EPM-1601

4xRS232 mPCIE card

User's Manual

2nd Ed – 04 February 2021

Part No: E2047DS0101R

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.
THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.
OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.
To receive the latest version of the user's manual; please visit our Web site at:
http://www.avalue.com.tw/

Content

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x EPM-1601 4xRS232 mPCIe Card
- 2 x COM Cable

If any of the above items is damaged or missing, contact your retailer.

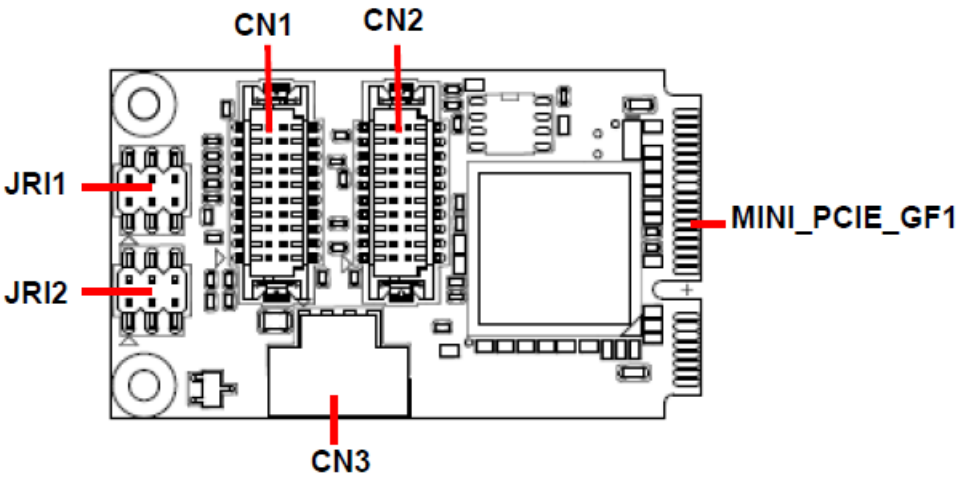
1.3 Product Specifications

Component	
I/O Chip	MAXLINEAR XR17V354
Form factor	mPCIe
Input I/F	1 x PCI Express 2.0
DC Input	1 x wafer 4pin B-W 2.0 Pitch 90D(M) Max 12V
Output I/F	4 x RS-232 (four DB9 connector with cable)
Mechanical & Environmental	
Power Requirement	3.3V±5%
Operating Temp.	W/T temp: -40°C ~ +85°C (-40 ~185°F)
Storage Temp.	-40°C ~ +85°C (-40 ~185°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Size (L x W) (Please consult product engineers for the production feasibility if the size is larger than 410x360mm or smaller than 80x70mm)	50.9mm*30mm*7.58mm
Weight	Board weight: 9g Cable weight: 45g
Vibration Test	Vibration: 5G @5~500Hz
Shock Test	Shock: 30 or 10G @ 11ms
OS Information	Windows 7/10 and Linux

Note: Specifications are subject to change without notice.

2. Hardware Configuration

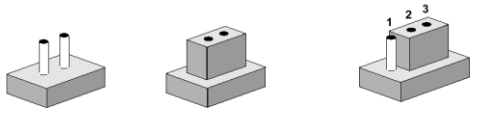
2.1 Product Overview



2.2 Jumper & Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

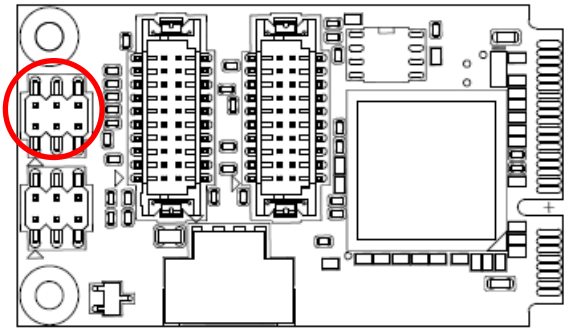
Label	Function	Note
JRI1	Serial port 1/2 pin9 signal select	3 x 2 header, pitch 2.00mm
JRI2	Serial port 3/4 pin9 signal select	3 x 2 header, pitch 2.00mm

Connectors

Label	Function	Note
CN1	Serial port 1/2 connector	10 x 2 wafer, pitch 1.25mm
CN2	Serial port 3/4 connector	10 x 2 wafer, pitch 1.25mm
CN3	Serial port power connector	4 x 1 wafer, pitch 2.00mm
MINI_PCIE_GF1	Golden Finger mini PCIe	

