

SuperServer 4029GP-TVRT (Complete System Only)

4U Dual Processor (Intel) System with 8 NVIDIA V100 GPUs



Integrated Board



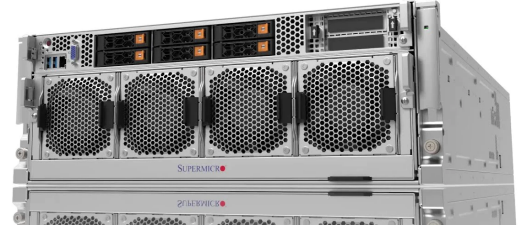
X11DGO-T

Views: | [Angled View](#) | [Top View \(CPU\)](#) | [Top View \(GPU\)](#)
| [Front View](#) | [Rear View](#) |

Complete System Only: To maintain quality and integrity, this product is sold only as a completely-assembled system (with minimum 2 CPUs, 4 DIMMs, 4 GPUs installed).

▶ [Drivers & Utilities](#) ▶ [BIOS](#) ▶ [IPMI](#) ▶ [Tested Memory](#) ▶ [Drive Options](#) ▶ [NVMe Options](#) ▶ [Tested M.2 List](#) ▶ [Manuals](#) ▶ [OS Certification Matrix](#) ▶ [Compatible GPU List](#)

Note: Image above may show a varied configuration of optional parts. Please refer to parts list for standard parts included.



Key Applications

- AI/ML, Deep Learning Training and Inference
- Big Data Analytics
- High Performance Computing (HPC)
- Research Laboratory/National Laboratory

Key Features

1. Supports 8 NVIDIA® V100 SXM2 GPUs with up to 300 GB/s GPU-GPU NVIDIA® NVLINK™ Interconnection
2. Optimized for NVIDIA® GPUDirect™ RDMA
3. Dual Socket P (LGA 3647) support 2nd Gen Intel® Xeon® Scalable processors (Cascade Lake/Skylake)‡
4. 24 DIMMs; up to 6TB 3DS ECC DDR4-2933MHz† RDIMM/LRDIMM, Supports Intel® Optane™ DCPMM††
5. 4 PCI-E 3.0 x16 (LP) (GPU tray for GPUDirect RDMA), 2 PCI-E 3.0 x16 (LP, CPU tray)
6. Support 8 NVIDIA V100 with 300GB/s NVLINK
7. Dual 10GBase-T LAN with Intel® X540
8. 16 Hot-swap 2.5" SAS/SATA drives (Optional 8x NVMe drives supported), 2 NVMe based M.2 SSD
9. 8x 92mm cooling fans
10. 2200W Redundant (2+2) Power Supplies; **Titanium Level (96%+)**

Specifications

Product SKUs

- SYS-4029GP-TVRT**
 - SuperServer 4029GP-TVRT

Motherboard

- Super **X11DGO-T**

Processor

- CPU**
 - Dual Socket P (LGA 3647)
 - 2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors[‡], 3 UPI up to 10.4GT/s
 - Support CPU TDP 70-205W

- Cores**
 - Up to 28 Cores

- Note**
 - [‡] BIOS version 3.2 or above is required to support 2nd Gen Intel® Xeon® Scalable processors (codenamed Cascade Lake-R)

GPU

- Supported GPUs**
 - 8 SXM Socket Based
 - NVIDIA V100
 - Supports both active and passive cooled GPUs
 - [Compatible GPU list](#)

- CPU-GPU Interconnect**
 - PCI-E Gen 3 x16 Switch CPU-GPU Interconnect
 - NVIDIA® NVLink™ GPU-to-GPU Interconnect
 - [PCIe Root Architecture Chart](#)

System Memory

- Memory Capacity**
 - 24 DIMM slots
 - Up to 6TB 3DS ECC DDR4-2933MHz[†] RDIMM/LRDIMM
 - Supports Intel® Optane™ DCPMM^{††}

- Memory Type**
 - 2933[†]/2666/2400/2133MHz ECC DDR4 RDIMM/LRDIMM

- Note**
 - [†] 2933MHz in two DIMMs per channel can be achieved by using memory purchased from Supermicro
 - ^{††} Cascade Lake only. Contact your Supermicro sales rep for more info.

