

SuperServer 1029GQ-TVRT (Complete System Only)

1U Dual Processor (Intel) System with 4 NVIDIA V100 GPUs



Integrated Board



X11DGQ

Views: | [Angled View](#) | [Top View](#) |
| [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, 2 GPUs installed). Use with 3 GPUs not recommended.

▶ [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

- Edge Computing
- Micro Data Center
- AI/ML, Deep Learning Training and Inference
- Virtualization
- Cloud Computing

Key Features

1. Supports up to 4 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. 12 DIMMs; up to 3TB 3DS ECC DDR4-2933MHz† RDIMM/LRDIMM, Supports Intel® Optane™ DCPMM††
5. 2 PCI-E 3.0 x16 slots, 2 PCI-E 3.0 x16 LP slots
6. 2 Hot-swap 2.5" SAS/SATA drive bays, 2 Internal 2.5" drive bays, Optional NVMe U.2 drive option
7. Support 1x M.2 2242/2260/2280, Support M.2 SATA and NVMe
8. 2x 10GBase-T LAN ports via Intel X540
9. 7 Heavy duty 4cm counter-rotating fans with air shroud & optimal fan speed control
10. 2000W Redundant Power Supplies **Titanium Level (96%)**

Specifications

Product SKUs

- SYS-1029GQ-TVRT** ■ SuperServer 1029GQ-TVRT

Motherboard

Super X11DGQ

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 up to 165W

- 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).

Extended thermal solutions may be required to support CPUs higher than 165W TDP, please contact Supermicro Technical Support for additional information.

GPU

- Supported GPUs**
- 4 SXM Socket Based
 - NVIDIA V100
 - [Compatible GPU list](#)

- CPU-GPU Interconnect** ■ PCI-E Gen 3 x16 Switch CPU-GPU Interconnect

System Memory

- Memory Capacity**
- 12 DIMM slots
 - Up to 3TB 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 Connectivity**
- Intel® X540 Dual Port 10GBase-T
 - Virtual Machine Device Queues reduce I/O overhead
 - Supports 10GBASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output

- 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

Chassis

- Form Factor** ■ 1U Rackmount

- Model** ■ CSE-118GQPTS-R2K05P2

Dimensions and Weight

- Height** ■ 1.7" (43mm)

- Width** ■ 17.2" (437mm)

- Depth**
- 35.2" (894mm)
 - 39.3" (997mm) with rails

- Package** ■ 24" (H) x 8" (W) x 46" (D)

- Weight**
- Net Weight: 45 lbs (20.41 kg)
 - Gross Weight: 58 lbs (26.31 kg)

- Available Color** ■ Black

Front Panel

- Buttons**
- Power On/Off button
 - UID button

- LEDs**
- Power LED
 - Hard drive activity LED
 - Network activity LEDs
 - System Overheat LED / Fan fail LED / UID LED

Expansion Slots

- PCI-Express** ■ 4 PCI-E 3.0 x16 slots - supporting 4 NICs which includes 2x GPUDirect RDMA

Drive Bays

- Hot-swap**
- 2 Hot-swap 2.5" SAS/SATA drive bays
 - Note: Can be upgraded to 2 U.2 NVMe drives by addition of optional NVMe kit (please see details in optional parts list below).

- Fixed** ■ 2 Internal 2.5" SATA drive bays

- M.2**
- Support 1x M.2 2242/2260/2280
 - Support M.2 SATA and NVMe

System Cooling

- Fans**
- 7 Heavy duty 4cm counter-rotating fans with air shroud & optimal fan speed control

Power Supply

2000W Redundant Power Supplies with PMBus

- Total Output Power**
- 1000W: 100 – 120Vac
 - 1800W: 200 – 220Vac
 - 1980W: 220 – 230Vac
 - 2000W: 230 – 240Vac
 - 2000W: 200 – 240Vac (UL/CUL only)

- Dimension (W x H x L)** ■ 73.5 x 40 x 265 mm

Input / Output

SATA	<ul style="list-style-type: none"> 4 SATA3 (6Gbps) ports
LAN	<ul style="list-style-type: none"> 2 RJ45 10GBase-T ports 1 RJ45 Dedicated IPMI LAN port
USB	<ul style="list-style-type: none"> 2 USB 3.0 ports (rear)
Video	<ul style="list-style-type: none"> 1 VGA port
Serial Header	<ul style="list-style-type: none"> 1 Fast UART 16550 header

System BIOS

BIOS Type	<ul style="list-style-type: none"> AMI 32Mb SPI Flash ROM
------------------	--

Management

Software	<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> Watch Dog
Power Configurations	<ul style="list-style-type: none"> ACPI / APM Power Management

PC Health Monitoring

CPU	<ul style="list-style-type: none"> Monitors for CPU Cores, Chipset Voltages, Memory. 4+1 Phase-switching voltage regulator
FAN	<ul style="list-style-type: none"> Fans with tachometer monitoring Status monitor for speed control Pulse Width Modulated (PWM) fan connectors
Temperature	<ul style="list-style-type: none"> Monitoring for CPU and chassis environment Thermal Control for fan connectors

Input	<ul style="list-style-type: none"> 100-120Vac / 12.5-9.5A / 50-60Hz 200-220Vac / 10-9.5A / 50-60Hz 220-230Vac / 10-9.8A / 50-60Hz 230-240Vac / 10-9.8A / 50-60Hz 200-240Vac / 11.8-9.8A / 50-60Hz (UL/cUL only)
+12V	<ul style="list-style-type: none"> Max: 83.3A / Min: 0A (100-120Vac) Max: 150A / Min: 0A (200-220Vac) Max: 165A / Min: 0A (220-230Vac) Max: 166.7A / Min: 0A (230-240Vac) Max: 166.7A / Min: 0A (200-240Vac) (UL/cUL only)
12Vsb	<ul style="list-style-type: none"> Max: 2.1A / Min: 0A
Output Type	<ul style="list-style-type: none"> 25 Pairs Gold Finger Connector

