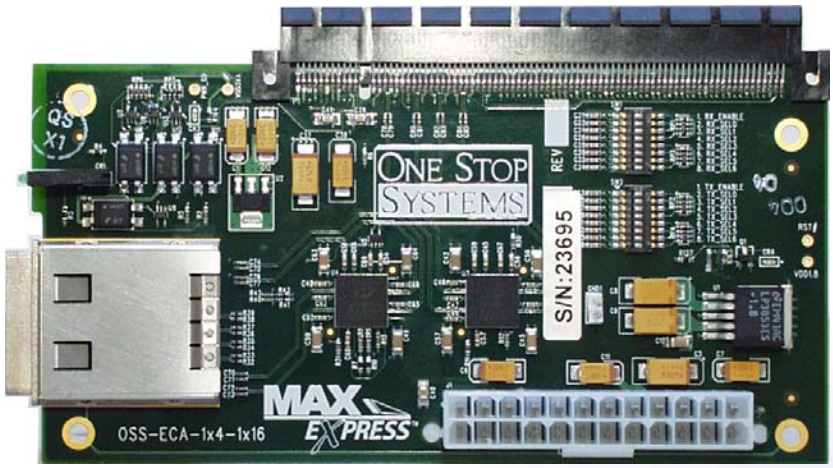
One Stop Systems • 2235 Enterprise Street, Suite #110, Escondido, CA 92029



PCIe x4 Expansion Cable Adapter

OSS-ECA-x4

www.onestopsystems.com
Phone 877-438-2724 • Fax 760-466-1678 • sales@onestopsystems.com

Initial Set-Up

Unpacking Instructions

1. If the carton is damaged when you receive it, request that the carrier's agent be present when you unpack and inspect the equipment.
2. After unpacking, verify that all items listed in the packing list are present.
3. Inspect the equipment for shipping damage.
4. Save all packing material for storage or return shipment of the equipment.

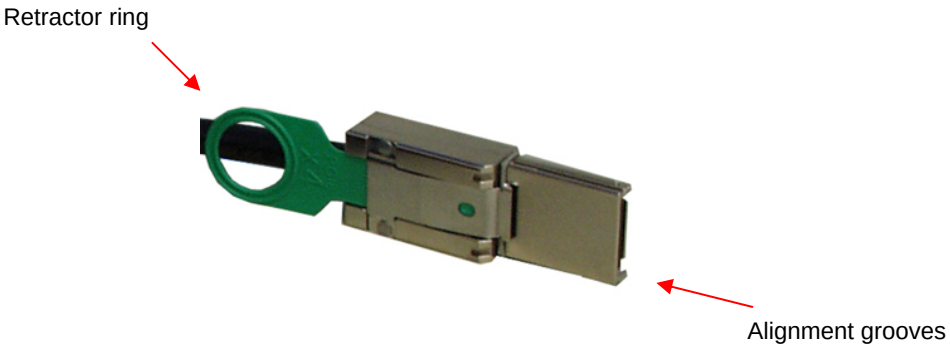
Installation and Removal

1. Power down the host system.
2. Open the chassis according to your system documentation.
3. Let the power supply cool down, if necessary.
4. Remove the Expansion Cable Adapter from the protective bag, observing proper ESD safety procedures.

Installing the Host Cable Adapter:

1. Install the ECA into a Chassis with mounting holes on the card.
2. 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 cable port connector on the board until the cable locks in place.
3. The connectors on either end of the PCIe x4 cable are identical. Each connector is equipped with a retractor to allow the connector to be locked into place.

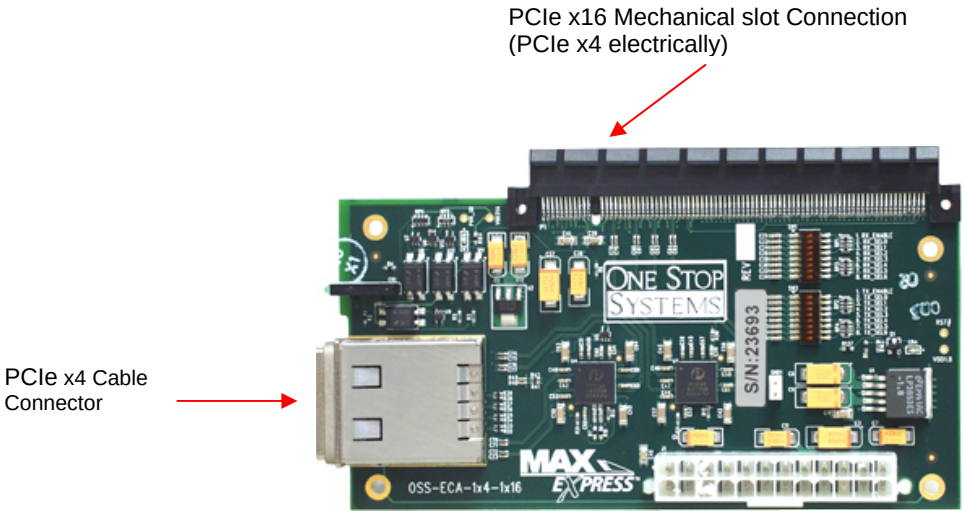
Retractor on Cable Connector



4. Attach the other end of the cable to the upstream port connector of the ELB in the expansion enclosure. To link to a second expansion enclosure, connect a second cable from the downstream port connector on the ELB of the first expansion enclosure to the upstream port connector on the ELB of the second enclosure.

