



OSS-521 Gen4 Backplane



INSTALLATION GUIDE

OSS-521 Gen4 Backplane



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1 Getting Started

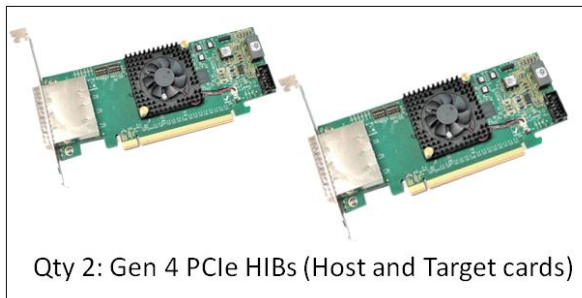
This section is all about the steps on how to install the backplane. You will find instructions for the following procedures:

- Unpacking
- Description of Parts
- Hardware Requirements
- Backplane Installation
- Cable Adapter Card Installation
- Link Cable Installation
- Powering Up the unit / system
- Board LED Indicator
- Verify Device Installation

2 Unpacking

Check and identify the standard supplied item. Inspect the backplane for physical defects and damages.

- To achieve good performance and reliability it is recommended to use a certified and compatible set of an OSS Gen4 adapter cards (aka: Host Interface Board) and a Gen4 Mini-SAS *HD SFF-8644* cables.
- The OSS backplane is designed and programmed to work with OSS Gen4 adapter cards.



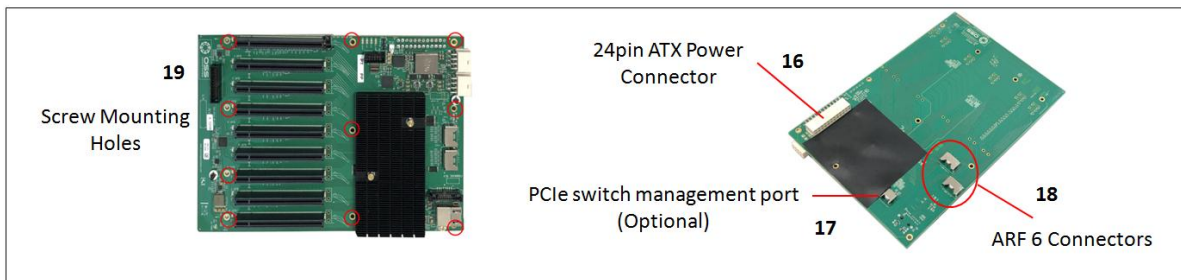
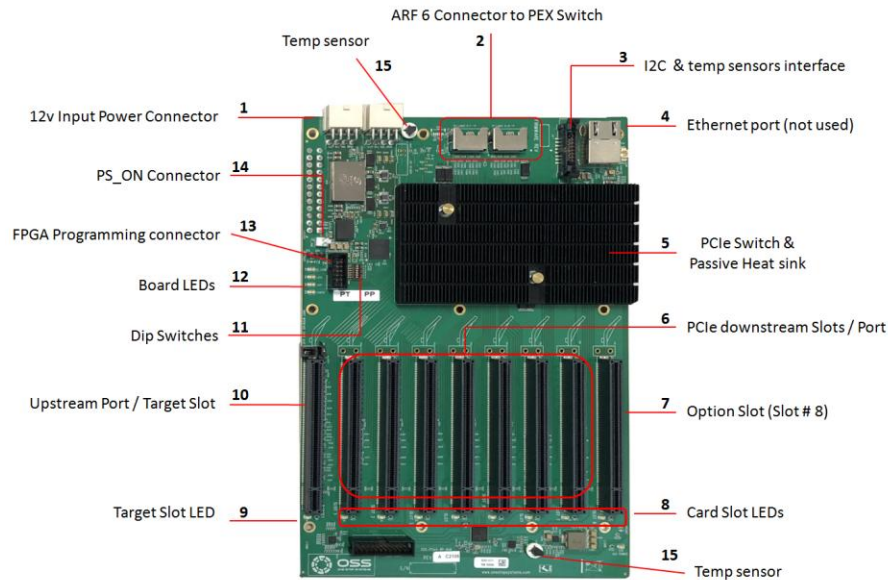
Qty 2: Gen 4 PCIe HIBs (Host and Target cards)



Qty:4 Gen 4 Mini-SAS Cables

3 Description of Parts

3.1 Backplane



| Item | Name | Description |
|------|--------------------------------|---|
| 1 | 12V Input Power | 12V input power for the 538 board. Not to be used for external GPU aux |
| 2 | ARF 6 Top Connectors | For connecting ARC 6 cables between "Option slot" and PEX switch |
| 3 | I2C and temp sensors interface | Connector for I2C and temp sensors interface to the power backplane |
| 4 | Ethernet port | Not used |
| 5 | Passive Heat sink | Moves heat away from the PCIe chip |
| 6 | PCIe Downstream Slots / Port | PCIe card slot for 3 rd Party PCIe cards |
| 7 | Option Slot | Configurable card slot to operate either as an Upstream or Downstream modes |
| 8 | Card Slot LED | LED status indicator when slot is populated or not. Solid green when card is present. Off, when no card |
| 9 | Target Slot LED | LED status indicator for Target card. Solid green when Gen 4 adapter card is installed |
| 10 | Upstream Port / Target Slot | Designated slot for Target card only |
| 11 | Dip Switches | For slot configuration |
| 12 | Board LEDs | LED status indicator for the board |
| 13 | FPGA Connector | FPGA Programming connector |
| 14 | PS_ON | Enable to force power ON the backplane by placing a jumper on the connector |
| 15 | Temperature Sensor | Sensor for detecting temperature on the board |
| 16 | 24-pin ATX Power Connector | For connecting ATX Power Supply |
| 17 | PCIe Switch Port | PCIe switch management port, optional |
| 18 | ARF 6 Bottom Connectors | For connecting ARC 6 cables between "Option slot" and PEX switch |
| 19 | Screw-Mounting Holes | For securing the board on to an enclosure |

3.2 Upstream and Downstream Slots

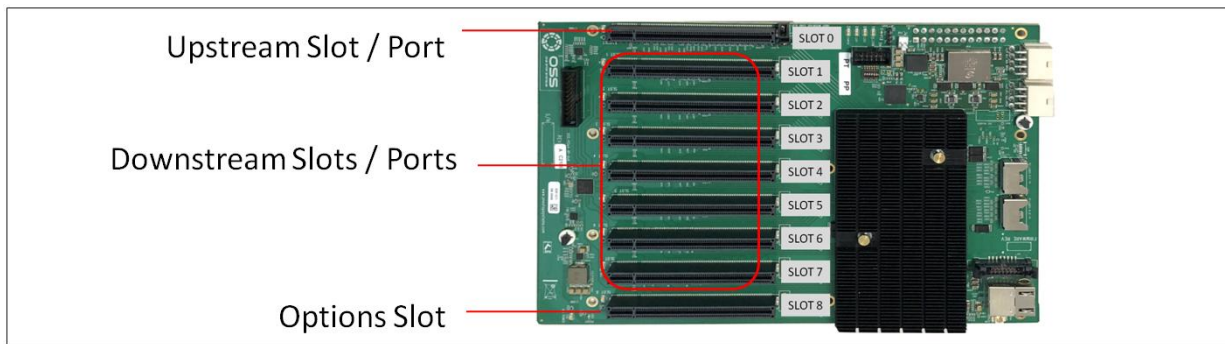
Upstream Slot: Also known as target slot. Designated slot for the Target adapter card only. OSS Host card or any PCIe cards will not operate in the Upstream slot / Target slot.

- Slot 0 is the default slot number for the Upstream slot.

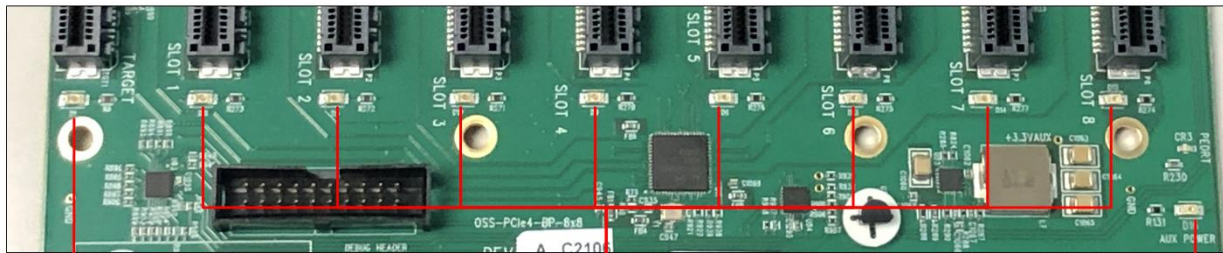
Downstream Slots: These are PCIe card slots #1, #2, #3, #4, #5, #6 and #7. Do not use the downstream slots for HIB Target card.

Option Slot: Slot 8, when configured accordingly, it will operate either in an Upstream mode or Downstream mode.

- Slot 8 configured as Downstream mode, will only work with an end-point device or a 3rd party PCIe card.
- Configured as an Upstream mode, use only with an OSS HIB Target card.



3.3 Slot LEDs



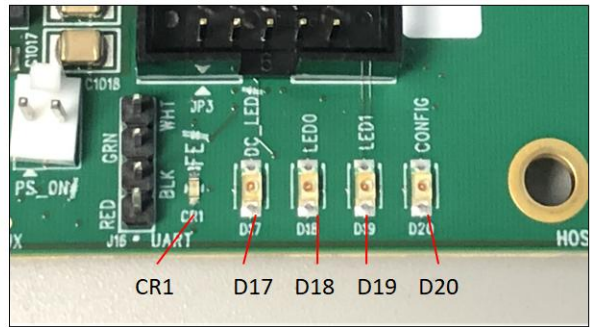
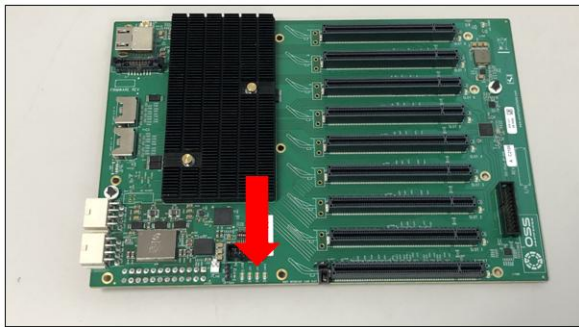
Target Slot LED

PCIe card slot LEDs

AUX Power LED

| Item | Name | Description | When Lit (Solid Green or Blinking) | When Off |
|------|-----------------|---------------------------|--|--|
| 1 | Target Slot LED | Upstream Slot LED | Solid = Gen4 Link Blink 2Hz = Gen3 Link Blink 1Hz = Gen2 Link Blink 0.5Hz = Gen1 Link (Slow Blinking) | OFF - Not Linked / No Card present in the slot |
| 2 | Downstream LED | PCIe slot LEDs | Solid = Gen4 Link Blink 2Hz = Gen3 Link Blink 1Hz = Gen2 Link Blink 0.5Hz = Gen1 Link (Slow Blinking) | OFF - Not Linked / No Card present in the slot |
| 3 | Aux Power LED | Auxiliary Board power LED | This is GREEN, denotes existence of auxiliary power +5VAUX | Board is at fault / error |

