USER MANUAL

VIA EPIA-M930

Highly-integrated low-power platform with rich feature set and multimedia capabilities

1.01-16112022

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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.

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

Battery Recycling and Disposal

- 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.
- Put this equipment on a reliable flat surface before setting it up.
- Check the voltage of the power source and adjust to 110/220V before connecting the equipment to the power inlet.
- Do not place the power cord where people will step on it.
- Always unplug the power cord before inserting any add-on card or module.
- If any of the following situations arise, get the equipment checked by authorized service personnel:
  - The power cord or plug is damaged.
  - Liquid has entered into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment is faulty or you cannot get it work according to User's Manual.
  - The equipment has been dropped and damaged.
  - The equipment has an obvious sign of breakage.
- Do not leave this equipment in extreme temperatures or in a storage temperature above 60°C (140°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

EPIA-M930 SKU

- 1 x VIA EPIA-M930 board
- 1 x SATA cable
- 1 x SATA power cable
- 1 x I/O bracket
- 1 x M.2 screw pack (2 screws + 1 standoff)

Ordering Information

Part Number	Description
10GPD20G100A0	Mini-ITX board with 1.8GHz Intel Celeron Quad Core processor with HDMI, 2 LVDS, 2 USB 3.0/3.1, 2 USB 2.0, 2 COM, 2 Gigabit Ethernet, PCIe x 1 slot, SATA, 2 M.2 slots, 12V DC-in

Optional Accessories

Wireless Modules

Part Number	Description
EMIO-8530-00A0	Wi-Fi & Bluetooth M.2 module with two antennas and assembly kit
EMIO-8570-00A0	4G LTE mobile broadband M.2 module with antenna and assembly kit (Worldwide)
EMIO-8570-01A0	4G LTE mobile broadband & GPS M.2 module with two antennas and assembly kit (Worldwide)

Revision History

Revision	Date	Description
1.01	16/11/2022	Updated CPU description
1.00	21/09/2022	Initial release

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1. Product Overview

The VIA EPIA-M930 is a high performance native x86 board designed mainly for embedded, POS, Kiosk, ATM and digital media application. It can also be used for various domain applications such as desktop PC, industrial PC, etc. The VIA EPIA-M930 is based on the Intel Celeron Quad Core Processor that features the Integrated Intel Graphics gen 11-Lower Power (Gen 11-LP) for rich digital media performance.

The VIA EPIA-M930 has 1 DDR4 3200 SODIMM slots that support up to 32GB memory size. The VIA EPIA-M930 provides support for high fidelity audio with its included Realtek ALC888S-VD2-GR High Definition Audio Codec. In addition it supports 1 SATA and 2 M.2 slots for storage, Wi-Fi, and 4G/5G options.

The VIA EPIA-M930 is compatible with a full range of Mini-ITX chassis as well as FlexATX and MicroATX enclosures and power supplies. The VIA EPIA-M930 is fully compatible with Microsoft 10/11 and Linux operating systems.

1.1 Key Features & Benefits

1.1.1 Intel Celeron Quad Core Processor

The 1.8GHz Intel Celeron Quad Core Processor is Intel Elkhart Lake Platform enhanced for IoT. It is based on advanced 10 nanometer or newer process technology. The Elkhart Lake processors build with newer levels of CPU and graphics performance with integrated IoT features, real-time performance, manageability, and security. Intel UHD Graphics can support up to three independent 4K displays.

VIA EPIA-M930 are ideal for embedded and IoT system applications such as industrial PCs, office automation, retail, gaming, healthcare, transportation, etc.

1.1.2 Modular Expansion Options

The VIA EPIA-M930 ensures long-term usability with its support for industry standard expansion options. Its support for PCIe x1 slot for expansion. And 2 M.2 slots for M.2 SSD/Wi-Fi/4G/5G for rich RF connectivity options.

1.2 Product Specifications

Processor

- Intel Celeron Quad Core Fanless Processor @ 1.8GHz

BIOS

- AMI UEFI BIOS, 256MBite SPI Flash memory

System Memory

- 1 x DDR4 3200 SODIMM slot
- Supports up to 32GB memory

Note:
The real memory size may show less than 32GB due to some capacity are used for BIOS or other functions.

Storage

- 1 x SATA connector
- 1 x M.2 B key slot

Graphics

- Integrated Intel Graphics Gen 11-Low Power (GEN 11-LP)
- Supports OpenCL*1.2, OpenGL 4.5, OpenGL-ES 3.2, Vulkan. V1.1, DirectX

LAN

- Realtek-RTL8111H-CG Gigabit Ethernet controller

Audio

- Realtek ALC8888S-VD2-GR High Definition Audio Codec

Super I/O

- Fintek F81964

Expansion I/O

- 1 x PCIe x1 slot

Onboard I/O

- 1 x SATA
- 1 x USB 2.0 pin header for 2 ports
- 2 Dual channel 18/24-bit LVDS panel connectors
- 2 x Backlight control connectors for inverter power and brightness control
- 2 x COM pin headers (powered with selectable 5V/12V)
- 1 x Digital I/O pin headers (4GPI + 4 GPO)
- 1 x Front audio pin header
- 1 x Smart Fan pin headers for CPU and System
- 1 x RTC battery holder w/ battery
- 1 x Clear CMOS jumper header
- 1 x 4-pin 12V DCIN power connector
- 1 x M.2 E key 2230 for Wi-Fi
- 1 x M.2 B key 2242/3052/2280 for storage/LTE (SATA+USB 2.0/3.0)
- 1 x SIM card slot

Back Panel I/O

- 1 x HDMI port
- 2 x COM ports (powered with selectable 5V/12V)
- 2 x Gigabit Ethernet ports
- 2 x USB 3.0/3.1 ports
- 2 x USB 2.0 ports
- 3 x Audio jacks: Line-in, Line-out, and Mic-in

Power Supply

- 12V DC-in

Operating System

- Windows® 10/11
- Linux

System Monitoring & Management

- Wake-on-LAN, Keyboard Power-on, Timer Power-on, System power management, AC power failure recovery, Watchdog Timer

Operating Temperature

- 0°C ~ 60°C

Operating Humidity

- 0% ~ 90% (non-condensing)

Form Factor

- Mini-ITX
- 17cm x 17cm (6.7” x 6.7”)

Notes:
As the operating temperature provided in the specifications is a result of testing performed in a testing 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 recommended to execute a solid testing program and take all variables into consideration when building the system. Please ensure that the system is stable at the required operating temperature in terms of application.

1.3 Layout Diagram

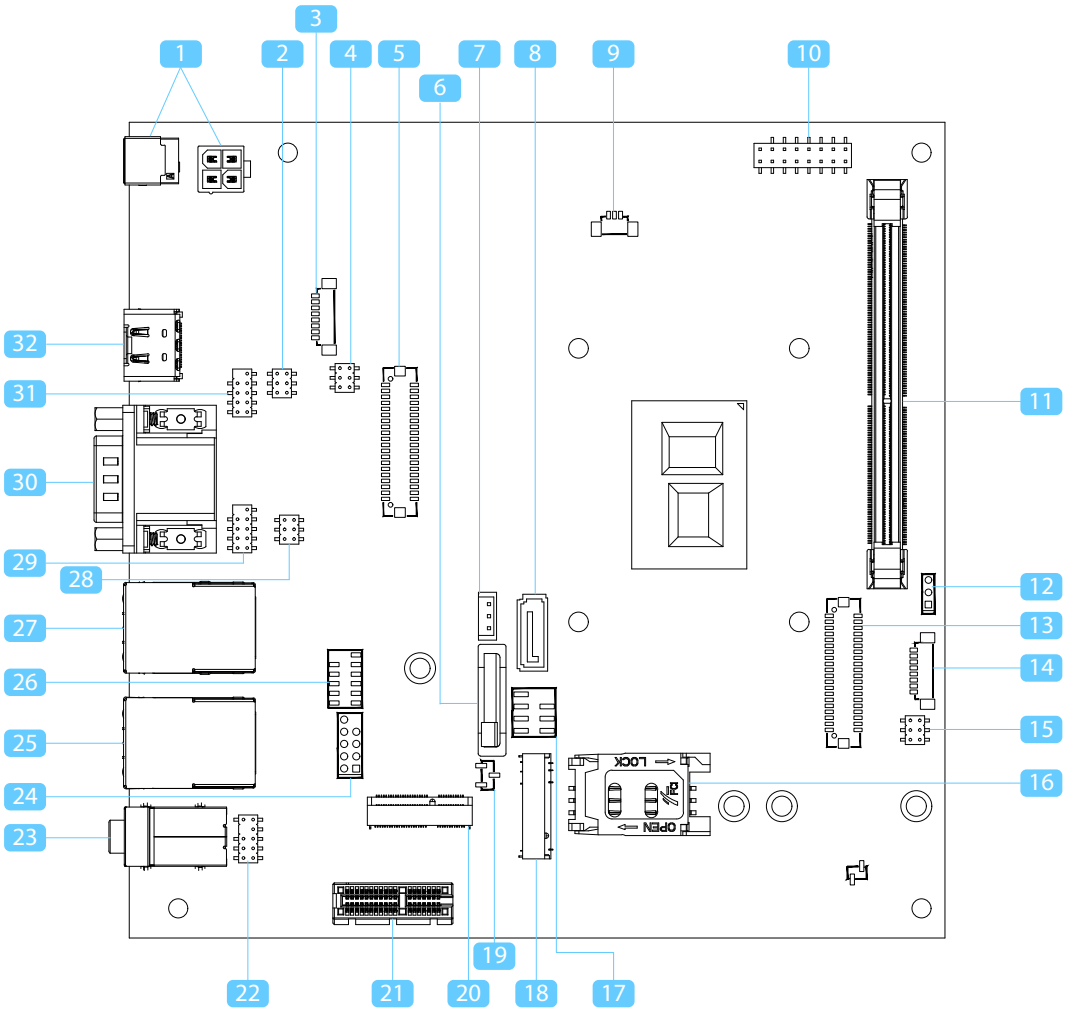

Figure 01: VIA EPIA-M930 board layout (top view)

Item	Description
1	DC +12V Power In Connector
2	COM1,2 Voltage Select pin header(COM_S1)
3	LVDS2 Panel Back Light Connector (LVDS2_BL1)
4	LVDS2 Panel/Back Light Power Select Pin Header (LVDS2_PWR1)
5	LVDS2 Panel Connector (LVDS2_CON1)
6	CMOS Battery Slot (BAT1)
7	SATA Power Connector (SATA_PWR1)
8	SATA HDD Connector (SATA1)
9	CPU FAN (FAN1)
10	Front Panel Pin Header (F_PANEL1)
11	DDR4 SODIMM Socket (SO_DIMM1)
12	SMBus Signal Pin Header (I2C1)
13	LVDS1 Panel Connector (LVDS1_CON1)
14	LVDS1 Panel Back Light Connector (LVDS1_BL1)
15	LVDS1 Panel/Back Light Power Select Pin Header (LVDS1_PWR1)
16	SIM Card Socket (SIM1)
17	SPI Flash ROM Pin Header (SPI1)
18	M.2 B-Key 2280 SSD/LTE Slot (M2_B_2280_1)
19	Clear CMOS/RTC Register Pin Header (JRTC_CL1)
20	M.2 E-Key 2230 Wi-Fi/BT Slot (M2_E_2230_1)
21	PCIe 1 Lane Slot (PCIE1)
22	Audio Pin Header (Line-Out & Mic-In) (F_Audio1)
23	Audio Jack (Blue: Line-In, Green: Line-Out, Pink: Mic-In)
24	USB2.0 Pin Header (USBH2_1)
25	Giga LAN & USB2.0 Connector (GLAN2)
26	GPIO Pin Header (DIO1)
27	Giga LAN & USB3.0 Connector (GLAN1)
28	COM3,4 Voltage Select pin header(COMH_S1)
29	COM4 Pin Header (COMH2)
30	COM Port Connector (Up: COM1, Down: COM2)
31	COM3 Pin Header (COMH1)
32	HDMI2 Connector (HDMI2)

Table 01: Description table of the VIA EPIA-M930 board layout

1.4 Product Dimensions

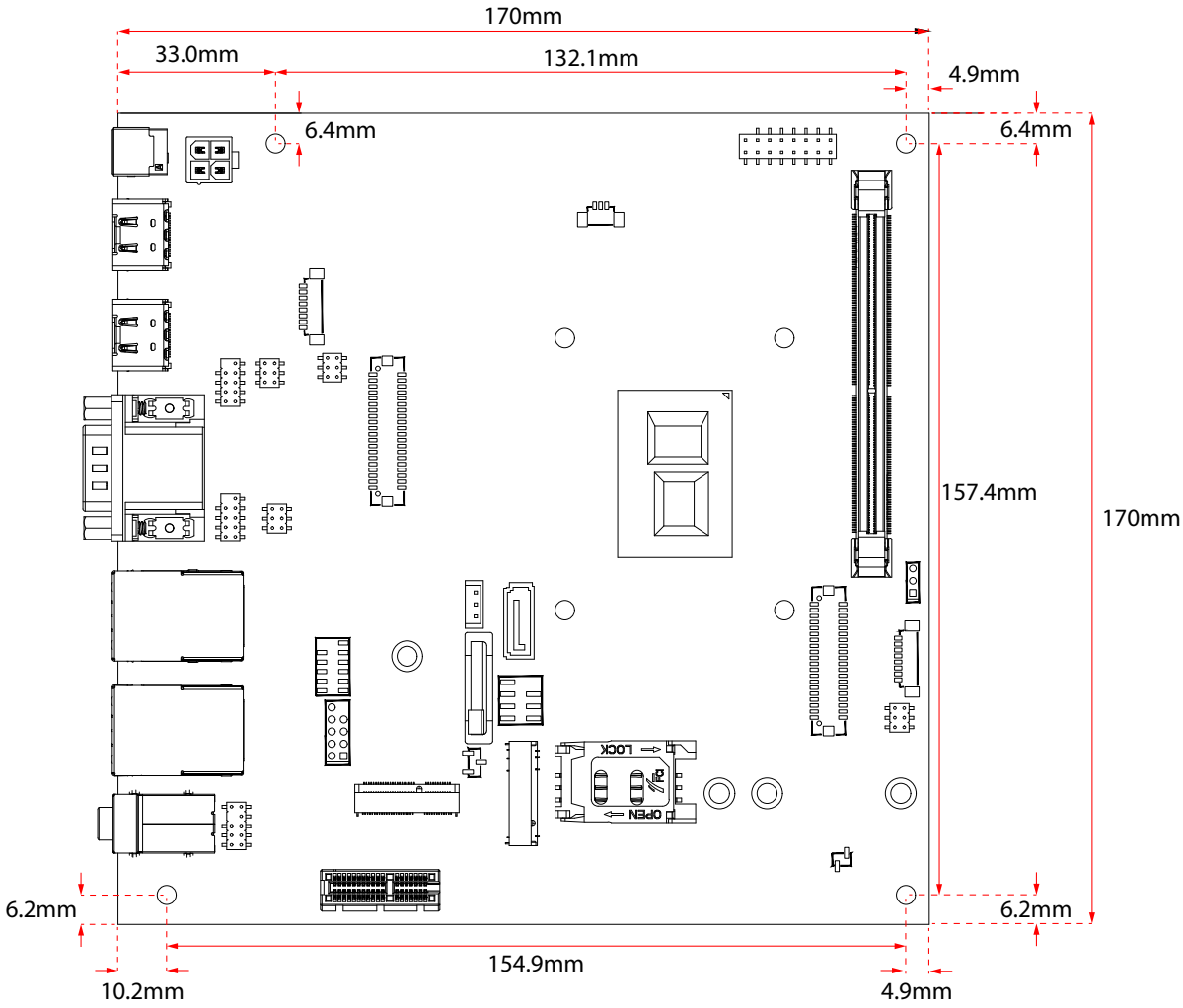

Figure 02: Mounting holes and dimensions of the VIA EPIA-M930

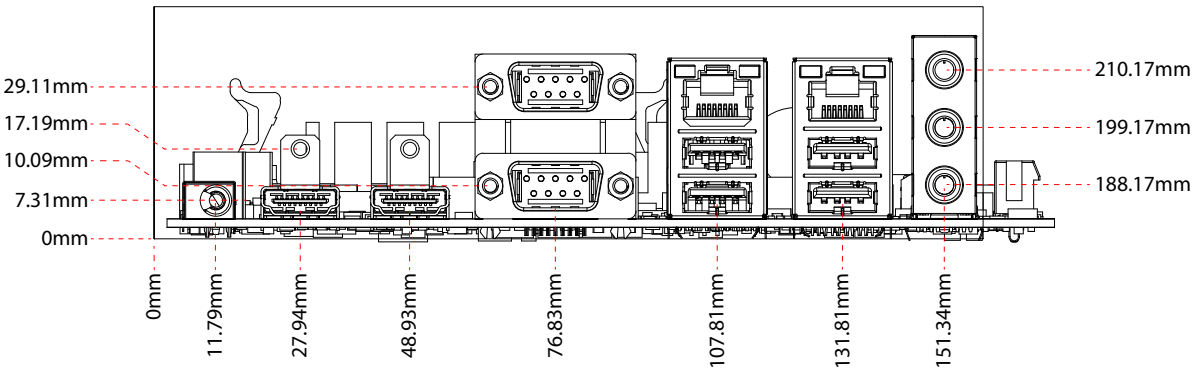

Figure 03: External I/O port dimensions of the VIA EPIA-M930

1.5 Height Distribution

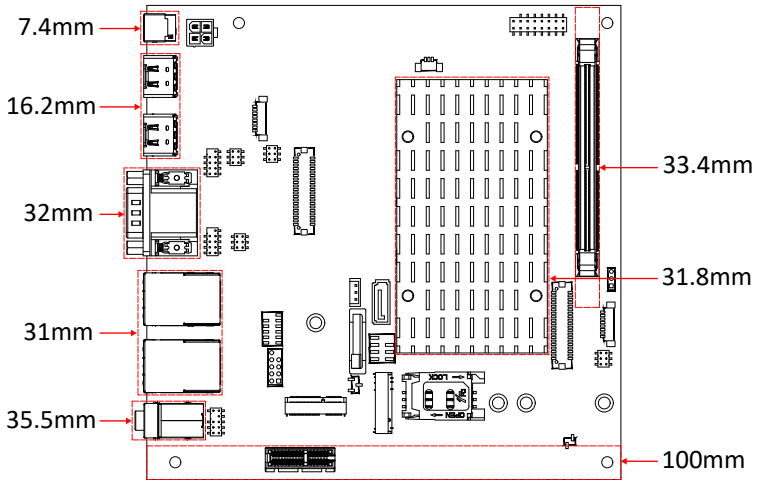

Figure 04: Height distribution of the VIA EPIA-M930

2. I/O Interface

The VIA EPIA-M930 has a wide selection of interfaces, and includes a selection of frequently used ports as part of the external I/O coastline.

