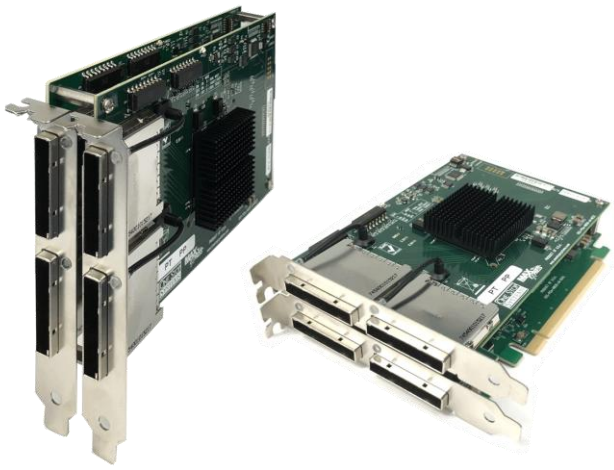
PCIe x8 Gen3 Host Cable Adapter with PCIe Switch

Model: OSS-PCIe-HIB38-x8-QUAD



Installation Guide

SKU: OSS-PCIe-HIB38-X8-QUAD

ONE STOP SYSTEMS

Table of Contents

Preface

Advisories

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

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

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

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

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

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

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

Safety Instructions

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

- Always use caution when handling/operating the computer. Only qualified, experienced, authorized electronics personnel should access the interior of the computer and expansion chassis per UL and IEC 60950-1
- The power supplies produce high voltages and energy hazards, which can cause bodily harm.
- Use extreme caution when installing or removing components. Refer to the installation instructions in this manual for precautions and procedures. If you have any questions, please contact Technical Support.

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

When Working Inside a Computer

1. Before taking covers off a computer, perform the following steps:
2. Turn off the computer and any peripheral devices.
3. Disconnect the computer and peripheral power cords from their AC outlets or inlets in order to prevent electric shock or system board damage.

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

- To help avoid possible damage to systems boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.
- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.

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

Protecting Against Electrostatic Discharge

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

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

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

- When unpacking a static-sensitive component from its shipping carton, do not remove the component's anti-static packaging material until you are ready to install the component in a computer. Just before unwrapping the anti-static packaging, be sure you are at an ESD workstation or are grounded.
- When transporting a sensitive component, first place it in an anti-static container or packaging.
- Handle all sensitive components at an ESD workstation. If possible, use anti-static floor pads and workbench pads.
- Handle components and boards with care. Do not touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.

1 Introduction

The PCIe x8 Gen 3 cable adapter with PCIe switch is a PCIe half-height add-in card with two boards (OSS-386 and OSS-390) attached together with four x8 cable external connectors on the slot cover. It operates in upstream mode with Dipswitch setting change. The host cable adapter installs in the PCIe slot of a computer's motherboard only.

Part numbers:

- OSS-PCIE-HIB38-x8-QUAD

Internal part#OSS-390/386

1.1 Specifications

Item	Description
Form Factor	PCIe x8 half-height, half-length
Dimensions	5.85 x 4.00" (14.85 x 10.16 cm)
Bandwidth / Backplane Interface	PCIe x8 Gen3
Power	There are two boards on the HIB3x-8 QUAD. The mezzanine card (OSS-390) and the OSS-386 (the main board). *OSS-386 board. Note that the power supplied to the OSS-390 board is supplied through the OSS-386. It is not connected directly to a PCIe bus. The 386 numbers here DO NOT include the power required to operate an installed 390 board. • Worst case: 20.5 watts • Typical: 11 watts
	*For OSS-390 • Worst case: 18.7 watts • Typical: 8.7 watts
Connector	Four x8 Cable connectors PCIe x16 Edge connector- Electrical , x16 mechanical
PCIe Switch	OSS-386 (Main Board): PLX PEX8749 8.0 GT/s 48-Lane PCI Express Gen 3 Switch DMA controller
	OSS-390 (Mezzanine Card): PLX PEX8733 8.0 GT/s 32-Lane PCI Express Gen 3 Switch DMA controller
Bracket	Standard and low profile brackets available With four LEDs on the bracket
Operating Temperature	0˚C to +50˚C environment
Operating Humidity	10% to 90% relative humidity non-condensing
Storage Humidity	5% to 95% relative humidity non-condensing
Shock	30g Acceleration Peak (11ms pulse)
Industry Specifications	• PCIe External Cabling Specification, Rev. 1.0 • PCI Express™ Card Electromechanical • Specification, Rev. 2.0 • PCI Express ® Base Specification, Rev. 3.0 • ATX Specification, Version 2.2
Agency Compliance	• FCC Class B • CE • RoHS
Operating System	Windows 10, Windows Server 2012 R2; Linux OS based

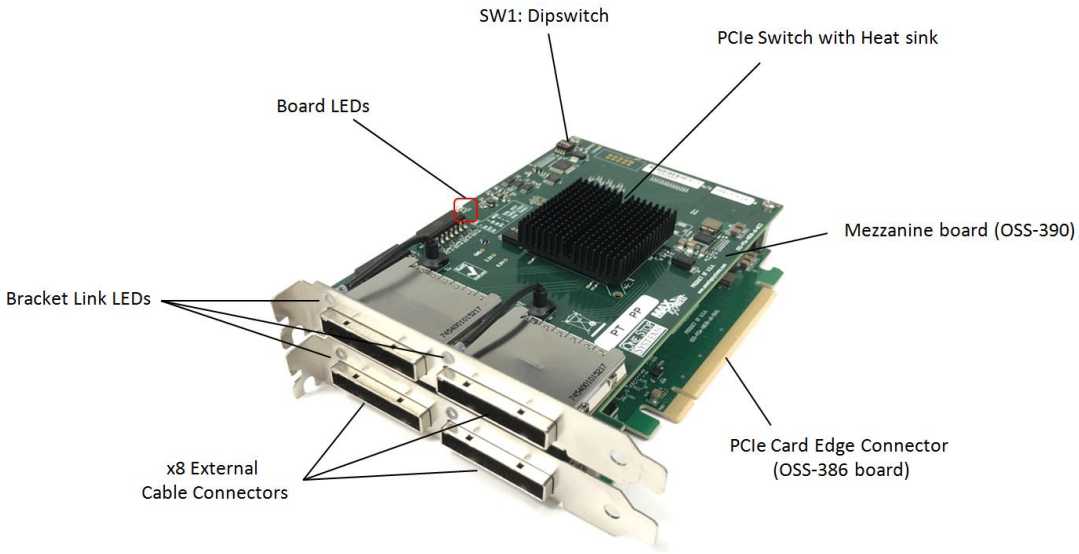
1.2 Features:

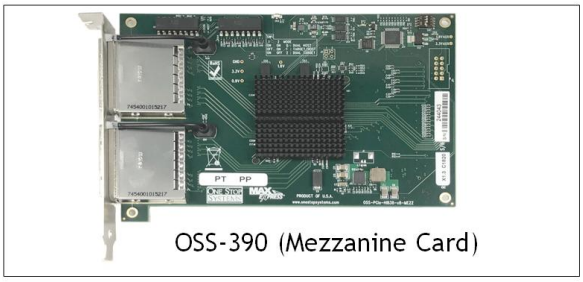
- Fits into PCIe x16 slot
- Operates in Host mode only (with Dipswitch setting change)
- Supports Spread Spectrum Clock Isolation
- Bracket LINK LED status indicator
- 48-Lane switch with built-in DMA controller
- iPass x8 external cable connector

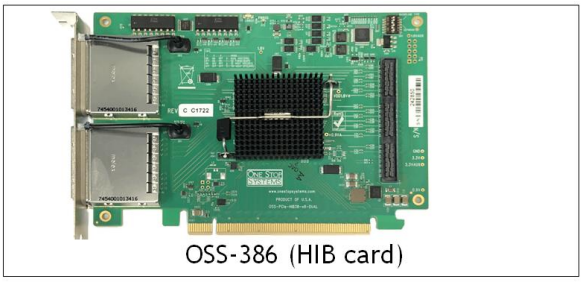
1.3 Overview

This is an overview on HIB38-x8-QUAD card. The quad card is composed of two boards, the mezzanine / daughter card (OSS-390) and the HIB card (OSS-386).

- The OSS-390 is mounted on top of the OSS-386 board.
- The OSS-386 is the main board with the card edge connector that plugs into a x16 PCIe slot.



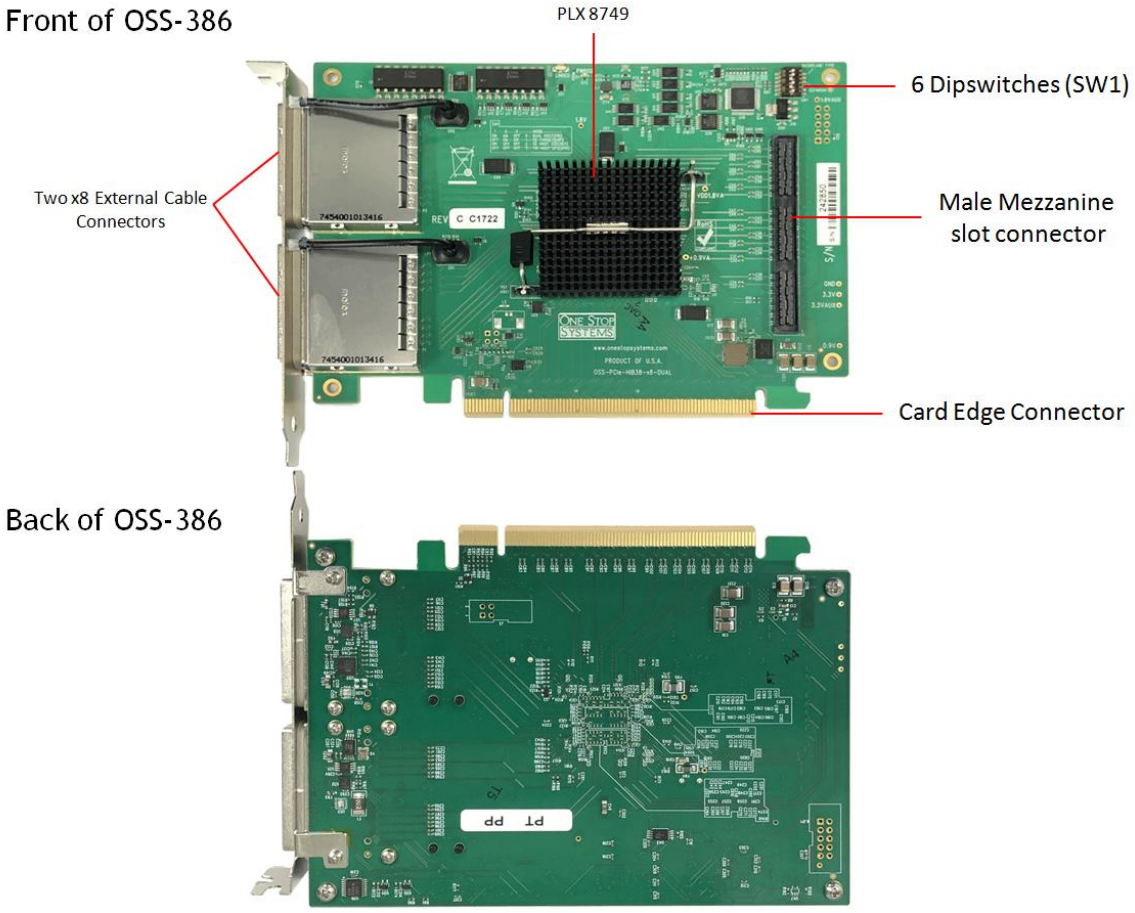




1.3.1 OSS-386 Main board

The OSS-386 board has the following:

- Card Edge Connector
- 6 Dipswitches (SW1)
- Male mezzanine connector on the front-side of the board
- Two x8 external cable connector
- PLX 8749

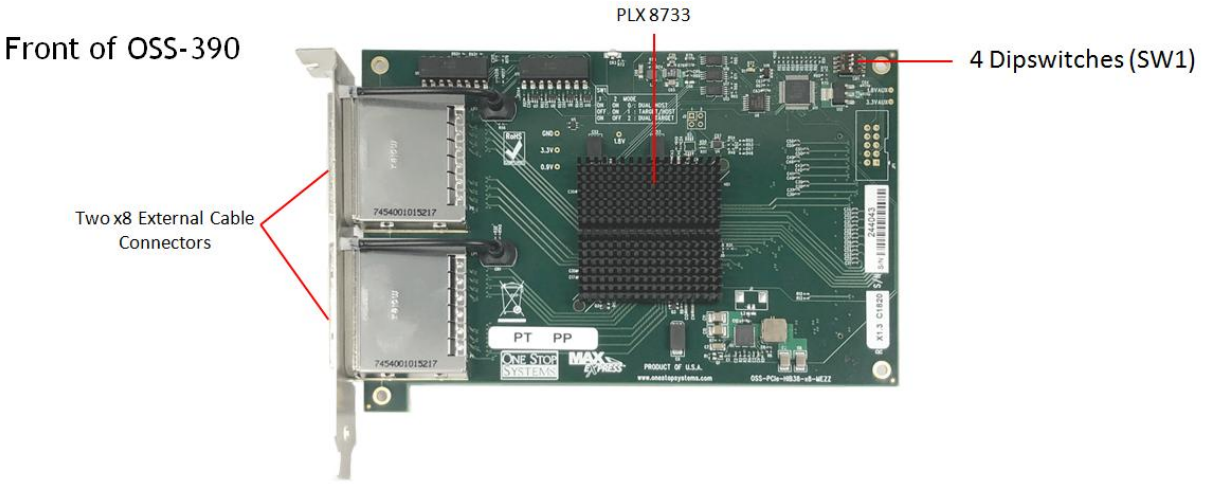


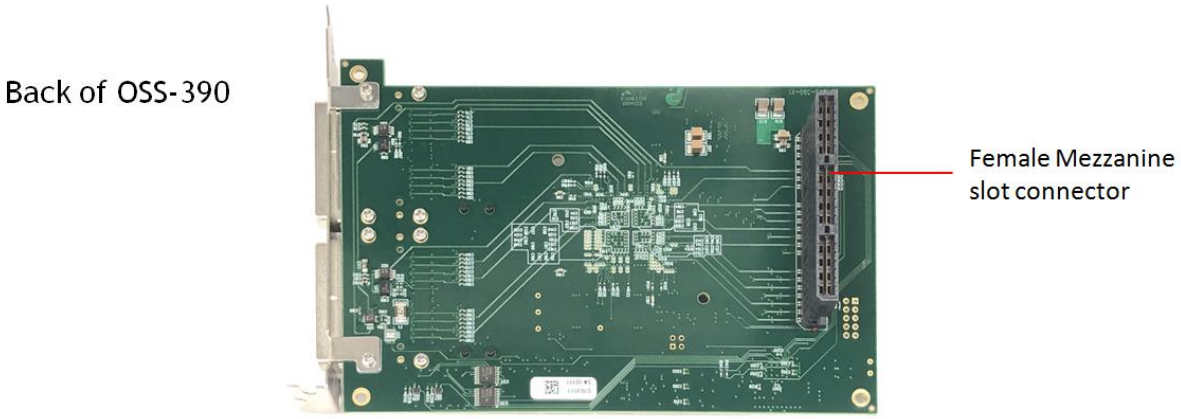
1.3.2 OSS-390 Mezzanine Board

The OSS-390 mezzanine board has the following:

- 4 Dipswitches (SW1)
- Female mezzanine connector on the back-side of the board
- Two x8 external cable connector
- PLX 8733

OSS-390 does not have the card-edge connector





1.4 PCIe Card Edge

- The PCIe Card edge will be directly routed x8 interface to the PLX Chip
- In host mode, the add-in card will accept a clock as an input.
- In target mode, the add-in card will drive a clock. It will also provide a reset output and a PS_ON# signal.

1.5 Power

- Power is provided by the PCI-e card slot.
- Power required by internal components of **OSS-PCIe-HIB-38-x8 -QUAD** is estimated to be 20 watts when all ports are fully linked and operating in Gen3 mode.
- Cable power is to be provided per PCIe cable specification. When an active cable (powered transceiver) is used, additional power is required from the PCI-e card slot.
- Power will be supplied +3.3V, +3.3Vaux through Card Edge.
- Some power rails will be derived from the onboard circuitry.

1.6 PCIe Cable Sideband signals

- All Cable sideband signals CPERST#, CPWRON, CPRSNT#, CWAKE# to be connected per the PCIe Cable specification.
- Additional isolation of signal CE_PWRON# (card edge power control) shall be provided by a physical switch.
- This switch allows user to electrically isolate this signal from the card edge connector.

*The target card and expansion unit are powered UP instantly upon turning ON the host computer.

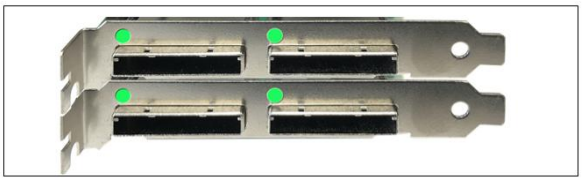
1.7 PLX PEX8749

- Integrated DMA Engine (with four DMA channels and internal buffer space)
- 48 Lane PCIe Switch
- PCIe Gen3 (8.0 GT/s)
- Spread Spectrum Clock Isolation

1.8 Link LEDS

The LINK status LEDs on the slot cover (bracket) shows that the cards have successfully linked.

- OFF – Link is down
- ON – Link is UP, 8.0 GT/s
    - Gen3- solid green
    - Gen2 - Blinking frequency: 2Hz
    - Gen1 - Blinking frequency: 1Hz
- RED – No link from the Host side or Target side; Fatal error on PCIe switch;



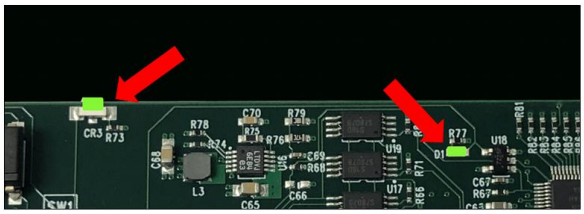
1.9 Board LEDs

There are two LEDs on the OSS-386 and OSS-390 boards. They are located in the upper right of the board.

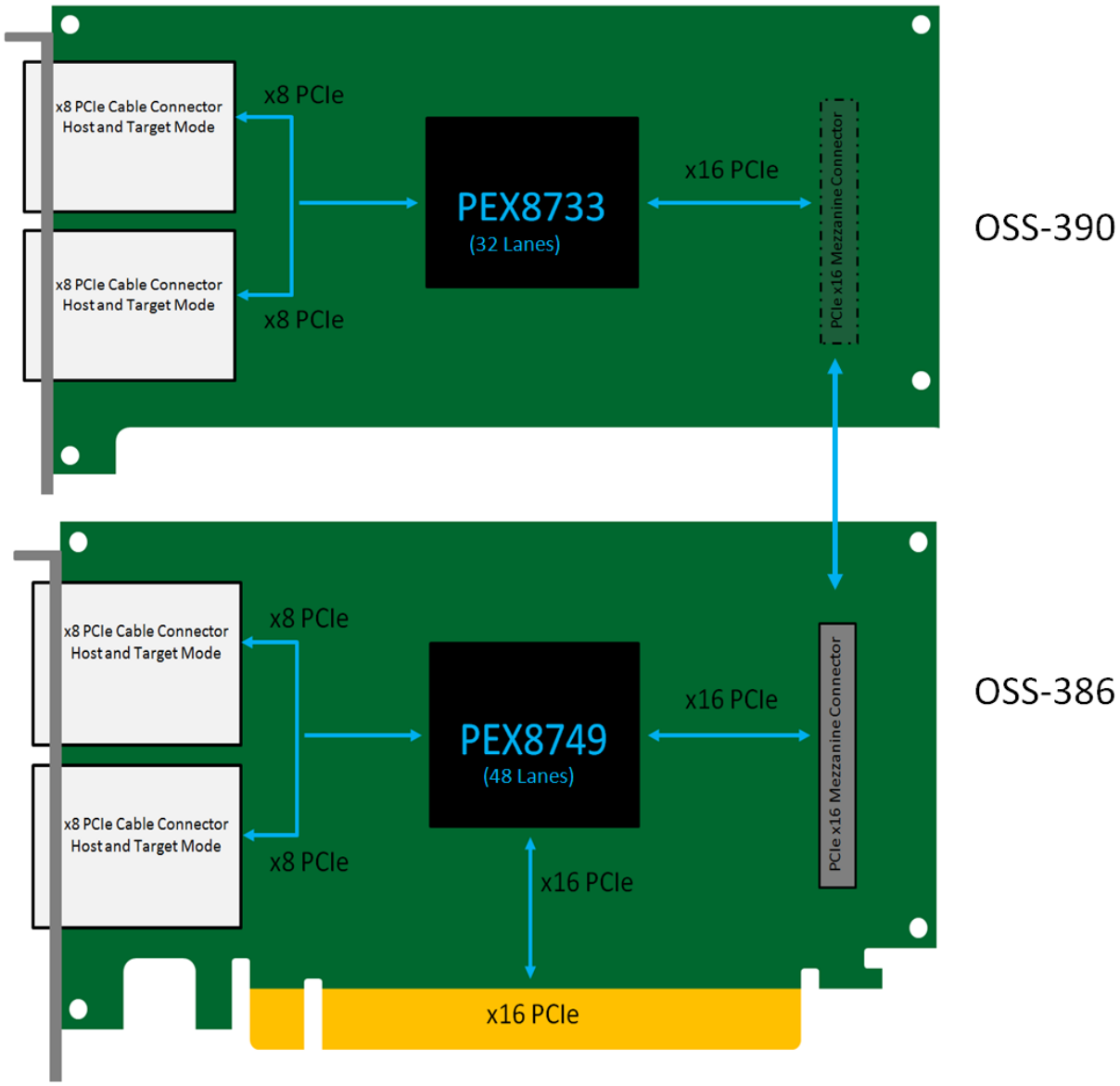
- PWRGD--Power good, board has power
- CE LINK—Card edge, successful link with the card edge

