Power Configurator

Lenovo ThinkStation P2 Tower

Contents

Overview

The ThinkStation P2 Tower platform is the new desktop workstation that replaces the P358 Tower. From a base power perspective, the power supply (PSU) options have remained unchanged from the P360 Tower, as shown here:

P2 Tower PSU options: 500W and 750W

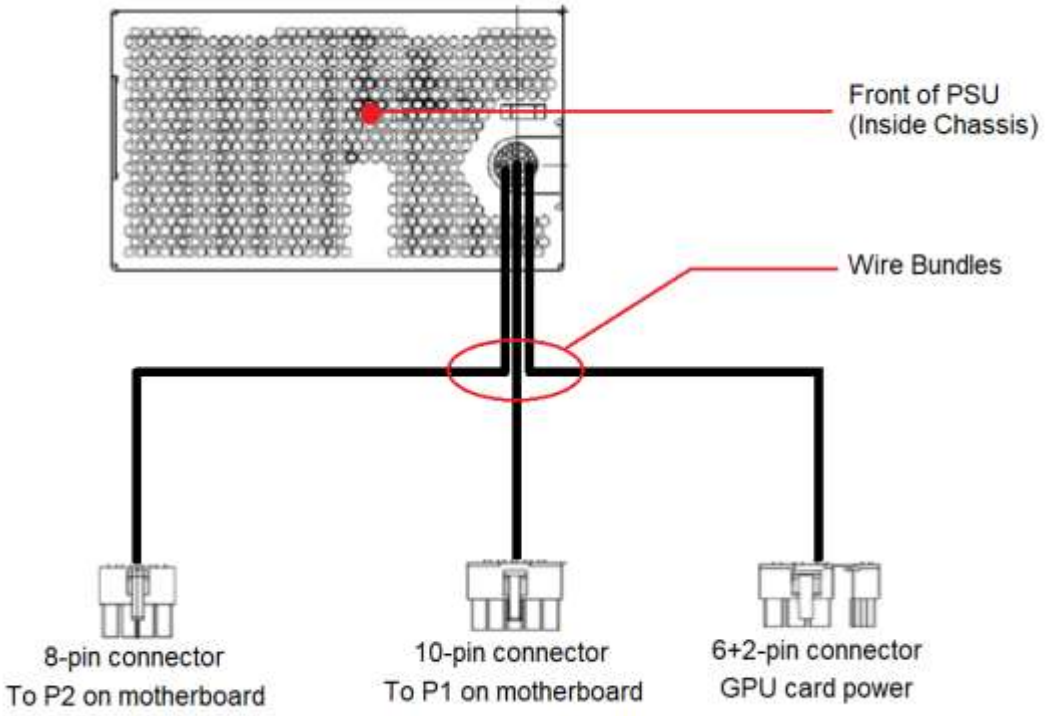
These power supplies allow the P2 platform to support an expanded configuration of system components -- notably the Intel Alder Lake CPU family.

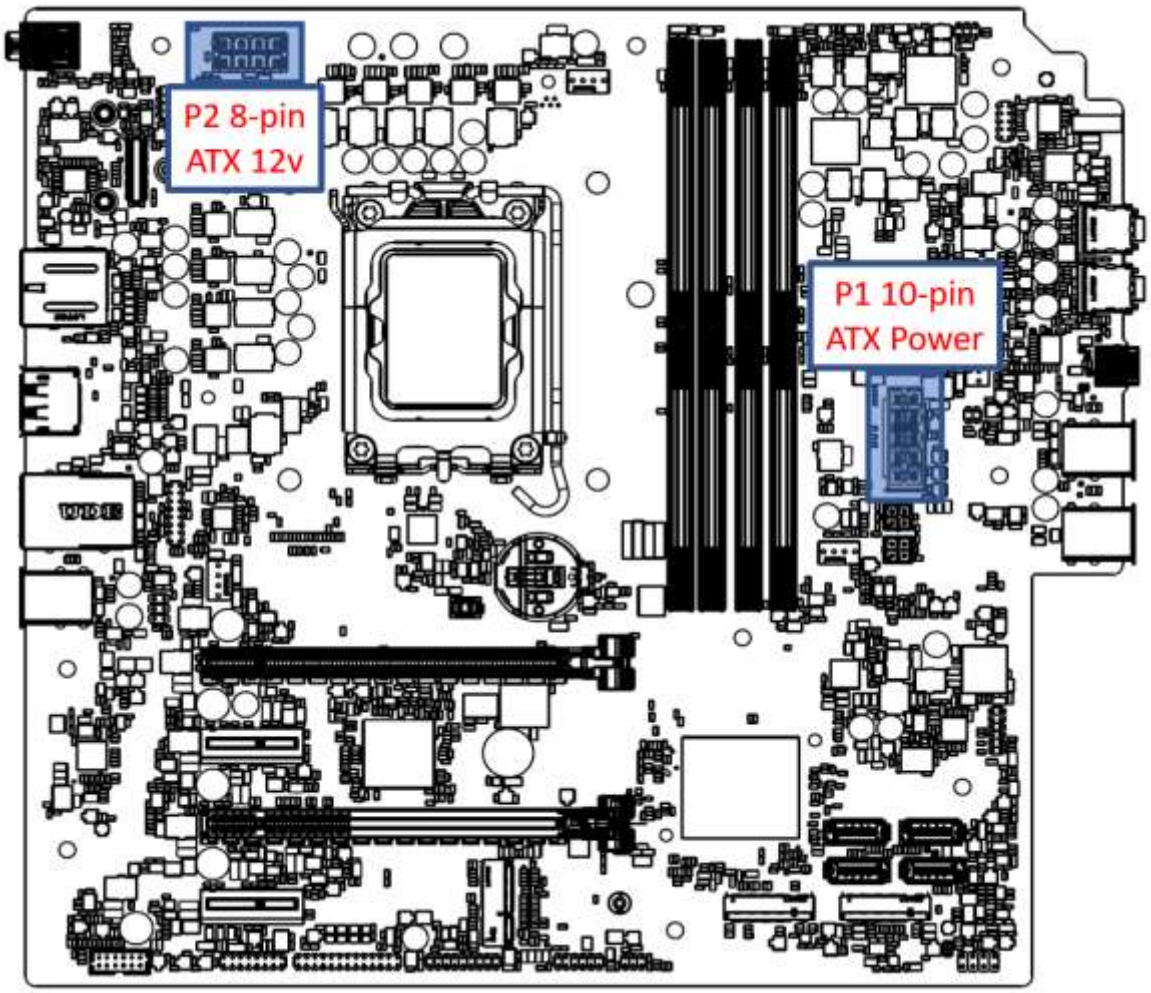
The goal of this document is to highlight the specs of the system components with the highest power demand and allow you to make the best decisions when choosing the correct PSU for your hardware configuration.