On-Board Devices

- Chipset**
 - Intel® C621 chipset
- SATA**
 - SATA3 (6Gbps) with RAID 0, 1, 5, 10
- Network Controllers**
 - Dual Port 10GBase-T from Intel X540 Ethernet Controller
- IPMI**
 - Support for Intelligent Platform Management Interface v.2.0
 - IPMI 2.0 with virtual media over LAN and KVM-over-LAN support
- Graphics**
 - ASPEED AST2500 BMC

Input / Output

- SATA**
 - 8 SATA3 (6Gbps) ports

Chassis

- Form Factor**
 - 4U Rackmountable
 - Rackmount Kit (MCP-290-31401-0N)

- Model**
 - CSE-R422BG-1**

Dimensions

- Height**
 - 7.0" (178mm)
- Width**
 - 17.6" (447mm)
- Depth**
 - 31.7" (805mm)
- Weight**
 - Net Weight: 80 lbs (36.2 kg)
 - Gross Weight: 135 lbs (61.2 kg)

- Available Colors**
 - Black

Drive Bays / Storage

- Hot-swap**
 - 16 Hot-swap 2.5" SAS/SATA drive bays
 - Optional 8x 2.5" NVMe supported

- M.2**
 - 2 NVMe based M.2 SSD
 - Form Factors: 2260, 2280, 22110

Expansion Slots

- PCI-Express**
 - 6 PCI-E 3.0 x16 (LP) slots (Onboard GPUs do not use PCI-E slots)

Backplane

16-port 2U SAS3 12Gbps hybrid backplane, support up to 8x 2.5" SAS3/SATA3 HDD/SSD and 8x SAS3/SATA3/NVMe Storage Devices

System Cooling

- Fans**
 - 8x 92mm Cooling Fans
 - 4x 80mm Cooling Fans

Power Supply

2200W Redundant Titanium Level Power Supplies with PMBus

- Total Output Power**
 - 1200W/1800W/1980W/2090W/2200 W (UL/cUL only)

- Dimension (W x H x L)**
 - 106.5 x 82.4 x 203.5 mm

- Input**
 - 1200W: 100-127 Vac / 14-11 A / 50-60 Hz
 - 1800W: 200-220 Vac / 10-9.5 A / 50-60 Hz
 - 1980W: 220-230 Vac / 10-9.5 A / 50-60 Hz
 - 2090W: 230-240 Vac / 10-9.8 A / 50-60 Hz
 - 2200W: 220-240 Vac / 12-11 A / 50-60 Hz (UL/cUL only)
 - 2090W: 180-220 Vac / 14-11 A / 50-60 Hz (UL/cUL only)
 - 2090W: 230-240 Vdc / 10-9.8 A (CCC only)

LAN	<ul style="list-style-type: none"> 2 RJ45 10GBase-T LAN ports 1 RJ45 Dedicated IPMI LAN port
USB	<ul style="list-style-type: none"> 2 USB 3.0 ports (front)
Video	<ul style="list-style-type: none"> 1 VGA Connector
COM Port	<ul style="list-style-type: none"> 1 COM port (header)

System BIOS

BIOS Type	<ul style="list-style-type: none"> AMI 32Mb SPI Flash ROM
BIOS Features	<ul style="list-style-type: none"> Intel® Node Manager <u>IPMI 2.0</u> KVM with dedicated LAN <u>SSM, SPM, SUM</u> <u>SuperDoctor® 5</u> Watchdog

+12V	<ul style="list-style-type: none"> Max: 100A / Min: 0A (1200W) Max: 150A / Min: 0A (1800W) Max: 165A / Min: 0A (1980W) Max: 174.17A / Min: 0A (2090W) Max: 183.3A / Min: 0A (2200W) Max: 174.17A / Min: 0A (2090W)
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12Vsb	<ul style="list-style-type: none"> Max: 2A / Min: 0A
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Output Type	<ul style="list-style-type: none"> Gold Finger (connector on M/P)
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Certification	  Titanium Level [Test Report]
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Operating Environment