2.1 External I/O Ports

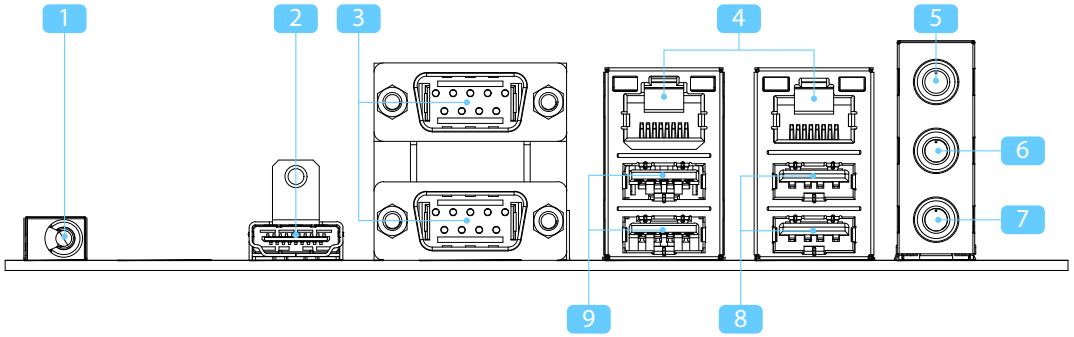

Figure 05: Back panel I/O ports

Item	Description
1	12V DC-in
2	HDMI port
3	COM ports
4	Gigabit Ethernet ports
5	Line-in
6	Line-out
7	MIC
8	USB 2.0 ports
9	USB 3.0/3.1 ports

Table 02: Layout diagram description table of the back panel I/O ports

2.1.1 HDMI® Port

The integrated 19-pin HDMI® port uses an HDMI® Type A receptacle connector as defined in the HDMI® specification. The HDMI® (High Definition Multimedia Interface) port is for connecting the High Definition video and digital audio. The pinouts of the HDMI® port are shown below.

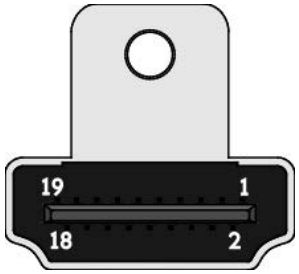

Figure 06: HDMI® port diagram

Pin	Signal	Pin	Signal
1	TX2+	2	GND
3	TX2-	4	TX1+
5	GND	6	TX1-
7	TX0+	8	GND
9	TX0-	10	TXC+
11	GND	12	TXC-
13	key	14	key
15	DDCSCL	16	DDCSDA
17	GND	18	+5V
19	Hot Plug Detect		

Table 03: HDMI® port pinouts

2.1.2 COM Ports

The two integrated 9-pin COM ports use a male DE-9 connector. The COM ports support the RS-232 standard. The pinouts of the COM port are shown below.

Figure 07: COM port diagram

COM1 (Top Port)			
Pin	Signal	Pin	Signal
1	DCD	6	DSR
2	RxD	7	RTS
3	TxD	8	CTS
4	DTR	9	RI
5	GND		

COM2 (Bottom Port)			
Pin	Signal	Pin	Signal
1	DCD	6	DSR
2	RxD	7	RTS
3	TxD	8	CTS
4	DTR	9	RI
5	GND		

Table 04: COM port pinouts

2.1.3 Gigabit Ethernet Ports

The 2 integrated 8-pin Gigabit Ethernet ports is using an 8 Position 8 Contact (8P8C) receptacle connector commonly known as RJ-45. The pinouts of the Gigabit Ethernet port are shown below.

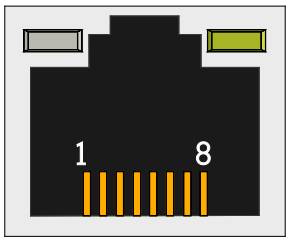

Figure 08: Gigabit Ethernet port diagram

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 05: Gigabit Ethernet port pinouts

Each Gigabit Ethernet port has 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	Yellow Flash	LED is off
Speed_100Mbit	Yellow Flash	The Green LED is on
Speed_1000Mbit	Yellow Flash	The Orange LED is on

Table 06: Gigabit Ethernet port LED color definition

2.1.4 Audio Jack

There are three audio jack receptacles integrated into a single stack on the I/O coastline. Each receptacle can fit a 3.5mm Tip Ring Sleeve (TRS) connector to enable connections to Line-in, Line-out, and Mic-in.

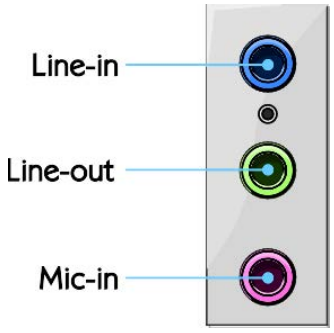

Figure 09: Audio jack receptacle stack

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 07: Audio jack receptacle pinouts

2.1.5 USB 3.0 Ports

The VIA EPIA-M930 is equipped with two USB 3.0 ports. Each USB 3.0 port has a maximum data transfer rate of up to 5Gb/s and is backwards compatible with the USB 2.0 specification. The USB 3.0 ports provides complete Plug and Play and hot swap capabilities for external devices. The pinouts of the USB 3.0 port are shown below.

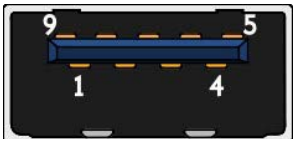

Figure 10: USB 3.0 port diagram

Pin	Signal
1	+5V
2	Data-
3	Data+
4	GND
5	Rx-
6	Rx+
7	GND
8	Tx-
9	Tx+

Table 08: USB 3.0 port pinouts

2.1.6 USB 2.0 Ports

The VIA EPIA-M930 is equipped with two USB 2.0 ports which gives complete Plug and Play and hot swap capability for external devices. The USB 2.0 interface complies with USB UHCI, Rev. 2.0. The pinouts of the USB 2.0 port are shown below.

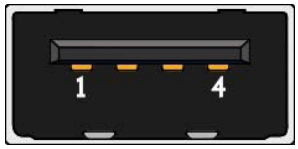

Figure 11: USB 2.0 port diagram

Pin	Signal
1	+5VSUS
2	Data-
3	Data+
4	GND

Table 09: USB 2.0 port pinouts

2.1.7 DC-in Jack

The VIA EPIA-M930 comes with a DC power input jack on the back I/O panel. The power connector carriers +12V DC external power input. The specifications and pinout of power connector are shown below.

Figure 12: 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 10: DC-in jack specification

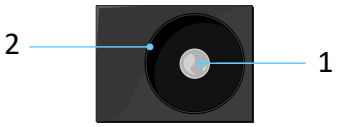

Figure 13: DC-in jack diagram

Pin	Signal
1	12VIN
2	GND

Table 11: DC-in jack pinouts

2.2 Onboard I/O

2.2.1 ATX Power Connector

The VIA EPIA-M930 has a 4-pin ATX power connector. The ATX power connector is labeled as “DC_IN_ATX1”. The pinouts of the ATX power connector are shown below.

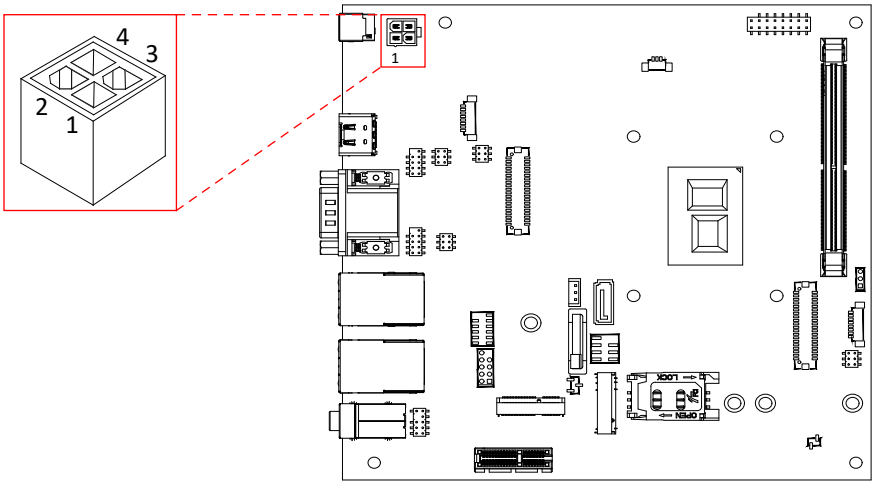

Figure 14: ATX power connector diagram

DC-IN ATX1	
Pin	Signal
1	GND
2	GND
3	+12V
4	+12V

Table 12: ATX power connector pinouts

2.2.2 LVDS Panel Connectors

The VIA EPIA-M930 has two LVDS panel connectors: LVDS1 and LVDS2. The pinouts of the LVDS panel connectors are shown below.

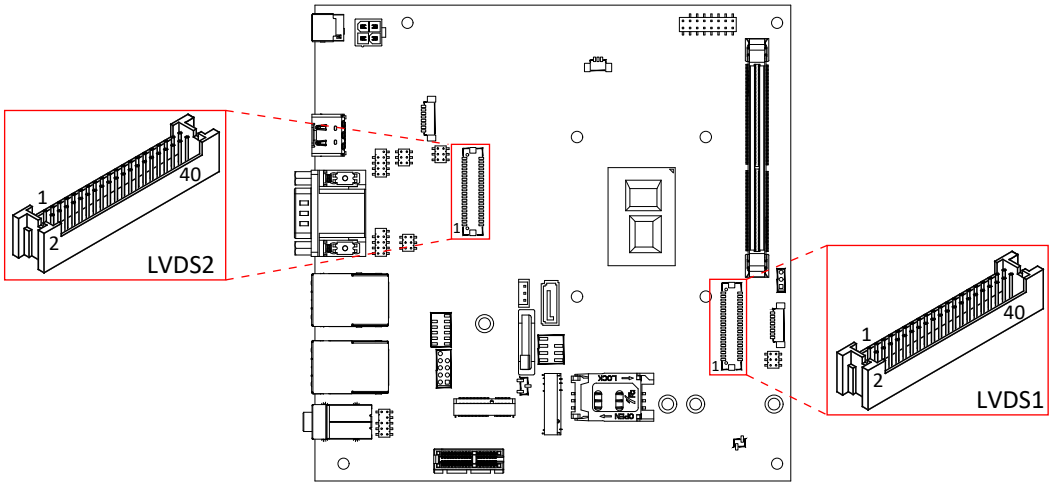

Figure 15: LVDS panel connectors diagram

LVDS1			
Pin	Signal	Pin	Signal
M1	GND		
2	PVDD1	1	LVDS1_B0-
4	PVDD1	3	LVDS1_B0+
6	GND	5	GND
8	GND	7	LVDS1_B1-
10	LVDS1_A0-	9	LVDS1_B1-
12	LVDS1_A0+	11	GND
14	GND	13	LVDS1_B2-
16	LVDS1_A1-	15	LVDS1_B2+
18	LVDS1_A1+	17	GND
20	GND	19	LVDS1_BCLK-
22	LVDS1_A2-	21	LVDS1_BCLK+
24	LVDS1_A2+	23	GND
26	GND	25	LVDS1_B3-
28	LVDS1_ACLK-	27	LVDS1_B3+
30	LVDS1_ACLK+	29	NC
32	GND	31	GND
34	LVDS1_A3-	33	+V3.3
36	LVDS1_A3+	35	NC
38	LCD1_CLK	37	NC
40	LCD1_DATA	39	NC

LVDS2			
Pin	Signal	Pin	Signal
M1	GND		
2	PVDD2	1	LVDS2_B0-
4	PVDD2	3	LVDS2_B0+
6	GND	5	GND
8	GND	7	LVDS2_B1-
10	LVDS2_A0-	9	LVDS2_B1+
12	LVDS2_A0+	11	GND
14	GND	13	LVDS2_B2-
16	LVDS2_A1-	15	LVDS2_B2+
18	LVDS2_A1+	17	GND
20	GND	19	LVDS2_BCLK-
22	LVDS2_A2-	21	LVDS2_BCLK+
24	LVDS2_A2+	23	GND
26	GND	25	LVDS2_B3-
28	LVDS2_ACLK-	27	LVDS2_B3+
30	LVDS2_ACLK+	29	NC
32	GND	31	GND
34	LVDS2_A3-	33	+V3.3
36	LVDS2_A3+	35	NC
38	LCD2_CLK	37	NC
40	LCD2_DATA	39	NC

Table 13: LVDS panel connectors pinouts

2.2.3 Backlight Control Connectors

The VIA EPIA-M930 has two backlight control connectors labeled as LVDS1_BL1 and LVDS2_BL1. The backlight control connectors are for backlight power and brightness control. LVDS1_BL1 corresponds to the LVDS1 panel connector. LVDS2_BL1 corresponds to the LVDS2 panel connector. The pinouts of the backlight control connectors are shown below.

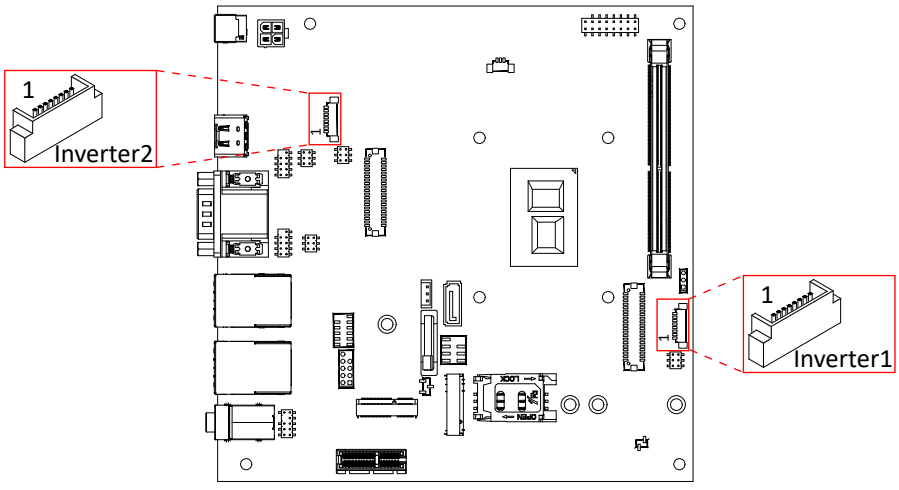

Figure 16: Backlight control connectors diagram

LVDS1_BL1	
Pin	Signal
1	VDD_BL1
2	VDD_BL1
3	BL1_EN_CON
4	BL1_CTRL_CON
5	BL1_EN_CON
6	BL1_CTRL_CON
7	GND
8	GND

LVDS2_BL2	
Pin	Signal
1	VDD_BL2
2	VDD_BL2
3	BL2_EN_CON
4	BL2_CTRL_CON
5	BL2_EN_CON
6	BL2_CTRL_CON
7	GND
8	GND

Table 14: Backlight control connectors pinouts

2.2.4 Digital I/O Pin Header

The VIA EPIA-M930 includes one Digital I/O pin header that supports four GPO and four GPI pins. The pinouts of the Digital I/O pin header are shown below.

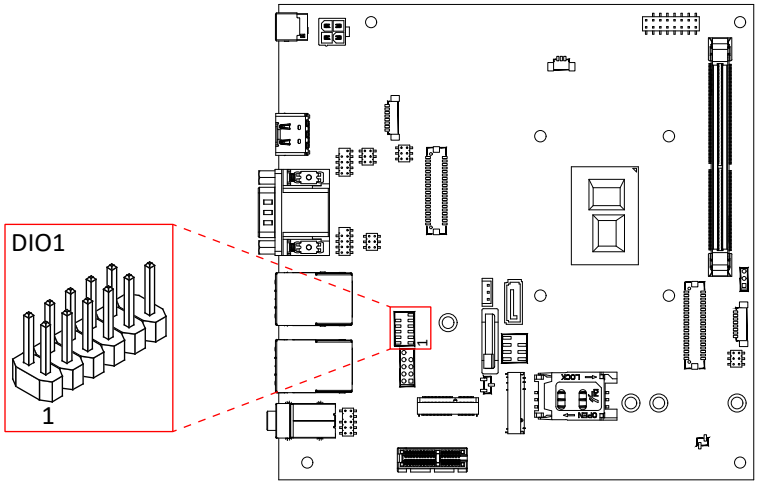

Figure 17: Digital I/O pin header diagram

Pin	Signal	Pin	Signal
1	5V_DIO	2	12V_DIO
3	GPO_1	4	GPI_1
5	GPO_2	6	GPI_2
7	GPO_3	8	GPI_3
9	GPO_4	10	GPI_4
11	GND	12	—

Table 15: Digital I/O pin header pinouts

2.2.5 Front Panel Pin Header

The Front panel pin header consists of 15 pins in a 16-pin block. Pin 15 is keyed. The front panel pin header is labeled as “F_PANEL1”. It provides access to system LEDs, power, reset, system speaker and HDD LED. The pinouts of the front panel pin header are shown below.

