



USER MANUAL

# VIA AMOS-820

Fanless ultra-compact quad-core  
edge computing system ruggedized  
for extreme environments



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## Regulatory Compliance

### FCC-A Radio Frequency Interference Statement

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.

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

### Notice 3

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Tested To Comply  
With FCC Standards  
FOR HOME OR OFFICE USE



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- ☐ Only use the appropriate battery specified for this product.
- ☐ 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.



## Safety Precautions

- ☐ 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

### VIA AMOS-820-QP SKU

- ☐ 1 x VIA AMOS-820 system (with 1.0GHz NXP i.MX 6QuadPlus Cortex-A9 quad-core SoC)
- ☐ 1 x Phoenix plug to DC jack
- ☐ 1 x COM/CAN conversion cable
- ☐ 1 x Screw pack for miniPCle card
- ☐ 1 x Screw pack for mounting
- ☐ 1 x Rubber feet pack

### VIA AMOS-820 SKU

- ☐ 1 x VIA AMOS-820 system (with 1.0GHz NXP i.MX 6Quad Cortex-A9 quad-core SoC)
- ☐ 1 x Phoenix plug to DC jack
- ☐ 1 x COM/CAN conversion cable
- ☐ 1 x Screw pack for miniPCle card
- ☐ 1 x Screw pack for mounting
- ☐ 1 x Rubber feet pack

## Ordering Information

Part Number	Description
AMOS-820-5Q10A1	Fanless embedded system with 1.0GHz NXP i.MX 6QuadPlus Cortex-A9 SoC, 1GB DDR3 RAM, 4GB eMMC, 512KB SPI Flash ROM, HDMI, 3 USB 2.0, Micro USB 2.0 OTG, 2 CAN bus, 2 COM, GPIO, Gigabit Ethernet, miniPCle slot, RCA-in, 12V DC-in
AMOS-820-6Q10A1	Fanless embedded system with 1.0GHz NXP i.MX 6QuadPlus Cortex-A9 SoC, 1GB DDR3 RAM, 4GB eMMC, 512KB SPI Flash ROM, HDMI, 3 USB 2.0, Micro USB 2.0 OTG, 2 CAN bus, 2 COM, GPIO, Gigabit Ethernet, miniPCle slot, RCA-in, PoE function, 12V DC-in
AMOS-820-1Q10A2	Fanless embedded system with 1.0GHz NXP i.MX 6Quad Cortex-A9 SoC, 1GB DDR3 RAM, 4GB eMMC, 512KB SPI Flash ROM, HDMI, 3 USB 2.0, Micro USB 2.0 OTG, 2 CAN bus, 2 COM, GPIO, Gigabit Ethernet, miniPCle slot, RCA-in, 12V DC-in
AMOS-820-2Q10A2	Fanless embedded system with 1.0GHz NXP i.MX 6Quad Cortex-A9 SoC, 1GB DDR3 RAM, 4GB eMMC, 512KB SPI Flash ROM, HDMI, 3 USB 2.0, Micro USB 2.0 OTG, 2 CAN bus, 2 COM, GPIO, Gigabit Ethernet, miniPCle slot, RCA-in, PoE function, 12V DC-in

## Optional Accessories

### Wireless Accessories

Part Number	Description
00GO27100BU2B0D0	VNT9271BU0DB IEEE 802.11b/g/n USB Wi-Fi dongle
EMIO-2531-00A1	VAB-820-W-M IEEE 802.11b/g/n miniPCle Wi-Fi & Bluetooth module with assembly kit and antenna
EMIO-2550-00A1	3.75G HSPA/UMTS mobile broadband full-size miniPCle module with GPS and SIM card slot, SIM card slot, assembly kit and antenna

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# 1. Product Overview

Fast-track your IoT and edge intelligence deployments with the VIA AMOS-820 edge computing system. Combining the advanced compute and graphics performance of NXP i.MX 6Quad series processors with a wealth of I/O and connectivity features, this ultra-compact fanless system provides a highly-customizable low-power solution for a host of industrial IoT, enterprise IoT, smart transportation, and energy management applications.

With its ruggedized design and wide operating temperature range, the VIA AMOS-820 provides an ultra-reliable solution for mission-critical edge installations in the most demanding indoor and outdoor environments – from busy factory and warehouse floors to remote wind and solar farms.

The VIA AMOS-820 edge computing system provides a choice of 1.0GHz NXP i.MX 6QuadPlus and 6Quad series quad-core SoCs as well as a rich array of I/O and connectivity features in a robust and durable small form factor. In addition to extremely low power consumption of a mere 7W under typical operation, the system supports a wide operating temperature range from -20°C up to 70°C.

The VIA AMOS-820 edge system includes a choice of Android and Linux BSPs & EVKs supporting both the NXP i.MX 6QuadPlus and NXP i.MX 6Quad series Cortex-A9 quad-core SoCs. In addition, the VIA AMOS-820 is Microsoft Azure Certified for IoT and is compatible with FogHorn's Lightning "edge intelligence" software for enterprise and commercial installations.

## 1.1. Key Features

### 1.1.1. High-Performance

The ARM based VIA AMOS-820 system is powered by an NXP i.MX 6QuadPlus (or i.MX 6Quad) Cortex-A9 quad-core SoC that powerful performance to a host of connected device applications.

### 1.1.2. Fanless, Ruggedized, Ultra-compact and Space Saving

The VIA AMOS-820 has an ultra-compact, ruggedized chassis which is designed to save space that makes it suitable to install in space critical environment and to ensure maximum reliability. Its chassis design has a robust aluminum alloy top cover and steel bottom chassis.

### 1.1.3. Stylish and Fully Sealed Design

The chassis of the VIA AMOS-820 is composed of four main parts. The stylish ridged aluminum top cover does double duty and acts as the heatsink of the VIA AMOS-820.

### 1.1.4. Optimize Integration with Multiple I/O Access

With front and back I/O access, the VIA AMOS-820 can be easily configured to support a wide variety of applications with easy integration and quick setup.

### 1.1.5. Storage Expansion

The Micro SD card slot enables the VIA AMOS-820 to have a flexible storage up to 32GB size.

### 1.1.6. Wide Range of Operating Temperature

The VIA AMOS-820 carries a qualified thermal performance design which allows a wide range of operating temperature from -20°C up to 70°C, suitable for critical applications.

### 1.1.7. Shock Resistant

The VIA AMOS-820 is shock resistant to 70G for maximum reliability.

### 1.1.8. Networking Option

The VIA AMOS-820 is equipped with an RJ-45 port that supports high-speed Gigabit Ethernet. An optional miniPCle slot is provided for 3G/Wi-Fi (WLAN) connectivity.



### 1.1.9. Power over Ethernet (optional)

The VIA AMOS-820 is equipped with an optional integrated Powered Device (PD) controller and switching regulator intended for high-power IEEE 802.3at and 802.3af applications. The power over Ethernet (PoE) PD board can output 25W of power. The VIA AMOS-820 can be operated using either PoE or external adaptors (12V).

### 1.1.10. Multiple Mounting Option

The VIA AMOS-820 supports multiple methods for mounting the chassis securely. This rugged industrial edge computing system can be mounted to a table, wall or any flat surface

### 1.1.11. Embedded Operating System Ready

The VIA AMOS-820 features a complete software evaluation image featuring Android 6.0 and Linux kernel 4.1.15 operating systems.

## 1.2. Product Specifications

### Processor

- 1.0GHz NXP i.MX 6QuadPlus Cortex-A9 quad-core SoC (AMOS-820-QP SKU)
- 1.0GHz NXP i.MX 6Quad Cortex-A9 quad-core SoC (AMOS-820 SKU)

### System Memory

- 1GB DDR3 SDRAM onboard

### Storage

- 4GB eMMC Flash memory

### Boot Loader

- 4MB SPI Serial Flash ROM

### Graphics

- Vivante GC2000+ GPU (AMOS-820-QP SKU) / Vivante GC2000 GPU (AMOS-820 SKU)
  - Three independent, integrated graphics processing units
  - Supports an OpenGL® ES 3.0, OpenCL and OpenVG™ 1.1 hardware acceleration
  - Support MPEG-2, VC-1 and H.264 video decoding up to 1080p
  - Supports SD encoding

### LAN

- Micrel KSZ9031RNX Gigabit Ethernet transceiver with RGMII support

### Audio

- NXP SGTL5000 low power stereo codec

### HDMI®

- Integrated HDMI® 1.4 transmitter

### USB

- SMSC USB2514 USB 2.0 high-speed 4-port hub controllers

### CAN

- TI SN65HVD1050 EMC optimized CAN transceiver

### Expansion I/O

- 1 x miniPCle slot

### Front Panel I/O

- 1 x Reset button
- 2 x LEDs for power & WPAN/WWAN/Wi-Fi status
- 1 x COM1 port supports 8-wire DTE mode
- 1 x CAN/COM port supports one COM (TX/RX) and two CAN bus (supports CAN protocol specification version 2.0 B) through a cable
- 1 x USB 2.0 port
- 1 x Micro USB 2.0 type B port supports OTG
- 1 x DIO port supports eight GPIO (4 GPI + 4 GPO)
- 3 x Audio jacks: Line-in, Line-out and Mic-in
- 1 x 2-pole Phoenix DC jack

### Back Panel I/O

- 1 x Micro SD/SPI boot switch
- 1 x Gigabit Ethernet port (supports optional IEEE 802.3at type 2)
- 2 x USB 2.0 ports
- 1 x HDMI® port
- 1 x Composite RCA jack
- 2 x Antenna holes for 3G/Wi-Fi

### Power Supply

- 12V DC-in (typical: 7W)

### Smart ETK

- Watchdog timer, CAN bus, GPIO, UART

### PoE Function

- Supports IEEE 802.3at compliant (type 2) PD (AMOS-820-2Q10A2, AMOS-820-6Q10A1)

