



# OSS-580 Gen5 Backplane



## USER MANUAL

OSS-580 Gen5 Backplane



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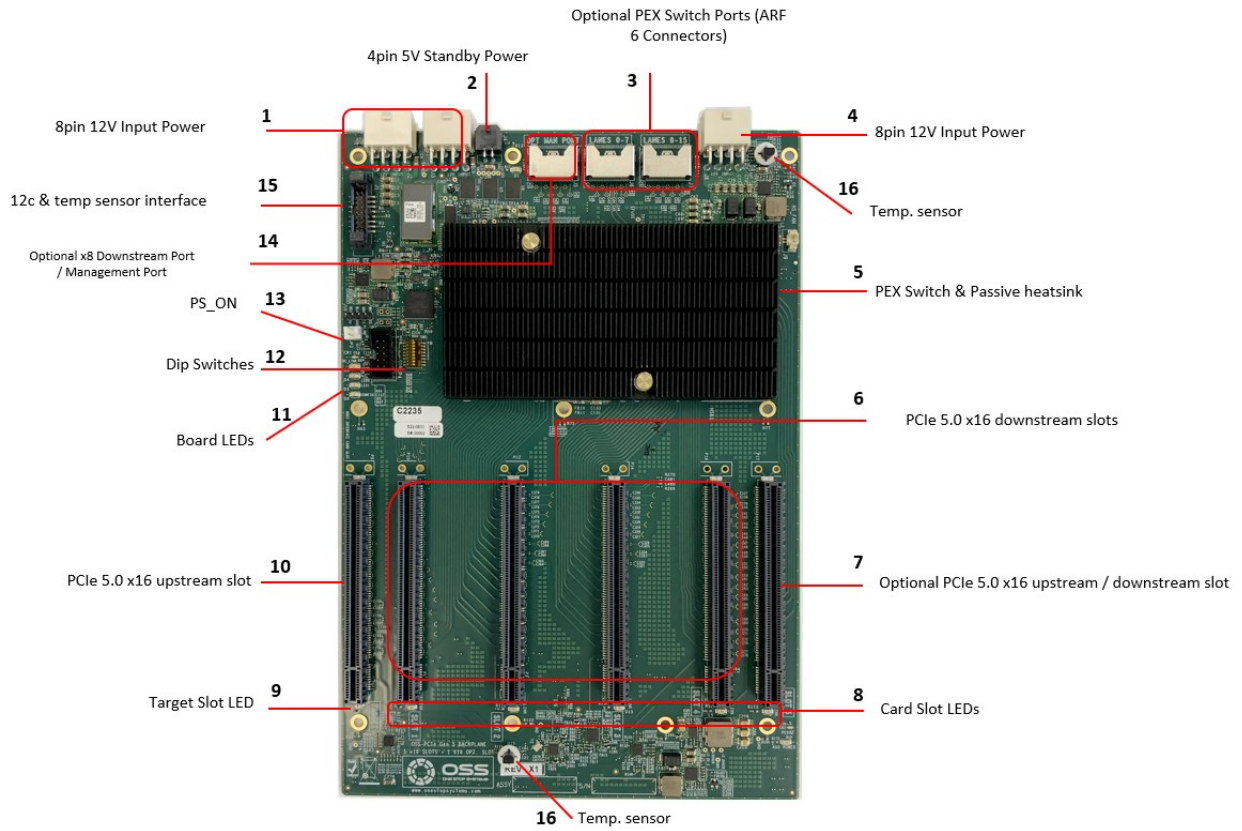
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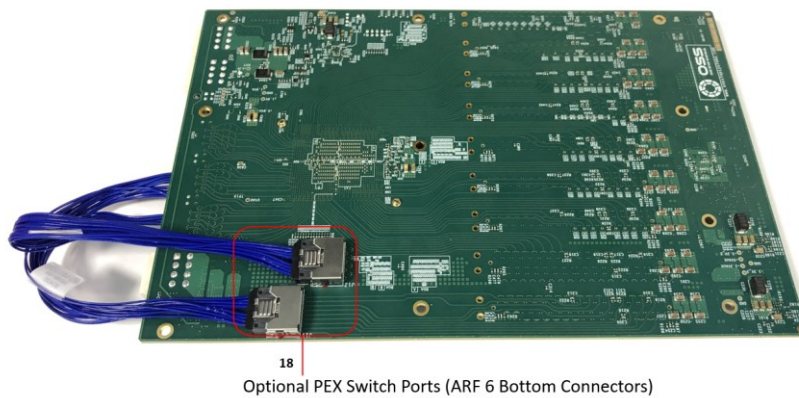
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# 1 Backplane Information

## 1.1 Board Top view



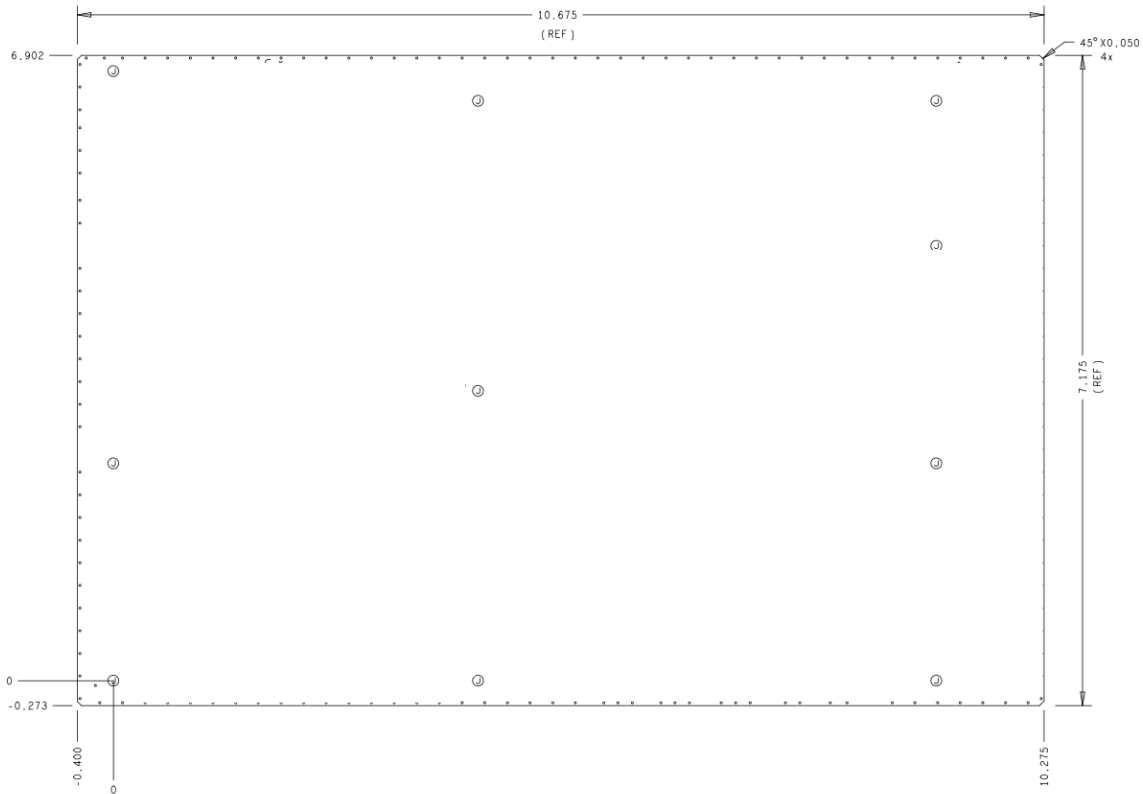
## 1.2 Board Bottom View



### 1.3 Description

Item	Name	Description
1	12V Input Power	12V input power for the 580 board. Not to be used for external GPU aux.
2	5V STB	5V Standby input power
3	ARF 6 Top Connectors	For connecting ARC 6 cables between" Option slot" and PEX switch
4	12V Input Power	12V input power for the 580 board. Not to be used for external GPU aux.
5	PEX and Passive Heatsink	PCIe Switch. Passive Heatsink on top of the PCIe Switch. Moves heat away from the PCIe chip.
6	Downstream Slots	PCIe card slot for 3 <sup>rd</sup> Party PCIe cards
7	Option PCIe Slot	Configurable card slot to operate either as an Upstream or Downstream modes.
8	Card Slot LEDs	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. x16 PCIe slot
11	Board LEDs	LED status indicator for the board; Power LED status
12	Dip Switches	OSS-580 Option slot and Daisy-chain configuration
13	PS_ON	Enable to force power ON the backplane by placing a jumper on the connector
14	Option Management Port	Optional PCIe switch management port. This port is actively configured and ready to use as Downstream port.
15	I2C and temporary sensors interface	Connector for I2C and temporary sensors interface to the power backplane
16	Temperature Sensor	Sensor for detecting temperature on the board
17	FPGA Connector	FPGA Programming connector. For OSS Engineer use only.
18	ARF 6 Bottom Connectors	For connecting ARC 6 cables between" Option slot" and PEX switch

### 1.4 Dimensions



## 1.5 Upstream and Downstream Slots

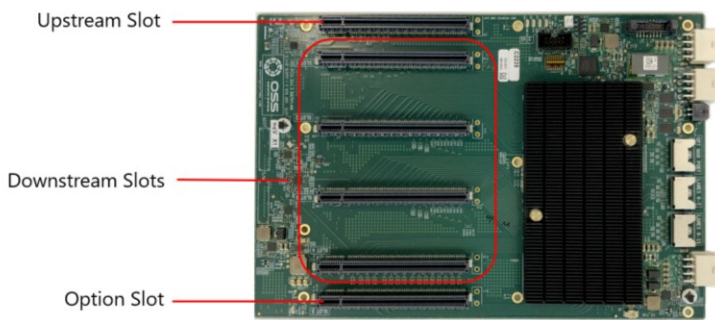
**Upstream Slot (target slot).** Designated slot for the OSS HBA Target card.

- The Upstream slot only works with a compatible OSS Gen5 host interface card.
- Slot 0 is the assigned slot number.

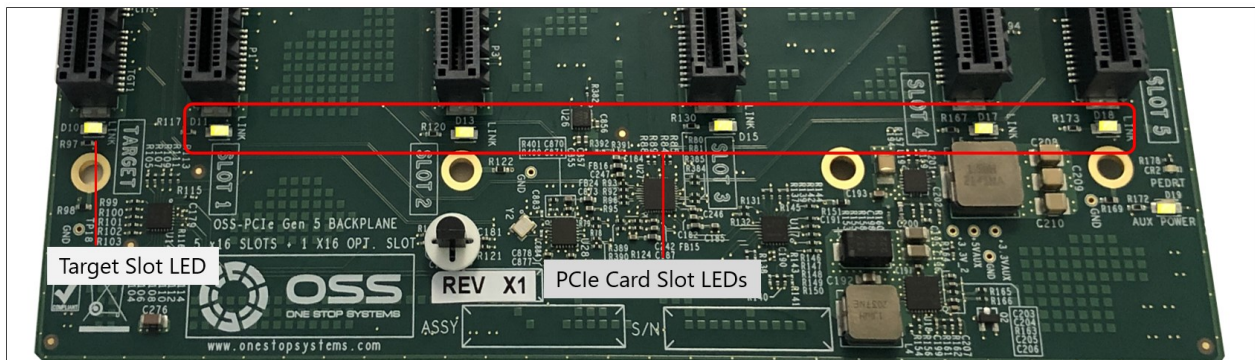
**Downstream Slots:** These are card slots #1, #2, #3, #4 and #5.

**Option Slot:** This is “Slot 5” configurable to operate in an Upstream or Downstream modes.

- When configured as a Downstream mode: it can only be used with an end-point device or a 3rd party PCIe card.
- When configured as an Upstream mode: only a compatible OSS Host card can be used in this slot.

