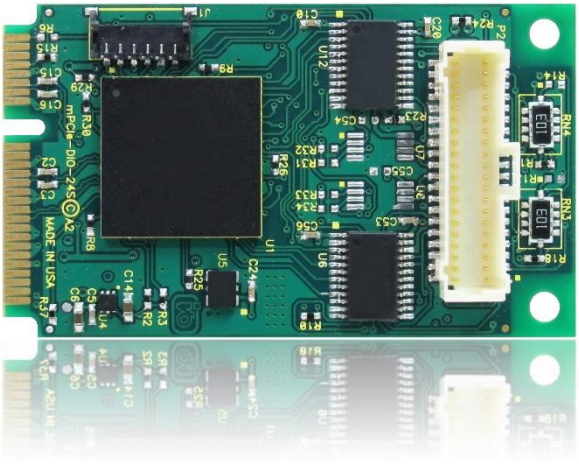
Four and Eight Quadrature Inputs PCI Express Mini Card Data Sheet

Features

Models mPCIe-QUAD-8 and mPCIe-QUAD-4



- PCI Express Mini Card (mPCIe) type F1, with latching I/O connectors
- Direct interface to four or eight quadrature encoders (A, B & Index (Z))
- Single-ended or differential 3V or 5V encoder inputs
- 32-bit counters; count modes include quadrature (x1, x2, x4), free-run, non-quadrature (up/down), non-recycle, modulo-n, and range limit
- Selectable clock source (10MHz, 20MHz & 40MHz) (for digital filtering on inputs)
- Interrupt generation from various status changes
  - select flags for interrupt source (Instantaneous or Latched)
- Panel-mountable DB-37F Four Channel Module
- Two modules daisy-chainable for Eight Quadrature Inputs (Two DB-37F connectors)
- 9" cable(s) (228mm) connect between Quad module(s) and mPCIe card
- Available in Industrial Temperature Operation (-40°C to +85°C), RoHS standard

Functional Description

The mPCIe-QUAD-8 consists of a type F1 PCI Express Mini Card (mPCIe) interface board that connects to one or two DB-37F Modules via included 9" cables. The modules are designed to be easily panel-mounted in any application environment, and have convenient mounting holes for non-panel-mount applications. Up to eight differential (or single-ended) encoders (each with A, B, and Index) can be monitored simultaneously.

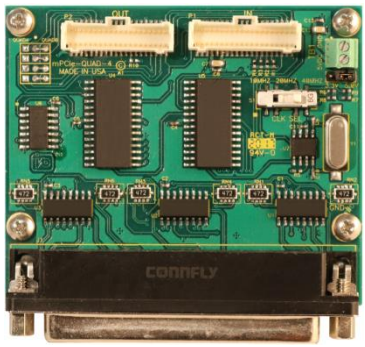
Type ISL32173 differential input circuits provide compatibility with a wide variety of quadrature encoder outputs.
The LSI/CSI LS7766 features:

- 32-bit quadrature counters support x1, x2, and x4 counting modes, or can be used as non-quadrature up/down counters
  - Quadrature frequencies up to 9.6MHz
    - 4.5MHz when powered with 3.3VDC
  - Non-quadrature frequencies up to 40MHz when powered with 5VDC
    - 20MHz when powered with 3.3VDC
- Programmable index and marker flags (carry, borrow, sign & compare)
  - Enable/disable sources generating IRQ's
- Programmable count modes:
  - Normal (free-run) / Modulo-N / Range Limit / Non-Recycle, Binary / BCD

The mPCIe-QUAD cards are well suited for use in industrial and embedded environments and factory locations.

Special Order

Please contact ACCES with your requirements. Example special orders include conformal coating, custom software or product labelling, and more. We will work with you to provide *exactly* what is required.



Accessories

Available accessories include:	
ADAP37M	37-pin Screw Terminal Board (direct plug-in)
STB-37	37-pin Screw Terminal Board (needs male-female ribbon cable)
mPCIe-HDW-KIT2	Mounting hardware for 2mm
mPCIe-HDW-KIT2.5	Mounting hardware for 2.5mm

Software

The card is supported for use in most operating systems and includes a free DOS, Linux (including macOS) and Windows compatible software package. This package contains sample programs and source code in C#, Visual Basic, Delphi, and Visual C++ for Windows. Also provided is a graphical setup program in Windows. Linux support includes installation files and basic samples for programming from user level via an open source kernel driver. Third party support includes a Windows standard DLL interface usable from the most popular application programs, and includes LabVIEW VIs. Embedded OS support includes the family of Windows Operating Systems including IoT. Full register-level documentation of all features ensures easy compatibility in any application environment.

