

Part No: E2047CS0802R

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

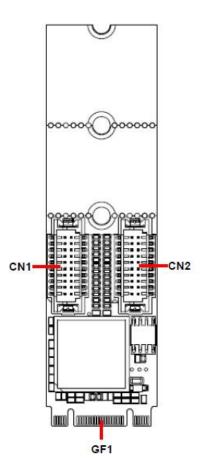
| Component | | | | | |
|---|---|--|--|--|--|
| I/O Chip | MAXLINEAR XR17V354 | | | | |
| Form factor | M.2 2242/2260/2280 key B-M | | | | |
| Input I/F | 1 x PCI Express 2.0 | | | | |
| Output I/F | x RS-232 up to 921kbps(four DB9 connector with cable) | | | | |
| Mechanical & Environme | ental | | | | |
| 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) | #3.5±0.08(#3) #1.55 kk #3.5±0.08(#3) #1.55 kk #5.5±0.1(#3) #1.55 kk #1.55 kk #1.55 kk | | | | |
| | Length 42mm/60mm/80mm Board weight: 9g | | | | |
| Weight | 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

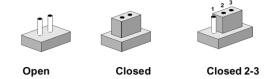


EPM-1607

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.



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

| 0 0 | | 1 2 3 O |
|------|--------|------------|
| 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.

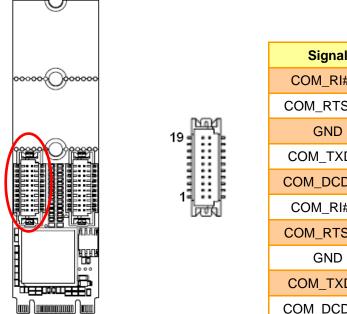
If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

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

| Connectors | 5 | |
|------------|---------------------------|----------------------------|
| 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 | |
| | <u> </u> | |

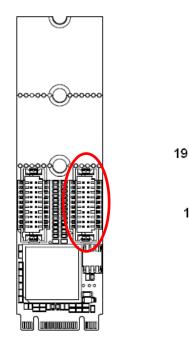
2.4 Setting Jumpers & Connectors

2.4.1 Serial port 1/2 connector (CN1)



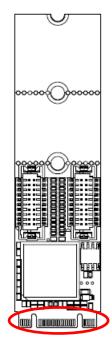
| Signal | PIN | PIN | Signal |
|------------|-----|-----|------------|
| COM_RI#_2 | 19 | 20 | NC |
| COM_RTS#_2 | 17 | 18 | COM_CTS#_2 |
| GND | 15 | 16 | COM_DSR#_2 |
| COM_TXD_2 | 13 | 14 | COM_DTR#_2 |
| COM_DCD#_2 | 11 | 12 | COM_RXD_2 |
| COM_RI#_1 | 9 | 10 | NC |
| COM_RTS#_1 | 7 | 8 | COM_CTS#_1 |
| 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)

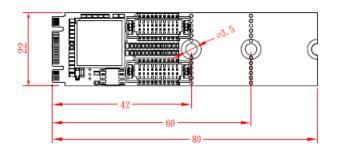


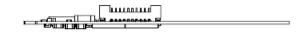
| Signal | PIN | PIN | Signal |
|-----------|-----|-----|------------|
| CONFIG_3 | A1 | B1 | +3.3V |
| GND | A2 | B2 | +3.3V |
| NC | A3 | B3 | NC |
| NC | A4 | B4 | NC |
| NC | A5 | B5 | NC |
| NC | A6 | B6 | NC |
| CONFIG 0 | A11 | B10 | NC |
| NC | A12 | B11 | NC |
| NC | A13 | B12 | NC |
| GND | 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.