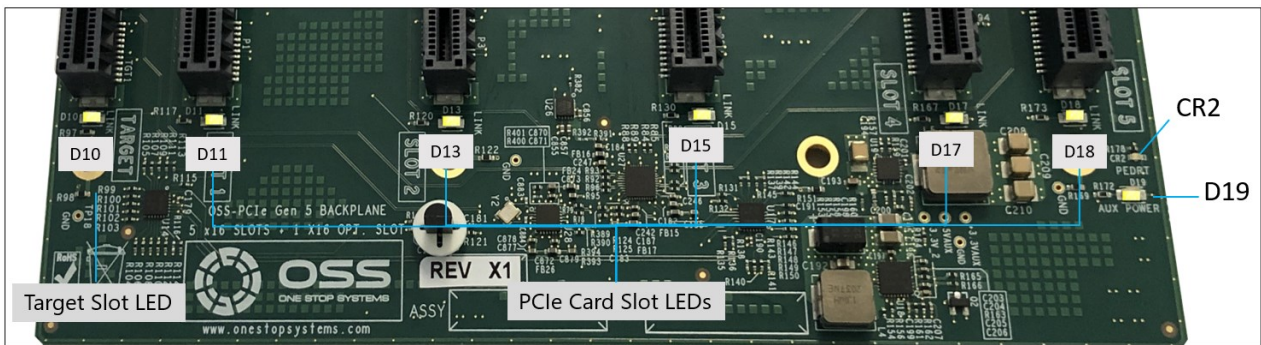
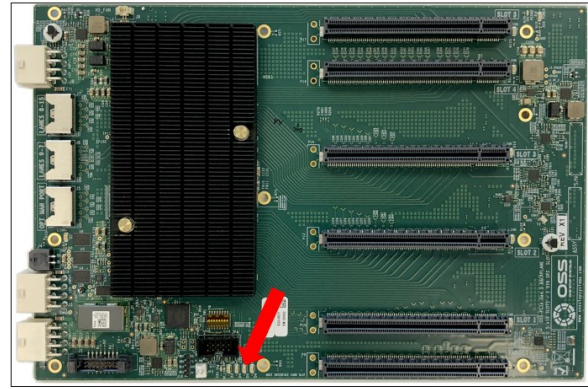
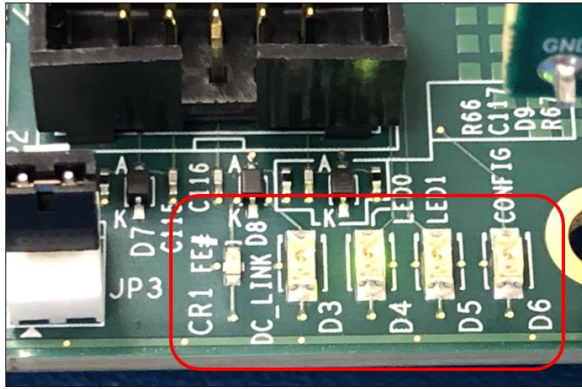


## 1.6 Slot LEDs



Item	Name	Description	When Lit (Solid Green or Blinking)	When Off
1	Target Slot LED	Upstream Slot LED	Solid = Gen5 Link Blink 2Hz = Gen4 Link	OFF - Not Linked / No Card present in the slot
2	Downstream LED	PCle slot LEDs	Solid = Gen5 Link Blink 2Hz = Gen4 Link	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

### 1.7 Board LEDs

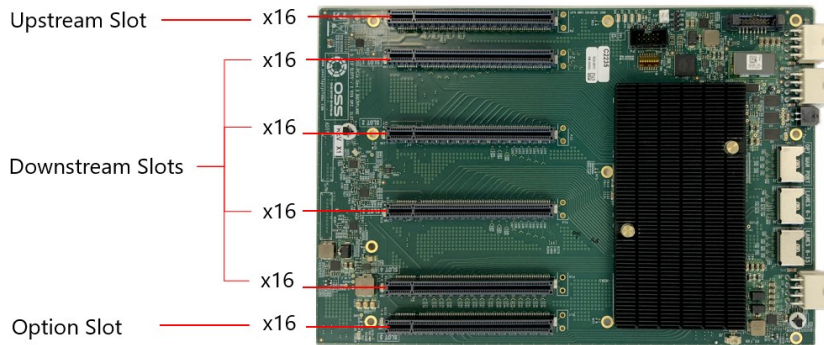


Ref Des	Color	Definition
		Fatal Error When ON (as solid RED): backplane is not initializing due to - Faulty Target Card - Board programming corrupted - Board firmware not loaded; board not programmed.
CR1	Red	
CR2	Red	System in Reset
D1	Green	Link Status Man Port
D3	Green	Link Status Daisy Chain
D4	Green	LED0: All Power Good
D5	Green	LED1: Flashing Pattern
D6	Green	FPGA Config
D10	Green	Link Status Slot 0
D11	Green	Link Status Slot 1
D13	Green	Link Status Slot 3
D15	Green	Link Status Slot 5
D17	Green	Link Status Slot 7
D18	Green	Link Status Slot 8
D19	Green	AUX Power Good

## 1.8 Slot Type

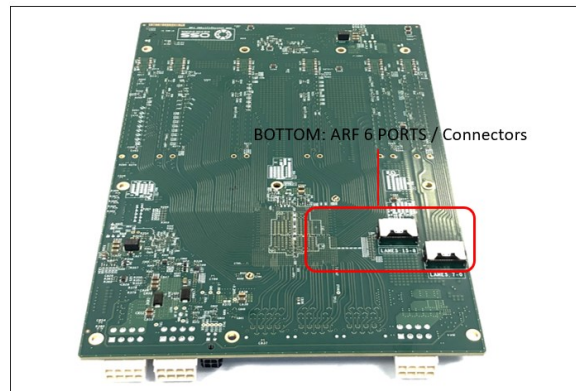
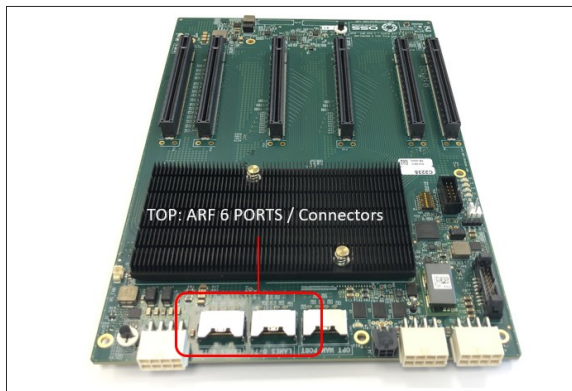
Slot Type: Closed-ended PCIe slot / connector, all the slots are x16 mechanical.

- Six x16 electrical slots (slots 0, 1, 2, 3, 4, and 5)
- Option slot is configurable to operate in x8 or x16.

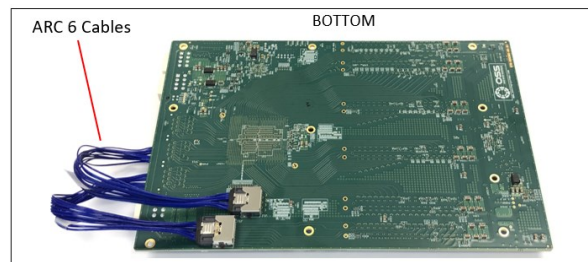
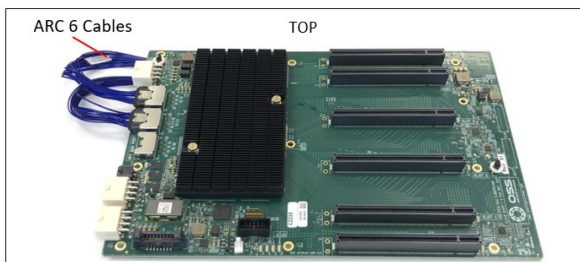


## 1.9 ARF6 Connectors

The ARF6 Connector is for connecting ARC6 cables to daisy chain two backplanes together to create a bridge between the PCIe SLOT #5 and the PCIe switch.



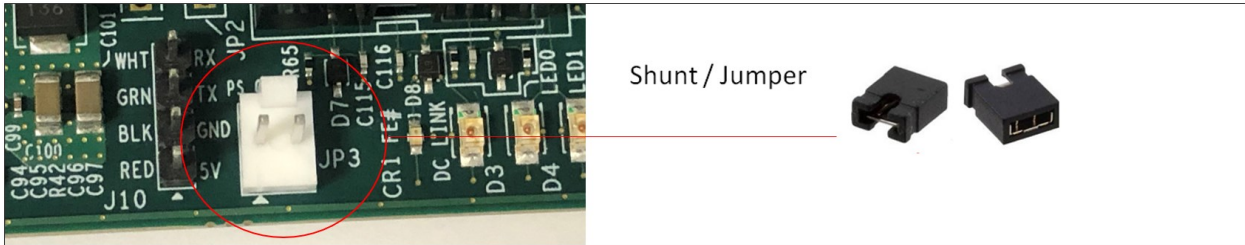
Below photos show the ARC 6 cables attached between the TOP and Bottom ARFC connectors.





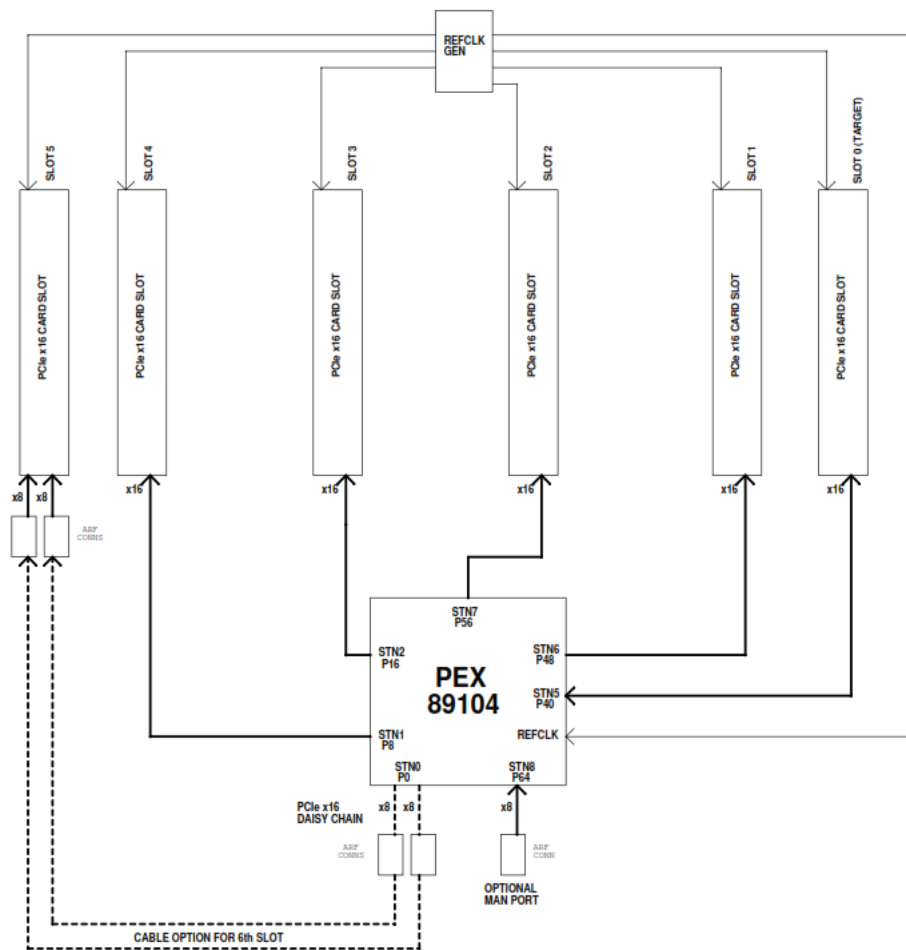
### 1.10 PS\_ON

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 JP3 connector on the backplane. You can buy the shunt from any online hardware stores.



### 1.11 Block Diagram

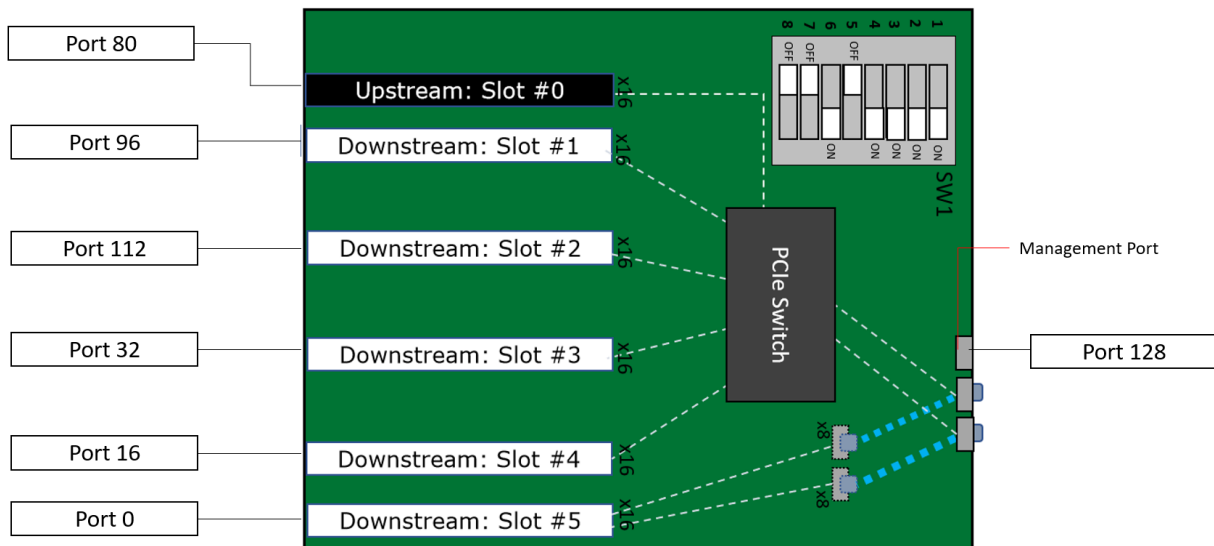
- PCI-Express Gen 5 Backplane 5 x16 Slots
- Part#101-000580-00



### 1.12 Slot Number and Port Mapping

Each slot on the OSS backplane is mapped to a PCIe port on the PCIe switch. Port mapping is hard-coded, it is fixed. You cannot change or modify the port address.