3.4 Board LEDs

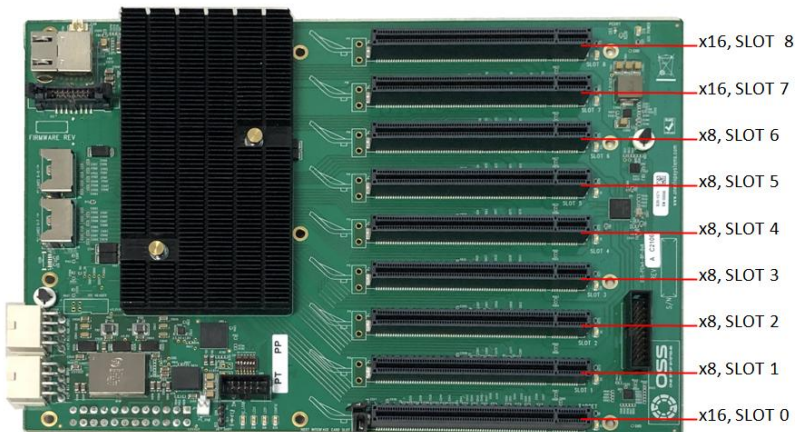


| LED# | NAME | Description |
|------|--------|--|
| CR2 | FE LED | FE-Fault Error (SYS_ERROR#) LED |
| D7 | DC LED | PCIe slot LEDs Daisy Chain Port Link Status LED |
| D8 | LED 0 | All Power Good |
| D9 | LED 1 | FPGA Blinking LED (When FPGA code is loaded and working: 8 blinks, 2 pause counts, 8 blinks) |
| D10 | CONFIG | Config output from the FPGA, but enabled as an FPGA option. When RED, board is not programmed. OFF, board is programmed. |

3.5 Slot Type

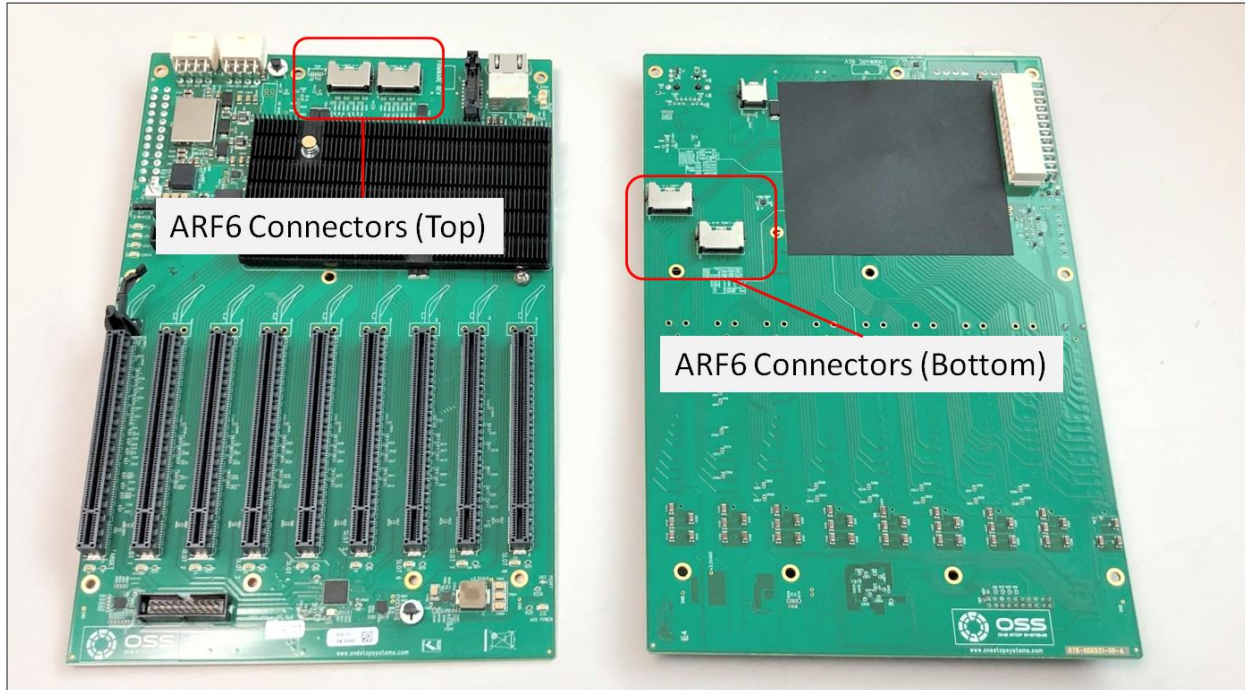
Slot Type: Closed-ended PCIe slot / connector, all the slots are x16 mechanical.

- Six x8 electrical slots (slots 1, 2, 3, 4, 5 and 6)
- Three x16 electrical slots (slots 0, 7 and 8)



3.6 ARF6 Connectors

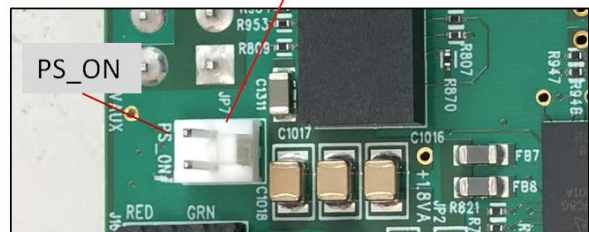
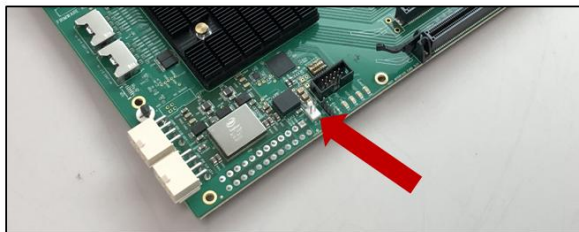
ARF6 Connector - For connecting ARC6 cable to daisy chain two backplanes together and to create a bridge or connection between SLOT 8 and the PCIe switch.



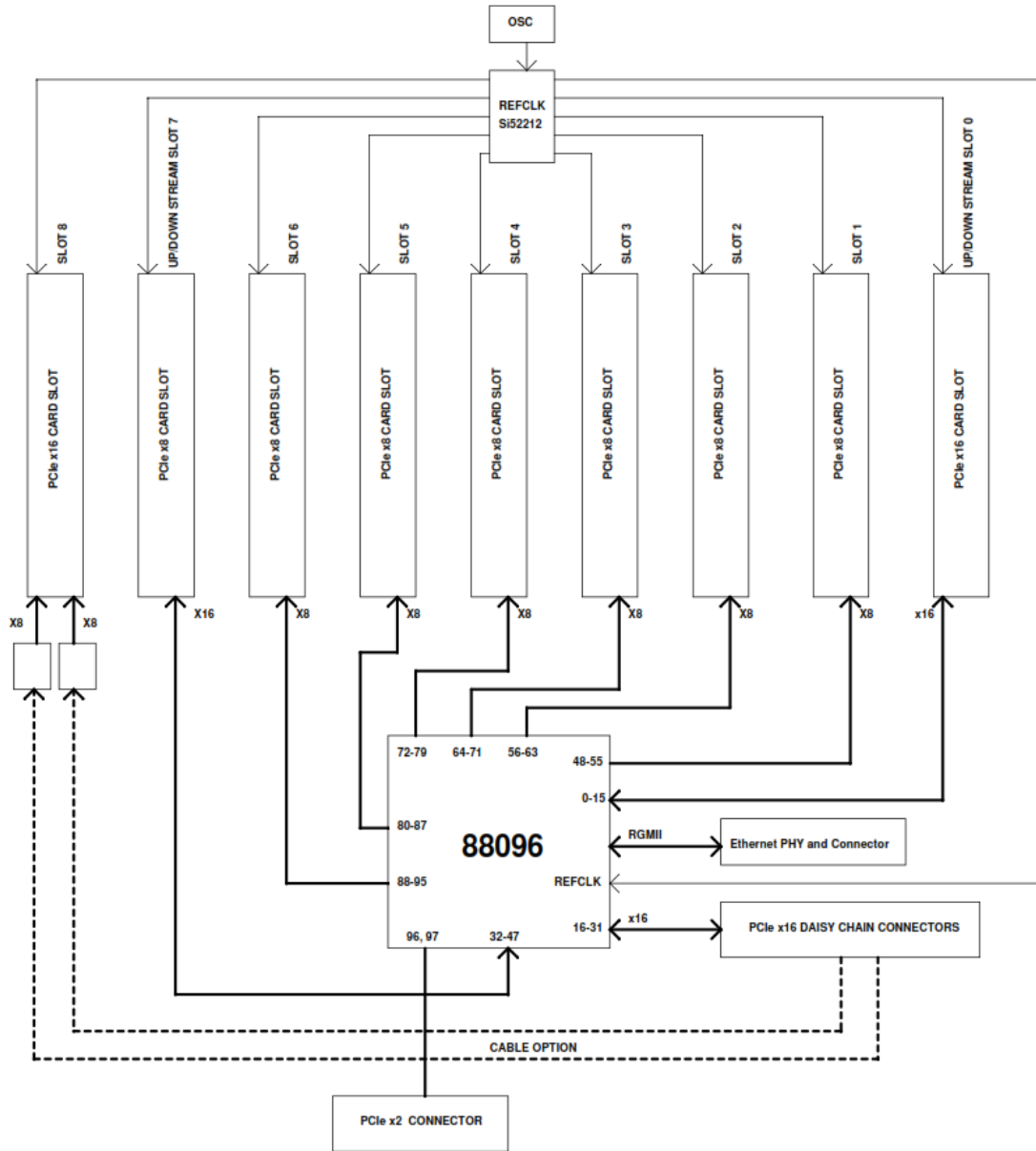
3.7 PS_ON

The board has a two-pin connector for placing a shunt / jumper that allows the backplane to be ON all the time when an ATX power supply is switched ON. See photos below for the location of the JP5 connector on the backplane.

Shunt / Jumper



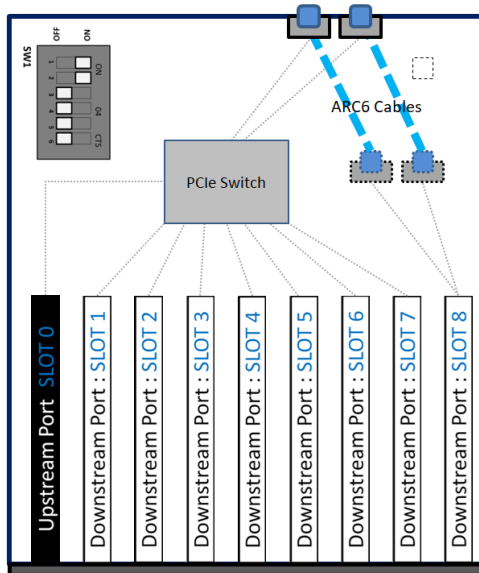
3.8 Block Diagram



3.9 Slot Configurations

Configuration# 1: Default slot configuration. One Upstream slot and eight Downstream slots.

ARC6 cables are required and must be attached between the edge of the board and the slot connectors under the backplane. Without those ARC6 cables nothing will work in SLOT 8.



