SRG-AM62

IoT Gateway System

User's Manual 1st Ed

Last Updated: August 12, 2024

Copyright Notice

Acknowledgement

Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● SRG-AM62	1
● 2-pin 3.81mm Power Terminal Block w/Lock	1
● 14-pin 2.54mm Phoenix plug in Connector/Lock	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the product page on AAEON.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:
    i. Damaged power cord or plug
    ii. Liquid intrusion to the device
    iii. Exposure to moisture
    iv. Device is not working as expected or in a manner as described in this manual
    v. The device is dropped or damaged
    vi. Any obvious signs of damage displayed on the device
18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -40°C (-40°F) OR ABOVE 85°C (185°F) TO PREVENT DAMAGE.

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, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.
Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur.
Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON System QO4-381 Rev.A0

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚(PBDE)
印刷电路板及其电子组件	×	○	○	○	○	○
外部信号连接器及线材	×	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	×	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572标准规定的限量要求以下。

×：表示该有害物质的某一均质材料超出了GB/T 26572的限量要求，然而该部件仍符合欧盟指令2011/65/EU 的规范。

备注：

一、此产品所标示之环保使用期限，系指在一般正常使用状况下。

二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。

三、上述部件物质液晶模块、触控模块仅一体机产品适用。

China RoHS Requirement (EN)

Hazardous and Toxic Materials List

AAEON System QO4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBBs)	Polybrominated diphenyl ethers (PBDEs)
PCB and Components	X	O	O	O	O	O
Wires & Connectors for Ext.Connections	X	O	O	O	O	O
Chassis	O	O	O	O	O	O
CPU & RAM	X	O	O	O	O	O
HDD Drive	X	O	O	O	O	O
LCD Module	X	X	O	O	O	O
Optical Drive	X	O	O	O	O	O
Touch Control Module	X	O	O	O	O	O
PSU	X	O	O	O	O	O
Battery	X	O	O	O	O	O

This form is prepared in compliance with the provisions of SJ/T 11364.

O: The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.

X: The level of toxic of hazardous materials present in the component exceed the limits specified by GB/T 26572, but is still in compliance with EU Directive 2011/65/EU (RoHS 2).

Notes:

1. The Environment Friendly Use Period indicated by labelling on this product is applicable only to use under normal conditions.
2. Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.
3. LCD Module and Touch Control Module only applies to certain products which feature these components.

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
Processor	Texas Instruments™ AM625/AM623 Sitara™ Quad-Core Arm® Cortex®-A53, 1.4 GHz
Memory Type	Onboard DDR4, up to 4GB
Power Requirement	DC 9V ~ 36V (Optional: 12V)
Board Dimension	2.8" x 3.9" (72mm x 100mm)
System Dimension	4.25" x 3.13" x 1.29" (108mm x 79.5mm x 33mm)
Operating Temperature	-40°F ~ 185°F (-40°C ~ 85°C) Optional: 32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE/FCC Class A

Display	
Video Output	HDMI 1.4b x 1

OS	
OS	Debian 12 (Default, GUI is optional)

Mechanical	
Mounting	Wall Mount DIN Rail (Optional)

Indicator

Indicator	Programmable LED Control x 3

Internal I/O

Storage	eMMC 5.1, 16GB (Optional: 32GB/64GB/128GB)
TPM	TPM 2.0 (Optional)

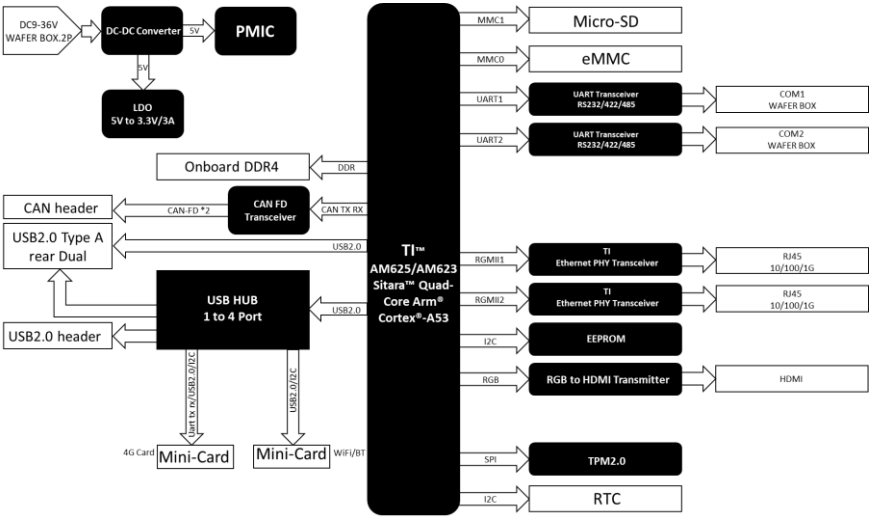
External I/O

Ethernet	Gigabit Ethernet x 2 (integrated RGMII)
Audio	Line Out x 1/Line In x 1/Mic In x 1 (by request)
USB Port	USB 2.0 x 2
	(Host/Device by Image option x 1, default: Host, Host x 1)
Debug Port	Micro USB x 1
Serial Port	RS-232/422/485 x 4 (Optional)
Storage	Micro SD Card x 1
Expansion Slot	Half-size Mini Card x 1 (USB 2.0, Wi-Fi/BT)
	Full-size Mini Card x 1 (USB 2.0, 4G)
	Power control available by software
CANBus	CAN 2.0 FD x 2 (Optional)
Antenna	Antenna x 3 (Optional)
Reset	Yes

I/O CN70 Combination Note:

1. RS-232 (2-wire)/422/485 x 2 + CAN-FD x 2 (default)
2. RS-232 (4-wire)/422/485 x 2
3. RS-485 x 4
4. RS-232 (2-wire) x 4
5. RS-485 x 4 + 3.3V UART (2-wire) x 2

