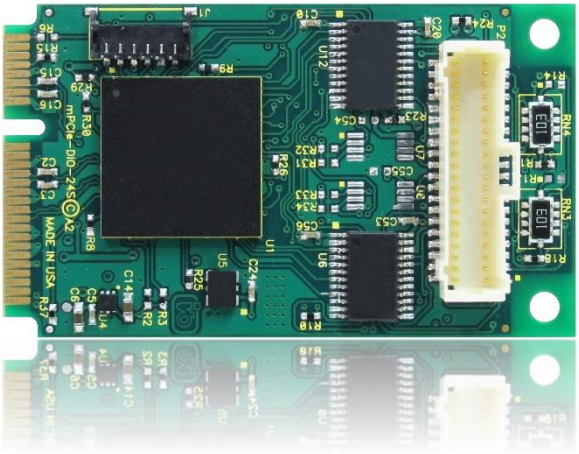
24 Digital I/O with CoS IRQ
PCI Express M.2 Card Datasheet

Features

Models M.2-DIO-24S and M.2-DIO-24



- M.2 Card 2260/2280 size, with B & M keys and latching I/O connectors
- 24 high-current DIO lines (24mA source/sink)
- Change-of-State (CoS) detection IRQ generation
- 10K ohm Pull-Up resistors
- Four and eight bit ports independently selectable for use as inputs or outputs
- All signals brought out to optional panel-mountable 37-pin male DSub connector
- RoHS standard
- Available Industrial Temp (-40°C to +85°C)

Functional Description

The M.2-DIO-24S is a 2260/2280 size M.2 card and optional cable assembly (DSub 37-pin Male connector) designed to be easily panel-mounted in any application environment. It uses the high speed PCI Express bus to transfer digital data to and from the card. The digital I/O is compatible with 8255 PPI chips making it easy to program. This also allows for simple and trouble-free migration from other ACCES PCI and PCI Express digital I/O cards, but also provides for advanced features enabled by the onboard FPGA logic.

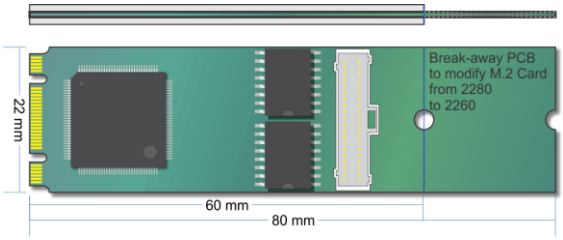
The card provides three 8-bit I/O ports designated A, B and C. Port C can be further divided into two 4-bit nybbles. Each port can be programmed as inputs or outputs. Change of State (COS) detection and interrupt capabilities are designed to relieve software from polling routines that can consume valuable processing time. Each port can be programmed for detecting state changes on their lines, in which any changes of the enabled port's bits (low-to-high or high-to-low) will generate an IRQ. An ISR (interrupt service routine) then determines which bit changed state and clears the interrupt.

Special Order

Please contact ACCES with your precise requirement. Examples of special orders would be pull-down resistors, conformal coating, a CMOS version with user supplied 5VDC VCCIO, custom software or product labelling, and more. We will work with you to provide *exactly* what is required.

Accessories

	Available accessories include:
CAB-M.2-DB37M	40-pin to DB37-pin Male cable
ADAP37, STA-37	37-pin Screw Terminal Accessories
M.2-HDW-KIT2	2mm mounting hardware



Software

The card is supported for use in most operating systems and includes a free Linux and Windows compatible software package. This package contains sample programs and source code in 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. Embedded OS support includes the family of Windows Operating Systems including IoT. ACCES is also now offering a VxWorks driver/library for the ultimate real-time process monitoring and control solution.