Section 1 – Key Architectural Design

The P2 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 – P2 Power Design





P2 Motherboard

Section 2 – Power Ratings for Key System Components

To fully understand the power capabilities of the ThinkStation P2 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 P2 Tower.

Figure 2 - CPU Power Ratings

CPU Name (Core Alder Lake)	CPU Power	Additional CPU Information
Core i9-14900K	125W	3.2GHz, 24 cores, DDR5-5600, Turbo, GEU 32
Core i7-14700K	125W	3.4GHz, 20cores, DDR5-5600, Turbo, GEU 32
Core i9-13900K	125W	3.0GHz, 24 cores, DDR5-5600, Turbo, GEU 32
Core i9 12900K	125W	3.2GHz, 16 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5-14700	65W	2.1GHz, 20 cores, DDR5-5600, Turbo, GEU 32
Core i5-14500	65W	2.6GHz, 14 cores, DDR5-5600, Turbo, GEU 32
Core i7-13700	65W	2.1GHz, 16 cores, DDR5-5600, Turbo, GEU 32
Core i5-13500	65W	2.2GHz, 14 cores, DDR5-5600, Turbo, GEU 32
Core i3-13100	60W	3.4GHz,4 cores, DDR5-4800, Turbo, GEU 24
Core i7-12700	65W	2.1GHz, 12 cores, DDR4-3200 DDR5-4800, Turbo, GT32
Core i5-12500	65W	3.0GHz, 6 cores, DDR4-3200 DDR5-4800, Turbo, GT32

