EPM-1607

4 x RS-232 M.2 card

User's Manual

2nd Ed – 07 March 2022

Part No: E2047CS0801R

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/

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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.

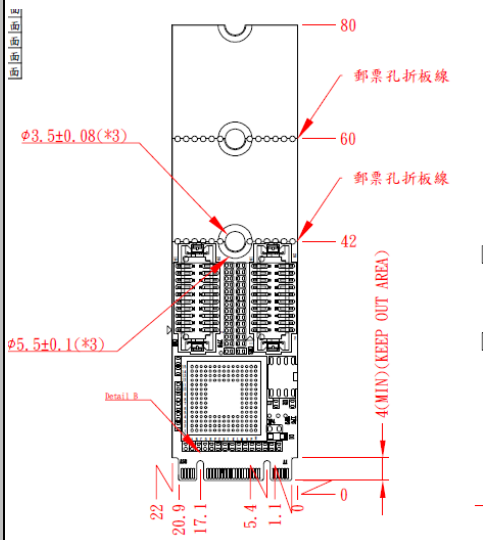
1.2 Packing List

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

- 1 x EPM-1607 4 x RS-232 M.2 card
- 2 x DB9 COM cable

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

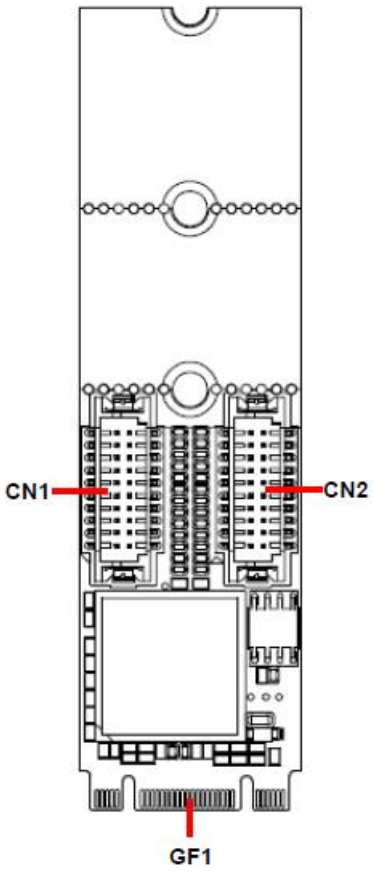
2.1 Product Specifications

Component	
I/O Chip	MAXLINEAR XR17V354
Form factor	M.2 2242/2260/2280 key B-M
Input I/F	1 x PCI Express 2.0
Output I/F	4 x RS-232 (four DB9 connector with cable)
Mechanical & Environmental	
Power Consumption	220mA@3.3V
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)	 Width 22mm Length 42mm/60mm/80mm
Weight	TBD EPM-1601 Reference as below: Board weight: 9g Cable weight: 4.5g
Vibration Test	Vibration: 5G @5~500Hz
Shock Test	Shock: 10G @ 11ms
OS Information	Windows 7/10 and Linux
Regulatory approvals	CE, FCC
Driver support	Windows 10/8/7/XP, Linux Kernel 2.6.x and above
Warranty	2 years

Note: Specifications are subject to change without notice.

2. Hardware Configuration

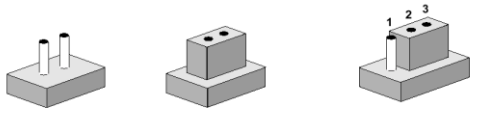
2.2 Product Overview



2.3 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.

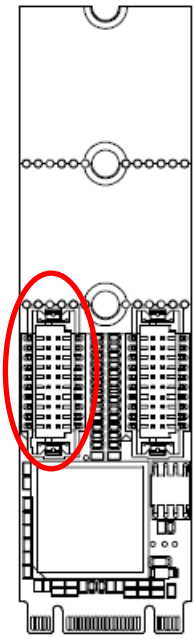
The following tables list the function of each of the board's jumpers and connectors.