Description

The ECA is a free-standing adapter board that transfers the PCIe bus from a x4 cable connector to a x4 link slot with a x16 connector.

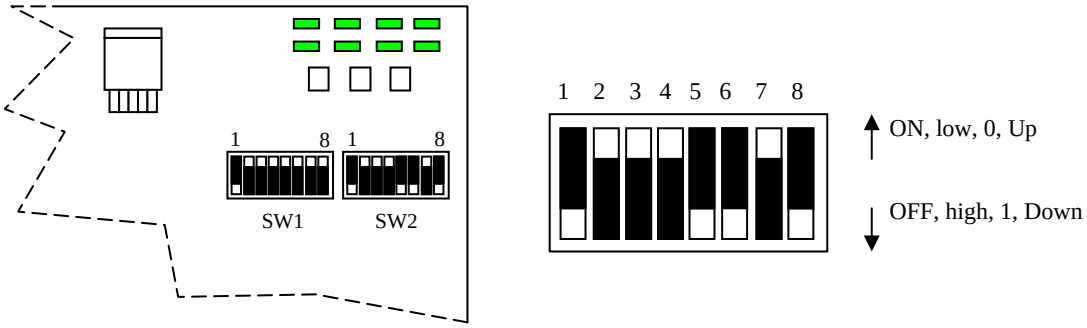


Specifications

Electrical/Mechanical Specifications	
Form Factor:	PCI Express x4 PCIe short add-in card
Dimensions (H x L):	2.7 x 6.6 inches (69 x 161 mm)
Front Panel Connectors:	Molex 75586-0010
Front Panel Indicators:	Power On / Cable Present LEDs
Power Consumption (designed to meet the following conditions)	
	3.75W maximum; 3.3V @ 1.75; 2.6W; .5A @ 5 Vaux
Operating Environment (designed to meet the following conditions)	
Temperature Range:	0° to 70°C (32° to 122°F)
Relative Humidity:	10 to 90% non-condensing
Shock:	30g acceleration peak (11ms pulse)
Vibration:	5-17 Hz 0.5” double amplitude displacement; 7-2000Hz, 1.5g acceleration.
Redriver	
Pericom PI2EQX4401	
Agency Compliance Designed to meet, but not tested	
	UL60950, FCC Class B, CE safety and emissions

Switches

The OSS-ECA-x4 contains two x8 micro switches that allow configuration of the Pericom PI2EQX4401D's equalization, amplification and de-emphasis circuitry. The two switches, SW1 and SW2, are located above the Pericom devices on the front side of the PCB.



SW1 and SW2 Switch Location and Orientation

Switch SW1 Settings

Switch #	Signal Name	Default*	Comments
1	ENABLE	Down	Up = Disable all Lanes Down = Normal operation
2	RX_SEL0	Up	Rx Equalizer Selection See Table 1
3	RX_SEL1	Up	
4	RX_SEL2	Up	
5	RX_SEL3	Up	Rx Amplifier Selection See Table 2
6	RX_SEL4	Up	
7	RX_SEL5	Up	Rx De-Emphasis Selection See Table 3
8	RX_SEL6	Up	

Switch SW2 Settings

Switch #	Signal Name	Default *	Comments
1	N/C		Not connected
2	TX_SEL 0	Up	Tx Equalizer Selection See Table 1
3	TX_SEL 1	Up	
4	TX_SEL 2	Up	
5	TX_SEL 3	Down	Tx Amplifier Selection See Table 2
6	TX_SEL 4	Down	
7	TX_SEL 5	Up	Tx De-Emphasis Selection See Table 3
8	TX_SEL6	Down	

Table 1

2	3	4	Equalization
0	0	0	No Equalization
0	0	1	1.5db @ 1.25 GHz
0	1	0	2.5db @ 1.25 GHz
0	1	1	3.5db @ 1.25 GHz
1	0	0	4.5db @ 1.25 GHz
1	0	1	5.5db @ 1.25 GHz
1	1	0	5.5db @ 1.25 GHz
1	1	1	7.5db @ 1.25 GHz