RoHS	<ul style="list-style-type: none"> RoHS Compliant
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Environmental Spec.	<ul style="list-style-type: none"> Operating Temperature: 10°C ~ 35°C (50°F ~ 95°F) Non-operating Temperature: -40°C to 60°C (-40°F to 140°F) Operating Relative Humidity: 8% to 90% (non-condensing) Non-operating Relative Humidity: 5% to 95% (non-condensing)
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Parts List

Parts List - (Items Included)

	Part Number	Qty	Description
Motherboard / Chassis	MBD-X11DGO-T	1	Super X11DGO-T Motherboard
	MBD-X10DGO-SXMV-P	1	V100 SXM2 GPU Board
	CSE-R422BG-1	1	CSE-R422BG-1 Chassis
Backplane	BPN-MB-R422	1	Pascal 4U midplane, 2U Pascal node on top, and 2U CPU node on bottom. Support 8x fan/power module at rear side.,RoHS
Backplane	BPN-SAS3-213A-N8	1	16-port 2U SAS3 12Gbps hybrid backplane, support up to 8x 2.5-inch SAS3/SATA3 HDD/SSD and 8x SAS3/SATA3/NVMe Storage Devices
Cable 1	CBL-0174L	4	PWCD,US,NEMA5-15P TO IEC60320 C13,6FT,14AWG,15A,125V,RoHS/REACH
Cable 2	CBL-PWCD-0174-IS	4	PWCD,US,NEMA5-15P TO IEC60320 C13,6FT,14AWG,RoHS/REACH
Cable 3	CBL-PWEX-0979	3	2X4F/GPU-White/P4.2 to TWO 1X4F/P5.08, (5,12V),48/51CM,18AWG
Cable 4	CBL-SAST-0550	2	MINI SAS HD,12G,INT,25CM,30AWG
Cable 5	CBL-SAST-0934-12	4	Oculink-Oculink X8 Cable 50cm 34AWG,RoHS
Cable 6	CBL-SAST-0935-12	4	Oculink-Oculink X8 Cable 60cm 34AWG,RoHS
Parts	MCP-220-42204-0N-PACK	1	Single pack R422BG 2U GPU tray (2U, 8 Pascal / Volta GPU),Ro
Power Supply	PWS-2K21A-2R	4	2U 2200W 90-264VAC/47-63Hz, or wide DC input 180Vdc~300Vdc,
Power Supply	PWS-DF004-1F	4	12Vdc input redundant FAN module power supports I2C function
Heatsink / Retention	SNK-P0068APS4	2	2U Active CPU Heat Sink Supporting Narrow Bolster Plate Mounting Mechanism for X11 Purley Platform
Heatsink / Retention	SNK-P4003P	8	2U Passive GPU Heat Sink for NVIDIA Pascal and Volta GPUs in SYS-4028GR-TXR/TXRT Series Servers