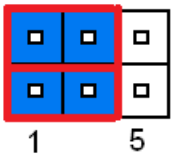
2.3 Setting Jumpers & Connectors

2.3.1 Serial port 1/2 pin9 signal select (JRI1)

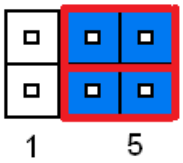


*** Default**

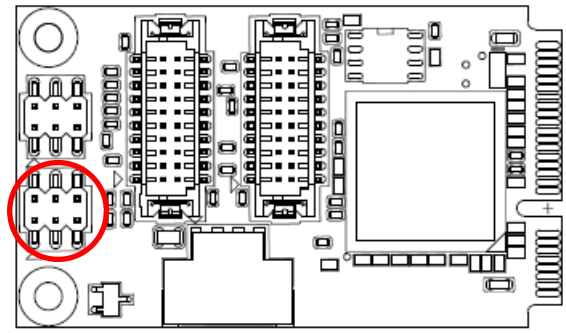
Ring Wake*



RI ping

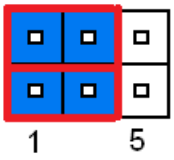


2.3.2 Serial port 3/4 pin9 signal select (JRI2)

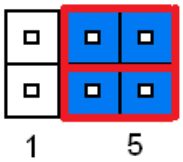


*** Default**

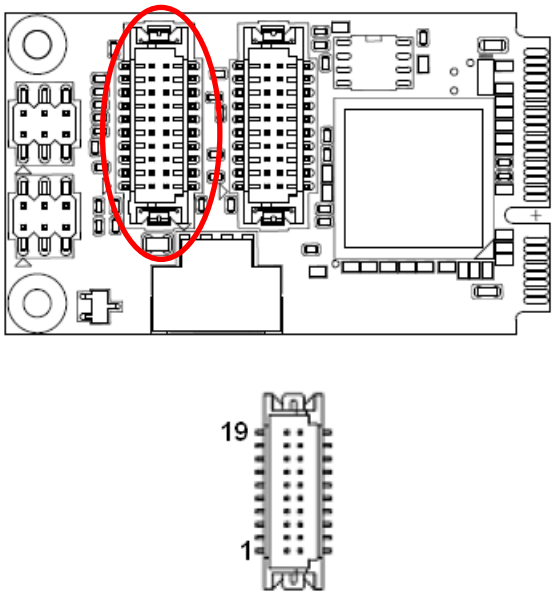
Ring Wake*



RI ping

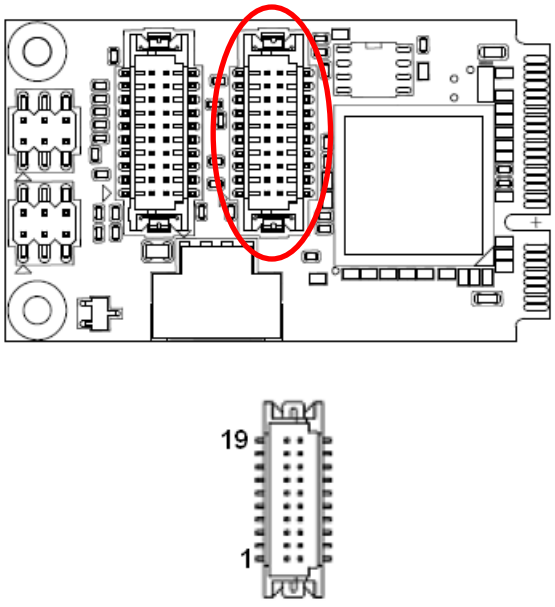


2.3.3 Serial port 1/2 connector (CN1)



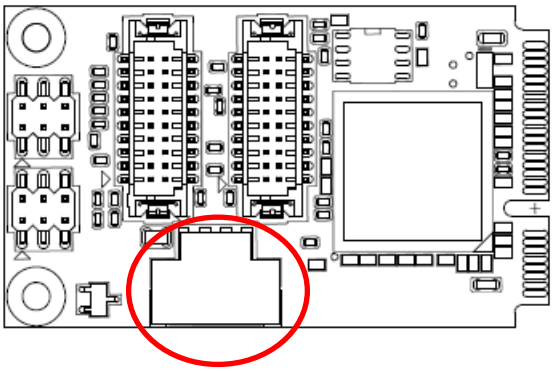
Signal	PIN	PIN	Signal
COM_RI#_2	19	20	NC
COM_RTS#_2	17	18	COM_CTS#_2
GND	15	16	COM_DSR#_2
COM_TXD_2	13	14	COM_DTR#_2
COM_DCD#_2	11	12	COM_RXD_2
COM_RI#_1	9	10	NC
COM_RTS#_1	7	8	COM_CTS#_1
GND	5	6	COM_DSR#_1
COM_TXD_1	3	4	COM_DTR#_1
COM_DCD#_1	1	2	COM_RXD_1

