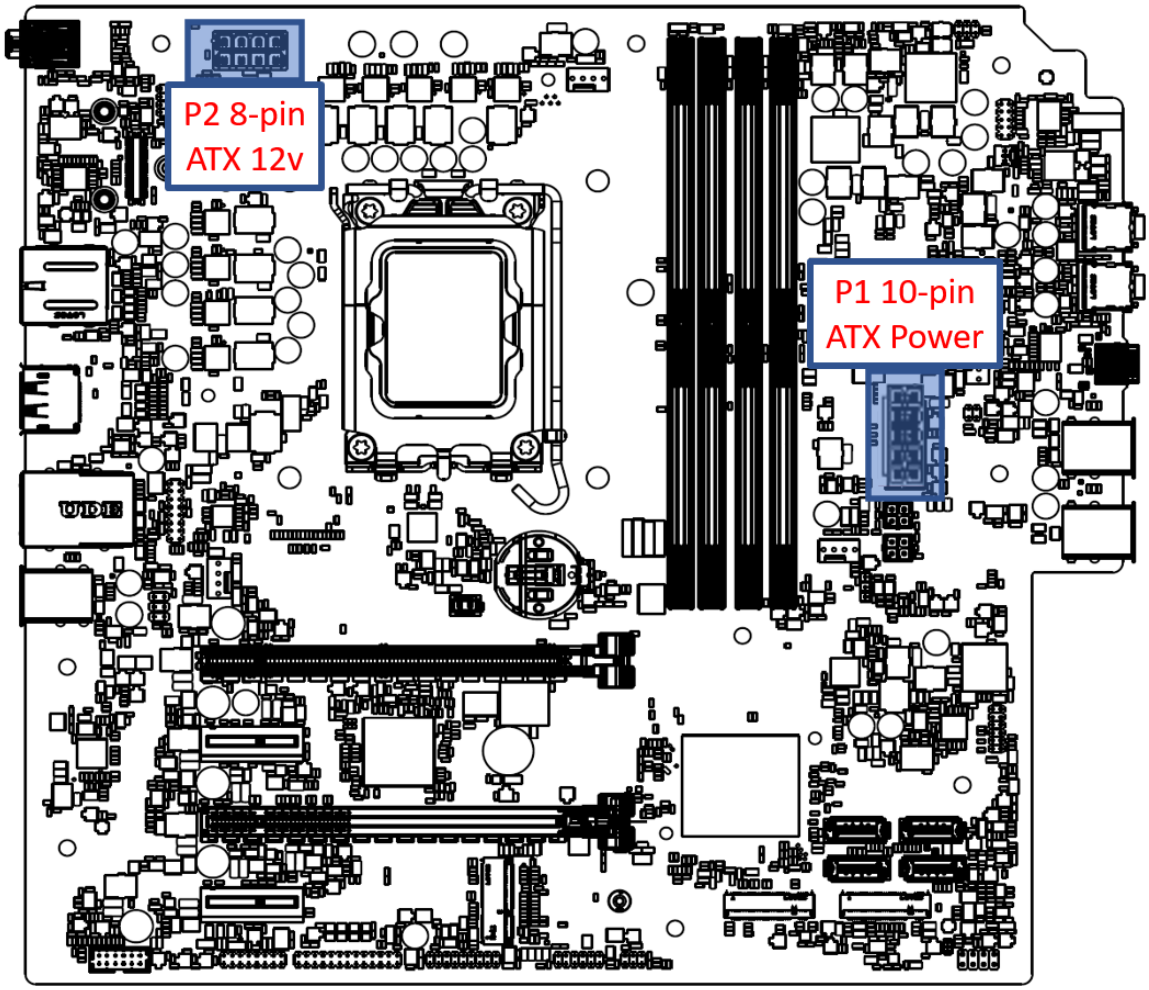
The goal of this document is to highlight the specs of the system components with the highest power demand and allow you to make the best decisions when choosing the correct PSU for your hardware configuration.

Section 1 – Key Architectural Design

The P360 utilizes a traditional approach to powering system components. All onboard components and add-in cards are powered through direct cable connections from the power supply. The diagrams in *Figure 1* show a high-level design on how the power supply directly attaches to the motherboard and add-in cards. Note that in configurations without aux-powered GPUs, the unused aux power cable is coiled up and the 6+2 pin connector is clipped to the rear of the front system fan.

Figure 1 – P360 Power Design





P360 Motherboard

Section 2 – Power Ratings for Key System Components

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

Figure 2 shows the power ratings for the various CPUs supported on P360 Tower.

Figure 2 - CPU Power Ratings

CPU Name (Core Alder Lake)	CPU Power	Additional CPU Information
Core i9 12900K	125W	3.2GHz, 16 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i7 12700K	125W	3.6GHz, 12 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12600K	125W	3.7GHz, 10 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i9 12900	65W	2.4GHz, 16 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i7 12700	65W	2.1GHz, 12 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12600	65W	3.3GHz, 6 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5 12500	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

Figure 3 lists the power ratings for the various add-in cards supported on P360 Tower.