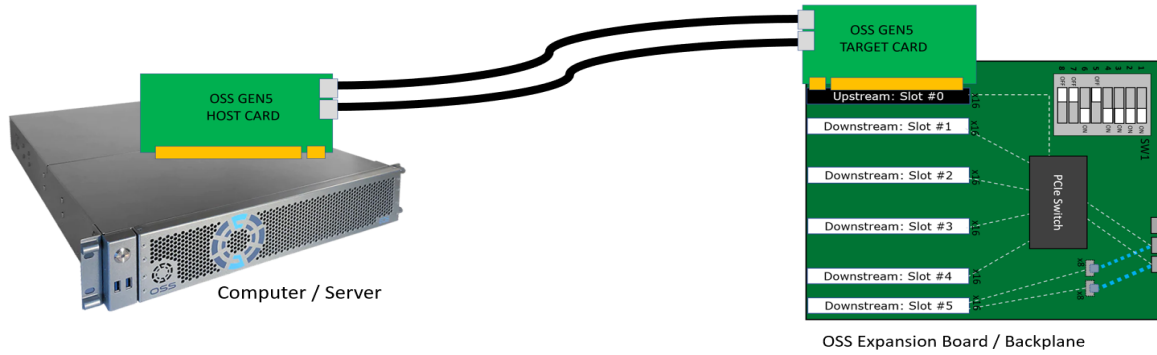
PCIE Slot Mapping	Port Mapping (PCIe Switch)	Notes
Slot 0	80	
Slot 1	96	
Slot 2	112	
Slot 3	32	
Slot 4	16	
Daisy-Chain Port	0	
Management Port	128	
Slot 5	0	Cabled from Daisy Chain (DC) Port



## 1.13 Supported Use Cases

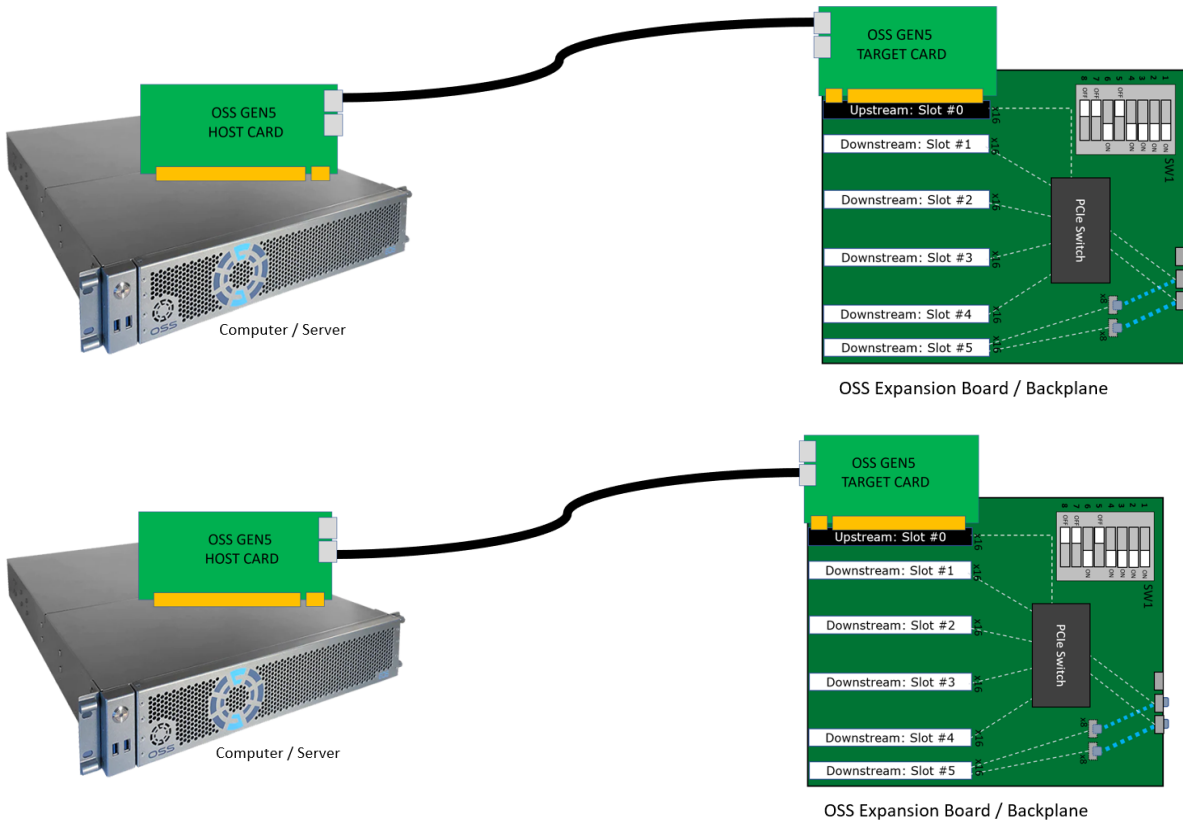
### 1.13.1 x16 Use Case

Using two link cables connected between a host computer and a Gen5 backplane or an OSS expansion unit.



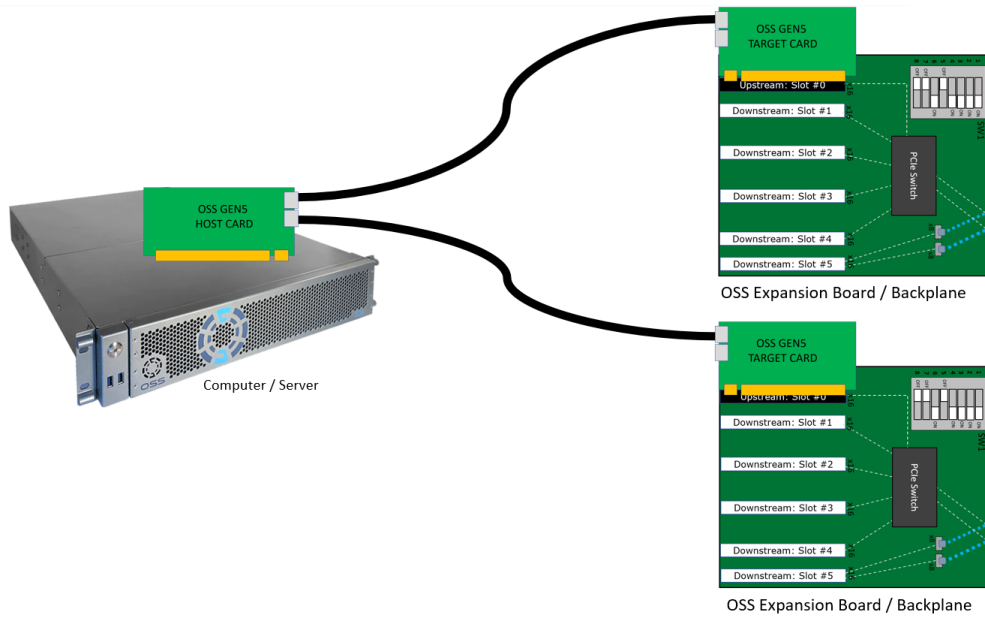
### 1.13.2 x8 Use Case

Using one link cable connected between a host computer and Gen5 backplane or an OSS expansion unit.



### 1.13.4 x16-x8, x8 Use Case

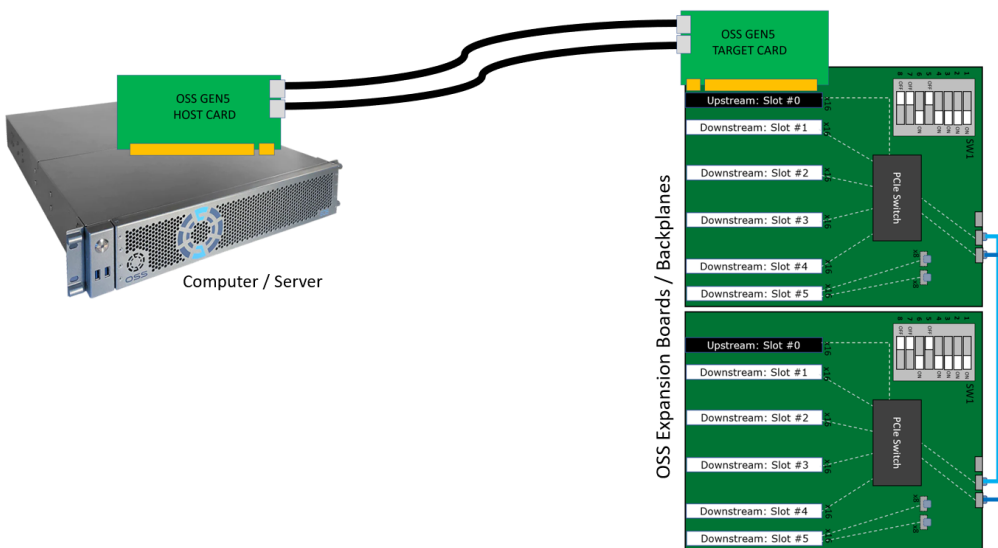
A single host computer connected to two OSS Gen5 backplanes or two expansion units via x8 link connection.



### 1.13.5 x16 Daisy-Chain Use Case

Two OSS-580 boards daisy-chained together and connected to a single host computer via x16 connection.

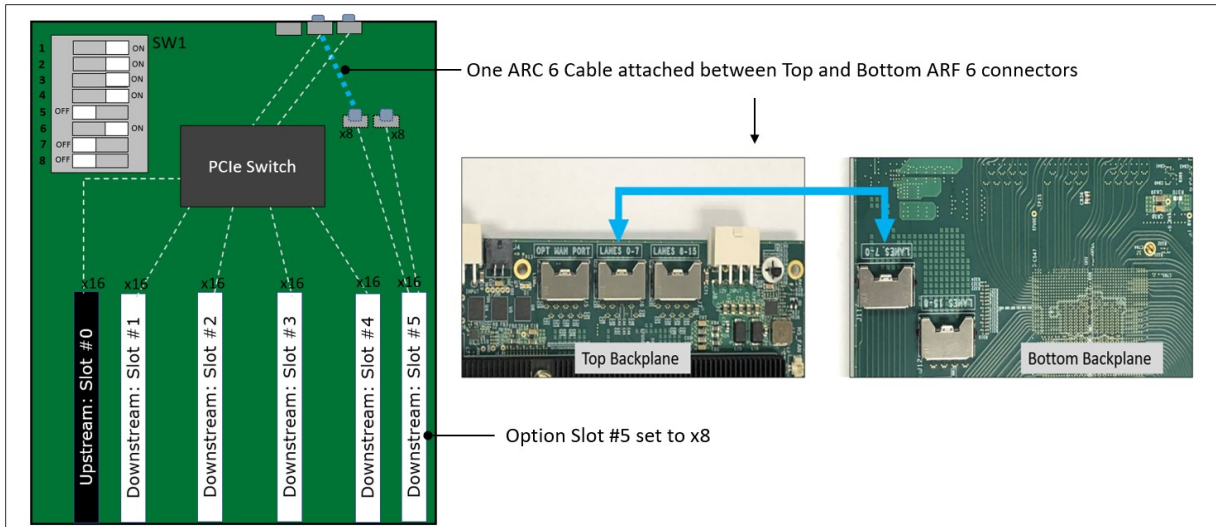
- 1 Upstream Slot: x16
- 15 Downstream slots: TWELVE x8 Downstream slots & THREE x16 Downstream Slots
- 2 Inactive Slots



## 1.14 Option Slot Configuration

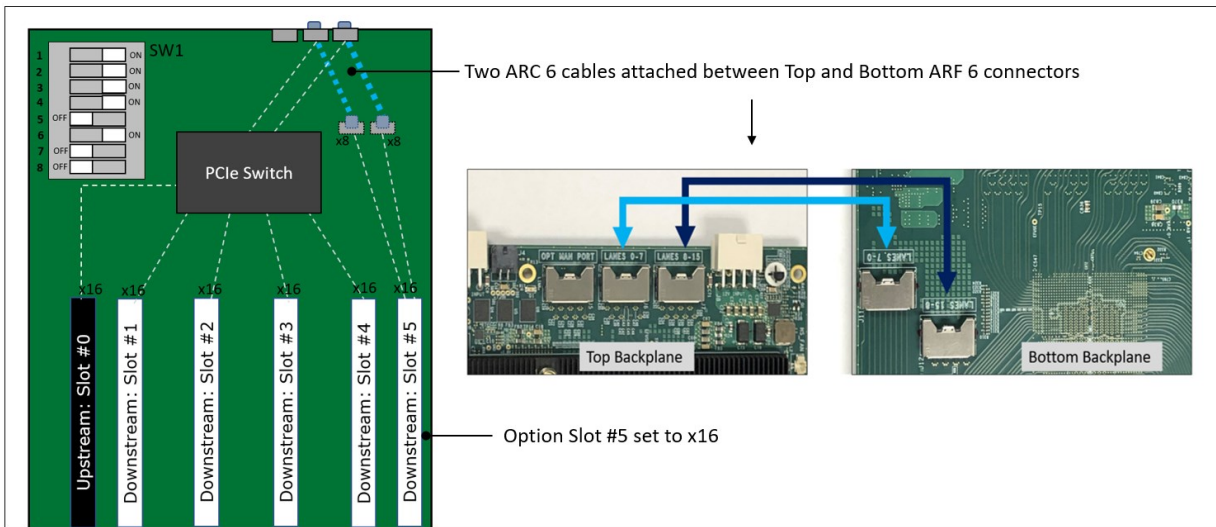
### 1.14.1 x8 Slot

To configure the Option Slot #5 to x8 mode, install a “single” ARC 6 cable between the Top and Bottom ARF connectors. See diagram below for proper orientation and location to connect the cable.



