



2U EOS Server

Expansion Optimized Server



User Manual

SKU: OSS-EOS-2U-41



OSS
ONE STOP SYSTEMS

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Preface

Advisories

Five types of advisories are used throughout this manual to provide helpful information, or to alert you to the potential for hardware damage or personal injury.

**NOTE**

Used to amplify or explain a comment related to procedural steps or text.



Important

IMPORTANT

Used to indicate an important piece of information or special “tip” to help you



Caution

CAUTION

Used to indicate and prevent the following procedure or step from causing damage to the equipment.



Warning

WARNING

Used to indicate and prevent the following step from causing injury.



Danger

DANGER or STOP

Used to indicate and prevent the following step from causing serious injury or significant data loss

Disclaimer: We have attempted to identify most situations that may pose a danger, warning, or caution condition in this manual. However, One Stop Systems does not claim to have covered all situations that might require the use of a Caution, Warning, or Danger indicator.

Safety Instructions

Always use caution when servicing any electrical component. Before handling the One Stop Systems Expansion chassis, read the following instructions and safety guidelines to prevent damage to the product and to ensure your own personal safety. Refer to the “Advisories” section for advisory conventions used in this manual, including the distinction between Danger, Warning, Caution, Important, and Note.

Always use caution when handling/operating the computer. Only qualified, experienced, authorized electronics personnel should access the interior of the computer and expansion chassis.



WARNING

Never modify or remove the radio frequency interference shielding from your workstation or expansion unit. To do so may cause your installation to produce emissions that could interfere with other electronic equipment in the area of your system.

When Working Inside a Computer

Before taking covers off a computer, perform the following steps:

Turn off the computer and any peripheral devices.

Disconnect the computer and peripheral power cords from their AC outlets or inlets in order to prevent electric shock or system board damage.

In addition, take note of these safety guidelines when appropriate:

To help avoid possible damage to systems boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.

When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.



CAUTION

Do not attempt to service the system yourself except as explained in this manual. Follow installation instructions closely.

Protecting Against Electrostatic Discharge



Electrostatic Discharge (ESD) Warning

Electrostatic Discharge (ESD) is the enemy of semiconductor devices. You should always take precautions to eliminate any electrostatic charge from your body and clothing before touching any semiconductor device or card by using an electrostatic wrist strap and/or rubber mat.

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedures to reduce the risk of damage to components. One Stop Systems strongly encourages you to follow proper ESD procedures, which can include wrist straps and smocks, when servicing equipment.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

When unpacking a static-sensitive component from its shipping carton, do not remove the component's anti-static packaging material until you are ready to install the component in a computer. Just before unwrapping the anti-static packaging, be sure you are at an ESD workstation or are grounded.

When transporting a sensitive component, first place it in an anti-static container or packaging.

Handle all sensitive components at an ESD workstation. If possible, use anti-static floor pads and workbench pads.

Handle components and boards with care. Do not touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.

1 Introduction

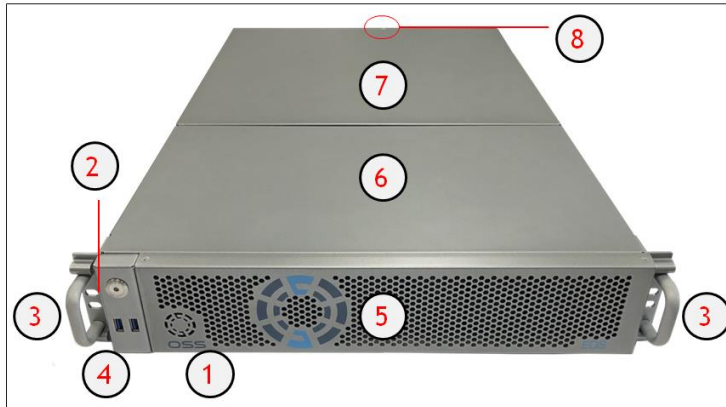
1.1 General Specifications

The 2U EOS server revolutionizes the capabilities of homogenous systems containing tightly coupled processors, NVMe solid-state storage, high-speed networking, and accelerator co-processing elements such as GP-GPUs and FPGAs. The 2U EOS contains two of the newest Intel Scalable Processors and provides the widest BIOS compatibility with dense storage and accelerator expansion systems. This allows the highly integrated server to stand alone or form the core CPU and memory resources for a scale-out, rack level, expandable solution. The EOS server features two storage and I/O configurations providing up to six PCIe 3.0 x16 half-height slots or 24 U.2 NVMe drives. The server supports up to 4TB of memory and a resource expanded BIOS for scale-out device enumeration and large memory mapped I/O used for GP-GPUs and accelerators

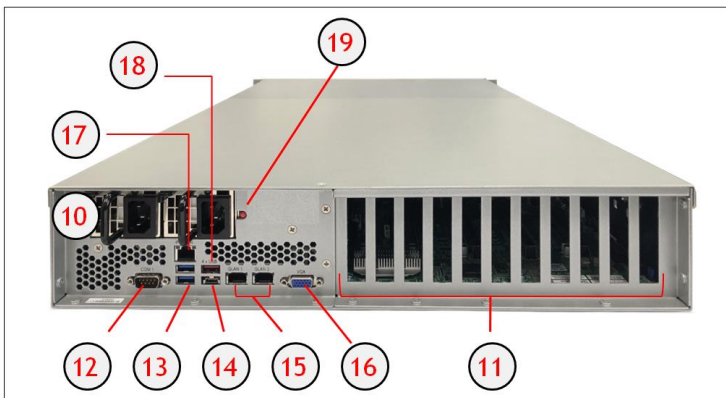
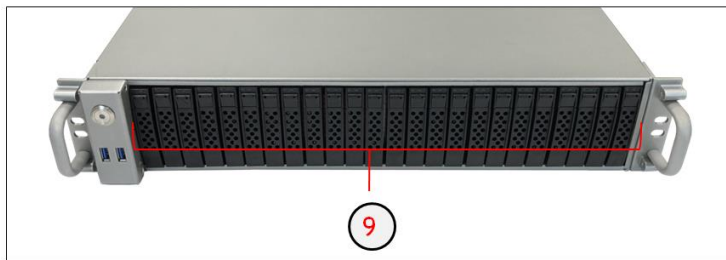
Item	Description
Dimensions	3.45" H x 17.2" (19" with rack ears) W x 28" D (8.7 x 43.7 x 71 cm)
CPU	Dual Intel® Xeon® Scalable Processors up to 205W TDP and 28 cores LGA 3647 socket P with 3 UPI chip-to-chip bus up to 10.7GT/s
System Memory	16x 288-pin DDR4 DIMM sockets Up to 4TB DDR4-2933MHz 3DS ECC RDIMM or LRDIMM, 1.2V low profile 2933/2666/2400/2133MHz Frequencies in 64GB, 128GB and 256GB capacities each module Up to 2TB Intel® Optane™ DC Persistent Memory in memory mode (Cascade Lake only)
Expansion Slots	EOS configuration: <ul style="list-style-type: none"> • 4 x PCIe 3.0 x16 HH/FL Double Width slots • 2 x PCIe 3.0 x16 HH/HL Single Width slots • 1 x PCIe 3.0 x4 HH/HL slot with x8 physical connector • 1x PCIe3.0 x4 M.2 slot for 2280 and 22110 M-Key modules NVMe configuration: 2 x PCIe 3.0 x16 FH/HL Single Width slots 2 x PCIe 3.0 x16 HH/HL Single Width slots 1 x PCIe 3.0 x4 HH/HL slot with x8 physical connector 1x PCIe3.0 x4 M.2 slot for 2280 and 22110 M-Key modules
Storage Subsystem	EOS configuration: 24x hot-swap configurable SATA-3, SAS-3 or NVMe x4 2.5" x 15mm drive carriers 12Gb SAS-3 or 6Gb SATA-3 SFF-8680 slots via 3x SFF-8643 backplane connectors NVMe x4 32Gb slots via 24x Oculink connectors Up to 10 SATA-3 slots use no PCIe slots 12x and 24x SAS-3 slots require 1 and 2 PCIe x16 HHHL slots respectively 8x and 16x NVMe x2 slots require 1 and 2 x16 PCIe HHHL slots respectively (for 24x NVMe x4 use NVMe config) Further expansion up to 4PB possible using OSS JBOF expansion systems 1x M.2 x4 and 2x SATA-DOM internal drive connections NVMe configuration 24x hot-swap NVMe x4 2.5" x 15mm drive carriers Up to 10 NVMe drive bays can be SATA-3 configured - 1x M.2 x4 and 2x SATA-DOM internal drive connections
On-board devices	Intel® C621 Express chipset ASPEED AST2500BMC IPMI support for IPMI 2.0 with virtual media over LAN and KVM-over-LAN support
Network Controllers	2x Intel X550 10Gigabit Ethernet each with an RJ-45 Additional 25, 40 and 100Gb Ethernet, 100Gb Infiniband or 32Gb Fiber Channel interfaces available

USB	5 USB 3.0 with 2 on rear panel, 2 on front panel and 1 Type A internal 4 USB 2.0 with 2 on rear panel and 2 internal headers
Input/Output	7.1HD Audio Header, 1 VGA port, 2 COM ports (1 rear and 1 internal header) 2 Disk-on-Module ports 1 Trusted Platform Management TPM 1.2 20-pin header
BIOS	128 Mb SPI flash EEPROM with AMI BIOS Supports PnP, PCI 3.0, ACPI 1.0-4.0, USB keyboard support, UEFI 2.3.1, 1TB BAR1 max size and 256 PCI bus enumeration support
Cooling Fans	Four 80mm x 38mm PWM hot-swap Cooling fans
Chassis	Rugged steel enclosure Liquid paint with customizable front bezel
Weight	33-48lbs (15-22 kg)
Power Supply	1000W 100-240VAC, 47-63Hz Input: 1+1 Redundant 80plus Silver efficiency with Active PFC, PM Bus and Over Voltage Protection 15A input current at 115VAC and 7.5A at 230VAC each module 15A @ 115VAC and 30A @ 230VAC max inrush current each module EPS 12V Output type with 22A at +5V, 83A at +12V, 0.5A at -12V, 22A at +3.3V and 3A at +5V Standby
Environment	Operating: 5°C to 35°C (41°F to 95°F) at 0 to 915m (3,000ft) altitude 5% to 90% non-condensing relative humidity, max dew point 21°C, max rate of change 5°C/hr Non-Operating: -20C to 60°C (-40°F to 140°F) 5% to 90% non-condensing relative humidity, max dew point 27°C, max rate of change 5°C/hr
Agency	Tested to conform to the following standards: FCC - Verified to comply with Part 15 of the FCC Rules, Class A Canada ICES-003, issue 4, Class A CE Mark (EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3) CISPR 22, Class A Designed to conform to the following extended standards: NOM-019 Argentina IEC60950-1 Japan VCCI, Class A Australia/New Zealand AS/NZS CISPR 22, Class A China CCC (GB4943), GB9254 Class A, GB17625.1 Taiwan BSMI CNS13438, Class A; CNS14336-1 Korea KN22, Class A; KN24 Russia/GOST ME01, IEC-60950-1, GOST R 51318.22, GOST R 51318.24, GOST R 51317.3.2, GOST R 51317.3.3 TUV-GS (EN60950-1 /IEC60950-1,EK1-ITB2000)
Compliance	RoHS Compliant WEEE

