

SuperServer F648G2-FC0+



Key Features

2 Hot-plug System Nodes in 4U Front I/O. 6x GPU/Xeon Phi per node. Each node supports:

1. Dual socket R3 (LGA 2011) supports Intel® Xeon® processor E5-2600 v4†/ v3 family; QPI up to 9.6GT/s
2. Up to 2TB† ECC 3DS LRDIMM , up to DDR4- 2400†MHz ; 16x DIMM slots
3. 6 PCI-E 3.0 x16 Double-width GPU/Xeon Phi; 2 PCI-E 3.0 x8 (Full-height, Half-length) slots
4. Front I/O ports: 2 GbE, 2 USB 3.0 and 1 VGA connector
5. Built-in Server management tool (IPMI 2.0, KVM/media over LAN) w/ dedicated LAN port
6. 8x 2.5" Hot-swap SAS3 drives via LSI 3008 controller
7. 2000W High efficiency (96%) Redundant PSU; Titanium Level

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

Specifications

Product SKUs

- SYS-F648G2-FC0+ ■ SuperServer F648G2-FC0+ (Black)

Motherboard

Super X10DRFF-CG

Processor/Cache

- CPU ■ Intel® Xeon® processor E5-2600 v4†/ v3 family (up to 145W TDP) *
 ■ Dual Socket R3 (LGA 2011)

- Cores / Cache ■ Up to 22 Cores† / Up to 55MB† Cache

- System Bus ■ QPI up to 9.6 GT/s

Note † BIOS version 2.0 or above is required

Note * Please contact Supermicro Technical Support for additional information about frequency optimized CPUs and specialized system optimization.

- 6x Double-width GPU/Xeon Phi per node (total of 12x GPU/Xeon Phi cards in 4U)

Chassis

- Form Factor ■ 4U Rackmount
 Model ■ CSE-F442BG-R2K04B

Dimensions

- Width ■ 17.63" (448mm)
 Height ■ 6.96" (177mm)
 Depth ■ 35" (889mm)
 Package ■ 25.6" (W) x 11.8" (H) x 48.0" (D)
 Weight ■ Net Weight: 105 lbs (47.63 kg)
 ■ Gross Weight: 150 lbs (68.04 kg)
 Available Colors ■ Black

Front Panel

- Buttons ■ Power On/Off button
 ■ UID button
 LEDs ■ Power status LED
 ■ UID LED

Expansion Slots (per node)

- 6x PCI-E 3.0 x16 Double-width GPU/Xeon Phi

GPU/Xeon Phi Support	<ul style="list-style-type: none"> Supports Intel Xeon Phi Supports NVIDIA K1/K2/K10/K20M/K20X/K40M/K80(only supports 4 per node), Xeon Phi 5110P, and Xeon Phi 3120P/7120P
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System Memory

Memory Capacity	<ul style="list-style-type: none"> 16x 288-pin DDR4 DIMM slots Up to 2TB[†] ECC 3DS LRDIMM, 1TB ECC RDIMM
Memory Type	<ul style="list-style-type: none"> 2400[†]/2133/1866/1600MHz ECC DDR4 SDRAM 72-bit
DIMM Sizes	<ul style="list-style-type: none"> RDIMM: 32GB, 16GB, 8GB, 4GB LRDIMM: 64GB, 32GB 3DS LRDIMM: 128GB
Memory Voltage	<ul style="list-style-type: none"> 1.2 V
Error Detection	<ul style="list-style-type: none"> Corrects single-bit errors

On-Board Devices

Chipset	<ul style="list-style-type: none"> Intel® C612 chipset
SAS	<ul style="list-style-type: none"> SAS3 (12Gbps) via LSI 3008 SW RAID 0, 1, 10 support
AHCI SATA	<ul style="list-style-type: none"> SATA 3.0 6Gbps with RAID 0, 1
IPMI	<ul style="list-style-type: none"> Support for Intelligent Platform Management Interface v.2.0 IPMI 2.0 with virtual media over LAN and KVM-over-LAN support ASPEED AST2400 BMC
Network Controllers	<ul style="list-style-type: none"> Intel® i350 Dual Port GbE LAN Virtual Machine Device Queues reduce I/O overhead Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output 1x Realtek RTL8211E PHY (dedicated IPMI)
Graphics	<ul style="list-style-type: none"> ASPEED AST2400 BMC

Input / Output (per node)