1.2 Function Block Diagram

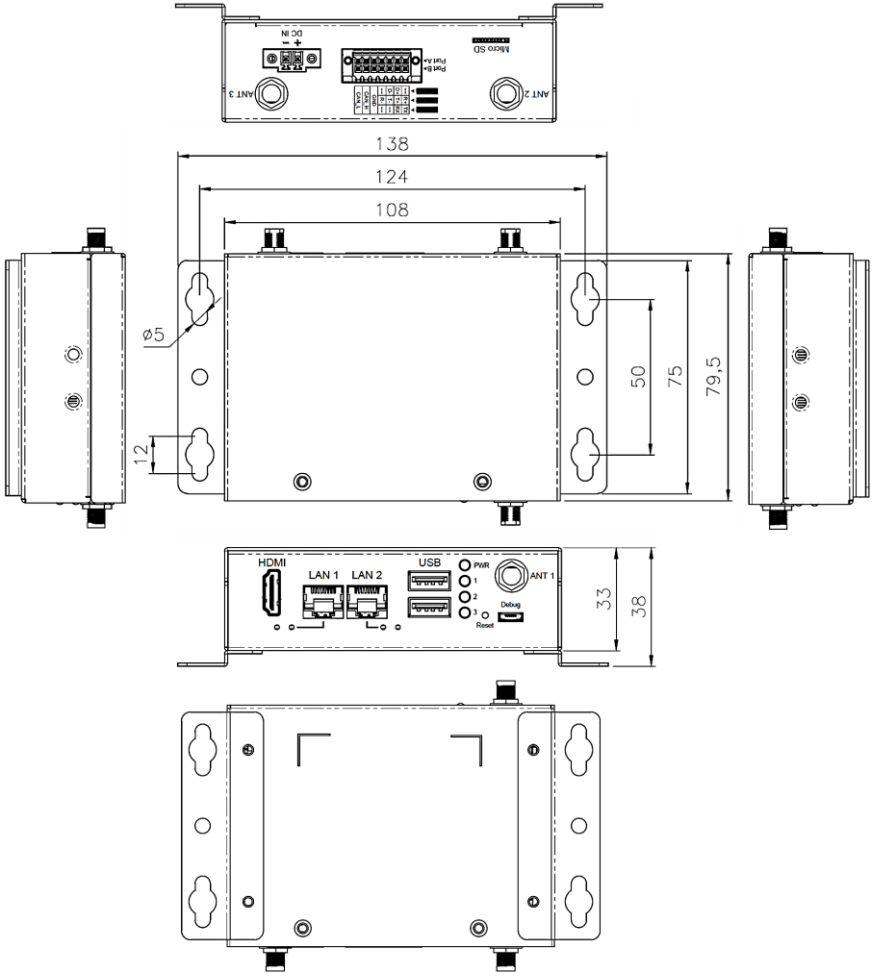


Chapter 2

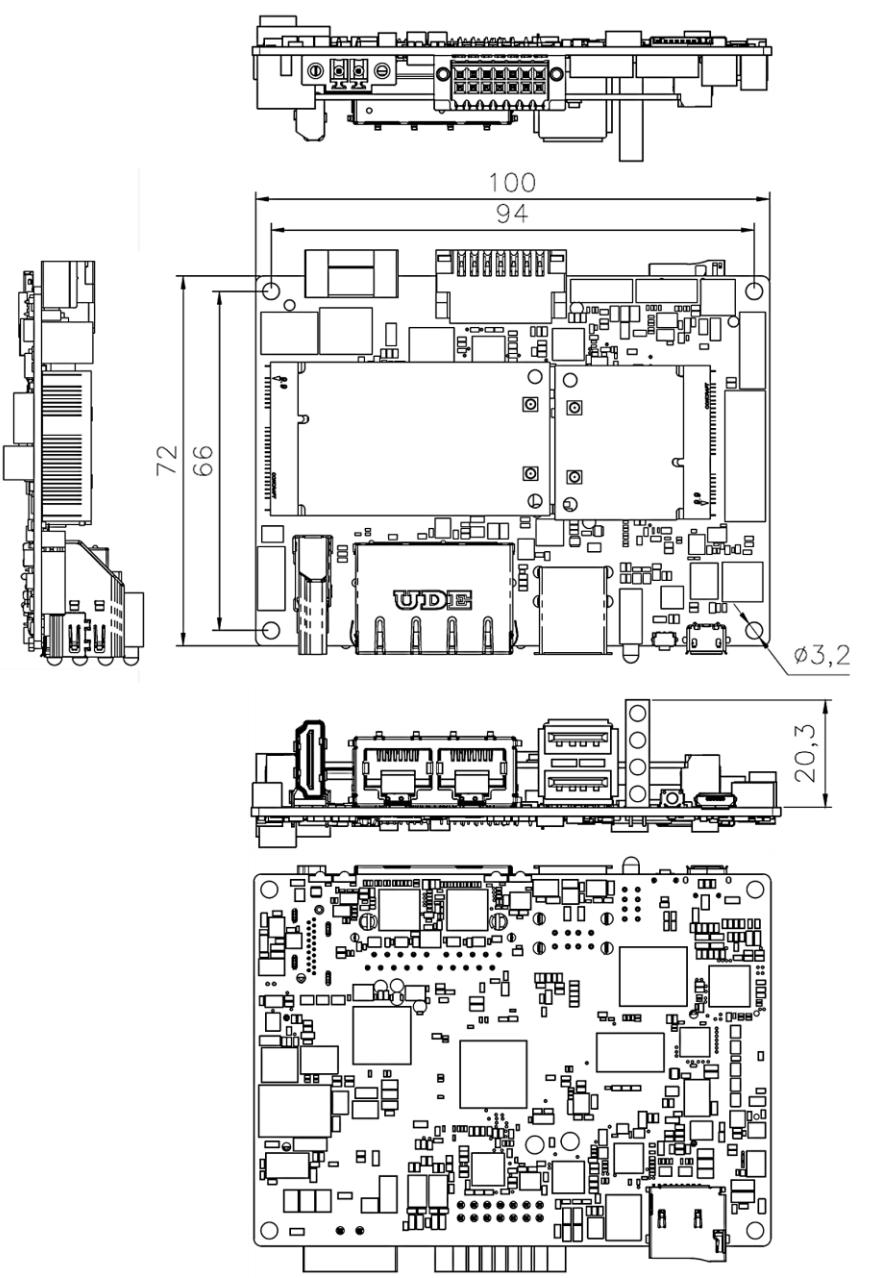
Hardware Information

2.1 Dimensions

System

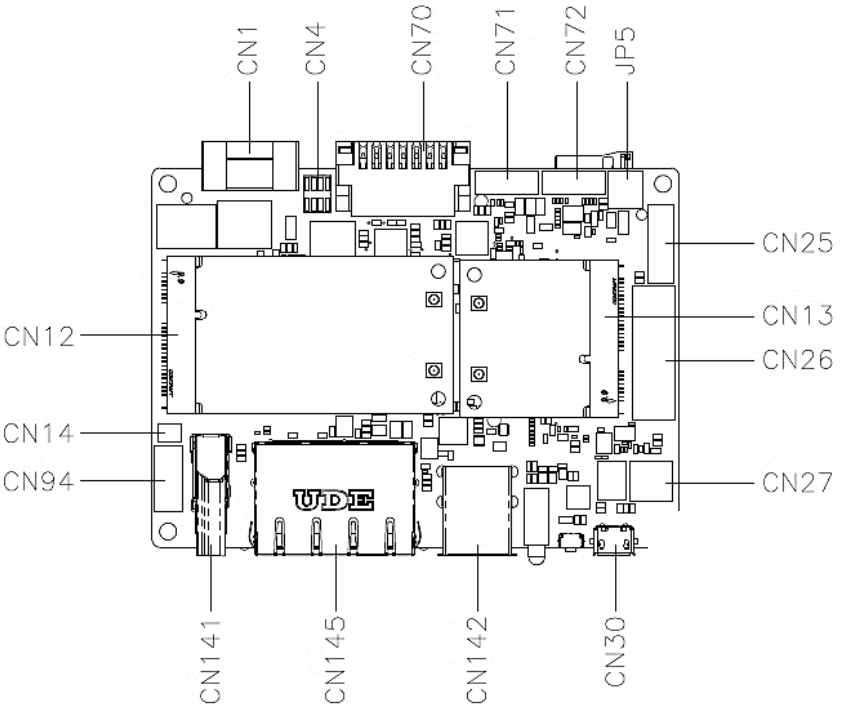


Board

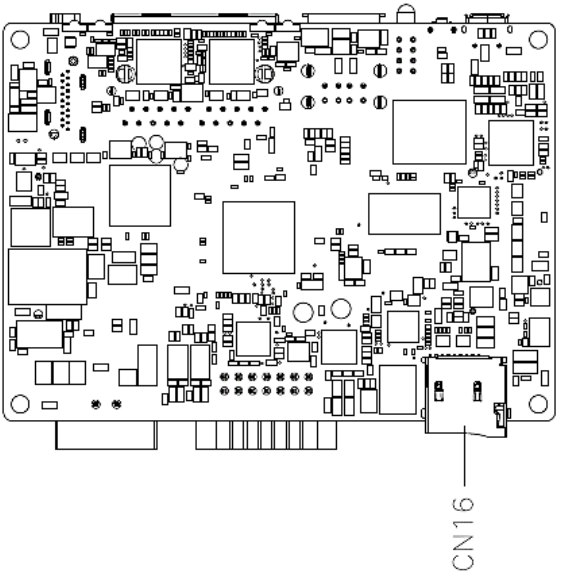


2.2 Jumpers and Connectors

Component Side



Solder Side



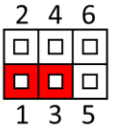
2.3 List of Jumpers

Jumpers allow users to manually customize system configurations to their suitable application needs.

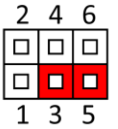
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
JP5 (Pins 1, 3, 5)	LVDS VDD Power Selection
JP5 (Pins 2, 4, 6)	LVDS Backlight Power Selection
JP6 (Pins 2, 4, 6)	Boot Selection

2.3.1 LVDS VDD Power Selection (JP5 Pins 1, 3, 5)

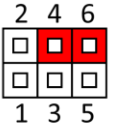


LVDS VDD = 5V

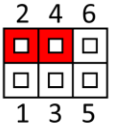


LVDS VDD = 3.3V (Default)

2.3.2 LVDS Backlight Power Selection (JP5 Pins 2, 4, 6)



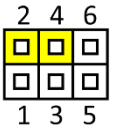
LVDS Backlight = 5V



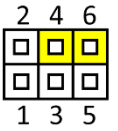
LVDS Backlight = 12V (Default)

Note: To prevent damage to the system or unwanted operation, do not use any other configuration for JP5 than what is shown in Ch2.3.1 and Ch2.3.2.

2.3.3 Boot Selection (JP6 Pins 2, 4, 6)



SD Card Mode



eMMC Mode (Default)

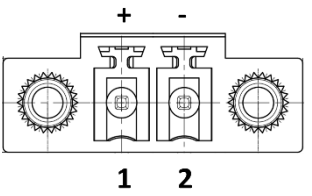
2.4 List of Connectors

Please refer to the table below for all of the board's connectors that you can configure for your application

Label	Function
CN1	DC Power
CN4	SPI/I2C/GPIO Connector
CN12	Full-size Mini Card Slot
CN13	Half-size Mini Card Slot
CN14	RTC Battery Connector
CN16	Micro SD Slot
CN25	LVDS Port Inverter/Backlight Connector
CN26	LVDS Connector
CN27	Audio Port
CN30	Debug Port
CN70	COM Port 1/Port 2 (RS-232/422/485)
CN71	COM Port 3 (RS-232/422/485)
CN72	COM Port 4 (RS-232/422/485)
CN94	Internal USB 2.0 Port
CN141	HDMI Port
CN142	USB 2.0 Port 1/Port 2
CN145	RJ-45 LAN Port 1/Port 2

Note: Some interfaces are only available via board-level connectors. For more information regarding interfaces specific to the SRG-AM62, please see specifications in chapter 1.

2.4.1 DC Power (CN1)

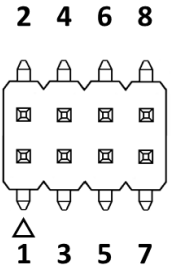


Pin	Pin Name	Signal Type	Signal Level
1	DC_IN	PWR	+9~36V / +12V
2	GND	GND	

Note 1: Wide range input voltage from +9V to +36V or +12V for specified version.

Note 2: Please check the input voltage description on product label before inserting power.

2.4.2 SPI/I2C/GPIO Connector (CN4)

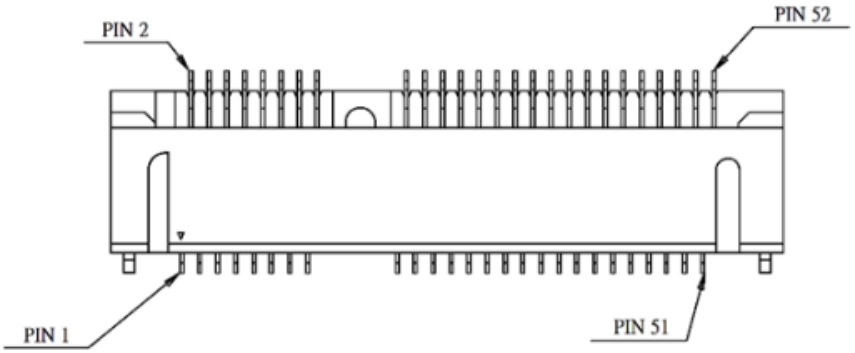


Pin	Pin Name	Signal Type	Signal Level
1	SPI_CLK	I/O	+3.3V
2	SPI_CS1	I/O	+3.3V
3	SPI_D0	I/O	+3.3V
4	I2C_SCL	I/O	+3.3V
5	SPI_D1	I/O	+3.3V
6	I2C_SDA	I/O	+3.3V

Pin	Pin Name	Signal Type	Signal Level
7	SPI0_CS0	I/O	+3.3V
8	GPIO_16	I/O	+3.3V

Note: Pitch = 1.27mm.

2.4.3 Full-size Mini Card Slot (CN12)



Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	+3.3VSB	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	NC		
7	NC	NC	
8	NC		
9	GND	GND	
10	NC		
11	NC		
12	NC		
13	NC		

Pin	Pin Name	Signal Type	Signal Level
14	NC		
15	GND	GND	
16	NC		
17	NC		
18	GND	GND	
19	NC		
20	W_DISABLE1# (Note 1)	OUT	+3.3V
21	GND	GND	
22	PERST1#	OUT	+3.3V
23	UART_TX	OUT	+3.3V
24	+3.3VSB	PWR	+3.3V
25	NC		
26	GND	GND	
27	GND	GND	
28	NC		
29	GND	GND	
30	SMB1_CLK (Note 1)	OUT	+3.3V
31	UART_RX	IN	+3.3V
32	SMB1_DATA (Note 1)	I/O	+3.3V
33	NC		
34	GND	GND	
35	GND	GND	
36	USB1_D-	DIFF	
37	GND	GND	
38	USB1_D+	DIFF	
39	+3.3VSB	PWR	+3.3V
40	GND	GND	
41	+3.3VSB	PWR	+3.3V
42	NC		
43	NC		
44	NC		
45	NC		
46	NC		

Pin	Pin Name	Signal Type	Signal Level
47	NC		
48	NC		
49	NC		
50	GND	GND	
51	NC		
52	+3.3VSB	PWR	+3.3V

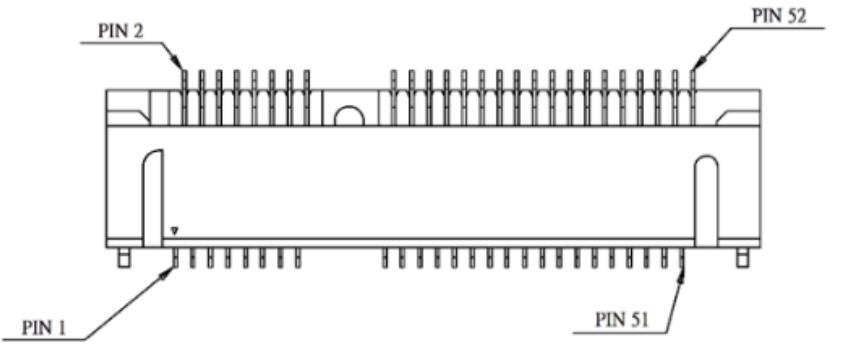
Note 1: The function is disabled by unmounted 0ohm jumper.