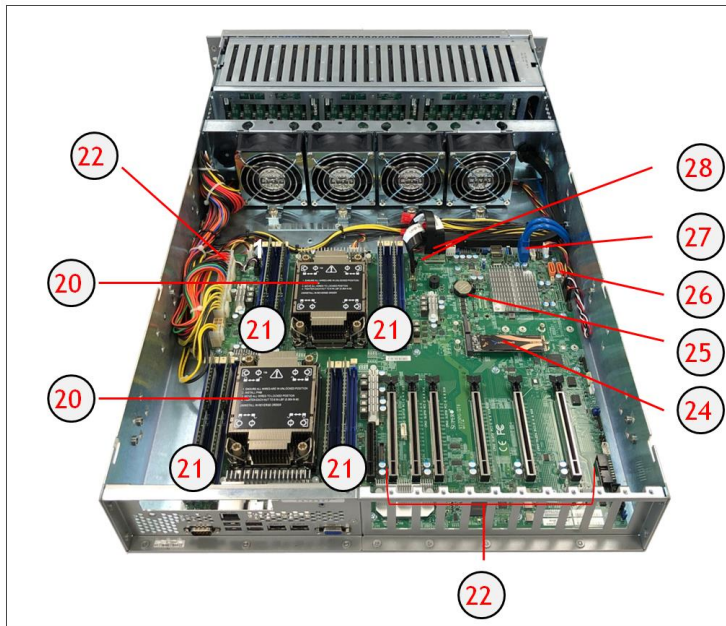
1.2 Overview



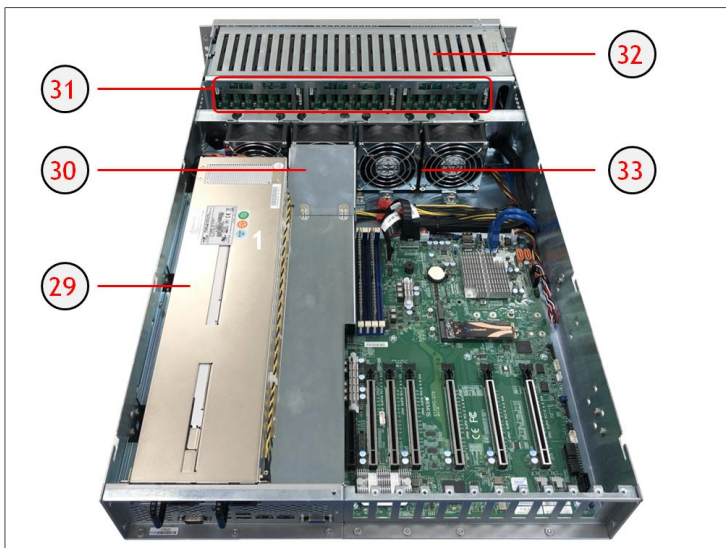
Number	Description
1	OSS LOGO-LED
2	Standby / Main Power LED
3	Front Handles
4	USB 3.0 Ports
5	Front Panel
6	Front-end Top Cover
7	Back-end Top Cover
8	Top Cover Screw
9	Storage Drive Trays



Number	Description
10	Power Supply Modules
11	Slot Panels
12	COM Port 1
13	Type: USB-A / USB-B; USB 3.0 Super Speed
14	USB-C Type Port; USB 3.0
15	LAN#1 and LAN# 2
16	VGA Port
17	Dedicated BMC LAN
18	4x USB
19	PSU Alarm Reset

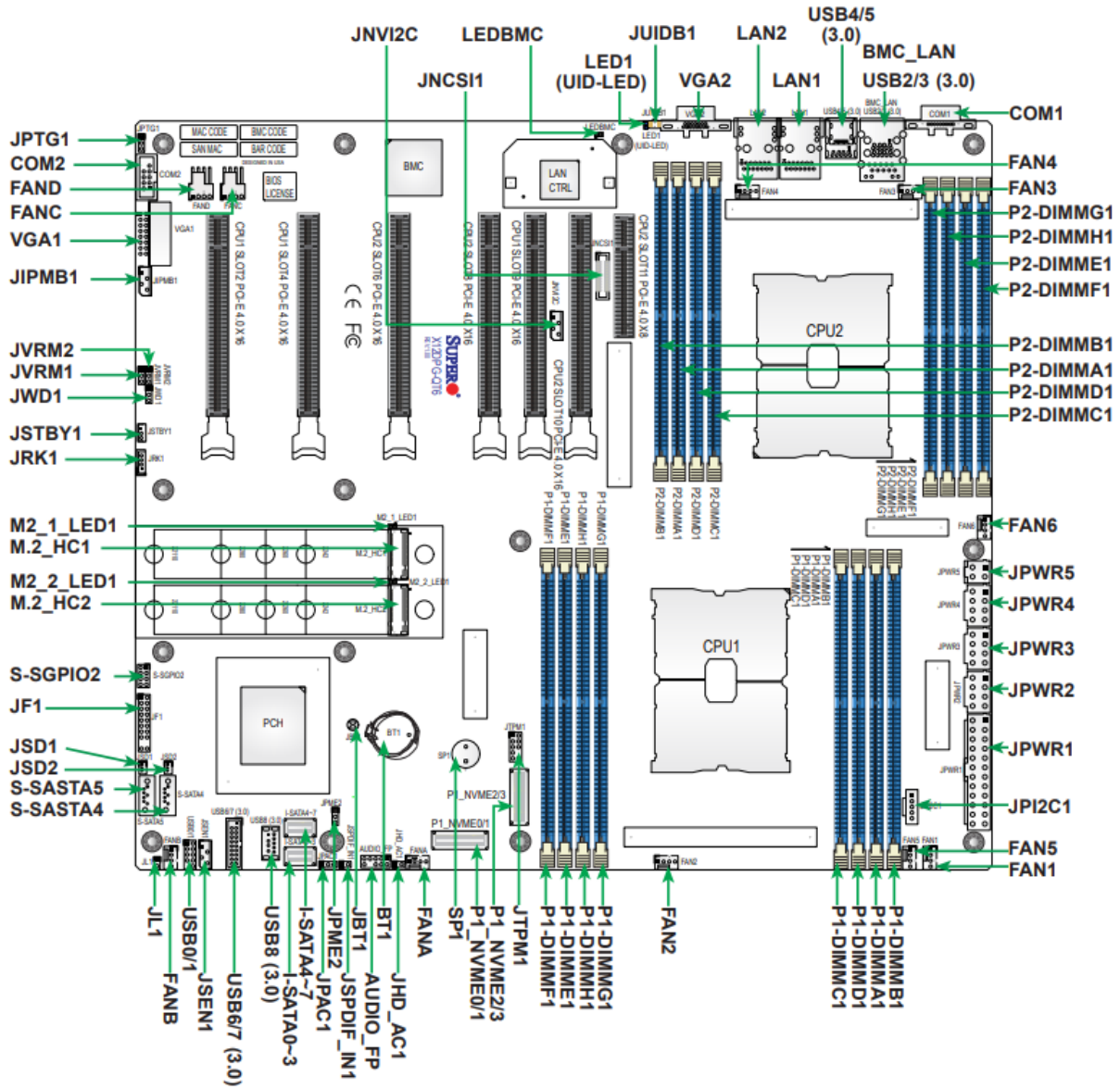


Number	Description
20	CPU
21	Memory Modules / Slots
22	24-pin ATX Power Connector
23	PCIe 4.0 X16 Slots
24	M.2 x4 PCIe Slots
25	Onboard CMOS Battery
26	S-SATA 3.0 Ports
27	USB 3.0 Type A Header
28	NVME / PCIe 4.0 x4 SlimSAS Ports



Number	Description
29	Power Supply Metal Housing
30	Air Baffle
31	Storage Drive Board Interface
32	Storage Drive Housing
33	Removable Fans

1.4 Quick Reference



1.5 Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JHD_AC1	AC97/High Definition Audio Enable	Off (HD Enabled)
JPAC1	Audio Enable	Pins 1-2 (Enabled)
JPME2	ME Manufacturing Recovery	Pins 1-2 (Normal)
JPTG1	LAN Port Enable/Disable	Pins 1-2 (Enabled)
JVRM1	VRM SMB Clock (to BMC or PCH)	Pins 1-2 (BMC, Normal)
JVRM2	VRM SMB Data (to BMC or PCH)	Pins 1-2 (BMC, Normal)
JWD1	Watchdog Timer Reset	Pins 1-2 (Reset)

LED	Description	Status
LED1	Unit Identifier (UID) LED	Solid Blue: Unit Identified
LEDBMC	BMC Heartbeat LED	Blinking Green: BMC Normal
M2_1_LED1, M2_2_LED1	M.2 LEDs	Blinking Green: Device Working

Connector	Description
AUDIO_FP	Front Panel Audio Header
Battery (BT1)	Onboard CMOS Battery
BMC_LAN	Dedicated BMC LAN Port
COM1	Rear I/O COM Port
COM2	Front Accessible COM Port Header
FAN1 - FAN6, FANA - FAND	CPU/System Fan Headers (FAN5: CPU1 Fan Header, FAN6: CPU2 Fan Header)
JF1	Front Control Panel Header
JIPMB1	4-pin BMC External I ² C Header
JL1	Chassis Intrusion Header
JNCSI1	NC-SI (Network Controller Sideband Interface) Connector
JNVI ² C	NVMe I ² C Header
JPI ² C1	Power System Management Bus (SMB) I ² C Header
JPWR1	24-pin ATX Power Connector
JPWR2, JPWR3, JPWR4	8-pin Power Connectors
JPWR5	4-pin Power Connector
JSD1, JSD2	SATA DOM Power Connectors
JSEN1	Inlet Sensor Header
JSPDIF_IN1	Sony/Philips Digital Interface Audio Input Header
JSTBY1	Standby Power Header
JTPM1	Trusted Platform Module/Port 80 Header
JUIDB1	Unit Identifier (UID) Switch / BMC Reset Button
LAN1, LAN2	Ethernet LAN (RJ45) Port 1 and Port 2