1.9.1 OSS-386 board LEDs

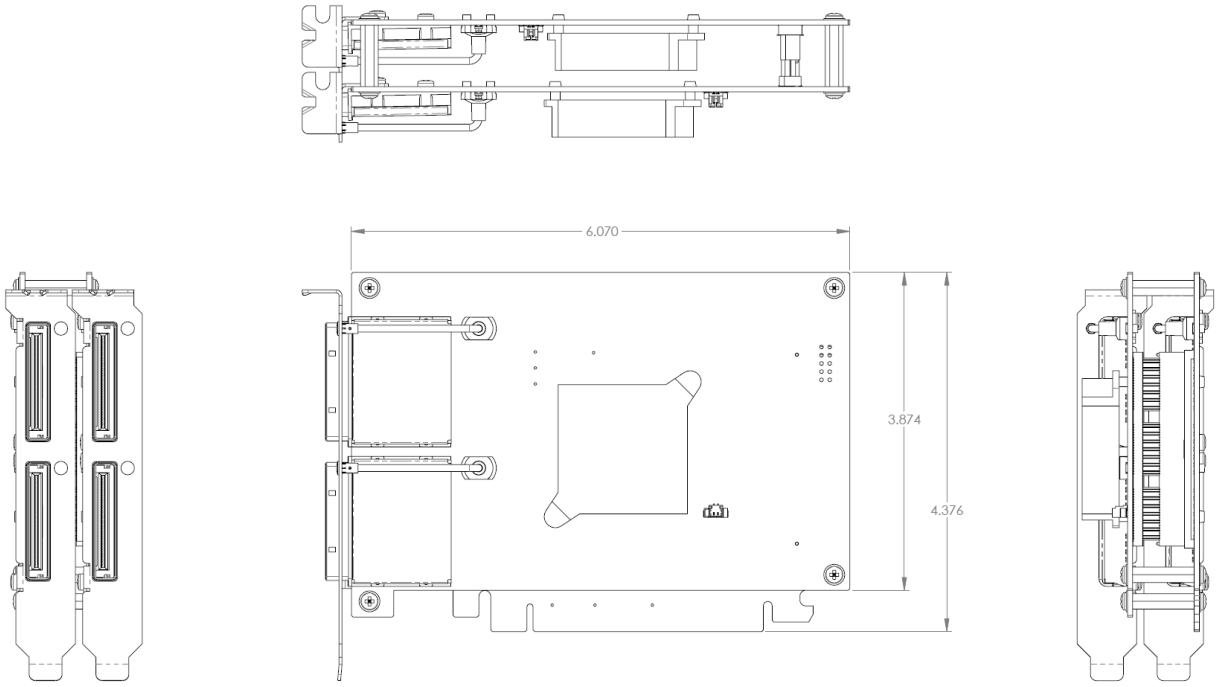
1.9.1 OSS-390 board LEDs



1.10 Block Diagram



1.11 Dimensions



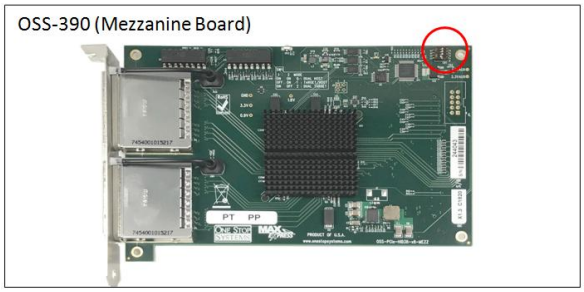
1.12 Operating Mode

1.12.1 Host Mode

The HIB38-x8-QUAD card can only operate as Host card. Both cards (0SS-386 and 390) should be configured as host. Each card has its own dipswitch (SW1) that needs to be set properly.

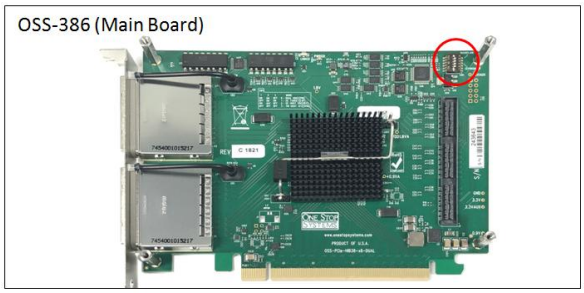
OSS-390 board

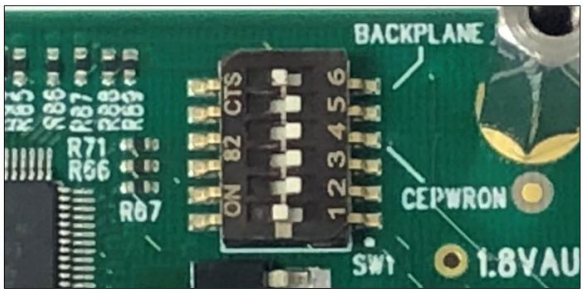
- There are 4 dipswitches on the OSS-390 Mezzanine board. Host mode settings, #1=ON ; #2=OFF ; #3=OFF ; #4=OFF.



OSS-386 Board

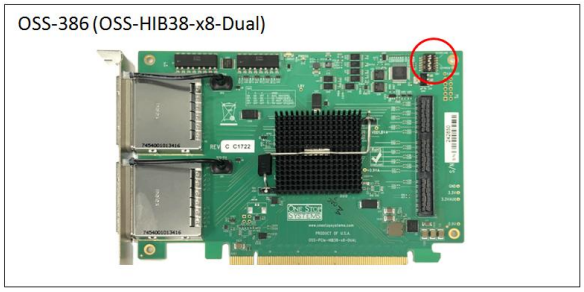
There are 6 dipswitches on the OSS-386 main board. Host mode settings, #1=ON ; #2=OFF ; #3=OFF ; #4=OFF ; #5=OFF and #6 =ON.

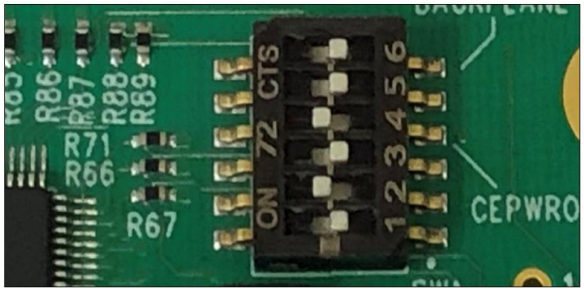




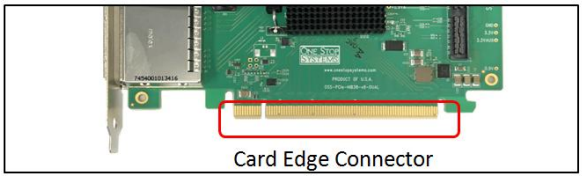
1.12.2 Target Mode

A **separate HIB38-X8-Dual** card (OSS-386 board) card is required to use as target. Prior to using the card as Target, the dipswitches must be configured to target properly. See photo below for the dipswitch settings on the HIB38-x8-Dual card.