W_DISABLE1#: R3232, SMB1_CLK: R328, SMB1_DATA: R326.

Note 2: The driving current supports up to 2A.

Note 3: For 4G full-size mini card.

2.4.4 Half-size Mini Card Slot (CN13)



Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	+3.3VSB	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	NC		
7	NC		

Pin	Pin Name	Signal Type	Signal Level
8	NC		
9	GND	GND	
10	NC		
11	NC		
12	NC		
13	NC		
14	NC		
15	GND	GND	
16	NC		
17	NC		
18	GND	GND	
19	NC		
20	W_DISABLE2# (Note 1)	OUT	+3.3V
21	GND	GND	
22	PERST2#	OUT	+3.3V
23	NC		
24	+3.3VSB	PWR	+3.3V
25	NC		
26	GND	GND	
27	GND	GND	
28	NC		
29	GND	GND	
30	SMB2_CLK (Note 1)	OUT	+3.3V
31	NC		
32	SMB2_DATA (Note 1)	I/O	+3.3V
33	NC		
34	GND	GND	
35	GND	GND	
36	USB2_D-	DIFF	
37	GND	GND	
38	USB2_D+	DIFF	
39	+3.3VSB	PWR	+3.3V
40	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
41	+3.3VSB	PWR	+3.3V
42	NC		
43	NC		
44	NC		
45	NC		
46	NC		
47	NC		
48	NC		
49	NC		
50	GND	GND	
51	NC		
52	+3.3VSB	PWR	+3.3V

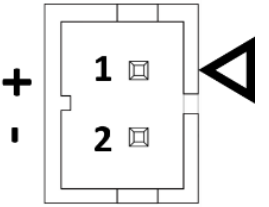
Note 1: The function is disabled by unmount 0ohm jumper.

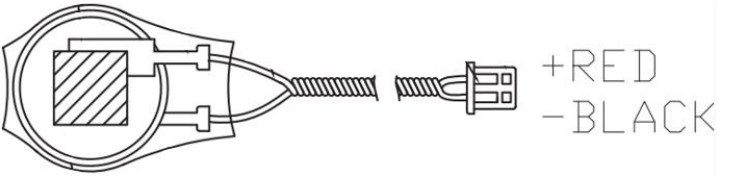
W_DISABLE2#: R334, SMB2_CLK: R9237, SMB2_DATA: R9236

Note 2: The driving current supports up to 2A.

Note 3: For WIFI / BT half-size mini card.

2.4.5 RTC Battery Connector (CN14)





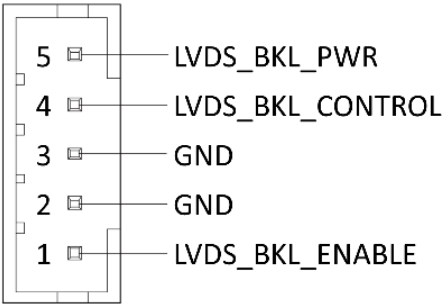
Pin	Pin Name	Signal Type	Signal Level
1	+3.3V	PWR	+3.3V
2	GND	GND	

2.4.6 Micro SD Slot (CN16)

Pin	Pin Name	Signal Type	Signal Level
1	SD_DAT2	I/O	+3.3V
2	SD_DAT3	I/O	+3.3V

Pin	Pin Name	Signal Type	Signal Level
3	SD_CMD	OUT	+3.3V
4	SD_VDD	PWR	+3.3V
5	SD_CLK	OUT	+3.3V
6	SD_VSS	GND	
7	SD_DAT0	I/O	+3.3V
8	SD_DAT1	I/O	+3.3V

2.4.7 LVDS Port Inverter/Backlight Connector (CN25)

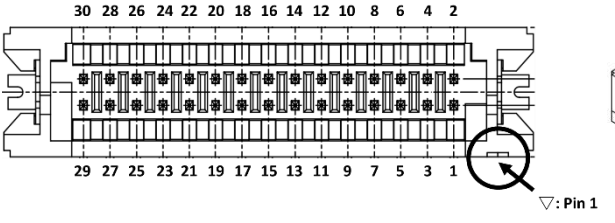


Pin	Pin Name	Signal Type	Signal Level
1	LVDS_BKL_ENABLE	OUT	+3.3V
2	GND	GND	
3	GND	GND	
4	LVDS_BKL_CONTROL	OUT	
5	LVDS_BLK_PWR	PWR	+5V / +12V

Note 1: LVDS/ LVDS_BLK_PWR can be set to +5V or +12V by JP5.

Note 2: The driving current supports up to 2A.

2.4.8 LVDS Connector (CN26)



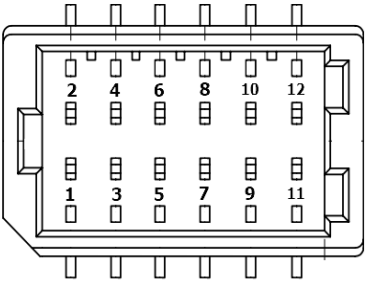
Pin	Pin Name	Signal Type	Signal Level
1	LVDS_BLK_ENABLE	OUT	
2	LVDS_BKL_CONTROL	OUT	
3	LVDS_VDD	PWR	+3.3V / +5V
4	GND	GND	
5	LVDS_A_CLK-	DIFF	
6	LVDS_A_CLK+	DIFF	
7	LVDS_VDD	PWR	+3.3V / +5V
8	GND	GND	
9	LVDS_DA0-	DIFF	
10	LVDS_DA0+	DIFF	
11	LVDS_DA1-	DIFF	
12	LVDS_DA1+	DIFF	
13	LVDS_DA2-	DIFF	
14	LVDS_DA2+	DIFF	
15	LVDS_DA3-	DIFF	
16	LVDS_DA3+	DIFF	
17	DDC_DATA	I/O	+3.3V
18	DDC_CLK	I/O	+3.3V
19	LVDS_DB0-	DIFF	
20	LVDS_DB0+	DIFF	
21	LVDS_DB1-	DIFF	
22	LVDS_DB1+	DIFF	

Pin	Pin Name	Signal Type	Signal Level
23	LVDS_DB2-	DIFF	
24	LVDS_DB2+	DIFF	
25	LVDS_DB3-	DIFF	
26	LVDS_DB3+	DIFF	
27	LVDS_VDD	PWR	+3.3V / +5V
28	GND	GND	
29	LVDS_B_CLK-	DIFF	
30	LVDS_B_CLK+	DIFF	

Note 1: LVDS/ LVDS_VDD can be set to +3.3V or +5V by JP5.

Note 2: The driving current supports up to 2A.

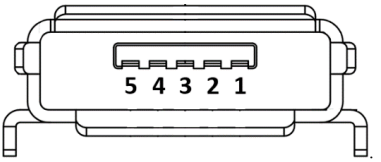
2.4.9 Audio Port (CN27)



Pin	Pin Name	Signal Type	Signal Level
1	LINE_R_OUT	OUT	+3.3V
2	MIC_R	IN	+3.3V
3	LINE_L_OUT	OUT	+3.3V
4	MIC_L	IN	+3.3V
5	NC		
6	NC		
7	GND_AUDIO	GND	
8	GND_AUDIO	GND	
9	NC		

Pin	Pin Name	Signal Type	Signal Level
10	LINE_R_IN	IN	+3.3V
11	+VDD_AUDIO	PWR	+3.3V
12	LINE_L_IN	IN	+3.3V

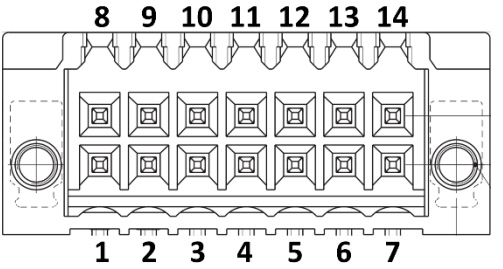
2.4.10 Debug Port (CN30)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	5V
2	USB0_DN	DIFF	
3	USB0_DP	DIFF	
4	USB0_ID	IN	3.3V
5	GND	GND	

Note: USB to UART (XR21V1410) debug port.

2.4.11 COM Port 1/Port 2 (RS-232/422/485) (CN70)



Pin	Pin Name	Signal Type	Signal Level
1	TX1	OUT	±9V / ±5V
2	RX1	IN	±9V / ±5V
3	DCD1	IN	±9V / ±5V
4	DTR1	OUT	±9V / ±5V
5	GND	GND	
6	CAN1_H / RST1	DIFF / OUT	DIFF / ±9V / ±5V
7	CAN1_L / CTS1	DIFF / IN	DIFF / ±9V / ±5V
8	TX2	OUT	±9V / ±5V
9	RX2	IN	±9V / ±5V
10	DCD2	IN	±9V / ±5V
11	DTR2	OUT	±9V / ±5V
12	GND	GND	
13	CAN2_H / RTS2	DIFF / OUT	DIFF / ±9V / ±5V
14	CAN2_L / CTS2	DIFF / IN	DIFF / ±9V / ±5V

COM Port 1 RS-422			
Pin	Pin Name	Signal Type	Signal Level
5	GND	GND	
3	RS422_TX-	OUT	±9V / ±5V
2	RS422_TX+	OUT	±9V / ±5V
1	RS422_RX+	IN	±9V / ±5V
4	RS422_RX-	IN	±9V / ±5V

COM Port 1 RS-485			
Pin	Pin Name	Signal Type	Signal Level
5	GND	GND	
3	RS485_D-	I/O	±9V / ±5V
2	RS485_D+	I/O	±9V / ±5V

COM Port 2 RS-422			
Pin	Pin Name	Signal Type	Signal Level
12	GND	GND	
10	RS422_TX-	OUT	±9V / ±5V
9	RS422_TX+	OUT	±9V / ±5V
8	RS422_RX+	IN	±9V / ±5V
11	RS422_RX-	IN	±9V / ±5V

COM Port 2 RS-485			
Pin	Pin Name	Signal Type	Signal Level
12	GND	GND	
10	RS485_D-	I/O	±9V / ±5V
9	RS485_D+	I/O	±9V / ±5V

Note 1: COM1/2 RS-232/422/485 can be set by setting and the default is RS-232.

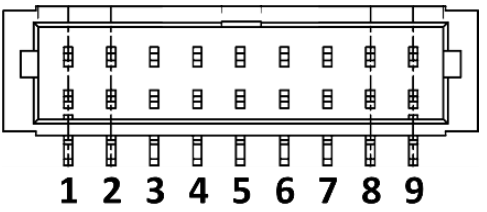
Note 2: Set signal level ±9V / ±5V by PSP5 / PSP6 short.

