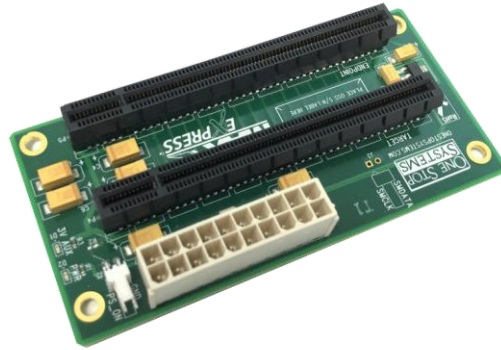




PCIe x16 2.0 Expansion Backplane (2019)

Model: OSS-PCIe-BP-2019



Installation Guide

SKU: OSS-PCIe-BP-2019



OSS
ONE STOP SYSTEMS

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Preface

Advisories

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



NOTE

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



IMPORTANT

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.

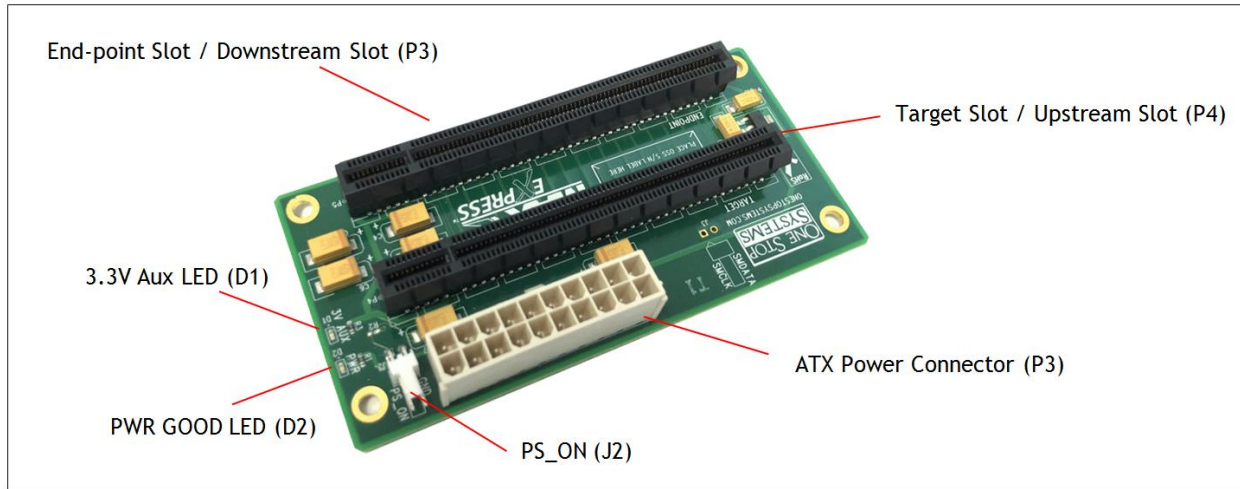
1 Introduction

PCI Express backplane with one PCIe x16 expansion slot with ATX power. Supports up to Gen3 cards.

1.1 Specifications

Item	Description
Form Factor	2 PCIe x16 Slot
Dimensions	2.25" x 4.5"
Power Consumption	Max power dissipation for board only (not counting power delivered to add-on cards) is 1.5 watts
Slot	One Target slot, x16 Gen 2 One End point slot, x16 Gen 2
Operating Temperature	0°C to +85°C environment
Operating Humidity	10% to 90% relative humidity non-condensing
Storage Humidity	5% to 95% relative humidity non-condensing
Industry Specifications	<ul style="list-style-type: none">• PCI Express™ Card Electromechanical Specification, Rev. 2.0• PCI Express® Base Specification, Rev. 2.0• ATX Specification, Version 2.2
Agency Compliance	<ul style="list-style-type: none">• FCC Class A• CE• RoHS
Operating System	Windows 10, Windows Server 2012 R2; Linux OS based

1.2 Overview



- End-point slot (P3): also known as downstream slot. This is the slot where an add-in or plug and play PCIe card is installed. It is a Gen2 x16 slot, accommodate x4, x8 and x16 PCIe cards.
- Target slot (P4): Also known as Upstream slot. Designed for the Target card only. It is a Gen2 x 16 slot.
- PS_ON (J2): Enable force power ON. Forces the power supply to be ON all the time
- ATX Power Connector (P3): 20pin ATX Input Power
- PWR led (D2): Indicates power is present on the board
- 3.3V Aux led(D1): 3.3v aux is present on the board