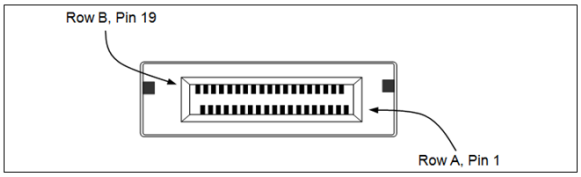


1.13 Card Edge Connector Pin Outs



Pin #	Side B		Side A	
	Name	Description	Name	Description
1	+12V	12V Power	PRSNT1#	Hot-Plug presence detect
2	+12V	12V Power	+12V	12V Power
3	+12V	12V Power	+12V	12V Power
4	GND	Ground	GND	Ground
5	SMCLK	SMBus clock	JTAG2	TCK
6	SMDAT	SMBus data	JTAG3	TSTCLK+
7	GND	Ground	JTAG4	TSTCLK-
8	+3.3V	3.3 V power	JTAG5	TMS
9	JTAG1	PWR_ON#	+3.3V	3.3 V power
10	3.3Vaux	3.3 V auxiliary power	+3.3V	3.3 V power
11	WAKE#	Signal for link reactivation	PERST#	Fundamental reset
		Mechanical key		
12	RSVD	Reserved	GND	Ground
13	GND	Ground	REFCLK+	Reference clock (differential pair)
14	PETp0	Transmitter differential pair, Lane 0	REFCLK	
15	PETn0		GND	Ground
16	GND	Ground	PERp0	Receiver differential pair, Lane 0
17	PRSNT2#	Hot-Plug presence detect	PERn0	
18	GND	Ground	GND	Ground
19	PETp1	Transmitter differential pair, Lane 1	RSVD	Reserved
20	PETn1		GND	Ground
21	GND	Ground	PERp1	Receiver differential pair, Lane 1
22	GND	Ground	PERn1	
23	PETp2	Transmitter differential pair, Lane 2	GND	Ground
24	PETn2		GND	Ground
25	GND	Ground	PERp2	Receiver differential pair, Lane 2
26	GND	Ground	PERn2	
27	PETp3	Transmitter differential pair, Lane 3	GND	Ground
28	PETn3		GND	Ground
29	GND	Ground	PERp3	Receiver differential pair, Lane 3
30	RSVD	Reserved	PERn3	
31	PRSNT2#	Hot-Plug presence detect	GND	Ground
32	GND	Ground	RSVD	Reserved
33	PETp4	Transmitter differential pair, Lane 4	RSVD	Reserved
34	PETn4		GND	Ground
35	GND	Ground	PERp4	Receiver differential pair, Lane 4
36	GND	Ground	PERn4	
37	PETp5	Transmitter differential pair, Lane 5	GND	Ground
38	PETn5		GND	Ground
39	GND	Ground	PERp5	Receiver differential pair, Lane 5
40	GND	Ground	PERn5	
41	PETp6	Transmitter differential pair, Lane 6	GND	Ground
42	PETn6		GND	Ground
43	GND	Ground	PERp6	Receiver differential pair, Lane 6
44	GND	Ground	PERn6	
45	PETp7	Transmitter differential pair, Lane 7	GND	Ground
46	PETn7		GND	Ground
47	GND	Ground	PERp7	Receiver differential pair, Lane 7
48	PRSNT2#	Hot-Plug presence detect	PERn7	
49	GND	Ground	GND	Ground

1.14 x8 Cable Wire Connections / Pin Outs



	Row A	Row B
Pin #	**Signal Name**	**Signal Name**
1	GND	GND
2	PETp0	PERp0
3	PETn0	PERn0
4	GND	GND
5	PETp1	PERp1
6	PETn1	PERn1
7	GND	GND
8	PETp2	PERp2
9	PETn2	PERn2
10	GND	GND
11	PETp3	PERp3
12	PETn3	PERn3
13	GND	GND
14	CREFCLK+	PWR (3.3V)
15	CREFCLK-	PWR (3.3V)
16	GND	PWR (3.3V)
17	RSVD	PWR RTN
18	RSVD	PWR RTN
19	SB_RTN	PWR RTN
20	CPSRNT$#	CWAKE#
21	CPWRON	CPERST#
22	GND	GND
23	PETp4	PETp4
24	PETn4	PERp4
25	GND	GND
26	PETp5	PERp5
27	PETn5	PERn5
28	GND	GND
29	PETp6	PERp6
30	PETn6	PERn6
31	GND	GND
32	PETp7	PERp7
33	PETn7	PERn7
34	GND	GND

*NC: Not Connected

1.15 x8 Cable Signal Descriptions

PETp(x)	PCI Express Transmit Positive signal of (x) pair.
PETn(x)	PCI Express Transmit Negative signal of (x) pair.
PERp(x)	PCI Express Receive Positive signal of (x) pair.
PERn(x)	PCI Express Receive Negative signal of (x) pair.
CREFCLK+/-	Cable REFerence CLocK: Provides a reference clock from the host system to the remote system.
SB_RTN	Return path for single ended signals from remote systems.
CPRSNT#	Cable Present: Indicates the presence of a device beyond the cable.
PWR	Power: Provides local power for in-cable redriver circuits. Only needed on long cables (Power does not go across the cable.)
PWR_RTN Po	Provides local power return path for PWR pins.
CWAKE#	Cable WAKE
CPERST#	Cable PCI Express Reset

1.15 Mezzanine Connector Pin Outs

	Side B			Side A	
Pin #	Name	Description	Pin #	Name	Description
1	+12V	12V Power	2	+3.3V	+3.3V Power
3	+12V	12V Power	4	+3.3V	+3.3V Power
5	N/C	Not Connected	6	+3.3Vaux	+3.3V auxiliary Voltage
7	N/C	Not Connected	8	+3.3V	+3.3V auxiliary Voltage
9	PRESENT#	Mezzanine Present	10	N/C	Not Connected
11	RESET#	Reset	12	WAKE#	Wake
13	PWrR_GOOD	Power Good	14	SMDAT	SM Bus Data
15	PWR_ON	Power On	16	SMCLK	SM Bus Data
17	N/C	Not Connected	18	REFCLK-	Reference clock (differential pair)
19	N/C	Not Connected	20	REFCLK+	Reference clock (differential pair)
21	PERn15	Receiver differential pair, Lane 15	22	PETn0	Receiver differential pair, Lane 0
23	PERp15	Receiver differential pair, Lane 15	24	PETp0	Receiver differential pair, Lane 0
25	PERn14	Receiver differential pair, Lane 14	26	PETn1	Receiver differential pair, Lane 1
27	PERp14	Receiver differential pair, Lane 14	28	PETp1	Receiver differential pair, Lane 1
29	PERn13	Receiver differential pair, Lane 13	30	PETn2	Receiver differential pair, Lane 2
31	PERp13	Receiver differential pair, Lane 13	32	PETp2	Receiver differential pair, Lane 2
33	PERn12	Receiver differential pair, Lane 12	34	PETn3	Receiver differential pair, Lane 3
35	PERp12	Receiver differential pair, Lane 12	36	PETp3	Receiver differential pair, Lane 3
37	PERn11	Receiver differential pair, Lane 11	38	PETn4	Receiver differential pair, Lane 4
39	PERp11	Receiver differential pair, Lane 11	40	PETp4	Receiver differential pair, Lane 4
41	PERn10	Receiver differential pair, Lane 10	42	PETn5	Receiver differential pair, Lane 5
43	PERp10	Receiver differential pair, Lane 10	44	PETp5	Receiver differential pair, Lane 5
45	PERn9	Receiver differential pair, Lane 9	46	PETn6	Receiver differential pair, Lane 6
47	PERp9	Receiver differential pair, Lane 9	48	PETp6	Receiver differential pair, Lane 6
49	PERn8	Receiver differential pair, Lane 8	50	PETn7	Receiver differential pair, Lane 7
51	PERp8	Receiver differential pair, Lane 8	52	PETp7	Receiver differential pair, Lane 7
53	PERn7	Receiver differential pair, Lane 7	54	PETn8	Receiver differential pair, Lane 8
55	PERp7	Receiver differential pair, Lane 7	56	PETp8	Receiver differential pair, Lane 8
57	PERn6	Receiver differential pair, Lane 6	58	PETn9	Receiver differential pair, Lane 9
59	PERp6	Receiver differential pair, Lane 6	60	PETp9	Receiver differential pair, Lane 9
61	PERn5	Receiver differential pair, Lane 5	62	PETn10	Receiver differential pair, Lane 10
63	PERp5	Receiver differential pair, Lane 5	64	PETp10	Receiver differential pair, Lane 10
65	PERn4	Receiver differential pair, Lane 4	66	PETn11	Receiver differential pair, Lane 11
67	PERp4	Receiver differential pair, Lane 4	68	PETp11	Receiver differential pair, Lane 11
69	PERn3	Receiver differential pair, Lane 3	70	PETn12	Receiver differential pair, Lane 12
71	PERp3	Receiver differential pair, Lane 3	72	PETp12	Receiver differential pair, Lane 12
73	PERn2	Receiver differential pair, Lane 2	74	PETn13	Receiver differential pair, Lane 13
75	PERp2	Receiver differential pair, Lane 2	76	PETp13	Receiver differential pair, Lane 13
77	PERn1	Receiver differential pair, Lane 1	78	PETn14	Receiver differential pair, Lane 14
79	PERp1	Receiver differential pair, Lane 1	80	PETp14	Receiver differential pair, Lane 14
81	PERn0	Receiver differential pair, Lane 0	82	PETn15	Receiver differential pair, Lane 15
83	PERp0	Receiver differential pair, Lane 0	84	PETp15	Receiver differential pair, Lane 15

2 Hardware Requirements

This section provides information on the hardware and software requirements in order for the HIB38-x8-QUAD card to function / operate properly.

2.1 Hardware & System Requirements

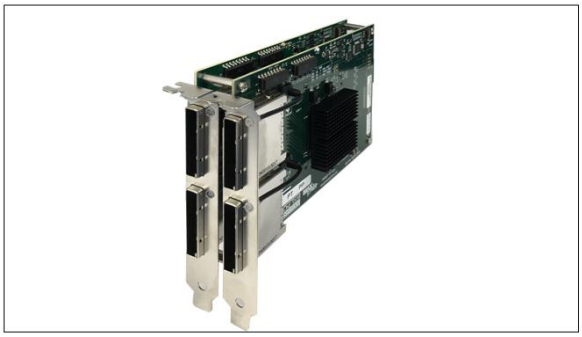
1. Computer / Server motherboard with x16 Gen3 PCIe slot
2. HIB38-x8-QUAD-H, qty 1: Host card
3. HIB38-x8-DUAL-T, qty 1: Target card

NOTE: The HIB38-x8-QUAD, can only operate as Host card. You need a separate Target card.

4. One x8 iPass cable or four x8 iPass cables (depending if you are connecting 4 expansion units). A maximum of four expansion units can be connected to the HIB38-x8-QUAD host card.
5. OSS Expansion chassis with Gen3 backplane, or OSS expansion backplane and power supply.

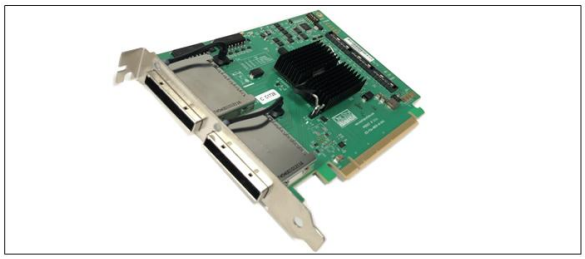
2.1.1 HIB38-x8-QUAD card (Host)

HIB38-x8-QUAD card: OSS-386 and OSS-390 boards are attached together.



2.1.2 HIB38-x8-DUAL card (Target)

HIB38-x8-Dual card: A single OSS-386 board (configured as target).