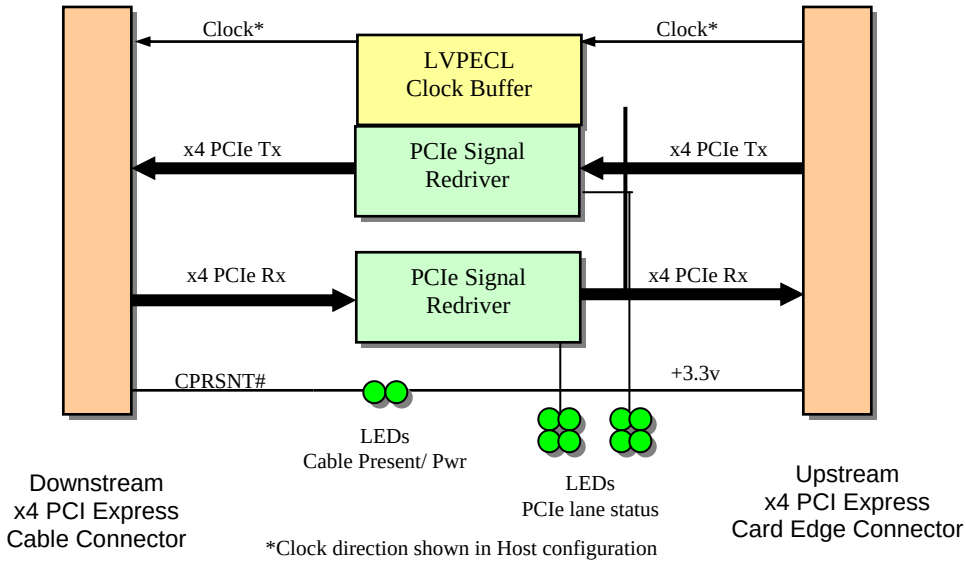
Table 2

5	6	Swing
0	0	1x
0	1	0.8x
1	0	1.2x
1	1	1.4x

Table 3

7	8	De-emphasis
0	0	0db
0	1	-2.5db
1	0	-3.5db
1	1	-4.5db

Block Diagram



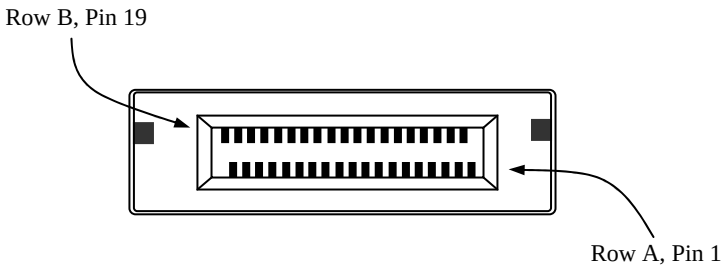
Connectors PCIe x4 Card Edge Connector

- The pins are numbered as shown with side A on the top of the centerline on the solder side of the board and side B on the bottom of the centerline on the component side of the board.
- The PCIe interface pins PETpx, PETnx, PERpx, and PERnx are named with the following convention: “PE” stands for PCIe high speed, “T” for Transmitter, “R” for Receiver, “p” for positive (+), and “n” for negative (-).
- Note that adjacent differential pairs are separated by two ground pins to manage the connector crosstalk.

PCI Express x4 Cable Connector

The PCI Express x4 connector is a 38 position edge card connector with metallic shell as defined in the PCI Express External Cabling Rev 1.0, Molex part number 75586-0010, or equivalent. On the x4 connector, the pins are recessed far back inside the EMI Housing Guide (metallic shell) and are not easily accessed.

PCI Express x4 Connector Pin Assignment



Pin #	Cable Side 1		Cable Side 2	Pin #
A1 A4 A7 A10 A13 A16 B1 B4 B7 B10 B13	GND	Drain Wires	GND	A1 A4 A7 A10 A13 A16 B1 B4 B7 B10 B13
A2	PETp0	Differential Pair	PERp0	B2
A3	PETn0	Differential Pair	PERn0	B3
A5	PETp1	Differential Pair	PERp1	B5
A6	PETn1		PERn1	B6

PCI Express x4 Cable Connector (Continued)

Pin #	Cable Side 1		Cable Side 2	Pin #
A8	PETp2	Differential Pair	PERp2	B8
A9	PETn2		PERn2	B9
A11	PETp3	Differential Pair	PERp3	B11
A12	PETn3		PERn3	B12
A14	CREFCLK+	Differential Pair	CREFCLK+	A14
A15	CREFCLK		CREFCLK-	A15
A17	SB_RTN	Hook-up Wire	SB_RTN	A17
A18	CPRSNT#	Hook-up Wire	CPRSNT#	A18
A19	CPWRON	Hook-up Wire	CPWRON	A19
B2	PERp0	Differential Pair	PETp0	A2
B3	PERn0		PETn0	A3
B5	PERp1	Differential Pair	PETp1	A5
B6	PERn1		PETn1	A6
B8	PERp2	Differential Pair	PETp2	A8
B9	PERn2		PETn2	A9
B11	PERp3	Differential Pair	PETp3	A11
B12	PERn3		PETn3	A12
B14	PWR	NC	PWR	B14
B15	PWR	NC	PWR	B15
B16	PWR_RTN	NC	PWR_RTN	B16
B17	PWR_RTN	NC	PWR_RTN	B17
B18	CWAKE#	Hook-up Wire	CWAKE#	B18
B19	CPERST#	Hook-up Wire	CPERST#	B19
Backshell	Chassis Ground	Overall Cable Braid	Chassis Ground	Backshell