

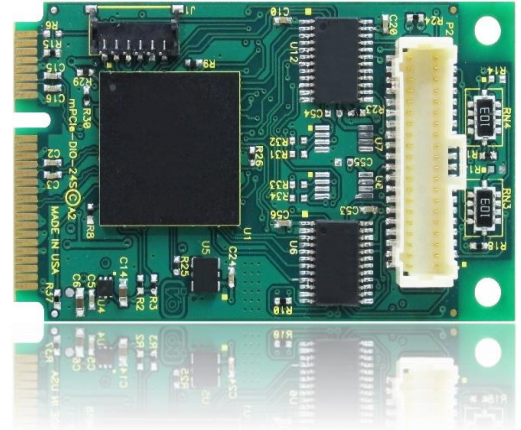


## 24 Digital I/O with CoS IRQ PCI Express M.2 Card Datasheet

### FEATURES

- 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)

### MODELS M.2-DIO-24S AND M.2-DIO-24



### 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.

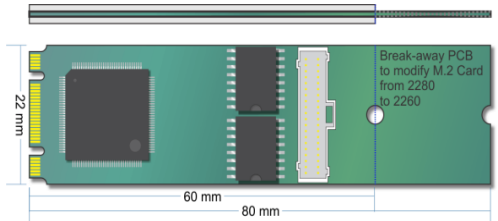
### SPECIAL ORDER

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

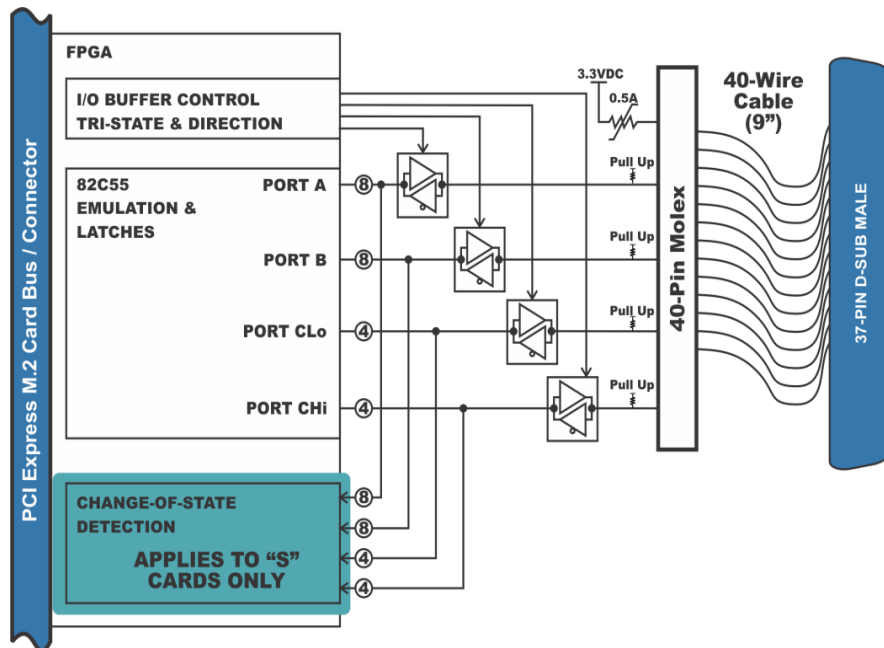


### SOFTWARE

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.



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



### 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 $\mu$ s per 32-bit transaction max<br>~3.5 $\mu$ s in Windows   |
| Digital Inputs                     | Logic High 2.0V to VCCIO (3.3VDC, 5VDC tolerant)<br>Logic Low 0V to 0.8V  |
| Digital Outputs (Standard Version) | Logic High 2.0V (min) 24mA source<br>Logic Low 0.55V (max) 24mA sink<br>Power Output +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 3.8V (min) 32mA UVCCIO = 4.5V<br>Logic Low 0.55V (max) 32mA UVCCIO = 4.5V  |

### Environmental

|                |   |
|----------------|---|
| Temperature    | Operating 0° to 70°C (order "-T" for -40° to 85°C)<br>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<br>Width 22mm  |
| I/O connector | On-card Molex 501190-4017 40-pin latching mating Molex 501189-4010<br>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) |                                   |

## 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.

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