### Mechanical Characteristics

- **Construction**
  - Aluminum top chassis housing
  - Metal chassis housing
  - Dual removable front and rear metal face plate
- **Bottom Opening Covers**
  - Open window with removable door plate to access the Micro SD and miniPCle slots
- **Dimensions (W x H x D)**
  - 150.5mm x 48.1mm x 103.3mm (5.9" x 1.9" x 4.1")
- **Weight**
  - 0.673kg (1.48lbs)

### Mounting

- Wall/DIN Rail/VESA mountable

### Environmental Specifications

- **Operating Temperature (3G and Wi-Fi not included)**
  - -20°C ~ 70°C (AMOS-820-1Q10A2, AMOS-820-5Q10A1)
  - -20°C ~ 60°C (AMOS-820-2Q10A2, AMOS-820-6Q10A1)
- **Operating Humidity**
  - 0% ~ 90% @ 45°C (non-condensing)
- **Vibration Loading During Operation (with onboard eMMC)**
  - 7Grms, IEC 60068-2-64, random, 5 ~ 500Hz, 1hr/axis
- **Shock During Operation (with onboard eMMC)**
  - 70G, IEC 60068-2-27, half sine, 11ms duration
- **Compliance**
  - CE, FCC

### Operating System

- Android 6.0, Linux kernel 4.1.15



#### Notes:

1. As the operating temperature provided in the specifications is a result of testing 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 the 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

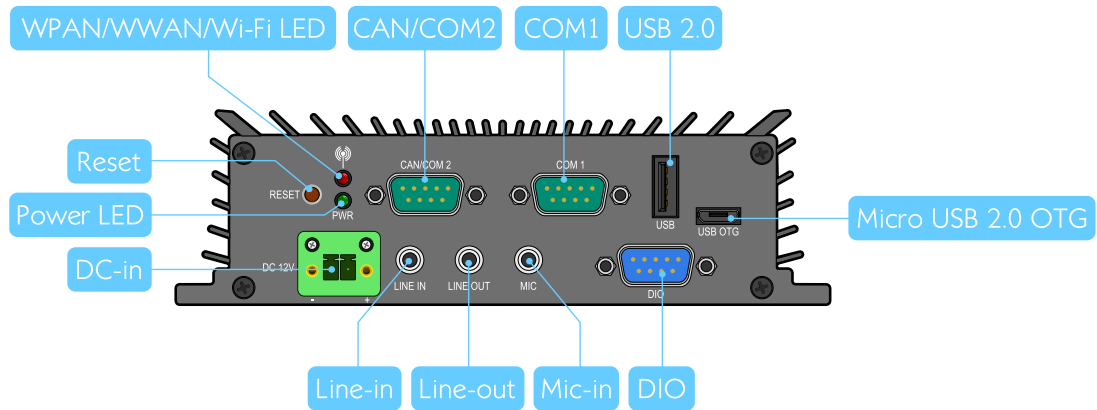


Figure 1: Front panel I/O layout

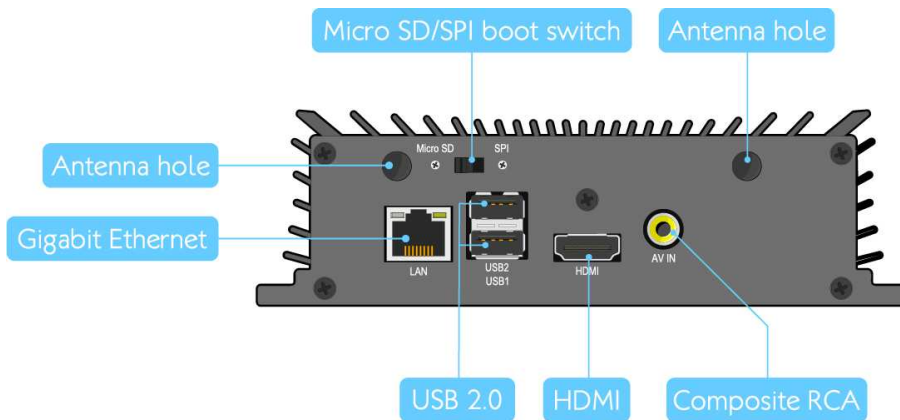


Figure 2: Back panel I/O layout

## 1.4. Product Dimensions

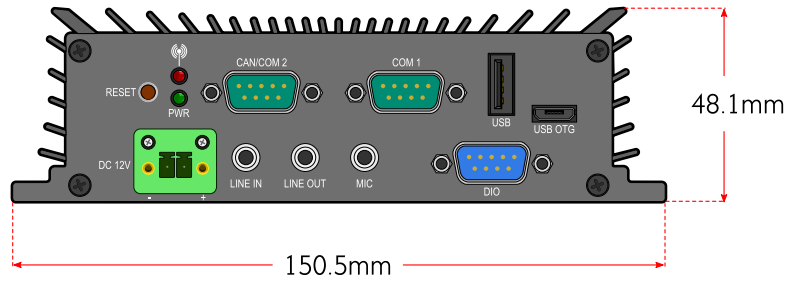


Figure 3: Dimensions of the VIA AMOS-820 (front view)

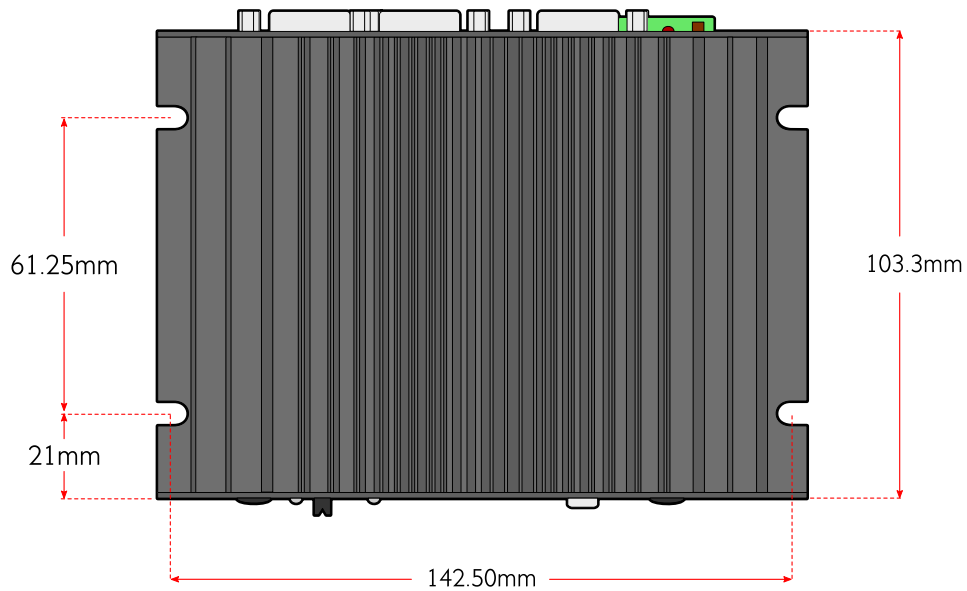


Figure 4: Dimensions of the VIA AMOS-820 (top view)

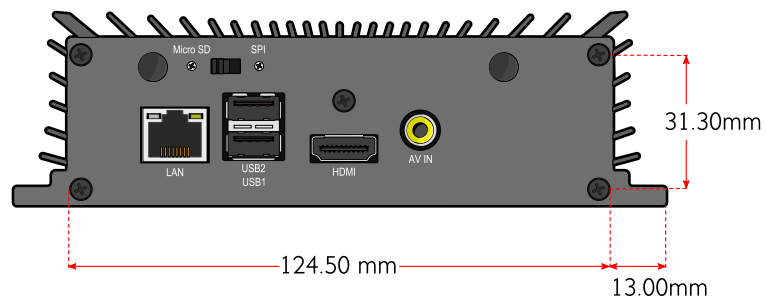


Figure 5: Dimensions of the VIA AMOS-820 (rear view)

## 2. External I/O Pin Descriptions and Functionality

The VIA AMOS-820 has a wide selection of interfaces. It includes a selection of frequently-used ports as part of the external I/O coastline.

### 2.1. DC-In Jack

The VIA AMOS-820 comes with a 2-pole Phoenix DC jack on the front panel that carries 12V<sub>DC</sub> external power input.

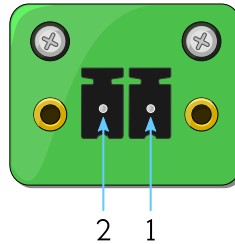


Figure 6: DC-in jack diagram

Pin	Signal
1	12V DC
2	GND

Table 1: DC-in jack pinouts

### 2.2. Reset Button

The VIA AMOS-820 comes with a reset button on the front panel.



Figure 7: Reset button diagram

### 2.3. LED Indicator

There are two LEDs on the front panel of the VIA AMOS-820 that indicate the status of the system:

- Power LED is green and indicates the status of the system's power.
- WPAN/WWAN/Wi-Fi LED is red and indicates network status of the system.

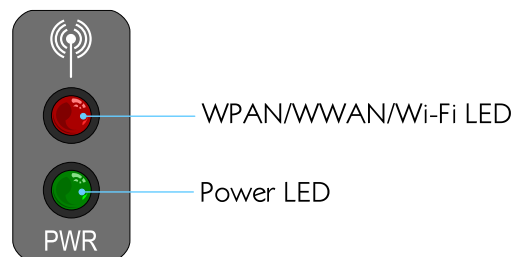


Figure 8: LED indicator diagram

## 2.4. CAN/COM2 Port

The integrated 9-pin CAN/COM2 port uses a male DE-9 connector. The CAN bus port supports CAN protocol specification version 2.0 B while the COM2 port supports TX/RX. The purpose of the CAN/COM2 port is for debugging only. The pinouts of the CAN/COM2 port are shown below.

