



USER MANUAL

VAB-630

Cost effective single board
computer with flexible I/O
and rich connectivity



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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 installed 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 personal expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Notice 3

The product described in this document is designed for general use, VIA Technologies assumes no responsibility for the conflicts or damages arising from incompatibility of the product. Check compatibility issue with your local sales representatives before placing an order.



Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE



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- ☐ Do not re-use, recharge, or reheat an old battery.
- ☐ Do not attempt to force open the battery.
- ☐ Do not discard used batteries with regular trash.
- ☐ Discard used batteries according to local regulations.



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- ☐ Always read the safety instructions carefully.
- ☐ Keep this User's Manual for future reference.
- ☐ All cautions and warnings on the equipment should be noted.
- ☐ Keep this equipment away from humidity.
- ☐ Lay this equipment on a reliable flat surface before setting it up.
- ☐ Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- ☐ Place the power cord in such a way that people cannot step on it.
- ☐ Always unplug the power cord before inserting any add-on card or module.
- ☐ If any of the following situations arises, get the equipment checked by authorized service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment has not worked well or you cannot get it work according to User's Manual.
 - The equipment has dropped and damaged.
 - The equipment has obvious sign of breakage.
- ☐ Do not leave this equipment in an environment unconditioned or in a storage temperature above 70°C (158°F). The equipment may be damaged.
- ☐ Do not leave this equipment in direct sunlight.
- ☐ Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- ☐ Do not place anything over the power cord.
- ☐ Do not cover the ventilation holes. The openings on the enclosure protect the equipment from overheating

Box Contents

VAB-630

- ☐ 1 x VAB-630 mainboard (with 1.0GHz VIA Cortex-A9 dual-core SoC)
- ☐ 1 x RTC battery

Ordering Information

Part Number	Description
10GHL126000A0	SBC with 1.0GHz VIA Cortex-A9 SoC, 4GB eMMC, 1GB DDR3 SDRAM 2 x USB 2.0, Micro USB 2.0 OTG, HDMI, COM, DIO, 10/100Mbps Ethernet, Micro SD card slot, and 12V DC-in.

Optional Accessories

Wireless Accessories

Part Number	Description
EMIO-2550-01A1	3.75G HSPA/UMTS mobile broadband full size miniPCle module
EMIO-5531-00A1	VAB-820-W IEEE 802.11b/g/n USB Wi-Fi & Bluetooth module with assembly kit
EMIO-2531-00A1	VAB-820-W-M IEEE 802.11b/g/n miniPCle Wi-Fi & Bluetooth module with assembly kit and antenna

Display Accessories

Part Number	Description
STK-10630-00A0	10.1" LVDS LCD Touch panel (1280x800) with LVDS and Touch Cable
99G63-02033A	12V 36W adapter power adapter (power adapter plug not included)

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1. Product Overview

Based with a compacted 3.5 inch SBC and measuring at 14.6cm x 10.2cm, the VIA VAB-630 is a highly integrated based ARM board. It's powered by 1.0GHz VIA Cortex-A9 dual-core processor. The VIA VAB-630 combines two independent, integrated GPUs for 3D/2D graphics acceleration, in addition it offers support for MPEG-2 and H.264 video decoding up to 1080p.

The VIA VAB-630 mainboard has been optimized to support 3G, Wi-Fi and Bluetooth function with its rich I/O, optional accessories includes a 10.1" touch panel that brings application like HMI and digital signage product more easily to fit-in application. Users will find it easier for them to create and enhance their apps with VIA VAB-630 mainboard.

The VIA VAB-630 provides an impressive selection of rear I/O in a compact form factor including HDMI® port, two USB 2.0 ports, DC-in jack and 10/100Mbps Ethernet port. Customers can take advantage of VIA's industry leading hardware and software support to create customized designs with a quick time to market. The VIA VAB-630 is also available with board support packages (BSP) for Android operating systems.

1.1. Key Features

- Powered by 1.0GHz VIA Cortex-A9 dual-core SoC
- Supports independent, integrated graphic processing (GPU) for 3D/2D and graphic acceleration
- Supports HDMI port, 10/100Mbps Ethernet port and Audio jack
- Supports one single-channel 18/24 bit LVDS connector
- Supports both 3G and Wi-Fi + Bluetooth module connection
- Supports 10 GPIO with 3.3V power
- Supports power by DC-in or battery mode
- Android 5.0 operating system
- Fanless and ultra-low power consumption
- 4GB onboard eMMC Flash memory
- Flawless HD video performance up to 1080p
- Supports Micro USB 2.0 OTG.
- Android solution pack available
- Optional 12V (default) or 5V power input

1.2. Product Specifications

Processor

- 1.0GHz VIA Cortex-A9 dual-core SoC

System Memory

- 1GB DDR3 SDRAM onboard

Storage

- 4GB eMMC Flash memory

Boot Loader

- 512KB SPI Flash ROM

Graphics

- Mali-400 SP GPU
 - 2-integrated, independent 3D/2D graphics processing units
 - Graphic engine supporting OpenGL® ES 2.0 hardware acceleration
 - Conditional supports MPEG-2 and H.264 video decoding up to 1080p

LAN

- ASIC AX88772CLF

Audio

- VIA VT1603A I2S Audio Codec

HDMI

- Integrated HDMI 1.4 Transmitter

Onboard I/O

- 1 x USB 2.0 connector
- 1 x Single-channel 18/24 bit LVDS panel connector
- 1 x I²C touch connector
- 1 x UART (console port connector)
- 1 x RTC battery connector
- 1 x Reset connector
- 1 x miniPCle slot
- 1 x SIM card slot
- 1 x Battery connector

Front Panel I/O

- 1 x Micro SD card slot
- 1 x Micro USB 2.0 OTG port
- 1 x Power button
- 1 x DIO port supports 10 GPIO with 3.3V power
- 1 x Power LED
- 2 x Audio jacks (Line-out and Mic-in)

Back Panel I/O

- 1 x HDMI port
- 2 x USB 2.0 ports
- 1 x COM port for RS-232 (TX/RX)
- 1 x 10/100Mbps Ethernet port
- 1 x DC in-jack

Power Supply

- 12V DC-in (5V DC-in optional)

Operating Temperature

- 0°C ~ 60°C

Operating Humidity

- 0% ~ 95% @ 40°C (non-condensing)

Operating System

- Android 5.0

Form Factor

- 3.5 inch SBC
- 14.6cm x 10.2cm (146mm x 102mm)

Compliance

- CE, FCC

**Notes:**

1. As the operating temperature provided in the specifications is a result of the test performed in VIA's chamber, a number of variables can influence this result. Please note that the working temperature may vary depending on the actual situation and environment. It is highly suggested to execute a solid testing program and take all the variables into consideration when building the system. Please ensure that the system runs well under the operating temperature in terms of application.
2. Please note that the lifespan of the onboard eMMC memory chip may vary depending on the amount of access. More frequent and larger data access on eMMC memory makes its lifespan shorter. Therefore, it is highly recommended to use a replaceable external storage (e.g., Micro SD card) for large data access.

1.3. Layout Diagram

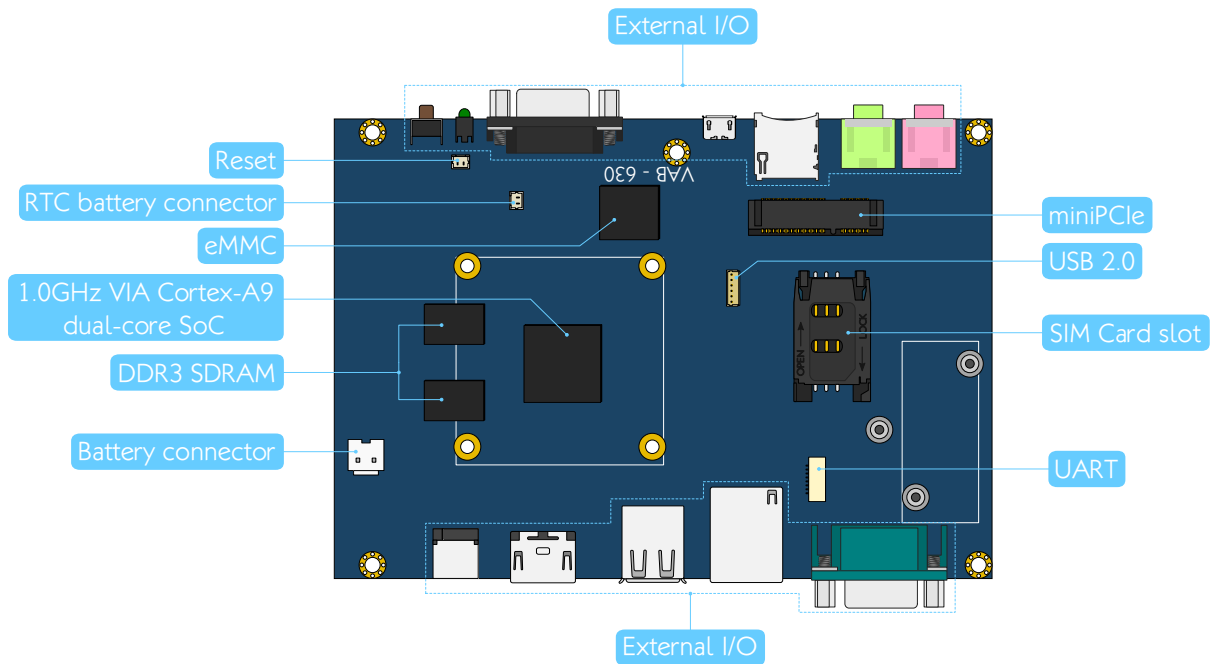


Figure 1: Layout diagram of the VAB-630 (top view)

