X13 PCIe GPU

High Performance and Flexibility for AI, 3D Simulation and the Metaverse

Maximum Flexibility with up to 10 PCIe GPUs in 4U/5U

- **Dual 5th/4th Gen Intel® Xeon® Scalable processors**
- **Support for the latest industry standards including PCIe 5.0, DDR5-5600MT/s and Compute Express Link (CXL) 1.1**
- **Supports NVIDIA H100 and L40S PCIe GPUs**
- **Optional 1U expansion for enhanced thermal capacity**
- **Rackmount tower form factors to bring data center AI power to offices, labs and remote sites**
- **Flexible storage with U.2 NVMe and optional direct-to-CPU storage configurations**
- **Dual root and direct-connect PCIe configurations available**

Highly Flexible Platform

Supermicro PCIe GPU systems support next-generation accelerators based on the industry-standard PCIe form factor, with up to 10 double-width GPUs in a 4U or 5U chassis. Support for the latest industry-standard PCIe 5.0 provides unprecedented throughput for graphics accelerators, supporting the most demanding workloads, with CPU-direct U.2 NVMe bays ensuring maximum data throughput.

Bring 3D Worlds to Life

Optimized for the next generation of HPC, action-oriented AI, 3D simulation, and advanced graphic design and rendering, Supermicro X13 PCIe accelerated solutions empower the creation of 3D worlds, digital twins, 3D simulation models and the Metaverse. Reduce AI model training times, test designs before deploying in the real world and render advanced 3D designs with real-time ray tracing powered by the latest-generation PCIe GPU solutions which can be customized to suit the precise workload at hand.

Maximum GPU Acceleration with up to 10 PCIe Cards

X13 GPU systems support up to 10 double-width PCIe GPU cards including NVIDIA H100 and L40S for the highest possible GPU density in a 4U or 5U chassis. All PCIe slots are PCIe 5.0 x16 and can also be used for PCIe DPUs or NIC cards, providing additional acceleration for networking and other functions. Optional CPU and GPU liquid cooling can significantly increase thermal efficiency while also allowing these systems to run at maximum performance and in dense configurations.

4U, 5U or Tower Form Factors

In addition to the standard 4U rackmount form factor, an optional 5U chassis provides enhanced airflow for increased thermal capacity to support top-tier models of CPUs and GPUs and higher ambient temperatures for free-air cooling. Rackmount tower configurations are also available, delivering data center AI compute power in a portable form factor ideal for under-desk deployment in offices, schools, research laboratories or field offices.

AI Accelerated with 5th Gen Intel Xeon Processors

The latest 5th Gen Intel Xeon processors are the most powerful and efficient Xeon processors ever, with more cores and better performance per watt in the same power envelope. Built-in accelerator engines are optimized for AI and HPC workloads, including the purpose-built Intel Advanced Matrix Extensions (Intel AMX) accelerator to improve the performance of deep learning workloads to deliver robust AI capabilities for AI training and inference. The new Intel Trust Domain Extensions (Intel TDX) built into 5th Gen Intel Xeon ensures data security and privacy at the VM level, providing operators with peace of mind to deploy AI at scale.