1 Upstream Slot (SLOT 0)

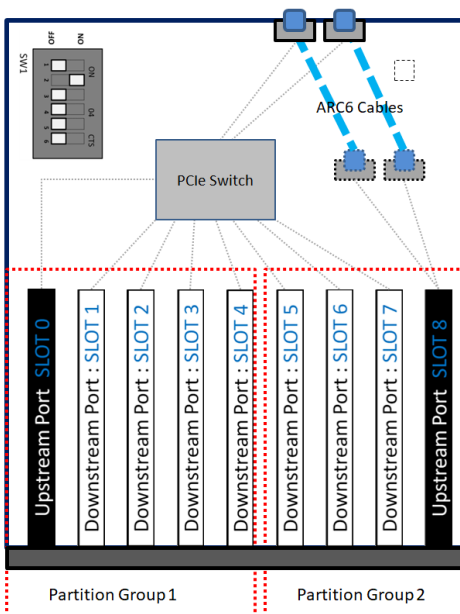
- One partition

8 Downstream Slots

- Slots # 1, 2, 3, 4, 5, 6, 7 and 8

Configuration# 2: Two Upstream slots (Slot 0 and SLOT 8) with two partitions.

- Slot 0: Partition #1 with four Downstream slots
- Slot 8: Partition #2 with three Downstream slots



2 Upstream Slots (SLOT 0 and SLOT 8)

- Two partitions

7 Downstream Slots

- 4 Downstream slots for **partition group 1**

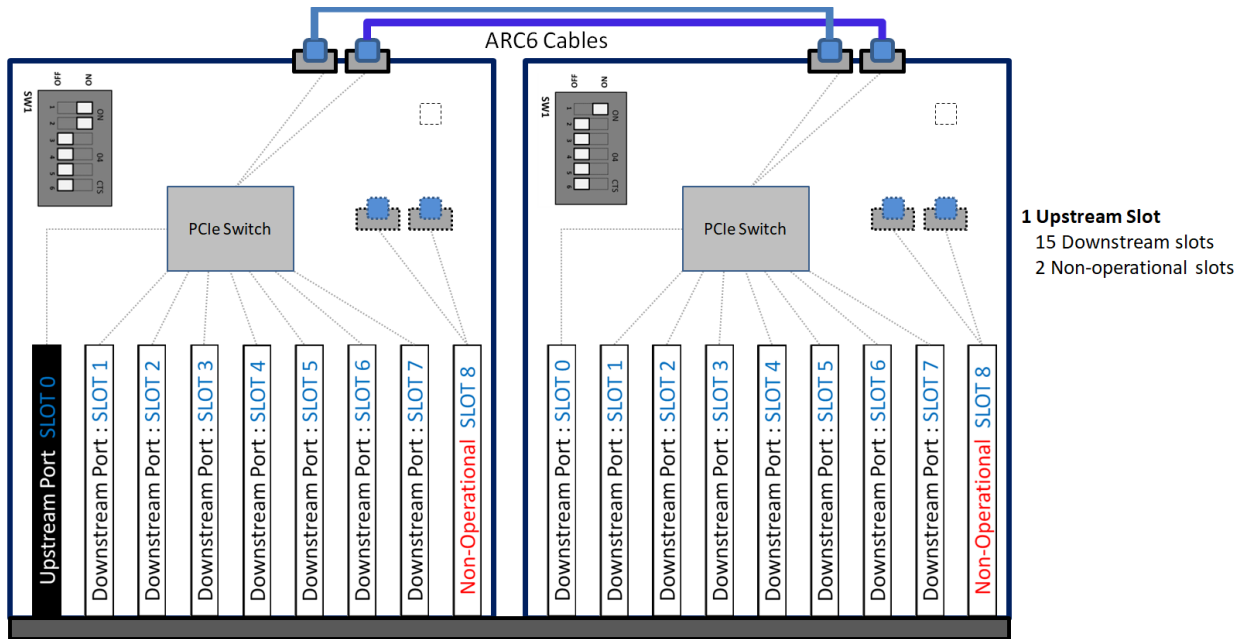
- Slots # 1, 2, 3 and 4

- 3 Downstream slots for **partition group 2**

- Slots # 5, 6 and 7

Configuration# 3: Two backplanes are daisy chained together.

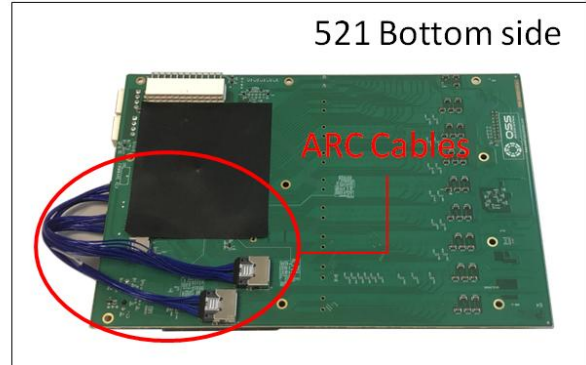
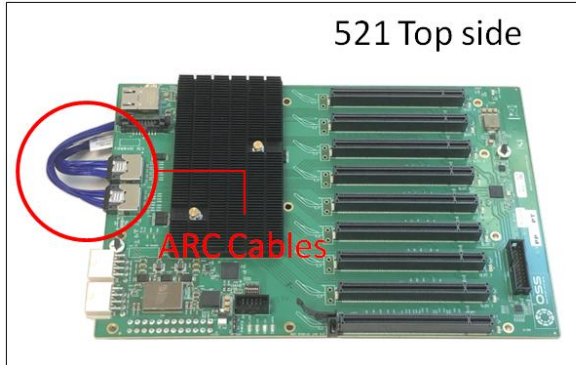
- One Upstream slot and 15 Downstream slots.



3.10 OSS-521 Backplane with Kit vs. no Kit

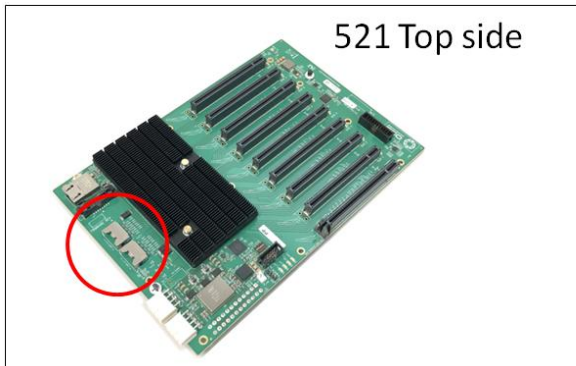
OSS-521 backplane with kit, which includes two ARC 6 cables installed to enable slot 8, see photos below.

Part# OSS-BP-521-LSKIT



OSS-521 backplane with no kit installed (no ARC 6 cables), see photos below.

Part# OSS-BP-521



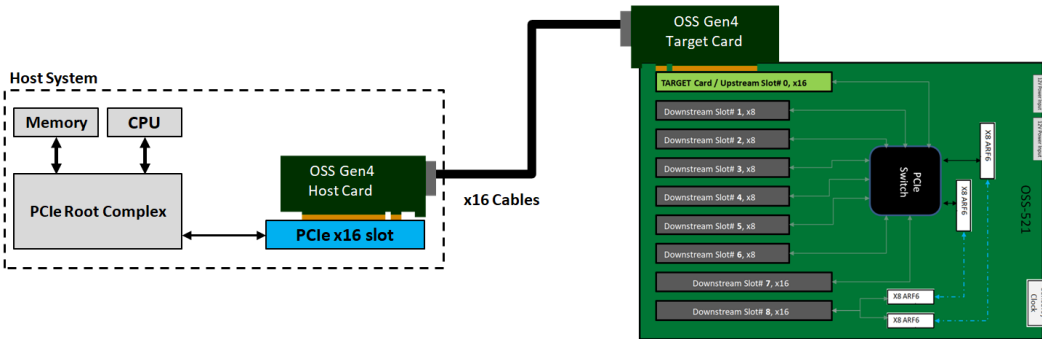
3.11 Use Case Diagrams

Configuration 1

OSS-521 backplane is linked to a single host computer. Four x4 link cables are connected between OSS Gen4 Host card and Target card.

8 Downstream slots

- 6 x8 slots (Slot 1, 2, 3, 4, 5 and 6)
- 2 x16 slots (Slot 7 and 8)

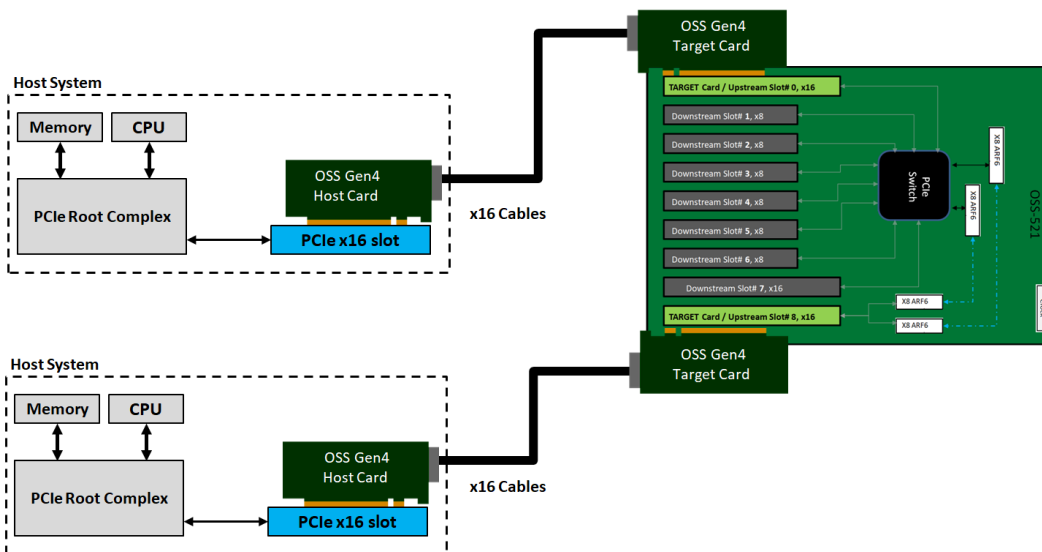


Configuration 2

OSS-521 backplane is linked to two host computers, see diagram below.

Two partitions / two Upstream slots (Slot 0 and SLOT 8) with a total of 7 downstream slots.

- Slot 0: Partition #1 with four Downstream slots
 - 4 x8 slots (Slot 1, 2, 3 and 4)
- Slot 8: Partition #2 with three Downstream slots
 - 2 x8 slots (Slot 5 and 6)
 - 1 x16 slot (Slot 7)



Configuration 3

Two OSS-521 backplane are daisy chained together and it is linked to a single host computer.