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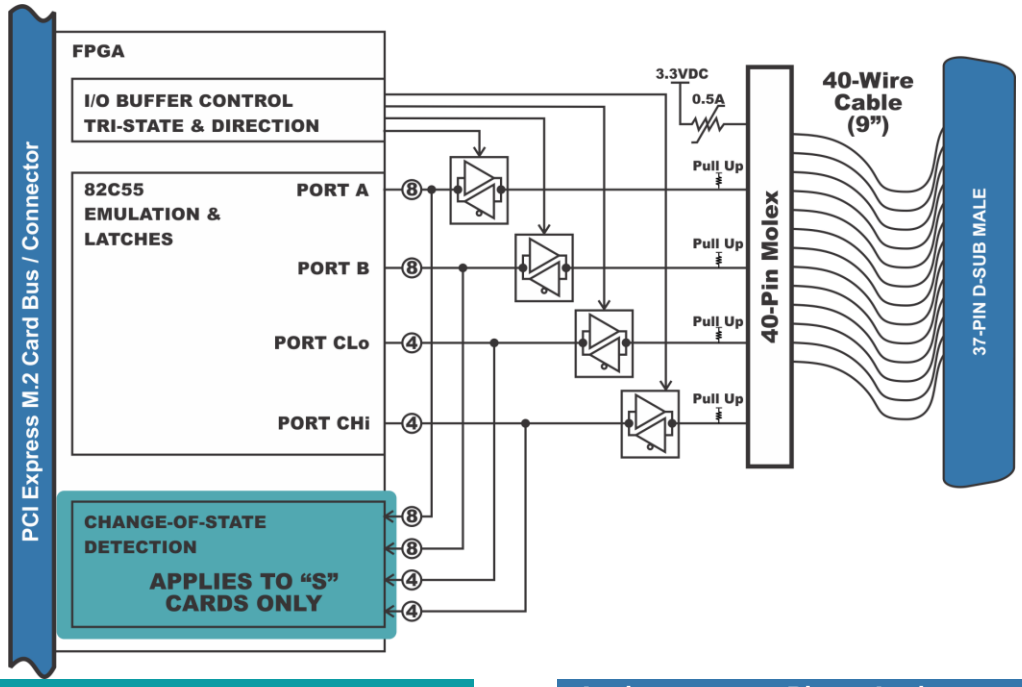


PC Interface

M.2 Card	2260/2280 size with B & M keys

Digital Input / Output Interface

Digital Bits		24
Compatibility		8255 Mode 0
Performance		1 µs per 32-bit transaction max ~3.5µs in Windows
Digital Inputs	Logic High Logic Low	2.0V to VCCIO (3.3VDC, 5VDC tolerant) 0V to 0.8V
Digital Outputs (Standard Version)	Logic High Logic Low Power Output	2.0V (min) 24mA source 0.55V (max) 24mA sink +3.3 VDC via 0.5A polyfuse (resetting)
CMOS w/user VCCIO	1.65V to 5.5V	At DB37M, via polyfuse
Digital Outputs (-TTL Option)	Logic High Logic Low	3.8V (min) 32mA UVCCIO = 4.5V 0.55V (max) 32mA UVCCIO = 4.5V

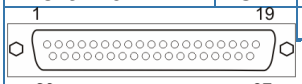
Environmental

Temperature	Operating	0° to 70°C (order "-T" for -40° to 85°C)
	Storage	-65° to 150°C
Humidity		5% to 95%, non-condensing
Power required		+3.3VDC @ 330mA (typical)

Physical

Weight		5.8 grams (+ 22.2g for the cable)
Size	Length	60mm/80mm
	Width	22mm
I/O connector	On-card	Molex 501190-4017 40-pin latching
	mating	Molex 501189-4010
	On cable	Male, D-Sub Miniature, 37-pin
	mating	Female, D-Sub Miniature, 37-pin

Assignment	Pin	Assignment	Pin
Fused VCCIO	20	Ground	1
Ground	21	No Connect	2
Port B 7	22	Port C 7 Hi	3
Port B 6	23	Port C 6 Hi	4
Port B 5	24	Port C 5 Hi	5
Port B 4	25	Port C 4 Hi	6
Port B 3	26	Port C 3 Lo	7
Port B 2	27	Port C 2 Lo	8
Port B 1	28	Port C 1 Lo	9
Port B 0	29	Port C 0 Lo	10
Port A 7	30	No Connect	11
Port A 6	31	No Connect	12
Port A 5	32	No Connect	13
Port A 4	33	No Connect	14
Port A 3	34	No Connect	15
Port A 2	35	Fused VCCIO	16
Port A 1	36	Fused VCCIO	17
Port A 0	37	Ground	18
		Ground	19



Pins 16 & 17 are connected to 20

Ordering Guide

M.2-DIO-24S	24 Digital I/O w/CoS IRQ M.2 Card
M.2-DIO-24	24 Digital I/O M.2 Card
Add –T to your model # for Industrial Temperature Option (-40° to 85°C)	
Add –TTL to your model # for CMOS signaling w/user supplied VCCIO (+5V)	