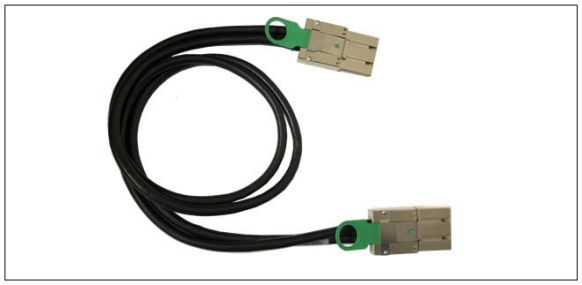


2.1.2 PCIe Slot & Motherboard Requirement

For Host Adapter card: Use a server-computer type motherboard that has a Gen3 x16 PCIe slot in order for the card to operate to its max performance. The Host adapter card is recommended to be installed in a x16 connector.

2.1.3 x8 iPass Cable

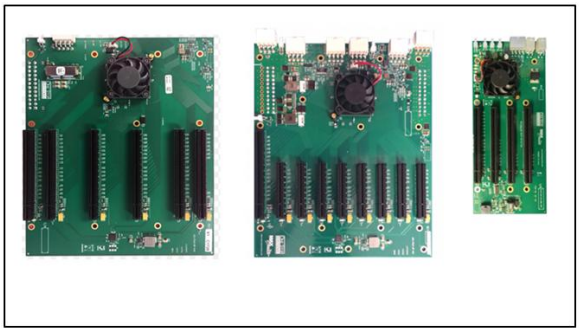
Use x8 iPass cable for connecting between host card and target card.



2.1.4 Expansion Chassis / backplanes

You need an expansion chassis with Gen3 or Gen3 backplane . Photos below are example of an OSS backplanes and an expansion unit. OSS offers a multitude of expansion units and expansion backplanes, please visit our website to get further details on all products. Here is the web link: https://www.onestopsystems.com

The HIB card has custom pin out that unique to OSS and only OSS Target adapters will work in the upstream slot of our expansion backplanes.



OR

2.1.5 ATX Power Supply

If you are using an OSS backplane with the HIB38-x8-DUAL card, you need a power supply unit to provide power. A standard ATX power supply will work with the boards.

2.2 Software Requirement

1. Computer running Windows 7, 8, 10 and or Server
2. No driver is needed

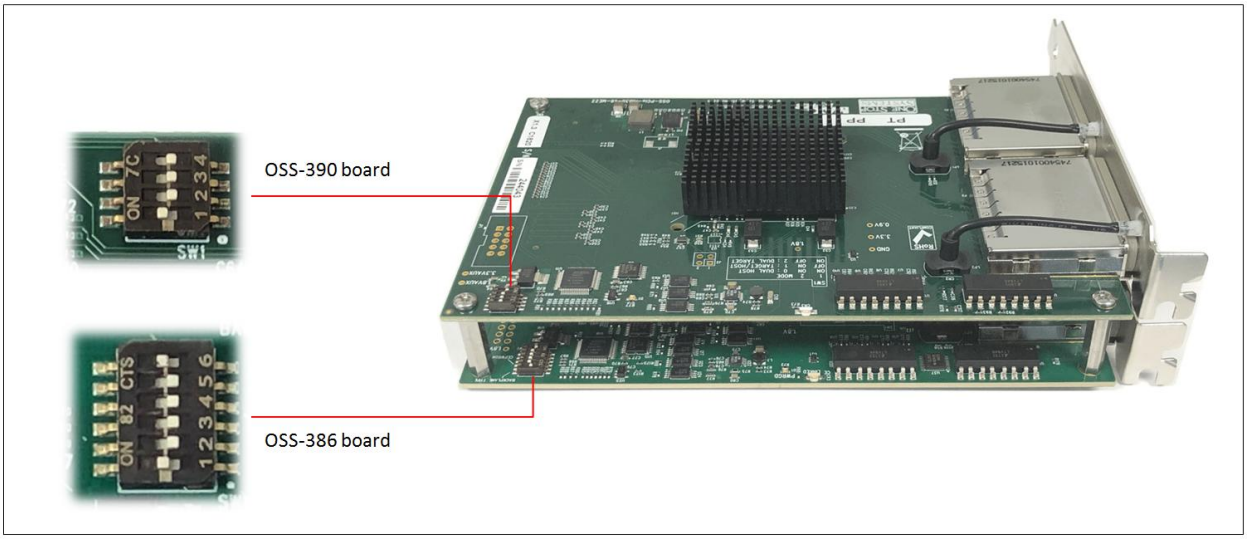
3 Installation Procedures

3.1 Configure Dipswitches

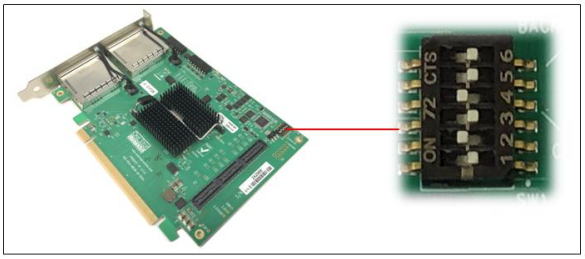
Prior to using the cards, you need to make sure the dipswitches are correctly configured.

Set the dipswitches on HIB38-x8-QUAD card (as host).

- OSS-386 card: set the dipswitches to #1=ON ; #2=OFF; #3=OFF; #4=OFF; #5=OFF; #6=ON
- OSS-390 card: set the dipswitches to #1=ON; #2=OFF; #3=OFF, #4=OFF



Set the dipswitches on the target card, using a separate OSS-386 card (HIB38-x8-DUAL) , see photos below.

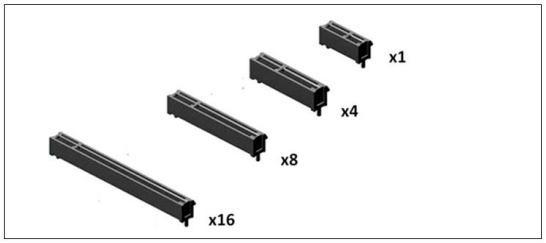


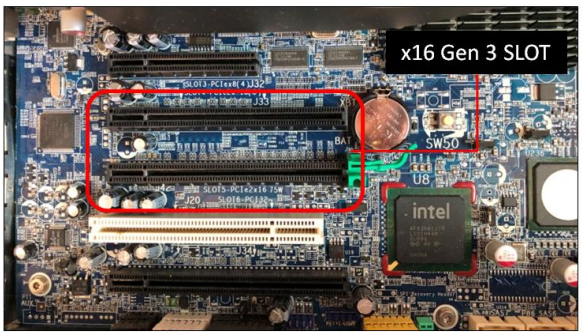
3.2 Install Host card

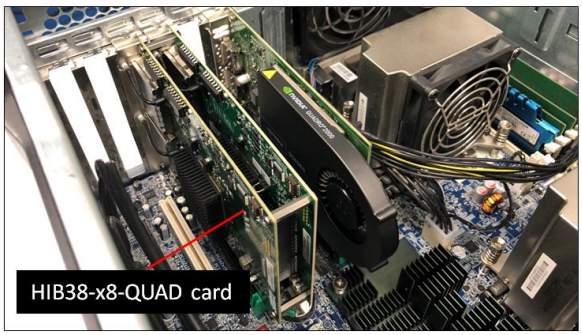
Caution

Power down the host computer first before installing the host card. Do not install the host card while the computer is ON.

- Install the HIB38-x8-QUAD card into the available PCIe slot in the computer's motherboard. Use a x16 Gen3 PCIe slot.
- Make sure to secure the card with a screw.

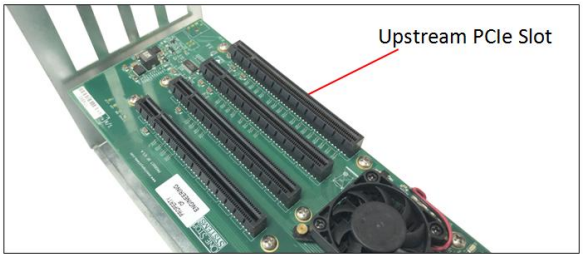






3.3 Install Target card

Install the Target card in the OSS expansion backplane. Plug-in the target card in the "Upstream" slot.



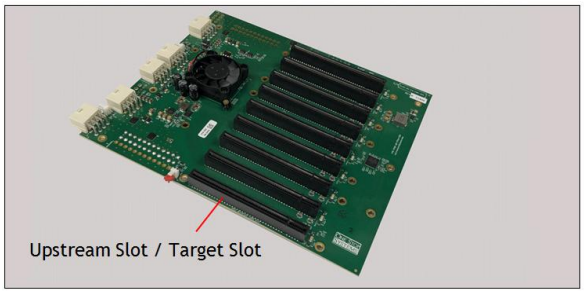
Caution

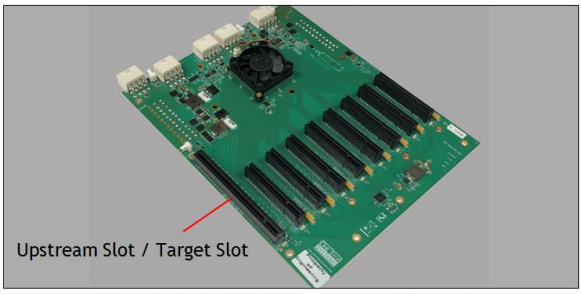
Do not plug in the target card while expansion unit or the expansion backplane is ON as this can damage the board. Turn OFF the unit first before installing the card.

Important

The HIB Target card will only work in the OSS backplane "Upstream" slot. It will not function in the downstream slot or the end-point slot of the backplane.

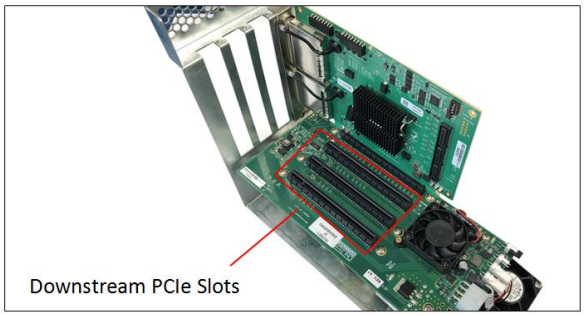
Photos below are some of the different backplanes showing where the locations of the “Upstream” slot.