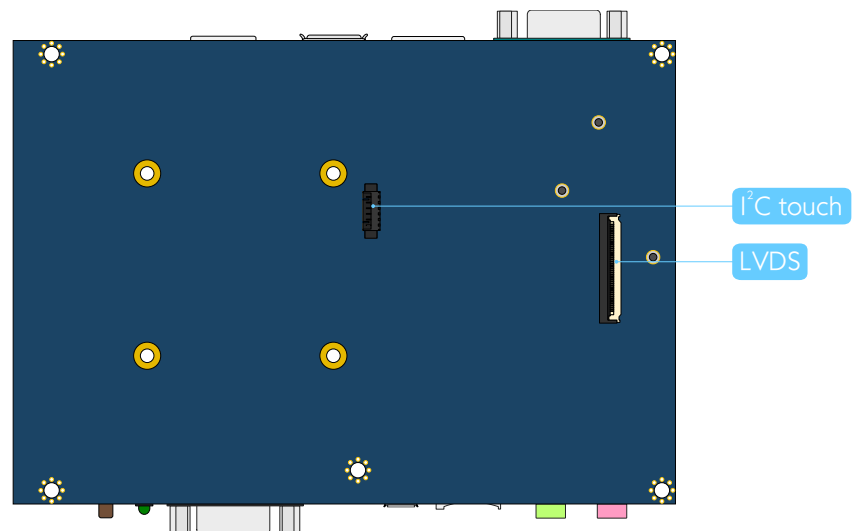


Figure 2: Layout diagram of the VAB-630 (bottom view)

1.4. Product Dimensions

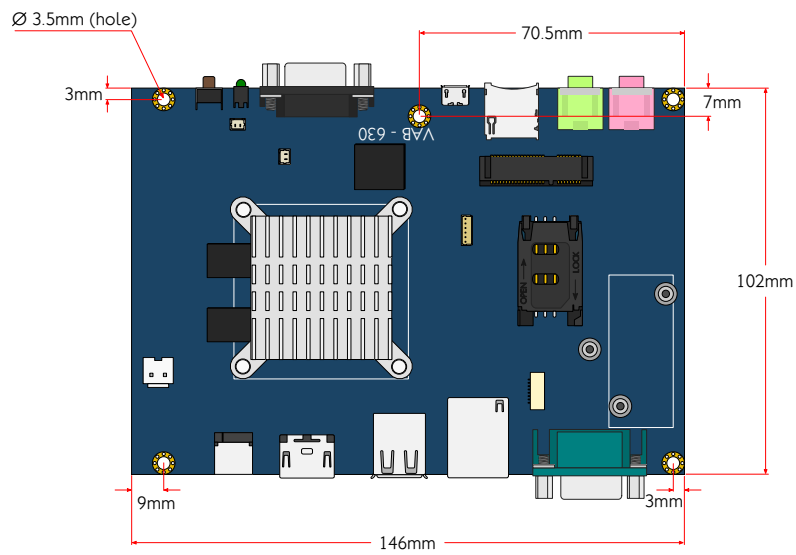


Figure 3: Mounting holes and dimensions of the VAB-630 (top view)

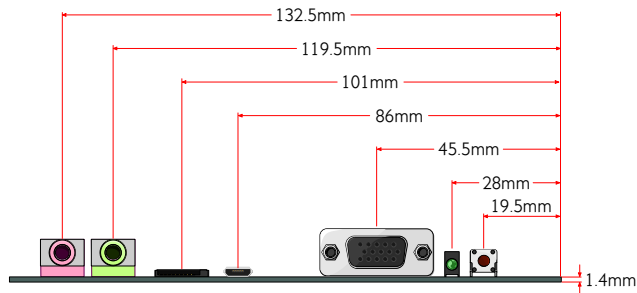


Figure 4: External I/O port dimensions of the VAB-630 (front panel)

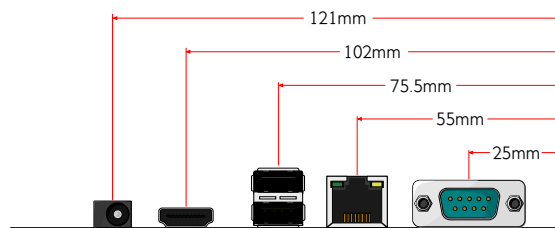


Figure 5: External I/O port dimensions of the VAB-630 (back panel)

1.5. Height Distribution

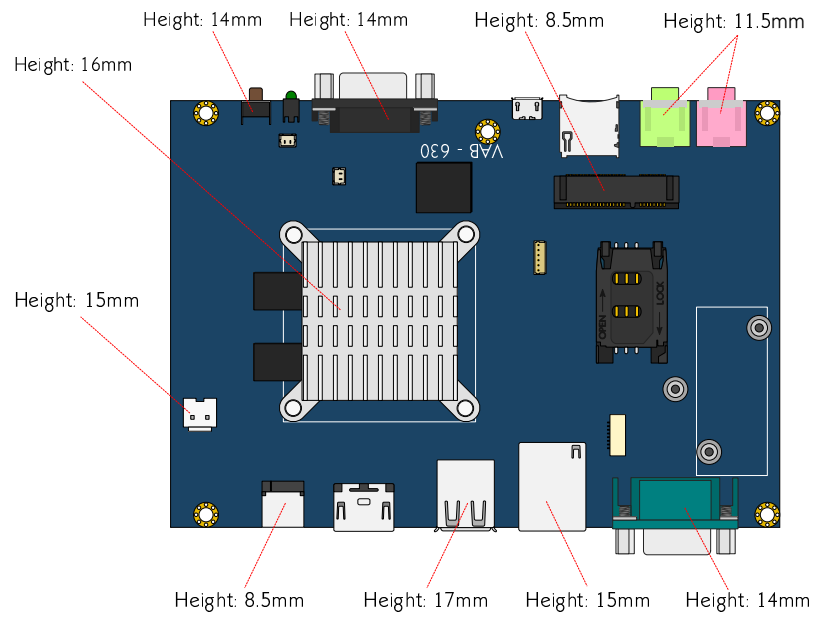


Figure 6: Height distribution of the VAB-630 (top view)

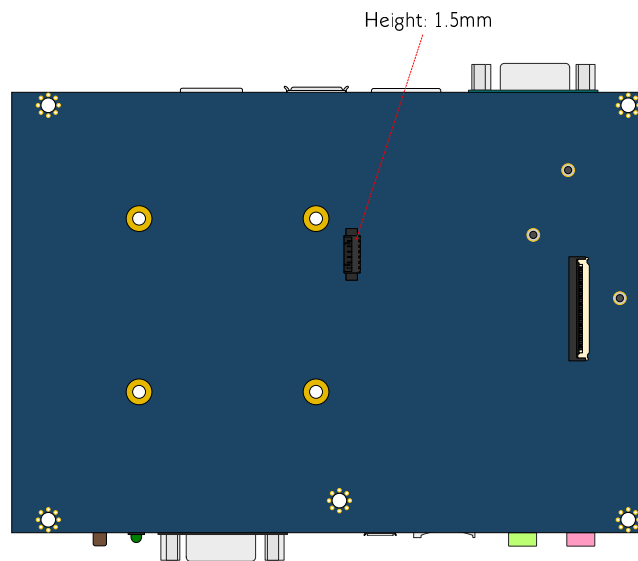


Figure 7: Height distribution of the VAB-630 (bottom view)

2. I/O Interface

The VAB-630 has a selection of interfaces integrated into the board. It includes a selection of frequently used ports as part of the external I/O coastline.

2.1. External I/O Ports

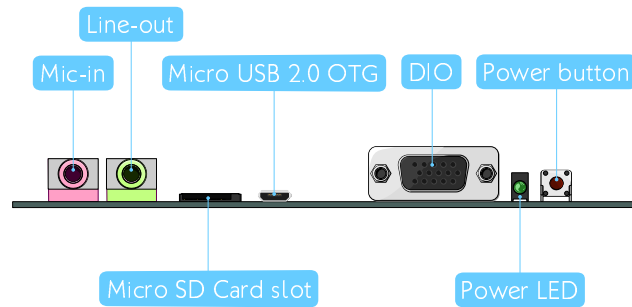


Figure 8: Front panel I/O

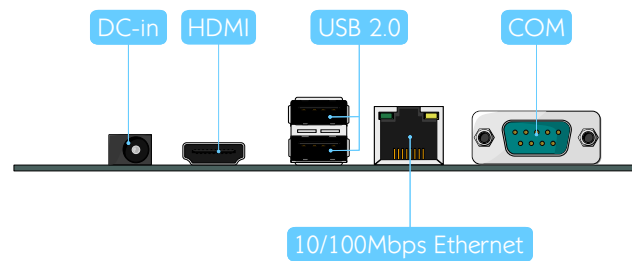


Figure 9: Back panel I/O

2.1.1. Micro SD Card Slot

The main board comes with a Micro SD card slot located on the front panel with support for a maximum storage capacity of 32GB. The pinouts of the Micro SD card slot are shown below.



Figure 10: Micro SD card slot diagram

Pin	Signal
1	SD0DATA2
2	SD0DATA3
3	SD0CMD
4	VCC33_SDO
5	SD0CLK
6	GND
7	SD0DATA0
8	SD0DATA1
9	SD0CD-

Table 1: Micro SD card slot pinouts

2.1.2. 10/100Mbps Ethernet Port

The mainboard is equipped with a 10/100Mbps Ethernet port which uses an 8 Position 8 Contact (8P8C) receptacle connector or commonly referred to as RJ-45. It is fully compliant with IEEE 802.3 (10BASE-T) and 802.3u (100BASE-TX). The pinouts of the 10/100Mbps Ethernet port are shown below.

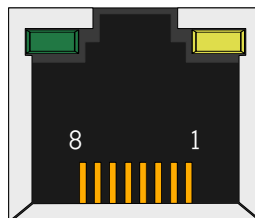


Figure 11: 10/100Mbps Ethernet port diagram

Pin	Signal
1	TD+
2	TD-
3	RD+
4	REGOUT
5	REGOUT
6	RD-
7	GND
8	GND

Table 2: 10/100Mbps Ethernet port pinouts

The 10/100Mbps Ethernet port (RJ-45) is equipped with two LED indicators on the front side to show its Active/ Link status and Speed status.