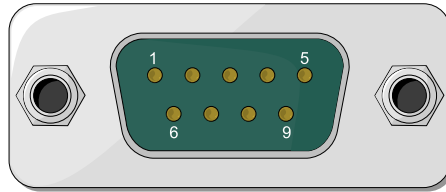


Figure 9: CAN/COM2 port diagram

Pin	Signal
1	CANH1
2	RX
3	TX
4	CANL2
5	GND
6	CANL1
7	GND
8	CANH2
9	VCC5

Table 2: CAN/COM2 port pinouts



**Note:**

Do not directly plug a COM port to the CAN/COM2 port. Please use the COM/CAN conversion cable when connecting to the CAN/COM2 port.

## 2.5. COM1 Port

The integrated 9-pin COM1 port uses a male DE-9 connector. The COM1 port supports the RS-232 standard. The pinouts of the COM1 port are shown below.

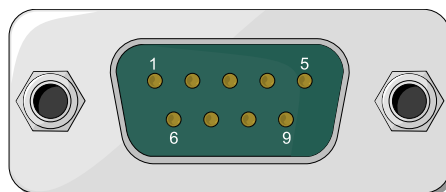


Figure 10: COM1 port diagram

Pin	Signal
1	DCD1
2	SIN1(Rx)
3	SOUT1(Tx)
4	DTR1
5	GND
6	DSR1
7	RTS1
8	CTS1
9	RI1

Table 3: COM1 port pinouts

## 2.6. USB 2.0 Port

The VIA AMOS-820 mainboard provides three USB 2.0 ports, each USB port 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 USB 2.0 port are shown below.



Figure 11: USB 2.0 port diagram

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

Table 4: USB 2.0 port pinouts

## 2.7. Micro USB 2.0 OTG Port

The VIA AMOS-820 comes with a Micro USB 2.0 OTG port (Micro USB Type B connector) located on the front panel. The Micro USB 2.0 OTG port supports OTG (On-The-Go). The pinouts of the Micro USB 2.0 OTG port are shown below.

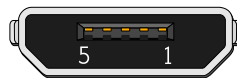


Figure 12: Micro USB 2.0 OTG port diagram

Pin	Signal
1	VBUS
2	D-
3	D+
4	ID
5	GND

Table 5: Micro USB 2.0 OTG port pinouts



**Note:**

The VIA AMOS-820 Micro USB 2.0 OTG port is regarded as an USB device by default when connected to a USB host.



## 2.8. Audio Jack

There are three audio jack receptacles on the front panel. Each receptacle can fit a 3.5 mm Tip Ring Sleeve (TRS) connector enabling connection to Line-in, Line-out and Mic-in. The Line-in jack is for connecting an external audio device such as CD player, tape player and etc. The Line-out jack is for connecting to external speakers or headphones. The Mic-in jack is for connecting to a microphone.

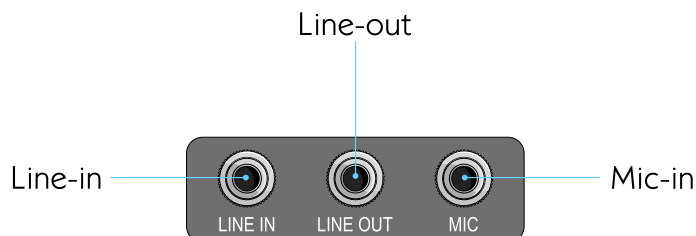


Figure 13: Audio jack receptacle diagram

Wiring	Line-in	Line-out	Mic-in
Tip	Left channel in	Left channel	Left channel
Ring	Right channel in	Right channel	Right channel
Sleeve	Ground	Ground	Ground

Table 6: Audio jack receptacle pinouts

## 2.9. DIO Port

The VIA AMOS-820 comes with a 9-pin DIO port which uses a male DE-9 connector. It offers Digital IO communication interface port to support 8-bit GPIO. The pinouts of the DIO port are shown below.

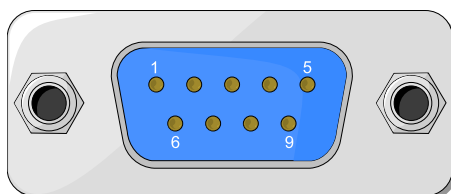


Figure 14: DIO port diagram

Pin	Signal
1	GPIO_7
2	GPIO_1
3	GPIO_8
4	GPIO_2
5	GPIO_9
6	GPIO_4
7	GPIO_16
8	GPIO_5
9	GND

Table 7: DIO port pinouts

## 2.10. Micro SD/SPI Boot Switch

The VIA AMOS-820 comes with a boot switch which allows users to select boot device from Micro SD and SPI.

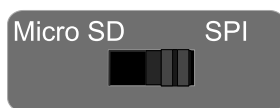


Figure 15: Micro SD/SPI boot switch diagram

## 2.11. Gigabit Ethernet Port

The VIA AMOS-820 comes with one Gigabit Ethernet port on the back panel which uses an 8 Position and 8 Contact (8P8C) receptacle connector commonly known as RJ-45. It is fully compliant with the IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX), and 802.3ab (1000BASE-T) standards. The pinouts of the Gigabit Ethernet port are shown below.

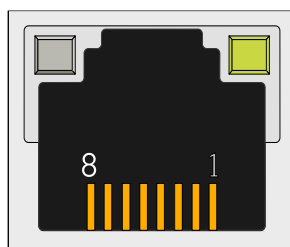


Figure 16: Gigabit Ethernet port diagram

Pin	Signal
1	Signal pair 1+
2	Signal pair 1-
3	Signal pair 2+
4	Signal pair 3+
5	Signal pair 3-
6	Signal pair 2-
7	Signal pair 4+
8	Signal pair 4-

Table 8: Gigabit Ethernet port pinouts

The Gigabit Ethernet port (RJ-45 port) is equipped two individual LED indicators located 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 Orange LED is on	Yellow Flash
Speed_100Mbit	The Orange LED is on	Yellow Flash
Speed_1000Mbit	The Orange LED is on	Yellow Flash

Table 9: Gigabit Ethernet port LED color definition

## 2.12. HDMI® Port

The VIA AMOS-820 is equipped with an HDMI port which uses an HDMI Type A receptacle connector defined to connect high definition video and digital audio using a single cable. The pinouts of the HDMI port are shown below.

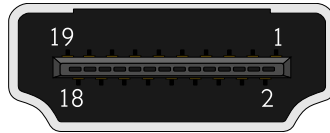


Figure 17: HDMI® port diagram

Pin	Signal	Pin	Signal
1	TMDS Data0+	2	GND
3	TMDS Data0–	4	TMDS Data1+
5	GND	6	TMDS Data1–
7	TMDS Data2+	8	GND
9	TMDS Data2–	10	TMDS Data3+
11	GND	12	TMDS Data3–
13	CEC	14	NC
15	HDMI Clock	16	HDMI Data
17	GND	18	HDMI Power
19	Hot Plug Detect		

Table 10: HDMI® port pinouts

## 2.13. Composite RCA Jack

The VIA AMOS-820 is equipped with a Composite RCA jack labeled as “AV IN” on the back panel. The Composite RCA jack connects to external composite video input device.

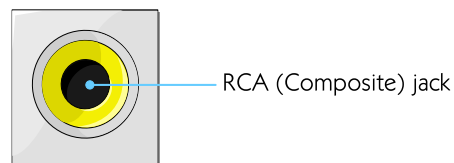


Figure 18: Composite RCA jack diagram

## 3. Onboard I/O

This chapter provides information about the onboard I/O connectors on the VIA AMOS-820.

### 3.1. MiniPCle Slot

The VIA AMOS-820 is equipped with miniPCle slot for wireless networking option such as 3G/Wi-Fi (WLAN) module.

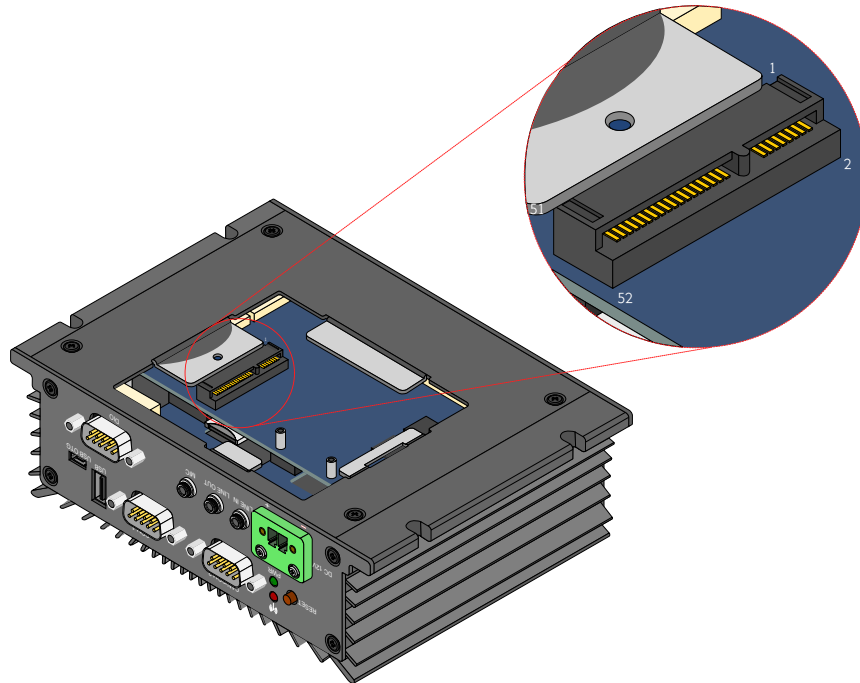


Figure 19: MiniPCle slot diagram

### 3.2. Micro SD Card Slot

The VIA AMOS-820 comes with a Micro SD card slot located on the bottom side of the chassis. The Micro SD card slot offers expandable storage of Micro SD card memory up to 32GB capacity.