Figure 3 - Add-in Card Power Ratings

Max Power Rating	Card Name	Card Type	Aux Power Connectors Required (if any)
230W	RTX A5000	Graphics Card (Dual Slot)	8-pin (PCIe)
200W	RTX A4500	Graphics Card (Dual Slot)	8-pin (PCIe)
140W	RTX A4000, RTX A4000E	Graphics Card (Single Slot)	6-pin (PCIe)
75W (or less)	T400(2GB), T400(4GB), T600, T1000(4GB), T1000(8GB), T1000E(8GB)	Graphics Card (Single Slot)	None
	RTX A2000(8GB), RTX A2000(12GB), RTX A2000E(12GB)	Graphics Card (Dual Slot)	None
	I210-T1, I350-T2, I350-T4, I350-F2, AX201 Wifi, AX211 Wifi, Thunderbolt card	Networking (Single Slot)	None

Section 3 – P360 Tower Power Configurations

P360 Tower supports 500W and 750W power supplies, 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.

500 Watt PSU

- Single 8-pin PCIe auxiliary power drop
  - Not used w/ this configuration
- Provides single dedicated 12V rail
- GPUs cannot be mixed in dual-GPU configs

CPU - up to 65W	All UDIMM Memory	No Storage Limitations	GPU Support
			75W x 2
			Dual RTX A2000 is Special Bid Only

750 Watt PSU

- Single 6+2 pin PCIe auxiliary power drop
- Provides single dedicated 12V rail
- GPUs cannot be mixed in dual-GPU configs
- Some supported GPU configurations might require additional cabling (See Appendix)

CPU - up to 125W	All UDIMM Memory	No Storage Limitations	GPU Support
			230W x 1
			200W x 1
			140W x 1
			75W x 2
			Dual RTX A2000 is Special Bid Only

P360 Tower 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.
- Some supported GPU/add-in-card configurations might require additional cabling to be supported. See Appendix.
- Use of full-length graphics cards, such as RTX A5000, requires that the front chassis mechanical bracket is removed to be able to install the card efficiently. The two lower bracket screws secure the bracket to the rear of the GPU and the top screw anchors the whole assembly to the chassis. See Figure 4 below for details. Additionally, these full-length graphics cards require a right-angle power dongle to fit into the front chassis space (these dongles are included in models manufactured with full-length cards).

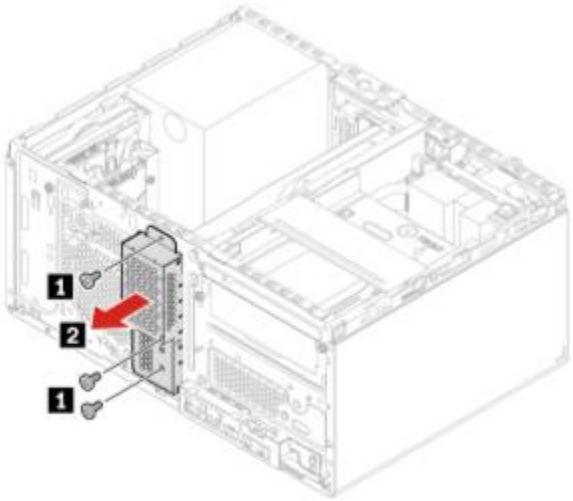
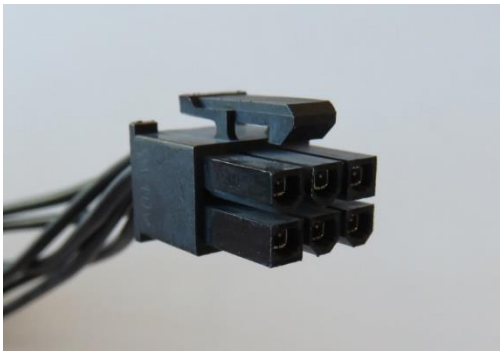


Figure 4

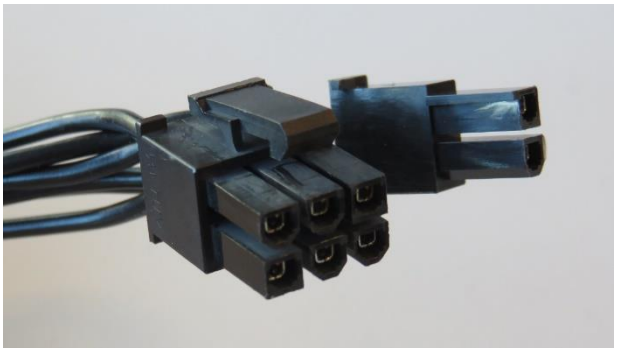
Section 4 – Appendix

This section contains additional useful information about the hardware used to power adapter cards in ThinkStation systems.

PCIe Power Connectors



6-pin PCIe Power Connector



6+2 pin PCIe Power Connector

Supported PCIe Power Cable Adapters

TBD

Section 5 – Revision History

Version	Date	Author	Changes/Updates
1.0	5/23/2022	Jim Pfaltzgraff	Initial launch release