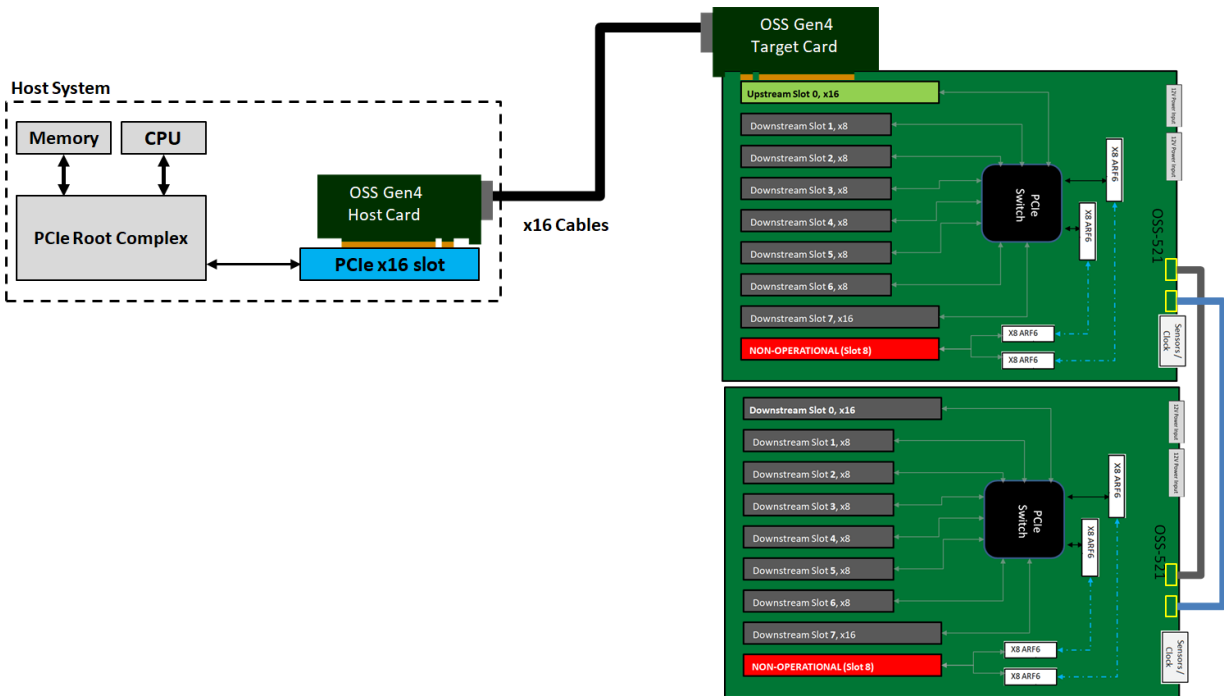
- With a total of 15 Downstream slots

1st backplane: 7 downstream slots

- 6 x8 slots (slot 1, 2, 3, 4, 5 and 6)
- 1 x16 slot (slot 7)
- One non-operational slot (slot 8)

2nd backplane: 8 downstream slots

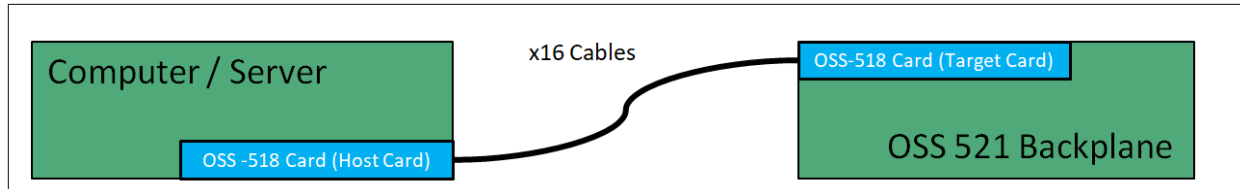
- 6 x8 slots (slot 1, 2, 3, 4, 5 and 6)
- 2 x16 slots (slot 0 and 7)
- One non-operational slot (slot 8)



3.12 Supported Setup

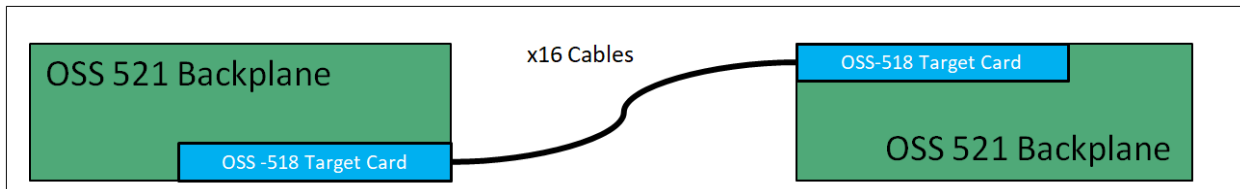
This is a validated /supported setup for using the OSS-521 backplane with a host computer and an OSS HIB adapter cards.

- Requires a set of OSS-PCIe-HIB616-x16 card, configured as Target and Host cards.
- OSS Gen4 backplane with OSS Target card
- Host computer with OSS Host card
- PCIe Gen4 cables.



3.13 Not Supported Setup

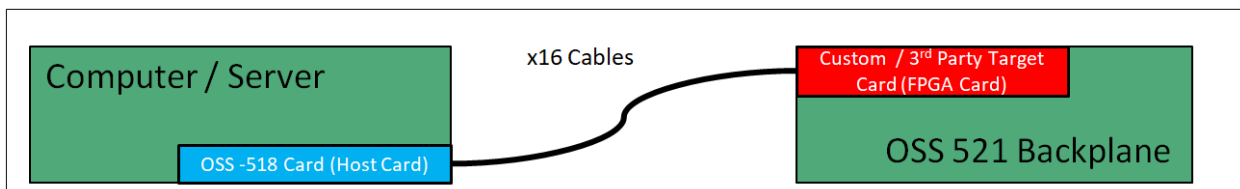
1. **Backplane to Backplane**, not a supported setup. It will not work.



2. **Third Party FPGA Adapter cards**

Using a custom FPGA adapter card with the backplane is not supported. OSS manufactured, tested and certified an FPGA adapter card that is compatible with OSS backplane. We offer a variant of proprietary OSS FPGA adapter cards that are designed to operate reliably with OSS backplanes.

- Customer is solely responsible for troubleshooting their custom FPGA adapter card when problem arises upon using it with the OSS backplane.
- Damaging the backplane by using a non validated HIB cable adapter cards will not be covered under warranty.

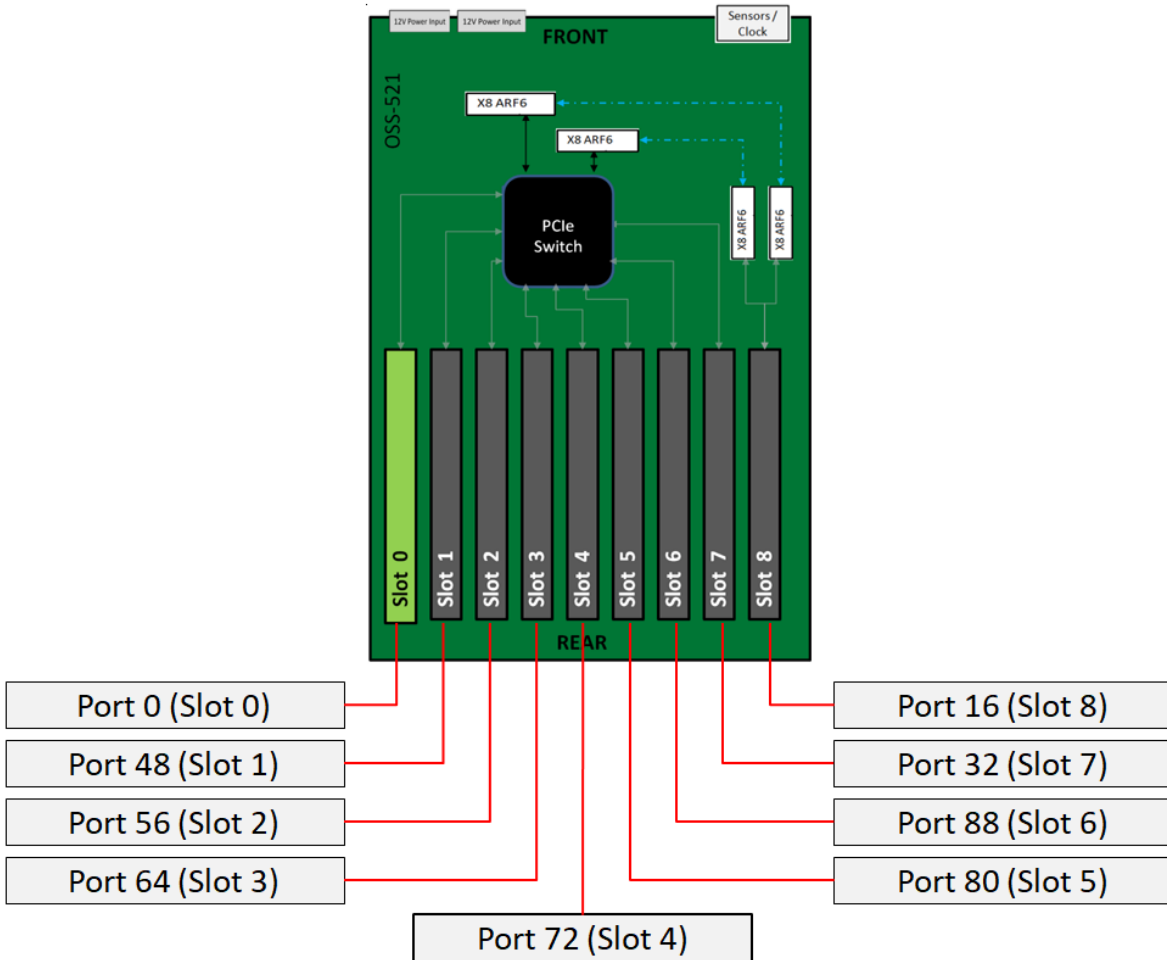


3.14 Slot Number and Port Mapping

Each slot on the OSS backplane is mapped to a PCIe port on the 88096 PCIe switch. Port mapping is hard-coded, it is essentially fixed. No means of changing or modifying it.

For example, a single GPU or PCIe card is seated in slot 2 on the backplane, PCIe port 56 will be automatically assigned to the card.

| Port / Slot | Slot Mapping: 88096 Port |
|-------------|--|
| Slot 0 | 0 |
| Slot 1 | 48 |
| Slot 2 | 56 |
| Slot 3 | 64 |
| Slot 4 | 72 |
| Slot 5 | 80 |
| Slot 6 | 88 |
| Slot 7 | 32 |
| Slot 8 | 16 (Daisy chain) If slot 8 is cabled to the daisy chain port, it becomes port 16 of the 88096 (regardless of upstream/downstream configuration). NA: If not enabled, no port assignment. |

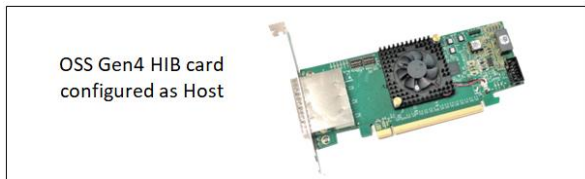


4 Hardware Requirements

1. OSS-PCIe-HIB616-x16 card configured as Host
2. OSS-PCIe-HIB616-x16-T card configured as Target
3. Gen 4 PCIe x4 cable
 - a. x16 Configuration: Four PCIe Gen4 cables
 - b. X8 Configuration: Two PCIe Gen4 cables
 - c. X4 Configuration: One PCIe Gen4 cable
4. Gen4 x16 PCIe slot (computer motherboard)
5. OSS Expansion enclosure
6. ATX Power Supply: Minimum of 2000 Watt

4.1 OSS-PCIe-HIB616-x16 card

A pair of OSS Gen4 x16 cards, one as host card and the other as target card.



4.2 SFF-8644 Gen4 x4 Cable

Use Gen 4 PCI Express (PCIe) rated cables. This passive copper cable mates to the SFF-8644 connectors on the HIB6xx family of OSS host interface board. Tested and validate with 1m, 2m and 3m lengths. Single or multiple cables can form larger PCIe links.