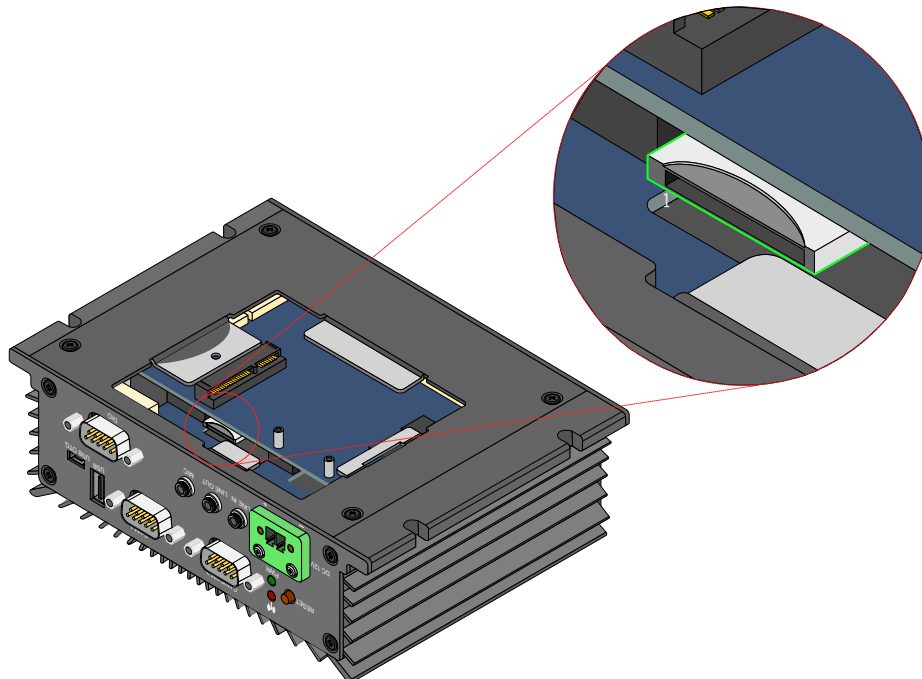


Figure 20: Micro SD card slot diagram

## 4. Hardware Installation

This chapter provides information about the hardware installation procedures. It is recommended to use a grounded wrist strap before handling computer components. Electrostatic discharge (ESD) can damage some components.

### 4.1. Installing the Micro SD Card

#### Step 1

Remove the bottom window plate cover.

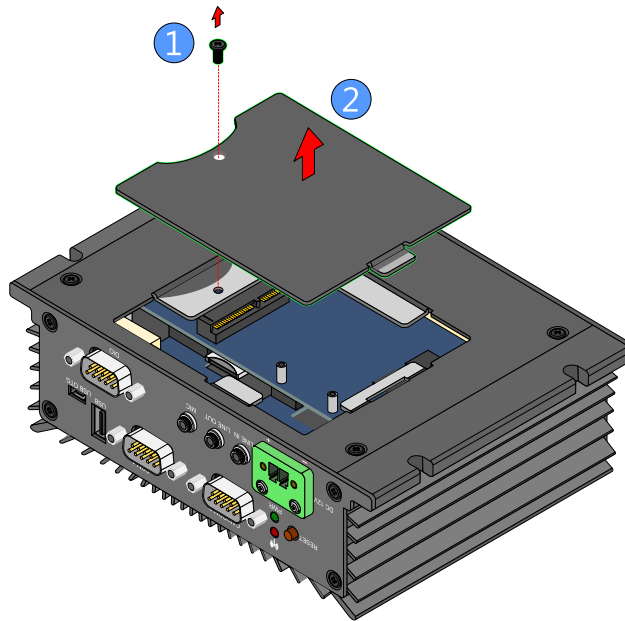


Figure 21: Removing the bottom window plate cover

#### Step 2

Slide the Micro SD card into the Micro SD slot with the label side facing down. Then press the card until it locks into place.

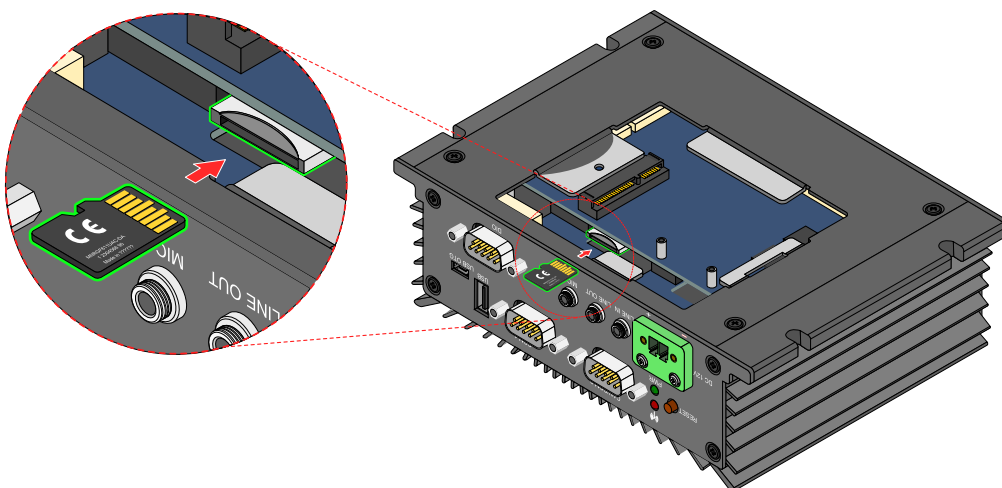


Figure 22: Inserting the Micro SD card



#### Note:

To remove the Micro SD card, press the card to disengage from the Micro SD slot then gently pull out the card.

## 4.2. Installing the Rubber Feet

### Step 1

Locate the area where to install the rubber feet.

### Step 2

Attach carefully each rubber foot. Firmly press it down to ensure the rubber foot is properly in place.

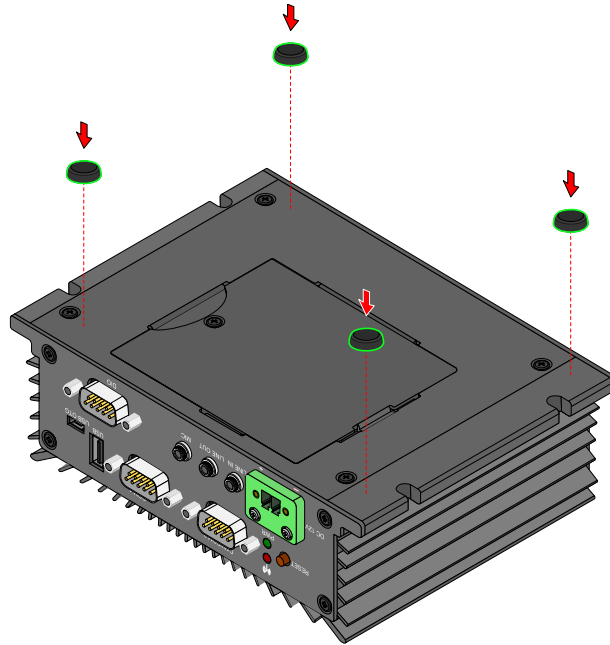


Figure 23: Installing the rubber feet

## 4.3. Installing the COM/CAN Conversion Cable

The COM/CAN conversion cable is a splitter cable used to plug-in to CAN/COM2 port on the VIA AMOS-820. The COM/CAN conversion cable supports two CAN bus ports and one COM debug port (TX/RX).

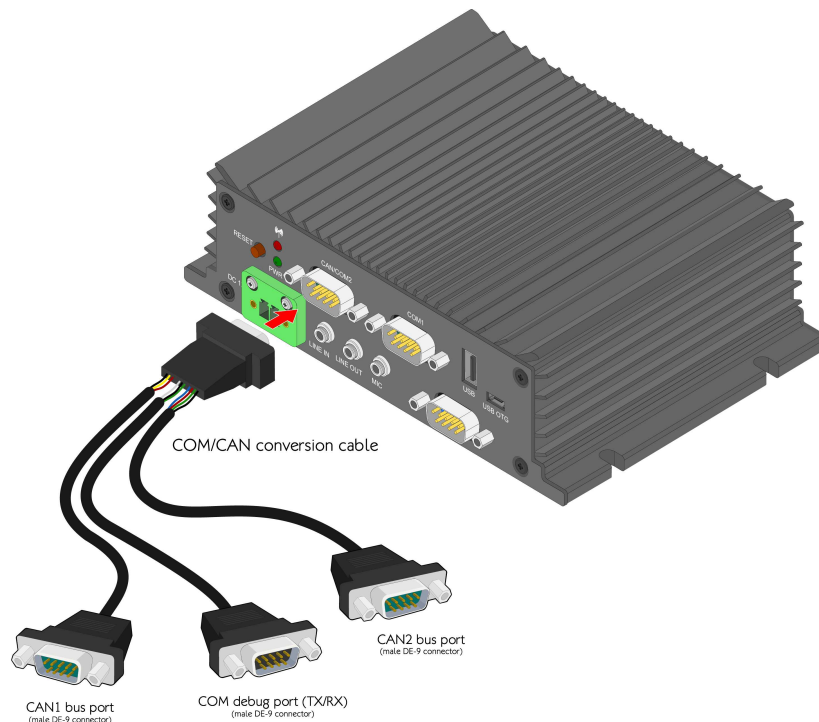


Figure 24: Installing the COM/CAN conversion cable

## 4.4. Mounting the VIA AMOS-820

The VIA AMOS-820 has multiple mounting options. Using four mounting screws, the VIA AMOS-820 can be mounted on walls, tables or any flat surface suitable for mounting.



### Reminders:

1. Make sure to remove the rubber feet before mounting the VIA AMOS-820. The rubber feet are not required when mounting the system on walls or tables.
2. Do not use other types of screws on mounting the VIA AMOS-820 aside from the provided screws to avoid any damages.