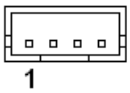
2.3.4 Serial port 3/4 connector (CN2)



Signal	PIN	PIN	Signal
COM_RI#_4	19	20	NC
COM_RTS#_4	17	18	COM_CTS#_4
GND	15	16	COM_DSR#_4
COM_TXD_4	13	14	COM_DTR#_4
COM_DCD#_4	11	12	COM_RXD_4
COM_RI#_3	9	10	NC
COM_RTS#_3	7	8	COM_CTS#_3
GND	5	6	COM_DSR#_3
COM_TXD_3	3	4	COM_DTR#_3
COM_DCD#_3	1	2	COM_RXD_3

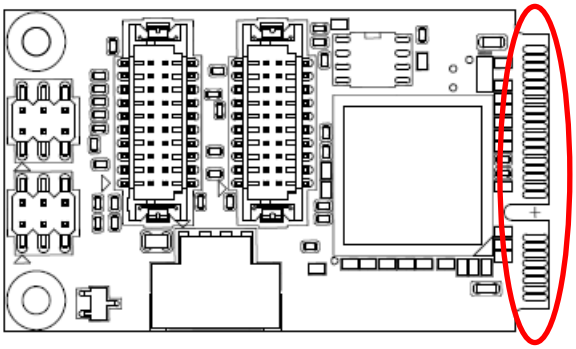
2.3.5 Serial port power connector (CN3)





Signal	PIN
+VCOM	1
+VCOM	2
GND	3
GND	4

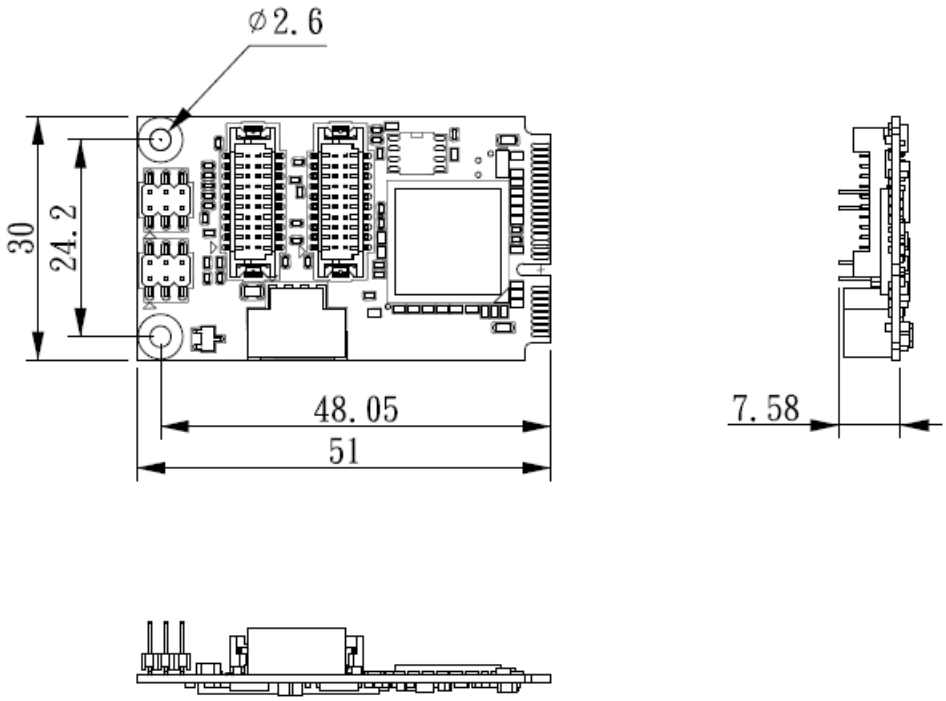
2.3.6 Golden Finger mini PCIe (MINI_PCIE_GF1)



Signal	PIN	PIN	Signal
NC	1	2	+3.3V
NC	3	4	GND
NC	5	6	NC
A_CLKREQ#	7	8	NC
GND	9	10	NC
A_PCIE_CLKN	11	12	NC
A_PCIE_CLKP	13	14	NC
GND	15	16	NC
NC	17	18	GND
NC	19	20	NC

Signal	PIN	PIN	Signal
GND	21	22	A_PERST#
A_PCIE_RXN	23	24	+3.3V
A_PCIE_RXP	25	26	GND
GND	27	28	NC
GND	29	30	NC
A_PCIE_TXN	31	32	NC
A_PCIE_TXP	33	34	GND
GND	35	36	NC
GND	37	38	NC
+3.3V	39	40	GND
+3.3V	41	42	NC
GND	43	44	NC
NC	45	46	NC
NC	47	48	NC
NC	49	50	GND
NC	51	52	+3.3V

3. Mechanical Drawing



Unit: mm