PCIe x1 Cable Adapter

Cabled PCI Express Adapter Card

FEATURES

- PCI Express to Cable adapter
- PCI Express x1 PCIe 1.0a host interface
- Transparent operation
- Full rate operation (2.5 Gbps full duplex)
- Supports cable lengths up to 7 meters
- Complies with PCI SIG PCI Express External Cable Specification 1.0
- End bracket adapts to standard PCI Express desktop slot
- PCI Express card

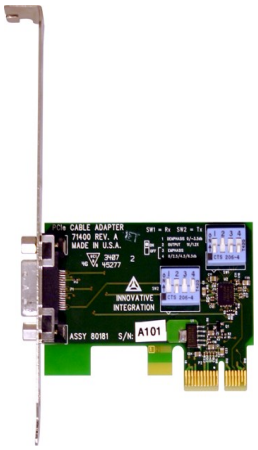
APPLICATIONS

- Remote PCI Express peripheral expansion
- Chassis expansion

SOFTWARE

- No software required

Cable is ordered separately.



RoHS 2002/95/EC Compliant

DESCRIPTION

The PCI Express Cable adapter provides a an interface from a standard desktop PCIe slot to a PCI Express cable. This card conforms to PCI SIG PCI Express External Cable Specification 1.0.

The adapter is completely transparent to PCI Express. A signal repeater for the PCI Express interface provides tuning controls transmit and receive signals, allowing cables up to 7 meters in length to be reliably used.

The adapter can be used in any desktop slot supporting PCI Express 1.0 specification. The adapter has a standard end bracket for mounting in desktop or server systems.

No software is required to operate the adapter.

05/29/09

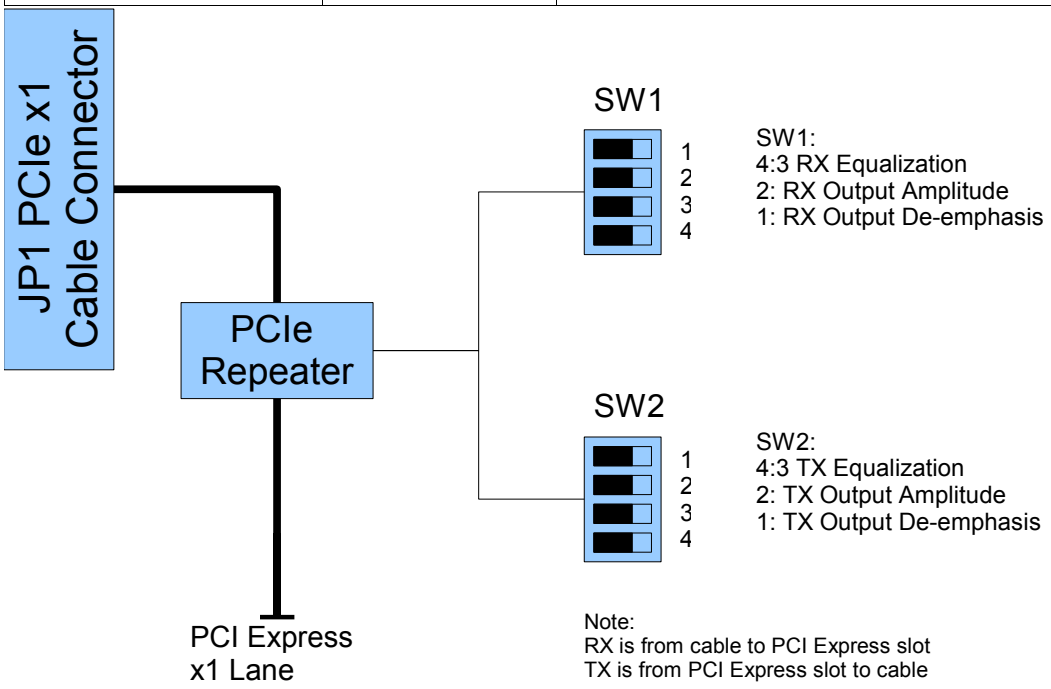
PCIe x1 Cable Adapter

This electronics assembly can be damaged by ESD. Innovative Integration recommends that all electronic assemblies and components circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

ORDERING INFORMATION

Product	Part Number	Description
PCI Express Cable Adapter	80181-0	Cable adapter for PCI Express (single lane)
5m PCI Express Cable	67057	5 meter PCI Express cable, single lane
1m PCI Express Cable	67059	1 meter PCI Express cable, single lane