### Step 1

Find a suitable surface to mount the VIA AMOS-820.

### Step 2

Drill four holes and ensure the diameters are perfectly matched with the VIA AMOS-820 mounting holes and screws.

### Step 3

Install the VIA AMOS-820 and secure it with four screws.

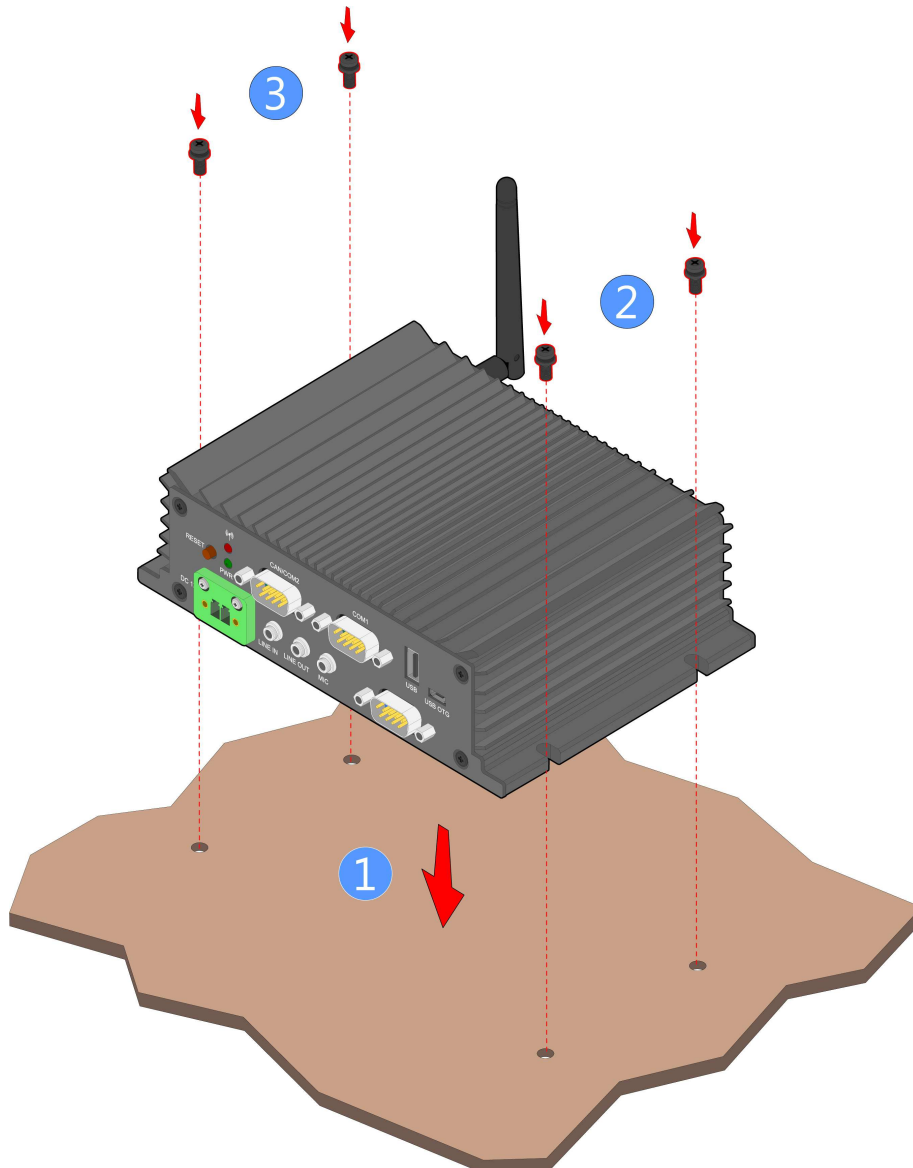


Figure 25: Mounting the VIA AMOS-820

## 5. Software and Technical Support

### 5.1. Android and Linux Support

The VIA AMOS-820 features a complete software evaluation image featuring the Android and Linux kernel operating systems.

- Android 6.0, Linux kernel 4.1.15

### 5.2. Technical Support and Assistance

- For utilities downloads and the latest documentation and information about the VIA AMOS-820, please visit our website at <http://www.viatech.com/en/systems/industrial-fanless-pcs/amos-820>
- 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 provide information on how to install the VIA VNT9271 USB Wi-Fi dongle, VIA EMIO-2531 miniPCle Wi-Fi & Bluetooth module and VIA EMIO-2550 miniPCle mobile broadband module in the VIA AMOS-820.

### A.1. Installing the VIA VNT9271 USB Wi-Fi Dongle

#### Step 1

Locate a USB 2.0 port on the front or back panel.

#### Step 2

Insert the VNT9271 dongle in (P/N: 00GO27100BU2B0D0) one of the USB 2.0 port.

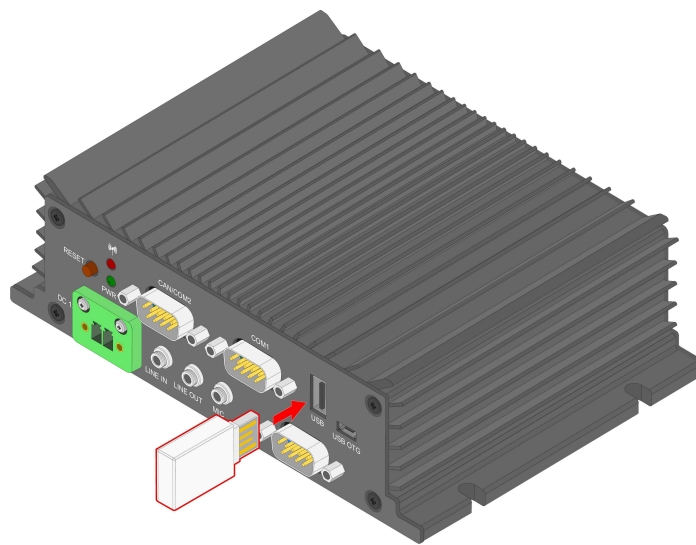


Figure 26: Installing the VIA VNT9271 dongle

## A.2. Installing the VIA EMIO-2531 miniPCle Wi-Fi & Bluetooth Module

### Step 1

Remove the bottom window plate cover.

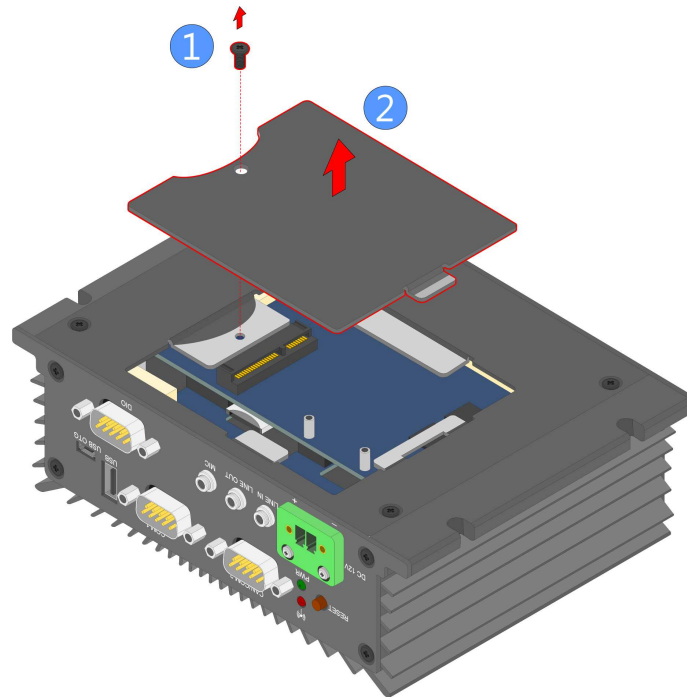


Figure 27: Removing the bottom window plate cover

### Step 2

Remove the screw and nut from the VIA EMIO-2531 module as shown in the figure below.

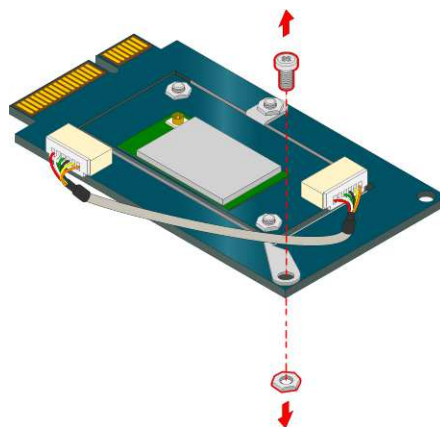


Figure 28: Removing the screw and nut from the VIA EMIO-2531 module

### Step 3

Align the notch on the VIA EMIO-2531 module with its counterpart on the miniPCle slot. Then insert the module at a 30° angle.

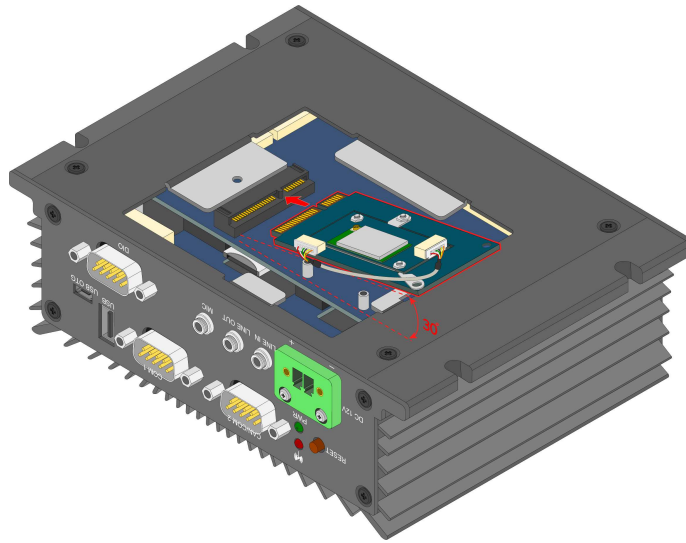


Figure 29: Inserting the VIA EMIO-2531 module

### Step 4

Once the module has been inserted, push down the module until the screw hole aligns with the mounting hole on the standoff. Reinstall the screw to secure the module to the standoff.