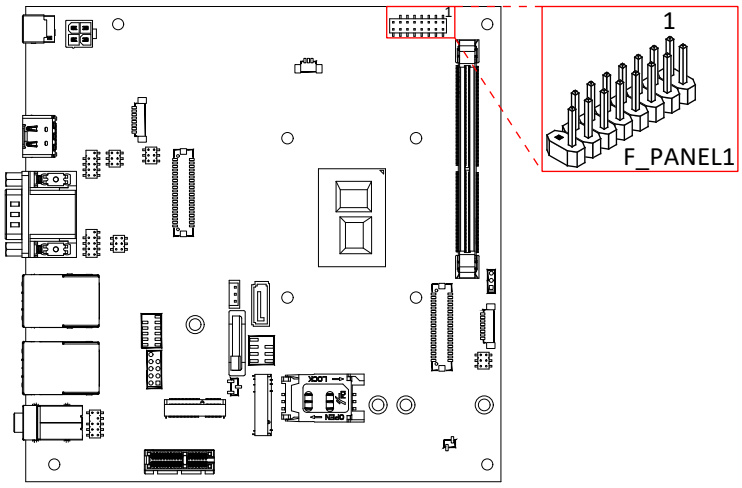

Figure 18: Front panel pin header diagram

Pin	Signal	Pin	Signal
1	PWR_LED+ (+5V)	2	SATA_LED+ (+3.3V)
3	PWR_LED+ (+5V)	4	SATA_LED-
5	PWR_LED-	6	PWR_BTN
7	SPEAK+	8	GND
9	NC	10	-RST_SW
11	NC	12	GND
13	SPEAK-	14	+5V
15	—	16	SYS_POK_3V3

Table 16: Front panel pin header pinouts

2.2.6 CPU Fan Connector

The fan connector for the CPU is labeled as “FAN1”. The fans provide variable fan speeds controlled by the BIOS. The pinouts of the fan connector is shown below.

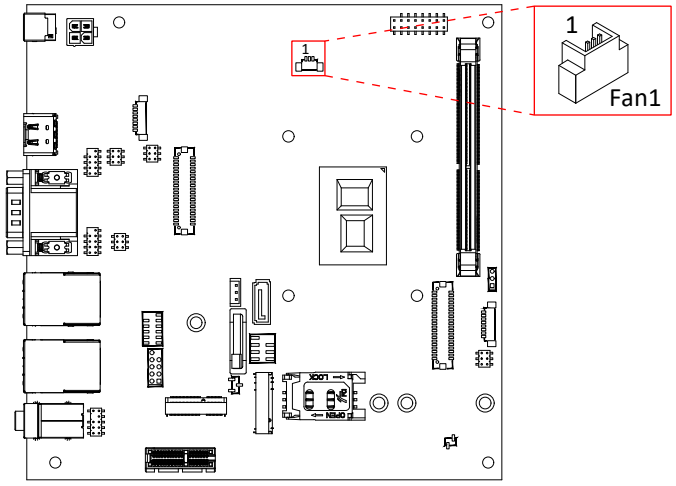

Figure 19: CPU fan connector diagram

FAN1	
Pin	Signal
1	F_I01
2	F_PWM1
3	GND

Table 17: CPU fan connector pinouts

2.2.7 SATA Connector

The onboard SATA connector can support up to 3Gb/s transfer speed. The SATA connector is labeled as “SATA1”. The pinouts of the SATA connector is shown below.

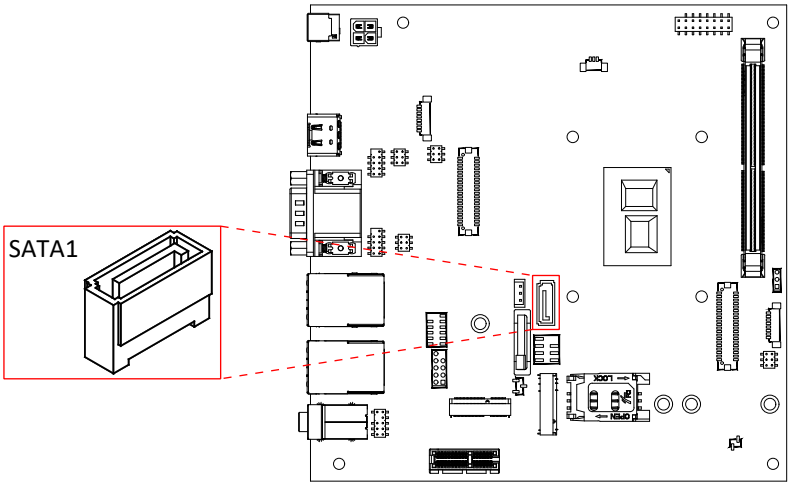

Figure 20: SATA connector diagram

SATA1	
Pin	Signal
1	GND
2	STXP_0
3	STXN_0
4	GND
5	SRXN_0
6	SRXP_0
7	GND

Table 18: SATA connector pinouts

2.2.8 USB 2.0 Pin Header

The VIA EPIA-M930 has 1 USB 2.0 pin header block that supports up to two USB 2.0 ports. The pin header block is labeled as “USBH2_1”. The pinouts of the USB 2.0 pin headers are shown below.

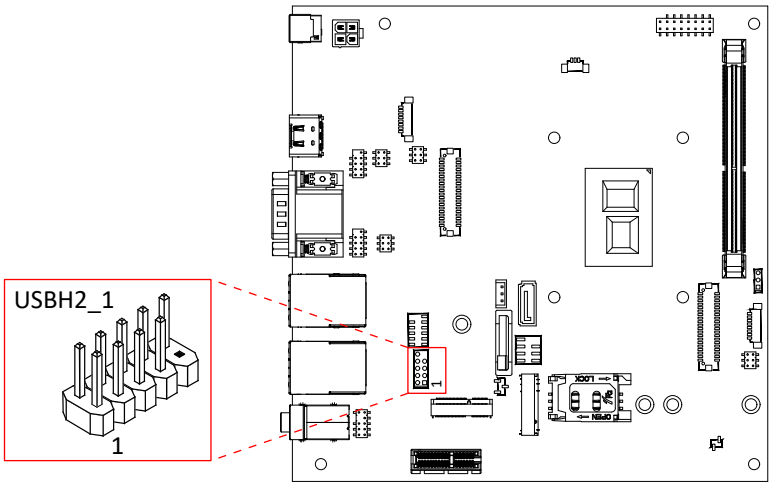

Figure 21: USB 2.0 pin header diagram

USBH2 1			
Pin	Signal	Pin	Signal
1	+5CDUAL	2	+5CDUAL
3	USBD_T1-	4	USBD_T0-
5	USBD_T1+	6	USBD_T0+
7	GND	8	GND
9	—	10	GND

Table 19: USB 2.0 pin headers pinouts

2.2.9 COM Pin Headers

There are two COM pin headers on the VIA EPIA-M930. Each COM pin header supports the RS-232 standard. The pin headers are labeled as “COMH1” (COM3) and “COMH2” (COM4). Both of the COM pin headers can support +5V or +12V. The pinouts of the COM pin headers are shown below.

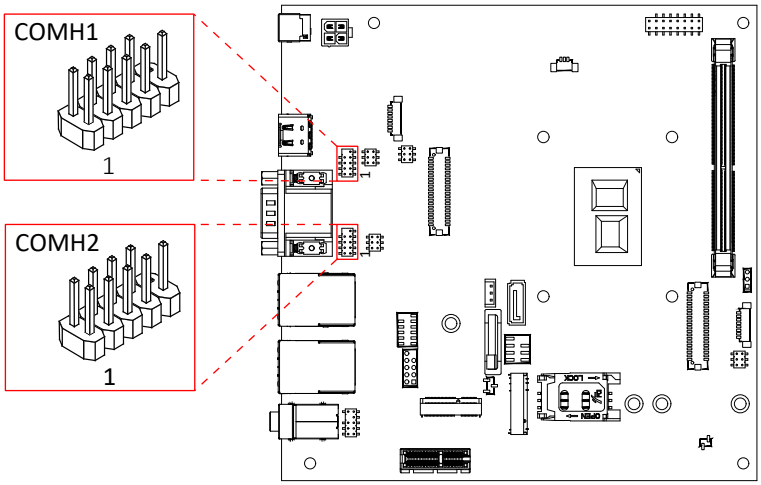

Figure 22: COM pin headers diagram

COM3			
Pin	Signal	Pin	Signal
1	COM_DCD	2	COM_RXD
3	COM_TXD	4	COM_DTR
5	GND	6	COM_DSR
7	COM_RTS	8	COM_CTS
9	COM_RI	10	—

COM4			
Pin	Signal	Pin	Signal
1	COM_DCD	2	COM_RXD
3	COM_TXD	4	COM_DTR
5	GND	6	COM_DSR
7	COM_RTS	8	COM_CTS
9	COM_RI	10	—

Table 20: COM pin headers pinouts

2.2.10 Front Audio Pin Header

In addition to the TRS audio jacks on the external I/O coastline, the VIA EPIA-M930 has a pin header for Line-out and Mic-in. The pin header is labeled as “F_AUDIO1”. The pinouts of the front audio pin header are shown below.

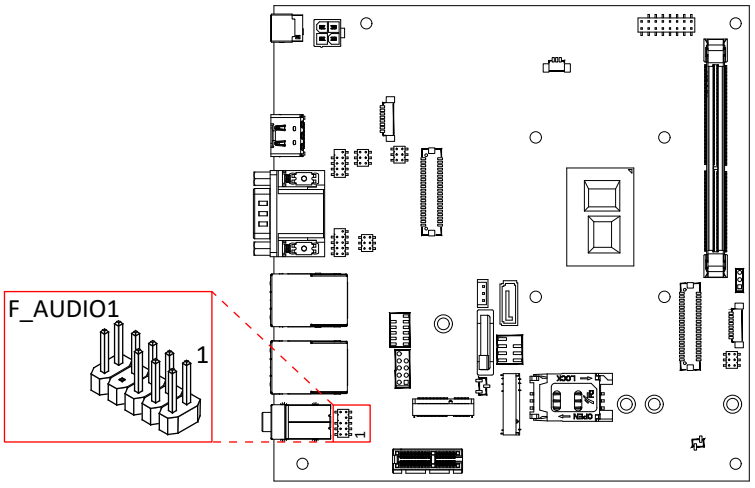

Figure 23: Front audio pin header

Pin	Signal	Pin	Signal
1	MIC2IN_L	2	AGND
3	MIC2IN_R	4	AGND
5	HPOUTR	6	MIC2_JD
7	F_AUDIO_SENSE	8	—
9	HPOUTL	10	HPOUT_JD

Table 21: Front audio pin header pinouts

2.2.11 SPI Pin Header

The VIA EPIA-M930 has one 8-pin SPI pin header. The SPI pin header is used to connect to the SPI BIOS programming fixture. The pin header is labeled as “SPI1”. The pinouts of the SPI pin header are shown below.

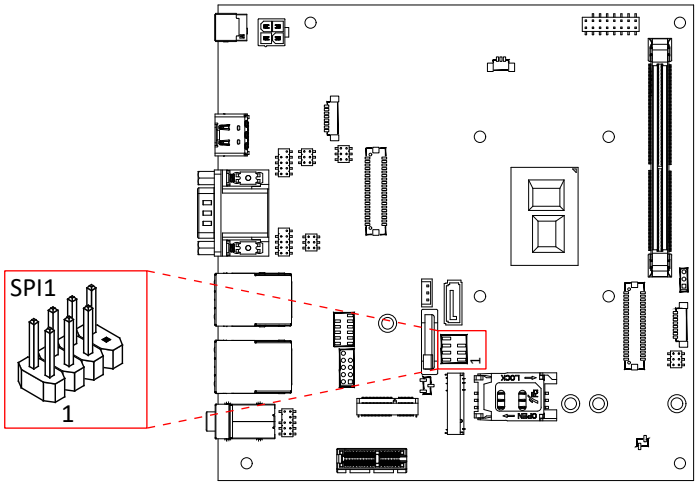

Figure 24: SPI pin header diagram

Pin	Signal	Pin	Signal
1	SPIVCC	2	GND
3	MSPISA	4	MSPICLK
5	MSPIDO	6	MSPIDI
7	—	8	-PCIRST

Table 22: SPI pin header pinouts

2.2.12 CMOS Battery Slot

The VIA EPIA-M930 is equipped with a CMOS battery slot, which is compatible with CR2032 coin batteries. The CMOS battery slot is labeled as “BAT1”. When inserting a CR2032 coin battery, be sure that the positive side is facing the locking clip. The pinouts of the CMOS battery slot are shown below.

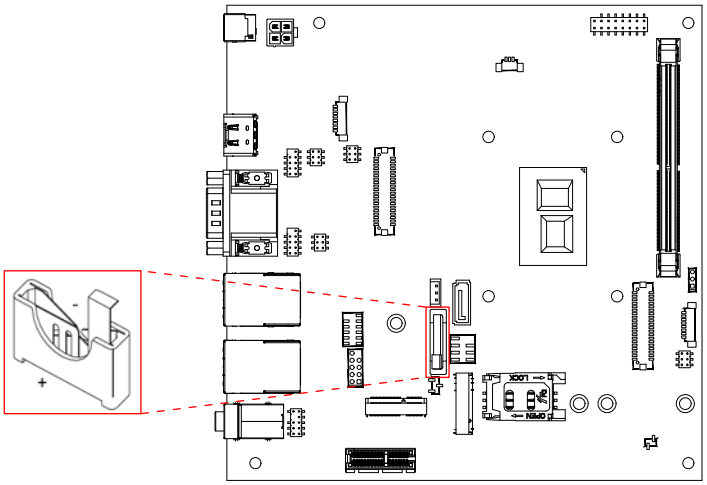

Figure 25: CMOS battery slot diagram

Pin	Signal
1	+3V
2	GND

Table 23: CMOS battery slot pinouts

3. Onboard Jumpers

Jumper Description

A jumper consists of a pair of conductive pins used to close in or bypass an electronic circuit to set up or configure a particular feature using a jumper cap. The jumper cap is a small metal clip covered by plastic. It performs like a connecting bridge to short (connect) the pair of pins. The usual colors of the jumper cap are black/red/blue/white/yellow.

Jumper Setting

There are two settings of the jumper pin: “Short and Open”. The pins are “Short” when a jumper cap is placed on the pair of pins. The pins are “Open” if the jumper cap is removed.

In addition, there are jumpers that have three or more pins, and some pins are arranged in series. In case of a jumper with three pins, place the jumper cap on pin 1 and pin 2 or pin 2 and 3 to Short it.

Some jumpers size are small or mounted on a crowded location on the board that makes it difficult to access. Therefore, using a long-nose plier in installing and removing the jumper cap is very helpful.

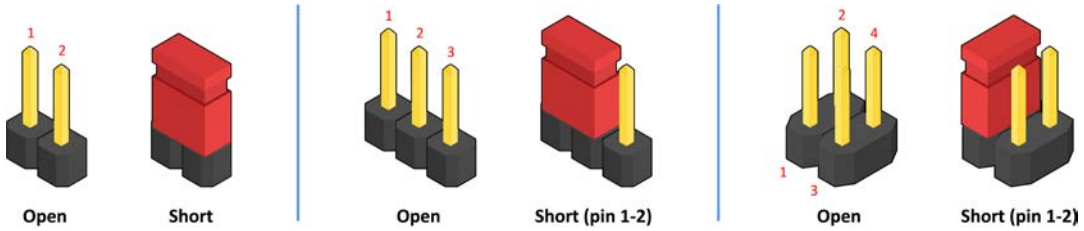

Figure 26: Jumper settings example

Caution:
Make sure to install the jumper cap on the correct pins. Installing it on the wrong pins might cause damage and malfunction.

3.1 Clear CMOS Jumper

The VIA EPIA-M930 comes with a Clear CMOS jumper. The onboard CMOS stores system configuration data and has an onboard battery power supply. To do CMOS reset, set the jumper on pins 1 and 2 while the system is off and system power is removed, this will reset CMOS data accordingly.

To perform clear RTC Register (RTC full reset), set the jumper on pins 2 and 3 while the system is off, remove the RTC battery and system power, this will reset full RTC register.

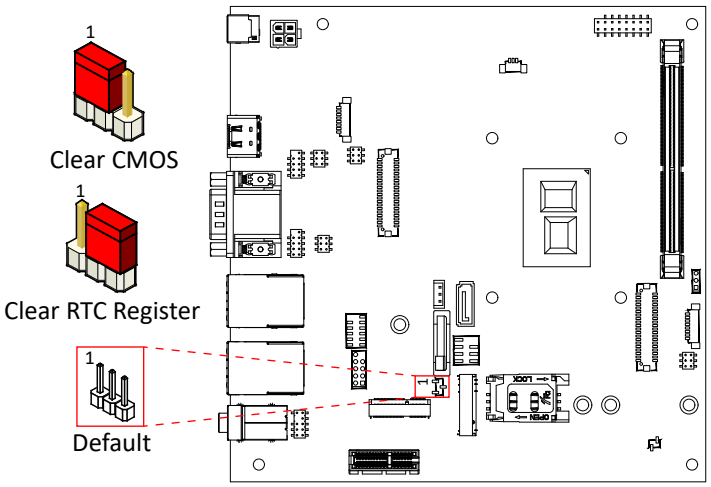

Figure 27: Clear CMOS jumper diagram

Settings	Pin 1	Pin 2	Pin 3
Regular (default)	Open	Open	Open
Clear CMOS	Short	Short	Open
Clear RTC Register	Open	Short	Short

Table 24: Clear CMOS jumper settings

Note:
Avoid clearing the CMOS while the system is on and system power is connected; it will damage the board.

