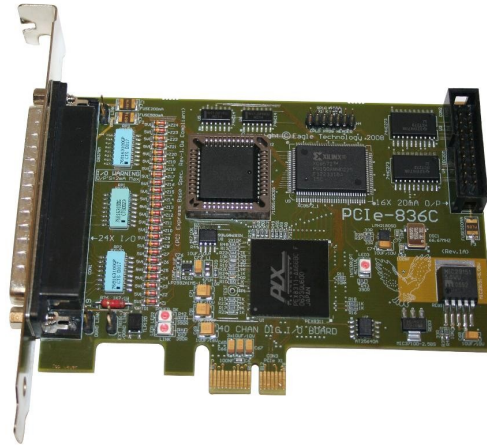




## Digital Input/Output Boards – 24/40 Channel

### \* general description

The PCIe-836A/C is PCI Express Digital I/O board based on the industry standard 82C55 PPI Chip. It is available in two versions, PCIe-836A & PCIe-836C. The PCIe-836C supports 1x 16bit high current port, 1x optically isolated line and 8x interrupt sources



### \* features

- PCIe Express Bus (Rev 1.0a) compliant
- Power Management
- 24 Channel digital inputs/outputs (3 ports) 82C55 compatible
- Digital input/output protection up to (+/-12V)
- 16 Channel high current (20mA) digital outputs (C - version)
- 1 Channel opto-isolated external trigger input (C - version)
- 8 Interrupt sources (C - version)
- 6 Software controlled pull up/downs (2x per PPI port)
- Windows 2000/XP/Vista OS support
- Linux (Kernel 2.6) OS support
- WaveView for Windows Data Acquisition & logging Software

### • Dimensions:

- (24 channel): 85(H) x 130(L) mm
- (40 channel): 85(H) x 130(L) mm

### \* ordering information

Device	Digital IO	Digital Output	Temperature Range	Bus Type
PCle-836A	24	0	0°C-70°C	PCI Express (Single Lane)
PCle-836C	24	16	0°C-70°C	PCI Express (Single Lane)

✱ Digital IO absolute maximum ratings

Parameter	Symbol	Condition	Rating	Unit
Digital Input Voltage	V <sub>di</sub>	T <sub>a</sub> = 25°C with respect to ground	-0.5 to 12V	V
Digital Output Voltage	V <sub>do</sub>		-0.5 to 12V	V
Digital Output Current	V <sub>doc</sub>		±2.0	mA
Storage Temperature	T <sub>stg</sub>	-	-50 to 150	°C
Operating Temperature	T <sub>stg</sub>	-	0 to 70	°C
Power Dissipation	P <sub>d</sub>	T <sub>a</sub> = 25°C	10.0	W

✱ PPI digital I/O characteristics 24 (3x 8bit TTL)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input High	V <sub>ih</sub>	T <sub>a</sub> = 25°C with respect to ground	2.2		5.3	V
Input Low	V <sub>il</sub>		-0.3		0.8	V
Output High	V <sub>oh</sub>		3.7	5.0		V
Output Low	V <sub>ol</sub>			0.0	0.4	V
Output Source/Sink Current	i <sub>o</sub>			1.0	2.0	mA
Input Source/Sink Current	i <sub>i</sub>		-1		1	µA
Acquisition Speed			2		4	mS

✱ High Current digital Output characteristics 16x (TTL)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output High	V <sub>oh</sub>	T <sub>a</sub> = 25°C with respect to ground		5.0		V
Output Low	V <sub>ol</sub>			0.0		V
Output Source/Sink Current	i <sub>o</sub>				20	mA

✱ Opto-Isolated Input characteristics 1x Analog/TTL (C-version)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input High (Logic 1)	V <sub>ih</sub>	T <sub>a</sub> = 25°C with respect to ground	3.1		28	V
Input Low (Logic 0)	V <sub>il</sub>		0.0		3.0	V
Input On Current	i <sub>i</sub>			20	50	mA

**\* operation**

The tables below shows the pin assignment for the device. Communication and control is done via PCI Express and the user access to the DIO and DO channels are done via DB37male and IDC26M/DB25M connectors respectively. A range of accessory adaptors is available for easy connection.