Note 3: The function can be set by mounting 0ohm jumper.

CAN1_H (default): R9330 / RST1: R9329, CAN1_L(default): R9332 / CTS1: R9331,

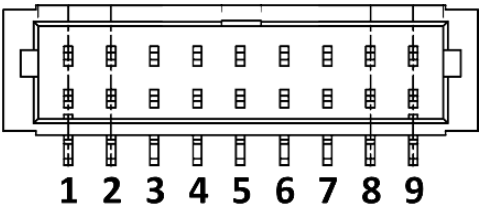
CAN2_H(default): R9333 / RTS2: R9334, CAN2_L(default): R9335 / CTS2: R9336.

2.4.12 COM Port 3 (RS-232/422/485) (CN71)



Pin	Pin Name	Signal Type	Signal Level
1	DCD3	IN	±9V / ±5V
2	RX3	IN	±9V / ±5V
3	TX3	OUT	±9V / ±5V
4	DTR3	OUT	±9V / ±5V
5	GND	GND	
6	DSR3	IN	±9V / ±5V
7	RTS3	OUT	±9V / ±5V
8	CTS3	IN	±9V / ±5V
9	RI3	IN	±9V / ±5V

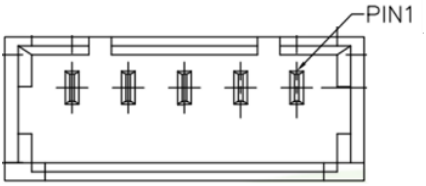
2.4.13 COM Port 4 (RS-232/422/485) (CN72)



Pin	Pin Name	Signal Type	Signal Level
1	DCD4	IN	±9V / ±5V
2	RX4	IN	±9V / ±5V
3	TX4	OUT	±9V / ±5V
4	DTR4	OUT	±9V / ±5V

Pin	Pin Name	Signal Type	Signal Level
5	GND	DGND	
6	DSR4	IN	±9V / ±5V
7	RTS4	OUT	±9V / ±5V
8	CTS4	IN	±9V / ±5V
9	RI4	IN	±9V / ±5V

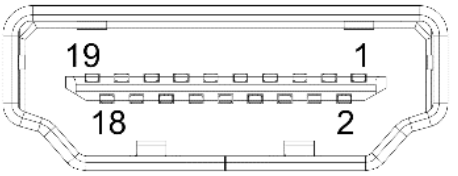
2.4.14 Internal USB 2.0 Port (CN94)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB3_DN	DIFF	
3	USB3_DP	DIFF	
4	GND	GND	
5	GND	GND	

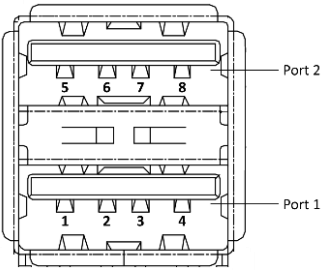
Note: The driving current supports up to 2A.

2.4.15 HDMI Port (CN141)



Pin	Pin Name	Signal Type	Signal Level
1	HDMI_TX2+	DIFF	
2	GND	GND	
3	HDMI_TX2-	DIFF	
4	HDMI_TX1+	DIFF	
5	GND	GND	
6	HDMI_TX1-	DIFF	
7	HDMI_TX0+	DIFF	
8	GND	GND	
9	HDMI_TX0-	DIFF	
10	HDMI_CLK+	DIFF	
11	GND	GND	
12	HDMI_CLK-	DIFF	
13	HDMI_CEC	OUT	+3.3V
14	HDMI_Utility	OUT	+1,8V
15	DDC_CLK	I/O	+5V
16	DDC_DATA	I/O	+5V
17	GND	GND	
18	+V5S	PWR	+5V
19	HDMI_HPD	OUT	+1.8V

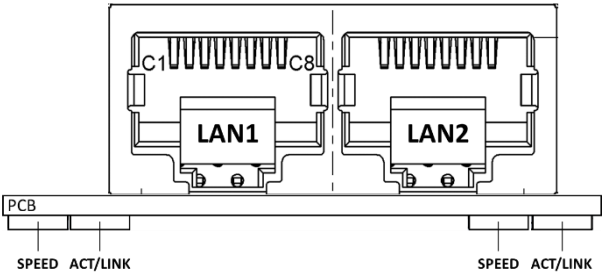
2.4.16 USB 2.0 Port 1/Port 2 (CN142)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB1_DN	DIFF	
3	USB1_DP	DIFF	
4	GND	GND	
5	+5VSB	PWR	+5V
6	USB2_DN	DIFF	
7	USB2_DP	DIFF	
8	GND	GND	

Note 1: The driving current supports up to 2A.

2.4.17 RJ-45 LAN Port 1/Port 2 (CN145)



Pin	Pin Name	Signal Type	Signal Level
L_1	LAN1_MDI0_P	DIFF	
L_2	LAN1_MDI0_N	DIFF	
L_3	LAN1_MDI1_P	DIFF	
L_4	LAN1_MDI1_N	DIFF	
L_5	GND	GND	
L_6	GND	GND	
L_7	LAN1_MDI2_P	DIFF	
L_8	LAN1_MDI2_N	DIFF	
L_9	LAN1_MDI3_P	DIFF	
L_10	LAN1_MDI3_N	DIFF	
R_1	LAN2_MDI0_P	DIFF	
R_2	LAN2_MDI0_N	DIFF	
R_3	LAN2_MDI1_P	DIFF	
R_4	LAN2_MDI1_N	DIFF	
R_5	GND	GND	
R_6	GND	GND	
R_7	LAN2_MDI2_P	DIFF	
R_8	LAN2_MDI2_N	DIFF	
R_9	LAN2_MDI3_P	DIFF	
R_10	LAN2_MDI3_N	DIFF	

Note: External ACTIVE/LINK & SPEED LEDs.

Chapter 3

Product Setup and Configuration

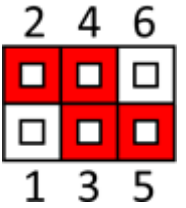
3.1 System Account Management

3.1.1 Debug Console

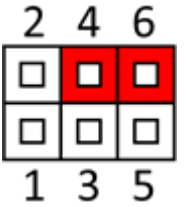
When connecting a PC or laptop to the SRG/PICO-AM62, using PuTTY with Windows 10 is recommended. Users can download the software from the PuTTY website:

Step 1: Download the PuTTY tools: https://www.putty.org/.

Step 2: Set jumper (JP5) to 3-5 2-6 (default settings).



Step 3: Set jumper (JP6) to 4-6 (default settings).

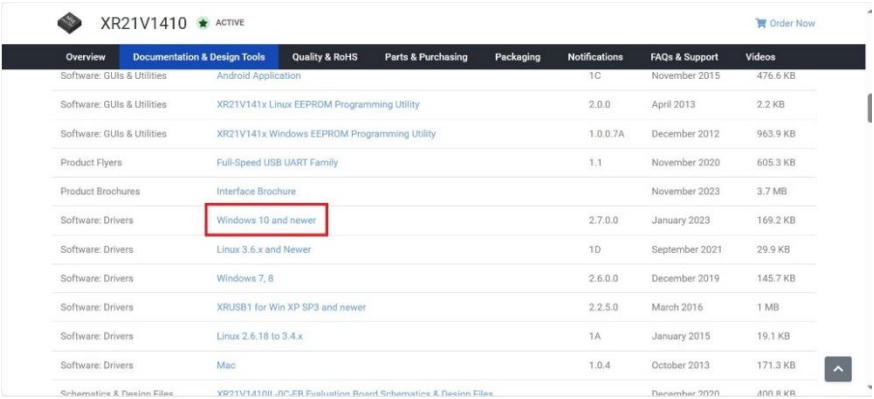


Step 4: Use micro USB(CN30) connect debug port and your computer.

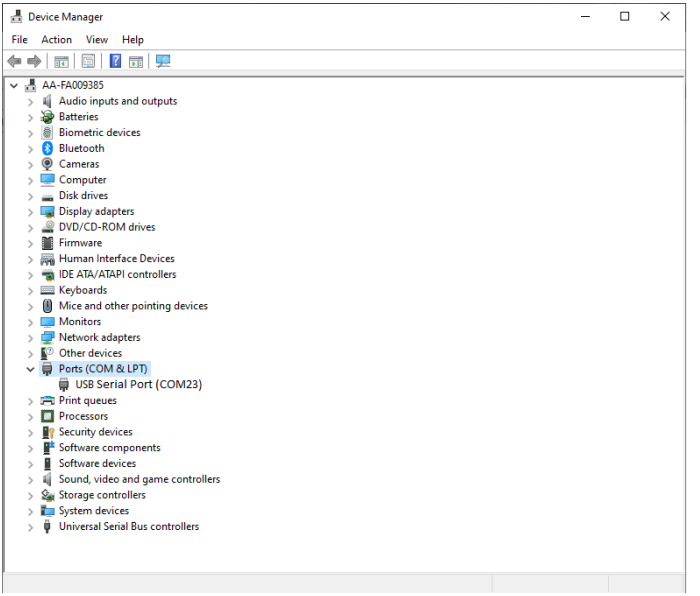
Step 5: Power On (CN1).

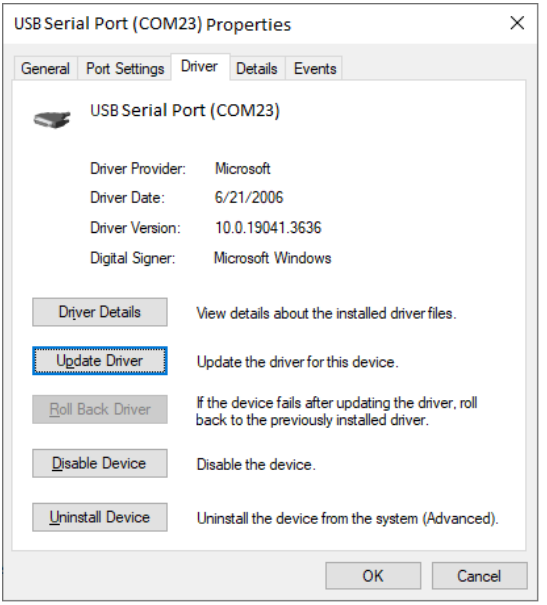
Step 6: Download xr21v1410 windows driver:

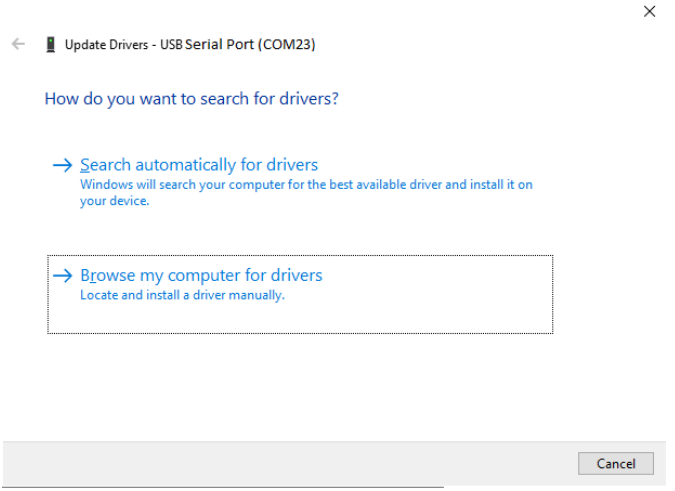
https://www.maxlinear.com/product/interface/uarts/usb-uarts/xr21v1410

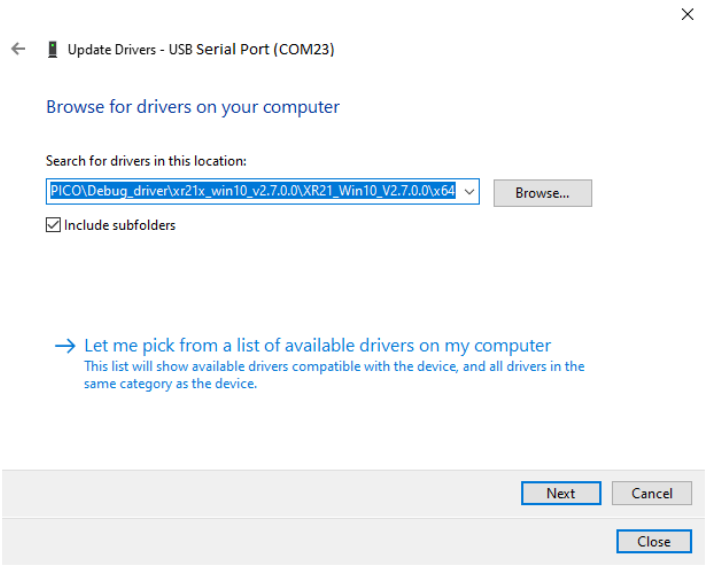


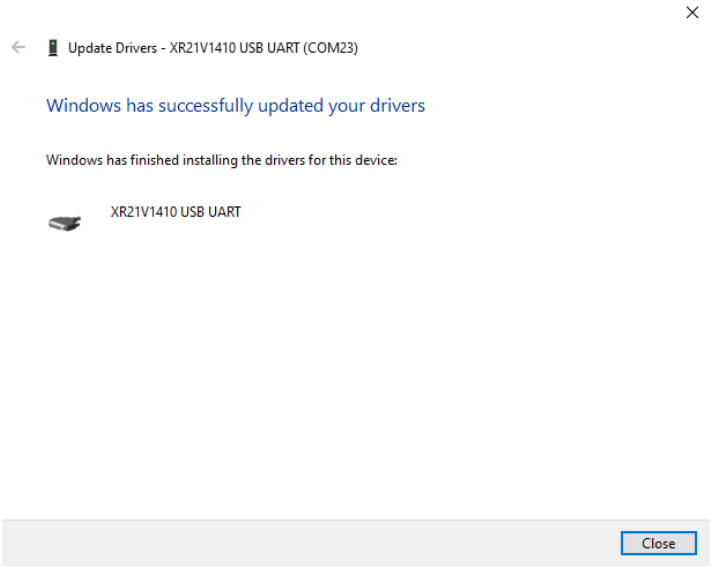
Step 7: Open Device Manager and install xr21v1410 driver.



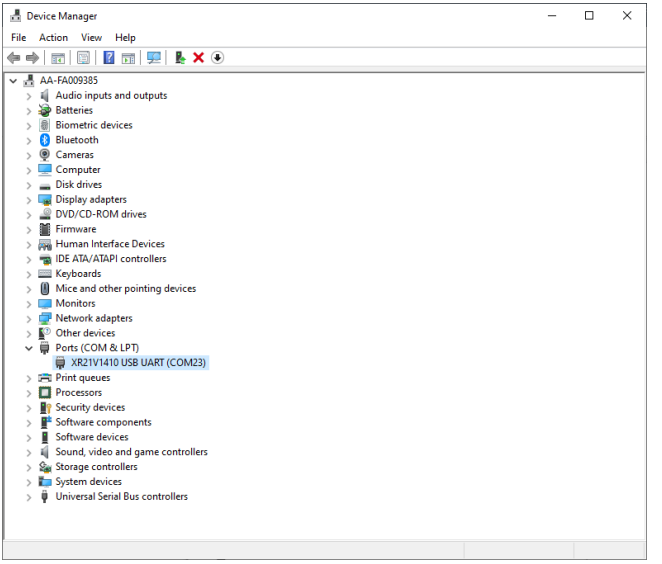

USB Serial Port (COM23) Properties
General
Port Settings
Driver
Details
Events
USB Serial Port (COM23)
Driver Provider: Microsoft
Driver Date: 6/21/2006
Driver Version: 10.0.19041.3636
Digital Signer: Microsoft Windows
Driver Details
View details about the installed driver files.
Update Driver
Update the driver for this device.
Roll Back Driver
If the device fails after updating the driver, roll back to the previously installed driver.
Disable Device
Disable the device.
Uninstall Device
Uninstall the device from the system (Advanced).
OK
Cancel


Update Drivers - USB Serial Port (COM23)
How do you want to search for drivers?
Search automatically for drivers
Windows will search your computer for the best available driver and install it on your device.
Browse my computer for drivers
Locate and install a driver manually.
Cancel

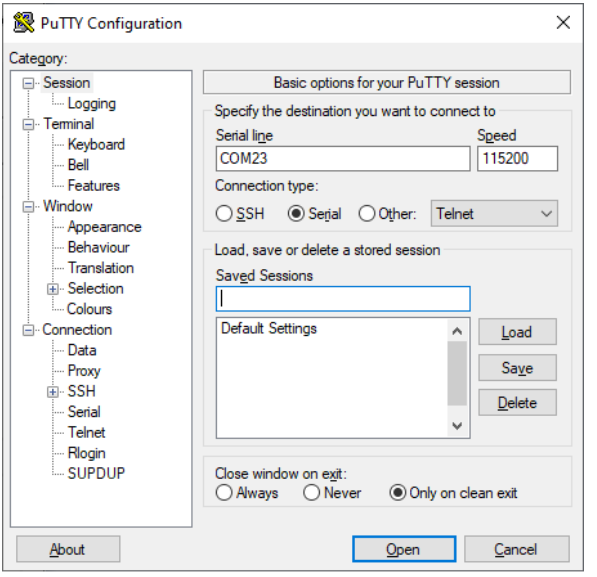

Update Drivers - USB Serial Port (COM23)
Browse for drivers on your computer
Search for drivers in this location:
PICO\Debug_driver\xr21x_win10_v2.7.0.0\XR21_Win10_V2.7.0.0\x64
Browse...
Include subfolders
Let me pick from a list of available drivers on my computer
This list will show available drivers compatible with the device, and all drivers in the same category as the device.
Next
Cancel
Close


Update Drivers - XR21V1410 USB UART (COM23)
Windows has successfully updated your drivers
Windows has finished installing the drivers for this device:
XR21V1410 USB UART
Close

Step 8: Reboot your Windows PC and check COM port name.



Step 9: Open PuTTY on pc and set COM port info



3.1.2 Log In

Log into the system using the below credentials.

Login Settings	
Username	root
Password	Pw#12345

3.2 I/O Control Command and Example

3.2.1 CN70: COM 1~COM 6 & CAN FD 1~2

Please refer to section 2.4.11 COM Port 1/Port 2 (RS 232/422/485) (CN70).

3.2.2 CAN FD

Command example (can0 -> can1):

```
gpioset 1 13=0
gpioset 1 14=0
ip link set can0 down
ip link set can0 type can bitrate 1000000
ip link set can0 up
ip link set can1 down
ip link set can1 type can bitrate 1000000
ip link set can1 up
candump can1 &
cansend can0 111#1122334455667788
```

Result:

COM8 - PuTTY

```
root@am62xx:~# gpioset 1 13=0
root@am62xx:~# gpioset 1 14=0
root@am62xx:~# ip link set can0 down
root@am62xx:~# ip link set can0 type can bitrate 1000000
root@am62xx:~# ip link set can0 up
[   55.292815] IPv6: ADDRCONF(NETDEV_CHANGE): can0: link becomes ready
root@am62xx:~# ip link set can1 down
root@am62xx:~# ip link set can1 type can bitrate 1000000
root@am62xx:~# ip link set can1 up
[   63.969710] IPv6: ADDRCONF(NETDEV_CHANGE): can1: link becomes ready
root@am62xx:~# candump can1 &
[1] 798
root@am62xx:~# [   67.241848] can: controller area network core
[   67.246438] NET: Registered PF_CAN protocol family
[   67.476330] can: raw protocol

root@am62xx:~# cansend can0 111#1122334455667788
  can1  111   [8]  11 22 33 44 55 66 77 88
root@am62xx:~#
```

3.2.3 COM 1~COM 4 RS-232/422/485 & COM 5-COM 6 TTL

3.2.3.1 Mode Setting Table

For COM 1 ~ COM 4 to work on F81439 (TTL to RS-232/422/485 transceiver), it must be set as follows:

gpio high/low to switch signal modes.

	RS-232	RS-422	RS-485 No Termination Resistor	RS-485 Termination Resistor
Mode Pin 1	0	0	0	1
Mode Pin 2	0	0	1	1
Mode Pin 3	1	0	0	0

	COM 1	COM 2	COM 3	COM 4
Mode Pin 1	gpioset 1 43=0/1	gpioset 1 38=0/1	gpioset 0 23=0/1	gpioset 2 22=0/1
Mode Pin 2	gpioset 1 41=0/1	gpioset 1 40=0/1	gpioset 1 33=0/1	gpioset 2 30=0/1
Mode Pin 3	gpioset 1 42=0/1	gpioset 1 36=0/1	gpioset 1 39=0/1	gpioset 2 49=0/1

Command example to switch COM 1 and COM 2's mode to RS-485 mode:

```
root@AM62:~# gpioset 1 43=0
root@AM62:~# gpioset 1 41=1
root@AM62:~# gpioset 1 42=0
root@AM62:~# gpioset 1 38=0
root@AM62:~# gpioset 1 40=1
root@AM62:~# gpioset 1 36=0
root@AM62:~#
```

3.2.3.2 Device Name Table

COM 1	COM 2	COM 3	COM 4	COM 5	COM 6
/dev/ttyS3	/dev/ttyS7	/dev/ttyS1	/dev/ttyS0	/dev/ttyS6	/dev/ttyS8

3.2.3.3 COM 1 to COM 2 Using RS-485 Mode (Python)

Command:

```
python3
import serial
comA = serial.Serial("/dev/ttyS3", 115200, timeout=1)
comB = serial.Serial("/dev/ttyS7", 115200, timeout=1)
data_len = comA.write(b'test string')
data = comB.read(data_len)
print(data)
comA.close()
comB.close()
```

```
root@AM62:~# python3
Python 3.11.2 (main, Mar 13 2023, 12:18:29) [GCC 12.2.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import serial
>>> comA = serial.Serial("/dev/ttyS3", 115200, timeout=1)
>>> comB = serial.Serial("/dev/ttyS7", 115200, timeout=1)
>>> data_len = comA.write(b'test string')
>>> data = comB.read(data_len)
>>> print(data)
b'test string'
>>> comA.close()
>>> comB.close()
>>>
```

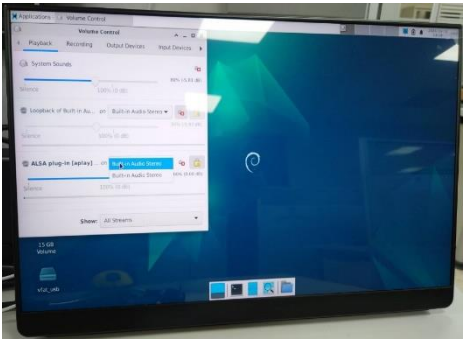
3.2.4 CN71/CN72 RS-232/422/485

Please refer to section 2.4.12 COM Port 3 (RS-232/422/485) (CN71) and 2.4.13 COM Port 4 (RS-232/422/485) (CN72). CN71/CN72 correspond to COM 3 and COM 4, both use F81439. Please refer to the information in Chapter 3.2.3 for usage.