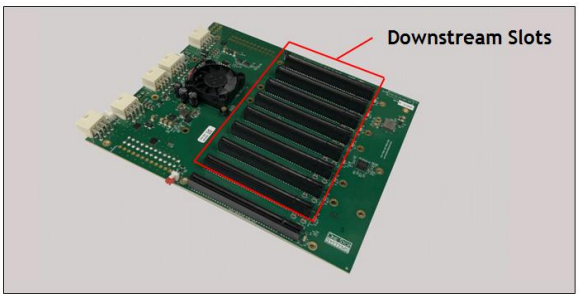


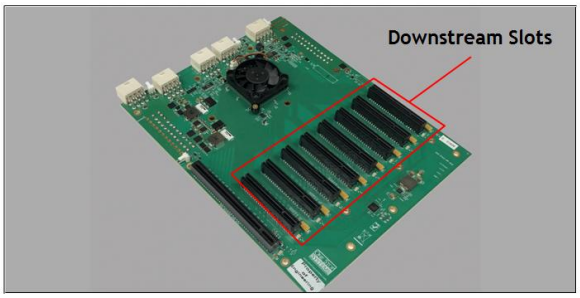


3.4 Install PCIe card

Plug-in your third party PCIe card in the expansion backplane. Use the downstream slot on the OSS backplane. See photos below for the location of the downstream slot / end-point slot.

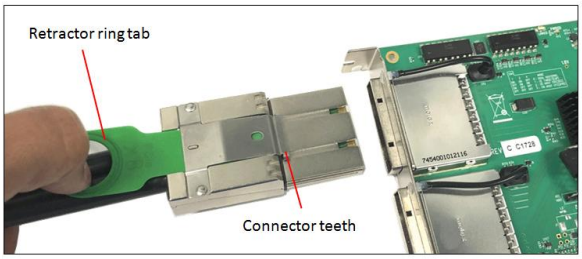


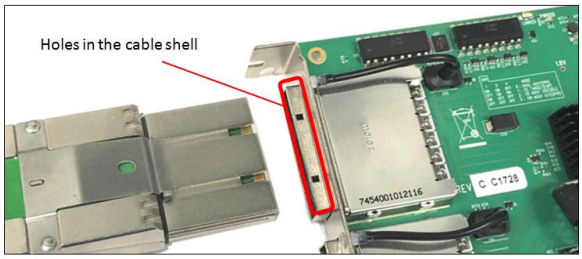




3.5 Install x8 iPass cable

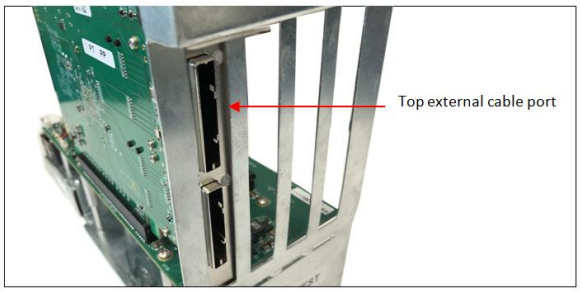
- Attach the cable by first pulling back on the retractor ring. With the keyed slot aligned with the connector key ridge on the slot cover, insert the cable connector into the connector shell on the board **until the connector teeth snap securely into the holes in the cable shell.**
- The connectors on either end of the PCIe x8 cable are identical. Each connector is equipped with a retractor to allow the connector to be locked into place.

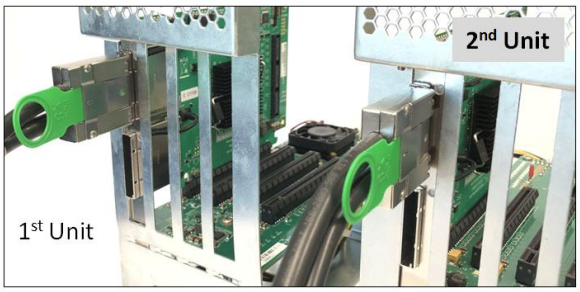


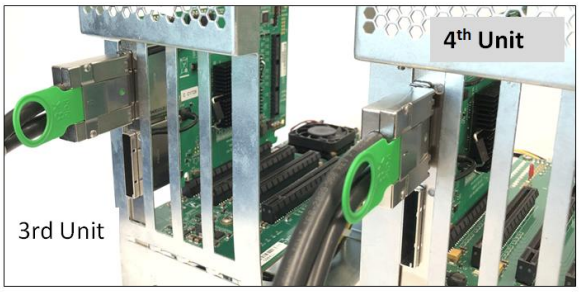


3.5.1 Connect Cable to Target card

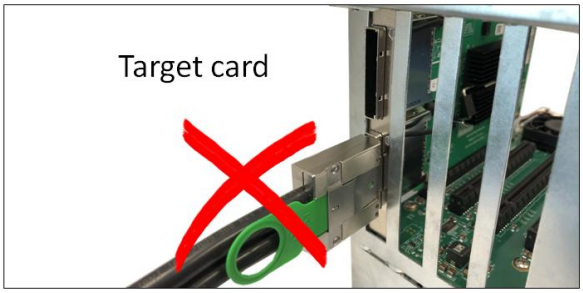
- Plug in the cable to the Target card. Connect the cable to the "top external connector / port". Do not use the bottom port of the card. Make sure the cable is firmly latched in to the cable connectors of the card.
- If you are connecting 4 expansion units, use one cable per expansion unit. See photos below.

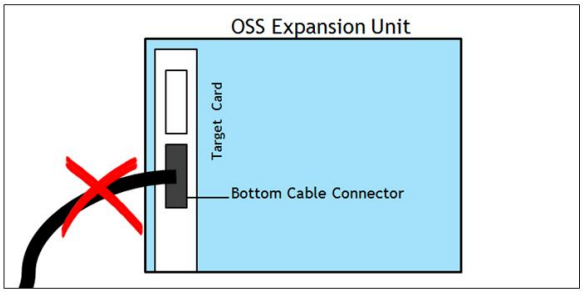






DO NOT connect the cable to the bottom external port of the Target card.





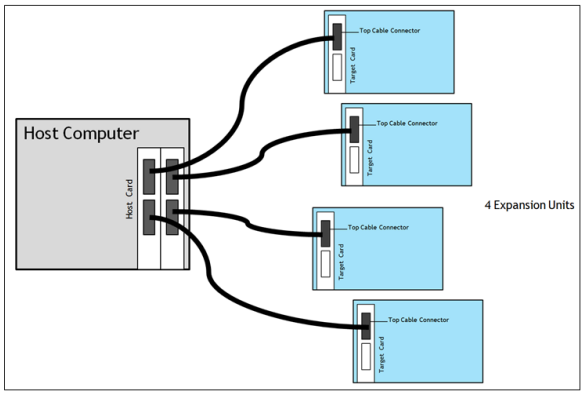
3.5.2 Connect Cable to Host card

- Plug in the other end of the four cables to the Host card. If you are only connecting a single cable, you can either use the top or bottom port of the host card.

3.5.3 Use Case Diagrams

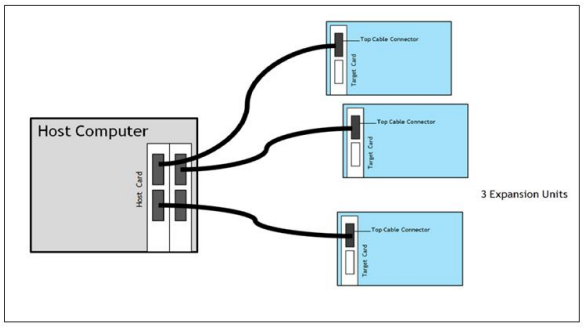
Four expansion units

FIG: A1



Three expansion units

FIG: B1



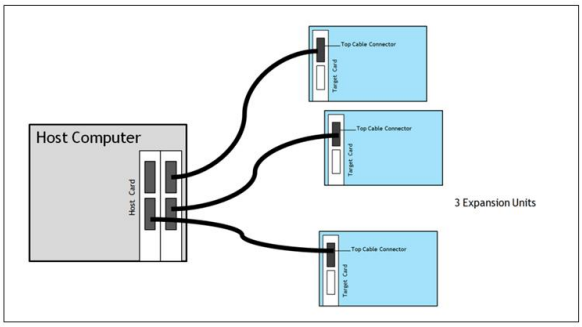
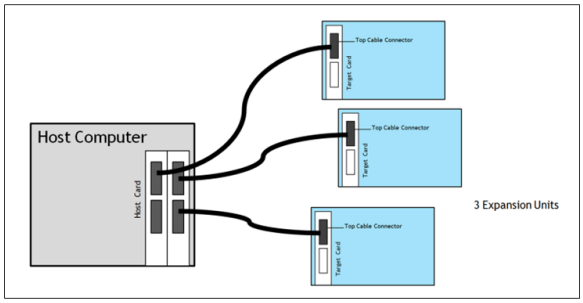
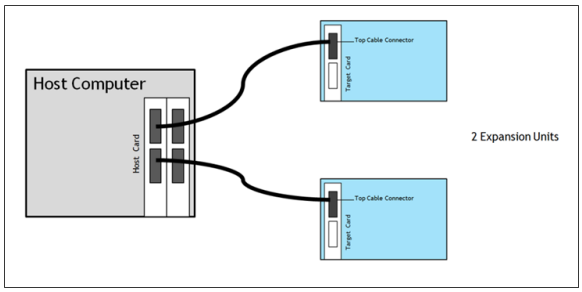


FIG: B2



Two Expansion Units

FIG: C1



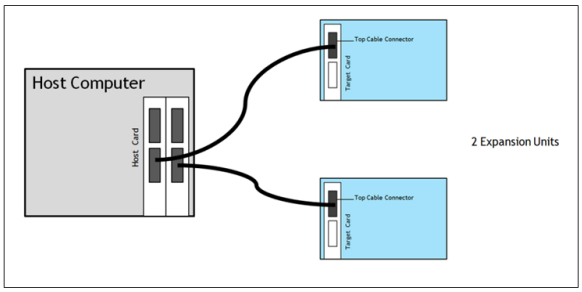
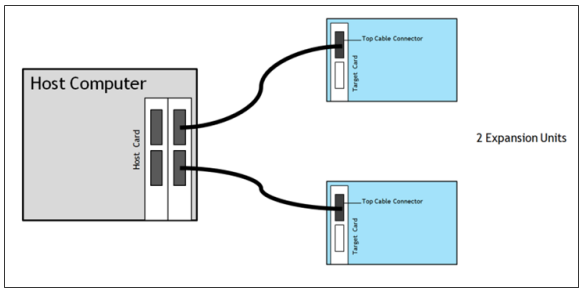
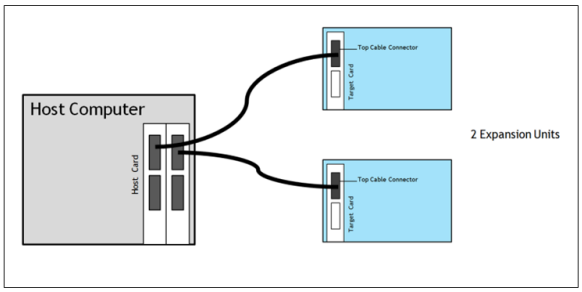


FIG: C2

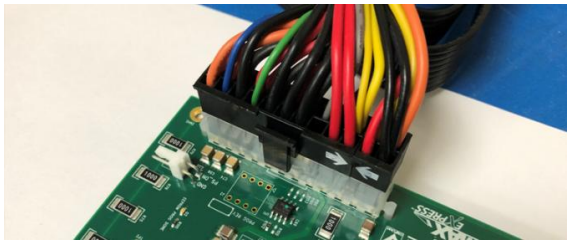




3.6 Connect ATX Power Supply

If you are using an expansion chassis, the power supply is already part of the unit. You can skip this step.