### 1.14.2 x16 Slot

To configure the Option Slot #5 to x16 mode, install two ARC 6 cables between the TOP and Bottom ARF connectors. See diagram below.



### 1.15 Power Consumption

OSS-580 with no PCIe cards installed:

- Max Power 100W (calculate ~80W, but adding few margin)

OSS-580 with 25W PCIe cards installed:

- Max Power 400W (calculate ~330W but adding margin and factoring in efficiency of 3.3V power supplies)

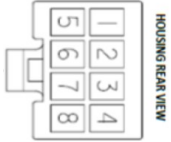
If PCIe cards are more than 25W, then the power goes up accordingly.

Note: all OSS-580 power comes from +12V (except for ~5W max of +5Vsb).

### 1.16 Input Power Connectors

#### 12V Input Connector Pinout

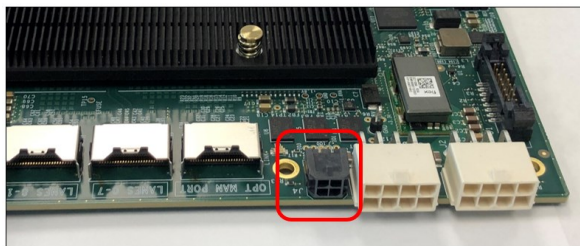
Cable Housing Molex 39-01-2080		
8 pin 12V Pwr Conn OSS: 25-072-502-RC Pinout		
Signal		Signal
+12V	5	1
+12V	6	2
+12V	7	3
+12V	8	4
		GND
		GND
		GND
		GND



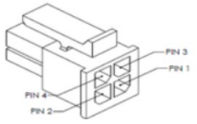
**NOTE: Cable latch side has +12V connections**



#### 5V Stand-by Connector Pinout



Cable Housing Molex 43025-0400		
4 pin Microfit Conn OSS: 25-072-902-RC Pinout		
Signal		Signal
+5Vsb	4	3
PWROK	2	1
		PS_ON#
		GND



## 2 Getting Started

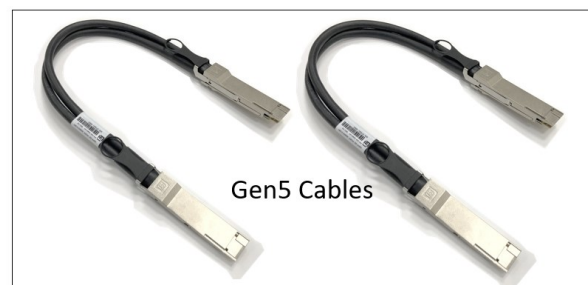
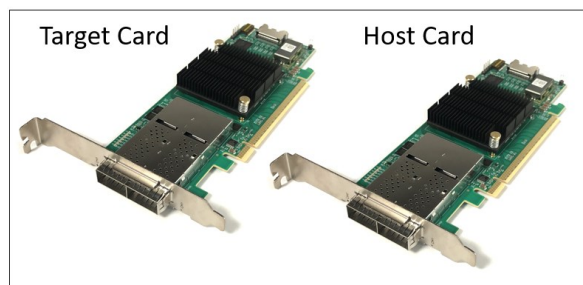
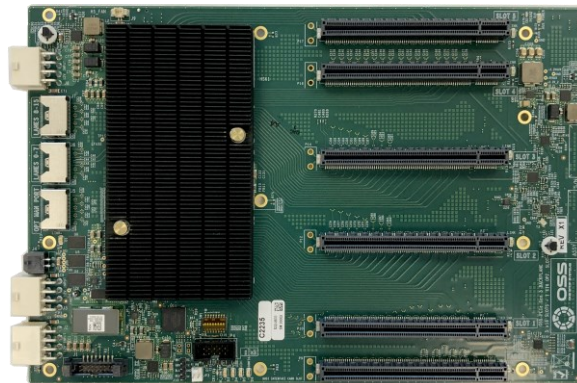
This section is all about the steps on how to setup / install the backplane. You will find instructions for the following procedures:

- Unpacking
- Hardware Requirements
- Backplane Installation
- Cable Adapter Card Installation
- Link Cable Installation
- Powering Up the unit / system
- Verify Device Installation

## 3 Unpacking

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

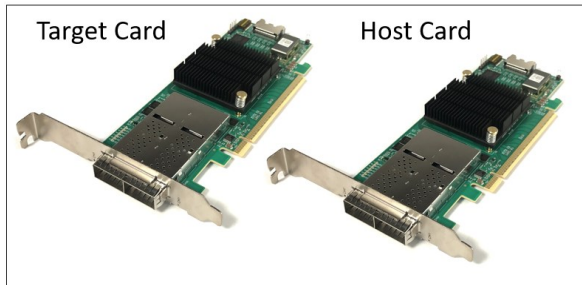
- To achieve superior performance and reliability it is recommended to use a certified and compatible set of an OSS Gen5 adapter cards (aka: Host Interface Board) and link cables.
- The OSS backplane is designed and programmed to work with OSS Gen5 adapter cards.
- OSS-579 is the product model for the Gen5 HBA card (Host and Target).



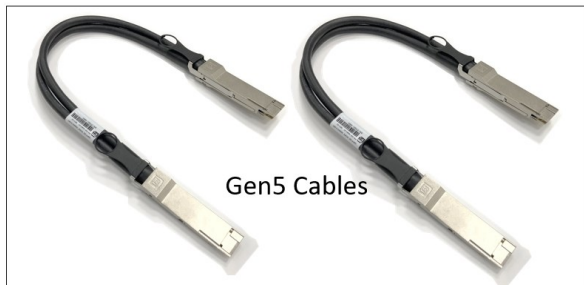
## 4 Hardware Requirements

1. OSS Gen 5 (OSS-579) Target and Host Cards
2. Gen 5 PCIe x8 Cable (qty: 2): QSFP-DD Cables
3. Gen5 or Gen4 x16 PCIe slot (computer motherboard)
4. ATX Power Supply: Minimum of 400 Watt

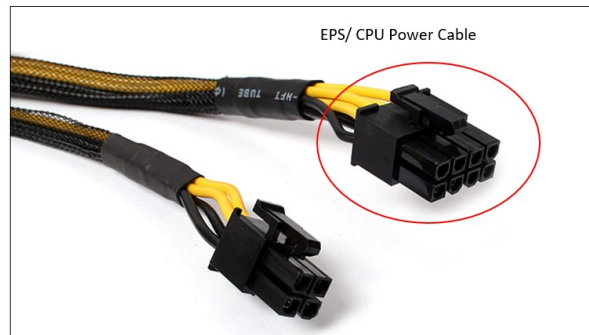
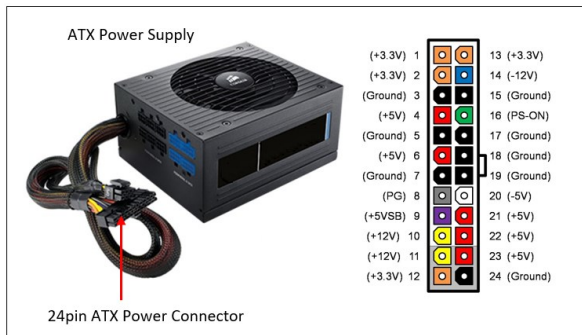
### Gen5 Target and Host Card



### QSFP-DD Cables



ATX Power Supply with 24pin power cable and at least two available EPS power cable. The EPS power cable is also known as CPU power cable that has 8pin power connector

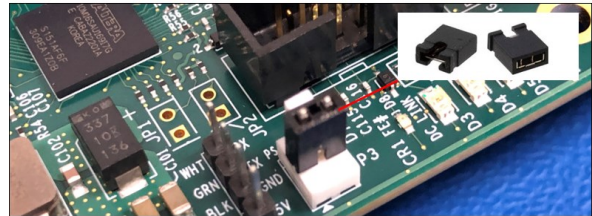
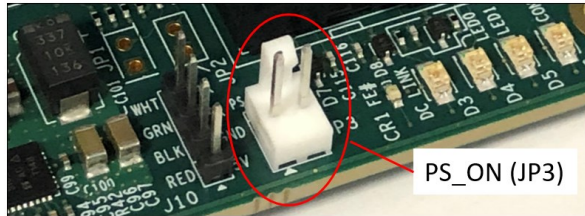




## 5 Setting Up

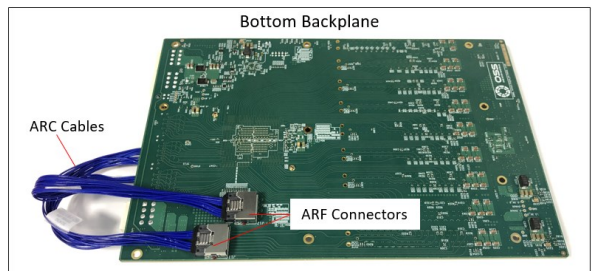
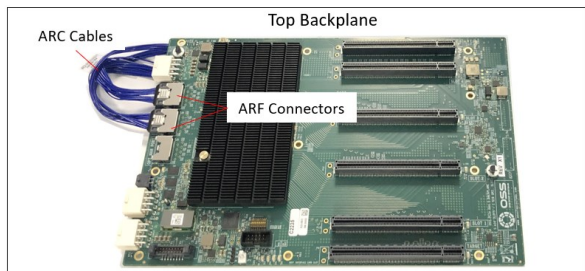
### 5.1 Install Jumper / Shunt on JP3

Note: The shunt or jumper is not sold by One Stop Systems. You can buy this from any online electronic stores.

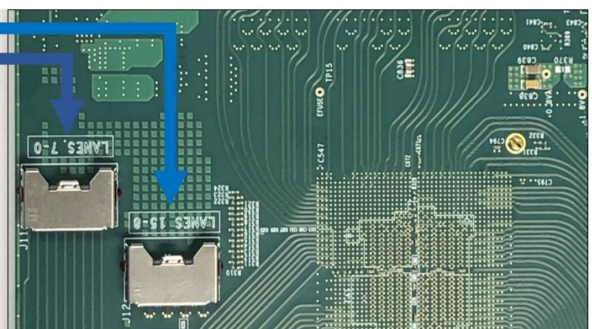
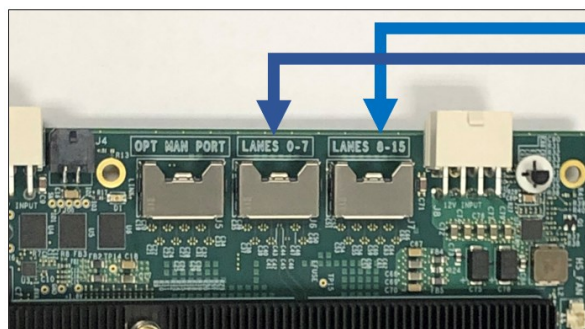


### 5.2 Plugin ARC Cables

Connect the Arc cables to the ARF connectors onboard the backplane.



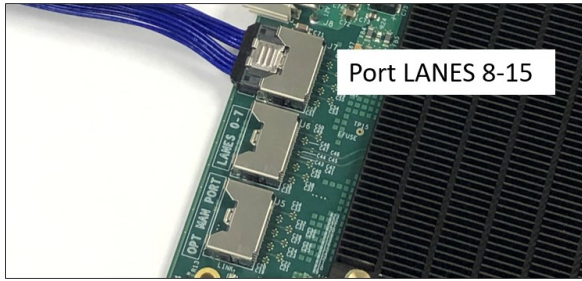
Follow the diagram below for connecting the Arc Cables.