3.2 COM1 and COM2 Voltage Jumper

The voltage for COM1 and COM2 is controlled by the jumper labeled as "COM_S1". The voltage can be either +5V or +12V. +5V is the default setting. The odd pin numbers correspond to COM1. The even pin numbers correspond to COM2. The jumper settings are shown below.

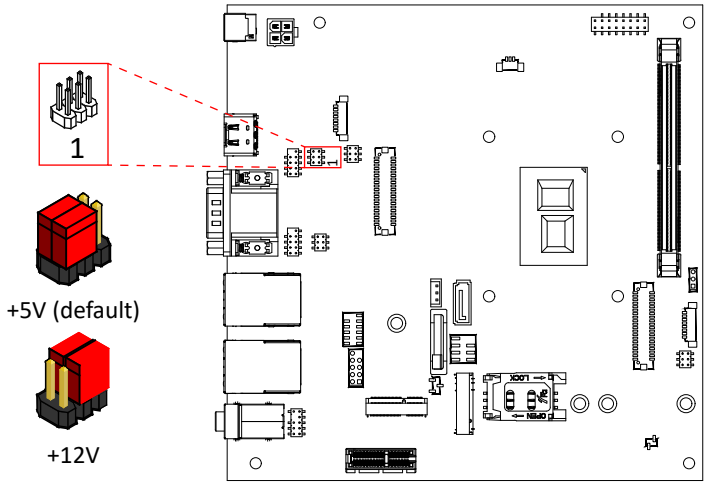

Figure 28: COM1 and COM2 voltage jumper diagram

COM1 Settings	Pin 1	Pin 3	Pin 5
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

COM2 Settings	Pin 2	Pin 4	Pin 6
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

Table 25: COM1 and COM2 voltage jumper settings

3.3 COM3 and COM4 Voltage Jumper

The voltage for COM3 and COM4 is controlled by the jumper labeled as “COMH_S1”. The voltage can be either +5V or +12V. +5V is the default setting. The odd pin numbers correspond to COM3. The even pin numbers correspond to COM4. The jumper settings are shown below.

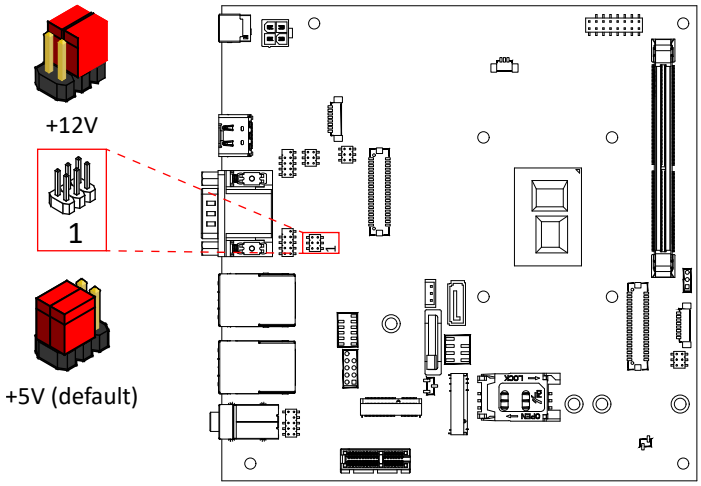

Figure 29: COM3 and COM4 voltage jumper diagram

COM3 Settings	Pin 1	Pin 3	Pin 5
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

COM4 Settings	Pin 2	Pin 4	Pin 6
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

Table 26: COM3 and COM4 voltage jumper settings

3.4 LVDS1 and LVDS2 Power Jumper

The LVDS panel connectors (LVDS1 and LVDS2) and backlight control connectors (LVDS1_BL1 and LVDS2_BL1) can operate on different input voltages. The VIA EPIA-M930 has one jumper (LVDS1_PWR1) that controls the voltage delivered to the LVDS1 panel connector and input voltage delivered to the LVDS1_BL1 connector. The VIA EPIA-M930 has one jumper (LVDS2_PWR1) that controls the voltage delivered to the LVDS2 panel connector and input voltage delivered to the LVDS2_BL1 connector.

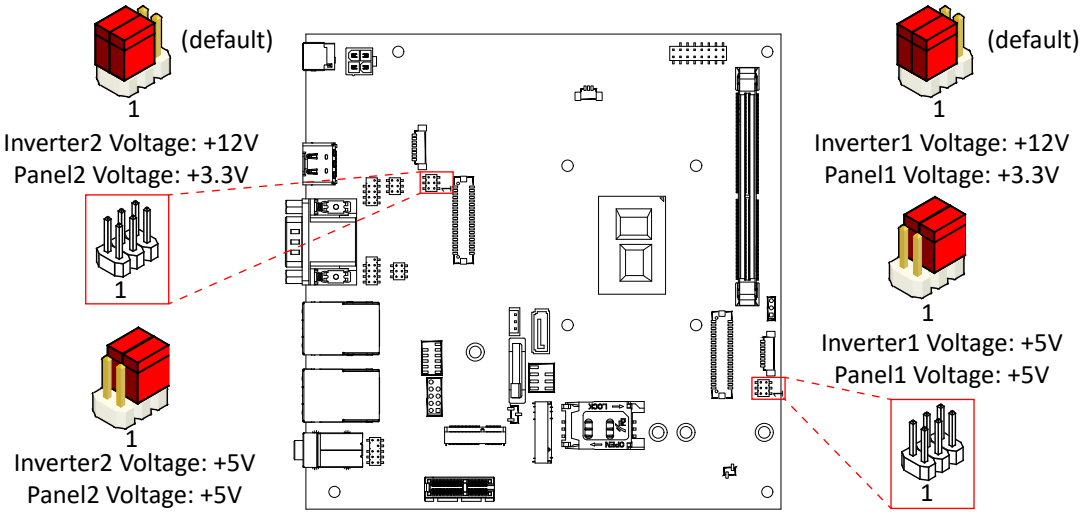

Figure 30: LVDS1 and LVDS2 power jumpers diagrams

LVDS1 Power Jumper (LVDS1_PWR1)			
LVDS1 Backlight Settings	**Pin 1**	**Pin 3**	**Pin 5**
+12V (default)	Short	Short	Open
+5V	Open	Short	Short
LVDS1 Panel Settings	**Pin 2**	**Pin 4**	**Pin 6**
+3.3V (default)	Short	Short	Open
+5V	Open	Short	Short

LVDS2 Power Jumper (LVDS2_PWR1)			
LVDS2 Backlight Settings	**Pin 1**	**Pin 3**	**Pin 5**
+12V (default)	Short	Short	Open
+5V	Open	Short	Short
LVDS2 Panel Settings	**Pin 2**	**Pin 4**	**Pin 6**
+3.3V (default)	Short	Short	Open
+5V	Open	Short	Short

Table 27: LVDS1 and LVDS2 power jumpers settings

4. Expansion Slots

4.1 DDR4 Memory Slot

The VIA EPIA-M930 provides one DDR4 SODIMM memory slot. The memory slot can accommodate up to 32GB of 3200MHz memory. The memory slot is labeled as “SO_DIMM1”. The location of the DDR4 memory slot is shown below.

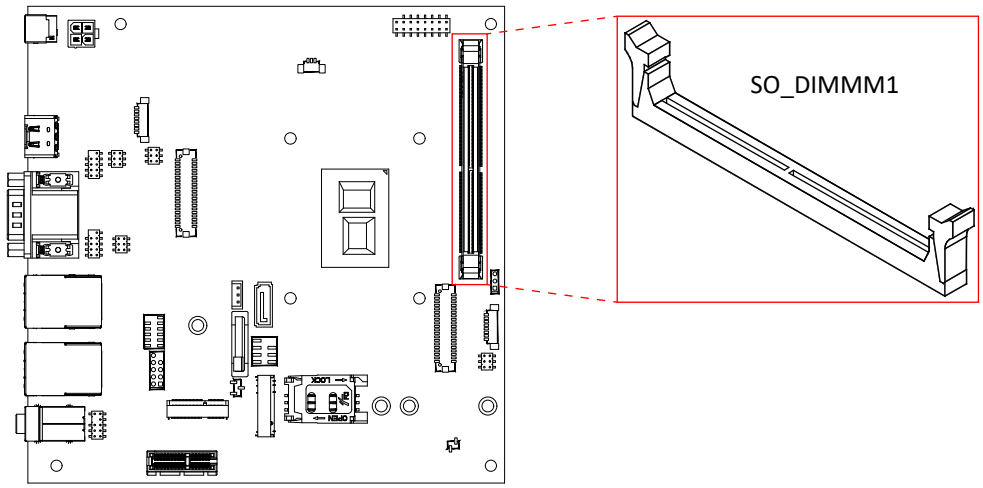

Figure 31: DDR4 memory slot diagram

4.1.1 Installing the Memory Module

Step 1

Disengage the locking clasps at both ends of the memory slot. Align the notch on the bottom of the SODIMM memory module with the notch wedge in the slot.

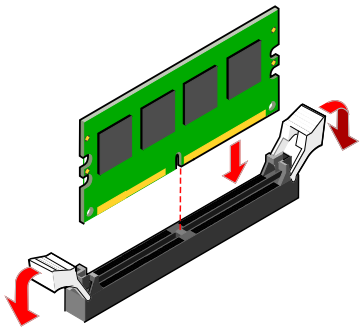

Figure 32: Inserting the memory module

Step 2

Slide the SODIMM memory module into the side grooves and push the module into the slot until the locking clasps snap into the closed position.

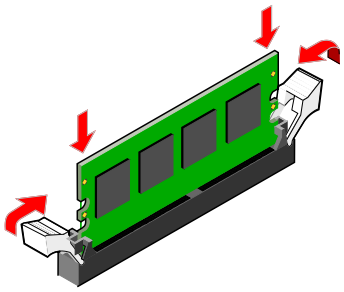

Figure 33: Locking the memory module

4.1.2 Removing a Memory Module

Step 1

Disengage the locking clips at both ends of the memory slot.

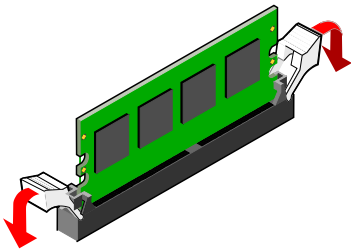

Figure 34: Disengaging the locking clips

Step 2

When the locking clips have been cleared, the SODIMM memory module will automatically pop up. Remove the memory module.

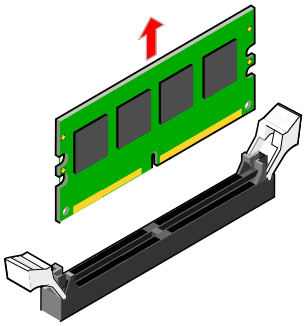

Figure 35: Removing the memory module

4.2 PCI Express Slot

The PCI Express slot provides support for 1-lane cards. If customers want to do the orientation of the slot, a riser card module must be used. The location of the PCI Express slot is shown below.

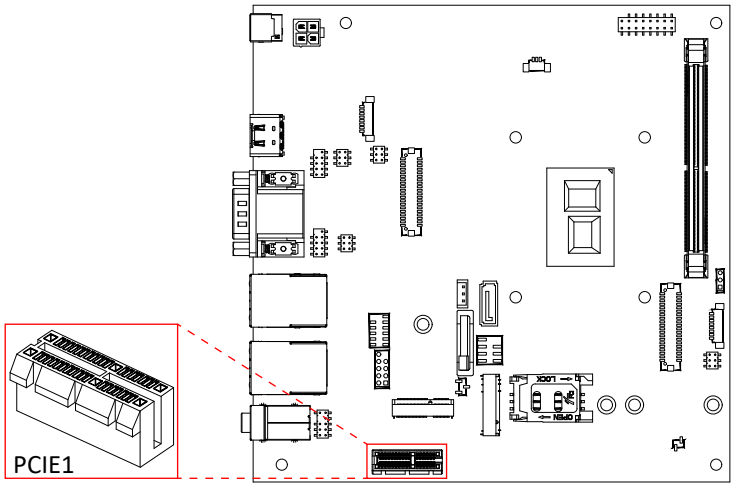

Figure 36: PCI Express slot diagram

4.3 M.2 Slots

The VIA EPIA-M930 is equipped with two M.2 slots for storage and wireless networking options such as a 5G/4G LTE and Wi-Fi modules. The M.2 E-Key 2230 slot, labeled as M2_E_2230_1, is intended for Wi-Fi/ Bluetooth modules. The M.2 B-Key 2280 slot, labeled as M2_B_2280_1, is intended for wither a 4G/5G module or a SATA M.2 SSD flash drive. The location of the two M.2 slots are shown below.

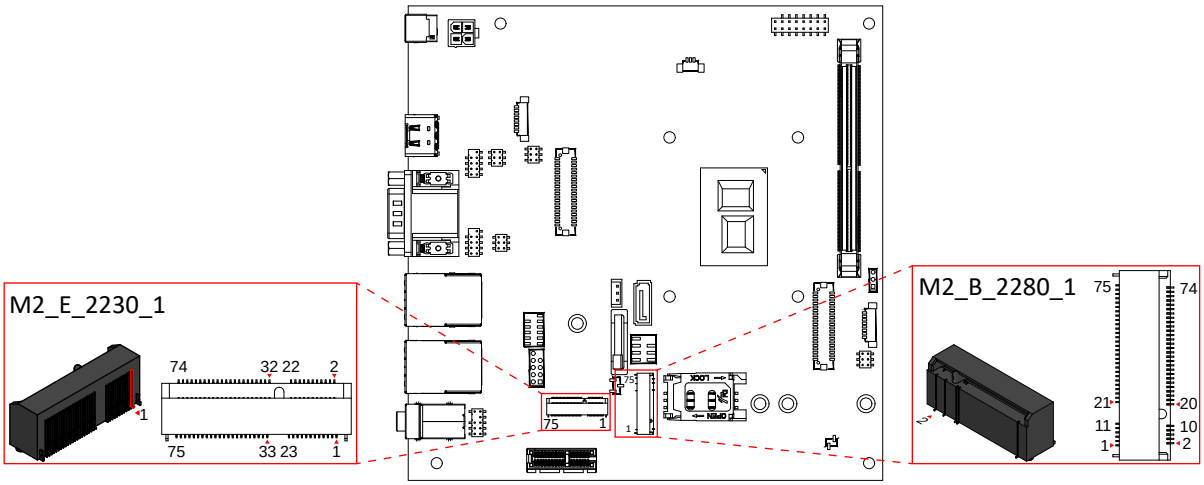

Figure 37: M.2 slots diagram

SIM Card Slot

The VIA EPIA-M930 comes with an onboard SIM card slot that supports 5G/4G SIM cards. SIM card usage on the VIA EPIA-M930 requires that a 5G/4G module is installed in the M2_2 slot, enabling the 5G/4G functionality, otherwise the SIM card slot will be disabled. The SIM card slot is designed for use with 5G/4G modules that do not support built-in SIM card slots. The SIM card slot is labeled as “SIM1”. The location of the SIM card slot is shown below.

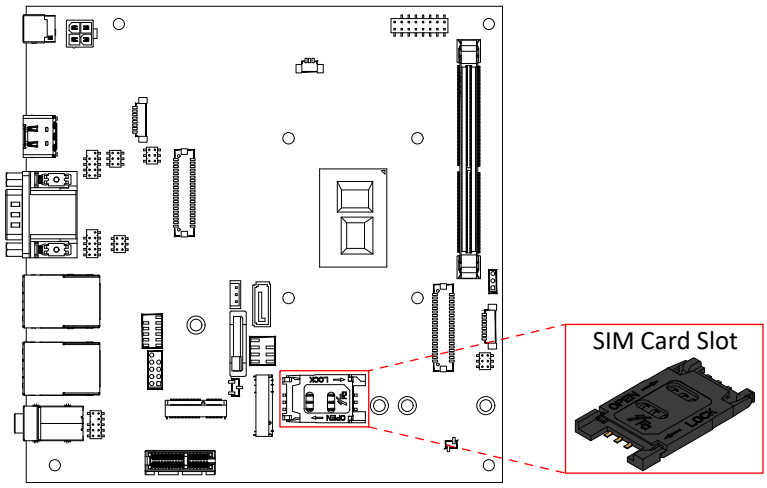

Figure 38: SIM card slot diagram

Note:
Refer to Appendix A.3 for SIM card installation instructions.

5. Hardware Installation

5.1 Installing into a Chassis

The VIA EPIA-M930 can be fitted into any chassis that has mounting holes for compatible with the standard Mini-ITX mounting hole locations. Additionally, the chassis must meet the minimum height requirements for specified areas of the board. If a riser card module is being used, the chassis will need to accommodate the additional space requirements.

5.1.1 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 VIA EPIA-M930.

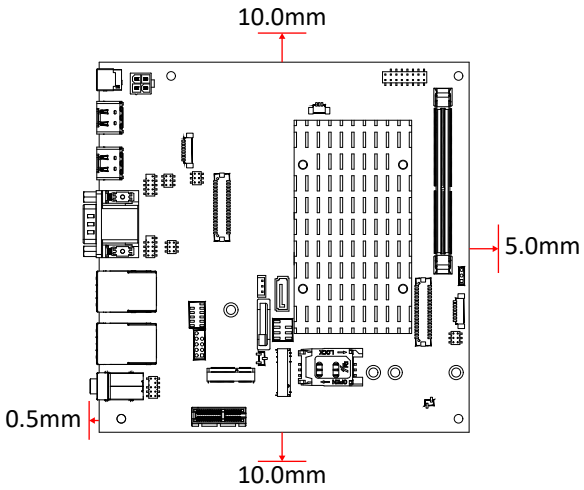

Figure 39: Suggested minimum chassis dimensions

Each side of the board should have a buffer zone from the internal wall of the chassis. The side of the board that accommodates the I/O coastline should have a buffer of 0.5mm. The side on the opposite end of the I/O coastline should have a buffer of at least 5mm. The two sides adjacent to the I/O coastline should have at least a 10mm buffer.