PCIe GPU	SYS-421GE-TNRT	SYS-421GE-TNRT3	SYS-521GE-TNRT
Processor Support	Dual 5th/4th Gen Intel® Xeon® Scalable processors Up to 350W TDP (air cooled)† Up to 350W TDP (liquid cooled)†	Dual 5th/4th Gen Intel® Xeon® Scalable processors Up to 350W TDP (air cooled)† Up to 350W TDP (liquid cooled)†	Dual 5th/4th Gen Intel® Xeon® Scalable processors Up to 350W TDP (air cooled)† Up to 350W TDP (liquid cooled)†
Memory Slots & Capacity	32 DIMM slots; Up to 8TB DDR5-5600MT/s	32 DIMM slots; Up to 8TB DDR5-5600MT/s	32 DIMM slots; Up to 8TB DDR5-5600MT/s
GPU Compatibility	Up to 10 double-width GPUs in a dual root configuration NVIDIA H100/L40S/A100/L40/RTX 6000/A10/A4000	Up to 8 double-width GPUs in a direct connect configuration NVIDIA H100/L40S/A100/L40/RTX 6000/A10/A4000	Up to 10 double-width GPUs in a dual root configuration NVIDIA H100/L40S/A100/L40/RTX 6000/A10/A4000
I/O Ports	Dedicated IPMI port (rear) 2 10GbE BaseT ports via Intel® X710-AT2 (rear) 2 USB 3.0 ports (rear) 1 COM port (optional; rear) 1 VGA port (rear)	Dedicated IPMI port (rear) 2 10GbE BaseT ports via Intel® X710-AT2 (rear) 2 USB 3.0 ports (rear) 1 COM port (optional; rear) 1 VGA port (rear)	Dedicated IPMI port (rear) 2 10GbE BaseT ports via Intel® X710-AT2 (rear) 2 USB 3.0 ports (rear) 1 COM port (optional; rear) 1 VGA port (rear)
Motherboard	X13DEG-OA	X13DEG-OA	X13DEG-OA
Form Factor	4U Rackmount 737mm/29" depth	4U Rackmount 737mm/29" depth	5U Rackmount 737mm/29" depth
Expansion	13 PCIe 5.0 x16 FHFL slots	8 PCIe 5.0 x16 FHFL slots	13 PCIe 5.0 x16 FHFL slots
Drive Bays	24 hot-swap 2.5" NVMe/SATA/SAS drive bays (8 NVMe dedicated + 8 SATA dedicated)	24 hot-swap 2.5" NVMe/SATA/SAS drive bays (4 NVMe dedicated + 8 SATA dedicated)	24 hot-swap 2.5" NVMe/SATA/SAS drive bays (8 NVMe dedicated + 8 SATA dedicated)
Cooling	8 heavy duty fans	8 heavy duty fans	10 heavy duty fans
Power	4 Redundant 2700W Titanium level	4 Redundant 2700W Titanium level	4 Redundant 2700W Titanium level

†. CPUs with high TDP supported under specific conditions. Contact Technical Support for details.

PCIe GPU	SYS-741GE-TNRT	SYS-751GE-TNRT
Processor Support	Dual 5th/4th Gen Intel® Xeon® Scalable processors Up to 350W TDP (air cooled)†	Dual 5th/4th Gen Intel® Xeon® Scalable processors Up to 270W TDP (liquid cooled)†
Memory Slots & Capacity	16 DIMM slots; Up to 4TB DDR5-5600MT/s	16 DIMM slots; Up to 4TB DDR5-5600MT/s
GPU Compatibility	Up to 4 double-width or single-width GPUs NVIDIA H100/L40S	Up to 4 double-width GPUs Liquid cooled NVIDIA H100
I/O Ports	1 dedicated IPMI LAN port (rear) 2 10GbE BaseT ports via Intel® X550-AT2 (rear) 5 USB 3.0 Type-A ports (2 front/3 rear) 1 USB 3.0 Type-C port (rear) 1 VGA port(s) (rear) 1 COM port (rear) Audio ports (front)	Dedicated IPMI LAN port (rear) 2 10GbE BaseT ports via Intel® X550-AT2 (rear) 1 1GbE BaseT port via ASPEED AST2600 (rear) 5 USB 3.0 Type-A ports (2 front/3 rear) 1 USB 3.2 Gen2 Type-C port (rear) 1 VGA port(rear) 7.1 channel HD audio ports (front)
Motherboard	X13DEG-QT	X13DEG-QT
Form Factor	Tower Rackmount 737mm/29" depth	5U Rackmount Tower 701mm/26.6" depth
Expansion	7 PCIe 5.0 x16 FHFL slots	6 PCIe 5.0 x16 FHFL slots
Drive Bays	8 hot-swap 2.5" NVMe/SATA/SAS drive bays 2 M.2 NVMe slots	8 hot-swap 2.5" NVMe/SATA/SAS drive bays 2 M.2 NVMe slots
Cooling	4 heavy duty fans with optimal fan speed control	Closed-loop DIrect-to-Chip CPU and GPU liquid cooling
Power	2000W Redundant Titanium Level power supplies	2200W Redundant Titanium Level power supplies

† CPUs with high TDP supported under specific conditions. Contact Technical Support for details.