	Link LED (Left LED on RJ-45 port)	Active LED (Right LED on RJ-45 port)
Link Off	LED is off	LED is off
Speed_10Mbit	The Green LED is on	Yellow Flash
Speed_100Mbit	The Green LED is on	Yellow Flash

Table 3: 10/100Mbps Ethernet port LED color definition

2.1.3. USB 2.0 Port

The mainboard provides two USB 2.0 ports. Each USB ports gives complete Plug and Play and hot swap capability for external devices. The USB interface complies with USB UHCI, Rev. 2.0. The pinouts of the typical USB 2.0 port is shown below.

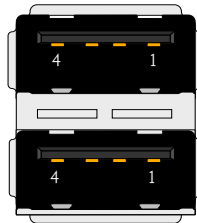


Figure 12: USB 2.0 port diagram

USB0		USB1	
Pin	Signal	Pin	Signal
1	VCC	1	VCC
2	USB data -	2	USB data -
3	USB data +	3	USB data +
4	GND	4	GND

Table 4: USB 2.0 port pinouts

2.1.4. Audio Jacks

The mainboard offers High Definition Audio through 3.5mm Tip Ring Sleeve (TRS) connector to enable connections to Line-out and Mic-in. The Line-out jack is for connecting to external speakers or headphones. The Mic-in is for connecting to a microphone.

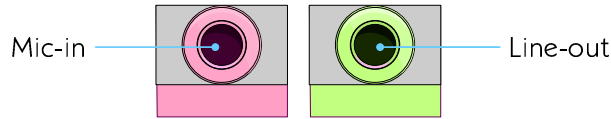


Figure 13: Audio jack diagram

Jack	Description
Mic-in	TRS jack, 3.5mm Ø 5P, 90 Degree, Female, shielded
Line-out	TRS jack, 3.5mm Ø 5P, 90 Degree, Female, shielded

Table 5: Audio jack receptacle description

2.1.5. Micro USB 2.0 OTG Port

The mainboard comes with a Micro USB 2.0 type B port located on the front panel which gives complete Plug and Play and hot swap capability for external devices. The USB interface complies with USB UHCI, Rev. 2.0 and it supports OTG function. The pinouts of the Micro USB 2.0 OTG port are shown below.



Figure 14: Micro USB 2.0 OTG port diagram

Pin	Signal
1	USB_VBUS0
2	USB_HD0-
3	USB_HD0+
4	USBID0
5	GND

Table 6: Micro USB 2.0 OTG port pinouts

2.1.6. DIO Port

The mainboard comes with a female DIO port for digital I/O communication interface port. The DIO port is using D-sub 15-pin connector. The pinouts of the DIO port are shown below.

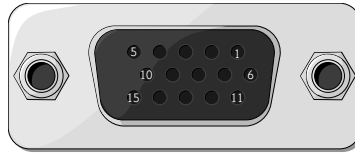


Figure 15: DIO port diagram

Pin	Signal
1	GPIO1
2	GPIO2
3	GPIO3
4	GPIO5
5	GPIO6
6	GPIO7
7	GPIO8
8	GND
9	NC
10	GPIO12
11	GPIO13
12	GPIO14
13	VO_33
14	VO_33
15	GND

Table 7: DIO port pinouts

2.1.7. Power LED

The mainboard comes with a Power LED which is located on the front panel. It is green and indicates the status of the system.



Figure 16: Power LED diagram

2.1.8. Power Button

The mainboard is equipped with a power button. The Power button can support four functions. The table below will explain how the functions work.

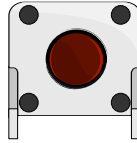


Figure 17: Power button diagram

Power Button Behavior	
Suspend/Resume System	Quickly press the power button once to suspend. While in suspending mode quickly press once to resume
Popup power control menu	Occurs when the power button is pressed for longer than 3 seconds.
Power On	When the system is forced to power off, press the power button to power back on.
Reset mode	Occurs when the power button is pressed for longer than 6 seconds.

Table 8: Power button behavior description



Note:

1. Suspend mode may be interrupted by the Android's original behavior.

2.1.9. DC-in Jack

The mainboard comes with a DC power input jack on the back I/O panel adjacent to the HDMI. The power connector carries +12V DC external power input. The specifications and pinout of power connector are shown below.



Figure 18: DC-in jack specification diagram

Physical Specification	
Outer Diameter	6.0mm
Inner Diameter	2.5mm
Barrel Depth	8.2mm
Electrical Specification	
Input Voltage	+12V

Table 9: DC-in jack specification

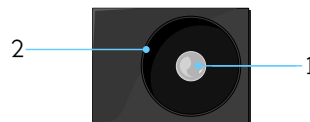


Figure 19: DC-in jack diagram

Pin	Signal
1	12VIN
2	GND

Table 10: DC-in jack pinouts

2.1.10. COM Port

The mainboard is equipped 9-pin COM port uses a male DE-9 connector. The COM port supports the RS-232 standard. The pinouts of the COM port are shown below.

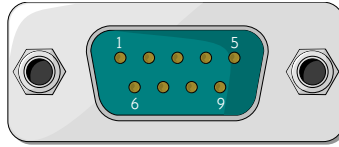


Figure 20: COM port diagram

Pin	Signal
1	NC
2	IC_RXD1
3	IC_TXD1
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Table 11: COM port pinouts

2.1.11. HDMI® Port

The mainboard is equipped with an HDMI port on the back panel which uses a HDMI port Type A receptacle connector to connect high definition video and digital audio using a single cable. The pinouts of the HDMI port are shown below.



Figure 21: HDMI® port diagram

Pin	Signal	Pin	Signal
1	HDMI2+	2	GND
3	HDMI2-	4	HDMI1+
5	GND	6	HDMI1-
7	HDMI0+	8	GND
9	HDMI0-	10	HDMICLK+
11	GND	12	HDMICLK-
13	HDMICEC	14	NC
15	HDMIDDCSCL	16	HDMIDDCSDA
17	GND	18	5V_HDMI
19	HDMIHPD		

Table 12: HDMI® port pinouts

2.2. Onboard Connectors

2.2.1. SIM Card Slot

The mainboard is equipped with SIM card slot that can support 3G SIM card. Using the SIM card slot on the VAB-630 mainboard requires a 3G module installed in the miniPCIe slot to enable the 3G function, otherwise the SIM card slot will be disabled. The SIM card slot is designed only for 3G module without built-in SIM card slot on it. The SIM card slot is labeled as "SIM1". The pinouts of the slot are shown below.

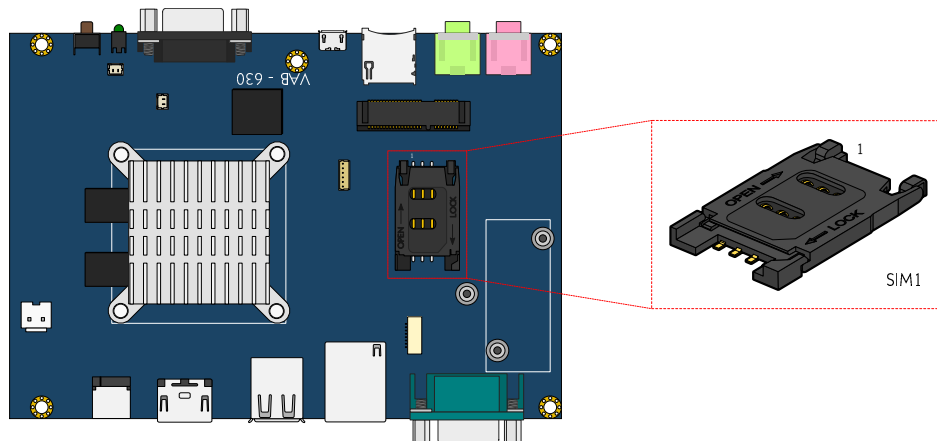


Figure 22: SIM card slot diagram

Pin	Signal
1	USIM_VCC
2	USIM_RST
3	USIM_CLK
4	-
5	GND
6	USIM_VCC
7	USIM_DATA

Table 13 SIM card slot pinouts

2.2.2. MiniPCle Slot

The mainboard is equipped with miniPCle slot for wireless networking option such as WPAN/Wi-Fi/WWAN. The miniPCle slot is compatible with all PCIe 2.0 miniPCle modules full-length. The pinouts of the miniPCle slot are shown below.

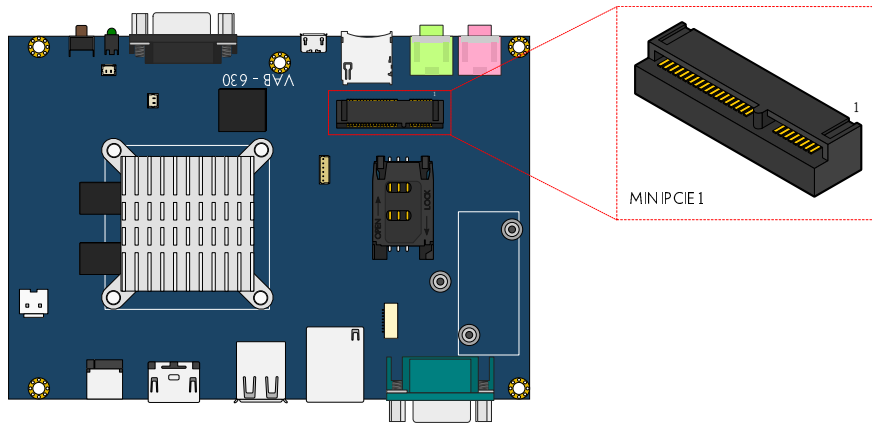


Figure 23: MiniPCle slot diagram

Pin	Signal	Pin	Signal
1	NC	2	3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	3.3V	8	USIM_VCC
9	GND	10	USIM_DATA
11	NC	12	USIM_CLK
13	NC	14	USIM_RST
15	GND	16	NC
17	NC	18	GND
19	NC	20	-W_DISABLE
21	GND	22	SUSGP1O2
23	NC	24	3.3V
25	NC	26	GND
27	GND	28	+1.5v
29	GND	30	12C4SCL
31	NC	32	12C4SDA
33	NC	34	GND
35	GND	36	USBDT2-
37	GND	38	USBDT2+
39	3.3V	40	GND
41	3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	3.3V

Table 14: MiniPCle slot pinouts

2.2.3. I²C Touch Connector

The mainboard is equipped with an I²C touch connector for connecting resistive touch panel. The I²C touch connector is labeled as "JTOUCH1". The pinouts of the I²C touch connector are shown below.