SAS	<ul style="list-style-type: none"> 8x SAS3 (12Gbps) ports
LAN	<ul style="list-style-type: none"> 2x RJ45 GbE LAN ports 1x RJ45 Dedicated IPMI LAN port
USB	<ul style="list-style-type: none"> 2x USB 3.0 ports
VGA	<ul style="list-style-type: none"> 1x VGA port

PCI-Express	<ul style="list-style-type: none"> 2x PCI-E 3.0 x8 slots (Full-height, Half-length)
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Drive Bays (per node)

Hot-swap	<ul style="list-style-type: none"> 8x 2.5" Hot-swap drive bays
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System Cooling

Fans/Air Shroud	<ul style="list-style-type: none"> 8x 80mm heavy duty fans with air shroud and PWM fan speed control and additional fans available
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Power Supply with Digital Switching Control

2000W Redundant Titanium Level Power Supplies	
Total Output Power	<ul style="list-style-type: none"> 1000W/1800W/1980W/2000W
AC Input	<ul style="list-style-type: none"> 100-127 V, 50-60 Hz 200-220 V, 50-60 Hz 220-230 V, 50-60 Hz 230-240 V, 50-60 Hz
+12V	<ul style="list-style-type: none"> Max: 83.3A & Min: 0A (100Vac-127Vac) Max: 150A & Min: 0A (200Vac-220Vac) Max: 165A & Min: 0A (220Vac-230Vac) Max: 166.7A & Min: 0A (230Vac-240Vac)
5V SB	<ul style="list-style-type: none"> Max: 1A / Min: 0A
Certification	  Titanium Level [Test Report]

System BIOS

BIOS Type	<ul style="list-style-type: none"> 128Mb SPI Flash EEPROM with AMI BIOS
BIOS Features	<ul style="list-style-type: none"> Plug and Play (PnP) APM 1.2 PCI 2.2 ACPI 1.0 / 2.0 USB Keyboard support SMBIOS 2.3 UEFI

Operating Environment / Compliance

RoHS	<ul style="list-style-type: none"> RoHS Compliant
Environmental Spec.	<ul style="list-style-type: none"> Operating Temperature: 10°C to 35°C (50°F to 95°F) Non-operating Temperature: -40°C to 70°C (-40°F to 158°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-X10DRFF-CG	4	Super X10DRFF-CG Motherboard
	CSE-F442BG-R2K04B	1	4U Chassis
Backplane	BPN-ADP-F418L	4	BPN;SASADP;SAS827-H8;H8DTT;cable req
Backplane	BPN-SAS3-I28A	2	,RoHS/REACH,PBF SAS3 BPN - 8x2.5" SSD/HDD hotswap drive bays for CSE-M28SAC chassis,overheat indicator,SGPIO support SES2 mngt,2 mini-SAS HD connector(SFF-8643),1 fan connector with fan fail detection
Backplane	BPN-ADP-4UGPU-P	4	Backplan adapter card for 4UGPU,RoHS/REACH,PBF
Cable 1	CBL-PWEX-0460-05	2	8 pin male to two big 4 pin female power cable, 35cm and 22cm. 18AWG,HF,RoHS/REACH,PBF
Cable 2	CBL-SAST-0550	4	Internal Mini-SAS HD to Mini-SAS HD 25cm,30AWG,12Gb/s,HF,RoHS/REACH,PBF
Label	LBL-0108	1	CAUTION LABEL FOR REDUNDANT PWR SYSTEMS
Manual	MNL-1756-QRG	1	A Quick Reference Guide for SYS-F648G2-FC0(PT)+,HF,RoHS/REACH
Riser Card	RSC-R2UFF-X2E16B	2	RSC-R2UFF-X2E16B ,RoHS/REACH,PBF
Riser Card	RSC-R4UFF-A4E16B	2	RSC-R4UFF-A4E16B
Riser Card	RSC-R4UFF-A2E16A	2	RSC-R4UFF-A2E16A
Heatsink / Retention	SNK-P0048PS	4	2U Passive CPU Heat Sink for X9, X10 Generation Systems Equipped w/ a Narrow ILM MB
Power Supply	PWS-2K04A-1R	4	AC-DC 2000W, Titanium Level, Redundancy, 1U, PMBus 1.2, +12V/+5Vsb, 360x76x40mm,HF,RoHS/REACH

Optional Parts List			
	Part Number	Qty	Description
Internal Fan	FAN-0150L4	8	Rear internal fan for cooling enhancement
Software	SFT-OOB-LIC	1	OOB Management Package (per node license)
Software	SFT-DCMS-Single	1	DataCenter Management Package (per node license)

[Hide Parts List](#)

Note: Power redundancy is based on configuration. For more information, please refer to user manual.