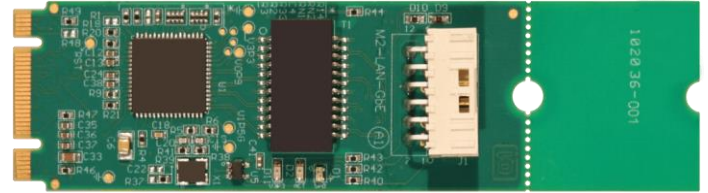# Gigabit Ethernet
M.2 2280/2260 Card Datasheet

FEATURES

MODEL M.2-LAN-GBE

- M.2 TYPE 2280/2260 B & M KEY, WITH LATCHING I/O CONNECTOR

- RUGGED DESIGN INCLUDES OVERVOLTAGE PROTECTION AND BUFFERING ON ALL SIGNALS

- ONBOARD MAGNETICS WITH BUILT IN ISOLATION VIA TRANSFORMER COUPLING

- INDUSTRIAL TEMPERATURE (-40 TO +85°C) AND RoHS STANDARD

- 10/100/1000 BASE-T INTERFACE ON M.2 / NVME

- PCI EXPRESS V2.1 (2.5GT/S) INTERFACE

- OPTIONAL LOW-PPM XTAL TO SUPPORT IEEE 1488 PRECISION TIMING PROTOCOL

FUNCTIONAL DESCRIPTION

The M.2-LAN-GbE is optimized for use in mobile and rugged environments, with a latching connector and protection on all signals. The onboard magnetics feature robust built-in isolation via transformer coupling. In addition, extended operating temperature and RoHS compliance are standard.

The card's high-speed PCI Express 2.1 controller and Intel's industry-leading I210 Ethernet chip provide an often-necessary 1000Base-T (gigabit) Ethernet port while low power-consumption, small form-factor and light weight make integration into existing designs a snap. Onboard LEDs provide diagnostic and status information about power, link/activity, and data rate.

Full 10/100/1000 BASE-T compatibility — with IEEE 1488 Precision Timing Protocol support when ordered with a low-PPM XTAL (optional) — makes the M.2-LAN-GbE perfect for use in any Ethernet environment, from servers to users; mobile, rack, or desktop.

An optional RJ45 positive-retention cable assembly is designed to be easily panel-mounted.
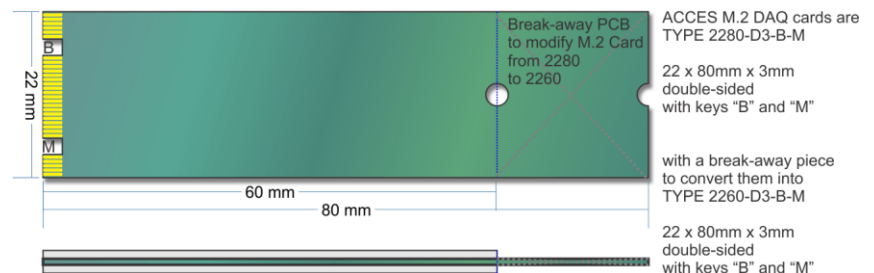
SPECIAL ORDER

Please contact ACCES with your precise requirement. Examples of special orders would be a low-ppm crystal to support IEEE 1488 precision timing protocol, conformal coating, custom product labeling, and more. We will work with you to provide *exactly* what is required.