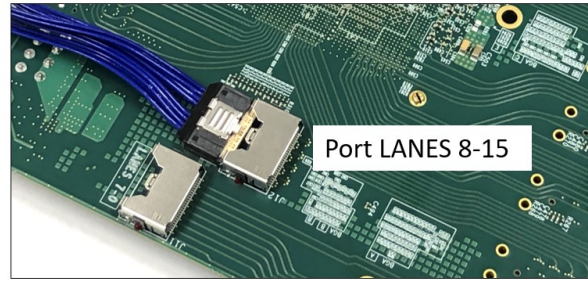
Top Backplane

Bottom Backplane

Connect the first ARC cable to port LANES 8-15

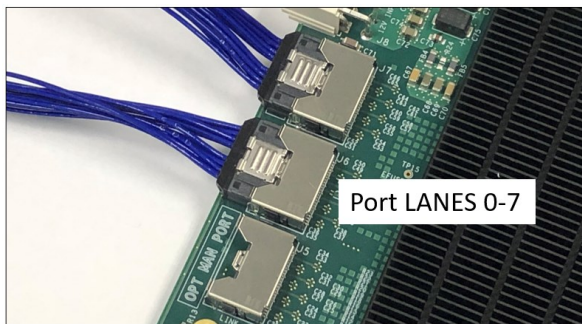


Top Backplane

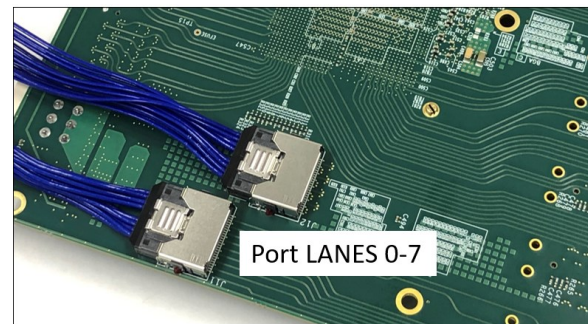


Bottom Backplane

Connect the 2<sup>nd</sup> Arc cable to Port LANES 0-7



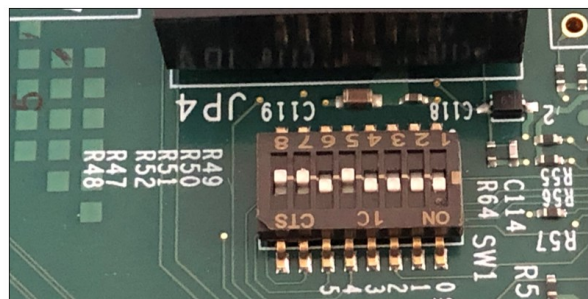
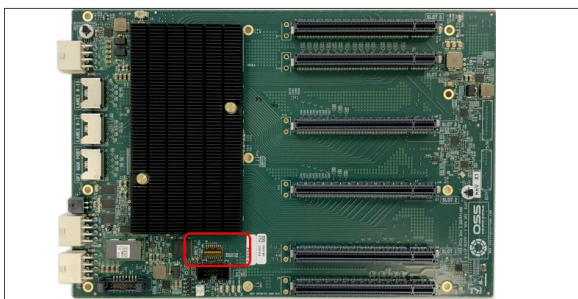
Top Backplane



Bottom Backplane

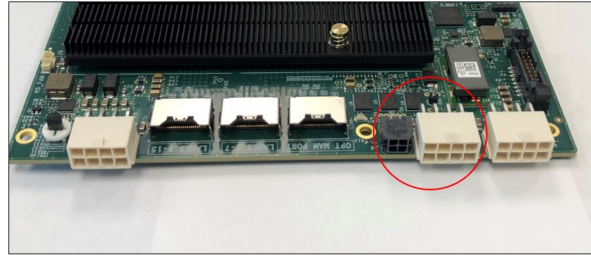
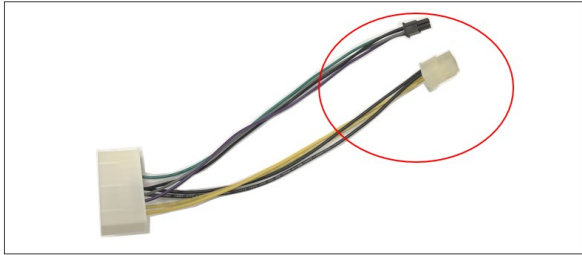
### 5.3 Set Backplane Dipswitches

Configure the backplane SW Dipswitches. Use the dipswitch settings shown from the photo below.

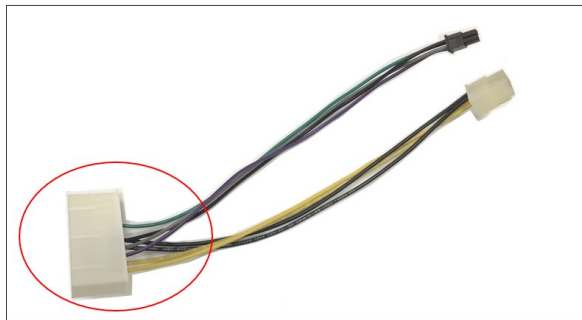


## 5.4 Connect Power Cables

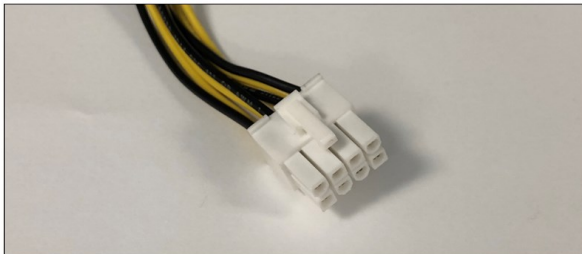
Plug in the supplied power adapter cable (24pin-to-4pin cables). Connect the two power cables to the backplane, see photos below.



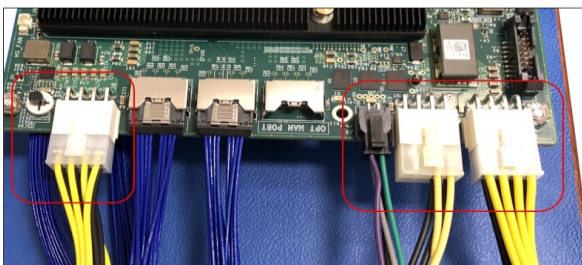
Connect the other end of the cable to the ATX power supply 24-pin power connector.



From the ATX power supply, connect the 8-pin power cable to the remaining 12v input power connector on the board.



Below photo shows all the power cables attached to the backplane.



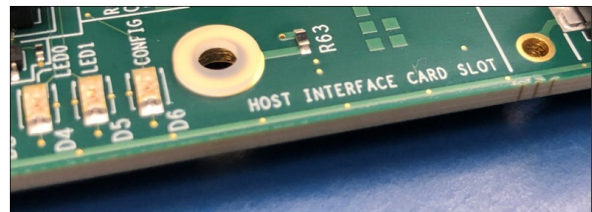
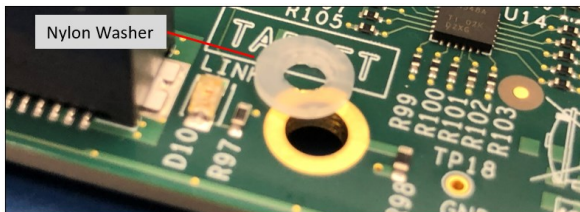
## 6 Mounting the board

To install the backplane in an enclosure, use the provided screws and plastic washer (see photo below). Check the kit that is shipped with the unit, the screws and plastic washers are included.

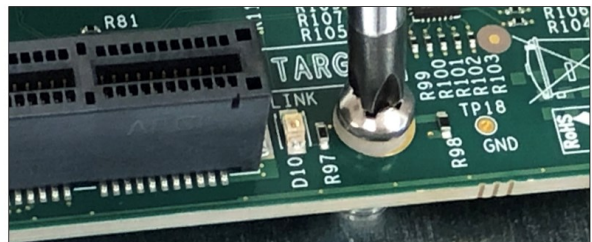
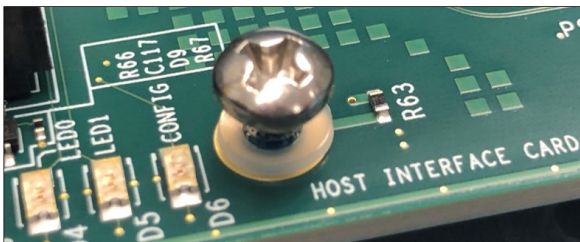


For installing / mounting the backplane in the enclosure, follow the steps below.

1. Slide the backplane into place. Align the mounting holes to the standoffs.
2. Place the plastic washer on top of the mounting hole.



3. Install the screw to secure the backplane down.



Start with the corners, holding the board firmly, so that it screws-holes line up.

When screwing the screws in, do not use too much pressure as this can break the board.

You want the screws properly tight enough to secure the backplane, but not so tight that can crack the board.

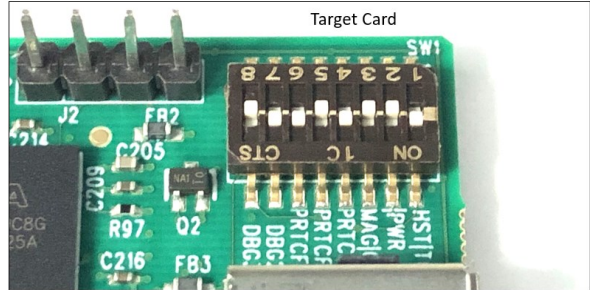
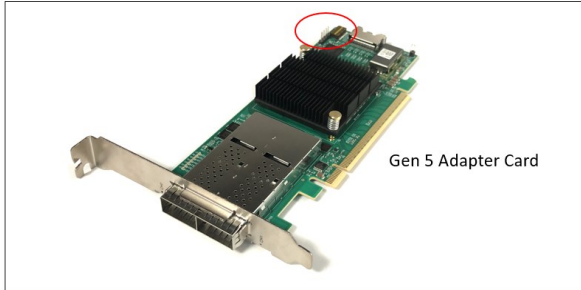
- Once you have done the corners, put screws in the remaining holes.

## 7 Adapter Card Installation

Use only a compatible Gen5 HBA card (i.e., OSS-579 card).

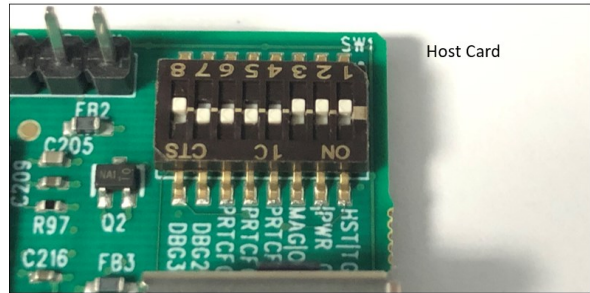
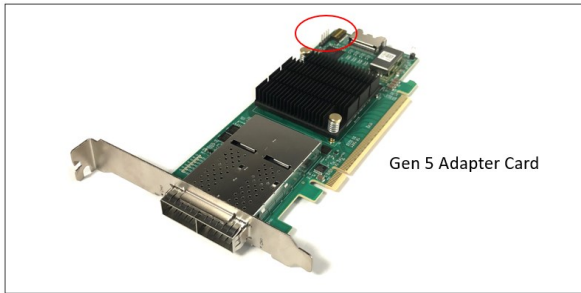
### 7.1 Set Target Card Dipswitches

Set the dipswitches on the card to target mode, see photo below for correct settings



### 7.2 Set Host Card Dipswitches

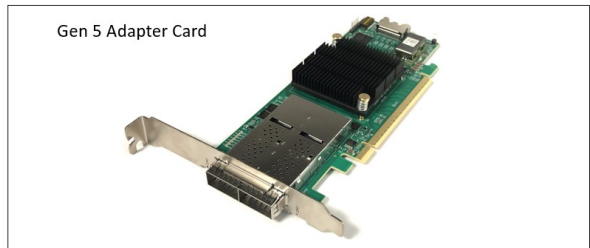
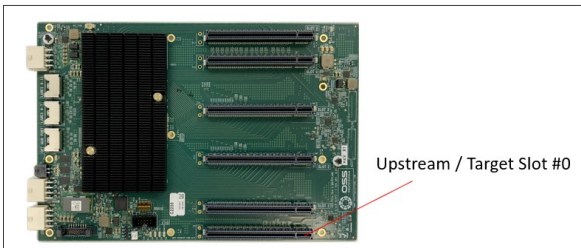
Set the dipswitches on the card to host mode, see photo below.



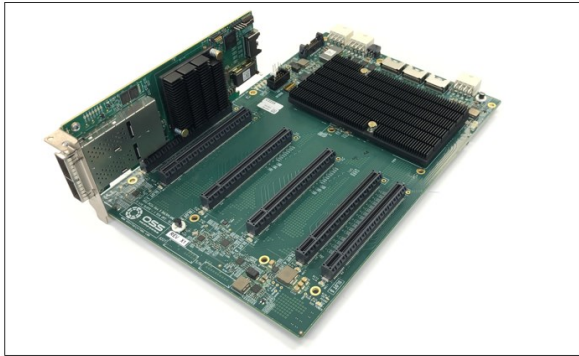
### 7.3 Install Target Card

Use the designated Target Slot / Upstream Slot on the backplane when installing the card. See photo below for the correct default location of the Target slot (Upstream Slot).

Plugin the target card in the upstream slot on the backplane.



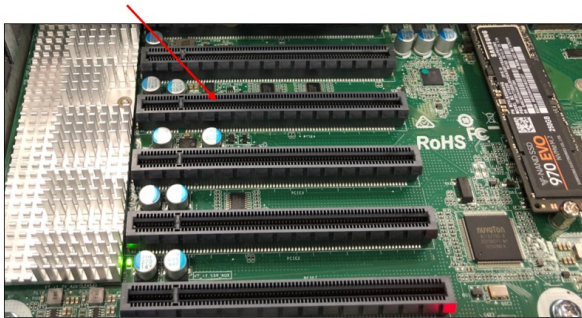
As shown below, the OSS target card is installed in Upstream slot 0 of the OSS-580 backplane.