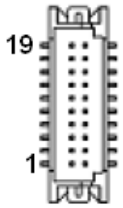
Connectors

Label	Function	
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
GF1	Golden Finger	

2.4 Setting Jumpers & Connectors

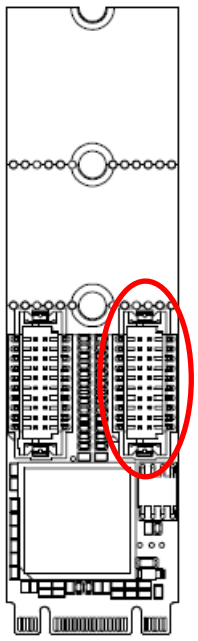
2.4.1 Serial port 1/2 connector (CN1)

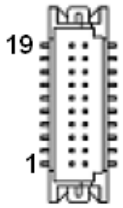




Signal	PIN	PIN	Signal
COM_RI#_2	19	20	NC
COM_RTS#_2	17	18	COM_CTS#_2
GND	15	16	COM_DSR#_2
COM_TXD_2	13	14	COM_DTR#_2
COM_DCD#_2	11	12	COM_RXD_2
COM_RI#_1	9	10	NC
COM_RTS#_1	7	8	COM_CTS#_1
GND	5	6	COM_DSR#_1
COM_TXD_1	3	4	COM_DTR#_1
COM_DCD#_1	1	2	COM_RXD_1

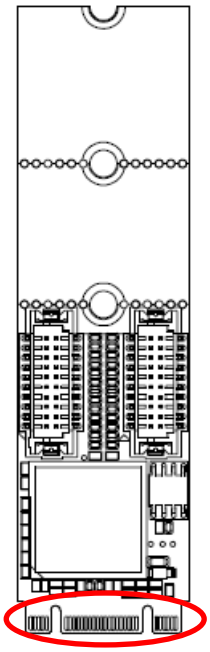
2.4.2 Serial port 3/4 connector (CN2)





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

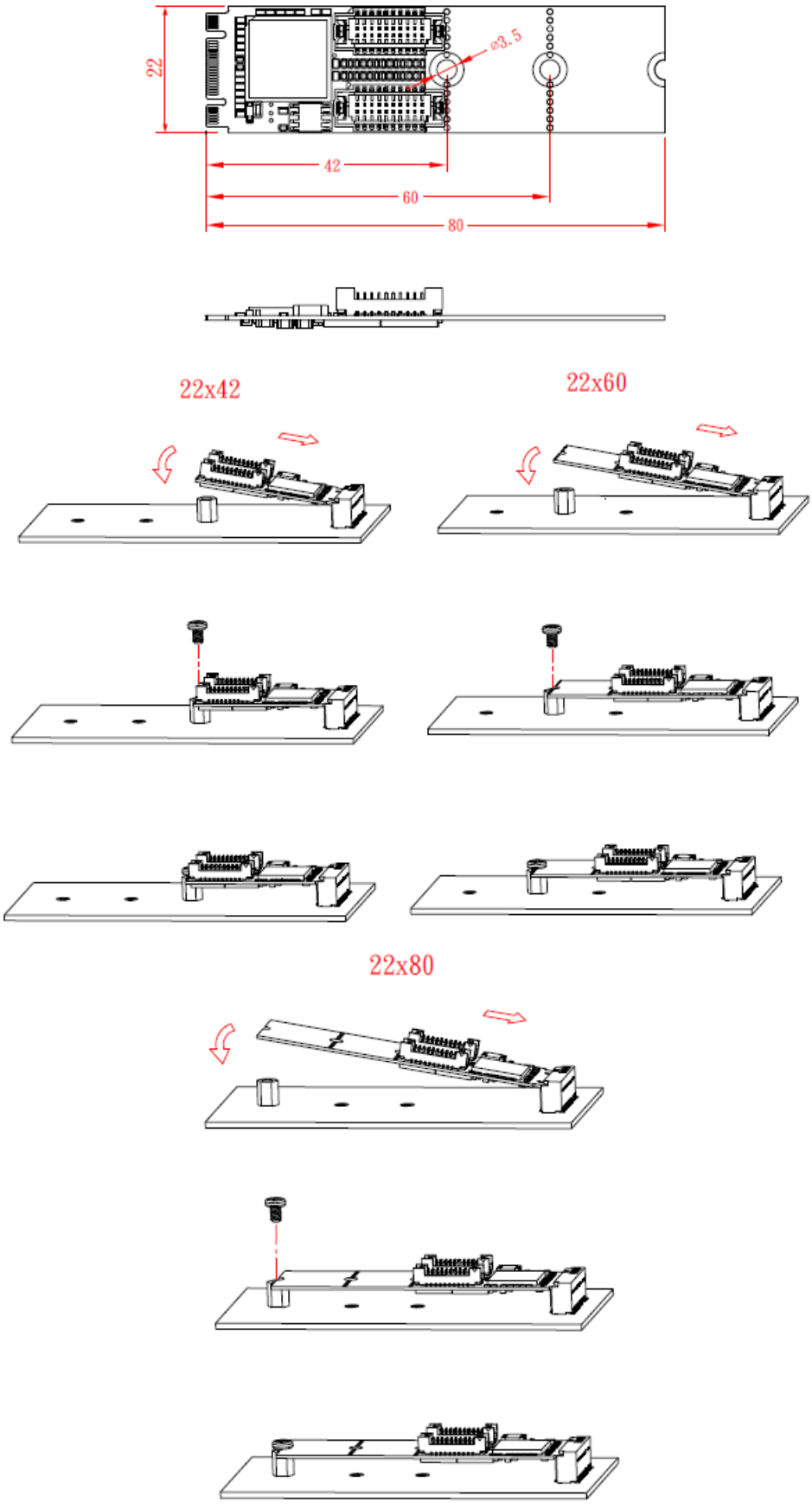
2.4.3 Golden Finger (GF1)