Connector	Description
M.2_HC1, M.2_HC2	PCIe 4.0 x4 M.2 Slots (with support of M-Key 2242, 2260, 2280, and 22110)
P1_NVME0/1, P1_NVME2/3	PCIe 4.0 x4 SlimSAS Ports with support of four NVMe connections
I-SATA0~3, I-SATA4~7	Intel PCH SATA 3.0 Ports (with RAID 0, 1, 5, 10)
S-SATA4, S-SATA5	Intel PCH Powered S-SATA 3.0 Ports with support for SuperDOM (Disk on Module) devices
S-SGPIO2	Serial Link General Purpose I/O Connection Header (for S-SATA4/5 SuperDOM support)
SLOT2, SLOT4, SLOT9	PCIe 4.0 x16 Slots supported by CPU1
SLOT6, SLOT8, SLOT10	PCIe 4.0 x16 Slots supported by CPU2
SLOT11	PCIe 4.0 x8 Slot supported by CPU2
SP1	Internal Speaker/Buzzer
USB0/1 (2.0)	Front-accessible USB Header with support for two USB 2.0 port
USB2/3, USB4/5 (3.0)	Rear I/O USB 3.0 Ports
USB6/7 (3.0)	Front-accessible USB Header with support for two USB 3.0 port
USB8 (3.0)	Internal USB 3.0 Type-A Header
VGA1	Front VGA Header
VGA2	Rear VGA Port on the I/O back panel
VROC (JRK1)	Intel VROC Key Header for NVMe RAID support

1.6 Motherboard Features

CPU	Supports two 3rd Gen. Intel Xeon Scalable Processors (in Socket P+ LGA 4189) with up to 38 cores per CPU and a thermal design power (TDP) of up to 270W	
Memory	Supports up to 4 TB of 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 (288-pin) ECC memory with speeds of 3200/2933/2666 MHz in 16 memory slots and up to 4 TB of Intel Optane PMem 200 Series with speeds of up to 3200 MHz Note 1: The Intel Optane Persistent Memory (PMem) 200 Series are supported by the 3rd Gen. Intel Xeon Scalable (83xx/63xx/53xx/4314) series processors. Note 2: Memory speed and capacity support depends on the processors used in the system.	
DIMM Size	Up to 256 GB at 1.2V Note: For the latest CPU/memory updates, please refer to our website at http://www.supermicro.com/products/motherboard	
Chipset	Intel PCH C621A	
Expansion Slots	<ul style="list-style-type: none"> • One PCIe 4.0 x8 slot (CPU2 Slot11) • Six PCIe 4.0 x16 slots (CPU1 Slot2 / CPU1 Slot4 / CPU1 Slot9 / CPU2 Slot6 / CPU2 Slot8 / CPU2 Slot10) • Two PCIe 4.0 x4 M.2 slots (supports M-Key 2242, 2260, 2280, and 22110) • Two PCIe 4.0 x8 SlimSAS ports w/support of two connections each port (P1_NVME0/1, P1_NVME2/3) 	
Network	<ul style="list-style-type: none"> • Two 10G Ethernet LAN ports supported by Intel X550 LAN controller • One Dedicated BMC LAN located on the rear I/O panel (via AST2600 BMC) 	
Baseboard Management Controller (BMC)	ASPEED AST2600 BMC	
Graphics	Graphics controller & VGA support via ASPEED AST2600 BMC	
I/O Devices		
	Serial (COM) Port	<ul style="list-style-type: none"> • One (serial port on the rear I/O panel (COM1) • One front accessible serial port header (COM2)
	SATA 3.0	<ul style="list-style-type: none"> • Eight I-SATA 3.0 ports at 6 Gb/s (I-SATA0~3, I-SATA4~7) • Two Intel PCH powered S-SATA 3.0 Ports with support for SuperDOM (Disk on Module) devices (S-SATA4, S-SATA5)
	Video (VGA) Connections	<ul style="list-style-type: none"> • One VGA port on the rear I/O panel (VGA2) • One VGA header on the motherboard for front access (VGA1)
Peripheral Devices	<ul style="list-style-type: none"> • Four USB 3.0 ports on the rear I/O panel (USB2/3, USB4/5) • One front-accessible USB header with support for two USB 2.0 ports (USB0/1) • One front-accessible USB header with support for two USB 3.0 ports (USB6/7) • One internal USB 3.0 Type-A header (USB8) 	
BIOS	<ul style="list-style-type: none"> • AMI BIOS • ACPI 3.0 or later, PCI firmware 4.0 support, BIOS rescue hot-key, SPI dual/quad speed support, RTC (Real Time Clock) wakeup, and SMBIOS 3.0 or later 	
Power Management	<ul style="list-style-type: none"> • ACPI power management • Power button override mechanism • Power-on mode for AC power recovery • Wake-on-LAN • Power supply monitoring 	
System Health Monitoring	<ul style="list-style-type: none"> • Onboard voltage monitoring for +/-12V, +5V/+5V standby, +3.3V, and +3.3V standby • Onboard temperature monitoring for CPU, VRM, LAN, PCH, system, and memory • 7+1 CPU switch phase voltage regulator • CPU thermal trip support • Platform Environment Control Interface (PECI) 	
Fan Control	<ul style="list-style-type: none"> • Fan status monitoring via BMC connections • Single cooling zone • Low-noise fan speed control • Ten 4-pin fan headers 	
LED Indicators	<ul style="list-style-type: none"> • Power LED • UID/remote UID • LAN activity LED • BMC Heartbeat LED 	
Dimensions	15.12" (W) x 13.2" (L) ATX (384.05 mm x 335.28 mm)	

1.7 Pre-Installation Information

Before using the One Stop Systems expansion chassis, you should perform the following steps:

- Inventory the shipping carton contents for all of the required parts
- Gather all of the necessary tools required for installation
- Read this manual

1.8 Tools Required for Installation

To complete the installation of the product you will need a Phillips-head screwdriver and ESD wrist strap to prevent electrostatic discharge.



2 Set-up / Installation

**CAUTION**

Hardware installation shall be performed only by qualified service personnel per UL and IEC 60950-1.

**Electrostatic Discharge (ESD) Warning**

All PCI cards are susceptible to electrostatic discharge. When moving PCI cards, it is best to carry the cards in anti-static packaging. If you need to set a PCIe card down, be sure to place it inside or on top of an anti-static surface. For more information, see “Protecting Against Electrostatic Discharge” in the Preface.

**WARNING**

High voltages are present inside the expansion chassis when the unit’s power cord is plugged into an electrical outlet. Disconnect the power cord from the AC outlet before removing the enclosure cover. Turning the system power off at the power on/off switch does not remove power to components. High voltage is still present.

**CAUTION**

Before touching anything inside the enclosure, move to an ESD station and follow proper ESD procedures. Failure to do so may result in electrostatic discharge, damaging the computer or its components. For more information, see “Protecting Against Electrostatic Discharge” in the Preface.

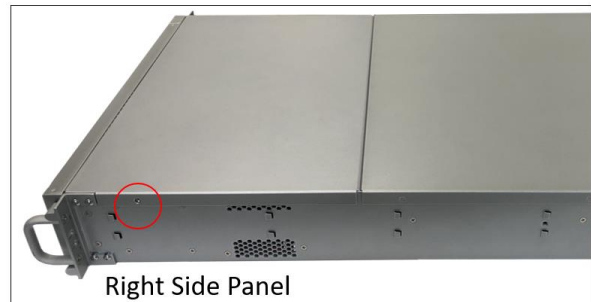
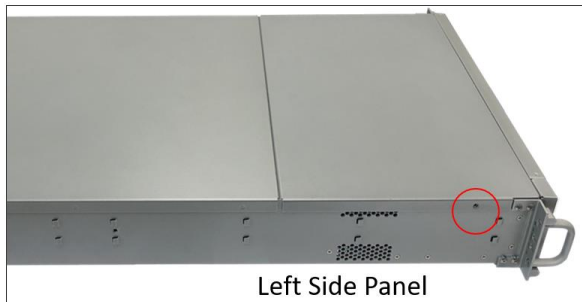
2.1 Installation-Procedures Overview

Steps on how to setup and use the EOS system. You will find instructions for the following procedures:

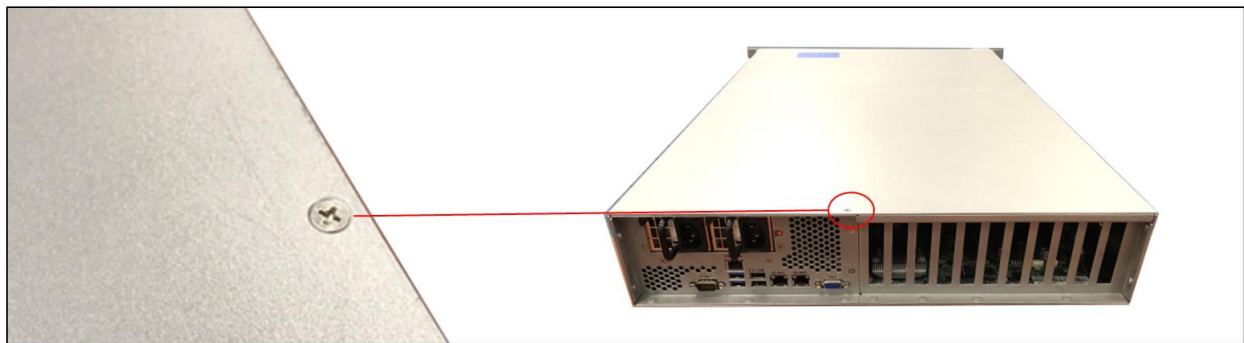
1. Remove the top cover.
 - a. Check inside the unit for loose components or damaged parts.
2. Check SlimSas and USB cables
 - a. Make sure cables are firmly installed and secured
3. Remove front Bezel
4. Install NVME or M.2 Storage devices
 - a. Mount your choice of NVME or M.2 storage devices
5. Plug in external IO devices and power cables
6. Power UP System & Configure BIOS
7. Load or install Operating System
8. Connect OSS Expansion system

2.2 Remove Top Cover

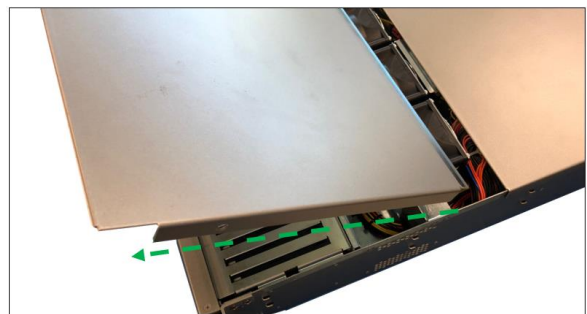
Remove the screw located on each side of the panel, see photo below.