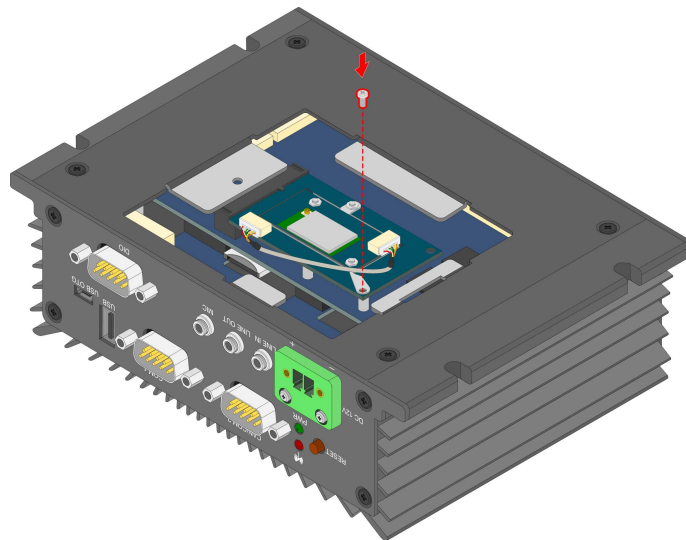


Figure 30: Securing the VIA EMIO-2531 module

### Step 5

Loosen the thirteen screws of the front, back and bottom plates.

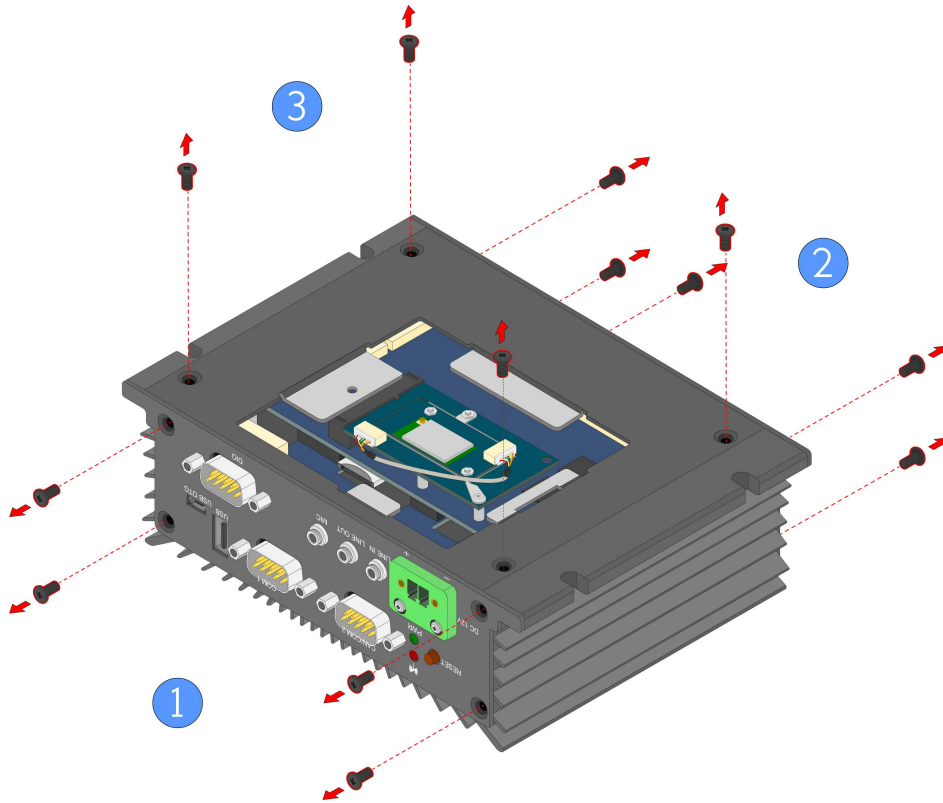


Figure 31: Unscrewing the front, back and bottom plates

### Step 6

Pull the top cover chassis and back panel plate. Then remove the antenna hole cover.

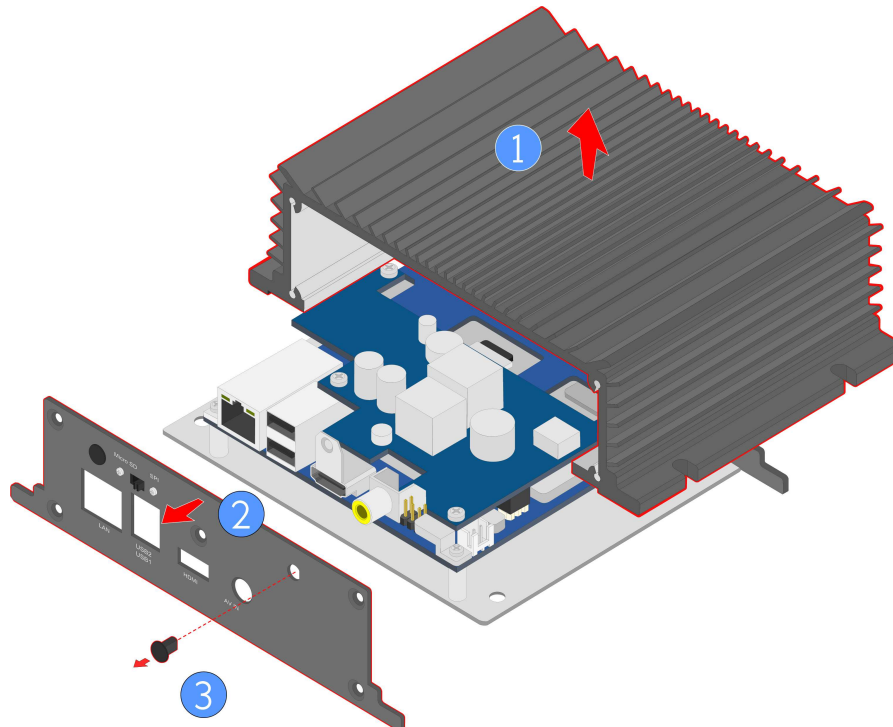


Figure 32: Removing the top cover chassis, back panel plate, and antenna hole cover

### Step 7

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 antenna. Insert the other end of the Wi-Fi antenna cable into the available space going down to the bottom side of the chassis. Stretch the cable to reach the installed VIA EMIO-2531 module. Then reinstall the top cover chassis and back panel plate.



Figure 33: Installing the Wi-Fi antenna cable and antenna

### Step 8

Connect the other end of the Wi-Fi antenna cable to the micro-RF connector labeled "MAIN" on the VIA EMIO-2531 module.

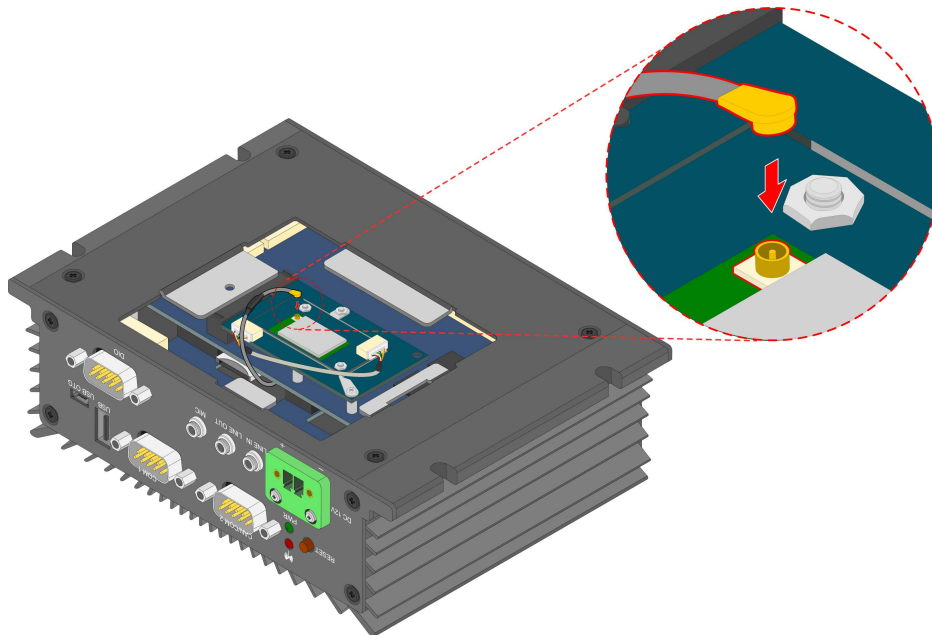


Figure 34: Connecting the Wi-Fi antenna cable to the micro-RF connector on the VIA EMIO-2531 module

### Step 9

Reinstall the bottom window plate cover.