If you are using an expansion backplane, plug-in the ATX power supply cable into the 24pin ATX power connector on the OSS board.



Connect power to the PSU and turn the switch to ON position.

3.7 Power ON the system

- Turn ON the main power of the host computer.
- Start the computer by pushing the power button.
- Upon powering ON the Host system, it will send a sideband signal to the Target card triggering the expansion system to turn ON.

If the expansion unit or the HIB card are not powering ON, check the link cable make sure it is firmly connected. The target and host card must be fully seated in the PCIe slot in order to work correctly.

4 Verify Hardware

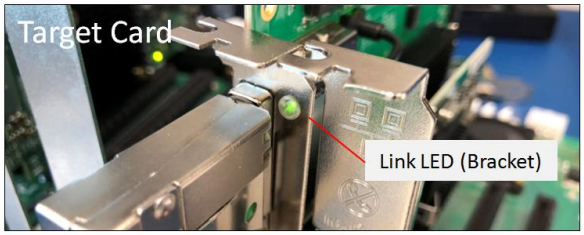
An operational Target and Host cards will have the following LEDs illuminated.

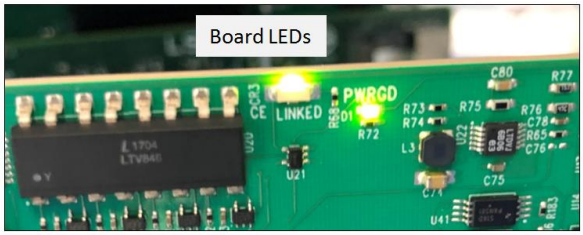
4.1 Target card LEDs

1. Bracket LINK LED: Solid green – Gen 3 or Blinking green – Gen 2 (Blinking frequency: 2Hz). Gen1 (Blinking frequency: 1Hz)

2. Board LEDs :
    - PWRGD – Solid green
    - CE LINKED – Solid green or blinking green, depending on the blink rate.
        - Gen3- solid green
        - Gen2 - Blinking frequency: 2Hz
        - Gen1 - Blinking frequency: 1Hz
        -

NOTE: 1 Hz means it blinks one time per second. Therefore, .25 would be once every 4 seconds and 2Hz would be twice a second.





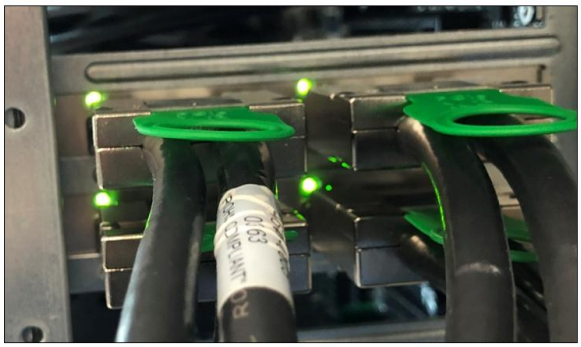
4.2 Host card LEDs

If you have four expansion units that are attached, all four LINK LEDs (located on the bracket) will be illuminated.

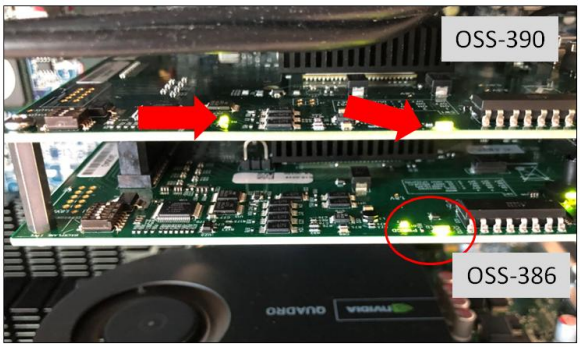
1. Bracket LED : Solid green – Gen 3 or Blinking green – Gen 2 (Blinking frequency: 2Hz). Gen1 (Blinking frequency: 1Hz)

3. Board LEDs :
    - PWRGD – Solid green
    - CE LINKED – Solid green or blinking green, depending on the blink rate.
        - Gen3- solid green
        - Gen2 - Blinking frequency: 2Hz
        - Gen1 - Blinking frequency: 1Hz

Bracket LEDs

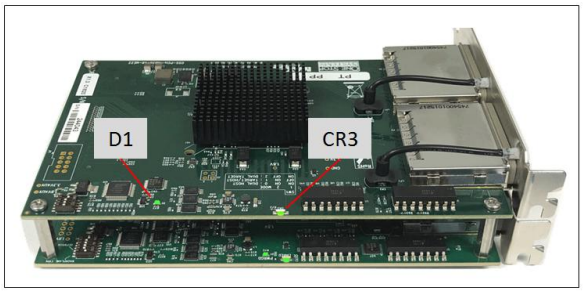


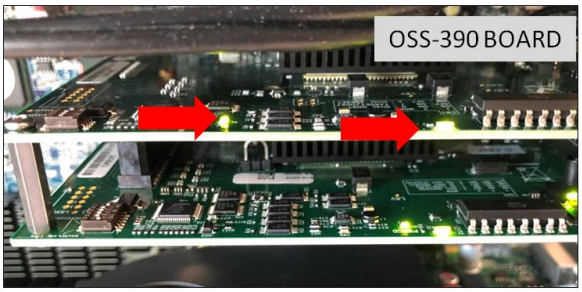
Board LEDs



4.2.1 OSS-390 Board LEDs

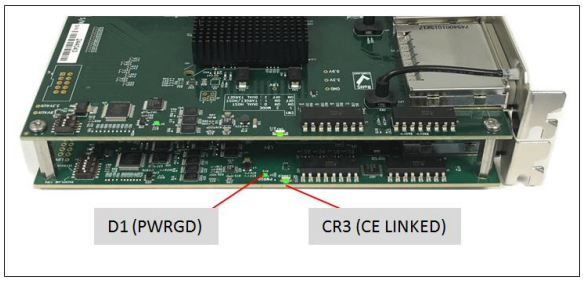
- D1 = green, power good indicator
- CR3 = green, port is good





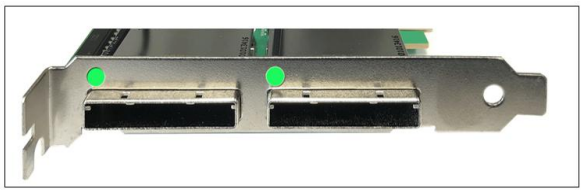
4.2.2 OSS-386 Board LEDs

- D1 (PWRDG) = green, power good indicator
- CR3 (CE LINKED) = green, card edge link indicator

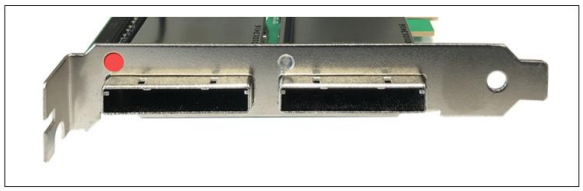


4.3 Bracket Link LED Indicators

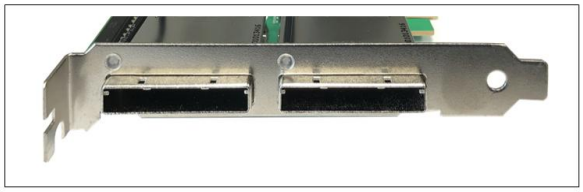
Green – Successful link between host and target



Red – Fatal error on PCIe switch. Faulty.



No LED – No power. No link. Faulty port.



5 Verify Device in Windows OS

In Windows 7, Windows 10 or Windows Server Device Manager, you should see 8 instances of “Base System Device” coming up with a “Blue Question mark” or Yellow exclamation mark. It is normal for the OSS device to show up with the yellow bang, no need to install the driver, the device will operate properly. You can install the driver, you can download it from PLX website. With the PLX driver installed for the Base System Device, it will come up as “PLX PCIe 87xx DMA Controller” with a “blue question mark”.

The HIB38-x8-Card has two boards (OSS-386 and OSS-390) and each board has a PCIe switch. So each board will have “four base system device” with a yellow bang (it means driver is not installed), see photos below.

FIG: A1, screenshot taken from desktop / workstation running Windows OS (Windows 10 and Server OS) without the PLX driver installed.