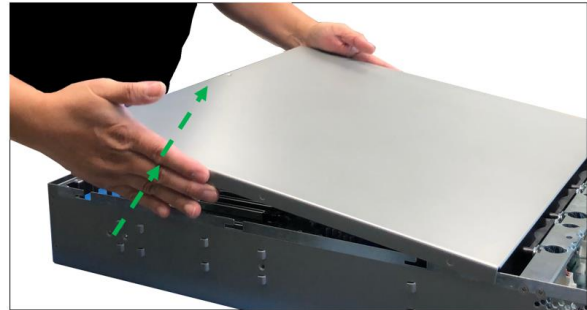
Remove the screw located on the top-end of the cover, see photo below



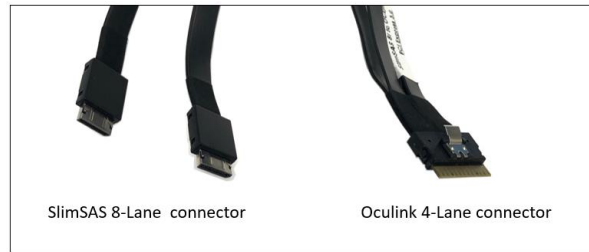
Lift the front top cover up and slowly slide it out.



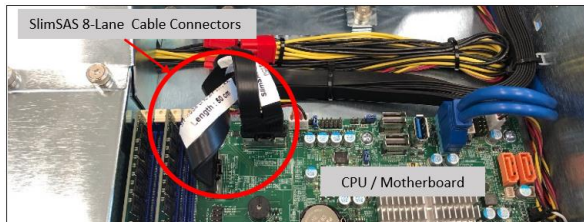
After removing the front top cover, remove the back-end top cover. Stand right behind the unit, using both hands push the cover and then lift it up.



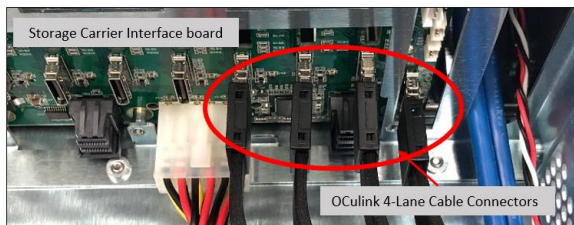
2.3 Check Storage & USB 3.0 Cables



Check the "SlimSAS 8-Lane to OCulink 4-Lane x2 cables" are rigidly attached to the ports on the motherboard.



Check the other end of the cable (OCulink) is connected to the storage carrier interface board, see photos below.



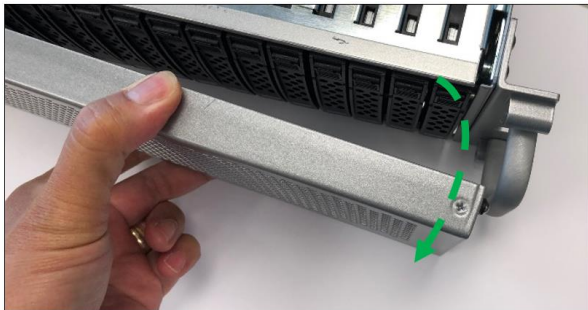
Check the USB 3.0 cable is attached to the USB3.0 port on the motherboard.



2.4 Remove faceplate

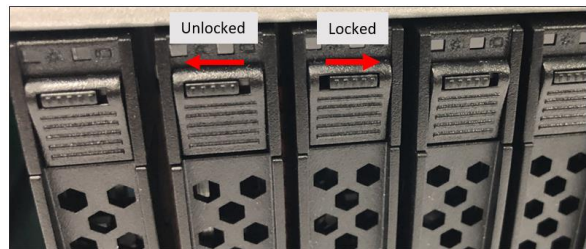
Carefully remove the front faceplate or the front bezel.

- Hold the front face plate on the right-side (as shown from the photos below) and gently pull it to detach.



2.5 Remove Drive Tray

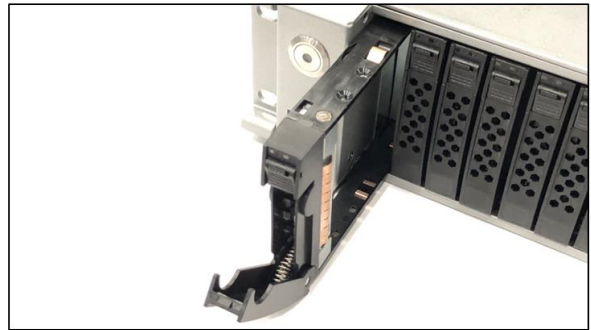
Locate the locking tab, slide it to the left to unlock.



Pull the drive tray out from the unit by pressing the release button. The drive tray handle will extend.

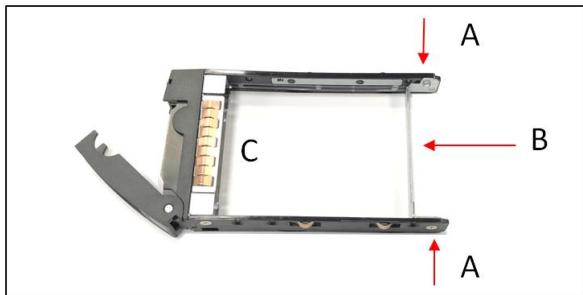


Grasp the handle and gently pull the drive tray out of the chassis.

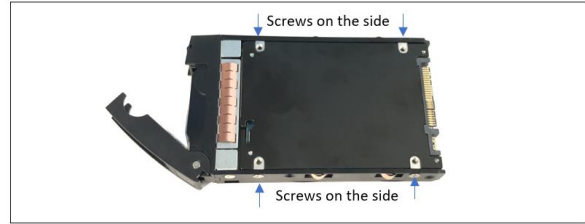
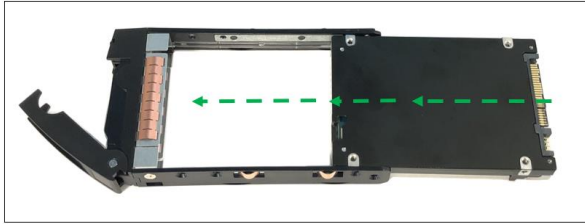


2.6 Install Storage Drive

Remove the two screws (A) securing the dummy bracket (B) to the hard drive tray (C). Remove the dummy drive from the hard drive tray.



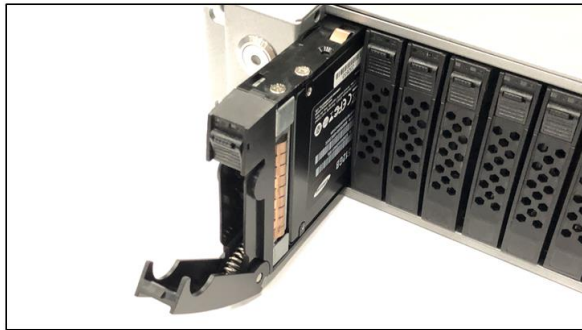
Place the hard drive tray on a flat, stable surface such as a desk, table, or work bench. Slide the hard drive (D) into the tray with the gold-connector facing upward, see photos below.



Carefully align the mounting holes in the hard drive and the tray. Secure the hard drive using all four of the screws.

Insert the hard drive and drive carrier into its bay vertically, keeping the carrier oriented so that the release button is on the top. When the carrier reaches the rear of the bay, the release handle will retract.

Using the thumb, push against the upper part of the hard drive handle. Push the hard drive into the hard drive bay as illustrated below, until the hard drive clicks into the locked position.



2.7 Connect Input and Output devices

Plug in the USB thumb drive (containing the OS image) to the front USB Port.



Plug in the mouse, keyboard, VGA, and Ethernet cables



2.8 Power ON the system

Connect power cables to the power supplies



Press the front "Power Button." Orange LED will illuminate immediately upon powering ON the system



Power Supply LEDs will come UP as solid green



2.9 Configure BIOS

Computer starts up, press Delete key on the Keyboard to access the BIOS.



1. Go to Advanced Tab, select, and hit NVMe Firmware Source, from the list select AMI Native Support (See Photos A and A1)
 - a. Save and reset (See Photo B)
2. Hit delete key during boot up
 - a. Go to Boot tab, select, and hit "Boot Mode Select," from the list, select "Dual" (See Photo C)
 - b. Save and reset (see Photo B)
3. Hit delete key during boot up
 - a. Go to Boot tab, select and hit "Boot Option #, from the list select the "EUFU USB Key: NAME OF YOUR BOOT UP device...." (See Photo D). This is the name of USB bootable thumb drive containing the OS image.
 - b. Save and reset (See Photo B).
4. Computer will restart and boot to the external boot device containing the OS Image. You can now load the OS of your choice.