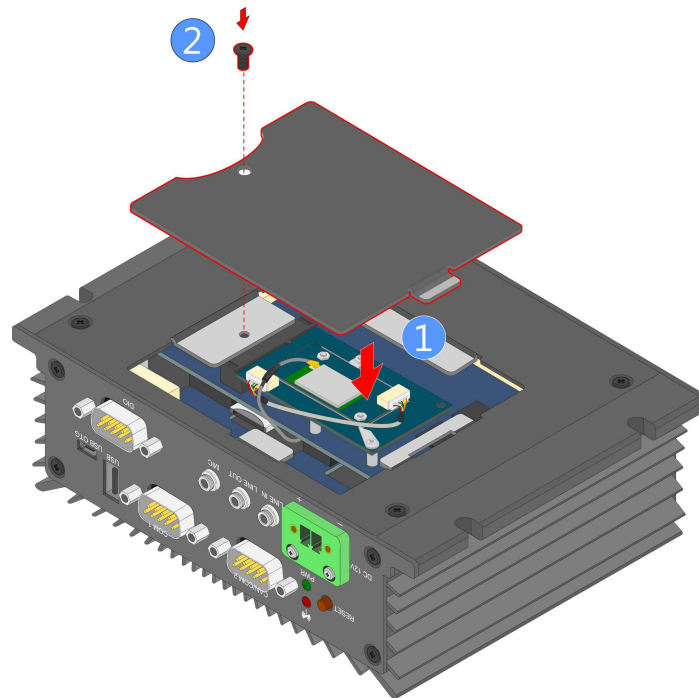


Figure 35: Reinstalling the bottom window plate cover

## A.3. Installing the VIA EMIO-2550 Mobile Broadband Module

### Step 1

Remove the bottom window plate cover.

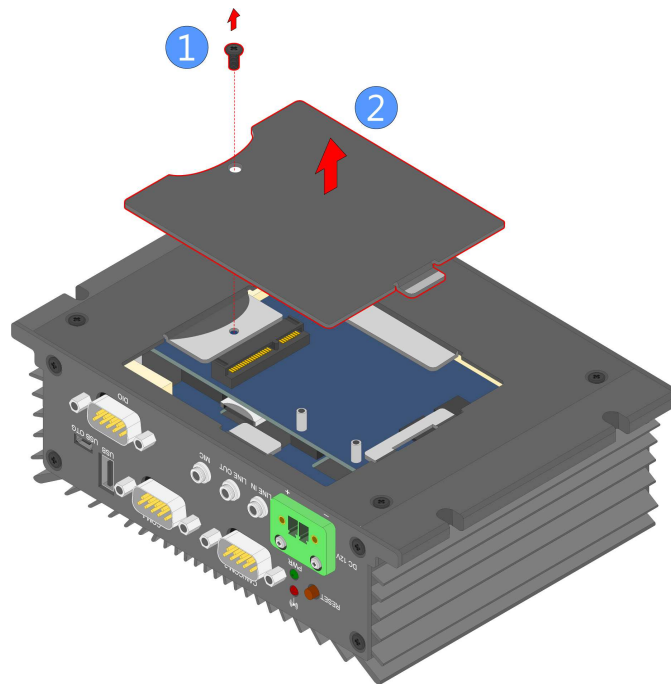


Figure 36: Removing the bottom window plate cover

### Step 2

Loosen the thirteen screws of the front, back and bottom plates.

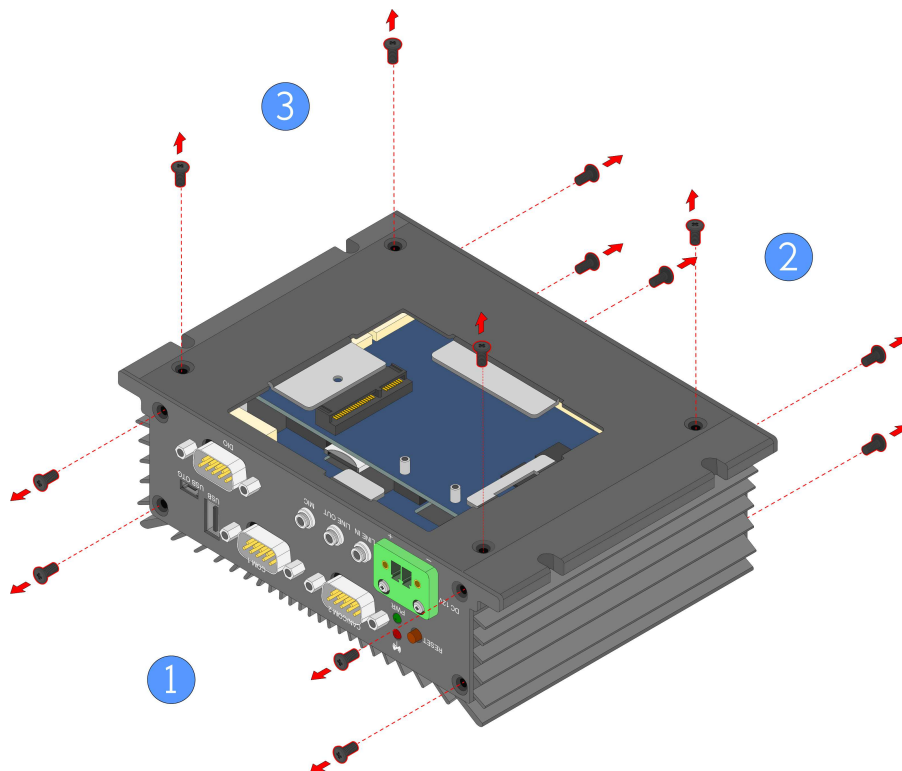


Figure 37: Unscrewing the front, back and bottom plates



### Step 3

Pull the top cover chassis and back panel plate. Then remove the antenna holes cover

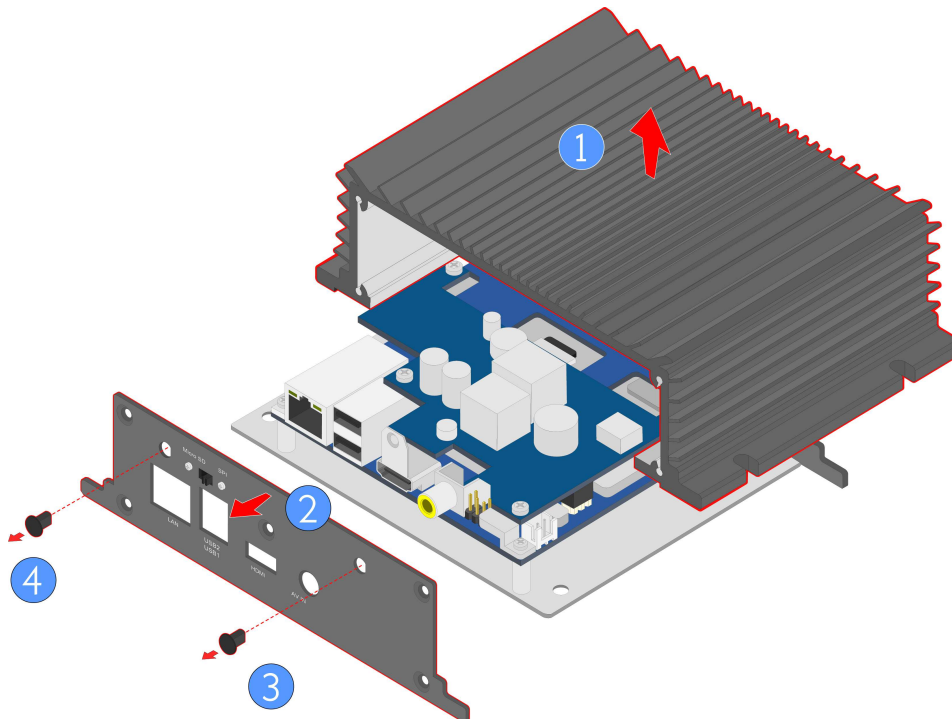


Figure 38: Removing the top cover chassis, back panel plate, and antenna holes cover

### Step 4

Insert the 3G and GPS antenna cables into the antenna holes from the inside of the back panel plate. Insert each washer, fasten it with the nut, and install the antennas. Insert the other end of the 3G and GPS antenna cables into the space available space going down to the bottom side of the chassis. Stretch the antenna cables to reach the miniPCIe slot. Then reinstall the top cover chassis and the back panel plate.

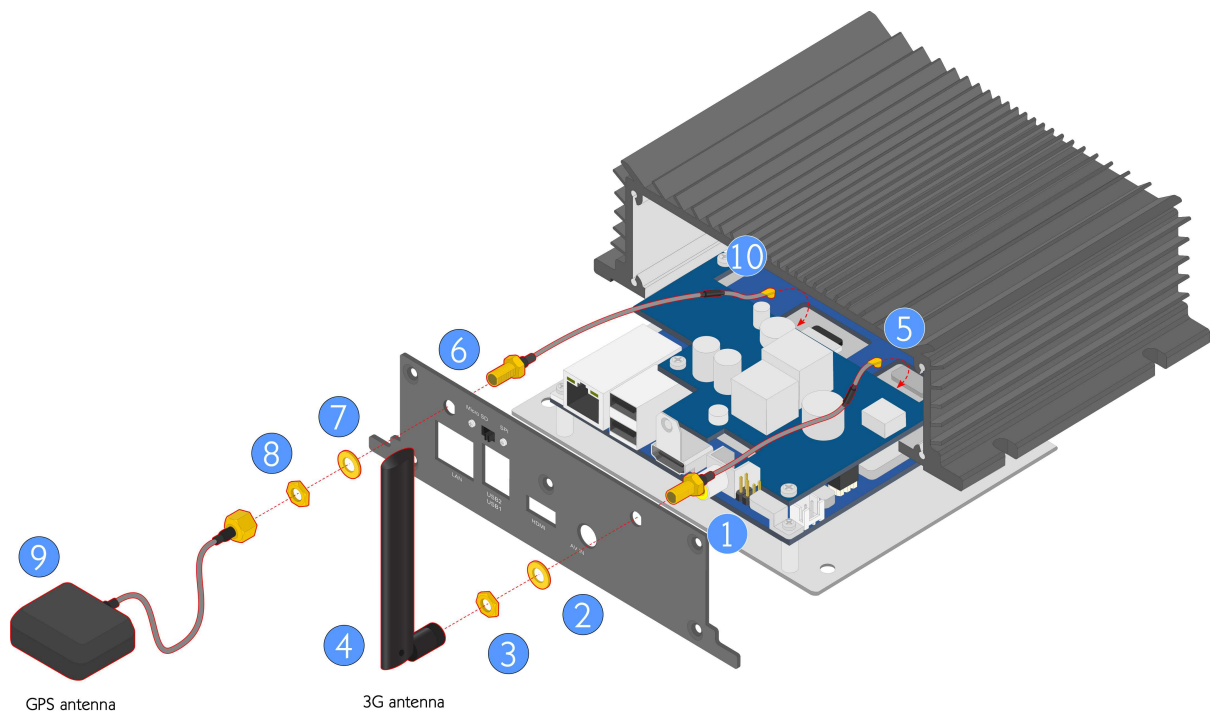


Figure 39: Installing the 3G and GPS antenna cables and antennas



### Step 5

Insert the 3G SIM card on the bottom side of the VIA EMIO-2550 module.