PCIe x1 Cable Adapter

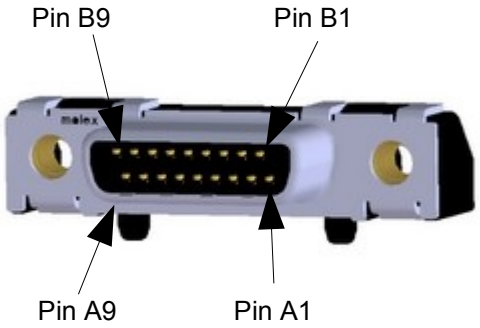
P1 - PCIe Cable Connector

Connector: Molex 74150-001 or equivalent

Mating Cable: Molex 7457600005 (II P/N 67057)

Pins	Power
A1/A2	PEX_RXn/p
A5/A6	PEX REFCLKn/p
B8/B9	PEX Txn/p
A9, B1, B5	GROUND
A8	PEX RESETn
B3	WAKEn
B4	PRESENTn
B7	PWR ON
A4	SB_RTN
A3, A7, B2, B6	No Connects

Caution: incorrect connections may cause damage!



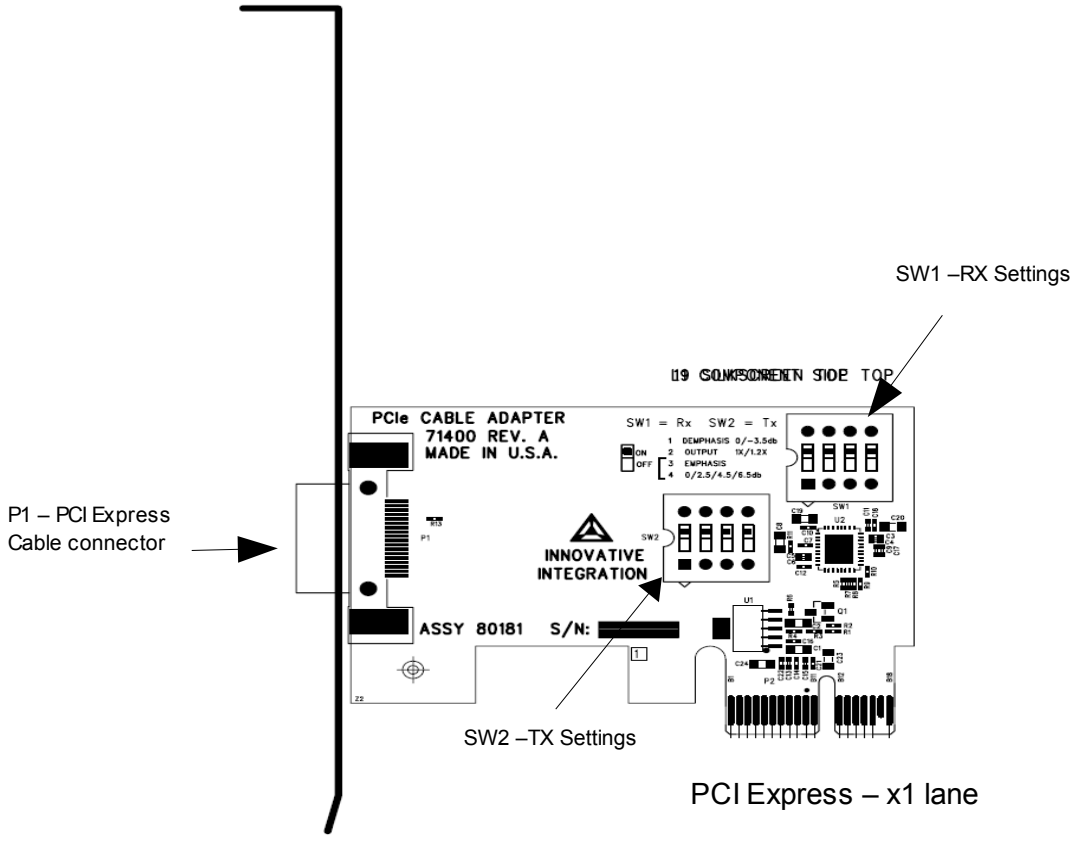
Host Interface	
Type	PCI Express; single lane
Interface Standard	PCIe 1.0a
Transfer Rate	2.5 Gbps full duplex

Physicals	
Form Factor	PCI Express single lane desktop card
Size	1.50 in x 2.68 in
Weight	40g
Hazardous Materials	Lead-free and RoHS compliant

Power Requirements	
Supply Voltage	3.3V +/- 10%
Supply current	200 mA maximum
Power Consumption	500 mW maximum
Power Down	10 mW when PRSNT_N is low