For the side that is close to the PCIe slot, the buffer should be at least 100mm if a riser card will be used.

5.1.2 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. The highest part of the ceiling will be above the PCIe slot.

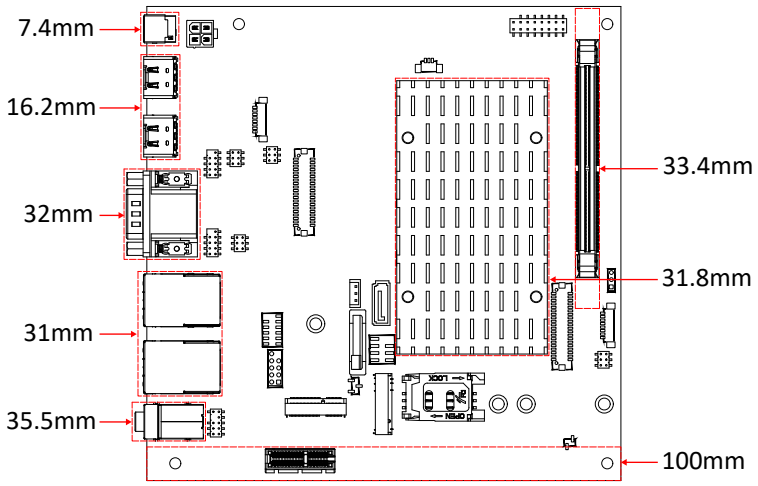

Figure 40: Suggested minimum internal chassis ceiling height

6. BIOS Setup Utility

6.1 Entering the BIOS Setup Utility

Power on the computer and press Delete during the beginning of the boot sequence to enter the BIOS Setup Utility. If the entry point has passed, restart the system and try again.

6.2 Control Keys

Up	Move up one row
Down	Move down one row
Left	Move to the left in the navigation bar
Right	Move to the right in the navigation bar
Enter	Access the highlighted item / Select the item
Esc	Jumps to the Exit screen or returns to the previous screen
+	Increase the numeric value [1]
-	Decrease the numeric value[1]
F1	General help[2]
F2	Previous value
F3	Load optimized defaults
F4	Save all the changes and exit

Note:
1. Must be pressed using the 10-key pad.
2. The General help contents are only for the Status Page and Option Page setup menus.

6.3 Navigating the BIOS Menus

The main menu displays all the BIOS setup categories. Use the <Left>/<Right> and <Up>/<Down> arrow keys to select any item or sub-menu. Descriptions of the selected/highlighted category are displayed at the bottom of the screen.

The small triangular arrowhead symbol next to a field indicates that a sub-menu is available (see figure below). Press <Enter> to display the sub-menu. To exit the sub-menu, press <Esc>.

6.4 Getting Help

The BIOS Setup Utility provides a “General Help” screen. This screen can be accessed at any time by pressing F1. The help screen displays the keys for using and navigating the BIOS Setup Utility. Press Esc to exit the help screen.

6.5 System Overview

The System Overview screen is the default screen that is shown when the BIOS Setup Utility is launched and contains pertinent system information. This screen can be accessed by traversing the navigation bar to the "Main" label.

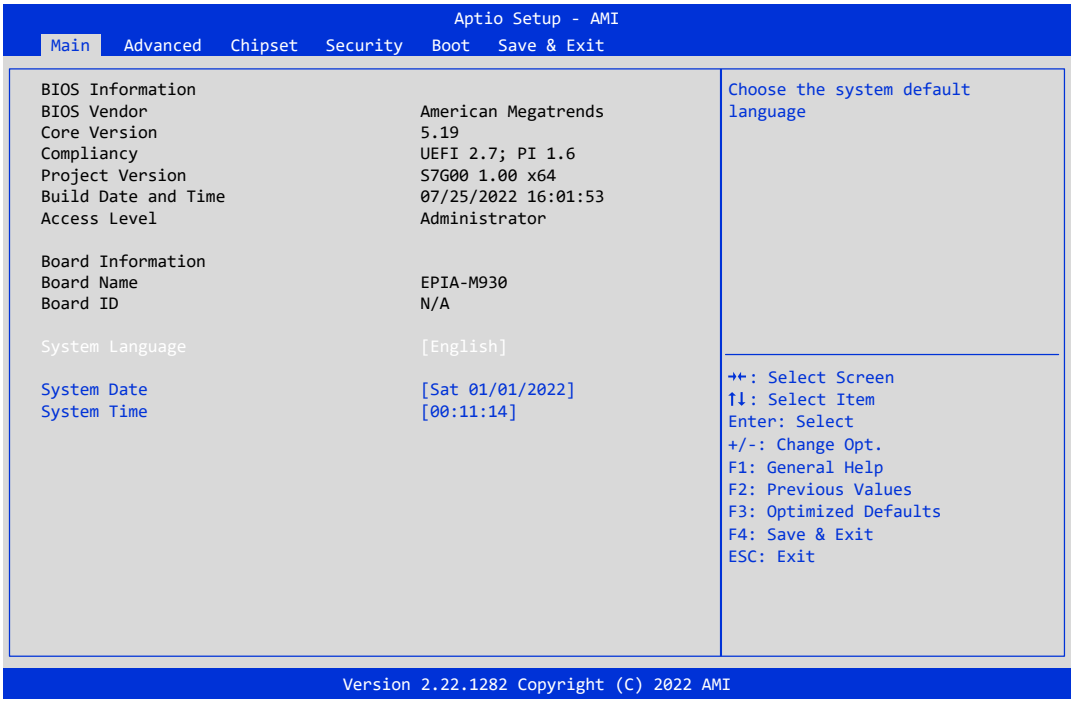

Figure 41: Illustration of the Main menu screen

- **BIOS Information**
  - The content in this section of the screen shows the information about the vendor, the Core version, UEFI specification version, the project version and date & time of the project build.
- **System Language**
  - This option allows the user to configure the language that the user wants to use.
- **System Date**
  - This section shows the current system date. Press Tab to traverse right and Shift+Tab to traverse left through the month, day, and year segments. The + and - keys on the number pad can be used to change the values. The weekday name is automatically updated when the date is altered. The date format is [Weekday, Month, Day, Year].
- **System Time**
  - This section shows the current system time. Press Tab to traverse right and Shift+Tab to traverse left through the hour, minute, and second segments. The + and - keys on the number pad can be used to change the values. The time format is [Hour : Minute : Second].

6.6 Advanced Settings

The Advanced Settings screen shows a list of categories that can provide access to sub-screens. Sub-screens can be selected by using the Up and Down arrows on the number pad.

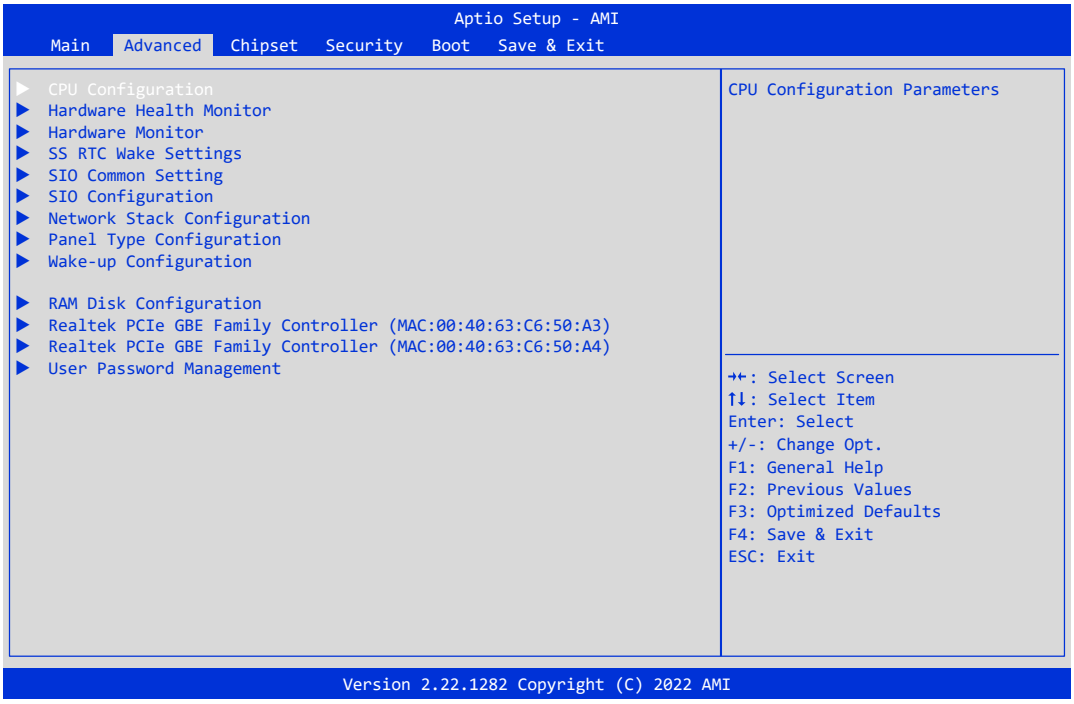

Figure 42: Illustration of the Advanced Settings screen

The Advanced Settings screen contains the following links:

- CPU Configuration
- Hardware Health Monitor
- Hardware Monitor
- S5 RTC Wake Settings
- SIO Common Setting
- SIO Configuration
- Network Stack Configuration
- Panel Type Configuration
- Wake-up Configuration
- RAM Disk Configuration
- Realtek PCIe GBE Family Controller (MAC:00:40:63:C6:50:A3)
- Realtek PCIe GBE Family Controller (MAC:00:40:63:C6:50:A4)
- User Password Management

6.6.1 CPU Configuration

The CPU Configuration screen shows detailed information about the built-in processor.

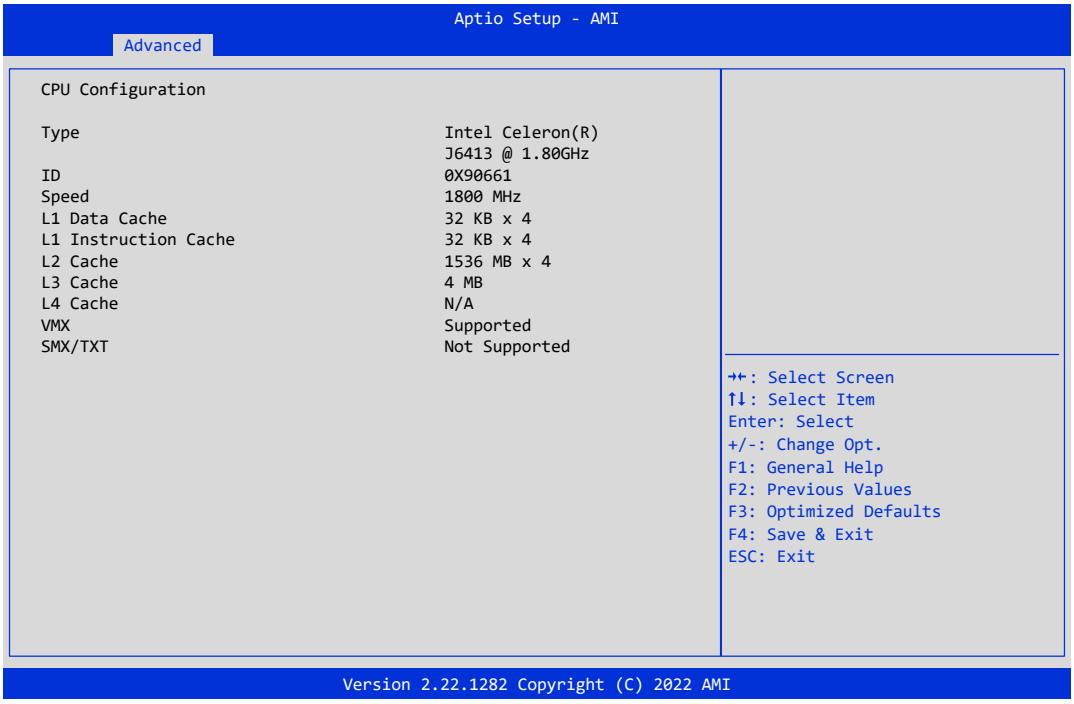

Figure 43: Illustration of the CPU Configuration screen

6.6.2 Hardware Health Monitor

The Hardware Health Monitor screen shows detailed information about the CPU cores temperatures.

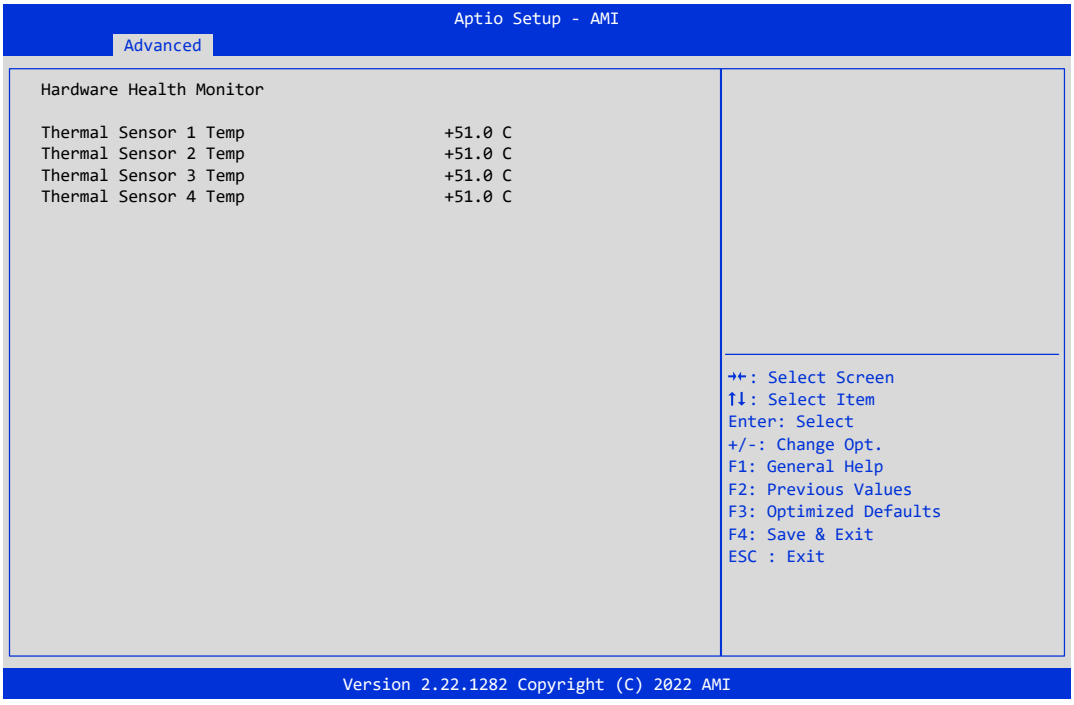

Figure 44: Illustration of the Hardware Health Monitor screen

6.6.3 Hardware Monitor

The Hardware Monitor screen shows detailed information about System temperature, Fan Speed, and CPU core +5V/+3.3V/+12V voltage.

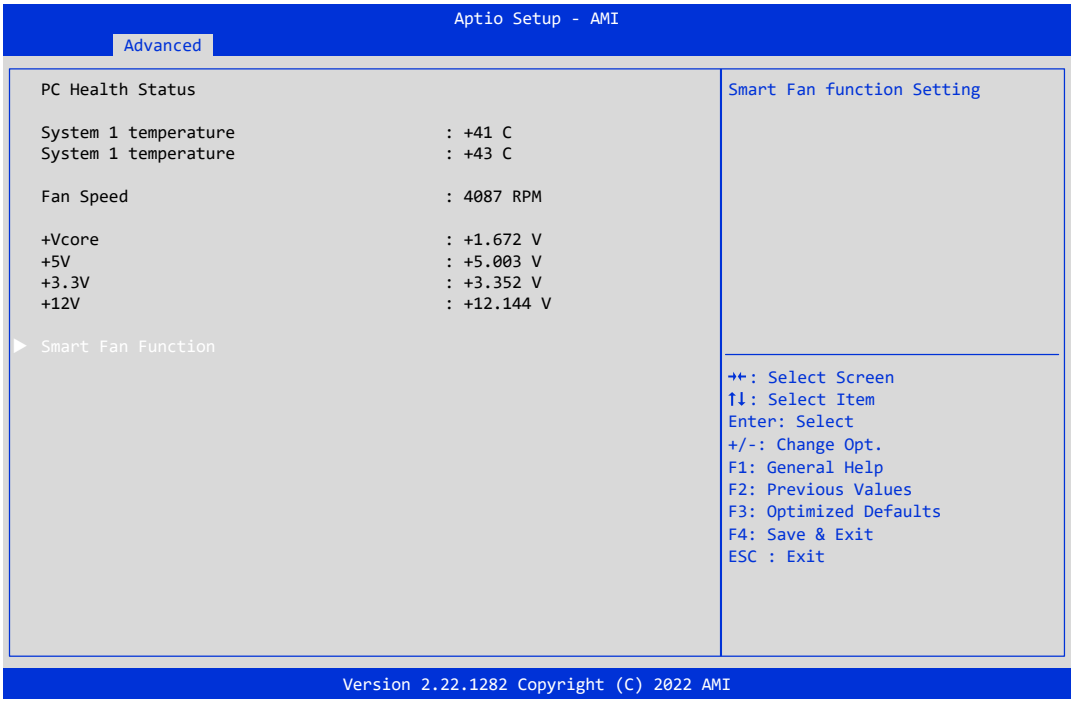

Figure 45: Illustration of the Hardware Monitor screen

6.6.4 S5 RTC Wake Settings

The S5 RTC Wake Settings screen provides settings to enable/disable the system to wake from S5 using the RTC alarm.