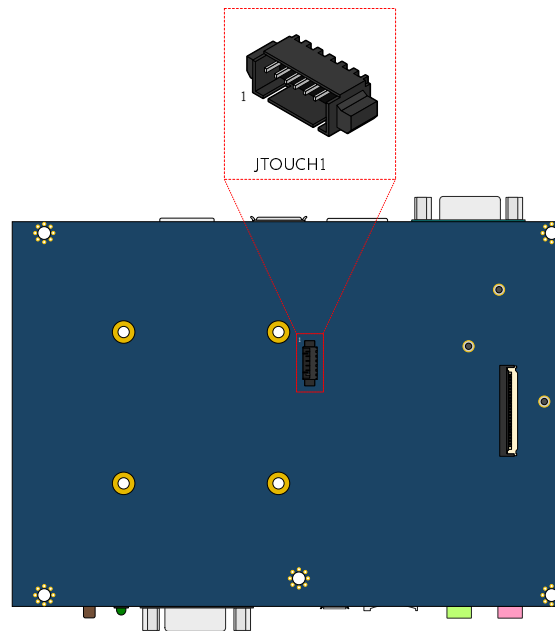


Figure 24: I²C touch connector diagram

Pin	Signal
1	GPIO9
2	GPIO4
3	I2C1SDA
4	I2C1SCL
5	GND
6	VCC33

Table 15: I²C touch connector pinouts

2.2.4. LVDS Panel Connector

The mainboard has a LVDS panel connector on the bottom side which is used to connect the panel's LVDS cable to support the single-channel 18/24-bit display. Backlight controls are integrated into the LVDS panel connector pinouts. The LVDS panel connector is labeled as "LVDS1". The pinouts of the LVDS panel connector are shown below.

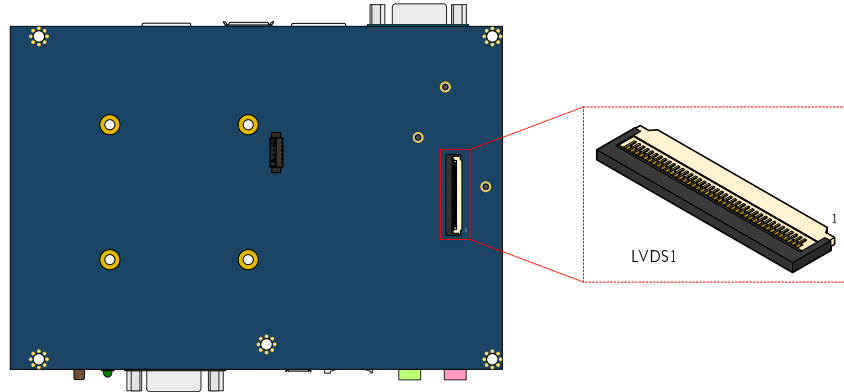


Figure 25: LVDS panel connector diagram

Pin	Signal	Pin	Signal
1	VLED+	2	VLED+
3	VGHI	4	CABC0
5	CABC1	6	VGL
7	UD	8	LR
9	VLED-	10	VLED-
11	GND	12	AVDD
13	SELB	14	NC
15	NC	16	GND
17	NC	18	NC
19	GND	20	LVDS_3+
21	LVDS_3-	22	GND
23	LVDS_CLK+	24	LVDS_CLK-
25	GND	26	LVDS_2+
27	LVDS_2-	28	GND
29	LVDS_1+	30	LVDS_1-
31	GND	32	LVDS_0+
33	LVDS_0-	34	GND
35	STBYB	36	NRST
37	NC	38	LCDVDD
39	LCDVDD	40	VCOM

Table 16: LVDS panel connector pinouts

2.2.5. Battery Connector

The mainboard is equipped with an onboard battery charger connector used for connecting the external cable for charging a rechargeable battery; in addition it provides power to the board. A well packed 4.2V battery with overcharge prevention and over discharge prevention/protection function embedded in battery pack is required to be used with VAB-630. The battery connector is labeled as “J3”. The connector pinouts are shown below.

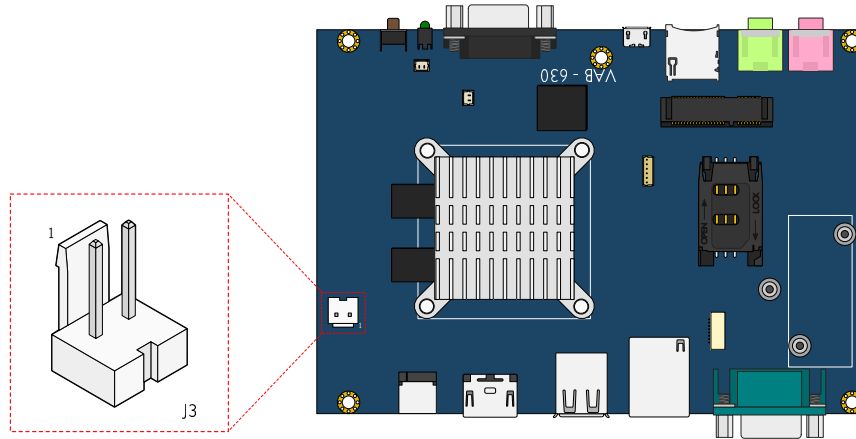


Figure 26: Battery connector diagram

Pin	Signal
1	VPACK+
2	GND

Table 17: Battery connector pinouts

2.2.6. Reset Connector

The mainboard is equipped with an onboard reset button that allows the user to reboot or reset the system forcibly without turning off the system power. A cable or switch must be applied for this to take place. The pinouts of the reset connector are shown below.

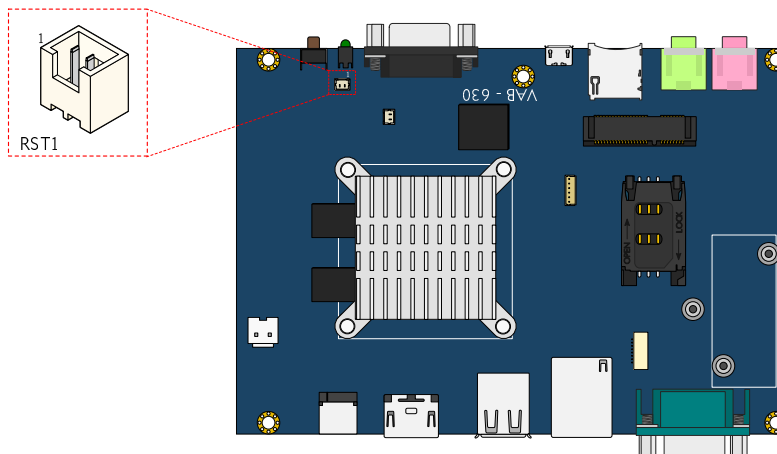


Figure 27: Reset connector diagram

Pin	Signal
1	GND
2	Reset

Table 18: Reset connector pinouts

2.2.7. RTC Battery Connector

The mainboard is equipped with an onboard RTC battery connector which is used for connecting the external cable battery that provides power to the 32.768KHz crystal oscillator for Real Time Clock (RTC). The RTC battery connector is labeled as "J53". The pinouts of the RTC battery connector are shown below.

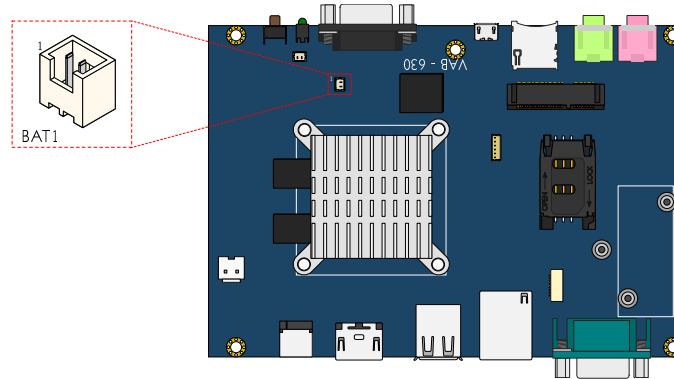


Figure 28: RTC battery connector diagram

Pin	Signal
1	GND
2	V_RTC

Table 19: RTC battery connector pinouts

2.2.8. UART Connector

The mainboard includes one UART connector which is used for debugging purposes. It is labeled as "J1". The UART connector pinouts are shown below.

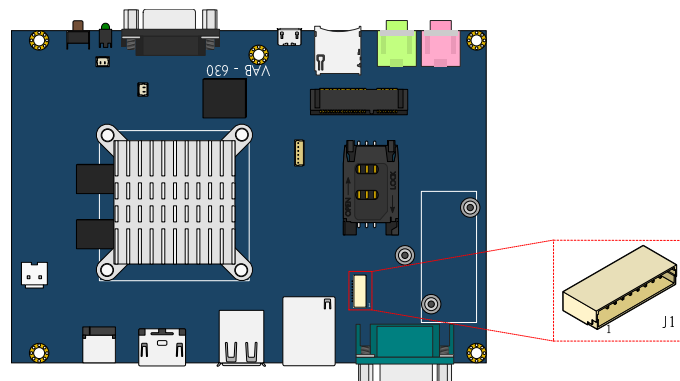


Figure 29: UART connector diagram

Pin	Signal
1	UART0TXD
2	UART0RXD
3	SFCLK
4	GND
5	SFDO
6	SFDI
7	SFCS0-
8	VCC_SF

Table 20: UART connector pinouts

2.2.9. USB 2.0 Connector

The mainboard includes one USB 2.0 connector designed for connecting the USB Wi-Fi module (EMIO-5531). The pinouts of the pin header are shown below.