PCIe x1 Cable Adapter

ABSOLUTE MAXIMUM RATINGS !Exposure to conditions exceeding these ratings may cause damage!				
Parameter	Min	Max	Units	Conditions
Supply Voltage, 3.3V to GND	+3.0	+3.6	V	
Operating Temperature	0	70	C	Non-condensing, forced air cooling required
Storage Temperature	-65	+150	C	
ESD Rating	-	1k	V	Human Body Model
Vibration	-	5	g	9-200 Hz, Class 3.3 per ETSI EN 300 019-1-3 V2.1.2 (2003-04) (DIP switches removed)
Shock	-	40	g peak	Class 3.3 per ETSI EN 300 019-1-3 V2.1.2 (2003-04) (DIP Switches removed)



PCIe x1 Cable Adapter

Applications Information

Performance Tuning
The PCI Express repeater may be tuned for receive and transmit signal amplitude, de-emphasis , and equalization. These parameters are used to improve signal quality over the PCI Express cable.

Switches SW1 and SW2 are used for the receive and transmit tuning. These are dip switches located on the card which must be set manually during the tuning procedure. The default settings are the recommended settings for most applications.

Switch	Tuning Control	Default (4:1)
SW1	Receive (cable to PCI Express)	1111 (off-off-off-off)
SW2	Transmit (PCI Express to cable)	1111 (off-off-off-off)

Switch	Function	Settings	Notes
4:3	Receive equalization	00 = no equalization 01 = 0 : 2.54 dB 10 = 2.5 : 4.5 dB 11 = 4.5 : 6.5 dB	SW1: Tunes the cable for PCI Express signals received from the remote device SW2: Tunes the signals received from the host PCI Express Higher equalization is usually required for longer cables
2	Output swing	0 = 1x 1 = 1.2x	Higher output swing is usually required for longer cables
1	Output De-emphasis	0 = 0 dB 1 = -3.5 dB	Output De-emphasis may be required for short cables or for signals to the PCI Express host bus.

Note: Switches in the ON position are 0 in this table.

The recommended tuning procedure is to connect the adapter to the remote device and perform a test for data integrity. This could be a large data transfer or communications test to the remote device. The signal tuning should be changed until reliable data transfers are achieved.

Innovative provides test programs to validate connection quality for its data acquisition cards that are included with each XMC module.

Hot Plug
The PCI Express cable adapter can be used in hot plug applications if the remote end properly isolates the sideband signals. The adapter uses the PRSNT_N (presence) signal to enable the data lane and PCI Express reference clock. These signals are inactive and held in a high impedance state until the PRSNT_N signal is low.

In a hot plug system, the sideband signals such as PERST_N, WAKE_N and PWRON must be isolated on the remote device. Return currents for the isolated signals is provided on P1, pin A4 (SB_RTN). The signals should be electrically isolated from the remote device, typically using opto-isolation. Refer to the PCI Express External Cable Specification for further details.

PCIe x1 Cable Adapter

Software Driver

No software is required.

Cables

The adapter must be used with a cable meeting the requirements of PCI SIG PCI Express External Cable Specification 1.0. The cable must support full rate 2.5 Gbps lane transfer rates to operate reliably with the adapter.

Qualified cables are available from Innovative in 1 and 5 meter lengths.

PCIe x1 Cable Adapter

IMPORTANT NOTICES

Innovative Integration Incorporated reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to Innovative Integration's terms and conditions of sale supplied at the time of order acknowledgment.

Innovative Integration warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with Innovative Integration's standard warranty. Testing and other quality control techniques are used to the extent Innovative Integration deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Innovative Integration assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using Innovative Integration products. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

Innovative Integration does not warrant or represent that any license, either express or implied, is granted under any Innovative Integration patent right, copyright, mask work right, or other Innovative Integration intellectual property right relating to any combination, machine, or process in which Innovative Integration products or services are used. Information published by Innovative Integration regarding third-party products or services does not constitute a license from Innovative Integration to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from Innovative Integration under the patents or other intellectual property of Innovative Integration.

Reproduction of information in Innovative Integration data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice.

Innovative Integration is not responsible or liable for such altered documentation. Resale of Innovative Integration products or services with statements different from or beyond the parameters stated by Innovative Integration for that product or service voids all express and any implied warranties for the associated Innovative Integration product or service and is an unfair and deceptive business practice. Innovative Integration is not responsible or liable for any such statements.

For further information on Innovative Integration products and support see our web site:

www.innovative-dsp.com

Mailing Address: Innovative Integration, Inc.

2390A Ward Avenue, Simi Valley, California 93065