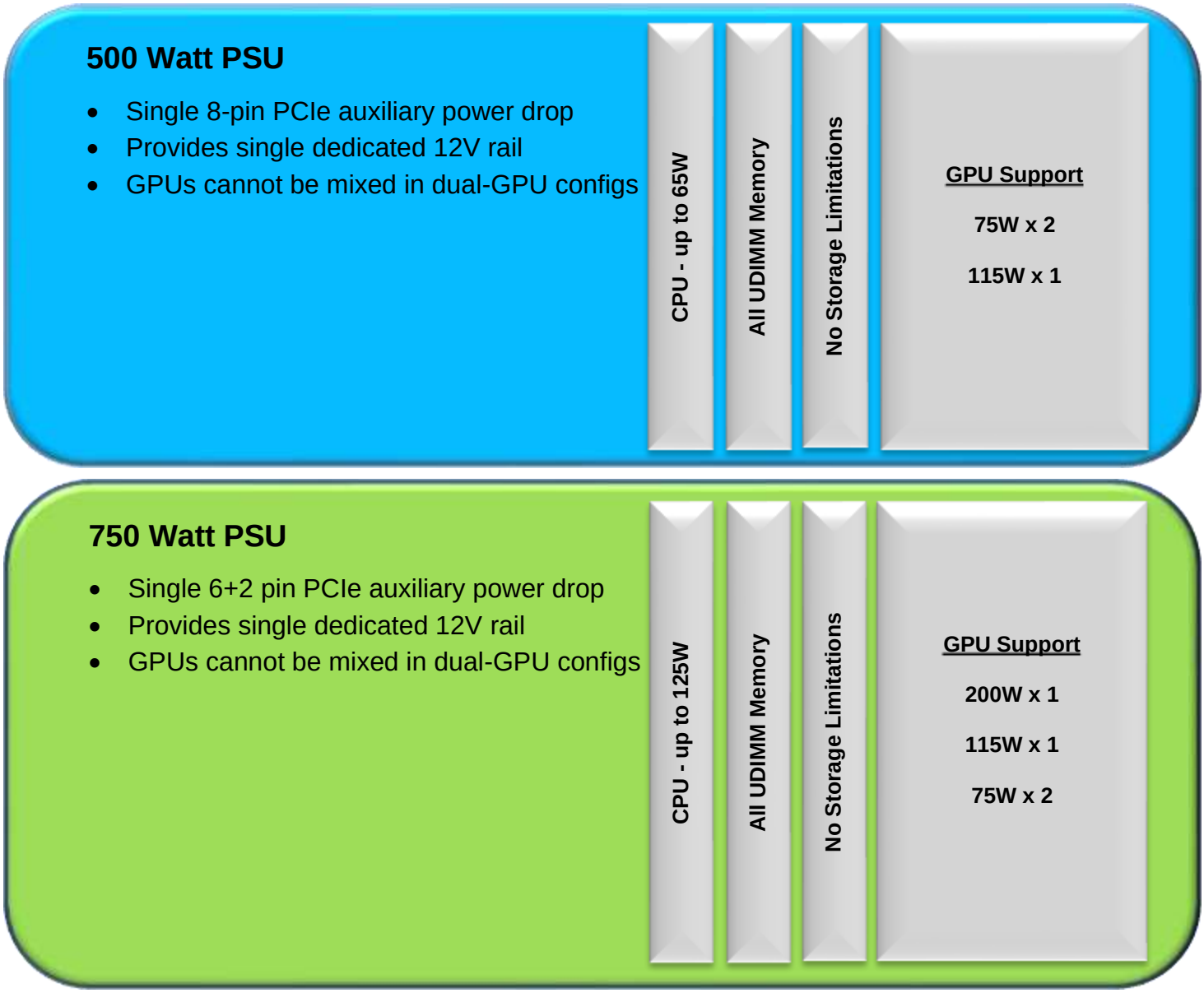
Figure 3 lists the power ratings for the various add-in cards supported on P2 Tower.

Figure 3 - Add-in Card Power Ratings

Max Power Rating	Card Name	Card Type	Aux Power Connectors Required (if any)
200W	GeForce RTX4070	Graphics Card (Triple Slot)	8-pin (PCIe)
115W	GeForce RTX4060	Graphics Card (Dual Slot)	8-pin (PCIe)
75W (or less)	T400(4GB), T1000(4GB), T1000(8GB),	Graphics Card (Single Slot)	None
	I210-T1, I350-T2, I350-T4, Bitland RTL8168H 1000M	Networking (Single Slot)	None

Section 3 – P2 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.



P2 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.**

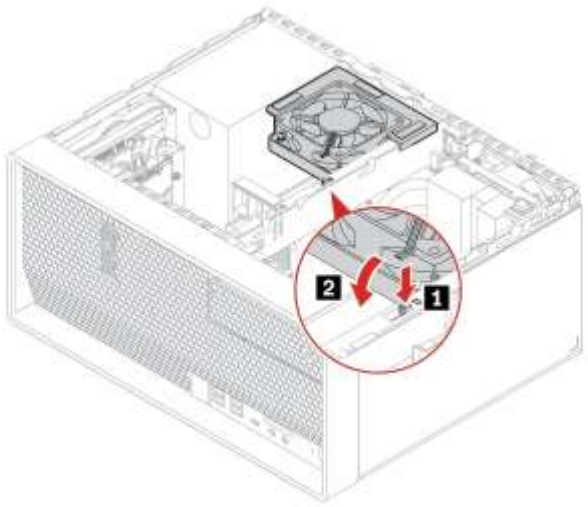


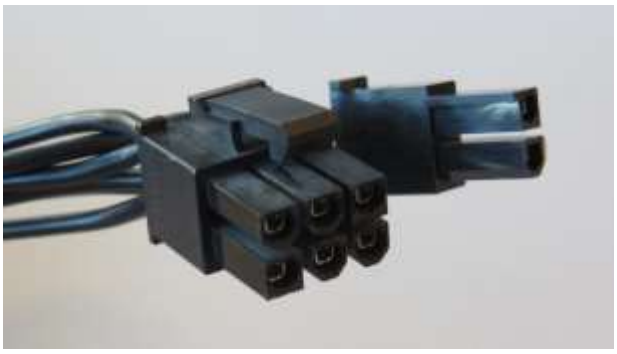
Figure 4

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
0.1	1/6/2024	Zhu Zheng	Initial Draft
1.0	10/30/2024	Zhu Zheng	Initial Release
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