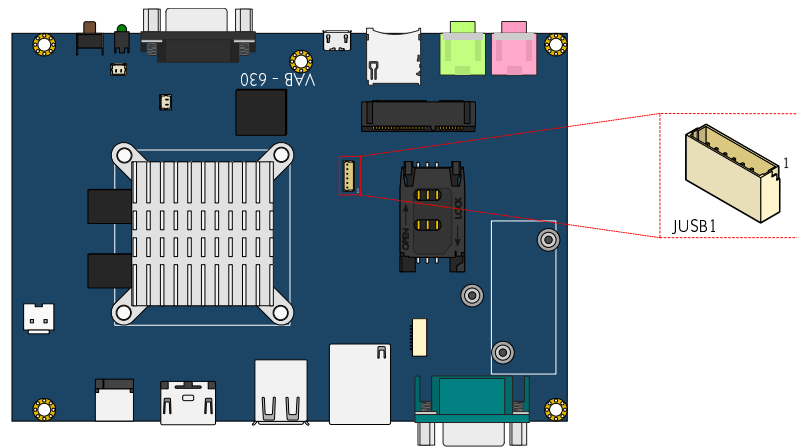


Figure 30: USB 2.0 connector diagram

Pin	Signal
1	NC
2	-
3	GND
4	USBT1+
5	USBT1-
6	5VUSB1

Table 21: USB 2.0 connector pinouts

3. Hardware Installation

3.1. Installing into a Chassis

The VAB-630 can be fitted into any chassis that has the mounting holes compatible with the standard SBC mounting holes locations. Additionally, the chassis must meet the minimum height requirements for specified areas of the mainboard.

3.1.1. Suggested minimum chassis dimensions

The figure below shows the suggested minimum space requirements that a chassis should have in order to work well with the VAB-630.

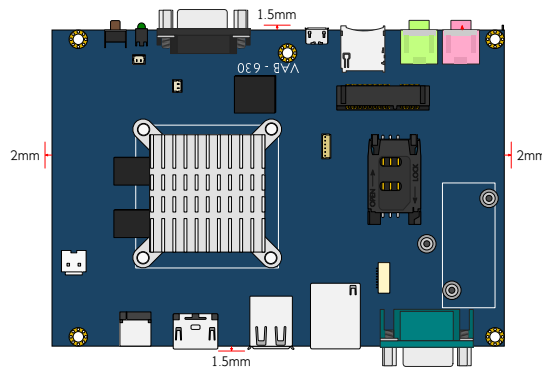


Figure 31: Suggested minimum chassis dimensions

Each side of the mainboard should have a buffer zone from the internal wall of the chassis. The side of the mainboard that accommodates the I/O coastline should have a buffer of 1.5mm; it's comprised of a Mic-in, Line-out, Micro USB 2.0 OTG, Micro SD card slot, DIO, Power LED and Power button. The side on the opposite end of the I/O coastline should have a buffer of at least 1.5mm; it's comprised of DC-in jack, HDMI, USB 2.0, 10/100Mbps Ethernet and COM. The two sides adjacent to the I/O coastline should have at least a buffer 2.0mm.

3.1.2. Suggested minimum chassis height

The figure below shows the suggested minimum height requirements for the internal space of the chassis. It is not necessary for the internal ceiling to be evenly flat. What is required is that the internal ceiling height must be strictly observed for each section that is highlighted.

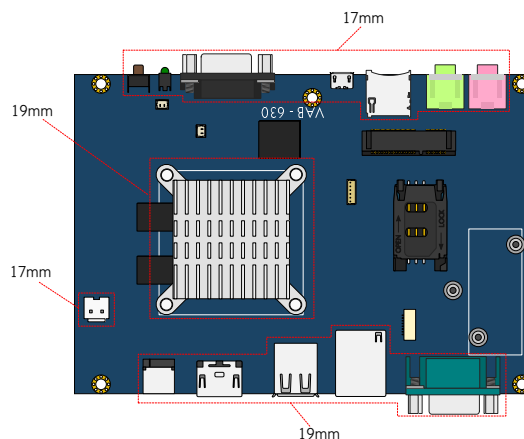


Figure 32: Suggested minimum internal ceiling height

3.1.3. Suggested keepout areas

The figure below shows the areas of the mainboard that is highly suggested to leave unobstructed. The figures below are the top view and the bottom view.



Figure 33: Suggested keepout top areas

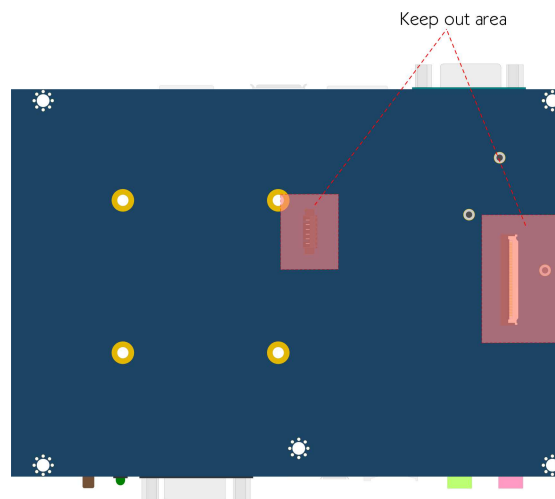


Figure 34: Suggested keepout bottom areas

4. Software and Technical Supports

4.1. Android Support

The VAB-630 features a complete software evaluation image featuring Android 5.0 operating system.

4.2. Technical Supports and Assistance

- For utilities downloads, latest documentation and new information about VAB-630, please visit our website <https://www.viatech.com/en/boards/3-5-inch-sbc/vab-630/>
- For technical support and additional assistance, always contact your local sales representative or board distributor, or go to <https://www.viatech.com/en/support/driver-support-faq/technical-support/> for technical support.
- For OEM clients and system integrators developing a product for long term production, other code and resources may also be made available. Please visit our website at <https://www.viatech.com/en/about/contact/> to submit a request.

Appendix A. Installing Wireless Accessories

This chapter provides you with information on how to install the EMIO modules and connect LVDS panel display into the VAB-630 board. It is recommended to use a grounded wrist strap before handling computer components. Electrostatic discharge (ESD) can damage some components.

A.1. Installing the EMIO-2550 miniPCle mobile broadband module

Step 1

Pull up the slot and place the SIM card inside the slot. Ensure the angled corner of the SIM card is placed in the correct way before closing the slot.

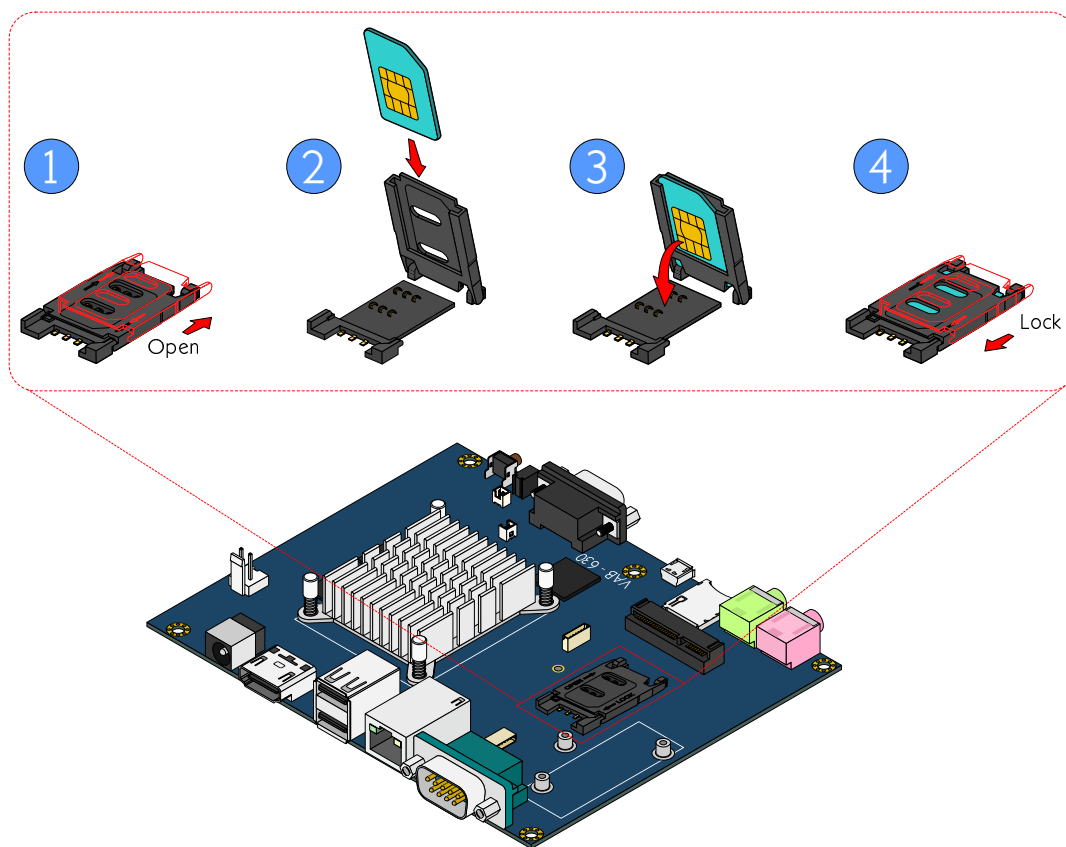


Figure 35: Installing SIM Card

Step 2

Align the notch on the EMIO-2550 module with the counterpart on the miniPCle slot then insert the module at 30° angle.