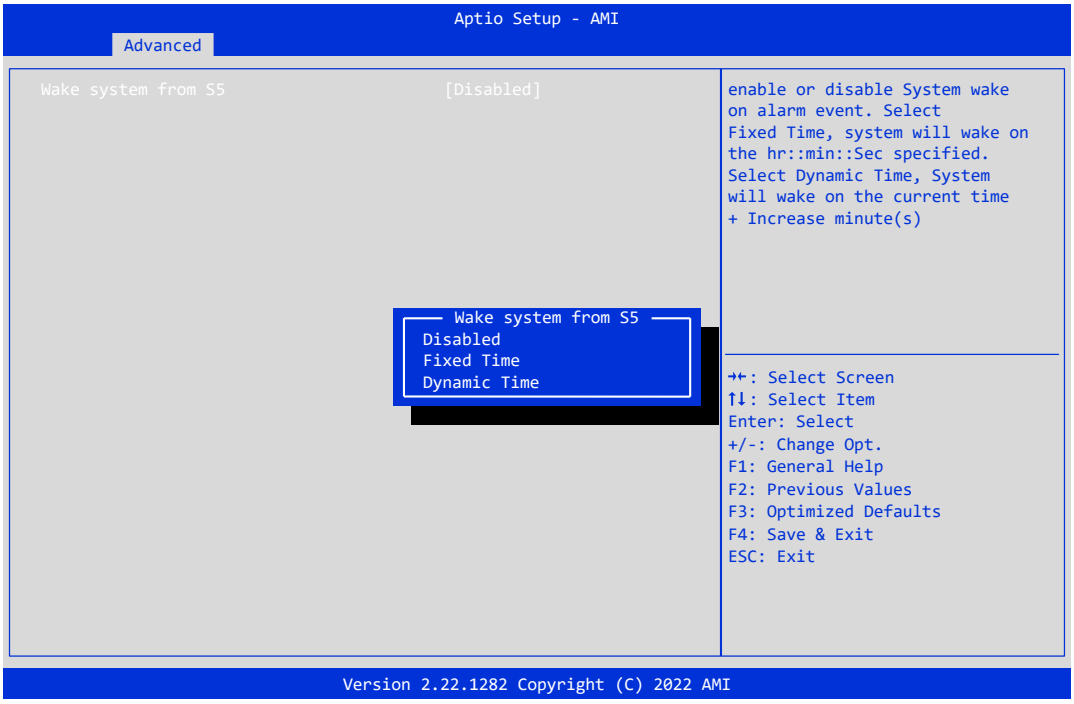

Figure 46: Illustration of the S5 RTC Wake Setting screen

6.6.5 SIO Common Setting

This SIO (Super IO) Common Setting screen shows options to enable/disable the locking of Legacy Resources.

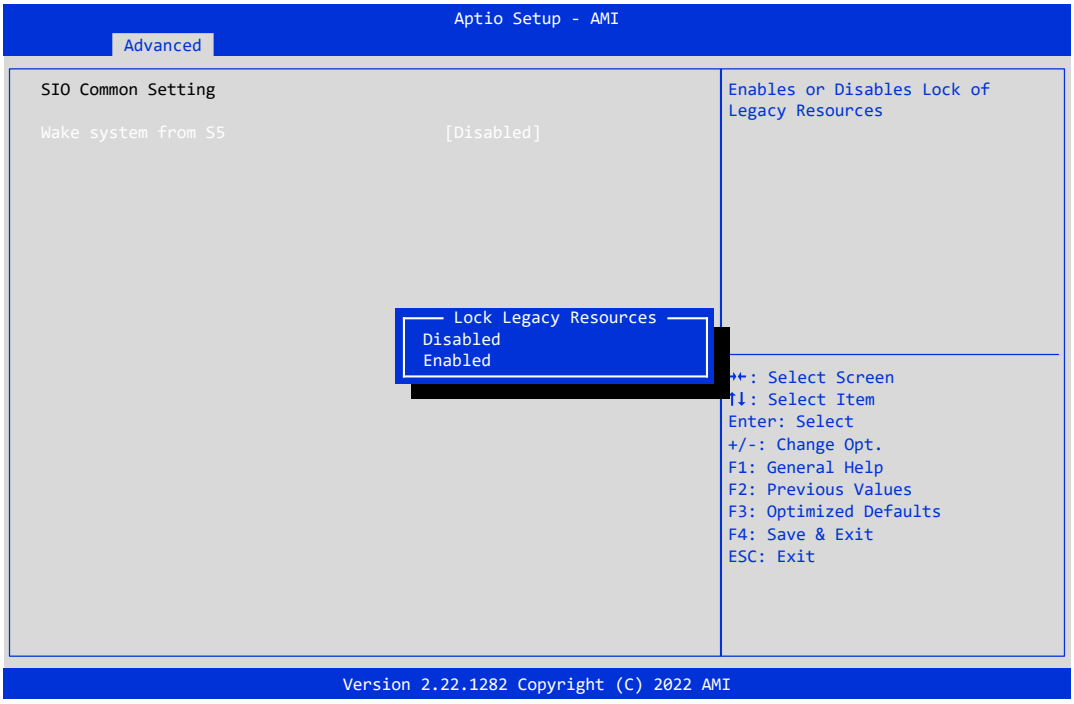

Figure 47: Illustration of the SIO Common Setting screen

6.6.6 SIO Configuration

The SIO (Super IO) Configuration screen shows a list of categories that can provide access to sub-screens. Sub-screens can be selected by using the Up and Down arrows on the number pad.

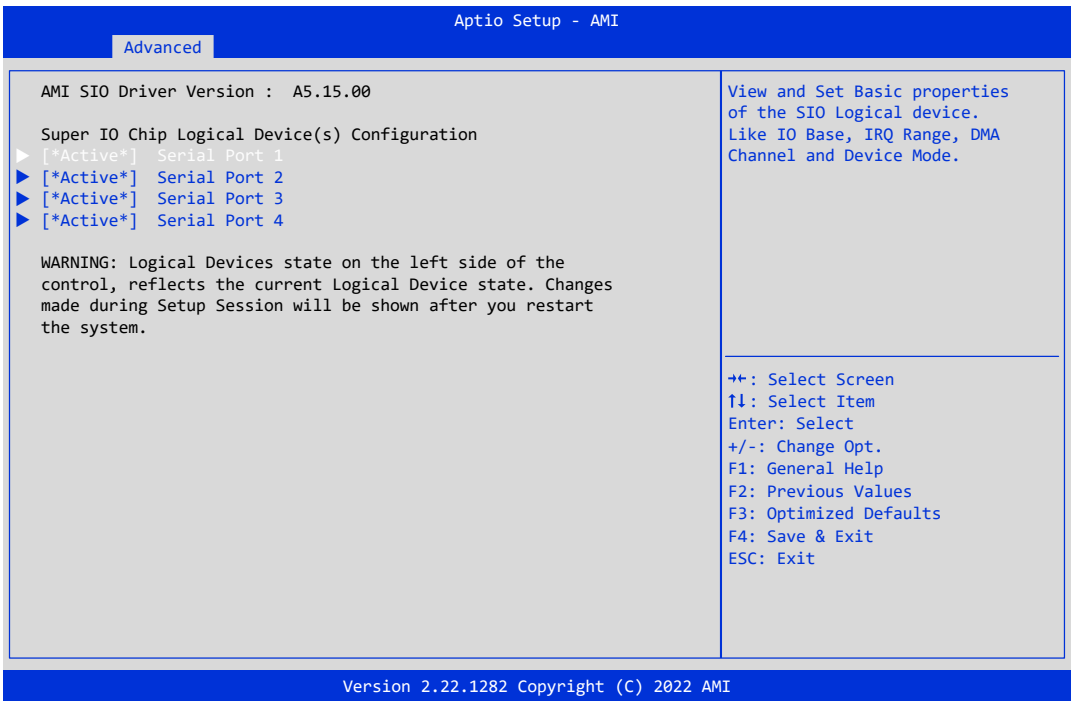

Figure 48: Illustration of the SIO Configuration screen

The Advanced Settings screen contains the following links:

- Serial Port 1
- Serial Port 2
- Serial Port 3
- Serial Port 4

6.6.6.1 Serial Port Configuration

The Serial Port Configuration screen allows for the configuration of individual serial ports.

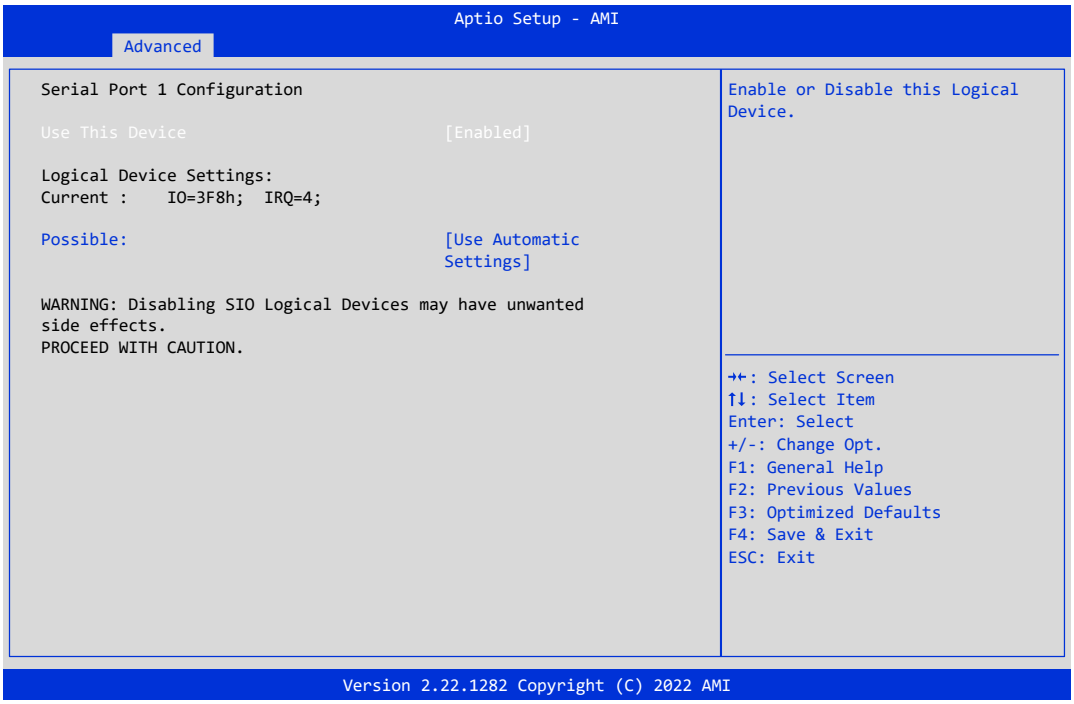

Figure 49: Illustration of the Serial Port Configuration screen

- **Possible**
  - Allows the user to change the device resource settings. New settings will be reflected on this setup page after the system restarts.

6.6.7 Panel Type Configuration

The Panel Type feature enables the user to specify the resolution of the display and brightness being used with the system.

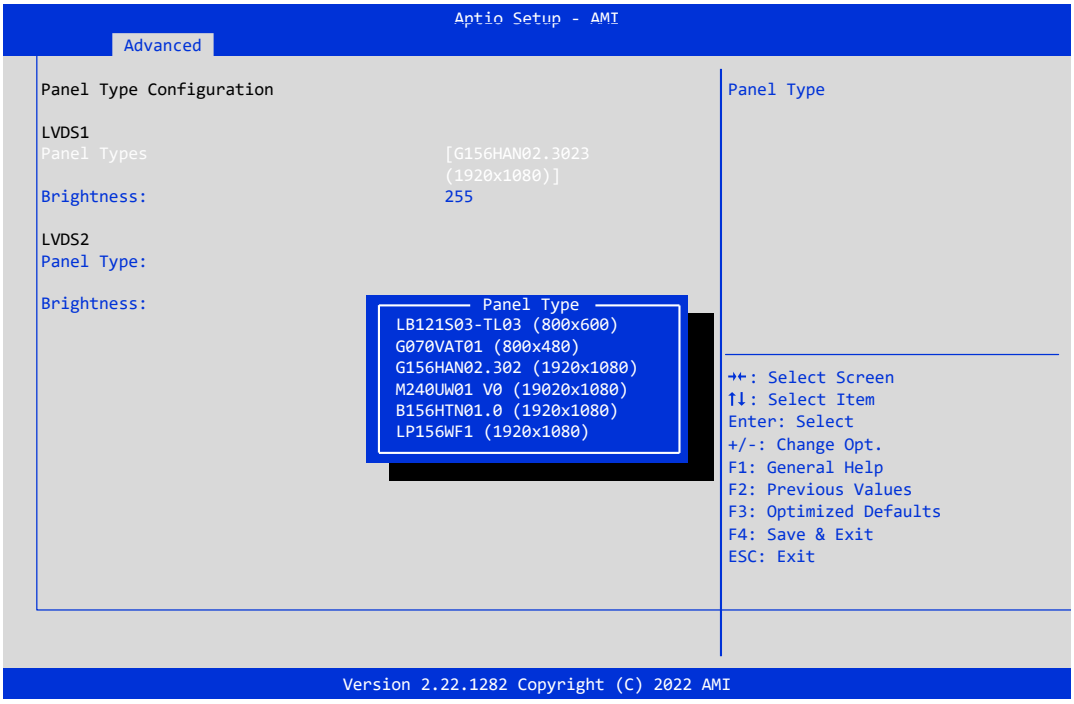

Figure 50: Illustration of the Serial Port Configuration screen

6.6.8 Wake-up Configuration

The Wake-up Configuration screen provides options to wake the system.

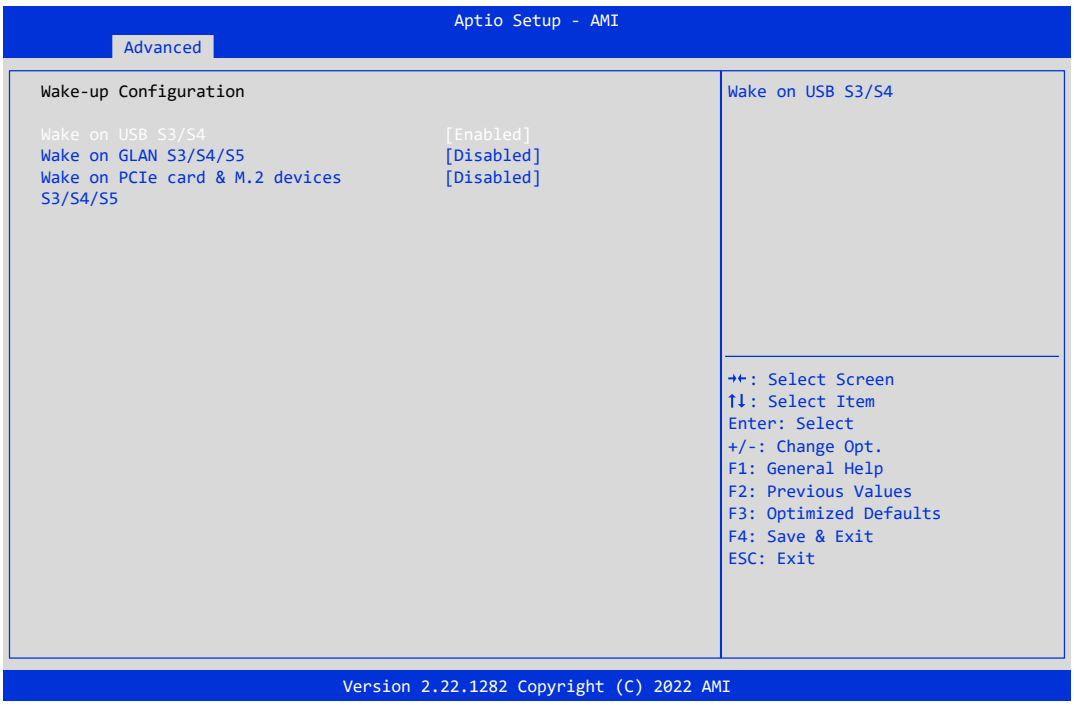

Figure 51: Illustration of the Wake-up Configuration screen

- **Wake on USB S3/S4**
  - Disabled or Enabled for wake on S3/S4 by USB keyboard or mouse.
- **Wake on GLAN S3/S4/S5**
  - Disabled or Enabled for wake on S3/S4/S5 via GLAN.
- **Wake on PCIe card & M.2 devices S3/S4/S5**
  - Disabled or Enabled for wake on S3/S4/S5 via PCIe card or M.2 devices.

6.6.9 Realtek PCIe GBE Family Controller

The Realtek PCIe GBE Family Controller screen provides driver information and the Realtek Ethernet controller information.