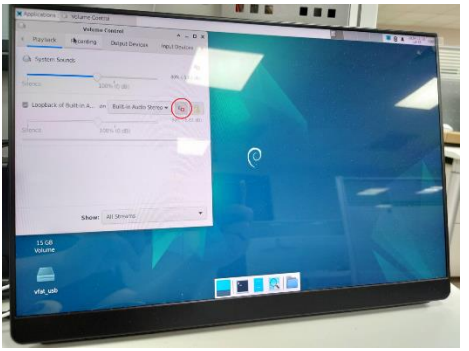
3.2.5 Audio Settings

Step 1: Open PulseAudio Volume Control app.

Step 2: To switch the output to CN27 Audio or HDMI Audio, use the list on the right side of the music playback item.



The audio loopback function On/Off button allows you to loopback line in/mic in to line out.



3.2.5.1 Cautions

You must initialize the graphics at boot time if you want to use the GUI interface software.

If you connect the AM62 platform to the screen using an HDMI cable after it has already booted, you will have missed the initialization opportunity, and you won't see any GUI on the screen.

If using GUI software, please follow these steps:

Step 1: Use an HDMI cable to connect the AM62 platform to the screen.

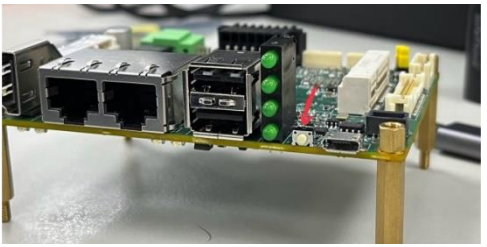
Step 2: Turn on the power.

Step 3: After waiting for some time, you will see the GUI on the screen.

3.2.6 Custom Button

Default function: Press SW2 for 5 seconds and the machine will reboot. You can edit the following script file to modify the functionality of this button.

```
/usr/sbin/sw_gpio.sh
```



3.2.7 I2C/SPI/GPIO Interface (CN4)

3.2.7.1 CN4 Pin Define Table

Please refer to section 2.4.2 SPI/I2C/GPIO Connector (CN4).

3.2.7.2 I2C Command Example

Check the I2C device slave address on the bus (0x68).

Command:

```
i2cdetect -y -r 2
```

```
root@AM62:~# i2cdetect -r -y 2
     0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00:                         -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
20: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- 57 -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- 68 -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- --
root@AM62:~#
```

3.2.7.3 SPI Command Example

Recommended spi-pipe version: 1.0.2.

```
root@AM62:~# spi-pipe -v
spi-pipe - 1.0.2
Copyright (c) 2014-2021 Christophe Blaess. (license GPLv2)
This is free software. You are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
```

Send \x90\x00\x00\x00\xFF\xFF to the SPI device with CS0.

Command:

```
printf '\x90\x00\x00\x00\xFF\xFF' | spi-pipe -d /dev/spidev1.0 -s 24000000 -b 6 -n 1 |hexdump -C
```

3.2.7.4 GPIO Command Example (gpio1_16)

Command:

```
gpioset 2 16=1 #high 3.3V
gpioset 2 16=0 #low 0V
```

3.2.8 RTC (External and CPU Internal)

3.2.8.1 External RTC

Command:

```
hwclock -f /dev/rtc0
```

Result:

```
root@AM62:~# hwclock -f /dev/rtc0
2024-06-12 13:36:54.674315+08:00
```

3.2.8.2 Internal RTC

Command:

```
hwclock -f /dev/rtc1
```

Result:

```
root@AM62:~# hwclock -f /dev/rtc1
2024-06-12 13:38:44.687275+08:00
```

3.2.8.3 System Time

Command:

```
date
```

Result:

```
root@AM62:~# date
Wed Jun 12 13:41:23 CST 2024
```

3.2.9 TPM (NPCT75x)

Command:

```
tpm2_selftest
tpm2_getcap properties-fixed
```

Result:

COM8 - PuTTY

```
root@am62xx:~$ tpm2_selftest
root@am62xx:~$ tpm2_getcap properties-fixed
TPM2_PT_FAMILY_INDICATOR:
  raw: 0x322E3000
  value: "2.0"
TPM2_PT_LEVEL:
  raw: 0
TPM2_PT_REVISION:
  raw: 0x8A
  value: 1.38
TPM2_PT_DAY_OF_YEAR:
  raw: 0x12F
TPM2_PT_YEAR:
  raw: 0x7E3
TPM2_PT_MANUFACTURER:
  raw: 0x4E544300
  value: "NTC"
TPM2_PT_VENDOR_STRING_1:
  raw: 0x4E504354
  value: "NPCT"
TPM2_PT_VENDOR_STRING_2:
  raw: 0x37357800
  value: "75x"
TPM2_PT_VENDOR_STRING_3:
  raw: 0x22212134
  value: ""!!4"
TPM2_PT_VENDOR_STRING_4:
  raw: 0x726C7300
  value: "rls"
TPM2_PT_VENDOR_TPM_TYPE:
  raw: 0x0
TPM2_PT_FIRMWARE_VERSION_1:
  raw: 0x70002
TPM2_PT_FIRMWARE_VERSION_2:
  raw: 0x20000
TPM2_PT_INPUT_BUFFER:
  raw: 0x400
TPM2_PT_HR_TRANSIENT_MIN:
  raw: 0x5
TPM2_PT_HR_PERSISTENT_MIN:
  raw: 0x7
TPM2_PT_HR_LOADED_MIN:
  raw: 0x5
TPM2_PT_ACTIVE_SESSIONS_MAX:
  raw: 0x40
TPM2_PT_PCR_COUNT:
  raw: 0x18
TPM2_PT_PCR_SELECT_MIN:
  raw: 0x3
TPM2_PT_CONTEXT_GAP_MAX:
  raw: 0xFF
TPM2_PT_NV_COUNTERS_MAX:
  raw: 0x0
TPM2_PT_NV_INDEX_MAX:
  raw: 0x800
TPM2_PT_MEMORY:
  raw: 0x6
TPM2_PT_CLOCK_UPDATE:
  raw: 0x400000
TPM2_PT_CONTEXT_HASH:
  raw: 0xC
TPM2_PT_CONTEXT_SYM:
  raw: 0x6
TPM2_PT_CONTEXT_SYM_SIZE:
  raw: 0x100
TPM2_PT_ORDERLY_COUNT:
  raw: 0xFF
TPM2_PT_MAX_COMMAND_SIZE:
  raw: 0x800
TPM2_PT_MAX_RESPONSE_SIZE:
  raw: 0x800
TPM2_PT_MAX_DIGEST:
  raw: 0x30
TPM2_PT_MAX_OBJECT_CONTEXT:
  raw: 0x714
TPM2_PT_MAX_SESSION_CONTEXT:
  raw: 0x148
TPM2_PT_PS_FAMILY_INDICATOR:
  raw: 0x1
TPM2_PT_PS_LEVEL:
  raw: 0x0
TPM2_PT_PS_REVISION:
  raw: 0x104
TPM2_PT_PS_DAY_OF_YEAR:
  raw: 0x0
TPM2_PT_PS_YEAR:
  raw: 0x0
TPM2_PT_SPLIT_MAX:
  raw: 0x80
TPM2_PT_TOTAL_COMMANDS:
  raw: 0x71
TPM2_PT_LIBRARY_COMMANDS:
  raw: 0x68
TPM2_PT_VENDOR_COMMANDS:
  raw: 0x9
TPM2_PT_NV_BUFFER_MAX:
  raw: 0x400
TPM2_PT_MODES:
  raw: 0x1
  value: TPMA_MODES_FIPS_140_2
root@am62xx:~$
```

3.2.10 LVDS Panel Enable/Disable

3.2.10.1 Enable LVDS Panel

Command:

```
set_lvds_to_156_inches_panel.sh
reboot
```

Result:

```
root@AM62:~# set_lvds_to_156_inches_panel.sh
[  697.733243] FAT-fs (mmcblk0p1): Volume was not properly unmounted. Some data may be corrupt. Please run fsck.
Please power off and connect the correct LVDS screen.
root@AM62:~# reboot
root@AM62:~#
```

3.2.10.2 Disable LVDS Panel

Command:

```
set_lvds_disable.sh
reboot
```

Result:

```
root@AM62:~# set_lvds_disable.sh
[  708.946649] FAT-fs (mmcblk0p1): Volume was not properly unmounted. Some data may be corrupt. Please run fsck.
Please power off and connect the correct LVDS screen.
root@AM62:~# reboot
root@AM62:~#
```

3.2.11 LED Control

LED	Command
LED1	Power
LED2	ON: gpioset 1 3=1 OFF: gpioset 1 3=0
LED3	ON: gpioset 1 4=1 OFF: gpioset 1 4=0
LED4	ON: gpioset 1 5=1 OFF: gpioset 1 5=0

3.2.12 Watchdog Control (TPS3431SDRBR)

3.2.12.1 Feed Dog Example Code

This code runs automatically at boot. If the dog is not fed within 77 seconds, the product will reset.