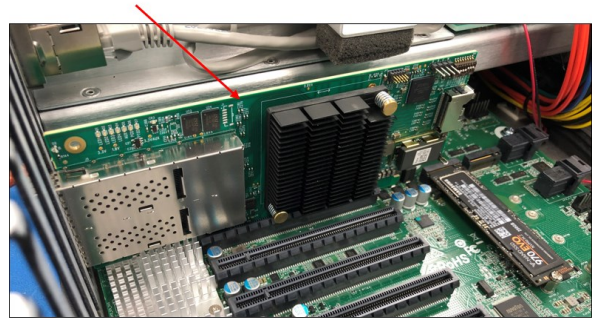
## 7.4 Host Card Installation

The host card can only be installed in the computer motherboard's PCIe slot. Install the Host card in an x16 Gen5 PCIe slot.

x16 PCIe Gen 5 slot



OSS Gen5 Host Card



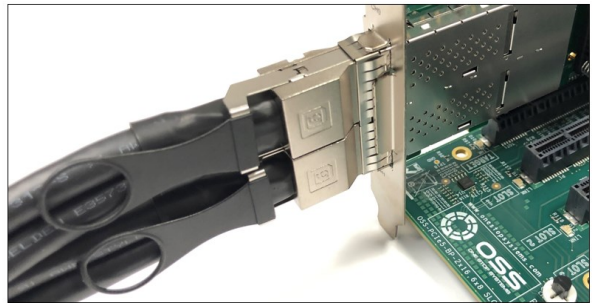
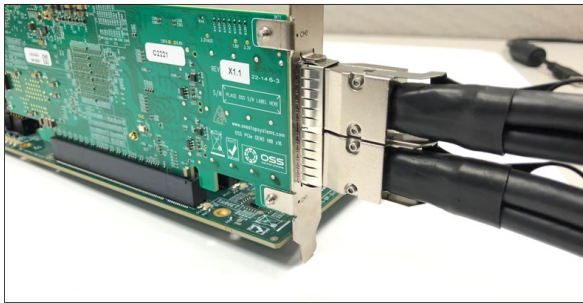
## 8 Link Cable Installation

Use the supplied QSFP-DD cables by One Stop Systems.

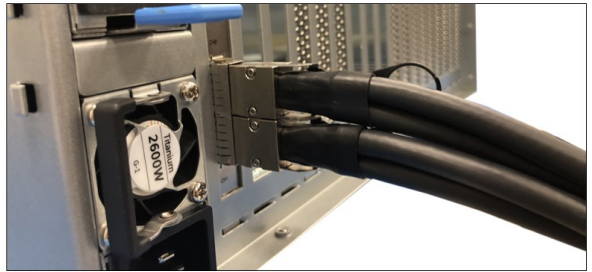
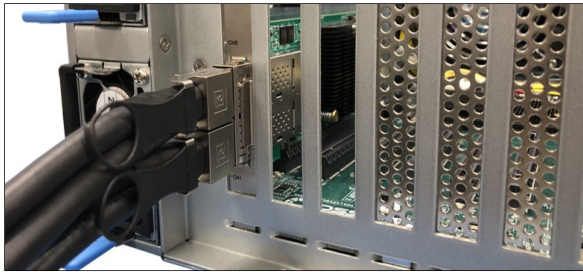
- One Stop Systems QSFP-DD are custom cables.
- Standard QSFP-DD will not work with OSS Gen5 adapter cards.



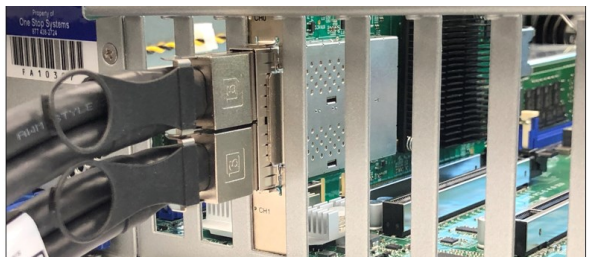
Plug in the two cables to the target card. See photos below for the correct orientation of the cables when connecting to the card.



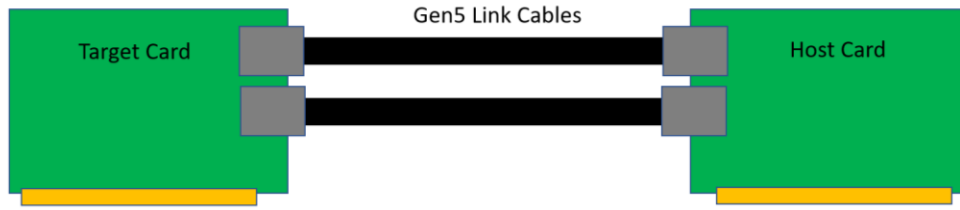
Photos below show the two link cables connected to the target card in the expansion chassis



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



Use the diagram below as reference when connecting the cables between the host and targets cards.

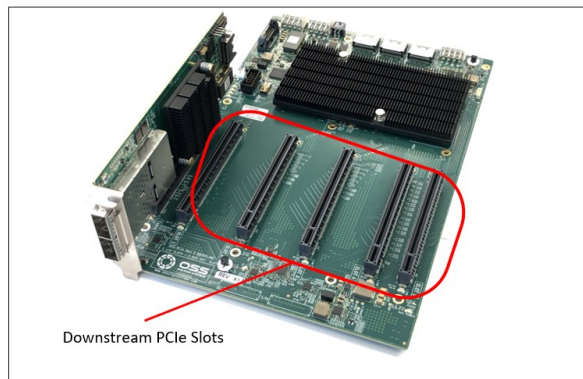




## 9 PCIe Card Installation

Plug in your PCIe card one at a time. Use any available downstream slots (slot#1, 2, 3, 4 and 5) on the backplane.

- Make sure 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 5 Downstream slots: 1,2,3, 4 and 5.
- Slot# 5 is an option slot. It can be configured to operate in either as a downstream or an upstream mode.



OSS-580 Backplane configured with one Upstream slot and 5 downstream slots.

- You can populate all downstream slots with an endpoint device or your selected PCIe cards.

OSS-580 Backplane configured with two Upstream slots (SLOT 0 and SLOT 5).

- Use Slots# 1, 2, 3, and 4 for endpoint device.
- The slots 0 and 5 will operate in an Upstream mode and will only work with an OSS HBA Gen 5 card configured as target.
- This configuration requires a custom firmware image. The existing (production) firmware image in the backplane does not support this configuration.

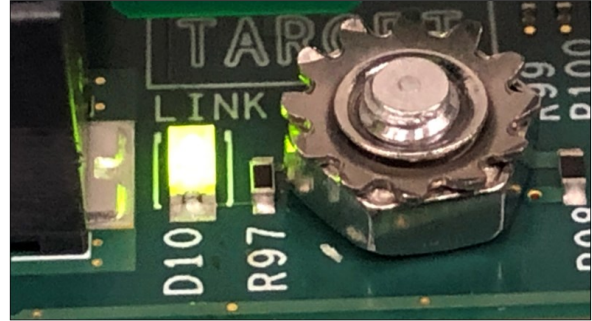
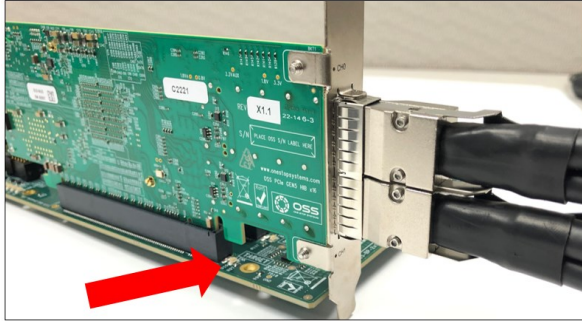
## 10 Powering UP the unit

- Power ON the Gen5 backplane first.
- Turn ON the host computer
  - 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.

## 11 Hardware Check

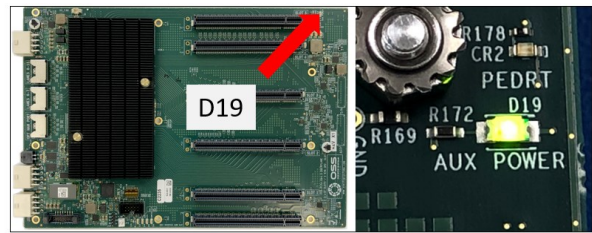
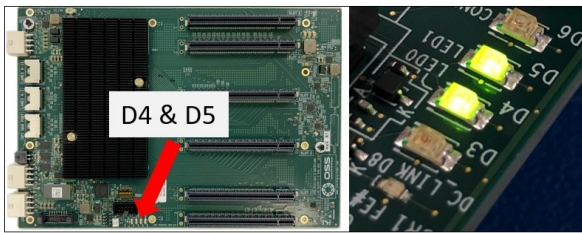
### 11.1 Verify Board LEDs

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



Check the board LEDs. A fully operational back plane will illuminate the following LEDs.

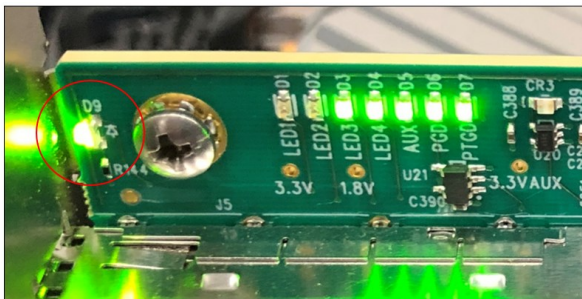
- D4 & D5
- D19: AUX power, solid green.



### 11.2 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).



## 12 Post Installation

Verify the OSS devices after installation.

### 12.1 Linux

To check or verify if the OSS devices are detected, type or enter the command “`lspci -vvv | grep c030`”, see output below.

- It will show 38 total number of c030 device IDs, combining both OSS\_579 adapter cards and the OSS\_580 board.
- The c030 is the vendor device ID of the OSS\_579 card and OSS\_580.

1. Run `lspci -vvv | grep c030`
2. Output shows 38 c030 devices, see screenshot below.
  - a. OSS-580 bp is connected to host computer.
  - b. OSS-579 target card (in the OSS-580 bp) is linked to OSS-579 host card

```
oss@OSSSuperServer:~$ su root
Password:
root@OSSSuperServer:/home/oss# lspci -vvv | grep c030
84:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
85:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
85:08.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
85:0c.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
85:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
86:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
87:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
89:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
8a:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
8c:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
8d:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
8d:08.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
8e:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
8f:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
8f:0c.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
90:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
91:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
91:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
93:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
94:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
94:04.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
94:08.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
94:0c.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
94:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
95:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
96:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
96:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
99:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
9a:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
9c:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
9e:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
9f:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
9f:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a2:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a3:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a5:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a8:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a9:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
root@OSSSuperServer:/home/oss# lspci -vvv | grep c030 -c
38
root@OSSSuperServer:/home/oss#
```

The screenshot below shows the output of “lspci -vvv |grep c030” with the OSS\_579 host card only being detected.

- This is the single OSS\_579 host card displaying 14 of c030 device IDs.

```

root@OSSuperServer: /home/oss
oss@OSSuperServer:~$ su root
Password:
root@OSSuperServer:/home/oss# lspci -vvv | grep c030
a6:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a7:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a7:08.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a7:0c.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a7:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a8:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
a9:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
ab:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
ac:10.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
ae:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
af:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
af:08.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
b2:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
b3:00.0 PCI bridge: Broadcom / LSI Device c030 (rev a0) (prog-if 00 [Normal decode])
root@OSSuperServer:/home/oss# lspci -vvv | grep c030 -c
14
root@OSSuperServer:/home/oss#
    
```

To check on the OSS-580 device hierarchy type or enter the command on a terminal window “lspci -vvt”. The screenshot below shows the hierarchy (tree-like structure) of the OSS\_580 backplane without PCIe cards in the slots.

```

+--00.1 Intel Corporation Device 09a4
+--00.2 Intel Corporation Device 09a3
+--00.4 Intel Corporation Device 0996
+--0000:f9--00.0 Intel Corporation Device 09a2
+--00.1 Intel Corporation Device 09a4
+--00.2 Intel Corporation Device 09a3
+--00.4 Intel Corporation Device 0996
+--0000:83--00.0 Intel Corporation Device 09a2
+--00.1 Intel Corporation Device 09a4
+--00.2 Intel Corporation Device 09a3
+--00.4 Intel Corporation Device 0996
+--02.0 [84-a4]---00.0 [85-aa]---00.0 [86-b8]---00.0 [87-b8]---00.0 [88]--
+--00.0 [89-bb]---00.0 [8a-bb]---10.0 [8b]--
+--0c.0 [8c-a7]---00.0 [8d-a7]---00.0 [8e-a6]---00.0 [8f-a6]---00.0 [90-a4]---00.0 [91-a4]---00.0 [92]--
+--10.0 [93-a4]---00.0 [94-a4]---00.0 [95-98]---00.0 [96-98]---00.0 [97]--
+--04.0 [99-9b]---00.0 [9a-9b]---00.0 [9b]--
+--00.0 [9c-9d]---00.0 [9d]--
+--0c.0 [9e-a1]---00.0 [9f-a1]---00.0 [a0]--
+--10.0 [a1]--
+--10.0 [a2-a4]---00.0 [a3-a4]---00.0 [a4]--
+--0c.0 [a5-a6]---00.0 [a6]--
+--10.0 [a8-aa]---00.0 [a9-aa]---00.0 [aa]--
+--0000:81--00.0 Intel Corporation Device 09a2
+--00.1 Intel Corporation Device 09a4
+--00.2 Intel Corporation Device 09a3
+--00.4 Intel Corporation Device 0998
+--04.0 [b2]---00.0 Phison Electronics Corporation E16 PCIe4 NVM Controller
+--0000:80--00.0 Intel Corporation Device 09a2
+--00.1 Intel Corporation Device 09a4
+--00.2 Intel Corporation Device 09a3
    
```