Signal	PIN	PIN	Signal
CONFIG_3	A1	B1	+3.3V
GND	A2	B2	+3.3V
NC	A3	B3	NC
NC	A4	B4	NC
NC	A5	B5	NC
NC	A6	B6	NC
CONFIG 0	A11	B10	NC
NC	A12	B11	NC
NC	A13	B12	NC
GND	A14	B13	NC
NC	A15	B14	NC
NC	A16	B15	NC
GND	A17	B16	NC
NC	A18	B17	NC
NC	A19	B18	NC
GND	A20	B19	NC
PCIE_RXN	A21	B20	NC
PCIE_RXP	A22	B21	NC
GND	A23	B22	NC
PCIE_TXN	A24	B23	NC
PCIE_TXP	A25	B24	NC
GND	A26	B25	PERST#
PCIE_CLKN	A27	B26	CLKREQ#
PCIE_CLKP	A28	B27	RING_WAKE#
GND	A29	B28	NC
NC	A34	B29	NC
CONFIG 1	A35	B34	NC
GND	A36	B35	+3.3V
GND	A37	B36	+3.3V
CONFIG 2	A38	B37	+3.3V

2.5 M.2 Installation (EPM-1607)

EPM-1607 is designed with 3-In-1 2280/2260/2242 & fitted in any host computer that has M.2 slots. If user's device has M.2 2242 or 2260 socket, you can easily to break-away EPM-1607 PCB with Stamp hole design & modify M.2 card from size 2280 to 2260 or 2242.



Step1. Insert M.2 Card into designated locations and fasten screw to complete M.2 Card installation.

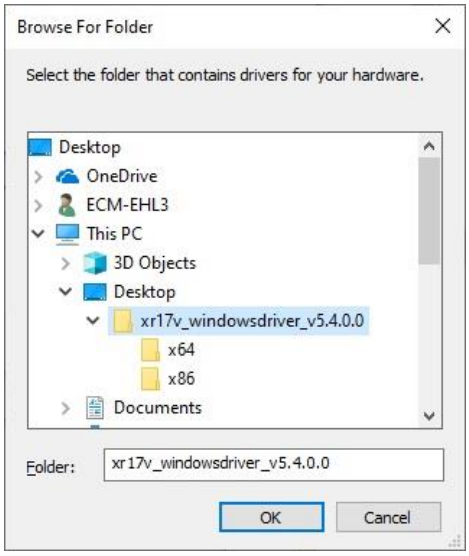
3. Drivers Installation

Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

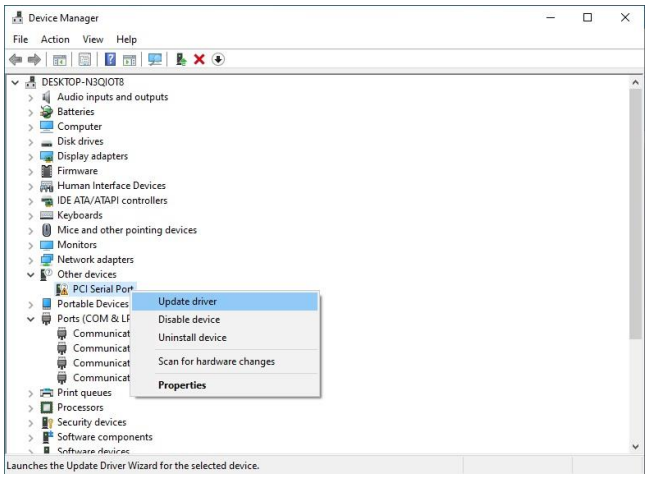
3.1 Install Driver

All drivers can be found on the Avalue Official Website: http://www.avalue.com.tw.