Photo A

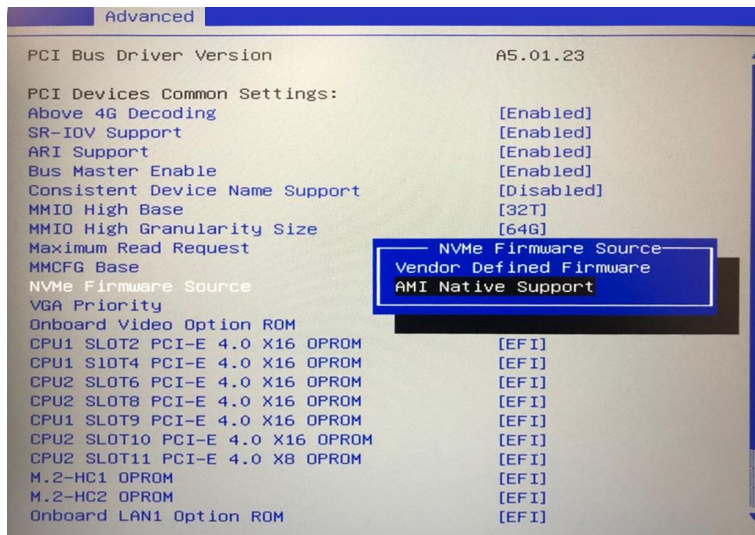


Photo A1

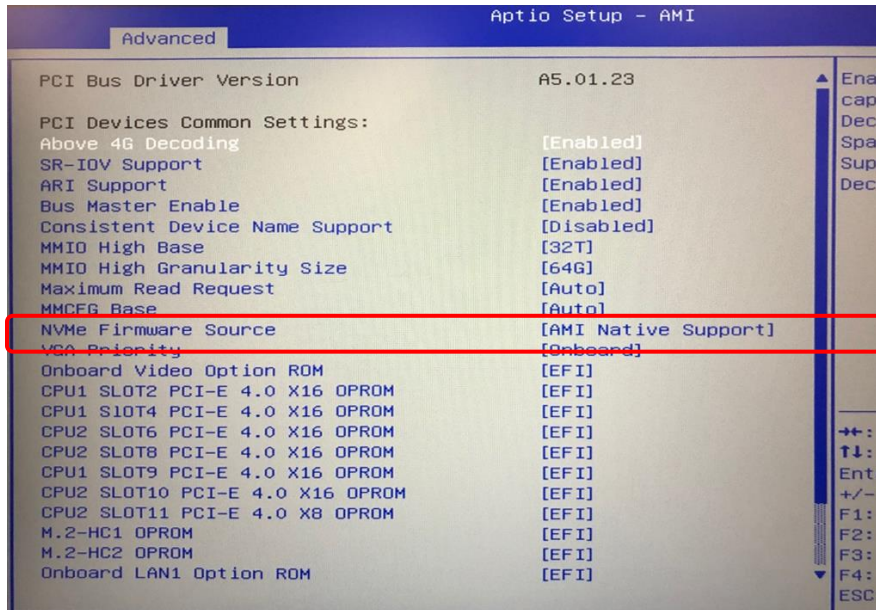


Photo B

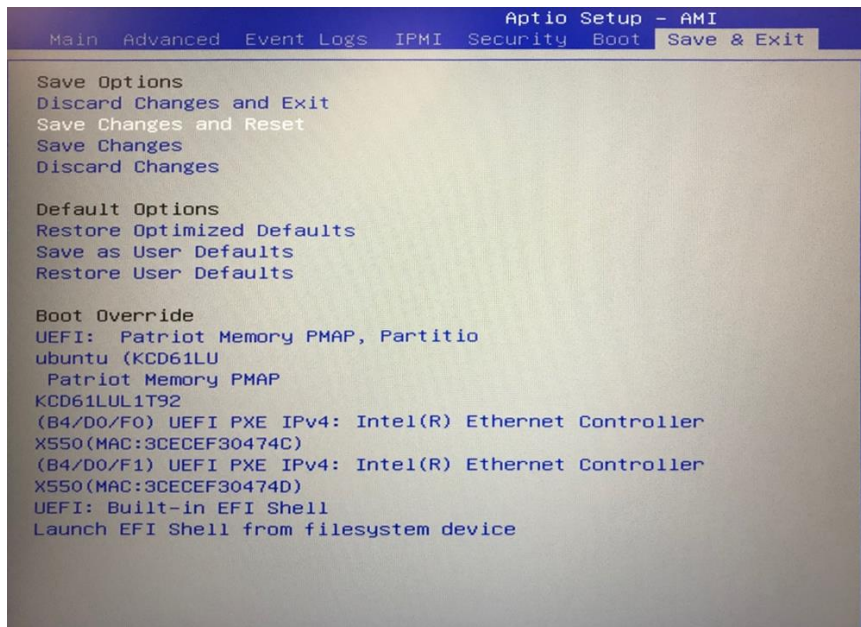


Photo C

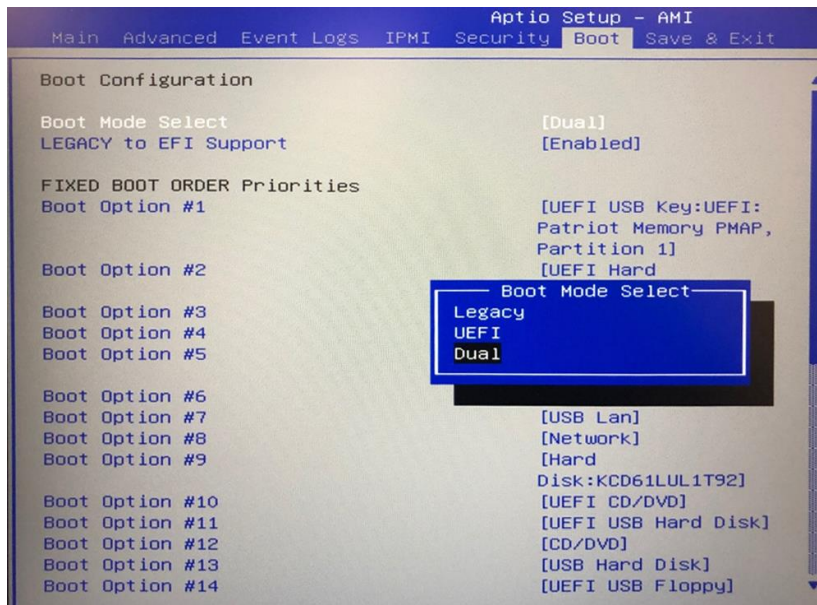
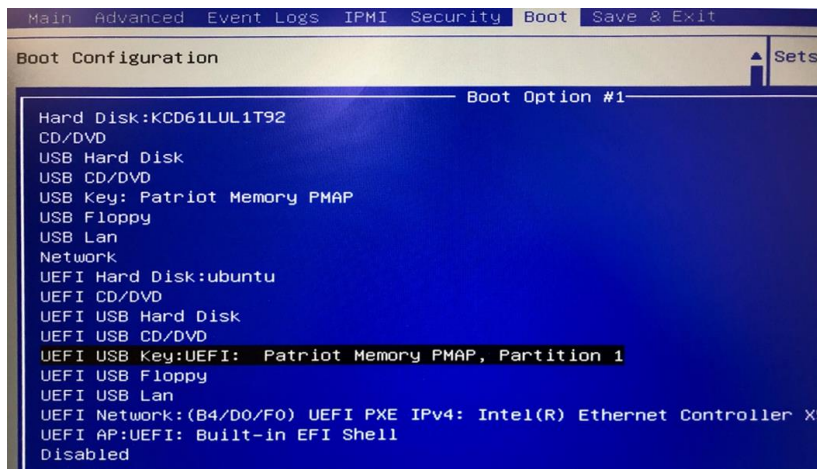


Photo D



2.10 Install Operating System

Load or install Operating System of your choice from the Bootable USB. Once you have completed the OS installation, shutdown the system and install the OSS Host card.

3 OSS Target Card Installation

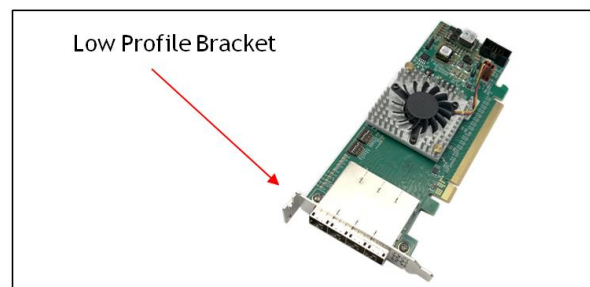
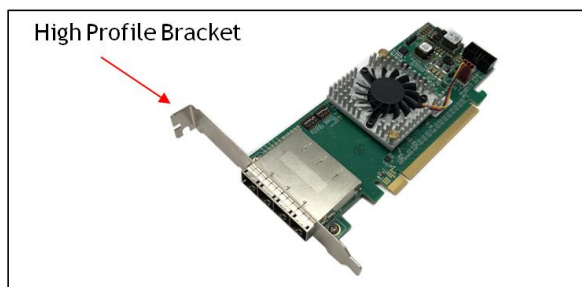
**CAUTION**

Power down the system first before installing a PCIe card

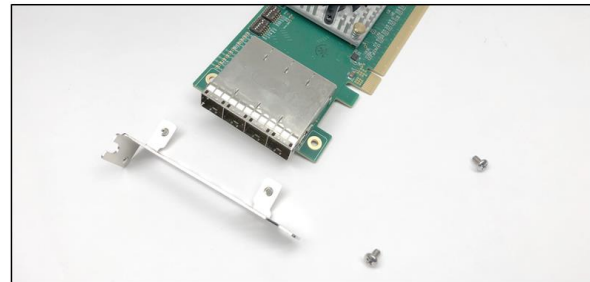
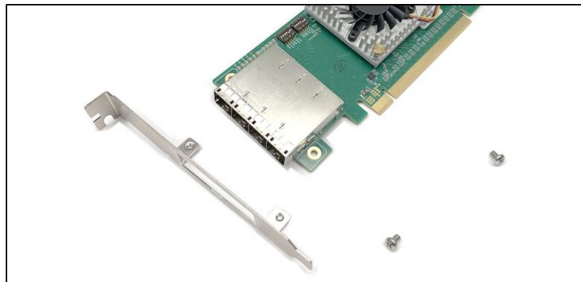
Begin the installation by first powering down your computer. Remove the power cord. 5VSB (5V Standby) is still available if the power cord is still installed. Use the procedures for shutting down your operating system and shutting off power to your computer provided in your owner's manual or system documentation.

Remove the top cover of unit, see "How to Remove Top Cover" section.