- x4 (1 cable)
- x8 (2 cables)
- X16 (4 cables)

Use PCIe Gen 4 (BLACK plastic-pull tab), see photo below. The FPGA in the HIB616-x16 card does not support CMI operations.



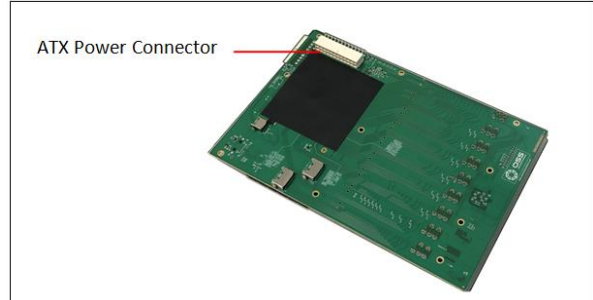
4.3 Expansion Chassis with ATX Power Supply



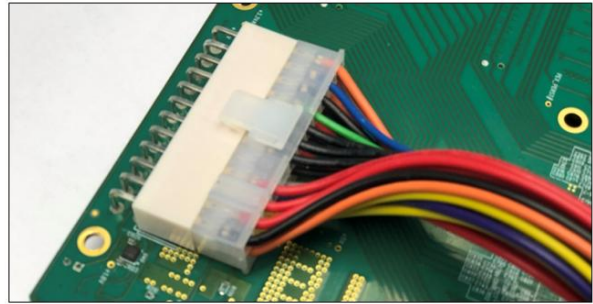
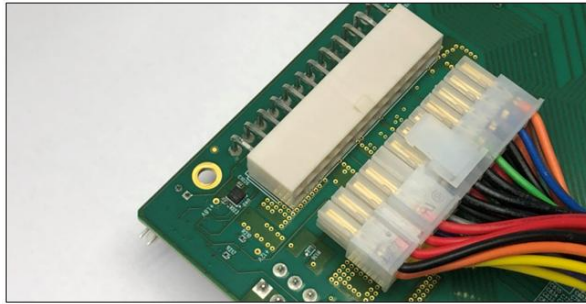
5 Backplane Installation

Before mounting the backplane, inspect the chassis for any protruding metals.

Turn the backplane over to access the onboard 24-PIN ATX Power connector.



Connect the ATX power cable to the onboard 24-PIN ATX power connector as shown from the photos below.

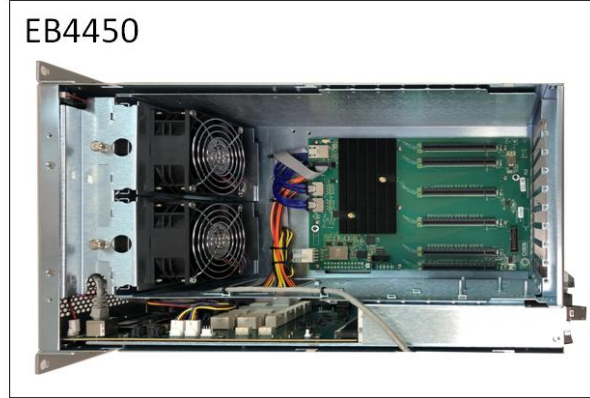
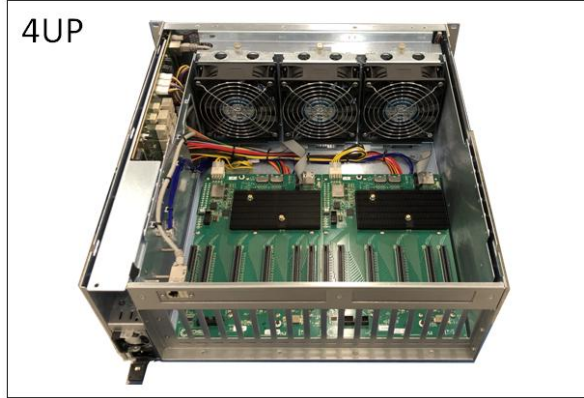


Connect the 12v Aux power cables to the 12V input connectors.



Install the board in the chassis / enclosure. The photos below are two available enclosures or expansion units that you can use for housing the OSS-521 backplane.

- 4UP enclosure: Applicable for “dual backplane” installation
- EB4400 enclosure: For “single backplane” installation



Place the OSS-backplane on top of the stand-offs and align the screw-mounting holes. Secure the backplane with the screws.

6 Cable Adapter Card Installation

To operate the backplane you need two OSS compatible / certified “HIB adapter cards”. Use an OSS Gen4 x16 PCIe Host * & Target cable adapter cards.

- Target card: HIB card configured to operate in target mode. This is an OSS certified and compatible HIB card installed directly on the OSS backplane’s target slot / upstream slot.
- Host Card: HIB card configured to operate in host mode. Installed in the host computer motherboard’s Gen 4 x16 PCIe slot.

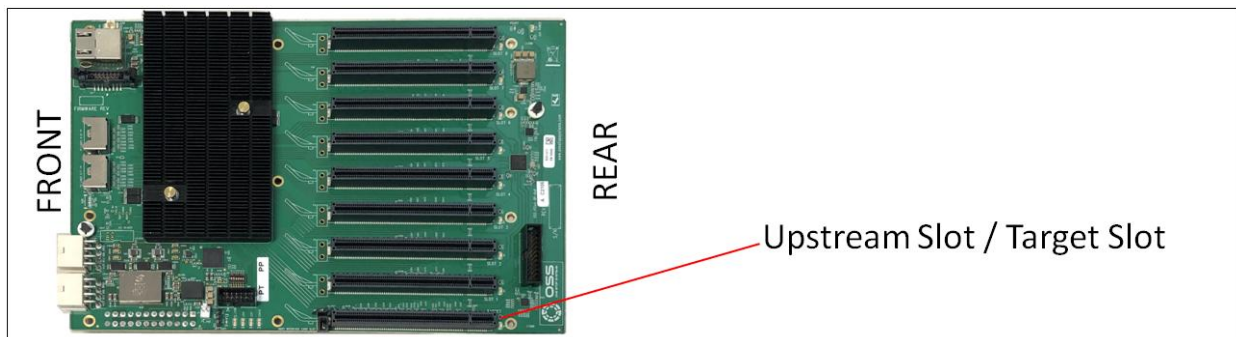
For more details on OSS-PCIe-HIB616-x16 card (Host / Target card) please refer to the OSS-PCIe-HIB616-x16 installation guide.

<https://www.onestopsystems.com/product/pcie-x16-gen-4-cable-adapter>

6.1 Target Card Installation

Use the designated Target Slot / Upstream Slot on the backplane when installing the card.

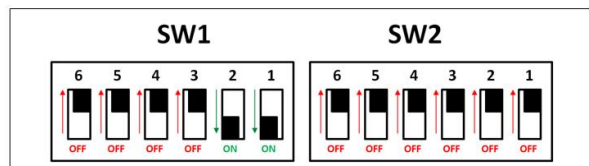
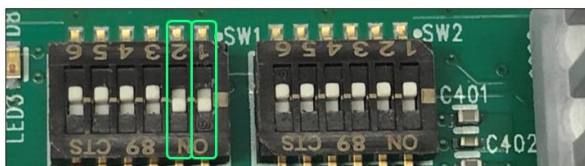
- The HIB card configured as Target card will only operate in the target slot / upstream slot.
- See photo below for the correct default location of the Target slot (Upstream Slot).



6.1.1 Target Card Switch Settings

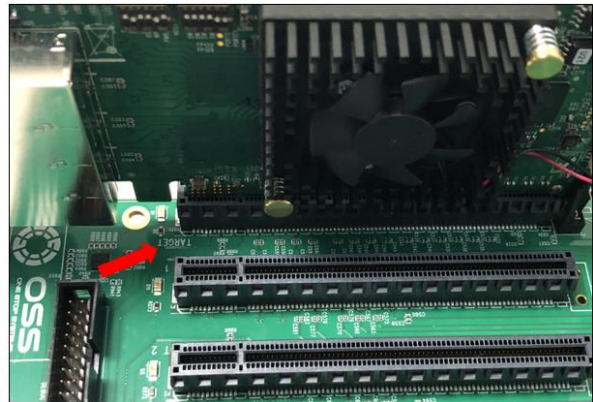
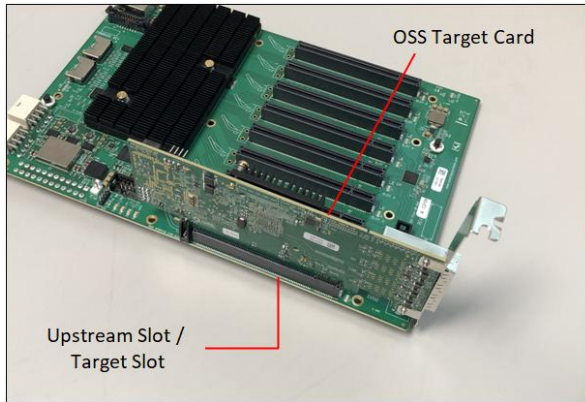
Check and verify the switches are set to target mode before installing the card.

- See photos below for Target card switch settings.
 - SW1 #1 = ON; SW1 #2= ON
 - SW2 = All OFF

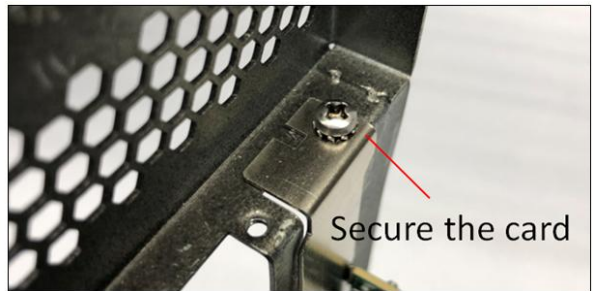
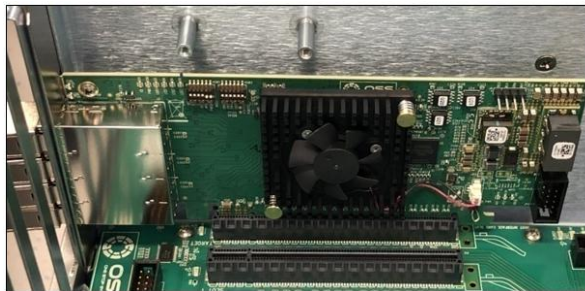


- If the switches are set incorrectly, will result to no connectivity between the host system and target device.

Warning: Only use the Upstream slot for the Target card. Do not plug-in the Target card in the downstream PCIe slot.



Ensure the card is firmly and fully seated in the slot. Secure the card with a retaining screw.



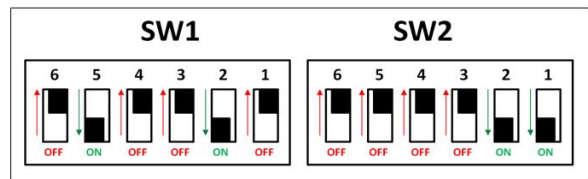
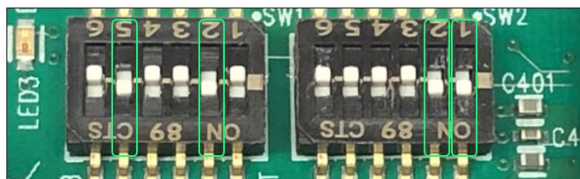
6.2 Host Card Installation

The host card can only be installed in the computer motherboard's PCIe slot. Install the Host card in an x16 Gen4 PCIe slot. Check the PCIe slot for any foreign debris as this can damage the card during installation.