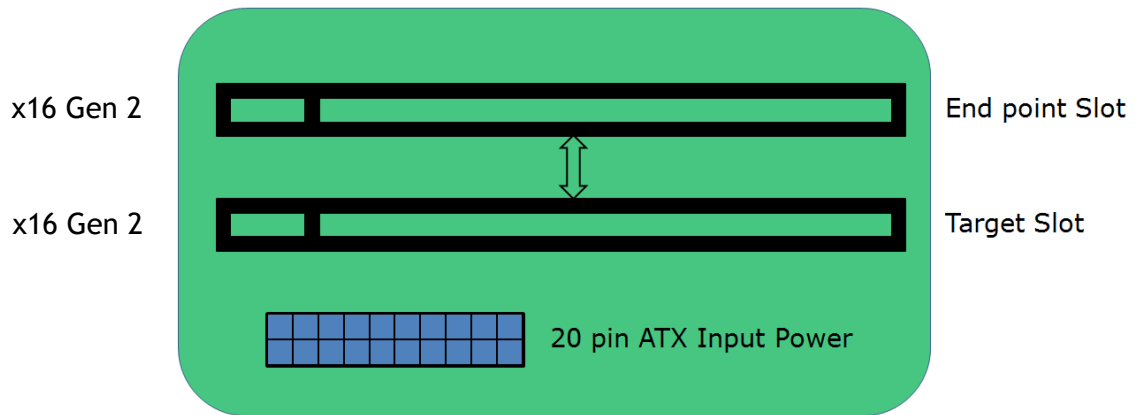
Connector Pin-Outs

Connector	Definition
J2	Force Power ON
P3	ATX Input Power (20 pin)
D2	Power Good LED
D1	3.3v AUX Led

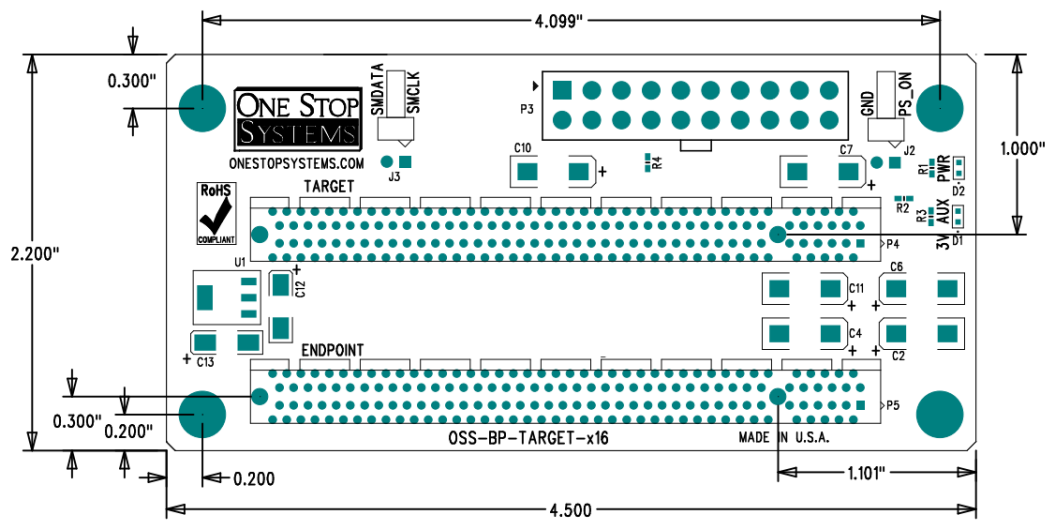
J1—Force Power ON	
PIN	Definition
1	PWR_ON#
2	GND

P3 – 20 PIN ATX Input Power			
Pin	Definition	Pin	Definition
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON#
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWRON	18	NC
9	+5VSB	19	+5V
10	+12V1	20	+5V