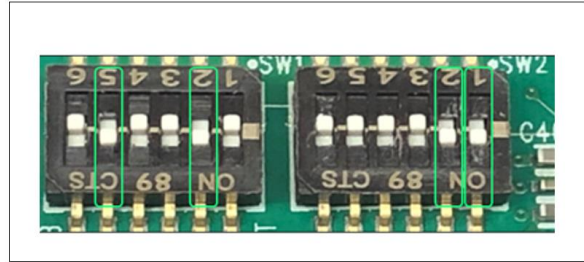
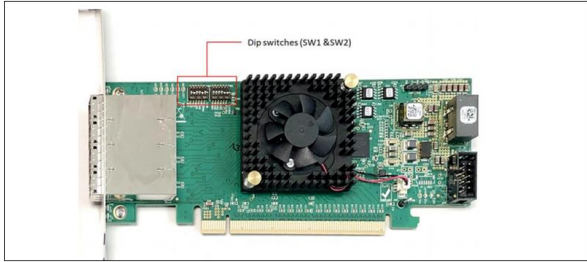
The PCIe host card is a "half-height," x16-capable PCIe card mounted to a "full-height" bracket as shown below.



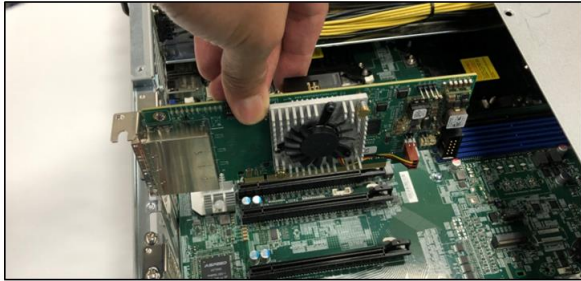
For low profile case applications, change the mounting bracket to the low-profile bracket. You can order a low-profile bracket by contacting our Sales Support. Replacing the "High Profile Bracket" with "Low Profile Bracket" is done by removing the screws that hold the card to the bracket. Detach the standard bracket from the card and place the low-profile bracket and secure it. Use proper ESD procedures when completing this action.



Once the bracket is mounted, configure the card dipswitches to host mode at x16. See settings below.



Insert the host card into a vacant x16 PCIe slot by gently pushing the card until it is firmly seated.



Then secure the card to the slot with a mounting screw.



Electrostatic Discharge (ESD) Warning

All PCI cards are susceptible to electrostatic discharge. When moving PCI cards, it is best to carry the cards in anti-static packaging. If you need to set a PCIe card down, be sure to place it inside or on top of an anti-static surface. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

4 Attach OSS Expansion Unit

This section shows on how to connect an OSS Expansion unit to the EOS system.

Make sure you are using the same model of Target and Host adapter cards (i.e., OSS-OSS-PCIE-HIB616-X16).

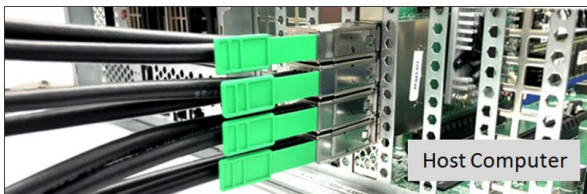
4.1 Connect LINK Cables

Plug in the cables (i.e., SFF-8644) between host and target cards.

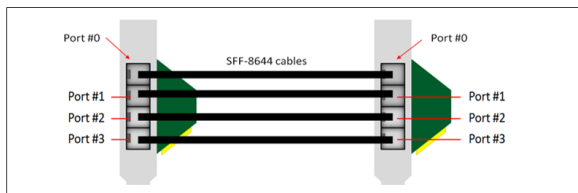
Connect the four x4 SFF-8644 cables to the target card (installed in the expansion unit).



Connect the other end of the cables to the host card.

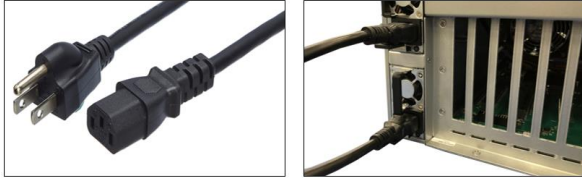


Cable diagram below shows how to connect all four SFF-8644 cables between Host and Target cards.



4.2 Power Up

Connect all available power cables to the expansion unit. The expansion unit will power UP instantly. Other expansion units will require you to manually turn the power switch ON.



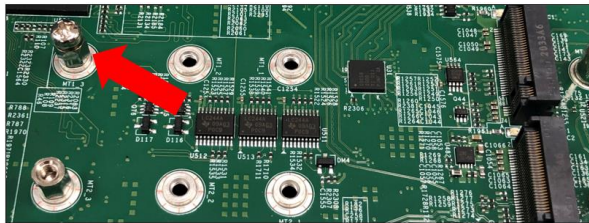
Connect power cable(s) to the computer. Turn On the computer, Upon powering UP the computer, it will initialize a link between host and target.



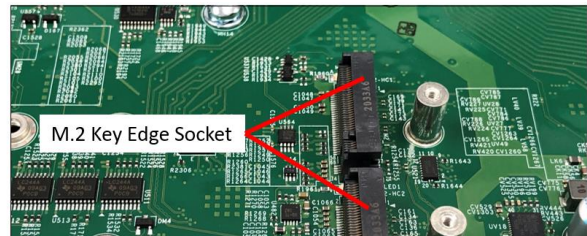
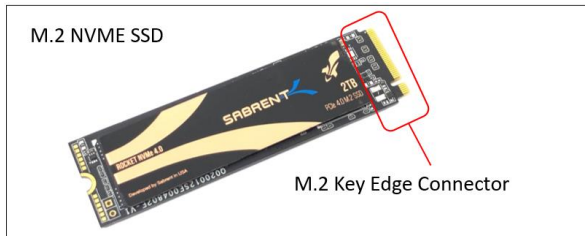
4 M.2 NVME Installation

The X12DPG-QT6 motherboard has two PCIe 4.0 M.2 slots. The M.2 slots on the motherboard support PCIe 4.0 x4 M.2 NVMe SSDs in the 2242, 2260, 2280, and 22110 form factors. Follow this step-by-step guide on how to install PCIe M.2 SSD in your computer.

Step 1: Remove the mounting screw located across from the M.2 slot.



Step 2: Align the M.2 Key edge connector to the M.2 key edge socket on the board



Step 3: Slowly insert the media at ~30-degree position into the socket until it is fully seated. The SSD will naturally stand at an angle when inserted, this is normal. See photos below.



Step 4: Secure the M.2 SSD using the mounting screw. Press down and hold the M.2 SSD while you replace the mounting screw that was removed in Step 1. This will secure the SSD in place. See photos below.

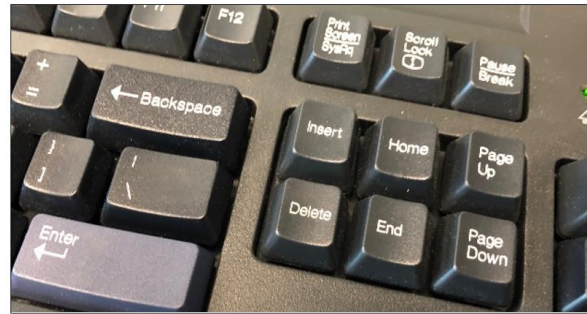


4.1 Verify Device

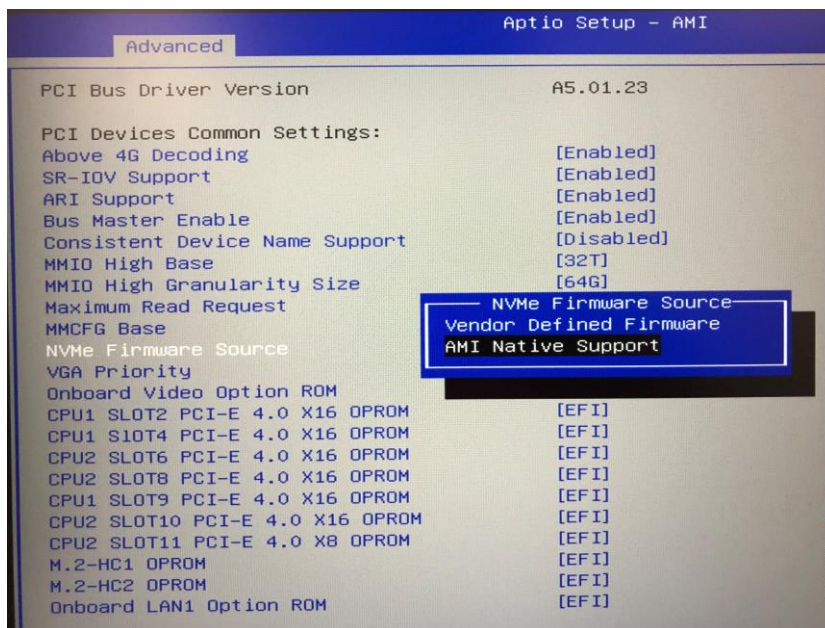
Make Sure the M.2 SSD is recognized by your computer.

After you have installed the M.2 media, make sure your computer recognizes it as a new storage device. Some motherboards will automatically detect an M.2 SSD, but when that does not happen, you will need to manually go to the BIOS and set the settings that an M.2 device is connected.

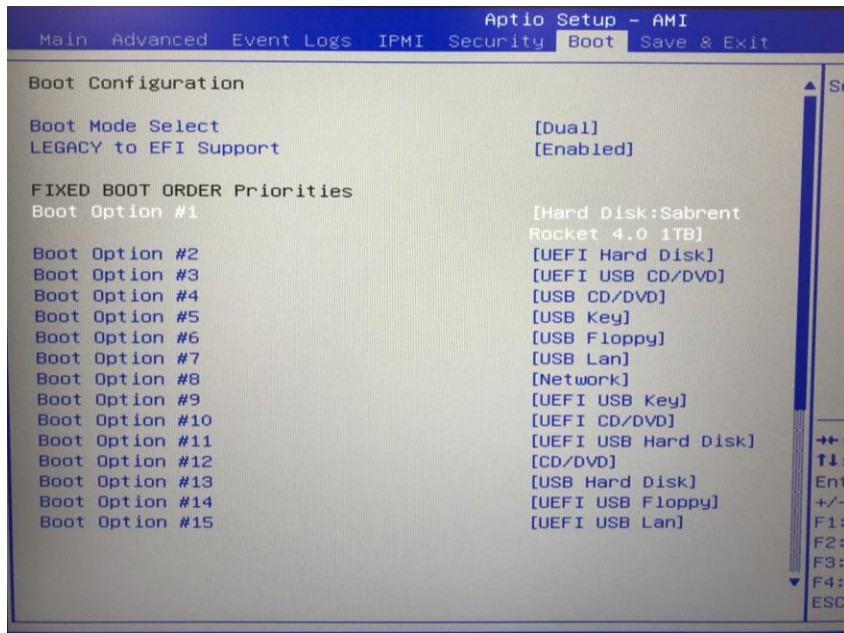
1. Power UP the computer, during the boot-up process, press "Delete" to enter BIOS.