- Check the dipswitches on the card are set to host mode before installation.
- Photos below are x16 dipswitches settings for host mode.

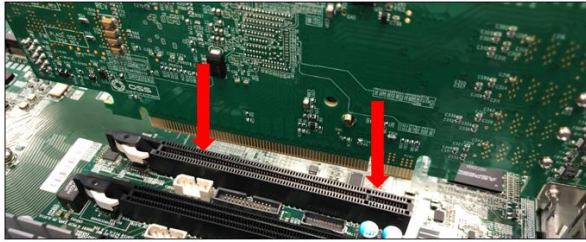
6.2.1 Host Card Switch Settings (x16 Configuration)

- SW1 #2 = ON; #5 = ON.
- SW2 #1 = ON; #2 = ON



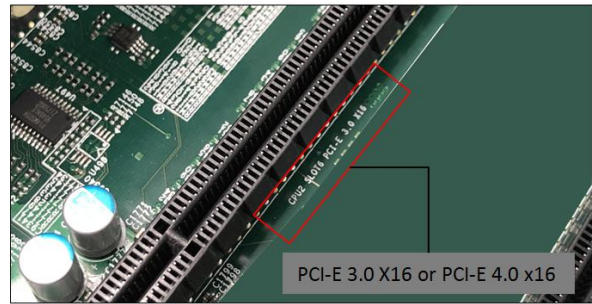
Note: For more information on different host card dipswitch settings / configurations please check the OSS-PCIe-HIB616-x16 installation guide.

Align the host card PCIe connector on top of the PCIe slot. Carefully push the card down until it is firmly seated and secure it.



The photos below are example of x16 PCIe slot.

- For easy identification on the PCIe slot specification check the label or silk-screen next to the connector.



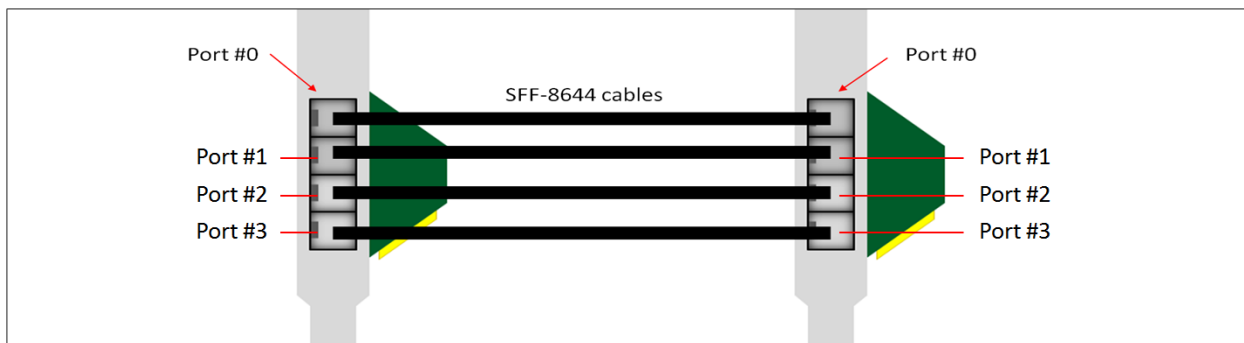
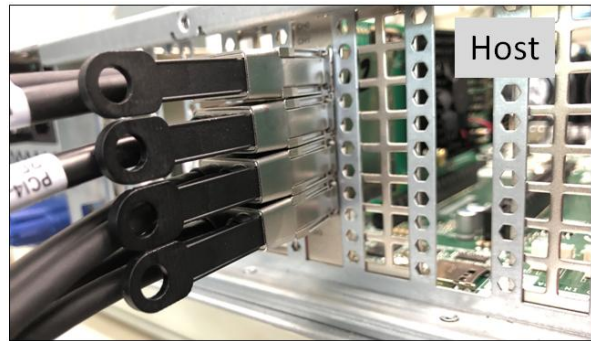
7 Cable Installation

7.1 Connect Mini-SAS HD SFF-8644 Cables

| | | |
|--|--|--|
| x16 cable configuration: Use four cables | x8 cable configuration: Use two cables | x4 cable configuration: One cable only |
|--|--|--|

Note: Ensure the HIB616-x16 host card is set to x16 configuration or preferred configuration (x8 or x4), see x16 switch settings. Refer to the OSS-PCIe-HIB616-x16 installation guide.

- Plug-in the 1st cable to Port#0 (Top port) on both Target and Host cards
- Plug-in the 2nd cable to Port#1 on both Target and Host cards
- Plug-in the 3rd cable to Port#2 on both Target and Host cards
- Plug-in the 4th cable to Port#3 (Bottom port) on both Target and Host cards



For more details on different cable configurations please refer to the OSS-PCIe-HIB616-x16 installation guide.

<https://www.onestopsystems.com/product/pcie-x16-gen-4-cable-adapter>

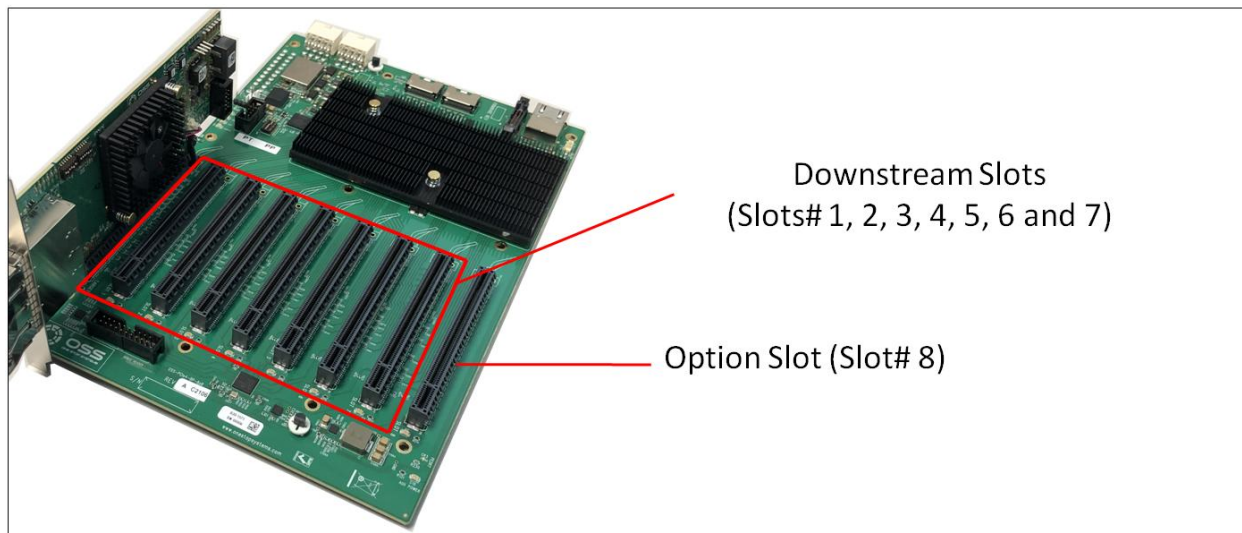
8 PCIe Card Installation

Plug in your PCIe card one at a time. Use any available downstream slots (slot#1, 2,3,4,5,6,7 and or 8) on the backplane. Be certain all cards are fully seated in the slot. If your card requires extra power, use appropriate aux power cable supplied by the vendor.

There are 7 Downstream slots (slots 1,2,3,4,5,6 and 7) and one option slot (slot 8) on the backplane.

Slot# 8 is an option slot. It can be configured to operate in either downstream or upstream mode.

- OSS-521 backplane configured with one Upstream slot and 8 downstream slots.
 - You can populate all downstream slots with an endpoint device or your selected PCIe cards.
- OSS-521 backplane configured with two Upstream slots (SLOT 0 and SLOT 8).
 - Use Slots# 1, 2, 3, 4, 5, 6 and 7 for your endpoint device.
 - The slot 0 and 8 will operate in an Upstream mode and will only work with an OSS HIB card configured as target.



9 Powering UP the unit

- Plug in the power to the expansion unit.
- Plug in the power to the host computer.
- Flip the power supply switch to ON position on the expansion unit.
- Press the main power switch on the host computer.
 - Before powering UP or turning ON the Host computer, make sure the Host adapter card is seated properly in a x16 Gen3 / Gen4 PCIe slot and the cables are firmly connected.
 - Upon powering up the Host computer, it will initialize a link between the target and the host. The Link LED on both target and host cards will illuminate as solid green.

10 Hardware Check

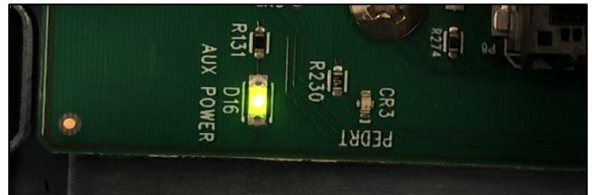
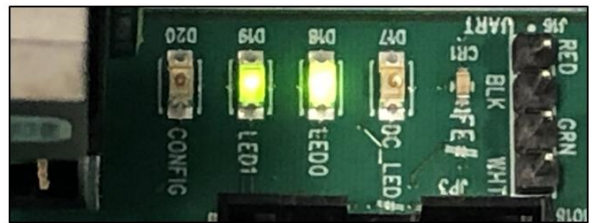
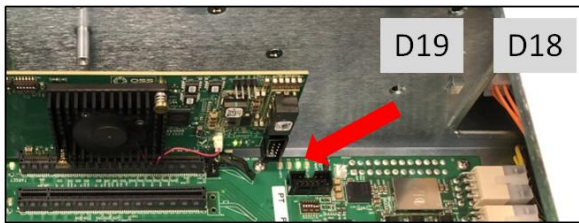
10.1 Verify Board LEDs

After powering UP the host computer, the Target SLOT LED on the backplane will lit as solid green.



A fully operational back plane will illuminate the following LEDs.

- D19- Blinking green (LED 1).
- D18-Solid green(LED 0).
- D16- AUX power, solid green.



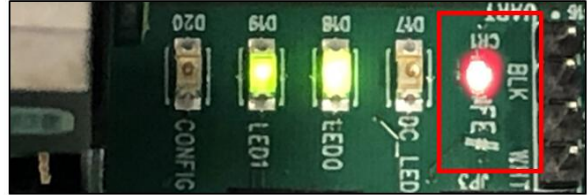
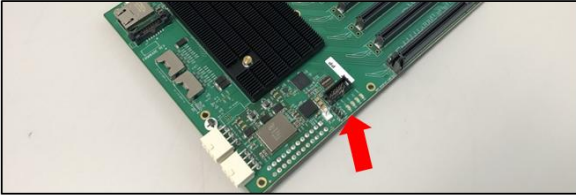
10.2 Fault LEDs (RED)

A solid RED led on the backplane signifies a fault or an error. Below photos are list of RED LED locations and definitions.