The following example code will auto run by kernel aaeon.service

Code path: /usr/sbin/hw_wdt_gpio.sh

```
#!/bin/bash
gpioset 0 19=0 #disable watch dog

#feed watch dog
while true
do
  date=`date`
  gpioset 1 44=1
  sleep 0.1
  gpioset 1 44=0
  sleep 4.0
done
```

3.2.12.2 Enable/Disable Watchdog

Enable	Disable (Default)
gpioset 0 19=1	gpioset 0 19=0

3.2.13 Unsupported Features

- Suspend
- Shutdown
- CPU internal watchdog

3.3 Wireless Control Command and Example

3.3.1 CN12 4G SIM Card Module (EG25-G)

Power on Mini Card (default: on)

Command:

```
gpioset 2 25=0
```

Result:

```
root@am62xx:~# gpioset 2 25=0
root@am62xx:~# [   44.023611] usb 2-1.2: new high-speed USB device number 4 using xhci-hcd
[   44.301375] Bluetooth: Core ver 2.22
[   44.310366] NET: Registered PF_BLUETOOTH protocol family
[   44.314004] cfg80211: Loading compiled-in X.509 certificates for regulatory database
[   44.320975] Bluetooth: HCI device and connection manager initialized
[   44.330734] Bluetooth: HCI socket layer initialized
[   44.335796] Bluetooth: L2CAP socket layer initialized
[   44.341016] Bluetooth: SCO socket layer initialized
[   44.364933] cfg80211: Loaded X.509 cert 'sforshee: 00b28ddf47aef9cea7'
[   44.376745] cfg80211: loaded regulatory.db is malformed or signature is missing/invalid
[   44.389206] usbcore: registered new interface driver btusb
[   44.414002] Bluetooth: hci0: RTL: examining hci_ver=0a hci_rev=000c lmp_ver=0a lmp_subver=8822
[   44.424909] Bluetooth: hci0: RTL: rom_version status=0 version=3
[   44.431091] Bluetooth: hci0: RTL: loading rtl_bt/rtl8822cu_fw.bin
[   44.456563] Bluetooth: hci0: RTL: loading rtl_bt/rtl8822cu_config.bin
[   44.464368] Bluetooth: hci0: RTL: cfg_sz 6, total sz 35990
[   44.646812] Bluetooth: hci0: RTL: fw version 0x0cc6d2e3
[   45.013367] usbcore: registered new interface driver rtl88x2cu
[   45.407327] Bluetooth: MGMT ver 1.22
[   45.438624] NET: Registered PF_ALG protocol family
```

Open wwan0

Tool: https://github.com/kmilo17pet/quectel-cm

Command:

```
/usr/sbin/quectel-cm/quectel-CM &
```

Result:

```
root@am62xx:~# /usr/sbin/quectel-cm/quectel-CM &
[1] 912
[01-27_05:50:24:172] Quectel_QConnectManager_Linux_V1.6.0.24
root@am62xx:~# [01-27_05:50:24:179] Find /sys/bus/usb/devices/2-1.1 idVendor=0x2c7c idProduct=0x125, bus=0x002, dev=0
x003
[01-27_05:50:24:191] Auto find qmichannel = /dev/cdc-wdm0
[01-27_05:50:24:191] Auto find usbnet_adapter = wwan0
[01-27_05:50:24:191] netcard driver = qmi_wwan, driver version = 6.1.33
[01-27_05:50:24:191] Modem works in QMI mode
[01-27_05:50:24:208] /proc/781/fd/7 -> /dev/cdc-wdm0
[01-27_05:50:24:208] /proc/781/exe -> /usr/libexec/qmi-proxy
[01-27_05:50:26:210] cdc_wdm_fd = 7
[01-27_05:50:26:362] Get clientWDS = 17
[01-27_05:50:26:394] Get clientDMS = 1
[01-27_05:50:26:426] Get clientNAS = 2
[01-27_05:50:26:458] Get clientUIM = 1
[01-27_05:50:26:490] Get clientWDA = 1
[01-27_05:50:26:522] requestBaseBandVersion EG25GGBR07A07M2G
[01-27_05:50:26:654] requestGetSIMStatus SIMStatus: SIM_READY
[01-27_05:50:26:682] requestGetProfile[1] internet///0
[01-27_05:50:26:714] requestRegistrationState2 MCC: 466, MNC: 1, PS: Attached, DataCap: LTE
[01-27_05:50:26:746] requestQueryDataCall IPv4ConnectionStatus: DISCONNECTED
[01-27_05:50:26:747] ifconfig wwan0 0.0.0.0
[01-27_05:50:26:767] ifconfig wwan0 down
[01-27_05:50:26:810] requestSetupDataCall WdsConnectionIPv4Handle: 0x872ef880
[01-27_05:50:26:939] ifconfig wwan0 up
[01-27_05:50:26:964] No default.script found, it should be in '/usr/share/udhcpc/' or '/etc//udhcpc' depend on your u
dhcpc version!
[01-27_05:50:26:965] busybox udhcpc -f -n -q -t 5 -i wwan0
udhcpc: started, v1.35.0
udhcpc: broadcasting discover
udhcpc: broadcasting select for 10.24.10.180, server 10.24.10.181
udhcpc: lease of 10.24.10.180 obtained from 10.24.10.181, lease time 7200
[01-27_05:50:27:104] ip -4 address flush dev wwan0
[01-27_05:50:27:123] ip -4 address add 10.24.10.180/29 dev wwan0
[01-27_05:50:27:139] ip -4 route add default via 10.24.10.181 dev wwan0
```

3.3.2 CN13 Mini Card Bluetooth (WPET-239ACN(BT))

Power on Mini Card (default: on)

Command:

```
gpioset 2 25=0
```

Result:

```
root@am62xx:~# gpioset 2 25=0
root@am62xx:~# [   44.023611] usb 2-1.2: new high-speed USB device number 4 using xhci-hcd
[   44.301375] Bluetooth: Core ver 2.22
[   44.310366] NET: Registered PF_BLUETOOTH protocol family
[   44.314004] cfg80211: Loading compiled-in X.509 certificates for regulatory database
[   44.320975] Bluetooth: HCI device and connection manager initialized
[   44.330734] Bluetooth: HCI socket layer initialized
[   44.335796] Bluetooth: L2CAP socket layer initialized
[   44.341016] Bluetooth: SCO socket layer initialized
[   44.364933] cfg80211: Loaded X.509 cert 'sforshee: 00b28ddf47aef9cea7'
[   44.376745] cfg80211: loaded regulatory.db is malformed or signature is missing/invalid
[   44.389206] usbcore: registered new interface driver btusb
[   44.414002] Bluetooth: hci0: RTL: examining hci_ver=0a hci_rev=000c lmp_ver=0a lmp_subver=8822
[   44.424909] Bluetooth: hci0: RTL: rom_version status=0 version=3
[   44.431091] Bluetooth: hci0: RTL: loading rtl_bt/rtl8822cu_fw.bin
[   44.456563] Bluetooth: hci0: RTL: loading rtl_bt/rtl8822cu_config.bin
[   44.464368] Bluetooth: hci0: RTL: cfg_sz 6, total sz 35990
[   44.646812] Bluetooth: hci0: RTL: fw version 0x0cc6d2e3
[   45.013367] usbcore: registered new interface driver rtl88x2cu
[   45.407327] Bluetooth: MGMT ver 1.22
[   45.438624] NET: Registered PF_ALG protocol family
```

Command to pair, connect

Command:

```
bluetoothctl
power on
agent off
agent NoInputNoOutput
default-agent
pairable on
```

```
root@am62xx:~# bluetoothctl
Agent registered
[CHG] Controller 00:0E:8E:C6:88:Al Pairable: yes
[bluetooth]# power on
Changing power on succeeded
[bluetooth]# agent off
Agent unregistered
[CHG] Controller 00:0E:8E:C6:88:Al Pairable: no
[bluetooth]# agent NoInputNoOutput
Agent registered
[CHG] Controller 00:0E:8E:C6:88:Al Pairable: yes
[bluetooth]# default-agent
Default agent request successful
[bluetooth]# pairable on
Changing pairable on succeeded
[bluetooth]#
```

Scan on

```
[bluetooth]# scan on
Discovery started
[CHG] Controller 00:0E:8E:C6:88:A1 Discovering: yes
[NEW] Device 4A:E7:F2:04:11:36 4A-E7-F2-04-11-36
[NEW] Device 77:27:87:12:F6:11 77-27-87-12-F6-11
[NEW] Device 4A:83:D9:65:4B:3B 4A-83-D9-65-4B-3B
[NEW] Device 40:0B:72:3F:B4:E1 40-0B-72-3F-B4-E1
[NEW] Device 48:2C:8E:97:47:E4 48-2C-8E-97-47-E4
[CHG] Device F4:73:35:75:CF:7B LegacyPairing: yes
[CHG] Device F4:73:35:75:CF:7B RSSI: -81
[NEW] Device 76:AE:37:3E:DB:91 76-AE-37-3E-DB-91
[NEW] Device 5C:3B:EF:52:3C:1E 5C-3B-EF-52-3C-1E
[CHG] Device 4A:83:D9:65:4B:3B RSSI: -103
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Key: 0x004c
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Value:
  10 07 38 1f 5c da 47 16 68                       ..8.\.G.h
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Key: 0x004c
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Value:
  01 00 00 00 00 00 00 00 00 00 00 40 00 00 00 00  ...........@....
  00                                               .
[NEW] Device 65:A2:03:16:49:FD 65-A2-03-16-49-FD
[NEW] Device 5F:B2:1C:8D:E3:30 5F-B2-1C-8D-E3-30
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Key: 0x004c
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Value:
  10 07 38 1f 5c da 47 16 68                       ..8.\.G.h
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Key: 0x004c
[CHG] Device 4A:83:D9:65:4B:3B ManufacturerData Value:
  01 00 00 00 00 00 00 00 00 00 00 40 00 00 00 00  ...........@....
  00                                               .
```

Please find the MAC address of the device to connect to in the log after scanning

Pair <mac>

Command:

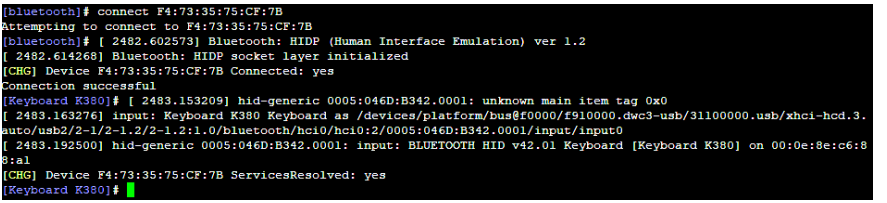
pair F4:73:35:75:CF:7B

```
[NEW] Device F4:73:35:75:CF:7B Keyboard K380
[bluetooth]# pair F4:73:35:75:CF:7B
Attempting to pair with F4:73:35:75:CF:7B
[CHG] Device F4:73:35:75:CF:7B Connected: yes
[CHG] Device F4:73:35:75:CF:7B Bonded: yes
[CHG] Device F4:73:35:75:CF:7B Modalias: usb:v046DpB342d4201
[CHG] Device F4:73:35:75:CF:7B UUIDs: 00001000-0000-1000-8000-00805f9b34fb
[CHG] Device F4:73:35:75:CF:7B UUIDs: 00001124-0000-1000-8000-00805f9b34fb
[CHG] Device F4:73:35:75:CF:7B UUIDs: 00001200-0000-1000-8000-00805f9b34fb
[CHG] Device F4:73:35:75:CF:7B ServicesResolved: yes
[CHG] Device F4:73:35:75:CF:7B Paired: yes
Pairing successful
```