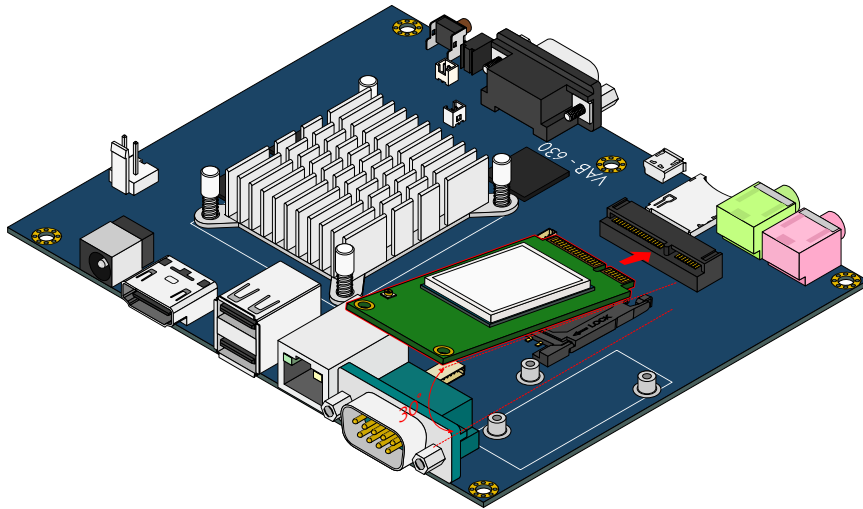


Figure 36: Inserting the EMIO-2550 module

Step 3

Once the module has been fully inserted, push down the module until the screw holes align with the mounting hole on the standoff. Secure the module with screw to the standoff.

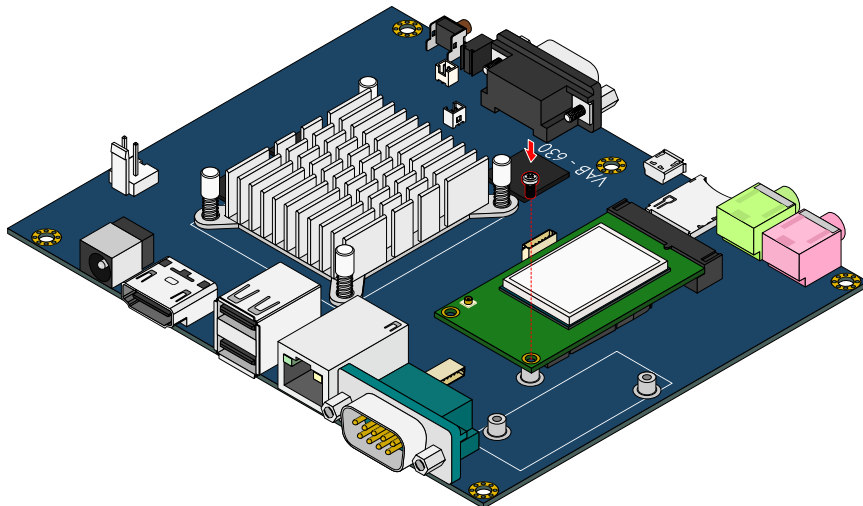


Figure 37: Securing the EMIO-2550 module

Step 4

Insert the 3G antenna cable into the antenna hole from the inside of the back panel plate. Insert the washer, fasten it with the nut and install the external antenna.

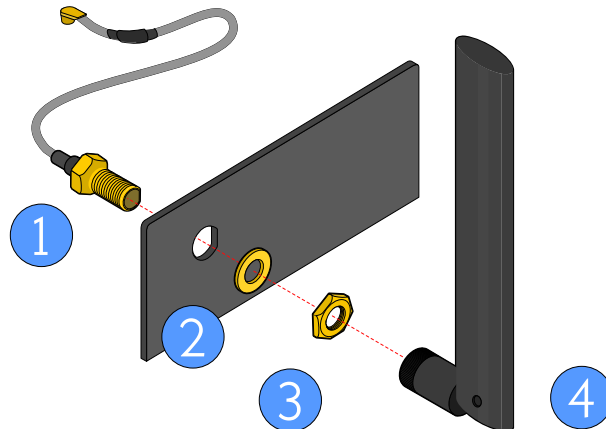


Figure 38: Connecting the antenna cable and antenna

Step 5

Gently connect the other end of the 3G antenna cable to the micro-RF connector labeled “MAN” on the EMIO-2550 module.

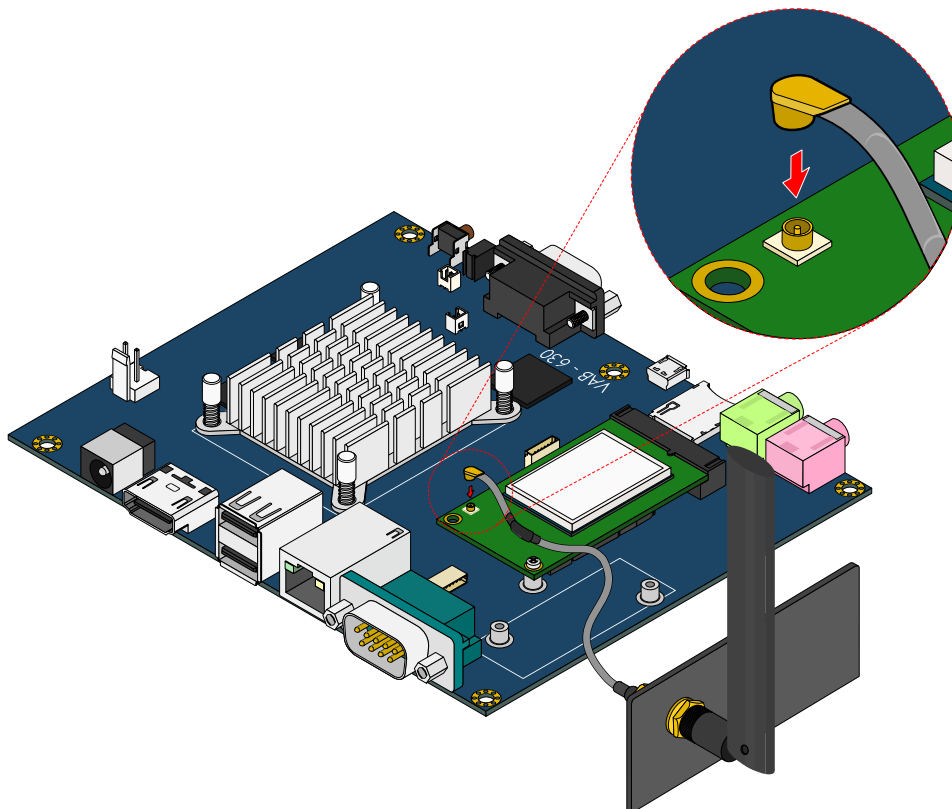


Figure 39: Connecting the antenna (to the micro-RF connector)

A.2. Installing the EMIO-2531 miniPCle Wi-Fi & Bluetooth module

Step 1

Align the notch on the EMIO-2531 module with the counterpart on the miniPCle slot then insert the module at 30° angle.

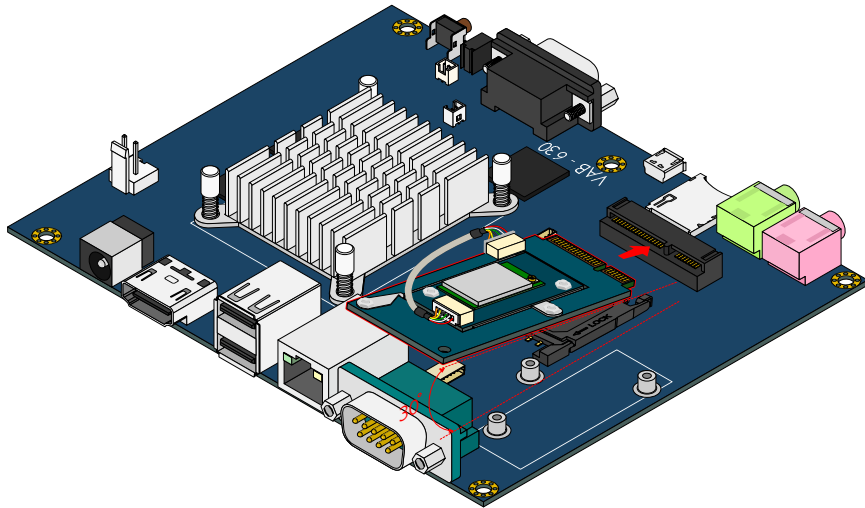


Figure 40: Inserting the EMIO-2531 module

Step 2

Once the module has been fully inserted, push down the module until the screw holes align with the mounting hole on the standoff. Secure the module with screw to the standoff.

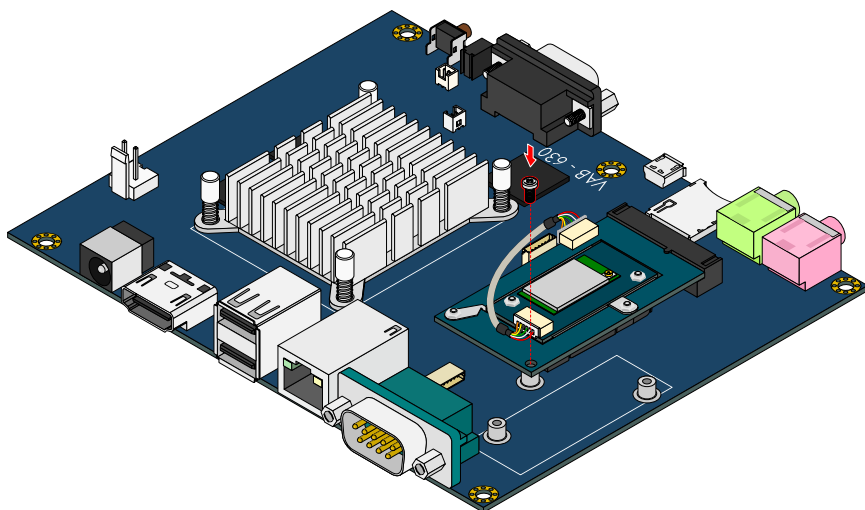


Figure 41: Securing the EMIO-2531 module

Step 3

Insert the Wi-Fi antenna cable into the antenna hole from the inside of the back panel plate. Insert the washer, fasten it with the nut and install the external antenna.