2. Go to Advanced Tab, select, and hit NVMe Firmware Source, from the list select "AMI Native Support."

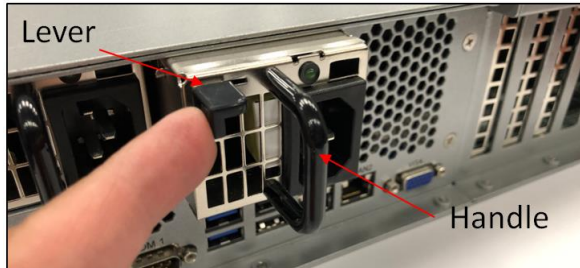


3. Go to "Boot" tab
 - a. Click "Boot Mode Select", from the dropdown list select "Dual"
 - b. Click "LEGACY to EFI Support", from the dropdown list select "Enabled"
 - c. Click "Boot Option #1, find and select the "NAME of your Storage Device"
4. Go to "Save & Exit" tab, click "Save Changes and Reset"



5 How to Remove Power Supply

Pressing and holding the lever towards your right and gently pull the handle to remove power supply module.



CAUTION

Turn OFF the unit first before removing the power supply.

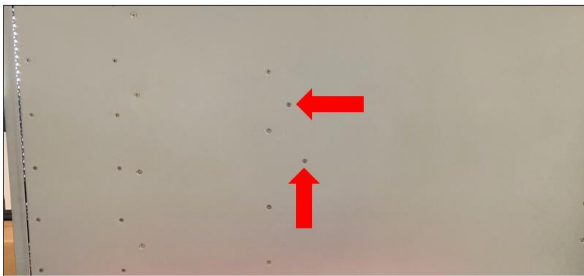
6 How to Remove PSU Housing

This section will demonstrate on how to dismount or detach the power supply housing. This will allow you to have physical access to the CPU and memory modules.

1. Remove the PSU modules



2. Remove the two mounting screws underneath the metal enclosure



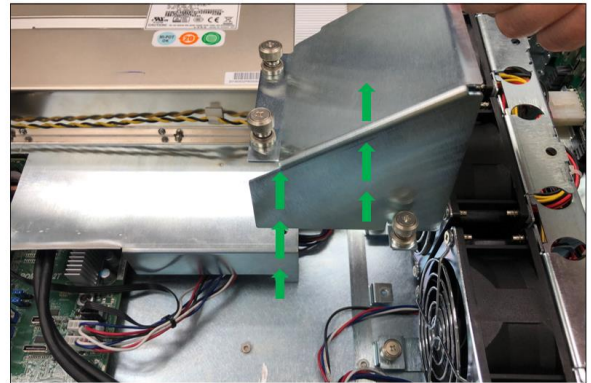
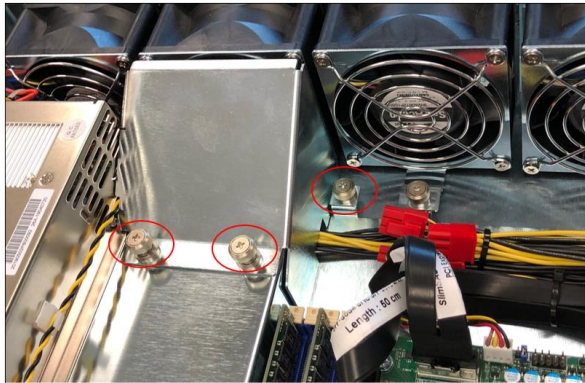
3. Remove the two mounting screws on the back of the unit, see photos below.



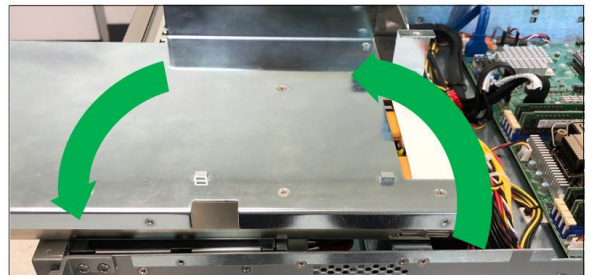
4. Remove the three mounting screws located on the side of the unit, see photo below.



5. Remove the air baffle

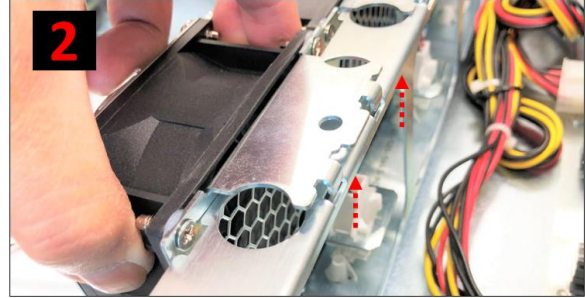
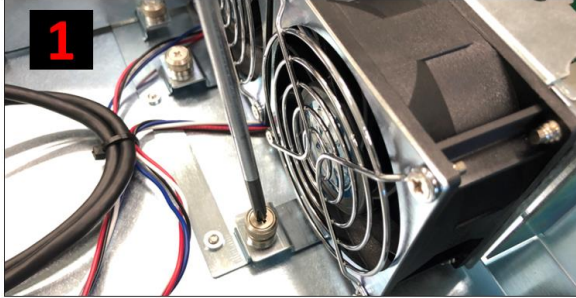


6. Slowly raise the PSU housing and lay it flat on the top surface of the unit.

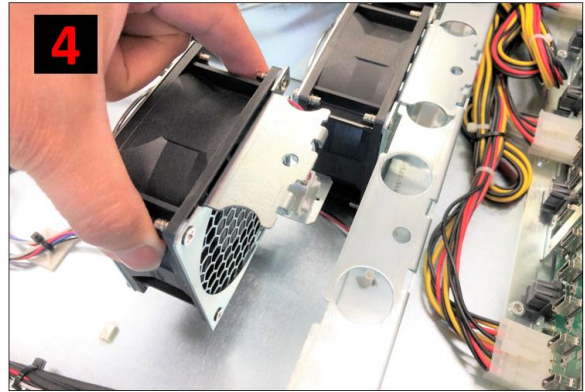
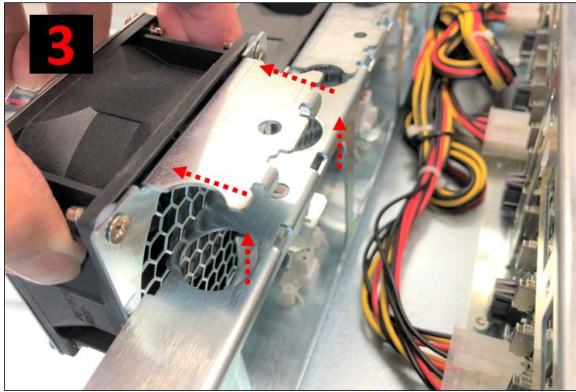


7 How to Remove the Fan

1. Loosen up the screw.
2. Grasp the fan on both sides

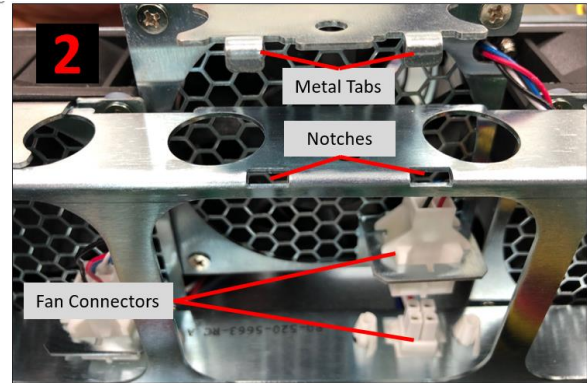
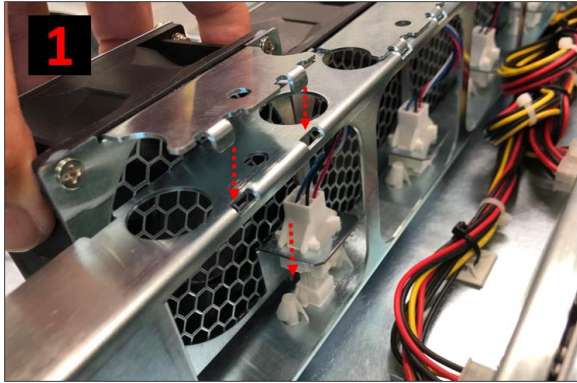


3. Lift the fan.
4. Pull the fan away from mounting bracket.

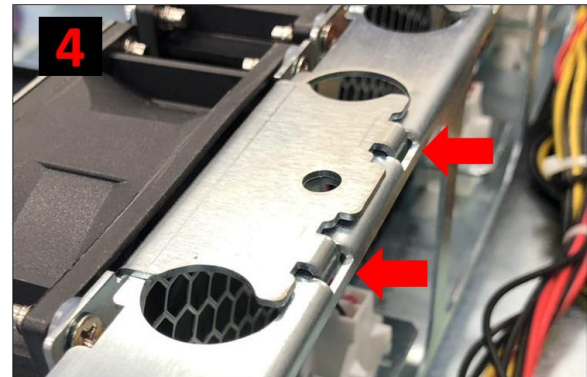
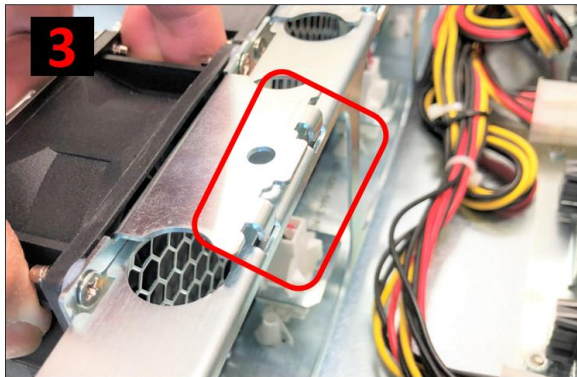


8 How to Install the Fan

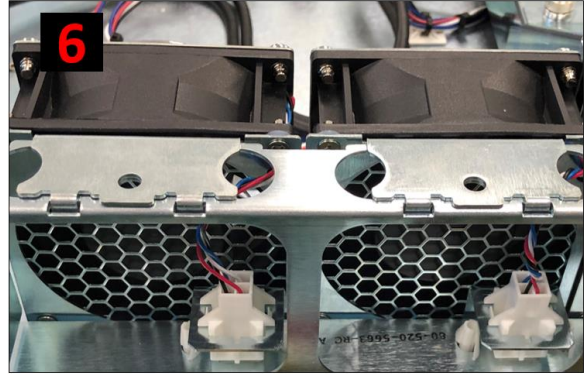
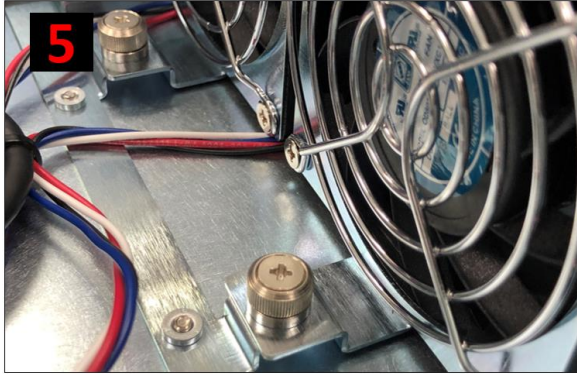
1. Align the two metal tabs on top of the two notches.
2. Align the two fan connectors.