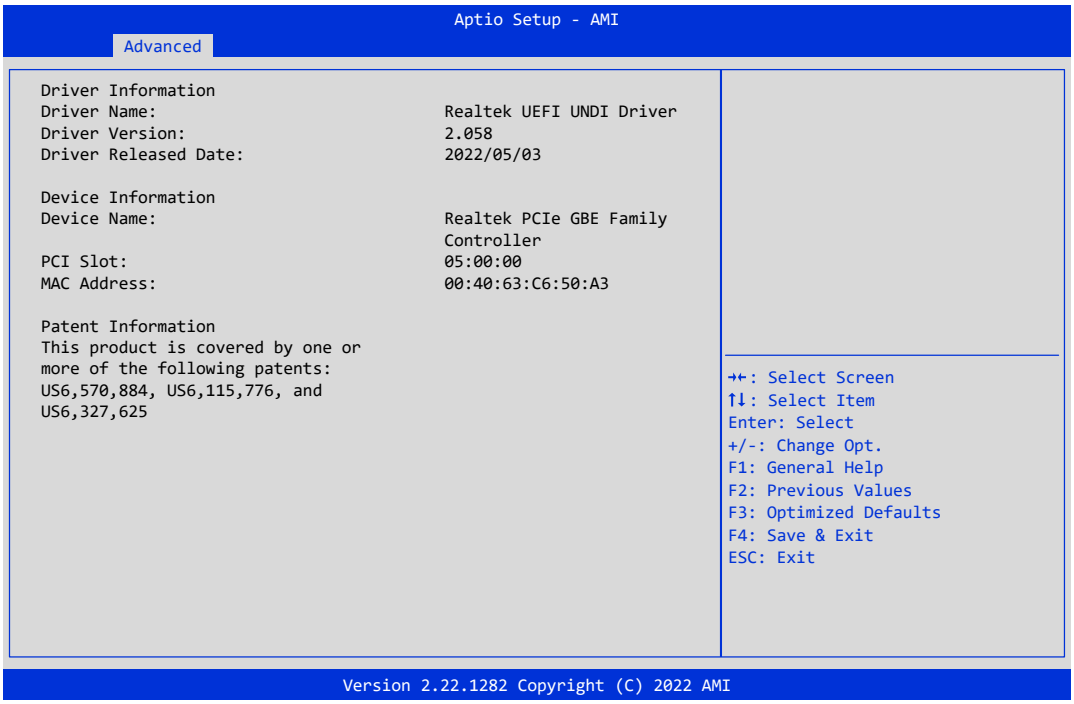

Figure 52: Illustration of the Realtek PCIe GBE Family Controller screen

6.6.10 User Password Management

The User Password Management screen allows for a user to change the administrator password.

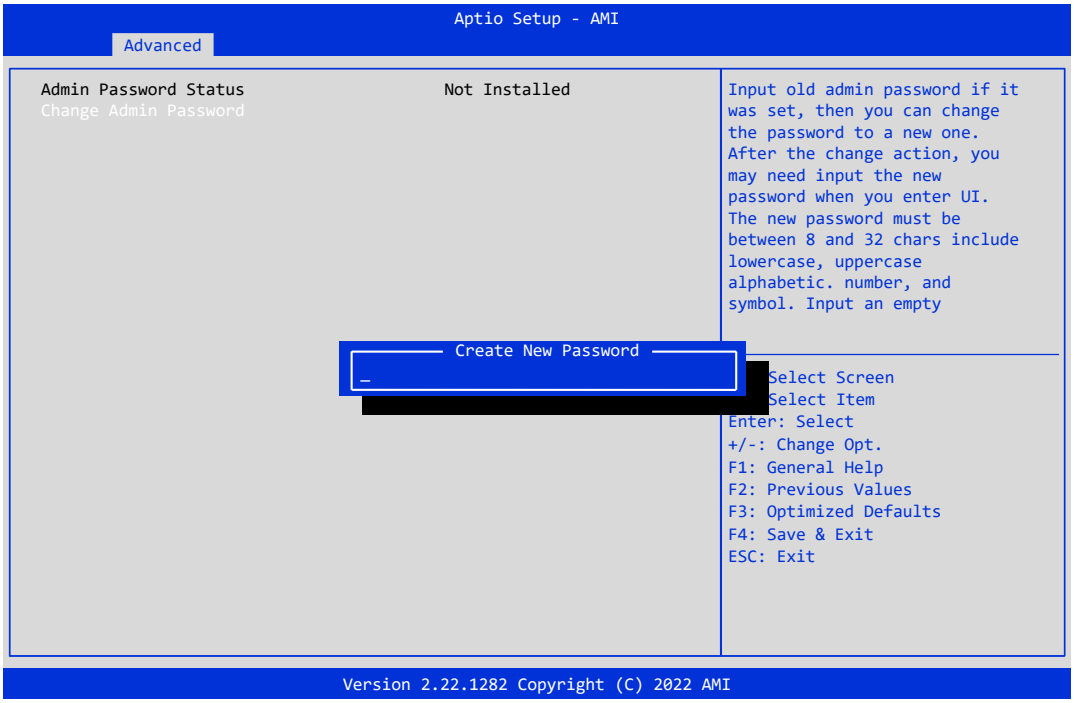

Figure 53: Illustration of the User Password Management screen

- **Change Admin Password**
  - Passwords must be between 8-32 characters in length and include at least one: lowercase letter, uppercase letter, a number, and a symbol.

6.7 Chipset Settings

The Chipset Settings screen shows a list of categories that can provide access to a sub-screen. Sub-screens including Memory Configuration, SATA Configuration, and HD Audio Configuration; can be selected by using the Up and Down arrows on the number pad.

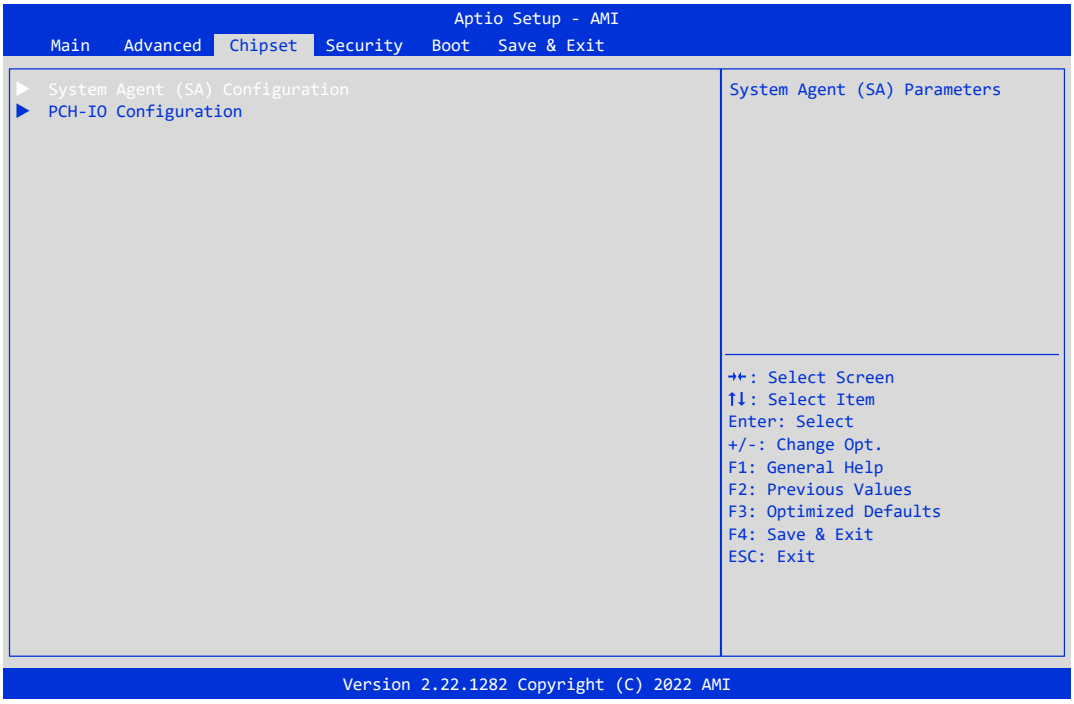

Figure 54: Illustration of the Chipset Settings screen

The Chipset Settings screen contains the following links:

- System Agent (SA) Configuration
- PCH-IO Configuration

6.7.1 System Agent (SA) Configuration

The System Agent (SA) Parameters screen shows support for VT-d (Virtualization for directed IO) as well as a link to the Memory Configuration settings.

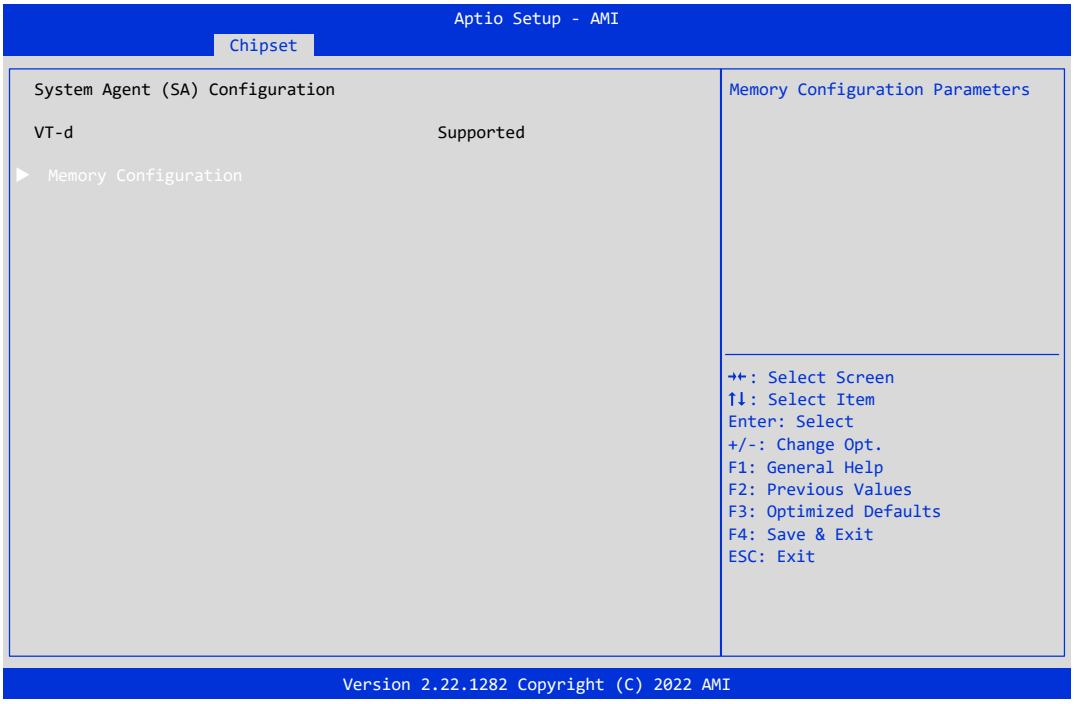

Figure 55: Illustration of the System Agent (SA) Configuration screen

6.7.1.1 Memory Configuration

The Memory Configuration screen provides detailed information for the installed system memory.

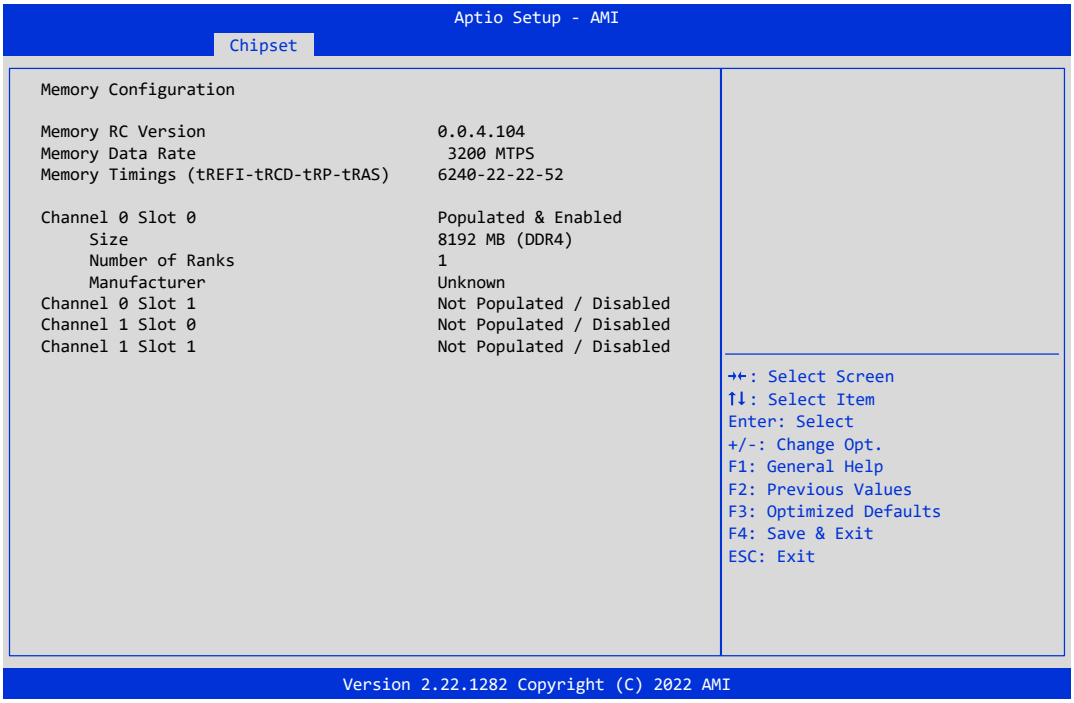

Figure 56: Illustration of the Memory Configuration screen

6.7.2 PCH-IO Configuration

The PCH-IO (Platform Control Hub IO) Configuration screen shows a list of categories that can provide access to sub-screens. Sub-screens can be selected by using the Up and Down arrows on the number pad.

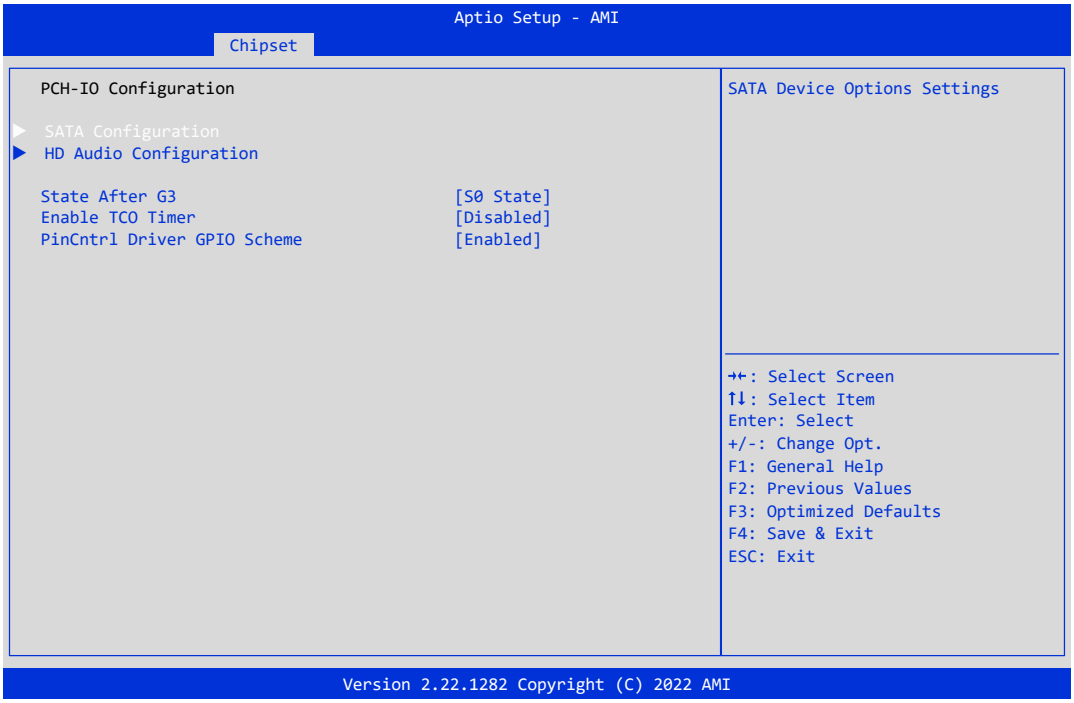

Figure 57: Illustration of the PCH-IO Configuration screen

The PCH-IO Configuration screen contains the following links and options:

- SATA Configuration
- HD Audio Configuration
- **State After G3**
  - Specify what state to go to when power is re-applied after a power failure (G3 state).
- **Enable TCO Timer**
  - Enable/Disable TCO timer. When disabled, it disables PCH ACPI timer, stops TCO timer, and ACPI WDAT table will not be published.
- **PinCntrl Driver GPIO Scheme**
  - Enable/Disable PinCntrl Driver GPIO Scheme

6.7.2.1 SATA Configuration

This SATA Configuration screen shows options for configuring the SATA devices.

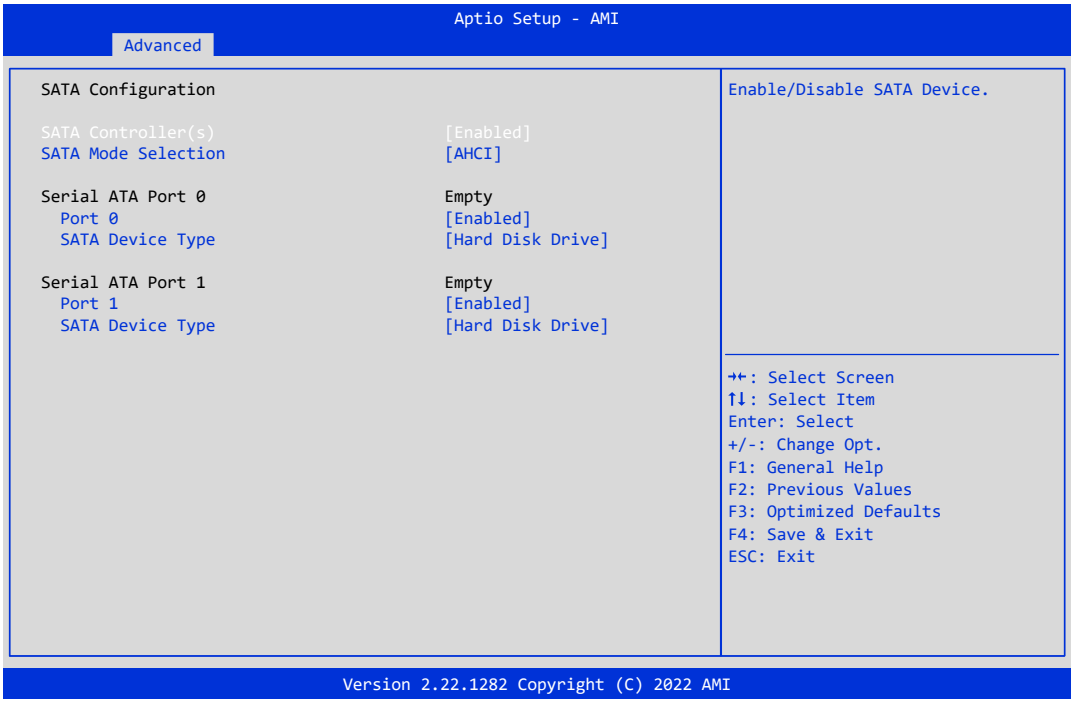

Figure 58: Illustration of the SATA Configuration screen

- **SATA Controllers**
  - Enabled or disable the SATA controllers.
- **SATA Mode**
  - Select the SATA Mode used.