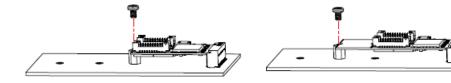




22x42

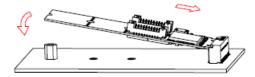


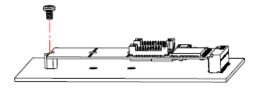


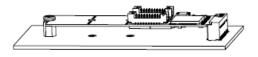


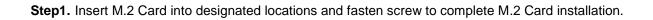


22x80









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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.

| Desl | ktop | 1 |
|-------|------------------------------|---|
| > 6 | OneDrive | |
| > 21 | ECM-EHL3 | |
| v 🔲 ' | This PC | |
| > | 🔋 3D Objects | |
| ~ | Desktop | |
| | xr17v_windowsdriver_v5.4.0.0 | |
| | x64 | |
| | ×86 | |
| > [| Documents | |

Step 3. Click OK.

| 🛃 Device Manager — | |] | | × |
|---|--------|--------------|--|--------|
| File Action View Help | | 1 | | |
| | | ÷ | Update Drivers - PCI Serial Port | |
| ✓ | Â | | Browse for drivers on your computer | |
| > 🔜 Disk drives > 🔙 Display adapters | | | Search for drivers in this location: | |
| > Firmware | | | C:\Users\ECM-EHL3\Desktop\xr17v_windowsdriver_v5.4.0.0 V Browse | |
| > 🙀 Human Interface Devices > 📲 IDE ATA/ATAPI controllers | | | | |
| > III Keyboards > III Mice and other pointing devices | | | ✓ Include subfolders | |
| > Monitors | | | | |
| > 💭 Network adapters ✓ 🕼 Other devices | | | | |
| R PCI Serial Port | | | | |
| Portable Devices Update driver Ports (COM & LF Disable device | | | \rightarrow Let me pick from a list of available drivers on my computer | |
| Communicat Uninstall device | | | This list will show available drivers compatible with the device, and all drivers in the | |
| Communicat Scan for hardware changes | | | same category as the device. | |
| Communicat Properties | | | | |
| Print queues Processors | | | | |
| > 🛐 Security devices | | - | | |
| Software components Software devices | ~ | | Next | Cancel |
| Launches the Update Driver Wizard for the selected device. | | | | 10 |
| Step1. Click Update driver. | × | S | tep 4. Click Next. | × |
| 🔶 📱 Update Drivers - PCI Serial Port | | | | ^ |
| | | \leftarrow | Update Drivers - Exar's 4-Port UART PCI-Express Card | |
| How do you want to search for drivers? | | | | |
| | | | Windows has successfully updated your drivers | |
| | | | | |
| → Search automatically for drivers | | | Windows has finished installing the drivers for this device: | |
| Windows will search your computer for the best available driver and install it on | | | | |
| your device. | | | Exar's 4-Port UART PCI-Express Card | |
| | | | | |
| → Browse my computer for drivers Locate and install a driver manually. | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | Cancel | | | |
| Stop 2 Click Browson my computer for | | | | Close |
| Step 2. Click Browse my computer for | r | | | |

drivers.

Step 5. Setup completed.

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Close

| Action View Help | ▶ × ● | 🔶 📱 Update Drivers - Multifunction Device | |
|--|---------------------------|--|-------|
| | ¥ •• 0 | 0 | |
| > 📢 Audio inputs and outputs | | Browse for drivers on your computer | |
| > 🗃 Batteries | | blowse for unversion your comparer | |
| > 🛄 Computer | | | |
| > Disk drives | | Search for drivers in this location: | |
| > 🌆 Display adapters > 🎬 Firmware | | | |
| Human Interface Devices | | C:\Users\ECM-EHL3\Desktop\xr17v_windowsdriver_v5.4.0.0 V Browse | |
| IDE ATA/ATAPI controllers | | | 10 |
| Keyboards | | ✓ Include subfolders | |
| Mice and other pointing d | evices | | |
| Monitors | | | |
| Multi-port serial adapters | | | |
| Exar's 4-Port UART PCI- | Express Card | | |
| Image: Provide the second secon | | | |
| Multifunction Device | | \rightarrow Let me pick from a list of available drivers on my computer | |
| Multifunction Devic Update driver | | | |
| Multifunction Devic | Disable device | This list will show available drivers compatible with the device, and all drivers in the | |
| Multifunction Devic | Uninstall device | same category as the device. | |
| Multifunction Devic | | | |
| Portable Devices | Scan for hardware changes | | |
| Ports (COM & LPT) Communications P | Properties | | |
| Communications Port | | | |
| Communications Port | | v Next | Cance |
| hes the Update Driver Wizard for | all a selected de des | | |