1.3 Block Diagram



1.4 Dimensions



1.5 x16 Target Slot Connector Pin Outs

Pin #	Name	Pin #	Name	
B1	+12V	A1	GND	Mechanical Key
B2	+12V	A2	+12V	
B3	+12V	A3	+12V	
B4	GND	A4	GND	
B5	SMCLK	A5	NC	
B6	SMDAT	A6	REFCLK1+	
B7	GND	A7	REFCLK1-	
B8	+3.3V	A8	NC	
B9	PS_ON#	A9	+3.3V	
B10	3.3Vaux	A10	+3.3V	
B11	WAKE#	A11	PERST#	
B12	RSVD	A12	GND	
B13	GND	A13	REFCLK2+	End of the x1 Connector
B14	PETp0	A14	REFCLK2-	
B15	PETn0	A15	GND	
B16	GND	A16	PERp0	
B17	PRSNT_X1#	A17	PERn0	
B18	GND	A18	GND	
B19	PETp1	A19	RSVD	End of the x4 Connector
B20	PETn1	A20	GND	
B21	GND	A21	PERp1	
B22	GND	A22	PERn1	
B23	PETp2	A23	GND	
B24	PETn2	A24	GND	
B25	GND	A25	PERp2	
B26	GND	A26	PERn2	
B27	PETp3	A27	GND	
B28	PETn3	A28	GND	
B29	GND	A29	PERp3	
B30	RSVD	A30	PERn3	
B31	PRSNT_X4#	A31	GND	
B32	GND	A32	RSVD	
B33	PETp4	A33	RSVD	End of the x8 Connector
B34	PETn4	A34	GND	
B35	GND	A35	PERp4	
B36	GND	A36	PERn4	
B37	PETp5	A37	GND	
B38	PETn5	A38	GND	
B39	GND	A39	PERp5	
B40	GND	A40	PERn5	
B41	PETp6	A41	GND	
B42	PETn6	A42	GND	

B43	GND	A43	PERp6
B44	GND	A44	PERn6
B45	PETp7	A45	GND
B46	PETn7	A46	GND
B47	GND	A47	PERp7
B48	PRSNT_X8#	A48	PERn7
B49	GND	A49	GND
B50	PETp8	A50	RSVD
B51	PETn8	A51	GND
B52	GND	A52	PERp8
B53	GND	A53	PERn8
B54	PETp9	A54	GND
B55	PETn9	A55	GND
B56	GND	A56	PERp9
B57	GND	A57	PERn9
B58	PETp10	A58	GND
B59	PETn10	A59	GND
B60	GND	A60	PERp10
B61	GND	A61	PERn10
B62	PETp11	A62	GND
B63	PETn11	A63	GND
B64	GND	A64	PERp11
B65	GND	A65	PERn11
B66	PETp12	A66	GND
B67	PETn12	A67	GND
B68	GND	A68	PERp12
B69	GND	A69	PERn12
B70	PETp13	A70	GND
B71	PETn13	A71	GND
B72	GND	A72	PERp13
B73	GND	A73	PERn13
B74	PETp14	A74	GND
B75	PETn14	A75	GND
B76	GND	A76	PERp14
B77	GND	A77	PERn14
B78	PETp15	A78	GND
B79	PETn15	A79	GND
B80	GND	A80	PERp15
B81	PRSNT_X16#	A81	PERn15
B82	RSVD	A82	GND

End of the
x16
Connector

1.6 x16 End Point Slot Connector Pin Outs

Pin #	Name	Pin #	Name	
B1	+12V	A1	GND	Mechanical Key
B2	+12V	A2	+12V	
B3	+12V	A3	+12V	
B4	GND	A4	GND	
B5	SMCLK	A5	NC	
B6	SMDAT	A6	REFCLK2+	
B7	GND	A7	REFCLK2-	
B8	+3.3V	A8	NC	
B9	NC	A9	+3.3V	
B10	3.3Vaux	A10	+3.3V	
B11	WAKE#	A11	PERST#	
B12	RSVD	A12	GND	End of the x1 Connector
B13	GND	A13	REFCLK1+	
B14	PERp0	A14	REFCLK1-	
B15	PERn0	A15	GND	
B16	GND	A16	PETp0	
B17	PRSNT_X1#	A17	PETn0	
B18	GND	A18	GND	
B19	PERp1	A19	RSVD	End of the x4 Connector
B20	PERn1	A20	GND	
B21	GND	A21	PETp1	
B22	GND	A22	PETn1	
B23	PERp2	A23	GND	
B24	PERn2	A24	GND	
B25	GND	A25	PETp2	
B26	GND	A26	PETn2	
B27	PERp3	A27	GND	
B28	PERn3	A28	GND	
B29	GND	A29	PETp3	
B30	RSVD	A30	PETn3	
B31	PRSNT_X4#	A31	GND	
B32	GND	A32	RSVD	
B33	PERp4	A33	RSVD	End of the x8 Connector
B34	PERn4	A34	GND	
B35	GND	A35	PETp4	
B36	GND	A36	PETn4	
B37	PERp5	A37	GND	
B38	PERn5	A38	GND	
B39	GND	A39	PETp5	
B40	GND	A40	PETn5	