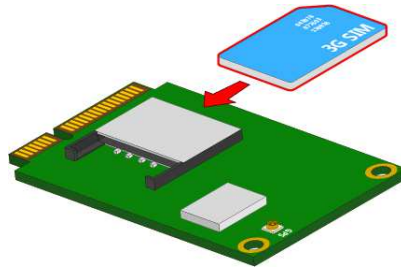


Figure 40: Inserting the 3G SIM card

### Step 6

Connect the other end of the GPS antenna cable to the micro-RF connector labeled "GPS" on the bottom side of the VIA EMIO-2550 module.

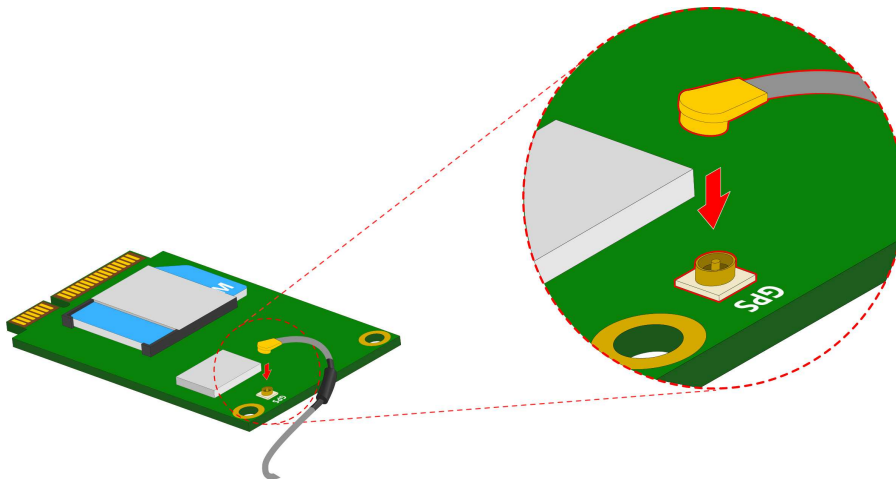


Figure 41: Connecting the GPS antenna cable to the micro-RF connector on the VIA EMIO-2550 module



#### Note:

The Step 6 is only intended when using the EMIO-2550-00A1 module. Should the users be using a different module, they can skip Step 6 and go directly to Step 7.

### Step 7

Align the notch on the VIA EMIO-2550 module with its counterpart on the miniPCle slot. Then insert the module at a 30° angle.

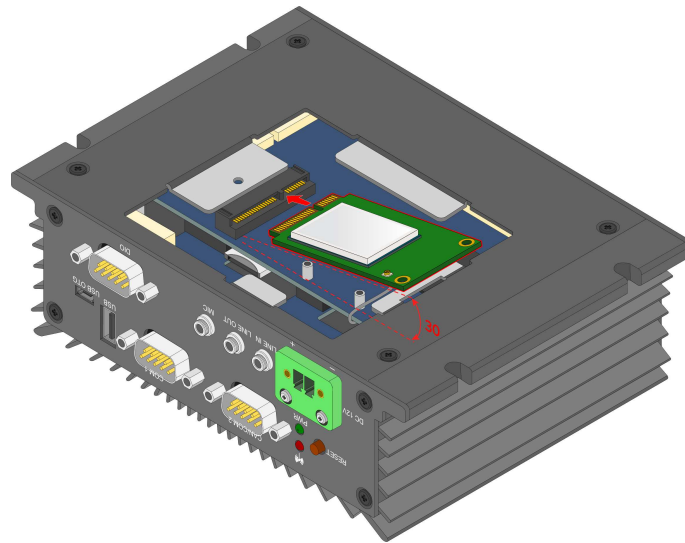


Figure 42: Inserting the VIA EMIO-2550 module

### Step 8

Once the VIA EMIO-2550 module has been inserted, push down the module until the screw hole aligns with the mounting hole on the standoff. Then secure the module to the standoff.

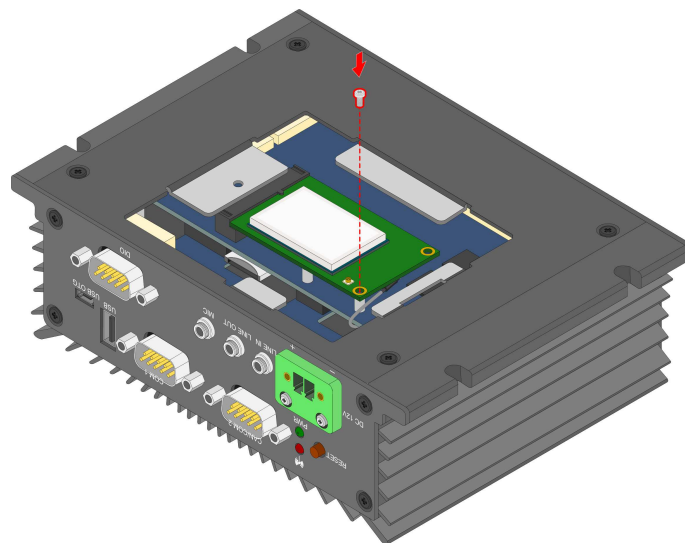


Figure 43: Securing the VIA EMIO-2550 module

### Step 9

Connect the other end of the 3G antenna cable to the micro-RF connector labeled “MAIN” on the VIA EMIO-2550 module.

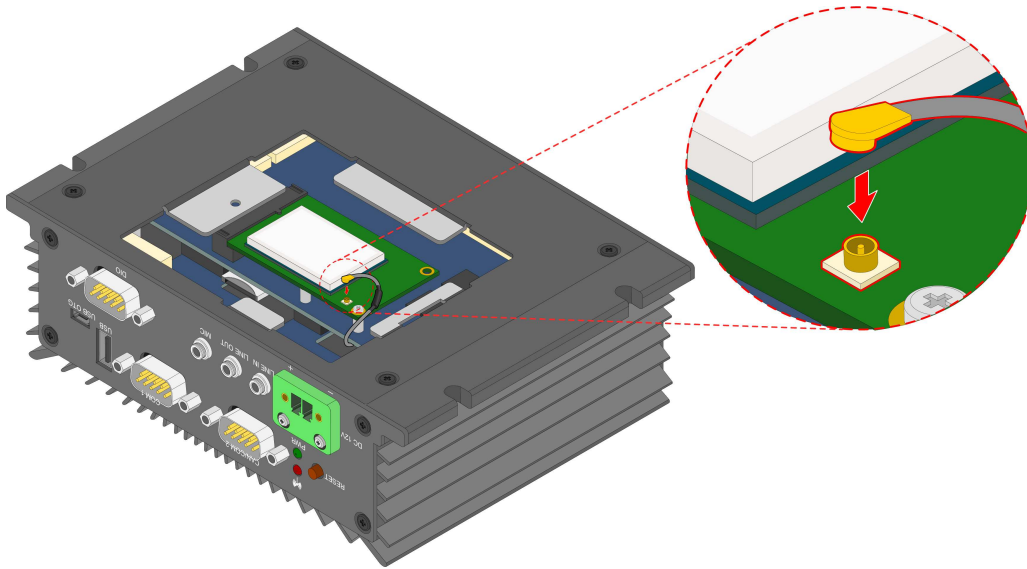


Figure 44: Connecting the 3G antenna cable to the micro-RF connector on the VIA EMIO-2550 module

### Step 10

Reinstall the bottom window plate cover.

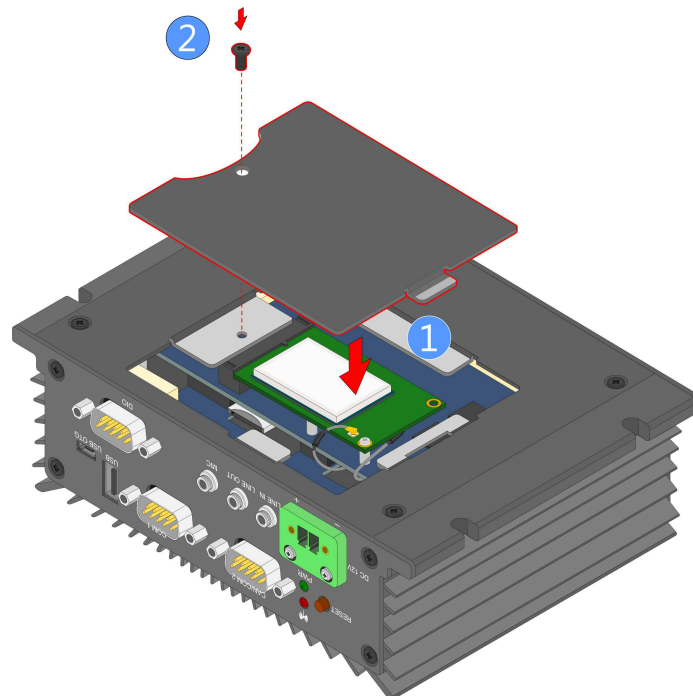


Figure 45: Reinstalling the bottom window plate cover



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