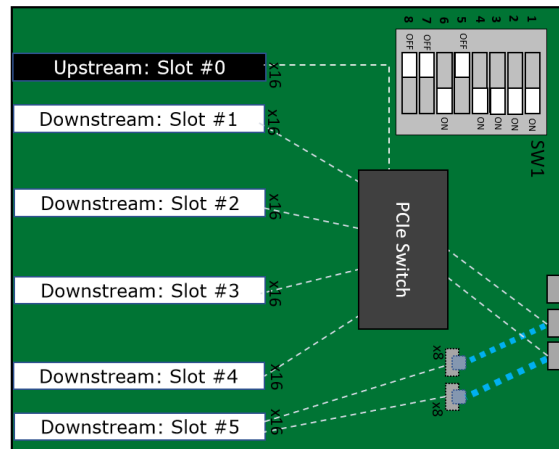
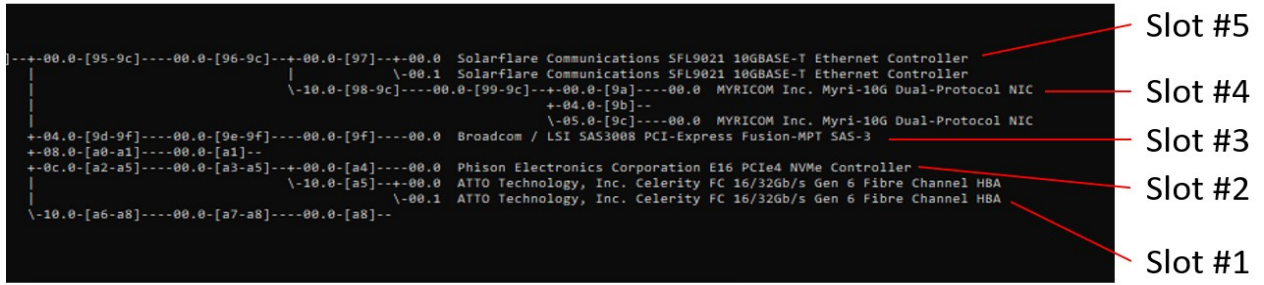
Below photo is the tree-like structure of the OSS\_580 backplane with all 5 slots populated with different PCIe cards.

- Using the same command “lspci -vvt.”

```

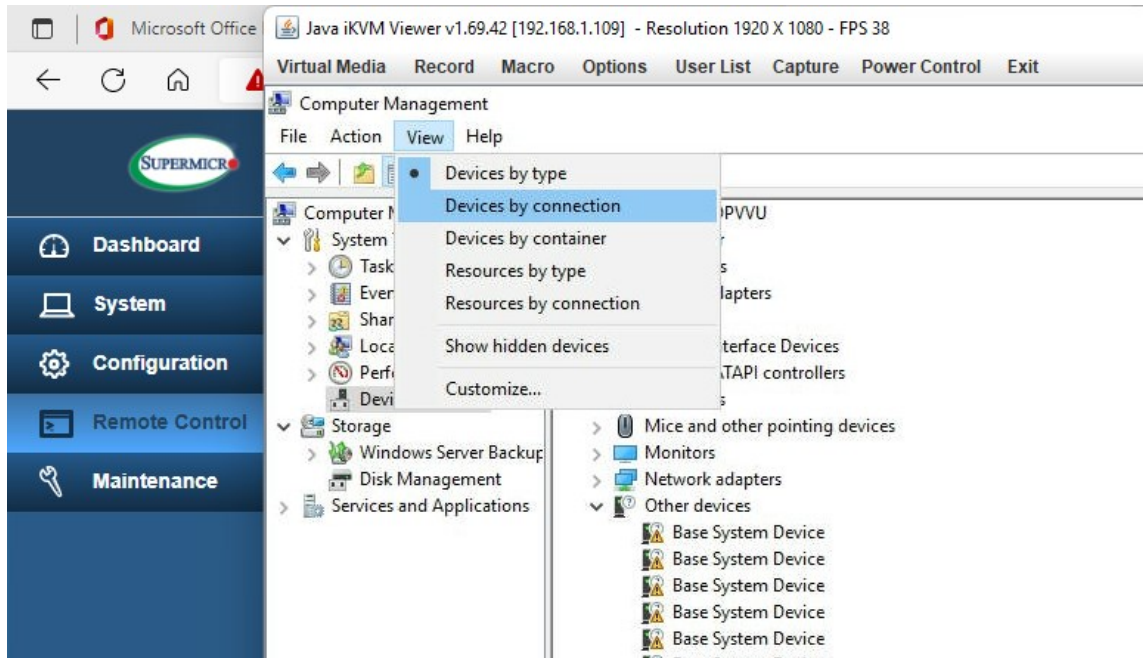
0998
+--00.0 [86-b8]---00.0 [87-b8]---00.0 [88]--
+--00.0 [89-bb]---00.0 [8a-bb]---10.0 [8b]--
+--0c.0 [8c-ab]---00.0 [8d-ab]---00.0 [8e-aa]---00.0 [8f-aa]---00.0 [90-a8]---00.0 [91-a8]---00.0 [92]--
+--10.0 [93-a8]---00.0 [94-a8]---00.0 [95-9c]---00.0 [96-9c]---00.0 [97]---00.0 Solarflare Communications SFL9021 10GbASE-T Ethernet Controller
+--10.0 [98-9c]---00.0 [99-9c]---00.0 [9a]---00.0 MYR1100 Dual-Protocol NIC
+--04.0 [9b]--
+--04.0 [9d-9f]---00.0 [9e-9f]---00.0 [9f]---00.0 Broadcom / LSI 24S3008 PCI-Express Fusion-MV SAS-3
+--00.0 [a0-a1]---00.0 [a1]--
+--0c.0 [a2-a5]---00.0 [a3-a5]---00.0 [a4]---00.0 Phison Electronics Corporation E16 PCIe4 NVM Controller
+--10.0 [a5]---00.0 ATTO Technology, Inc. Celerity FC 16/32Gb/s Gen 8 Fibre Channel HBA
+--10.0 [a6-a8]---00.0 [a7-a8]---00.0 [a8]--
+--0c.0 [a9-aa]---00.0 [aa]--
+--10.0 [ac-ae]---00.0 [ad-ae]---00.0 [af]--
09a2
09a4
09a3
0998
    
```

Photo below shows the hierarchy order of eight physical slots on the OSS\_580 backplane populated with different PCIe cards.



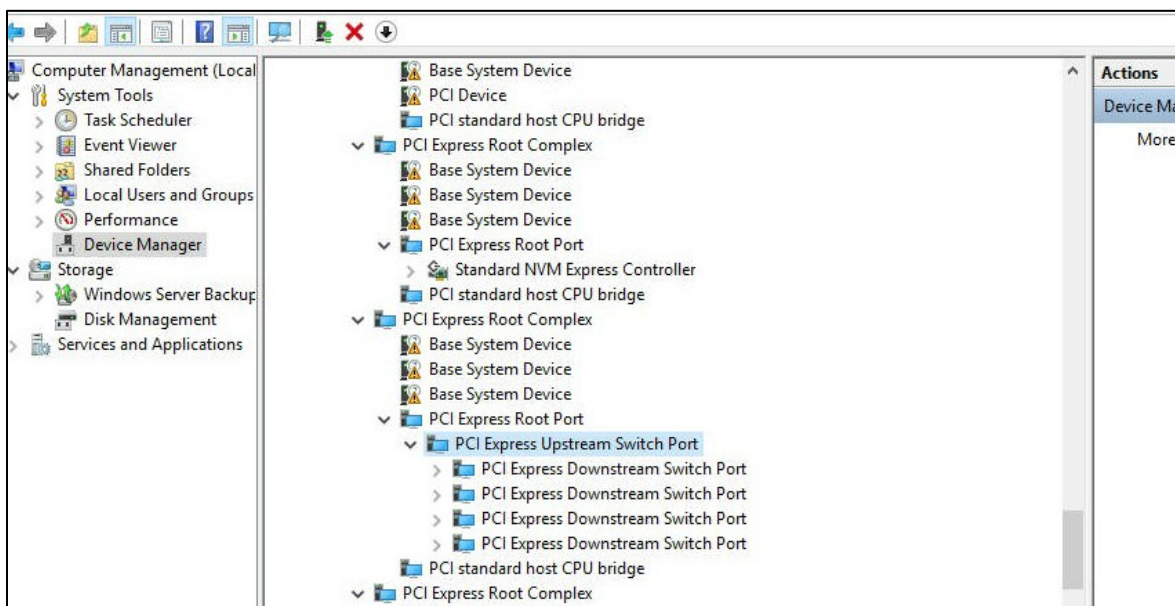
## 12.2 Windows

Start the Windows Device Manager, select view from the top menu, and then select 'Device by Connection.'



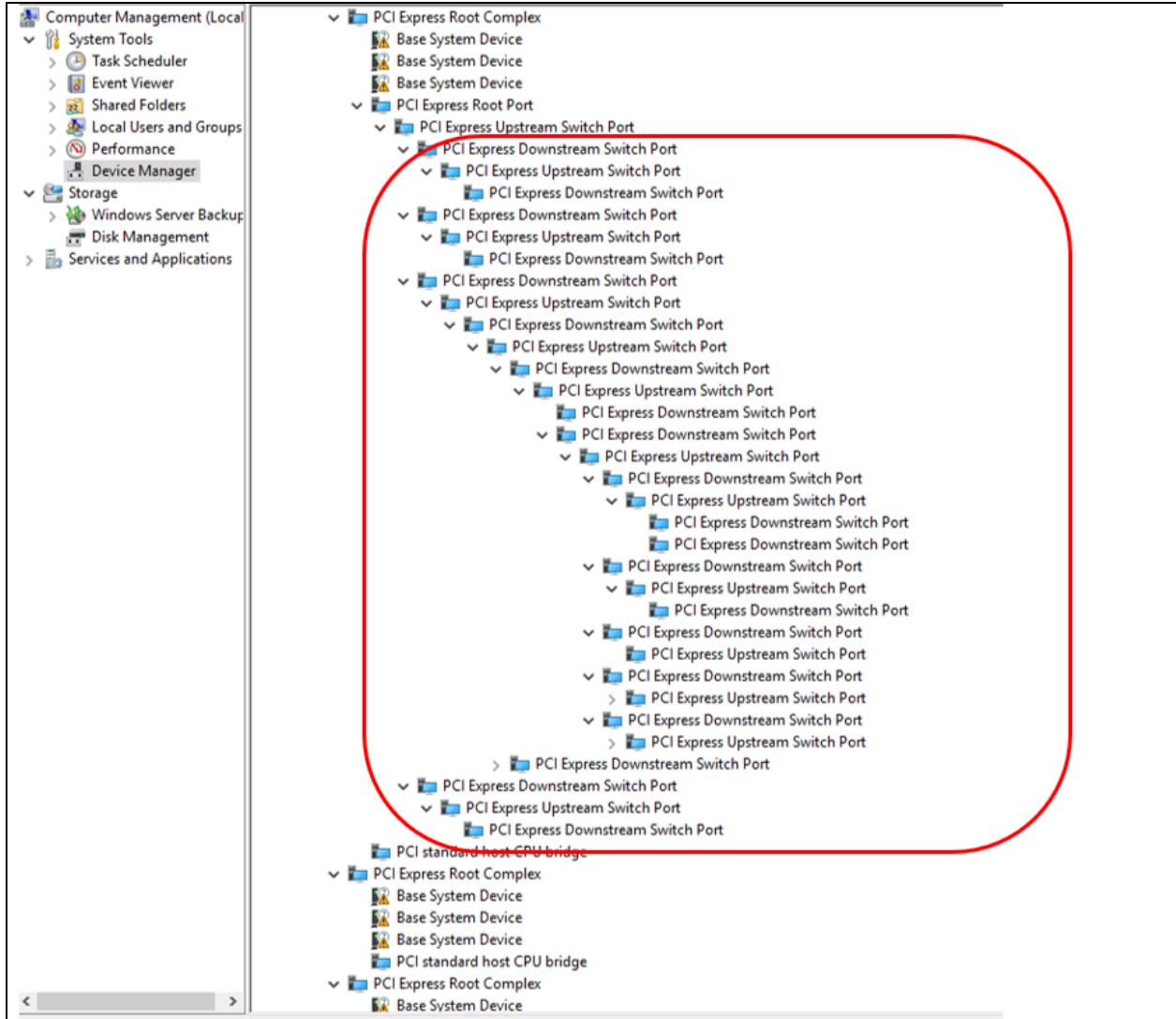
Select and expand PCI Express Root Port.

- An instance of PCI Express Upstream Switch Port will appear; select and expand the arrow signs.
  - Four instances of PCI Express Downstream Switch Ports will show up.
  - Select and expand all PCI Express Downstream Switch Ports.



Continue to expand all arrow signs until everything is fully expanded.

- The screenshot below shows a fully expanded PCI Express Upstream and downstream Ports.
- Windows Device Manager showing all the Upstream and Downstream Switch Ports on both OSS-580 backplane and OSS-579 cards.
- No PCIe cards installed in the card slots of the OSS-580 backplane.