B41	PERp6	A41	GND
B42	PERn6	A42	GND
B43	GND	A43	PETp6
B44	GND	A44	PETn6
B45	PERp7	A45	GND
B46	PERn7	A46	GND
B47	GND	A47	PETp7
B48	PRSNT_X8#	A48	PETn7
B49	GND	A49	GND
B50	PERp8	A50	RSVD
B51	PERn8	A51	GND
B52	GND	A52	PETp8
B53	GND	A53	PETn8
B54	PERp9	A54	GND
B55	PERn9	A55	GND
B56	GND	A56	PETp9
B57	GND	A57	PETn9
B58	PERp10	A58	GND
B59	PERn10	A59	GND
B60	GND	A60	PETp10
B61	GND	A61	PETn10
B62	PERp11	A62	GND
B63	PERn11	A63	GND
B64	GND	A64	PETp11
B65	GND	A65	PETn11
B66	PERp12	A66	GND
B67	PERn12	A67	GND
B68	GND	A68	PETp12
B69	GND	A69	PETn12
B70	PERp13	A70	GND
B71	PERn13	A71	GND
B72	GND	A72	PETp13
B73	GND	A73	PETn13
B74	PERp14	A74	GND
B75	PERn14	A75	GND
B76	GND	A76	PETp14
B77	GND	A77	PETn14
B78	PERp15	A78	GND
B79	PERn15	A79	GND
B80	GND	A80	PETp15
B81	PRSNT_X16#	A81	PETn15
B82	RSVD	A82	GND

End of the
x16
Connector

NC = NOT CONNECTED

2 Hardware Requirements

The following steps will guide you through the installation of your HIB25-x8 Host and Target card.

2.1 Hardware & System Requirements

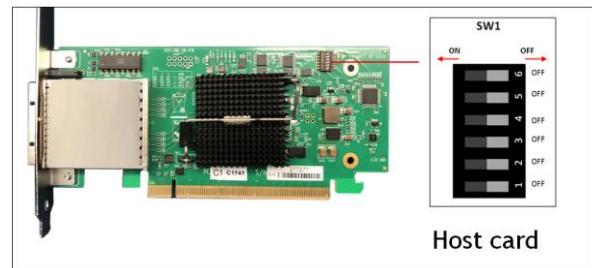
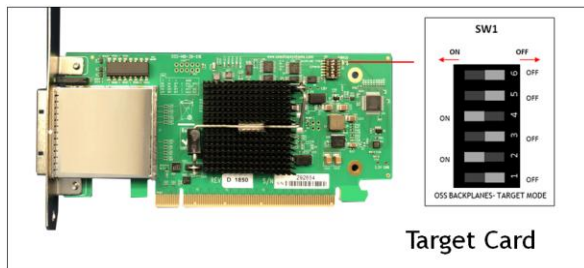
- Computer / Server motherboard with x16 Gen2 PCIe slot.
- Two Cable Adapter cards: OSS Host Card (x16 Gen 2) and OSS Target Card (x16 Gen2). NOTE: The HIB card works in pair (one as host card and other as target card)
- One x16 iPass cable
- Standard ATX Power Supply

2.1.1 PCIe Slot & Motherboard Requirement

Use a computer motherboard with a Gen2 x16 PCIe slot. .

2.1.2 Host and Target Cards

Use a x16 Gen2 Host and Target cards



2.1.3 x16 iPass Cable

Use x16 iPass cable for connecting host card and target card

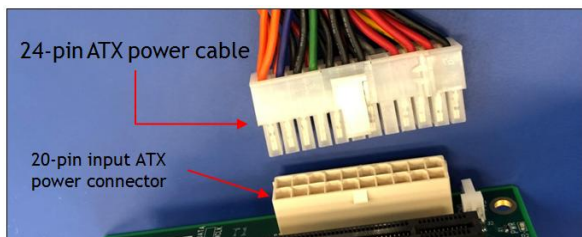


2.1.4 ATX Power Supply

You need an ATX standard power supply. You can use a power supply unit with a 24pin or 20pin power connector.