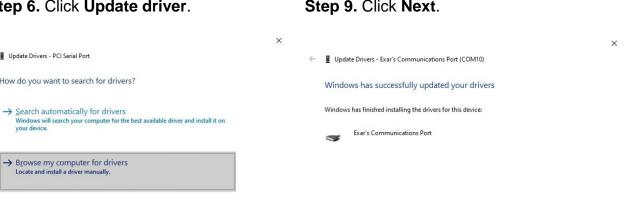
Cancel



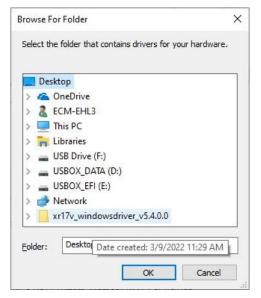
🗧 📱 Update Drivers - PCI Serial Port

How do you want to search for drivers?

→ Browse my computer for drivers Locate and install a driver manually.

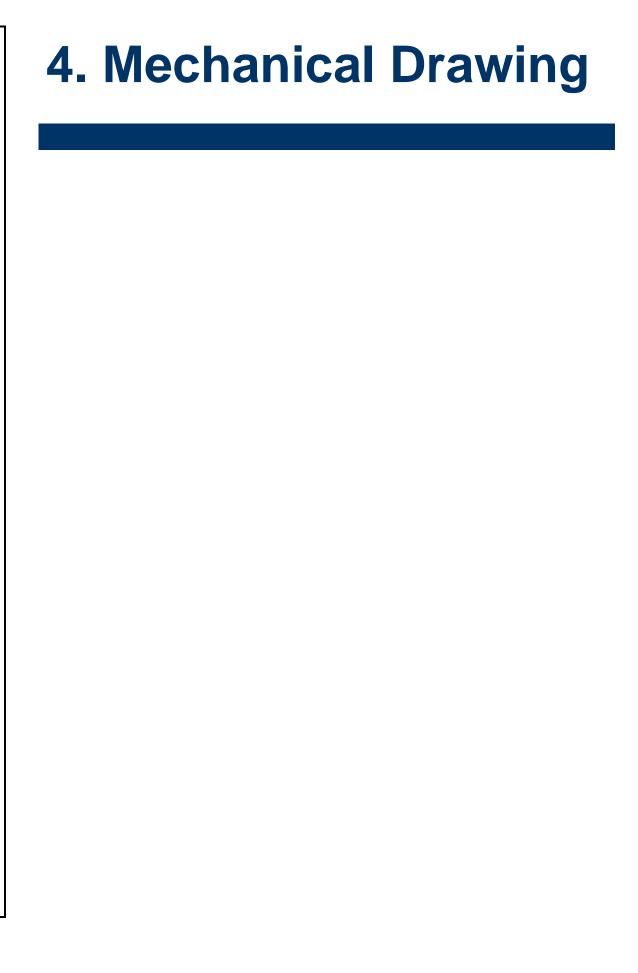


Step 7. Click Browse my computer for drivers.

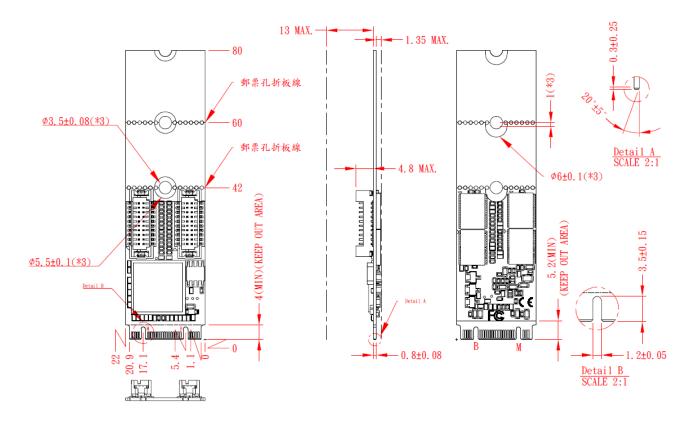


Step 8. Click OK.

Step 10. Setup completed.



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Unit: mm