FE (Fatal Error) LED

Solid Red: Hardware failure

- * Backplane need service or repair

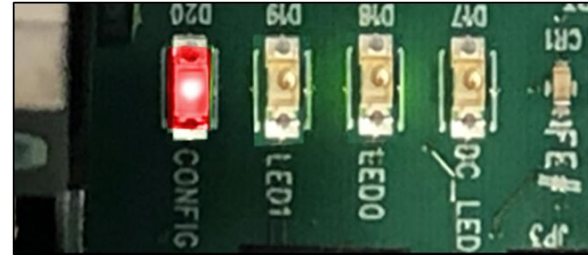


D20 / CONFIG LED

Solid Red:

- Board is not programmed
- Firmware corrupted

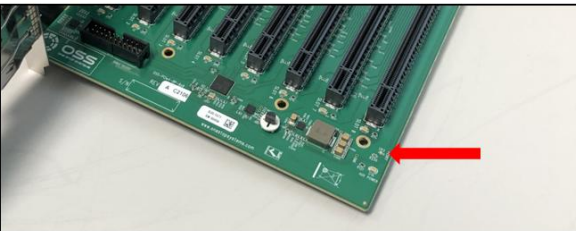
Need to send back to manufacturing for service or repair.



RED LED (CR3 / PEDRT):

The backplane is not getting initialized due to:

- * Faulty Target card
- * Board is not programmed

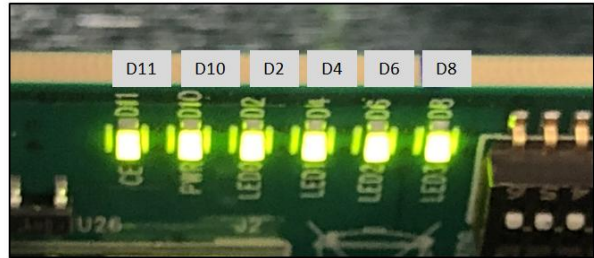
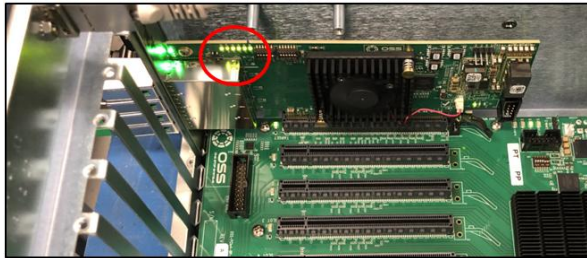


10.3 Verify Adapter Card LEDs

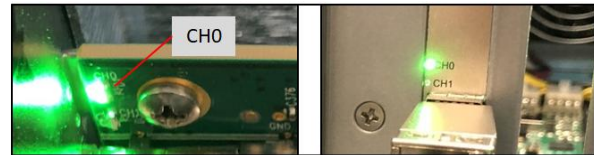
After powering ON the host computer, it will instantly power UP the target device. A fully operational adapter cards will illuminate the following LEDs on both Host and Target cards.

| | | |
|-----|----------------|----------------|
| D11 | CE(Card edge) | Solid green |
| D10 | PWR (Power) | Blinking green |
| D2 | LED 0 | Solid green |
| D4 | LED1 | Solid green |
| D6 | LED2 | Solid green |
| D8 | LED3 | Solid green |
| CHO | Link LED | Solid green |
| C9 | Aux Power | Solid green |

x16 configuration (Four x4 Cables connected)



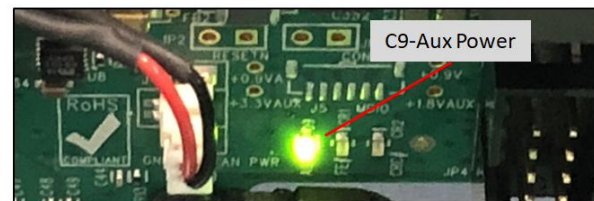
CHO LED will illuminate as solid green, indicates of a stable LINK between Target and Host cards.



When there is no link between Target and Host cards, the CHO LED is OFF.

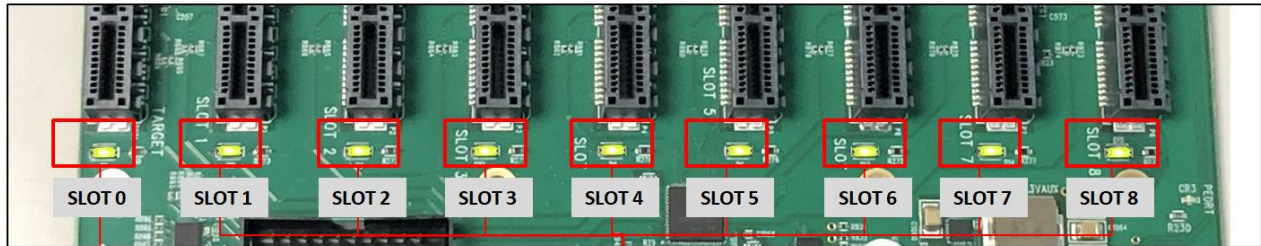


The C9-Aux power LED will illuminate as solid green, an indication of power is present on the card.



10.4 Slot LEDs

- The SLOT LEDs will illuminate either solid green or blinking green depending on the Generation of the PCIe card that is occupying the slot.
- The Target SLOT LED will illuminate as solid green (Gen 4).



Target Slot LED

PCIe card slot LEDs

| | |
|-------------|---------------------------|
| Solid | Gen4 Link |
| Blink 2Hz | Gen3 Link |
| Blink 1Hz | Gen2 Link |
| Blink 0.5Hz | Gen1 Link (Slow Blinking) |
| OFF | No card installed |

- **#lspci -vvv | grep c010**. The output below shows that the operating system is recognizing the OSS Host card, Target card and backplane.

```
File Edit View Bookmarks Settings Help
[root@localhost oss]# lspci | grep c010
c1:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c2:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c2:0c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c2:1c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c3:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c4:10.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c5:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c6:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c6:0c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c6:1c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c7:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c8:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c9:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
ca:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
ca:04.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
ca:08.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
ca:0c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
ca:1c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
cb:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
cc:10.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
ce:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
cf:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
cf:10.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
cf:18.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
d3:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
d4:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
d4:08.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
d4:10.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
d4:18.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
d9:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
da:14.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
da:15.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
dd:00.0 Mass storage controller: Broadcom / LSI Device c010 (rev b0)
de:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
df:14.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
df:15.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
e2:00.0 Mass storage controller: Broadcom / LSI Device c010 (rev b0)
e3:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
e4:14.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
e4:15.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
e7:00.0 Mass storage controller: Broadcom / LSI Device c010 (rev b0)
[root@localhost oss]# lspci | grep c010 -c
41
[root@localhost oss]#
```

The output below shows that the operating system is only detecting the Host card. No link between Target card and Host card.

```
File Edit View Bookmarks Settings Help
[root@localhost oss]# lspci | grep c010
c1:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c2:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c2:0c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c2:1c.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c3:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c4:10.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c6:00.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c7:14.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
c7:15.0 PCI bridge: Broadcom / LSI Device c010 (rev b0)
ca:00.0 Mass storage controller: Broadcom / LSI Device c010 (rev b0)
[root@localhost oss]# lspci | grep c010 -c
10
[root@localhost oss]#
```


11.2 Windows 10 / Server

On Windows, find the 'My Computer' icon and "right-click" on it.

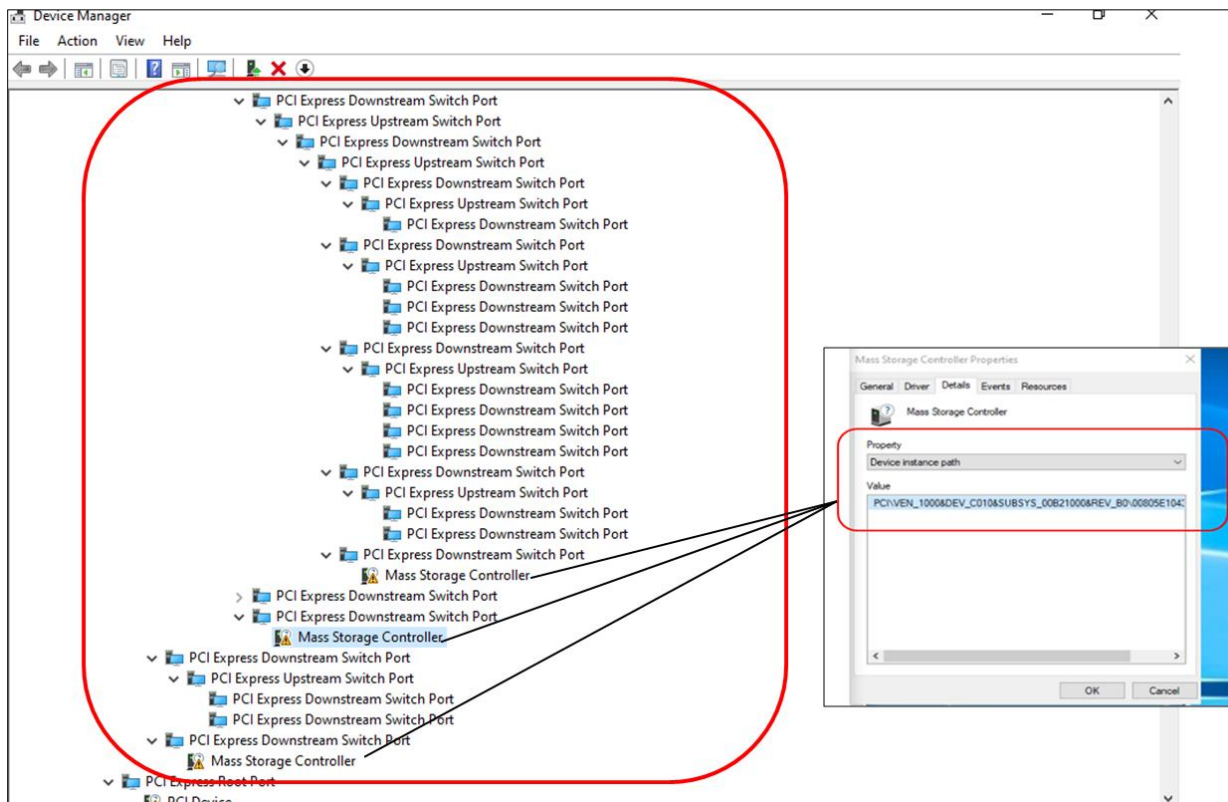
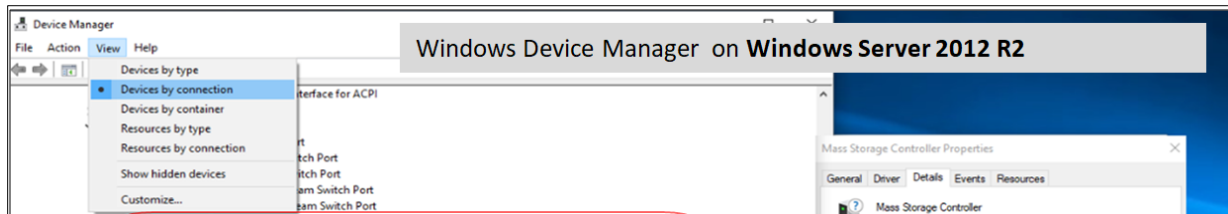
- Then select 'Manage' from the pop-up menu. Next, click on 'Device Manager' in the leftmost Computer Management window. Finally, click on the View Menu and select View Devices by Connection.

When everything is functioning correctly, your Windows Device Manager should look something like the screenshot below.