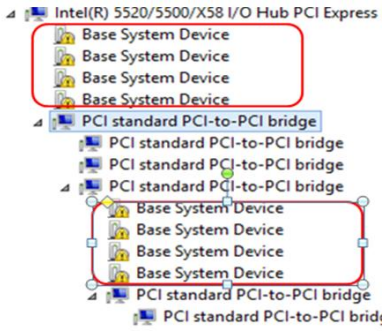
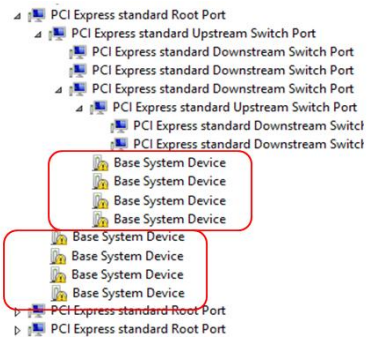
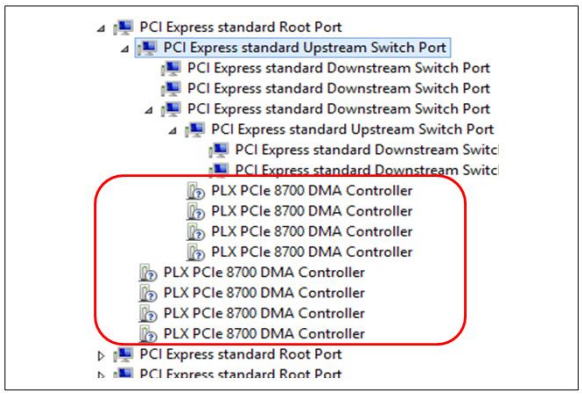
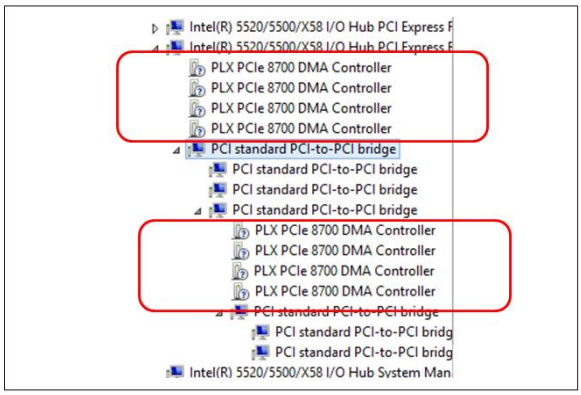


FIG: A2, screenshot taken from a host server running Windows Server 2012 R2 without the PLX driver installed.

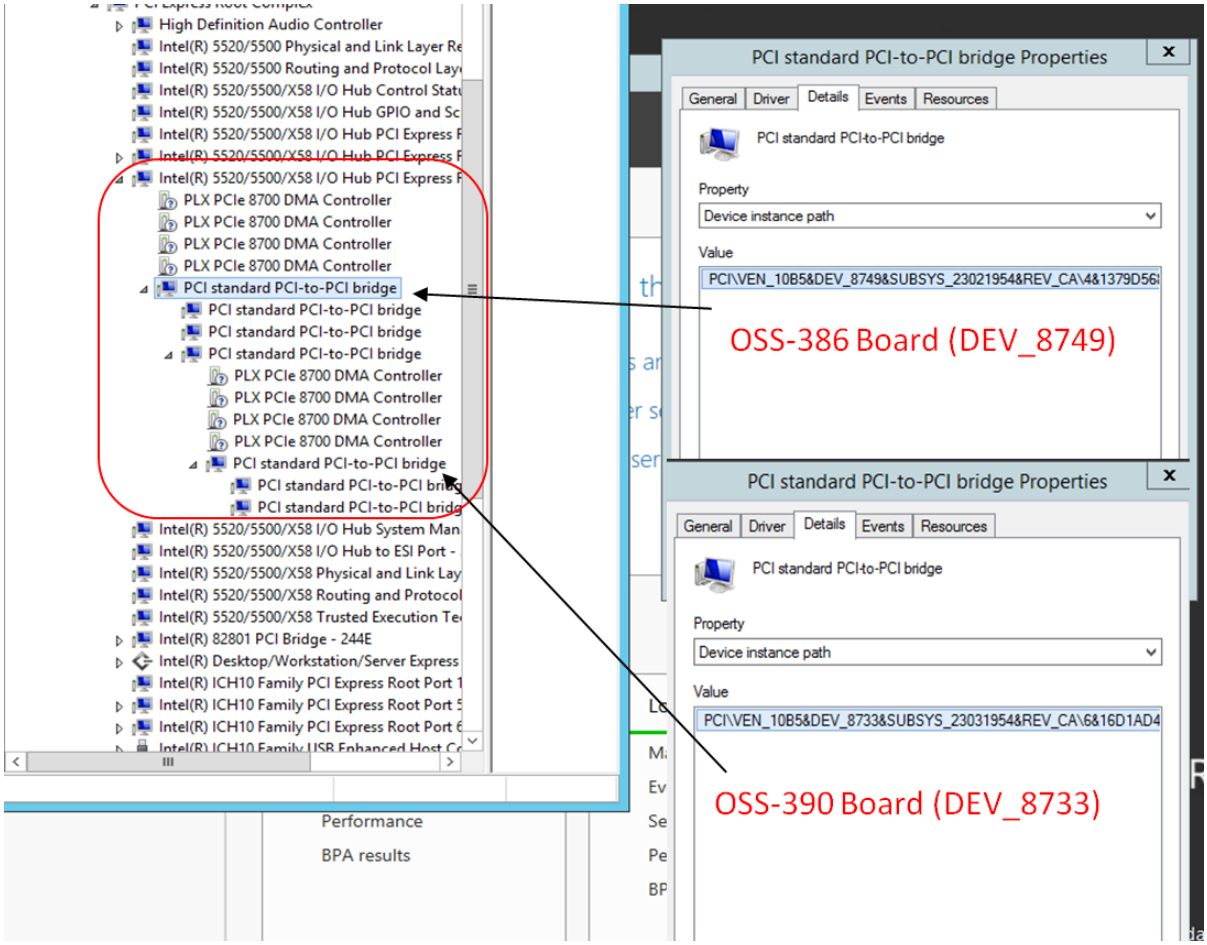


With the PLX driver installed, 8 devices will come up as PLX PCIe 87xx DMA controller with a blue question mark (this is normal).



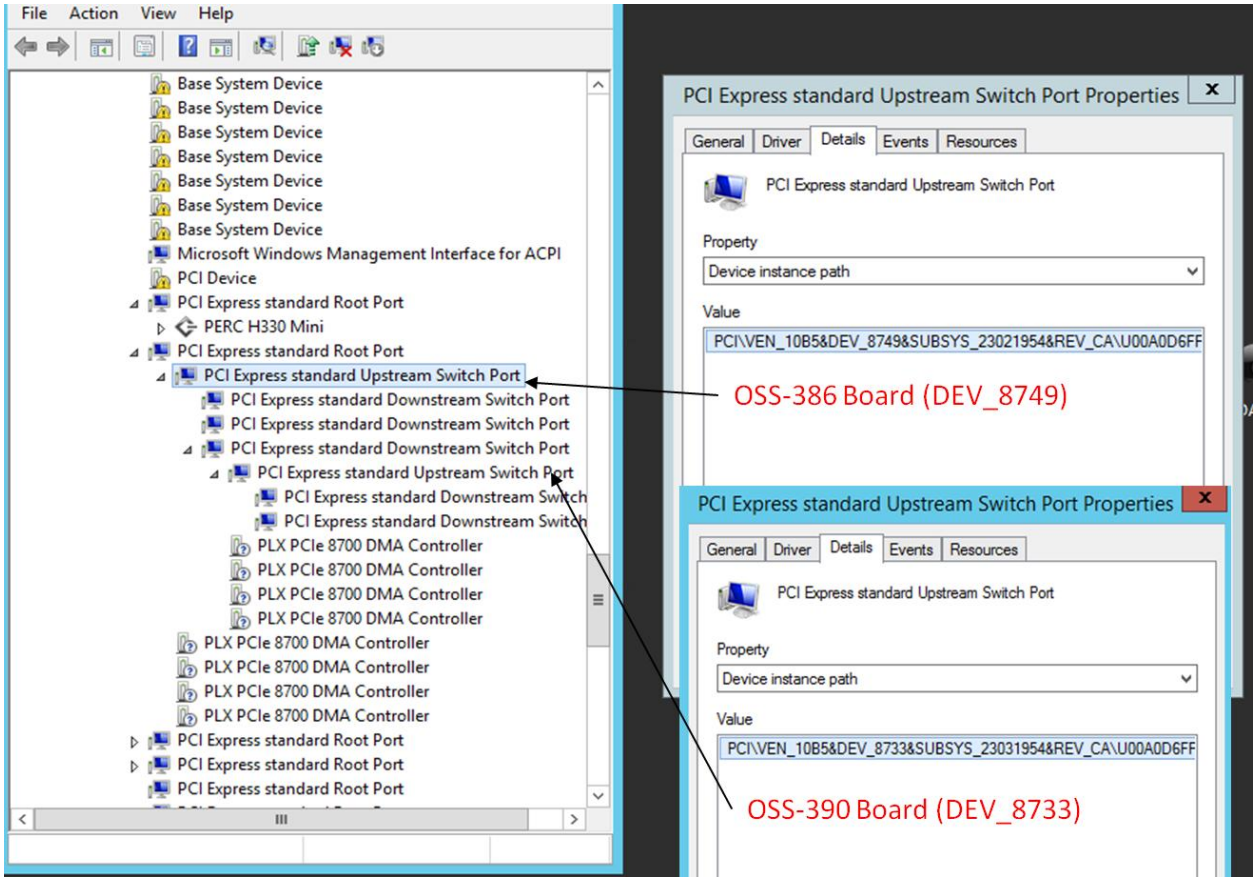


On a standard workstation / desktop computer, if you go to Device Manager and view it "devices by connection", the OSS-386 and 0SS-390 will be enumerated / recognized as "**PCI standard PCI-to-PCI bridge"**, see photos below. The first PCI standard PCI-to-PCI bridge is the OSS-386 board per PLX 8749.



On a server platform running Server OS, the OSS boards will appear below the "***PCI Express standard Root Port***" and come up as "**PCI Express standard Upstream Switch Port" and "PCI Express standard Downstream Switch Port**", see screenshot below.

- The first instance of "PCI Express standard Upstream Switch Port" is the OSS-386 board (DEV_8749)
- The second instance of "PCI Express standard Upstream Switch Port" is the OSS-390 board (DEV_8733)



6 Software Installation

No software or driver is required for the Host Adapter card.

7 How to Get More Help

You can visit the Technical Support FAQ pages on the Internet at https://www.onestopsystems.com/support

7.1 Contacting Technical Support

Our support department can be reached by phone at 1 (760) 745-9883. 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.

7.2 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.

7.3 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.

- https://www.onestopsystems.com/support

2235 Enterprise Street, Suite#110, Escondido CA 92029

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