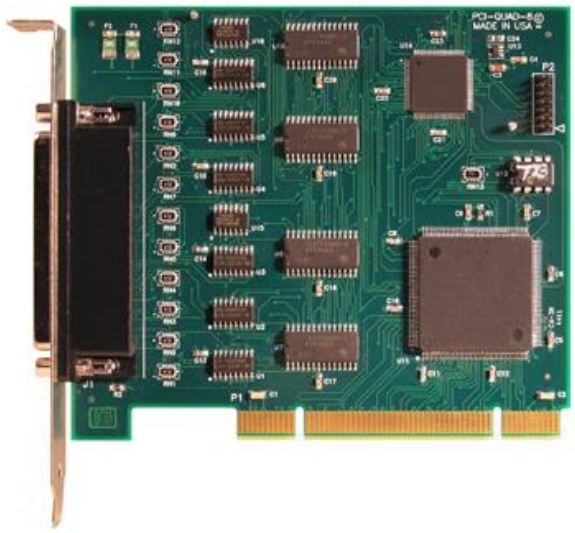
PCI-QUAD-8
8-Counter Quadrature Card

FEATURES

- Eight or Four-counter quadrature decoder
- Single-ended or differential inputs for up to eight encoders (A, B & Index)
- Programmable clock source (high/low) for digital filtering on inputs
- Programmable active index polarity
- Per counter software control:
  - corrects reversed A / B wiring
  - selects flag for interrupt source
- Resettable fused 5V output available to power encoders or general purpose
- High-density DB78 male I/O connector with screw locks



FACTORY OPTIONS

- Extended temperature
- RoHS compliant version

FUNCTIONAL DESCRIPTION

The PCI-QUAD-8 provides quadrature counting on a convenient half-length PCI card. Up to eight differential encoders (each with A, B, *and* Index) can be monitored simultaneously.

Type AM26LS232 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
  - Non-quadrature frequencies up to 40MHz
- 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

ACCESSORIES

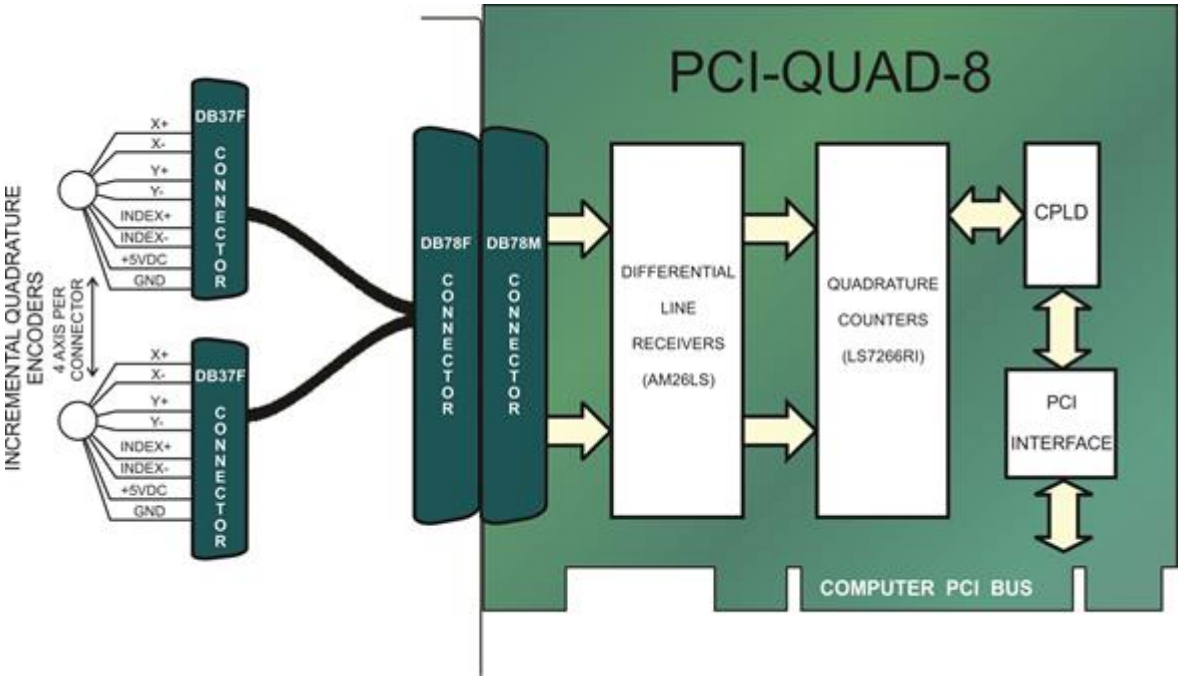
A molded 6 ft DB78F to DB37F x 2 shielded "Y" cable, and a DIN-Rail mountable screw terminal kit that includes the "Y" cable is available.