Optional Parts List

	Part Number	Qty	Description
NVMe Kit	CBL-SAST-1021	1	Oculink-8 lanes to 2x Oculink 4 lanes, 30cm 34AW
	MCP-220-00121-0B	1-2	Black Gen-3 2.5" NVMe drive tray, Orange tab with lock
	MCP-220-00167-0B		Tool-less black hot-swap 2.5" NVMe drive tray (Orange tab, w/ key lock, clip design)
Storage Control Kits (Storage Control Cards + Cables)	AOC-S3008L-L8i & 2x CBL-SAST-0568	-	Std LP, 8 internal ports, 12Gb/s per port- Gen3, RAID 0, 1, 1E; MINI SAS HD,12G,INT,35CM,30AWG
	AOC-S3108L-H8iR & 2x CBL-SAST-0568	-	Std LP, 8 internal ports, 12Gb/s per port- Gen3, RAID 0, 1, 5, 6, 10, 50, 60; MINI SAS HD,12G,INT,35CM,30AWG
	AOC-S3108L-H8iR-16DD & 2x CBL-SAST-0568	-	Std LP, 8 internal ports, 12Gb/s per port- Gen3, RAID 0, 1, 5, 6, 10, 50, 60; MINI SAS HD,12G,INT,35CM,30AWG
Super Cap for LSI 3108	1x BTR-TFM8G-LSICVM02 & 1x BKT-BBU-BRACKET-05 or MCP-240-00127-0N	-	LSI Supercap w 8GB CV 24 cable (whole kit) & Supercap mounting bracket for PCI-E location BKT-BBU-BRACKET-05: with vented full height bracket installed MCP-240-00127-0N: LSI SuperCap Bracket, same size as 2.5" HDD
Intel VROC RAID Key	AOC-VROCINTMOD	1	Intel VROC, RAID 0, 1, 5, 10 (Intel SSD Only)
	AOC-VROCSTNMOD	1	Intel VROC Standard, RAID 0, 1, 10
	AOC-VROCPREMOD	1	Intel VROC Premium, RAID 0, 1, 5, 10
TPM security module	AOM-TPM-9670V-S	1	SPI capable vertical TPM 2.0 provisioned for client,RoHS
Network Cards	AOC-654105A-HCAT	-	Mellanox ConnectX-6 VPI 200Gb/s IB & EN Adapter Card single port, QSFP56, PCIe3.0 x16 + PCIe3.0x16 aux. card Socket Direct. RoHS
	AOC-653106A-ECAT	-	ConnectX-6 VPI Card. 100Gb/s IB & EN Adapter Card, dual ports, QSFP56, PCIe 3.0/4.0 x16. HF, RoHS
	AOC-S100G-m2C	-	Standard low-profile 2-port QSFP28 100GbE PCI-E 3.0 x16, based on Mellanox ConnectX-4 EN chipset

	AOC-MCX556A-ECAT	-	Mellanox ConnectX-5 VPI adapter card, EDR IB (100Gb/s) and 100GbE, dual-port QSFP28, PCIe3.0 x16, tall bracket, HF, RoHS
	AOC-MCX516A-CCAT	-	Mellanox MCX516A-CCAT PCIe 2-port 100GbE QSFP28 Gen3.0 x16 CX-5. HF, RoHS
	AOC-MCX515A-CCAT	-	Mellanox MCX515A-CCAT PCIe 1-port 100GbE QSFP28 Gen3x16, HF, RoHS
	AOC-MCX456A-FCAT	-	Mellanox ConnectX-4 VPI adapter card, FDR IB (56Gb/s) and 40/56GbE, dual-port QSFP, PCIe3.0 x16, tall bracket, HF, RoHS
	AOC-S40G-i2Q	-	Standard Low-Profile Dual-port 40GbE controller with 2x QSFP ports
	AOC-S25G-b2S	-	Standard Low-Profile Dual-port 25GbE controller with 2 SFP28 ports, based on Broadcom BCM57414
	AOC-S25G-m2S	-	Standard low-profile 2-port 25GbE with SFP+, based on Mellanox ConnectX-4 LX EN chipset
	AOC-STGF-i2S	-	Standard Low-Profile Quad-port 10GbE controller with 4x SFP+ ports
	AOC-STGN-i2S	-	Standard Low-Profile Dual-port 10GbE controller with 2x SFP+ ports
	AOC-SGP-i2	-	Standard Low-Profile Dual-port GbE controller with 2x RJ45 ports
Air Shroud	MCP-310-42203-0B	1	Pascal 2U mylar GPU dummy
Global Services & Support	QS4HR3/2/1	-	3/2/1-year onsite 24x7x4 service
	OSNBD3/2/1	-	3/2/1-year onsite NBD service
Software	SFT-OOB-LIC • eStore	1	OOB Management Package (per node license)
Software	SFT-DCMS-Single	1	DataCenter Management Package (per node license)