ACCESSORIES

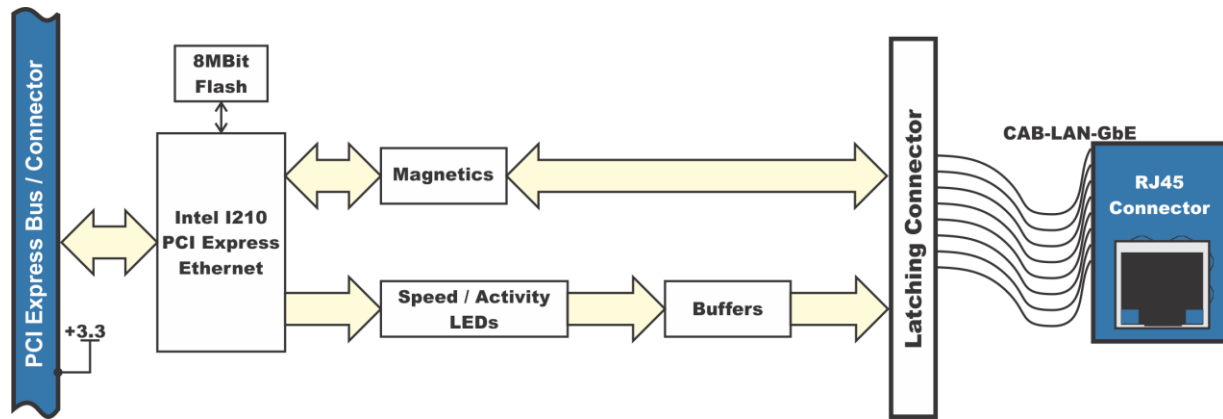Available accessories include a 9-inch panel-mount RJ45 cable and mounting hardware.

AVAILABLE ACCESSORIES INCLUDE:	
CAB-M.2-LAN	9-inch panel-mount RJ45 cable
M.2-HDW-KIT2	Mounting hardware for 2mm

SOFTWARE

Supported for use in most operating systems including Windows and Linux; embedded OS support includes DOS, XPe, WES7, WES8, IoT, VxWorks, and more.

BLOCK DIAGRAM

PC Interface

M.2	2280 with 2260 break-off, M & B keyed (PCIe)

Ethernet I/O

Protocol	10/100/1000 Base T

ENVIRONMENTAL

Temperature	Operating	-40° to +85°C
	Storage	-40° to +85°C
Humidity	5% to 95%, non-condensing	
Power required	+3.3VDC @ 176mA (1000Mbps)	
	+3.3VDC @ 109mA (100Mbps)	
	+3.3VDC @ 86mA (idle, no link)	

PHYSICAL

M.2 board characteristics		
Weight	Ounces	0.19
Size	Length M.2: 260/2280	60mm / 80mm (2.36" / 3.15")
	Width	22mm (0.866")
I/O connector	On-card	Amphenol FCI 98417-G61-12ULF
	On-cable	Amphenol FCI 10073599-012LF
	RJ45	Keystone 5379

On-card Pin Assignments					
Function	Pin Name	Pin	Pin	Pin Name	Function
Ethernet Link/Activity	LINKACT LED	1	7	SPEED1000	1000Mbps speed ind
MDIx LANE 1 Positive	LAN1+	2	8	LAN0+	MDIx LANE 0 Positive
MDIx LANE 1 Negative	LAN1-	3	9	LAN0-	MDIx LANE 0 Negative
MDIx LANE 3 Positive	LAN3+	4	10	LAN2+	MDIx LANE 2 Positive
MDIx LANE 3 Negative	LAN3-	5	11	LAN2-	MDIx LANE 2 Negative
100Mbps speed ind	SPEED100	6	12	3.3V	+3.3V voltage rail

RJ45 Pin Assignments		
Pin	Pin Name	Function
1	LAN0+	MDIx LANE 0 Positive
2	LAN0-	MDIx LANE 0 Negative
3	LAN1+	MDIx LANE 1 Positive
4	LAN2+	MDIx LANE 2 Positive
5	LAN2-	MDIx LANE 2 Negative
6	LAN1-	MDIx LANE 1 Negative
7	LAN3+	MDIx LANE 3 Positive
8	LAN3-	MDIx LANE 3 Negative

ORDERING GUIDE

M.2-LAN-GbE	Rugged 1-port 10/100/1000 Ethernet M.2 Card
CAB-M.2-LAN	9-inch panel-mount RJ45 cable
M.2-HDW-KIT2	Mounting hardware for 2mm
SHIPS STANDARD WITH EXTENDED OPERATING TEMPERATURE AND RoHS	
FACTORY OPTIONS:	
-PT	*Low PPM XTAL for IEEE 1488 Precision Timing Protocol*
-CC	*Conformal Coating*