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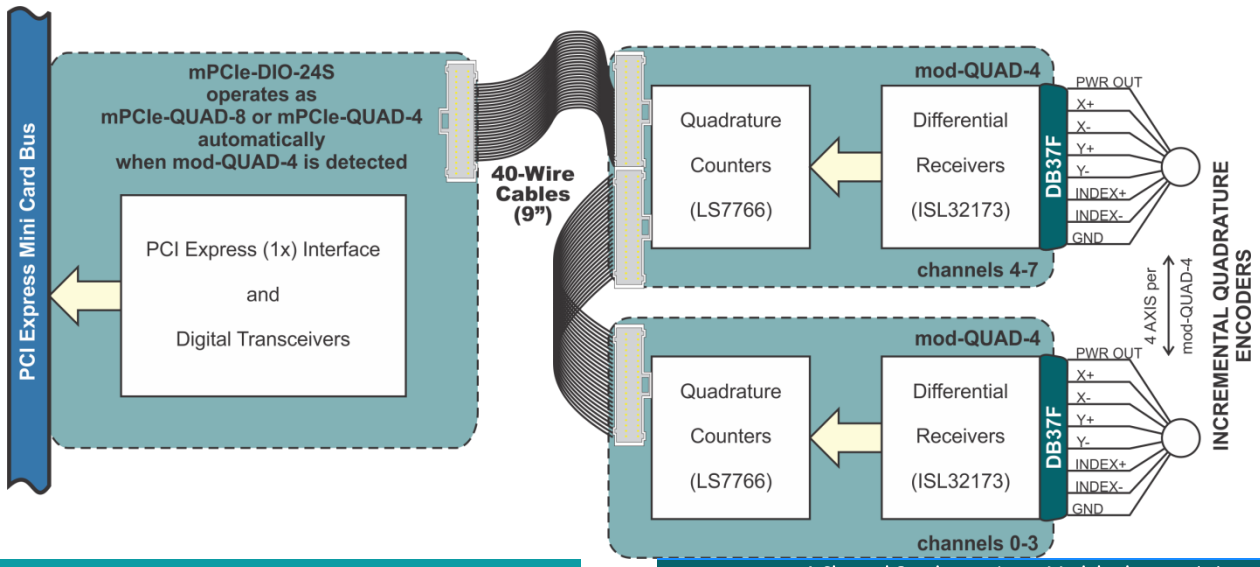

PC Interface

PCI Express Mini Card	Type F1 "Full Length"

Quadrature Inputs

Counters	8 (or 4)
Receiver Type	ISL32173
Configuration	Phase A, B and Index; differential or single-ended
Sensitivity	± 200 mV
Hysteresis	30 mV typical
Impedance	Internal 48kΩ minimum

Environmental

Temperature	Operating	0° to 70°C (order "-T" for -40° to 85°C)
	Storage	-40° to 85°C
Humidity		5% to 95%, non-condensing
Power required	+5.0VDC	165mA with external power (+ encoder power)
	+3.3VDC	430mA using self power (+ encoder power)

Physical

mPCIe board characteristics		
Weight		6.2 grams
Size	Length	50.95mm (2.006")
	Width	30.00mm (1.181")
I/O connector	On-card	Molex 501190-4017 40-pin latching
	mating	Molex 501189-4010

4-Channel Quadrature Input Module characteristics		
Weight		45 grams (+ 11.8 grams for the 9" cable)
Size	Length	2.835" (72.01mm)
	Width	2.362" (59.99mm)
I/O connector	On-module	Female, D-Sub Miniature, 37-pin
	Mating	Male, D-Sub Miniature, 37-pin

DB-37 Female Pinout			
1	INLO_A0/4	20	INHI_A0/4
2	PWR OUT	21	INHI_B0/4
3	INLO_B0/4	22	GND
4	PWR OUT	23	INHI_Z0/4
5	INLO_Z0/4	24	INLO_Z2/6
6	NC	25	INHI_A2/6
7	INLO_A2/6	26	INHI_B2/6
8	PWR OUT	27	GND
9	INLO_B2/6	28	INHI_Z2/6
10	PWR OUT	29	INLO_Z3/7
11	INLO_A3/7	30	INHI_A3/7
12	PWR OUT	31	INHI_B3/7
13	INLO_B3/7	32	GND
14	PWR OUT	33	INHI_Z3/7
15	INLO_A1/5	34	INHI_A1/5
16	PWR OUT	35	INHI_B1/5
17	INLO_B1/5	36	GND
18	PWR OUT	37	INHI_Z1/5
19	INLO_Z1/5		

Signal Definitions	
Signal	**Meanings**
INLO_Ax	Low side differential "A" input
INHI_Ax	High side differential "A" input
INLO_Bx	Low side differential "B" input
INHI_Bx	High side differential "B" input
INLO_Zx	Low side differential "Z" input (Index)
INHI_Zx	High side differential "Z" input (index)
PWR OUT	Encoder Power Output
GND	Ground

Ordering Guide

mPCIe-QUAD-8	Two 4 Channel Quadrature Input Modules, mPCIe Card and interconnect cables
mPCIe-QUAD-4	4 Channel Quadrature Input Module, mPCIe Card and interconnect cable

Add –T to your model # for Industrial Temperature Option (-40° to 85°C)