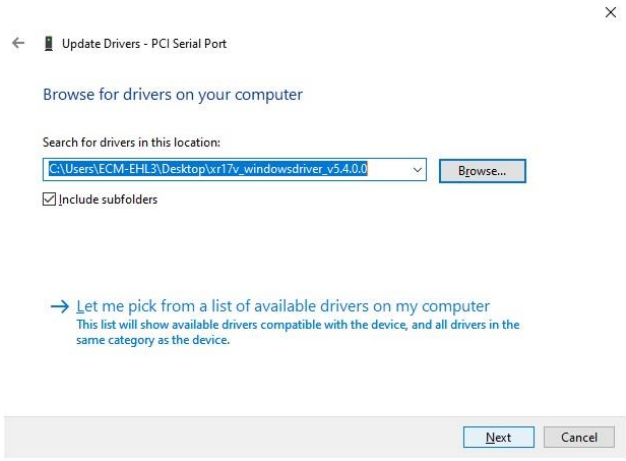
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



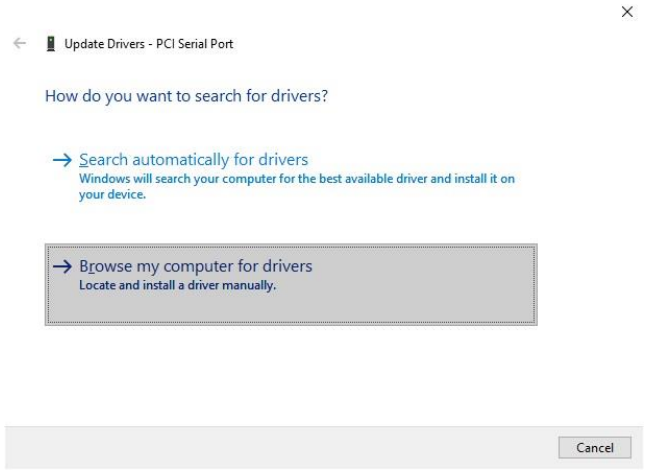
Step 3. Click **OK**.



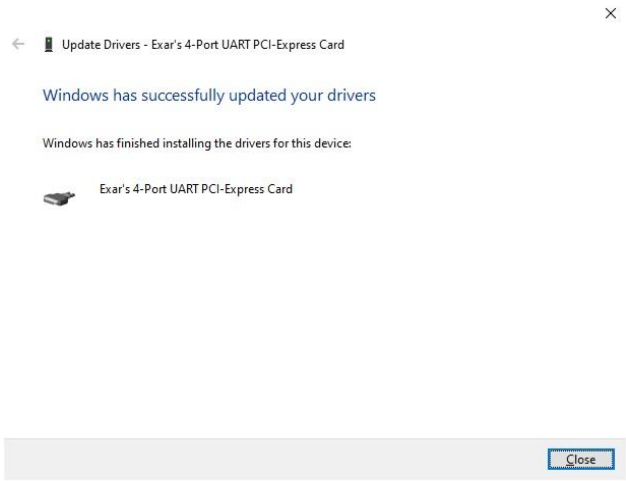
Step1. Click **Update driver**.



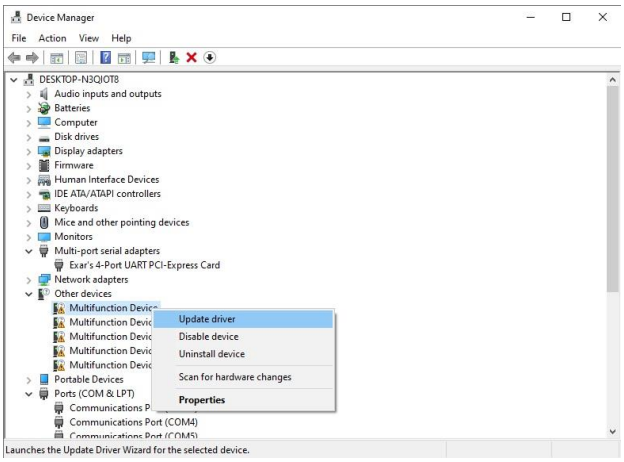
Step 4. Click **Next**.