Connect <mac>

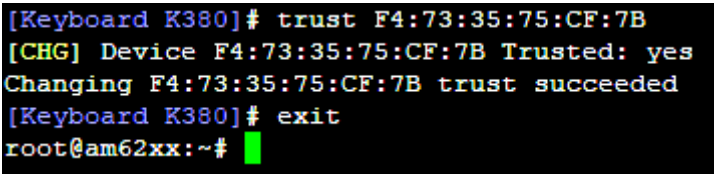
Command:

connect F4:73:35:75:CF:7B



Command:

trust F4:73:35:75:CF:7B
exit



3.3.3 CN13 Mini Card Wi-Fi (WPET-239ACN(BT))

Power on Mini Card (default: on)

Command:

gpioset 2 25=0

Result:

```
root@am62xx:~# gpioset 2 25=0
root@am62xx:~# [   44.023611] usb 2-1.2: new high-speed USB device number 4 using xhci-hcd
[   44.301375] Bluetooth: Core ver 2.22
[   44.310366] NET: Registered PF_BLUETOOTH protocol family
[   44.314004] cfg80211: Loading compiled-in X.509 certificates for regulatory database
[   44.320975] Bluetooth: HCI device and connection manager initialized
[   44.330734] Bluetooth: HCI socket layer initialized
[   44.335796] Bluetooth: L2CAP socket layer initialized
[   44.341016] Bluetooth: SCO socket layer initialized
[   44.364933] cfg80211: Loaded X.509 cert 'sforshee: 00b28ddf47aef9cea7'
[   44.376745] cfg80211: loaded regulatory.db is malformed or signature is missing/invalid
[   44.389206] usbcore: registered new interface driver btusb
[   44.414002] Bluetooth: hci0: RTL: examining hci_ver=0a hci_rev=000c lmp_ver=0a lmp_subver=8822
[   44.424909] Bluetooth: hci0: RTL: rom_version status=0 version=3
[   44.431091] Bluetooth: hci0: RTL: loading rtl_bt/rtl8822cu_fw.bin
[   44.456563] Bluetooth: hci0: RTL: loading rtl_bt/rtl8822cu_config.bin
[   44.464368] Bluetooth: hci0: RTL: cfg_sz 6, total sz 35990
[   44.646812] Bluetooth: hci0: RTL: fw version 0x0cc6d2e3
[   45.013367] usbcore: registered new interface driver rtl88x2cu
[   45.407327] Bluetooth: MGMT ver 1.22
[   45.438624] NET: Registered PF_ALG protocol family
```

Open wlan0

Command:

```
ifconfig wlan0 up
```

Result:

```
root@am62xx:~# ifconfig wlan0 up
[  287.096517] start_addr=(0x20000), end_addr=(0x40000), buffer_size=(0x20000), smp_number_max=(16384)
```

Scan Wi-Fi name

Command:

iw wlan0 scan | grep 'AAEON-Wireless'(your WiFi name)

Result:

```
root@am62xx:~# iw wlan0 scan | grep 'AAEON-Wireless'
        SSID: AAEON-Wireless
        SSID: AAEON-Wireless-PEAP
        SSID: AAEON-Wireless
        SSID: AAEON-Wireless
        SSID: AAEON-Wireless-PEAP
root@am62xx:~#
```

Save Wi-Fi name/password

Command:

wpa_passphrase AAEON-Wireless >> /tmp/wpa_wifi.conf

Result:

```
root@am62xx:~# wpa_passphrase AAEON-Wireless >> /tmp/wpa_wifi.conf
# reading passphrase from stdin
input password
root@am62xx:~#
```

Initial Wi-Fi configuration

Command:

wpa_supplicant -B -i wlan0 -c /tmp/wpa_wifi.conf root

Result:

```
root@am62xx:~# wpa_supplicant -B -i wlan0 -c /tmp/wpa_wifi.conf root
Successfully initialized wpa_supplicant
root@am62xx:~# [ 1373.011567] IPv6: ADDRCONF(NETDEV_CHANGE): wlan0: link becomes ready
```

Link Wi-Fi

Command:

```
iw wlan0 link
dhclient wlan0
```

Result:

```
root@am62xx:~# iw wlan0 link
Connected to 24:81:3b:2b:5d:4e (on wlan0)
        SSID: AAEON-Wireless
        freq: 5200
        RX: 927 bytes (5 packets)
        TX: 3554 bytes (23 packets)
        signal: -80 dBm
        rx bitrate: 6.0 MBit/s
        tx bitrate: 39.0 MBit/s VHT-MCS 2 VHT-NSS 2
root@am62xx:~# dhclient wlan0
```

3.3.4 CN12 & CN13 Mini Card Power On/Off Pin Control

Power On	Power Off
gpioset 2 25=0	gpioset 2 25=1

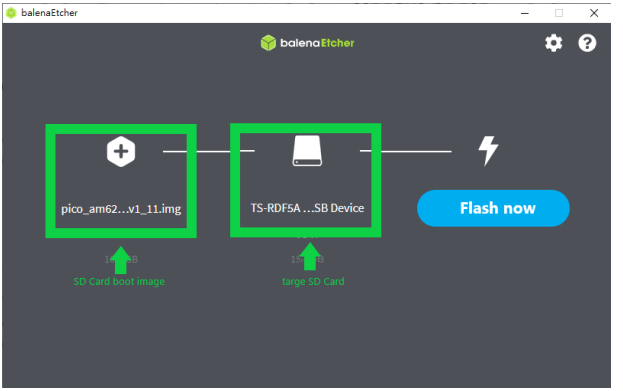
3.3.5 CN12 & CN13 Pin 22 PERST# High/Low Pin Control

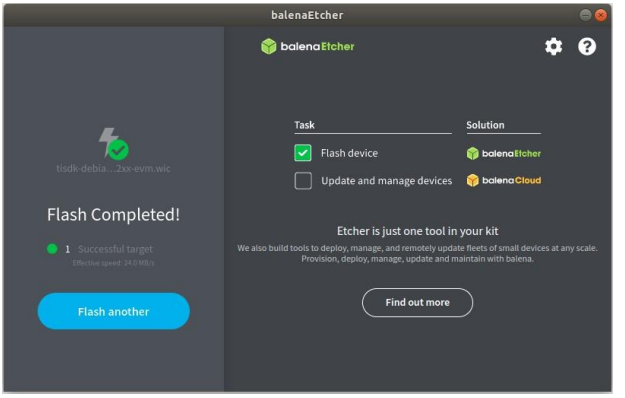
Connector	PERST# High	PERST# Low
CN12	gpioset 1 6=1	gpioset 1 6=0
CN13	gpioset 1 7=1	gpioset 1 7=0

3.4 OS Installation

3.4.1 Flash SD Card

Step 1: Use balenaEtcher to flash boot image to SD card.





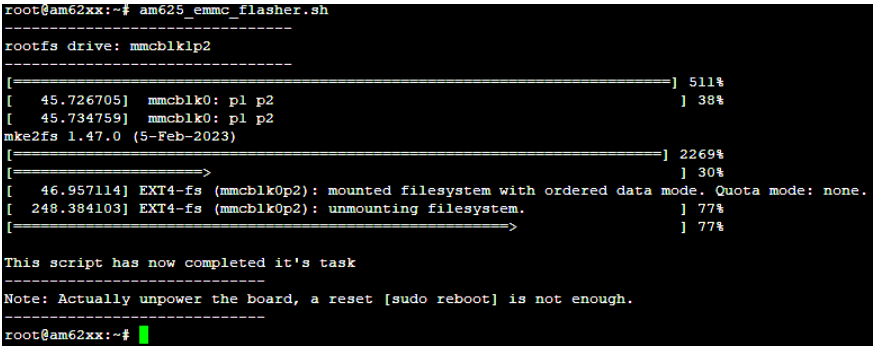
Step 2: Press SW2 and connect the power supply to start up the SD Card boot.

Step 3: Flash eMMC Card - After booting with the SD Card, use the following commands to flash the image to the eMMC.

Command:

```
am625_emmc_flasher.sh
```

Result:



Please power up the pico-am62 again and boot using EMMC mode.

3.4.2 SD Card/EMMC Boot Mode

Use SW2 status to choose SD Card/EMMC boot mode.

SD Card Boot Mode	eMMC Boot Mode
Press SW2	Do not press SW2

3.4.3 Check OS Version

Command:

```
cat /etc/aaeon-release
```

Result:

```
root@AM62:~# cat /etc/aaeon-release
PRETTY_NAME="Debian GNU/Linux 12 (bookworm)"
NAME="Debian GNU/Linux"
VERSION_ID="12"
VERSION="12 (bookworm)"
VERSION_CODENAME=bookworm
ID=debian
HOME_URL="https://www.debian.org/"
SUPPORT_URL="https://www.debian.org/support"
BUG_REPORT_URL="https://bugs.debian.org/"
IMAGE_VERSION="V2.2"
HW_INFO="PICO-AM62-A10-0002"
CREATE_DATE="2024/07/22"

root@AM62:~#
```

Appendix A

Mating Connectors

A.1 List of Mating Connectors and Cables

The following table lists mating connectors and available cables.

Conn Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model No.		
CN1	DC Power	DINKLE	ECH381RM-02P-BK	N/A	N/A
CN4	SPI/I2C/GPIO Connector	PINREX	232-92-04GBEM	N/A	N/A
CN12	4G Full-Size Mini Card Slot	Quectel	Quectel.EG-25G	4G Module Card	9686EG25G0
CN13	WIFI/BT Half-Size Mini Card Slot	Intel	7260HMW	N/A	N/A
CN14	RTC Battery Connector	Molex	51021-0200	RTC Battery Cable	175011301K
CN16	Micro SD Slot	Transcend	TS16GUSD300S-A	N/A	N/A
CN25	LVDS Port Inverter/Backlight Connector	JST	PHR-5	N/A	N/A
CN26	LVDS Port	ACES	50247-030H0H0-001	LVDS Cable	1704300030 (LVDS panel: AUO G185XW01)
CN27	Audio Port	ACES	50247-012H0 H0-001	Audio Port Cable	170X000156
CN30	Debug Port	UGREEN	US289	USB 2.0 Micro B Cable	N/A
CN70	RS-232/422/485 COM Port 1, Port 2	DINKLE	0156-1718-BK	N/A	N/A
CN71	RS-232/422/485 COM Port 3	PINREX	710-73-09TW01	N/A	N/A
CN72	RS-232/422/485 COM Port 4	PINREX	710-73-09TW01	N/A	N/A
CN94	Internal USB 2.0 Port	PINREX	712-91-055W60	N/A	N/A
CN141	HDMI Port	Molex	88768-9900	HDMI Cable	N/A
CN142	USB 2.0 Port 1, Port 2	UGREEN	US128	USB 3.2 Cable	N/A
CN145	LAN (RJ-45) Port 1, Port 2	Molex	44915-0001	N/A	N/A