- You will see multiple instances of PCI standard PCI-to PCI bridge or PCI Express standard Upstream Switch Ports and PCI Express standard Downstream Switch Ports.

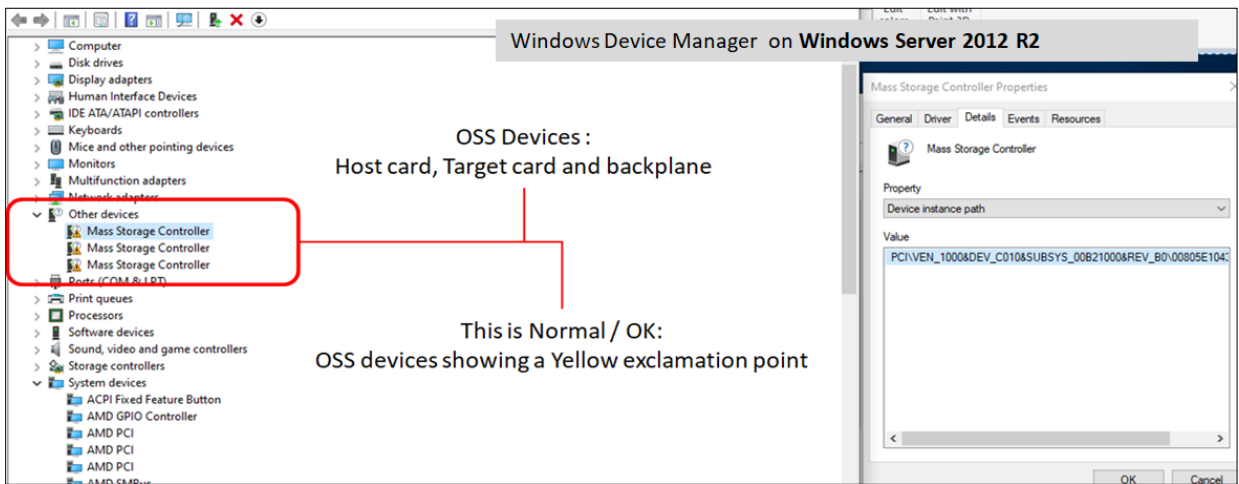
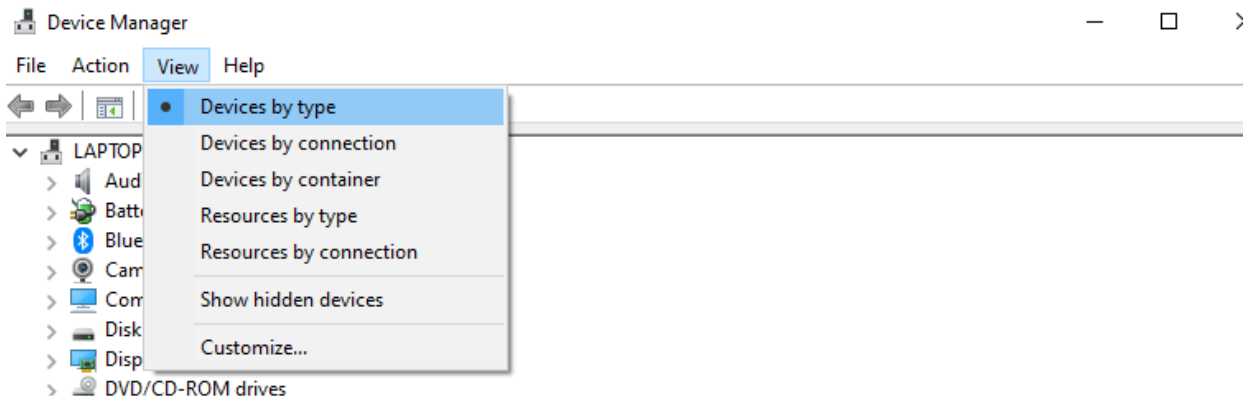
Viewing devices by connection

- Photo below shows the backplane, target card and host card are detected.
- OSS backplane with **no** PCIe cards installed—the downstream slots on the backplane are not populated.
- Showing multiple layers of PCI Express standard Upstream Switch Port and PCI Express standard Downstream Switch Port.

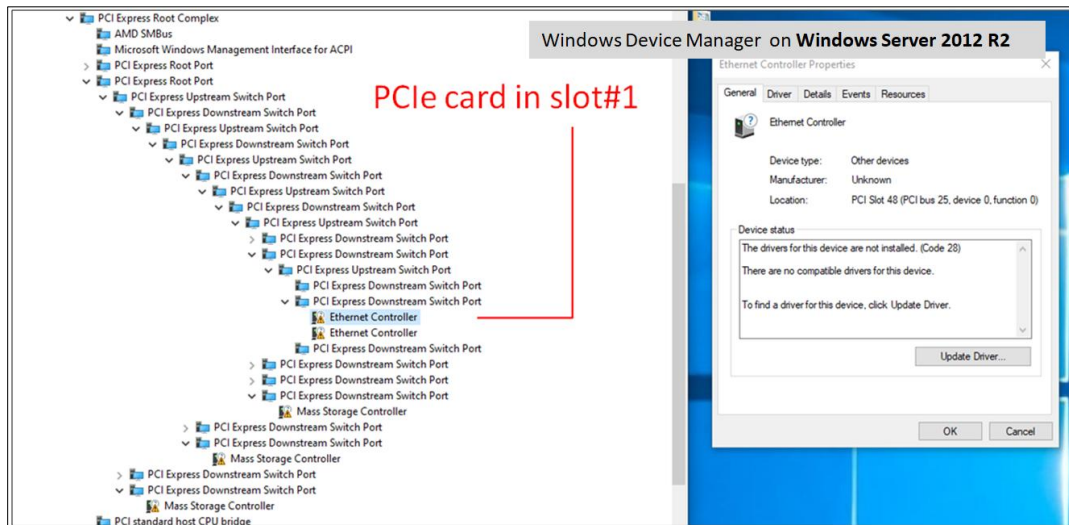


Viewing devices by type

Both adapter cards (host and target cards) and backplane are recognized / detected. The devices are coming up with a Yellow Exclamation point, this is normal. No need to install any drivers.



The screenshot below shows an Ethernet card is detected and it installed in slot#1.



13 Troubleshooting

13.1 Device is not detected or recognized

1. Shutdown the system
2. Disconnect the cables
3. Disconnect the power from the unit
4. Remove the HIB card from the unit and host computer
5. Re-insert the HIB card
6. Reconnect the cables
7. Turn ON the unit

13.2 My PCIe devices are showing UP with a Yellow Exclamation mark

1. Obtain the software / driver from the 3rd party vendor.
2. Install or re-install the driver
3. Reboot the system after installing the driver

13.3 No link between host and target cards

1. Check the dipswitches on each card. Make sure the Target card is set to target mode and Host card is set to host mode.
2. Check the Target card is installed in the target slot / upstream slot.
3. Use a validated / certified OSS HIB Cable adapter Gen4 cards
4. Reseat the Cables. Makes sure you are using a Gen4 cables.
5. Swap or replace the host card, target card and Link cables.
6. If you are still having the same issue after replacing the host card, target card and cables, your next step is to replace the backplane with a known good board or contact Technical Support for assistance.

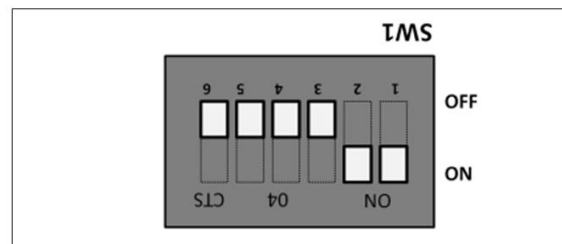
13.4 Broken OSS-Backplane

1. If you received a brand new DOA (Dead on Arrival) board, please contact OSS to RMA board and request for a replacement.
2. If you have an out of warranty board, please contact OSS Sales team and buy a new replacement board.
 - Standard warranty is 1 year, unless you have an SLA or extended warranty coverage.
3. If you purchased a second-hand / used board and it is broken, please contact OSS Sales team to buy a replacement.
 - Note: Purchasing a second-hand / used product is not covered under warranty.

13.5 My PCIe cards are not detected

Both Target and Host cards are linked, the LINK LED on both cards are illuminated and all the LED indicators on the cards are working. However, the Operating System is not recognizing all of my PCIe cards that are installed on the backplane.

1. Check the Dip switches on the backplane make sure they are set correctly, see photos below for the correct settings.



14 How to Get More Help

14.1 Contacting Technical Support

Our support department can be reached by phone at [1 \(760\) 745-9883](tel:17607459883). Support is available Monday through Friday, 8:00 AM to 5:00 PM PT. When contacting Technical Support make sure to include the following information:

1. Exact and correct serial #
2. Service Ticket or Case # (if you already submitted an online request)
3. Computer Type & Model: Operating System
4. Make & Model of PCI/PCIe cards: Application
5. Problem description

When submitting an online technical support request always provide a valid working e-mail address, phone number, shipping address and proper contact name. Check your e-mail for an automated response containing the case # and updates. You can also visit our web site at: <https://www.onestopsystems.com/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.

Shipping or Transporting of Expansion Unit with PCI / PCIe cards

Any PCIe cards in should be removed (or not to be installed) prior to shipment to avoid or prevent possible damage. Note: Expansion board and PCIe / PCI cards that arrive damaged in shipment will not be covered under warranty.

14.2 Returning Merchandise

If factory service is required, a Service Representative will give you 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. 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:

Attention:RMA # _____, One Stop Systems
2235 Enterprise Street, #110
Escondido, CA 92029
USA

It is not required, though highly recommended, that you keep the packaging from the original shipment of your product. However, if you return a product 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. We 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 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.

14.3 Third Party Hardware & Software Support Policy

OSS tests, certifies and bundles many popular third party hardware and software products with OSS hardware for ease of use and guaranteed operation. OSS encourages customer innovation by combining OSS products in new and interesting ways with third party and customer developed hardware and software. Unfortunately, with virtually infinite combinations of hardware and software, OSS cannot test and validate every possible configuration. OSS is committed to supporting its products and identifying if any technical issue may be related to third-party hardware or software. In order to isolate technical issues, OSS may request that the system be returned to the same configuration that shipped from the OSS factory and any non-OSS supplied third-party hardware or software be removed from the system during troubleshooting.

We test, certify and support many third party hardware and software products along with OSS hardware and are happy to integrate a fully supported system. Ask us about that service and we would be happy to help. If an OSS product is fully functional and a support issue is related to third-party hardware or software that did not ship from the OSS factory, the customer requesting support should reach out to the third-party vendor for assistance to fully troubleshoot the issue.

14.4 Online Support Resources

As a product user and customer, listed below are our Online Support Resources

<https://www.onestopsystems.com/support> provides Knowledgebase Articles such as troubleshooting methods, compatibility, FAQ, documentation, and product technical information. If you need technical support, product assistance or have a technical inquiry we encourage you to submit it on-line using our Technical Support Form. If you need to send a unit for repair or diagnostic evaluation, fill out our RMA (Return Material Authorization) online request form.



2235 Enterprise Street, Suite#110, Escondido CA 92029

Toll-Free : +1(800)285-8900 US • Main: +1 (760) 745-9883 • Fax: +1 (760) 745-9824

www.onestopsystems.com