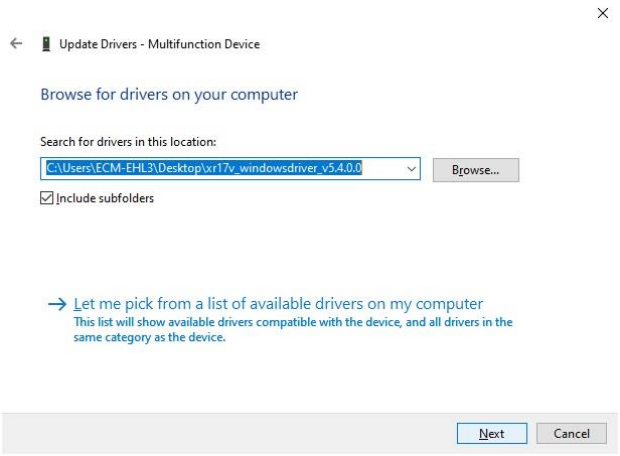
Step 2. Click **Browse my computer for drivers**.



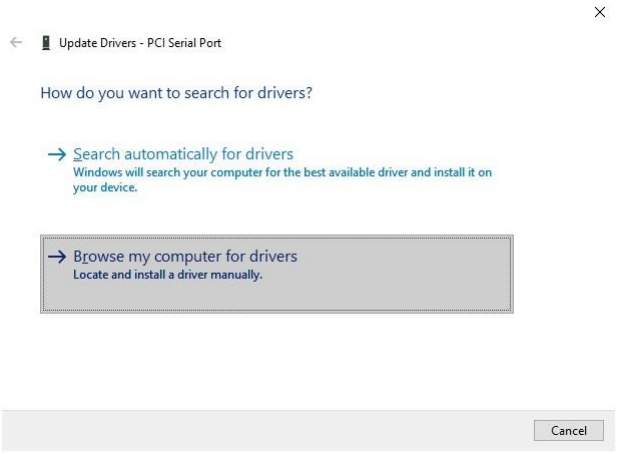
Step 5. Setup completed.



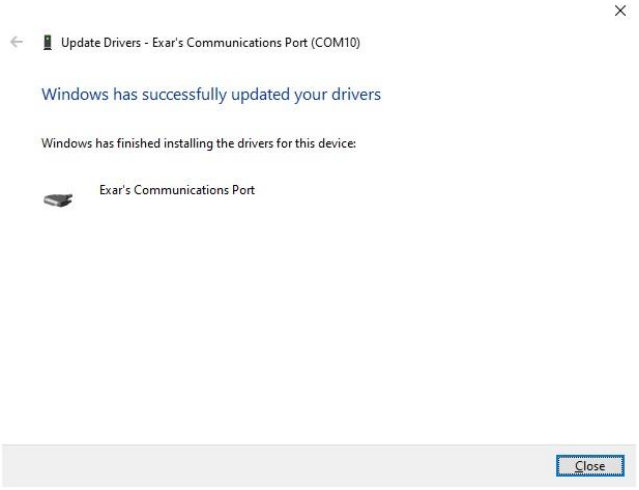
Step 6. Click **Update driver**.



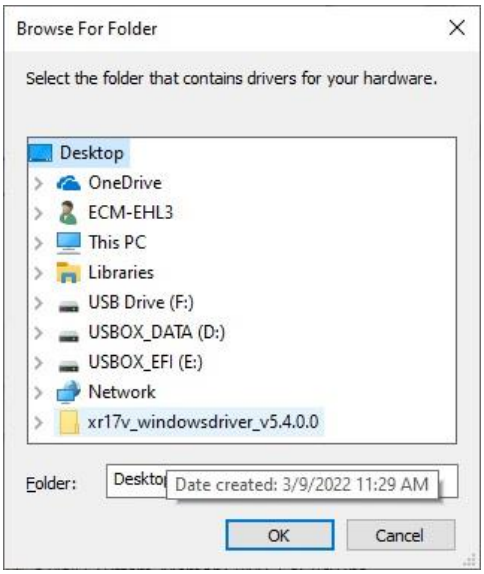
Step 9. Click **Next**.