The INPUT power connector on the backplane has 20 pins. It will work with 24-pin ATX power connector, see photos below.



2.2 Software Requirement

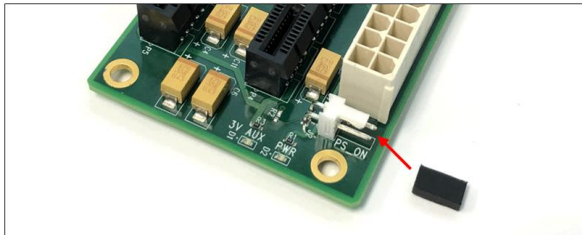
1. Computer running Windows 7, 8, 10 and or Server
2. No driver is needed for the Host card, Target card and backplane.

3 Installation Procedures

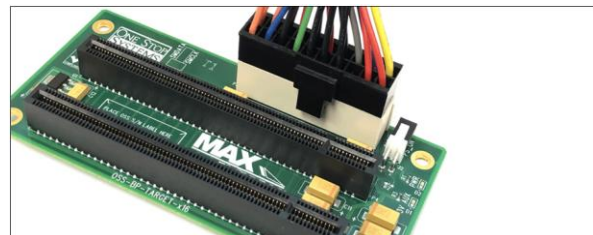
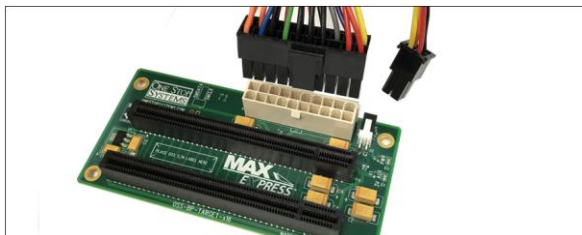
The ATX power cable must be connected first before installing the cable adapter card.

3.1 Connect ATX Power Supply

Place the "JUMPER" on the J2 header (PS_ON)



Plug-in the ATX power supply to the "ATX Input Power" connector on the board.

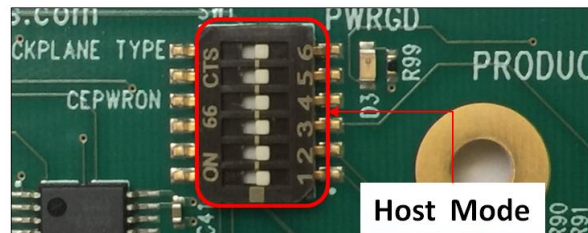
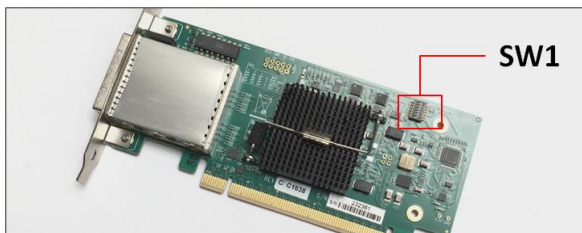


3.2 Select Host and Target Card

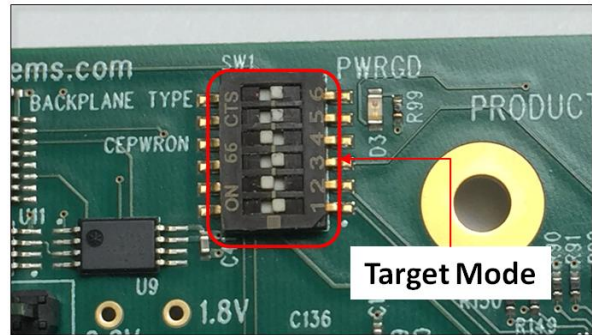
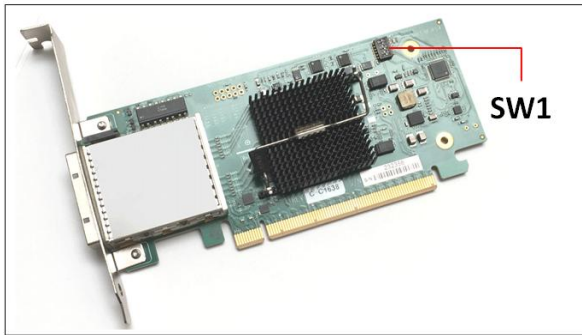


Select the appropriate card to use, makes sure you have the correct host and target cards. Below are photos to help you identify between Target and Host card.