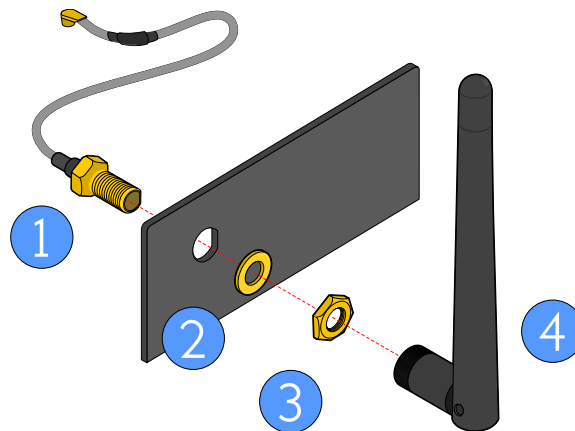


Figure 42: Connecting the Wi-Fi antenna cable and antenna

Step 4

Gently connect the other end of the Wi-Fi antenna cable to the micro-RF connector labeled “MH2” on the EMIO-2531 module.

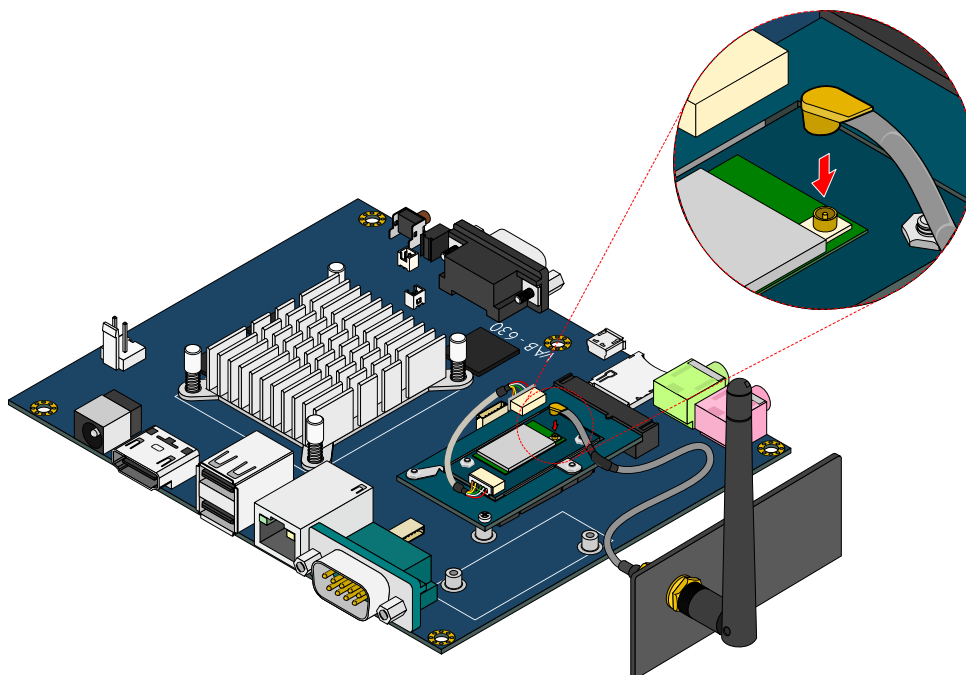


Figure 43: Connecting the antenna cable to the micro-RF connector

A.3. Installing EMIO-5531 USB Wi-Fi module

Step 1

Mount the EMIO-5531 module on the VAB-630 mainboard. Align the module's mounting holes with the standoff screw holes on the mainboard then secure it with two screws.

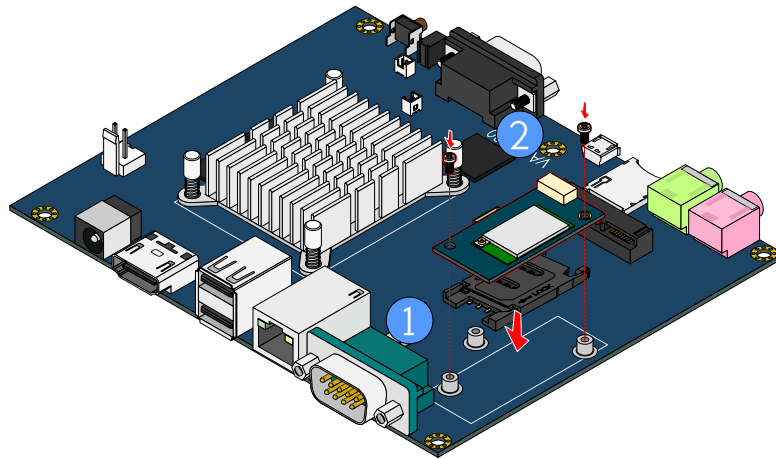


Figure 44: Installing and securing EMIO-5531 module

Step 2

Attach the USB Wi-Fi cable (P/N 99G33-193126) to the connector on EMIO-5531 module, and then attach the other end of the cable to the onboard USB Wi-Fi connector (JUSB1) on the VAB-630 mainboard.

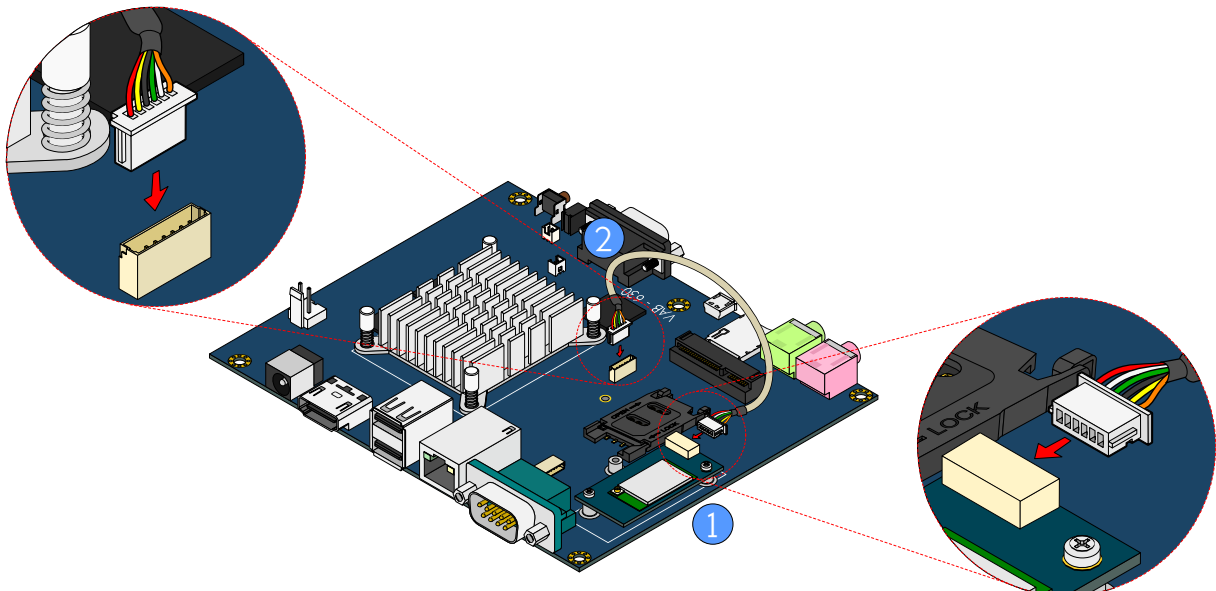


Figure 45: Connecting USB Wi-Fi cable

Step 3

Insert the Wi-Fi antenna cable into the antenna hole from the inside of the back panel plate. Insert the washer, fasten it with the nut and install the external antenna.

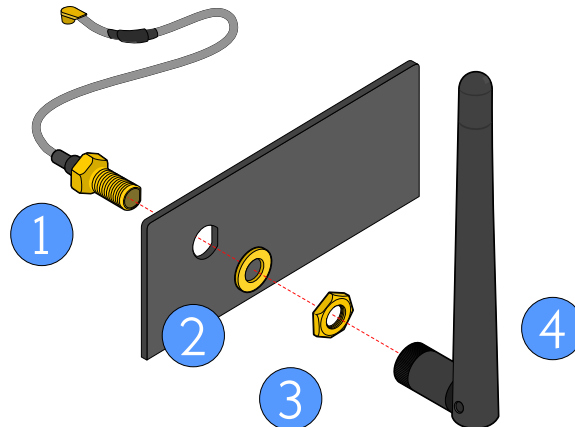


Figure 46: Connecting the antenna cable and antenna

Step 4

Gently connect the other end of the Wi-Fi antenna cable to the micro-RF connector labeled “MH2” on the EMIO-5531 module.