Step 7. Click **Browse my computer for drivers**.

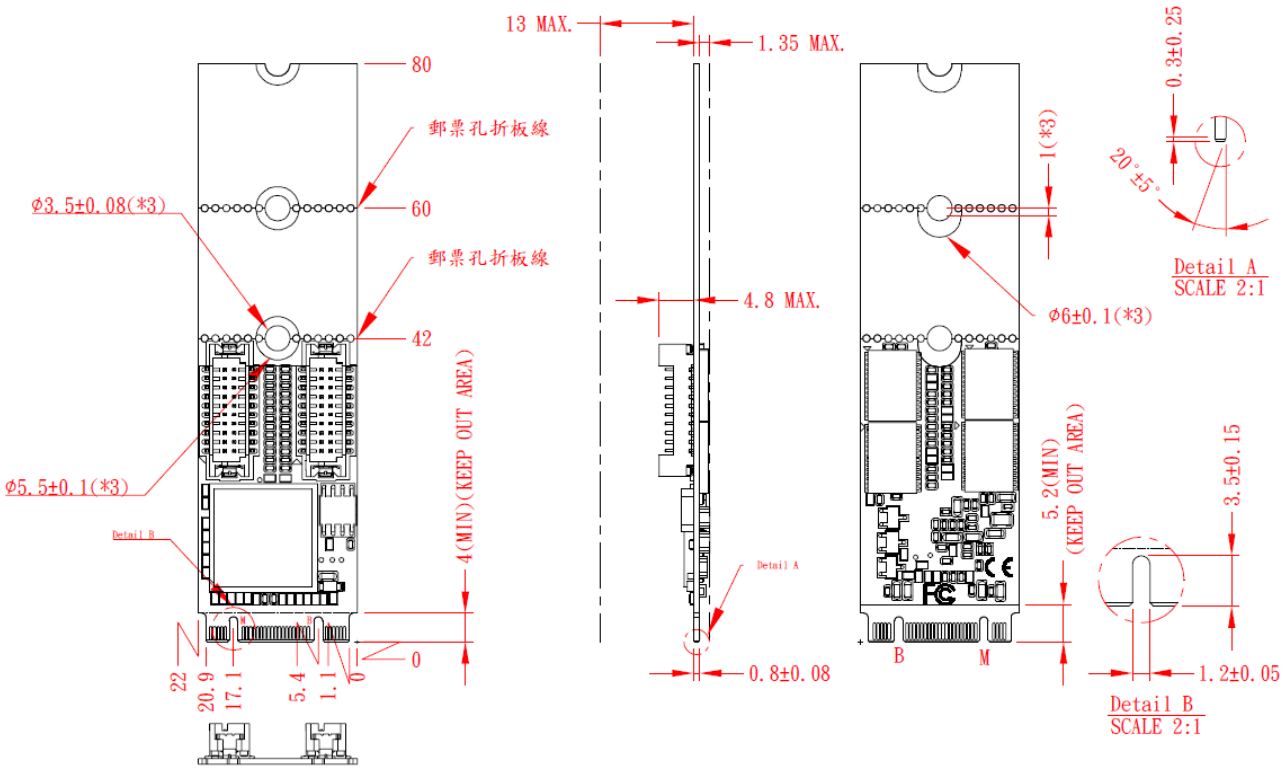


Step 10. Setup completed.



Step 8. Click **OK**.

4. Mechanical Drawing


13 MAX.
1.35 MAX.
80
郵票孔折板線
60
郵票孔折板線
42
φ3.5±0.08(*3)
φ5.5±0.1(*3)
Detail B
4(MIN)(KEEP OUT AREA)
0
22
20.9
17.1
5.4
1.1
0
4.8 MAX.
Detail A
0.8±0.08
1(*3)
φ6±0.1(*3)
B
M
0.3±0.25
20°±5°
Detail A
SCALE 2:1
5.2(MIN)
(KEEP OUT AREA)
3.5±0.15
1.2±0.05
Detail B
SCALE 2:1

Unit: mm