Certification

Titanium Level
[[Test Report](#)]

Operating Environment

RoHS	<ul style="list-style-type: none"> RoHS Compliant
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)

Parts List

Parts List - (Items Included)

	Part Number	Qty	Description
Motherboard / Chassis	MBD-X11DGQ	1	Super X11DGQ Motherboard
	CSE-118GQPTS-R2K05P2	1	CSE-118GQPTS-R2K05P2 Chassis
Add-on Card / Module	AOM-PIO-I2XT-P	1	AOM-PIO-I2XT
Add-on Card / Module	AOM-SXMV-P	1	AOM housing Volta SXM 2.0 modules in conjunction with X11DGQ DP MB,HF,RoHS
Backplane	BPN-SAS3-118GQE	1	2-port 1U SAS3 12Gbps backplane, support up to 2x 2.5-inch SAS3/SATA3 HDD/SSD
Cable 1	CBL-0484L	4	SATA,INT,ROUND,ST-ST,55CM,30AWG
Cable 2	CBL-PWEX-1025	3	GPU,2x4F/RA/CPU to 2x4F/RA/CPU,P4.2, 6CM,17AWG, 8A/pin, -25~85C, RoHS
Cable 3	CBL-PWEX-1028	1	GPU,2x4F/CPU to 2x4F/CPU,P4.2, 30CM,16AWG, 10A/pin, -40~105C
Cable 4	CBL-SAST-0934-12	4	Oculink-Oculink X8 Cable 50cm 34AWG,RoHS
Riser Card	RSC-G-A66-X1	1	1U LHS Active Rear Riser card with two PCI-E x16 Slot,HF,RoH
Riser Card	RSC-GN2-66	1	1U Passive LHS GPU Riser Card with two NVMe ports and two PC
Heatsink / Retention	SNK-P0067PS	2	1U Passive CPU Heat Sink for X11 Purley Platform Equipped with a Narrow Retention Mechanism
Heatsink / Retention	SNK-P4004V	4	1U Passive GPU Heat Sink for NVIDIA SXM2 Module Equipped with Pascal or Volta GPU
Power Supply	PWS-2K05A-1R	2	1U 2000W Redundant Titanium Power Supply W/PMbus 73.5x40x265mm,RoHS/REACH
FAN 1	FAN-0163L4	7	40x40x56 mm, 23.3K-20.3K RPM, Counter-rotating Fan
Rear Window	MCP-240-11807-0N	1	SC118GQE Rear Window for 2x PCI-FL or 4th GPU
Rail Set	MCP-290-11809-0N	1	Rail set, Quick/Quick, Auto Latch, travel 535mm Short Version, Post to Post 685mm

Optional Parts List

	Part Number	Qty	Description
Add-on card for internal M.2 NVMe	AOC-SLG3-2M2*	-	Low Profile PCI-E x8 add-on card supports 2 PCI-E 3.0 x4 M-Key M.2 NVMe Modules * AOC to be installed in rear top PCIe slots.
AOC-S3008L-L8i (SAS3)	CBL-SAST-0699	1	Mini SAS HD to 4 SATA 12G
AOC-S3108L-H8IR-16DD (SAS3)	CBL-SAST-0699	1	Mini SAS HD to 4 SATA 12G
AOC-S3108L-H8IR (SAS3)	CBL-SAST-0699	1	Mini SAS HD to 4 SATA 12G
Super Cap for LSI 3108	BKT-BBU-BRACKET-05	1	Mounting Bracket for LSI BBUs
	BTR-TFM8G-LSICVM02	1	LSI Super Cap
SXM2 GPU Dummy	MCP-120-11812-0N	1	Optional SXM2 GPU dummy
U.2 NVMe Kit	BPN-NVMe3-118GQE	1	NVMe Backplane
	CBL-SAST-0935-12	1	Oculink cable x8
	MCP-220-00121-0B	2	NVMe HS tray
TPM	AOM-TPM-9670V	-	SPI capable vertical TPM 2.0 provisioned for client,RoHS
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
Network Card(s)	AOC-MCX455A-ECAT	-	Mellanox ConnectX-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6
	AOC-MCX456A-ECAT	-	Mellanox ConnectX-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, dual-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6

	AOC-MCX412A-ACAT	-	Mellanox ConnectX-4 Lx EN network interface card, 25GbE dual-port SFP28, PCIe3.0 x8, tall bracket, ROHS R6
	AOC-MCX512F-ACAT	-	Mellanox ConnectX-5 EN network interface card, 100GbE single-port QSFP28, PCIe3.0 x16, HF, RoHSket, HF, RoHS
	AOC-MCX555A-ECAT	-	Mellanox ConnectX-5 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16, tall bracket, HF, RoHS
	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-MCX653105A-HDAT	-	Mellanox ConnectX-6 VPI 200Gb/s InfiniBand & Ethernet Adapter Card single port, QSFP56, PCIe 3.0/4.0 x16, RoHS.
	AOC-SHFI-i1C	-	Intel Omni-Path Host Fabric Adapter (Chippewa Forest). Standard Low-Profile, Single QSFP28 port, 100Gb/s, based on Intel Wolf River WFR-B.,RoHS/REACH
	AOC-S25G-b2S	-	Two ports 25G standard adapter card with Broadcom BCM57414 controller, PCIe x8 Gen3,RoHS
Global Services & Support	QS4HR3/2/1	-	3/2/1-year onsite 24x7x4 service
	QSNBD3/2/1	-	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)