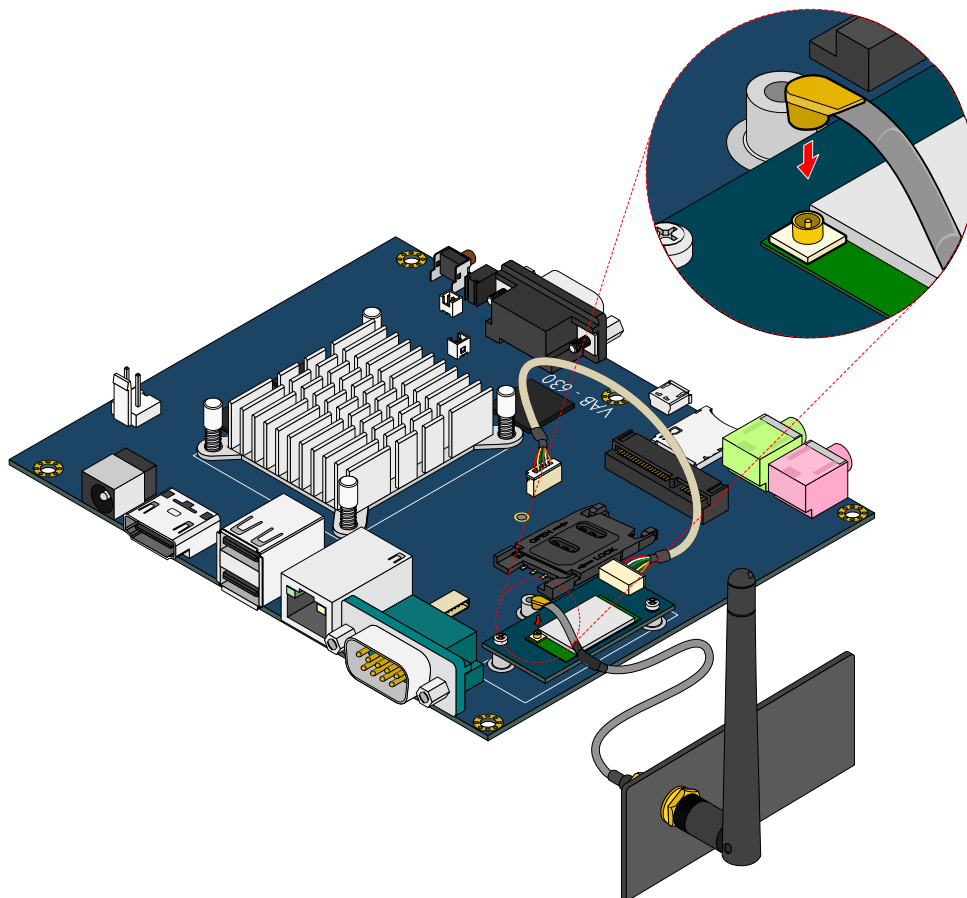


Figure 47: Connecting the antenna cable to the micro-RF connector

Appendix B. Installing LVDS Panel Display

B.1. Connecting the LVDS Panel Display to the VAB-630 board

Step 1

Attach the touch screen flat flex cable into the touch controller module.

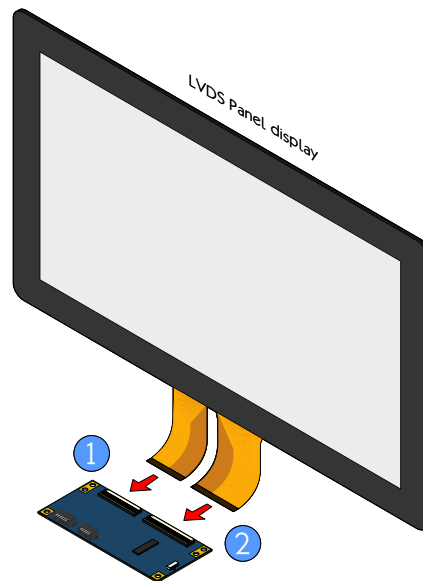


Figure 48: Connecting the touch screen cable to the touch controller module

Step 2

Attach the USB touch cable to the USB port, and then attach the other end of the cable to the touch controller module.

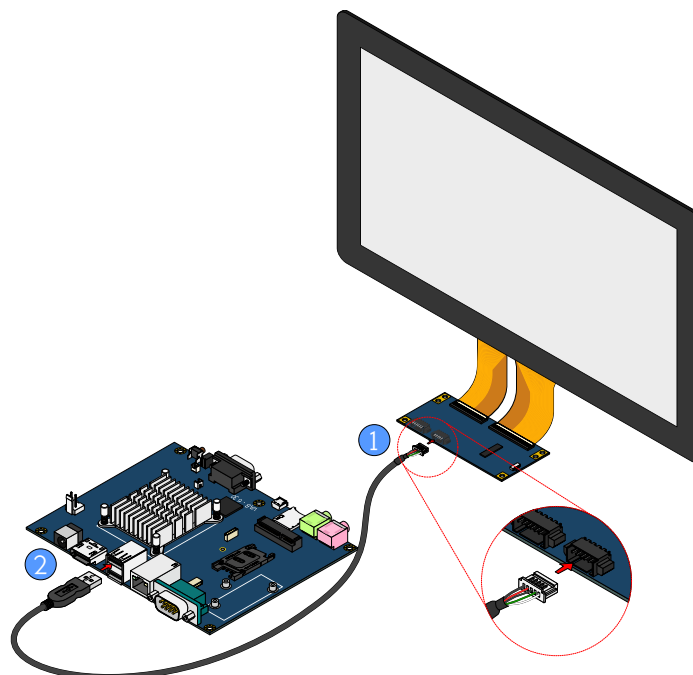


Figure 49: Connecting the USB touch cable

Step 3

Connect the flex flat cable connector to the LVDS panel display backside and then into the VAB-630 backside of the mainboard. The blue color side of the LVDS cable must face up when connecting to the LVDS panel (both panel and board).

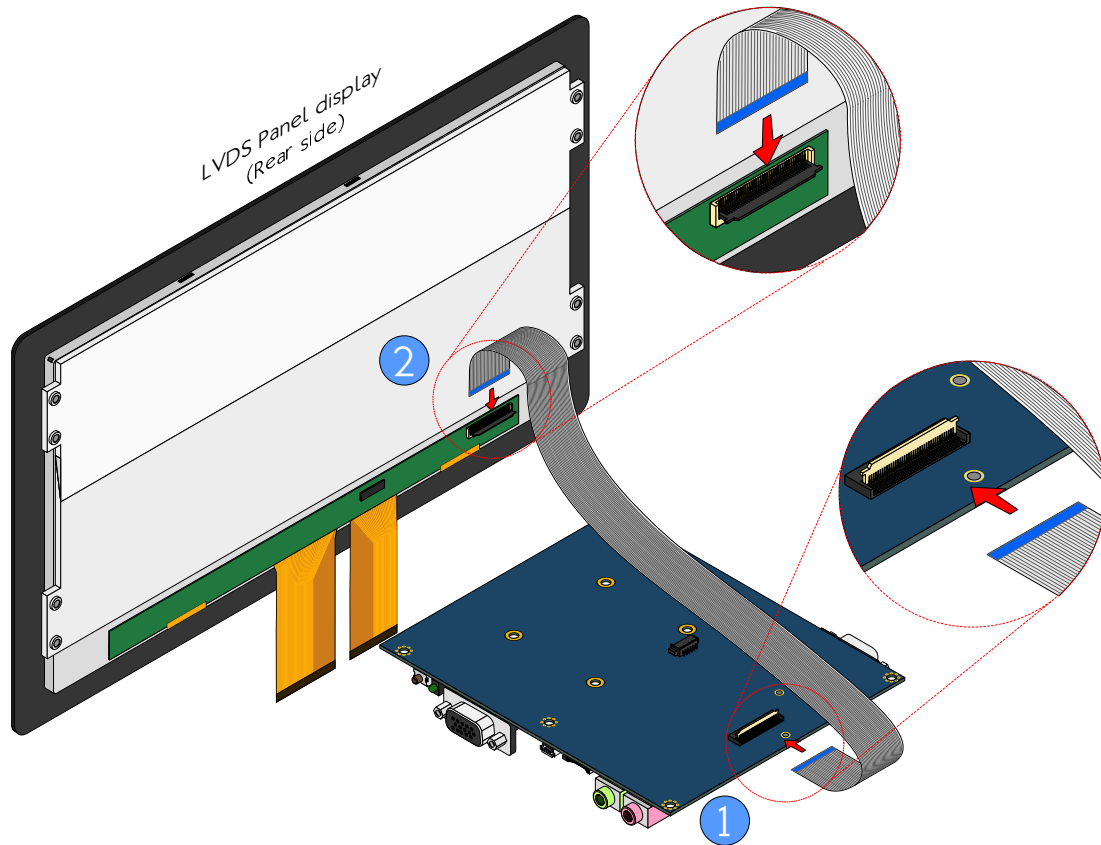


Figure 50: Connecting the flex flat cable

Step 4

For LVDS panel u-boot setting refers to VAB-630_Andriod5.0_BSP_Quick_Start_Guide_v1.0.0 section 5.1.2 setting up the LVDS Up and LVDS U-Boot display parameter.

Appendix C. Connector Vendor Lists

The following tables listed the connector vendors of VAB-630 mainboard.

C.1. VAB-630 Mainboard

Connectors	VIA P/N	Vendor	P/N
J1	99G30-170252	ACES	87213-0800G
JTOUCH1	99H30-171352	ACES	50271-0060N-001
LVDS1	99H30-03255C	ACES	50501-04041-001
J3	99H30-02091G	MOST WELL	W3962-S1021221
RST1, BAT1	99G30-020655	Neltron	1251SM-02
JUSB1	99G30-170332	ACES	87212-06G0

Table 22: VAB-630 connector vendor lists



Taiwan Headquarters

1F, 531 Zhong-zheng Road,
Xindian Dist., New Taipei City 231
Taiwan

Tel: 886-2-2218-5452
Fax: 886-2-2218-9860
Email: embedded@via.com.tw



USA

940 Mission Court
Fremont, CA 94539,
USA

Tel: 1-510-687-4688
Fax: 1-510-687-4654
Email: embedded@viatech.com



Japan

3-15-7 Ebisu MT Bldg. 6F,
Higashi, Shibuya-ku
Tokyo 150-0011
Japan

Tel: 81-3-5466-1637
Fax: 81-3-5466-1638
Email: embedded@viatech.co.jp



China

Tsinghua Science Park Bldg. 7
No. 1 Zongguancun East Road,
Haidian Dist., Beijing, 100084
China

Tel: 86-10-59852288
Fax: 86-10-59852299
Email: embedded@viatech.com.cn



Europe

Email: embedded@via-tech.eu