

# ACCES I/O PRODUCTS, INC. 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

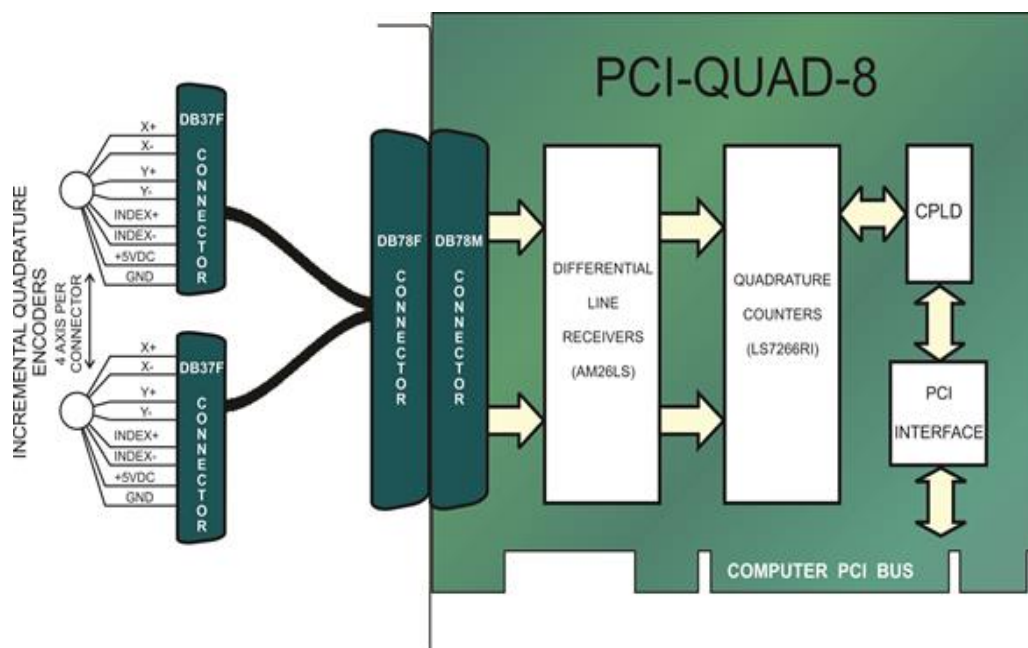
A molded 6 ft DB78F to DB37F x 2 shielded "Y" cable, and a DIN-Rail mountable screw terminal kit that includes the "Y" cable is available.

## 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 XP.



**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.

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

### US

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +1 347 719 4508

Support: +1 347 719 4508

1309 Coffeen Ave  
Ste 1200  
Sheridan  
WY 82801  
USA

### EMEA

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +44 (0)1785 879 050

Support: +44 (0)1785 879 050

Unit A5 Douglas Park  
Stone Business Park  
Stone  
ST15 0YJ  
United Kingdom

VAT Number: 120 9546 28

Business Registration Number: 07699660