Host card: The card dipswitches are is set to operate in "Host Mode".



Target Card: The card dipswitches are set to operate in "Target Mode"



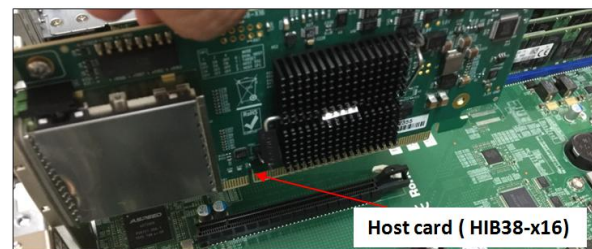
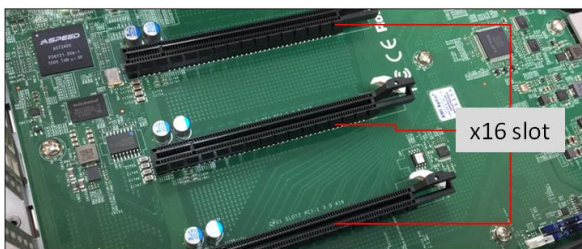
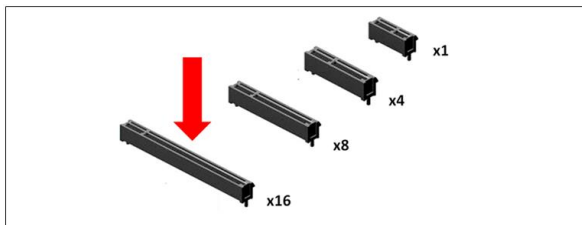
3.3 Install Host card



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

- Install the HIB25-X8 host card into the available PCIe slot in the computer motherboard. Use a x8 or x16 Gen2 PCIe slot.
- Secure the card

Install the host card in the computer. Plug in the host card in the x16 Gen2 PCIe slot. Secure the card.



3.4 Install Target card

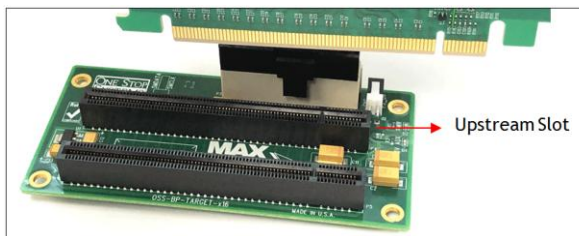


Do not plug in the target card while expansion unit or the expansion backplane is ON as this can damage the board. Turn OFF the unit first before installing the card.



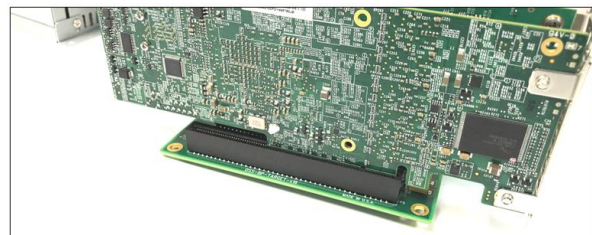
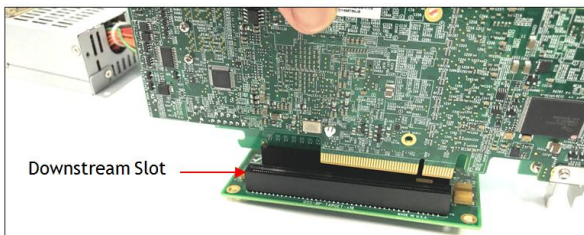
The HIB Target card will only work in the OSS backplane designated “Upstream” slot. It will not function in the downstream slot or the end-point slot of the backplane.

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



3.5 Install PCIe card

Plug-in your 3rd party PCIe card in the expansion backplane. Use the downstream slot of the OSS backplane. See photos below.



3.6 Install link cable

- Connect the PCIe iPass x8 cable between the host and target cards. Plug in the cable to the host card.
- Plug in the other end of the cable to the target card. Make sure the cable is firmly latched in to the cable connectors of the card.