3. Slowly push the fan down
4. Check both tabs are fully seated

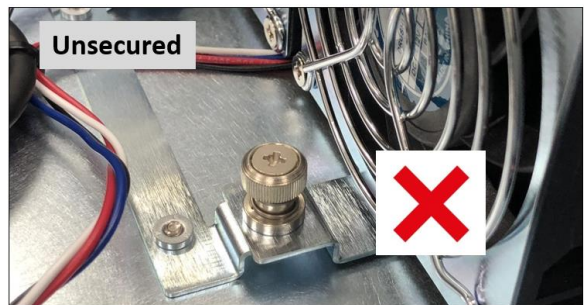
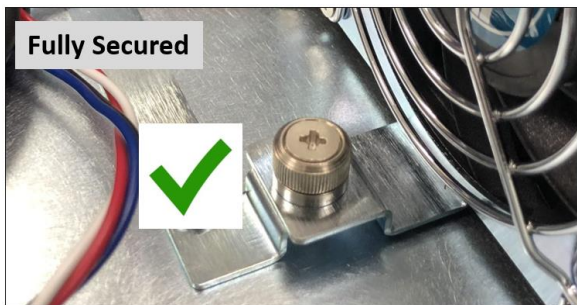


5. Tighten up the screw to secure the fan
6. Photo below shows the fan is seated properly.

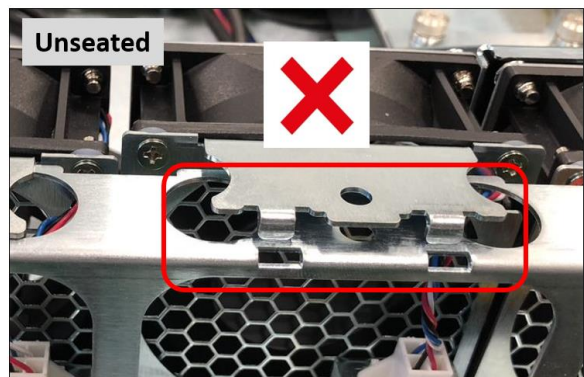
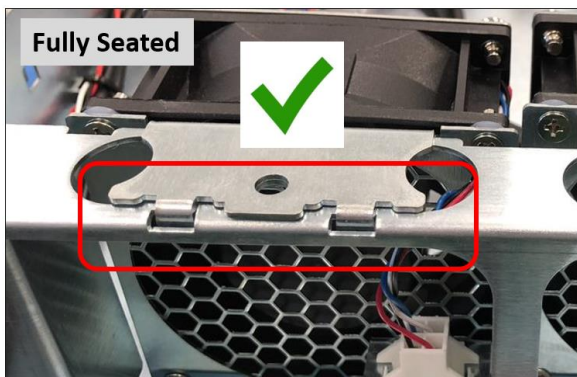


Make sure the fan is properly installed. Use photos below as reference on how to check if the fan is installed and secured properly.

Verify the screw is tightened, see photos below.



Verify the fan is fully seated, see photos below.

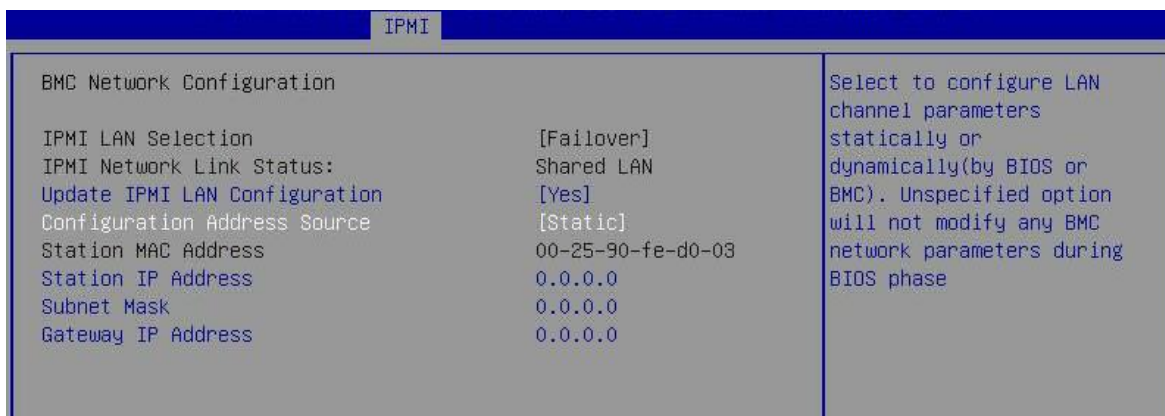


10 BMC

The X12DPG-QT6 motherboard that is currently installed in the system supports the Baseboard Management Controller (BMC). BMC is used to provide remote access, monitoring and management. You can access the BMC feature through IP connections by following the instructions below.

10.1 Configuring the IPMI in the BIOS

1. Turn ON the system. When powering up the unit hit the DEL key on the keyboard number pad to enter the BIOS.
2. Once in the BIOS navigate to the IPMI option with the arrow keys.
3. Select the BMC Network Configuration and press Enter.
4. Select Update IPMI LAN Configuration, press Enter and select YES.
5. Configure the Address Source for DHCP or Static.
 - a. Note: If you select static configure the IP address, subnet mask, and default gateway. Those fields should go to zeros before you configure them.



6. Connect an Ethernet cable to the IPMI LAN Port located on the back of the unit. Connect the other end of the cable to your network.
7. Save BIOS setting and restart / exit.
8. During boot up, the splash screen will flash the BMC IP address.



10.1 Accessing the IPMI web interface

1. Verify that you can ping the IPMI network address.
2. Start the internet browser and enter the BMC IP address, for example 192.168.1.124
3. The below login page should appear



4. The default username is ADMIN, and the password is ADMIN.
 - a. If unable to login using ADMIN as password, check the motherboard inside the system, the password is on a sticker on the motherboard, see example photo below.



5. If asked about running the latest Java (TM) Runtime Environment select 'Cancel'

From here you can find various configuration settings, logs, and server health reports. Here we will just focus on some Server Health options.

Server Health

- Sensor Reading - This page displays system sensor information, including readings and status of the hardware components.
- Event Log - Shows the hardware events of the system
- Power consumption - This page displays Power consumption information, including Maximum, Minimum and Average Power consumption in the last hour, day, and week.
- Power Source - show the current readings of power supplies. Also shows the temperature from the power supplies

For more information regarding the SuperMicro SMT IPMI interface and settings click the below link:

<https://www.supermicro.com/products/nfo/IPMI.cfm>

11 Contacting Technical Support

Our support department can be reached by fax at (858) 530-2733 or by phone at (858) 530-2511. Support is available Monday through Friday, 8:00 AM to 5:00 PM PT. When contacting One Stop Systems Technical Support, please be sure to include the following information:

- | | |
|------------------|--|
| 1) Name | 7) Serial Number |
| 2) Company Name | 8) Computer Make |
| 3) Phone Number | 9) Computer Model |
| 4) Fax Number | 10) Operating System and Version |
| 5) Email Address | 11) Make/Model of PCI cards in expansion chassis |
| 6) Model Number | 12) Detailed description of the problem |

You can also visit our web site at: www.onestopsystems/support/

For a quick response, use the Technical Support and RMA Request Form available in the Support Section of the website. Simply complete the form with all required information. Please make sure that your problem description is sufficiently detailed to help us understand your problem.

For example: Do not say "Won't boot up." Do say "Tried all the steps in the Troubleshooting Section and it still won't boot up."

For faster diagnosis of your problem, please run the two utility programs described in the following sections and include the diagnostic files they generate with your email.

12 Returning Merchandise to One Stop Systems

If factory service is required, you must contact OSS Service Representative to obtain a Return Merchandise Authorization (RMA) number. Put this number and your return address on the shipping label when you return the item(s) for service. **One Stop Systems will return any product that is not accompanied by an RMA number.** Please note that One Stop Systems WILL NOT accept COD packages, so be sure to return the product freight and duties paid.

Ship the well-packaged product to the address below:

RMA # _____

One Stop Systems

2235 Enterprise Street, Suite#110 92029

USA

It is not required, though highly recommended, that you keep the packaging from the original shipment of your One Stop Systems product. However, if you return a product to One Stop Systems for warranty repair/ replacement or take advantage of the 30-day money back guarantee, you will need to package the product in a manner similar to the manner in which it was received from our plant. One Stop Systems cannot be responsible for any physical damage to the product or component pieces of the product (such as the host or expansion interfaces for the PCIe expansion chassis) that are damaged due to inadequate packing. Physical damage sustained in such a situation will be repaired at the owner's expense in accordance with Out of Warranty Procedures. Please, protect your investment, a bit more padding in a good box will go a long way to insuring the device is returned to use in the same condition you shipped it in. Please call for an RMA number first.

13 APPENDIX A Compliance

FCC

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the service personnel will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the service personnel's authority to operate the equipment.



NOTE

The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interferences or to be noncompliant with the appropriate standards for its intended use.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives. One Stop Systems will not retest or recertify systems or components that have been reconfigured by customers



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