**Pin Assignments**

**PCIe-836A/C – DB37 (M) External**

The table below shows the pin assignments for the DB37(M) connector found on the PCIe-836A/C. This is also compatible with the PCI-836A/C; PCI-36C and ISA PC-36C.

Pin	Name	Pin	Name
1	+12V_FUSED	20	PC3
2	+5V_FUSED	21	PC2
3	DGND	22	PC1
4	PA0	23	PC0
5	PA1	24	PC4
6	PA2	25	PC5
7	PA3	26	PC6
8	PA4	27	PC7
9	PA5	28	DGND
10	PA6	29	DGND
11	PA7	30	DGND
12	PB0	31	DGND
13	PB1	32	DGND
14	PB2	33	EXT_TRIG
15	PB3	34	EXT_TRIG_RET
16	PB4	35	NC
17	PB5	36	NC
18	PB6	37	DGND
19	PB7		

*PCIe-836A/C External Connector – DB37 (M)*

**PCIe-836C – IDC20 (M) - Internal**

The table below shows the pin assignments for the IDC20(M) connector found on the PCIe-836A/C. This is also compatible with the PCI-836A/C and PCI-36C

Pin	Name	Pin	Name
1	DO0	2	DO1
3	DO2	4	DO3
5	DO4	6	DO5
7	DO6	8	DO7
9	DO8	10	DO9
11	DO10	12	DO11
13	DO12	14	DO13
15	DO14	16	DO15
17	DGND	18	DGND
19	+5V_FUSED	20	+5V_FUSED

*PCIe-836A/C Internal Connector – IDC20 (M)*

*PCI836A/C Internal Connector – IDC20 (M)***PCIe-836C – DB25 (M) – External via Cable**

The table below shows the pin assignments for the DB25(M) connector found on the PCIe-836A/C internal ribbon cable. This is also compatible with the PCI-836A/C and PCI-36C

Pin	Name	Pin	Name
1	DO0	14	DO1
2	DO2	15	DO3
3	DO4	16	DO5
4	DO6	17	DO7
5	DO8	18	DO9
6	DO10	19	DO11
7	DO12	20	DO13
8	DO14	21	DO15
9	DGND	22	DGND
10	+5V_FUSED	23	+5V_FUSED
11	NC	24	NC
12	NC	25	NC
13	NC		

*PCI836A/C External Connector via Internal*

**\* optional accessories**

ADPT-3740	DB37 (M) & IDC40 (M) to 41way Screw Terminal Adaptor
ADPT-2526	DB25 (F) & IDC26 (M) to 27way Screw Terminal Adaptor
ADPT-37103	DB37(F) to 3x IDC8 Module with
PC-37F	24 Channel Opto-22 Solid State Relay Module
PC-38D	24 Channel Electro Mechanical Relay Module
PC-38X	24 Channel I/O Driver Module
PC-43D	24 Channel Combo Module
PC-43C	24 Channel Digital Opto-Isolator I/P Module
PC-43A2	Multi I/O Adaptor (1x) 16ch; (3x) 8ch Digital I/O
Other 1	(8 & 16 Channel modules also available)
Other 2	(Ribbon & Multi-core Cables also available)

**\* software support**

All DAQ products are supported by the EDR Enhanced Software Development Kit and have operating system drivers for Windows and Linux. The EDR Enhanced SDK provides many examples for all popular programming environments.

**Development support**

- C++
- Borland Delphi
- Borland C++ builder
- Visual Studio .NET
- Testpoint
- Labview
- Agilent VEE



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The table below lists the document history. A minor revision change will indicate document errors that are edited. A major revision change will indicate an update or change to the document contents or structure.

Revision	Date	Comments
1.0	07/07/2008	Original Release.

## \* disclaimer

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