SPECIAL ORDER

Examples of special orders include conformal coating, two- or six-counter inputs, custom software, etc. We will work with you to provide exactly what is required.

SOFTWARE

The card is supported for use in most operating systems and includes Linux and Windows compatible software packages. This package contains sample programs and source code in Delphi and Visual C++ for 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. Embedded OS support includes Windows XPe.



BLOCK DIAGRAM

SPECIFICATIONS

Input Section

Receiver Type:	AM26LS32
Configuration:	Phase A, B and Index; differential or S.E. inputs
Channels:	8 or 4
Common mode:	+/-7 V maximum
Differential Inputs:	+/-25 V maximum
Input Sensitivity:	+/- 200 mV
Input Hysteresis:	50 mV typical
Input Impedance:	Internal 12kΩ minimum
Input Bias:	Non-inverting 4.7kΩ to Vcc Inverting 4.7kΩ to Vcc / 2.35kΩ to Gnd (1.67V)
Absolute max input:	+/- 25 V differential

Counter Section

Counter type:	LS7766 32-bit Dual Axis Quadrature Counter
Quad (A&B) inputs:	9.6MHz maximum
Separation:	26ns minimum
A&B pulse width:	52ns minimum
Index pulse width:	32ns minimum
Non-Quad (A) input:	40MHz maximum
Low/Hi pulse width:	12ns minimum
B input (direction) :	12ns minimum setup time 10ns minimum hold time
Index pulse width:	32ns minimum
High Filter Clock:	MCR0 bit 7 low = 33MHz MCR0 bit 7 high = 16.5MHz
Low Filter Clock:	MCR0 bit 7 low = 8.25MHz MCR0 bit 7 high = 4.125MHz

CPLD Controller Section

Interrupt sources:	LS7766 FLGa / FLGb outputs
FLGa sources:	Index, Carry, Borrow, Compare
FLGb sources:	Sign, Up/Down
I/O Address Space:	8-bytes per channel (64-bytes for 8-channel board)

Environmental

Operating temp.:	0 to 70˚C standard -40 to +85˚C (-T option)
Storage temp.:	-50 to +120˚C
Humidity:	Up to 95 % non-condensing
Size:	4.825” length by 3.875” tall
Power Required:	+5V @ 400mA typical (no sensors connected)
Connections:	DB78 male connector

ORDERING GUIDE

PCI-QUAD-8	Eight-counter quadrature input
PCI-QUAD-4	Four-counter quadrature input

Model Options

-RoHS	RoHS compliant version
-T	Extended temperature operation (-40 to +85˚C)
-S0x	Special designator for custom Filter Clock rate etc.

Optional Accessories

CAB78F-37/2	6' Y cable, DB78 female connector terminates in two DB37 female connectors.
CAB78F-37/1	As above, use with PCI-QUAD-4
STB-37/2F Kit	Screw Term solution on SNAP-TRACK. Includes two STB-37’s, Y Cable & 1' SNAP-TRACK.
STB-37/1F Kit	As above, use with PCI-QUAD-4
STB-37/2F Kit-CL	Includes 4 or 2 DIN clips to allow mounting STB-37’s & SNAP-TRACK onto a DIN-RAIL.