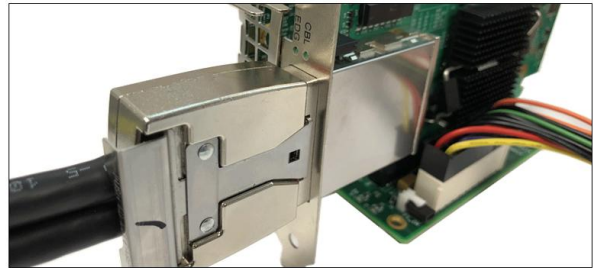
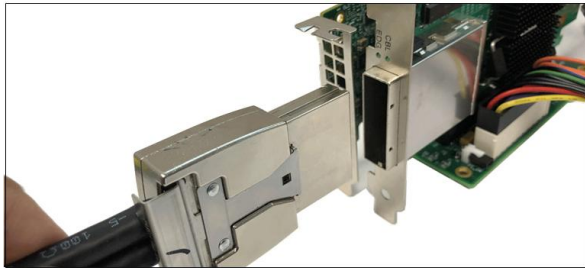
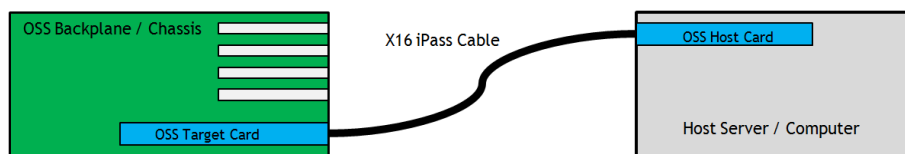


Photo below is a block diagram of an OSS expansion unit linked to a host server / computer.



3.7 Turn ON Power Supply

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



3.8 Power ON the Host system

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

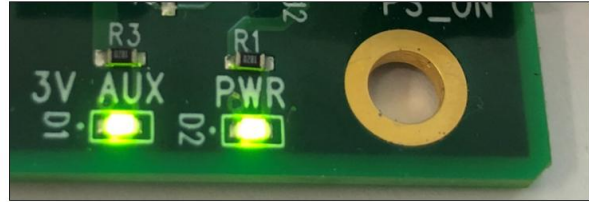
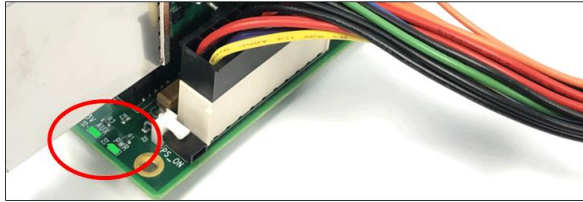


If the expansion unit or the HIB card are not powering ON, check the link cable make sure it is firmly connected. The target and host card must be fully seated in the PCIe slot in order to work correctly.

4 Verify Hardware

On the 1slot backplane, the following LEDs are illuminated.

- D1: 3V AUX LED
- D2: PWR LED



On the x16 host and target cards the following LEDs (located on the bracket) are illuminated.

1. CBL
2. EDG



4.1 LED Definition

CBL – Signal detect on cable*

EDG – Signal detect on card edge*

*Signal detect does not mean it has a link, but rather it identifies there is a signal on the card edge. If the link does not appear to be stable, it could mean that there is a compliance pattern being generated by the PCIe device interfacing with this card.



If the downstream PCIe slot on the backplane is not populated with a PCIe card, the EDG LED on the Target card will be OFF. Only the CBL led is ON (as solid green). On the Host card, both CBL and EDG leds are ON. See photos below



Target Card
CBL = ON
EDG = OFF



Host Card
CBL = ON
EDG = ON

5 Software Installation

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

6 How to Get More Help

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

6.1 Contacting Technical Support

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

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

When submitting an online technical support request always provide a valid working e-mail address, phone number, shipping address and proper contact name. Check your e-mail for an automated response containing the case # and updates. You can also visit our web site at: <https://www.onestopsystems.com/support> for a quick response, use the Technical Support and RMA Request Form available in the Support Section of the website. Simply complete the form with all required information. Please make sure that your problem description is sufficiently detailed to help us understand your problem.

Shipping or Transporting of Expansion Unit with PCI / PCIe cards

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

6.2 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.

6.3 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>



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