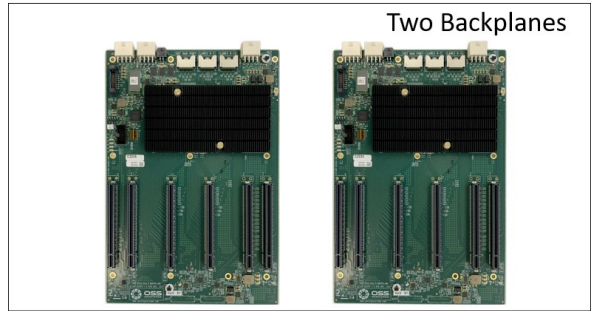
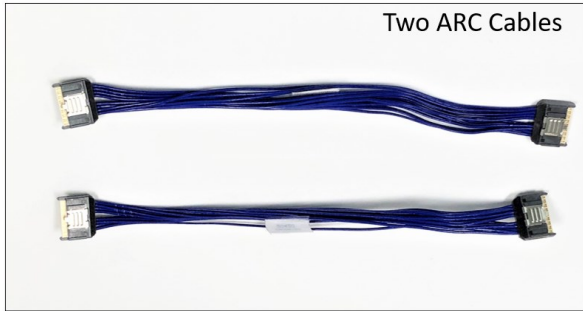




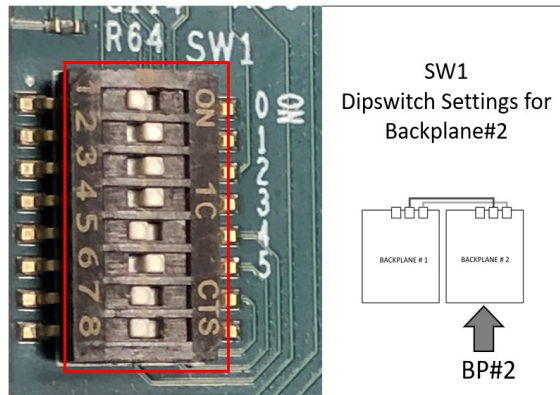
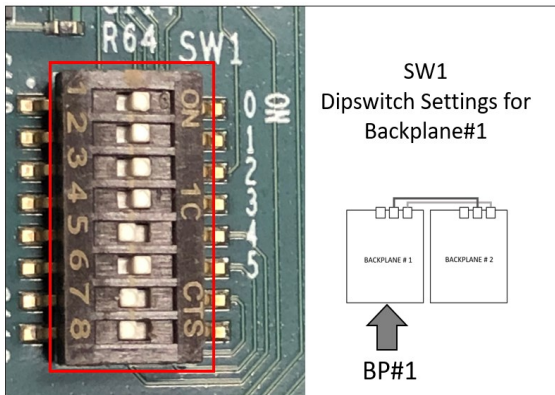
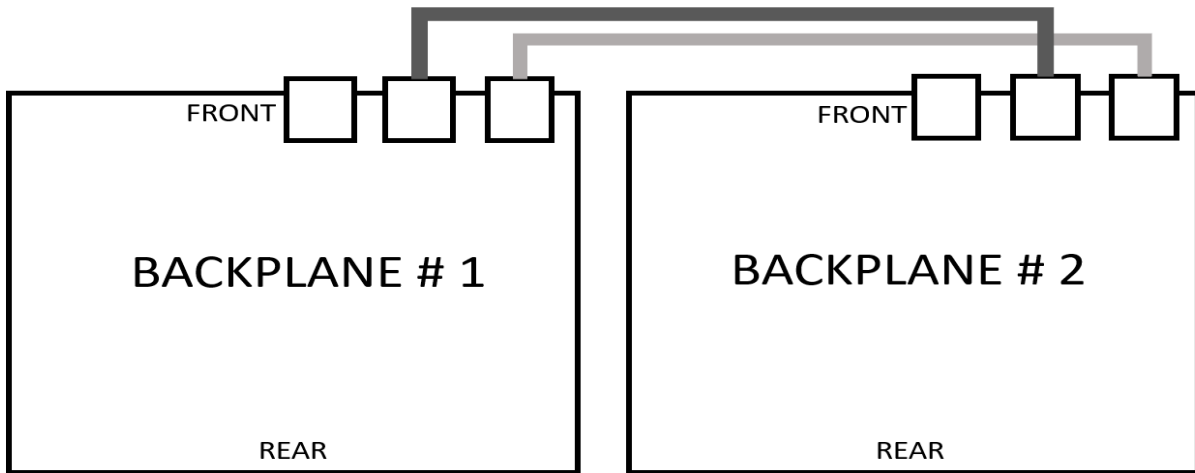


### 13 Daisy-Chain Setup

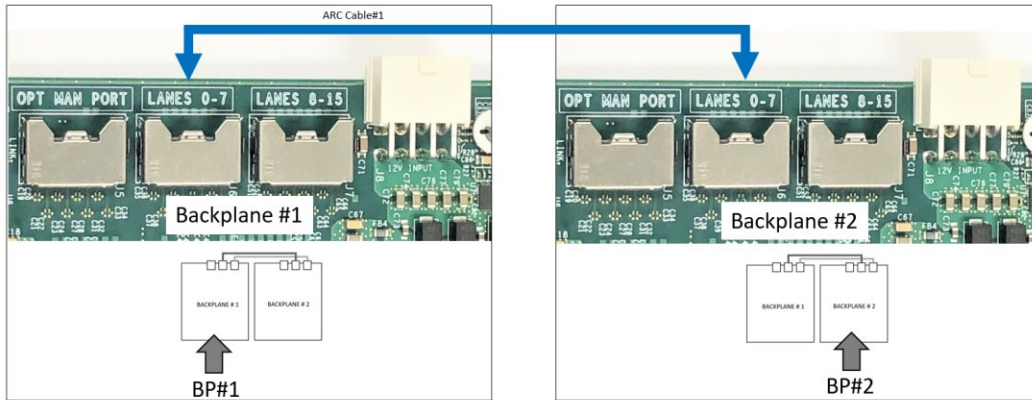
You need two (12 inches long) ARC cables and two OSS-580 backplanes.



Set the Dipswitches on each backplane appropriately. Refer to the photos below for the corresponding dipswitch settings for each backplane (backplane#1 and backplane#2).



Connect the 1<sup>st</sup> ARC cable to port LANES 0-7 (from backplane #1 to backplane #2).



Connect the 2<sup>nd</sup> ARC cable to port LANES 8-15 (from backplane #1 to backplane #2).

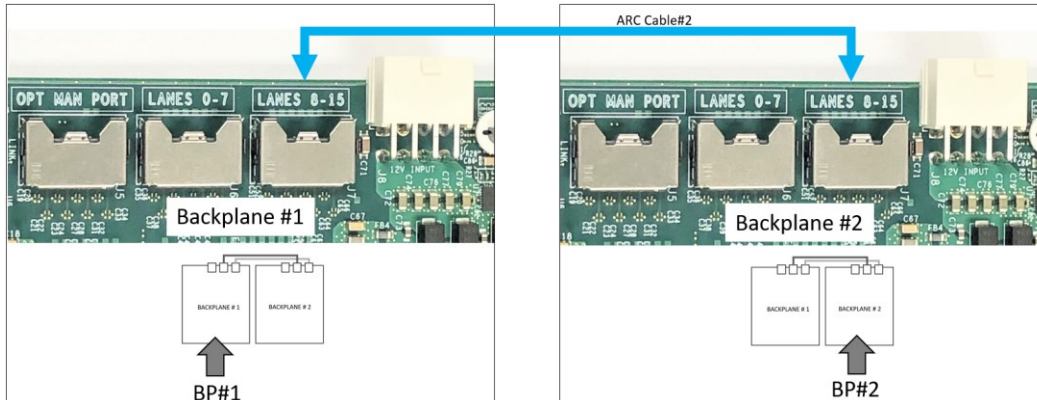


Photo below shows the two ARC 6 cables attached between the two OSS-580 backplanes

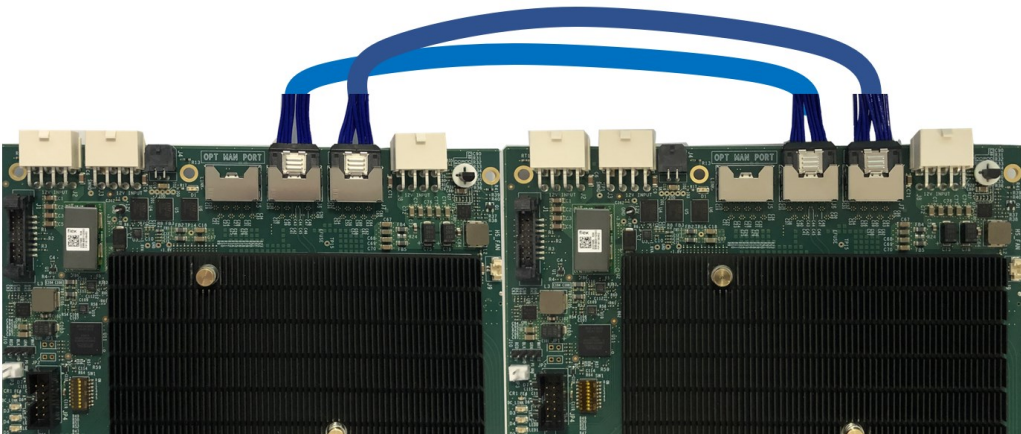
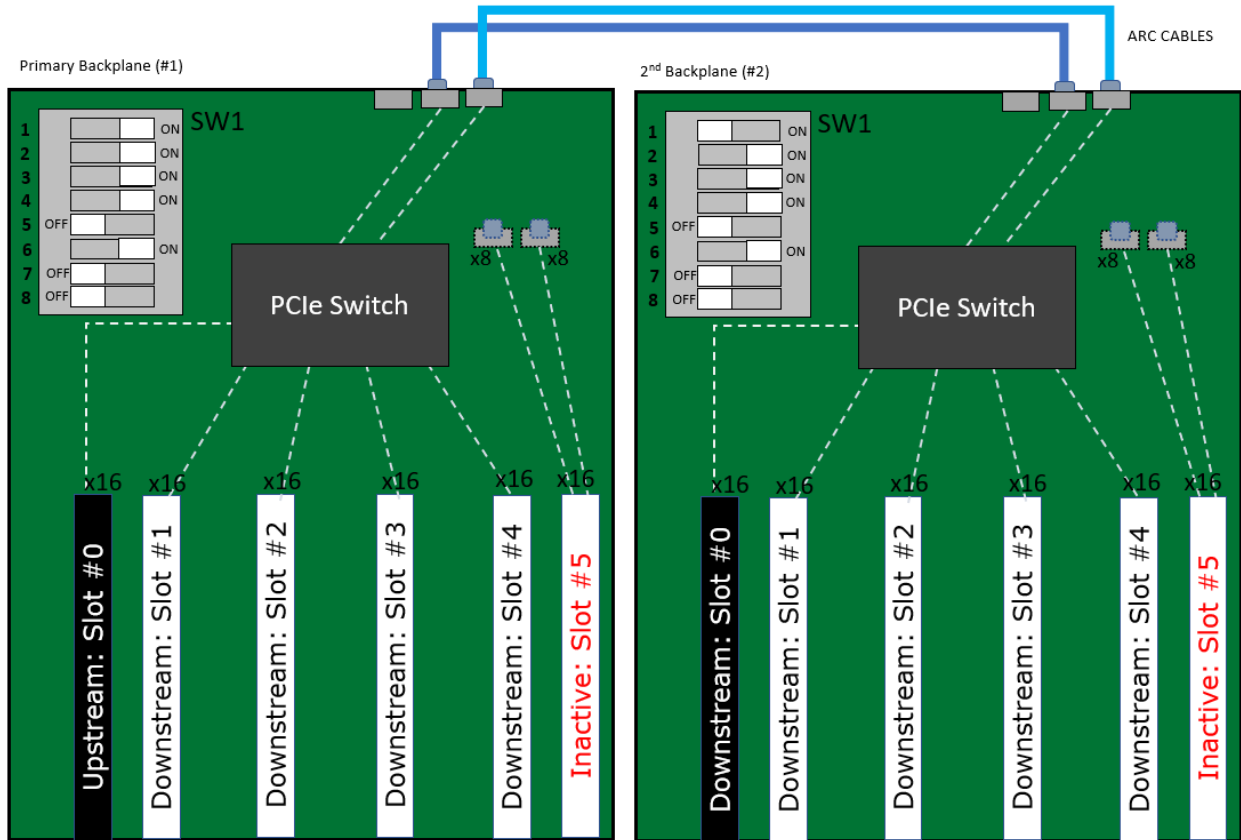


Diagram below shows a daisy-chained OSS-580 backplane configuration.

- 1 Upstream Slot: x16
- 9 Downstream slots: x16
- 2 Inactive Slots



## 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 this address <https://www.onestopsystems.com> 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 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 ensuring 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 evaluates, 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 infinite combinations of hardware and software, OSS cannot assess and validate every configuration. OSS is committed to supporting its products and identifying if any technical issue may be related to third-party hardware or software. 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 assess, 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.



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