Serial ATA Port 0

This is the settings for the onboard M2_1 slot.

- **Serial Port 0**
  - Provides information if the port is occupied or not.
- **Port 0**
  - Enable or disable the mSATA drive.
- **SATA Device Type**
  - Select the type of storage installed.

Serial ATA Port 1

This is the settings for the onboard SATA1 connector.

- **Serial Port 1**
  - Provides information if the port is occupied or not.
- **Port 1**
  - Enable or disable the onboard SATA storage port.
- **SATA Device Type**
  - Select the type of storage installed.

6.7.2.2 HD Audio Configuration

This screen shows the HD Audio Configuration and allows for the HD Audio to be enabled or disabled.

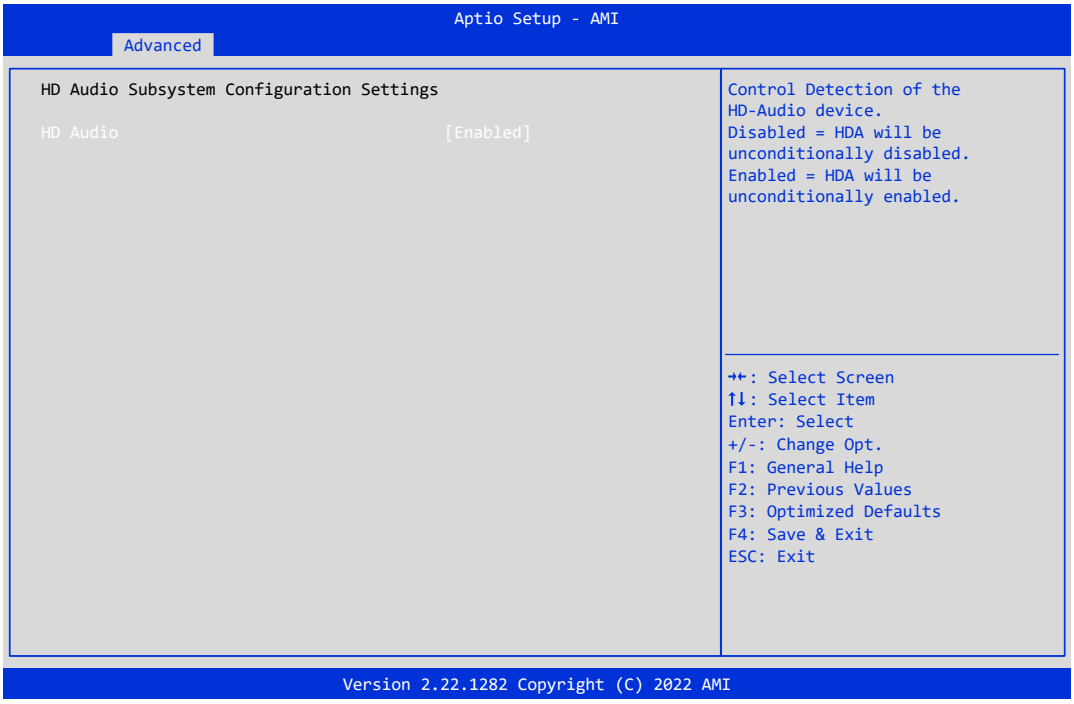

Figure 59: Illustration of the HD Audio Configuration screen

6.8 Security Settings

The Security Settings screen provides a way to restrict access to the BIOS or even the entire system.

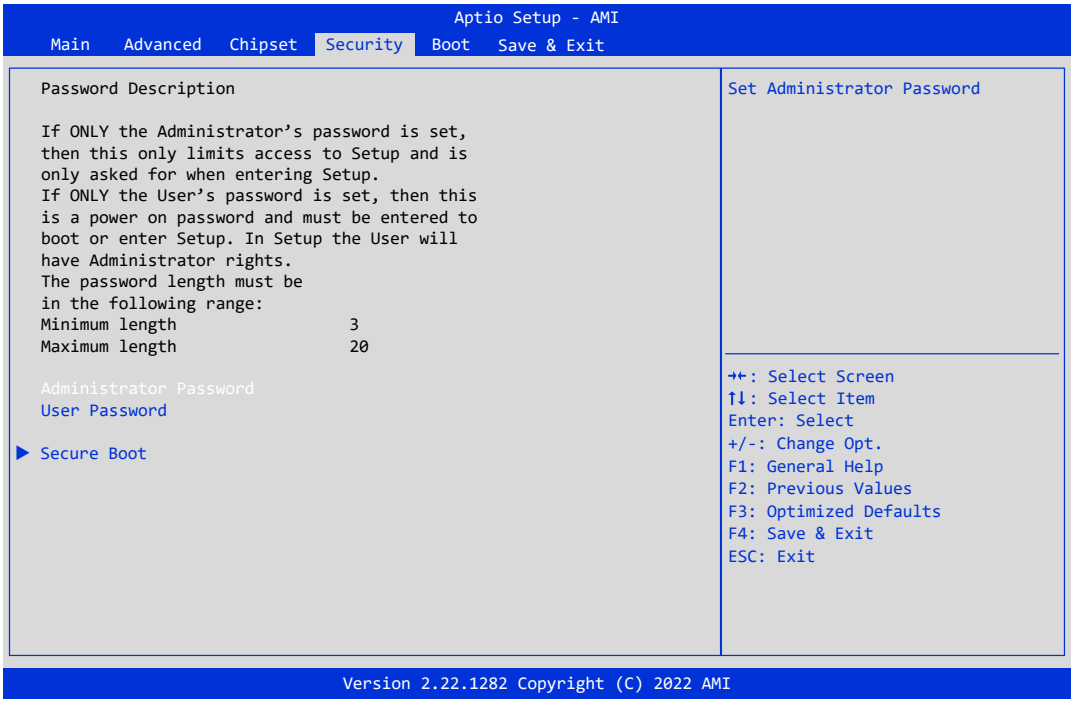

Figure 60: Illustration of the Security Settings screen

- **Administrator Password/User Password**
  - This option is for setting a password for accessing the BIOS setup utility. When a password has been set, a password prompt will be displayed whenever the BIOS setup utility is launched. This prevents an unauthorized person from changing any part of the system configuration.
  - When a supervisor password is set, the Password Check option will be unlocked.
- **Secure Boot**
  - Allows for user to configure and enable/disable the secure boot feature.

6.9 Boot Settings

The Boot Settings screen provides options for the Boot Configuration and Boot Option Priorities.

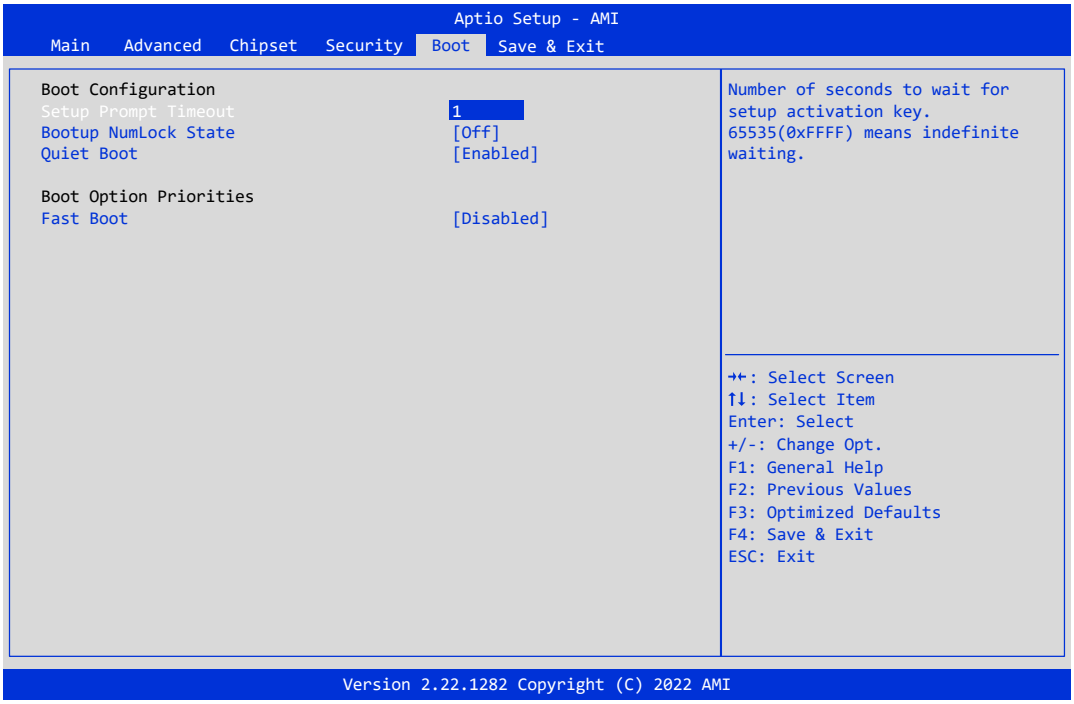

Figure 61: Illustration of the Boot Settings screen

Boot Configuration

Boot Settings Configuration has several features that can be run during the system boot sequence.

- **Setup Prompt Timeout**
  - Number of seconds to wait for the setup activation key. 65535(0xFFFF) means indefinite waiting.
- **Bootup NumLock State**
  - Select the keyboard NumLock state between On and Off.
- **Quiet Boot**
  - Enables or disables the Quiet Boot option.

Boot Option Priorities

Boot Option Priorities allows the system to enable/disable the Fast Boot setting.

- **Fast Boot**
  - Enables or disables boot with initialization of a minimal set of devices required to launch in the active boot option. (Has no effect for the BBS (BIOS Boot Specifications) boot options.)

6.10 Save & Exit

The Save & Exit Configuration screen has the following features:

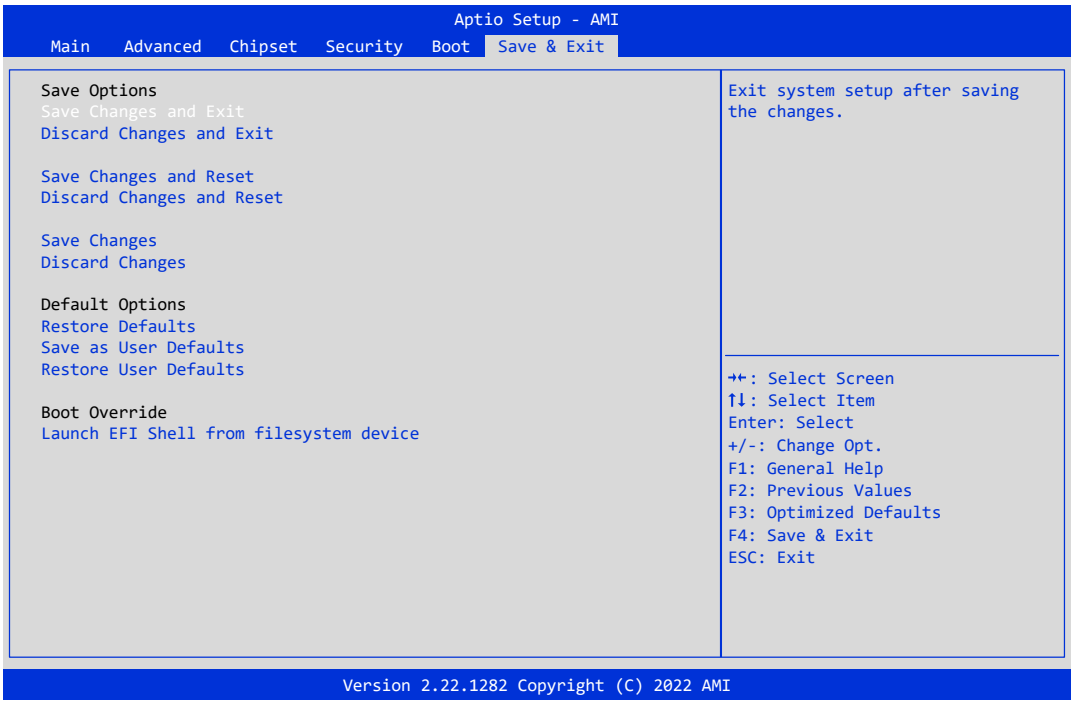

Figure 62: Illustration of the Save & Exit screen

Save Options

- **Save Changes and Exit**
  - Save all changes to the BIOS and exit the BIOS Setup Utility. The “F4” hotkey can also be used to trigger this command.
- **Discard Changes and Exit**
  - Exit the BIOS Setup Utility without saving any changes. The “Esc” hotkey can also be used to trigger this command.
- **Save Changes and Reset**
  - Save all changes to the BIOS and reboot the system. The new system configuration parameters will take effect.
- **Discard Changes and Reset**
  - This command reverts all changes to the settings that were in place when the BIOS Setup Utility was launched.
  - The “F2” hotkey can also be used to trigger this command.
- **Save Changes**
  - Save Changes done so far to any of the setup options.
- **Discard Changes**
  - This command reverts all changes to the settings that were in place when the BIOS Setup Utility was launched.

Default Options

- **Restore Defaults**
  - Restore/Load Default values for all the setup options.
- **Save as User Defaults**
  - Save the changes done so far as User Defaults.
- **Restore User Defaults**
  - Restore the User Defaults to all the setup options.

Boot Override

- **Launch EFI Shell from File System Device**
  - Attempts to launch the EFI Shell application (Shellx64.efi) from one of the available file system devices.

7. Software and Technical Support

7.1 Microsoft and Linux Support

The VIA EPIA-M930 is compatible with Microsoft Windows and Linux operating systems.

7.1.1 7.1.1. Driver Installation

Microsoft Driver Support

The latest windows drivers can be downloaded from the VIA website at www.viatech.com.

Linux Driver Support

Linux drivers are provided through various methods including:

- Drivers provided by VIA (binary only). An ARCM or NDA/BSLA may be asked in order to get the drivers, please contact our sales representative to submit a request.
- Using a driver built into a distribution package
- Installing a third party driver (such as the ALSA driver from the Advanced Linux Sound Architecture project for integrated audio)

7.2 Technical Support and Assistance

- For drivers, utilities downloads, latest documentation and information about the VIA EPIA-M930, please visit our website at http://www.viatech.com/en/boards/mini-itx/epia-m930
- For technical support and additional assistance, always contact your local sales representative or board distributor, or go to https://www.viatech.com/en/support/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 VIA EMIO wireless module into the VIA EPIA-M930. It is recommended to use a grounded wrist strap before handling computer components.

Electrostatic discharge (ESD) can damage some components.

A.1 Installing the VIA EMIO-8530 Wi-Fi & Bluetooth M.2 Module Kit

Step 1

Align the notch on the VIA EMIO-8530 module with the counterpart on the M2_E_2230_1 slot. Then insert the module at a 30° angle. Align the mounting hole on the VIA EMIO-8530 module with the mounting hole-on the standoff, and then secure the VIA EMIO-8530 module in place with one of the screws included in the M.2 screw pack.

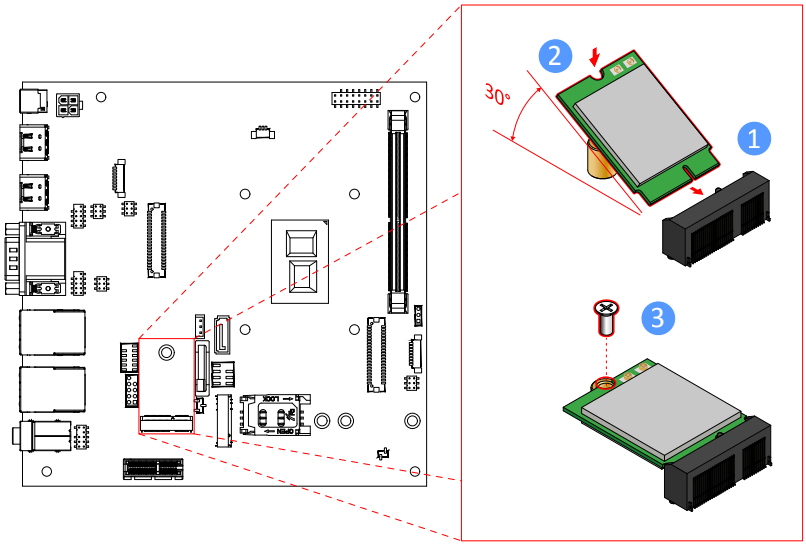

Figure 63: Installing and securing VIA EMIO-8530 module

Step 2

To assemble the Wi-Fi antennas, place the washers over the threaded ends of the antenna cables, add the washers, fasten them with the nuts, and install the external antennas. Connect the other ends of the Wi-Fi antenna cables to the micro-RF connectors (I-PEX), labeled “1” and “2” on the VIA EMIO- 8530 module.

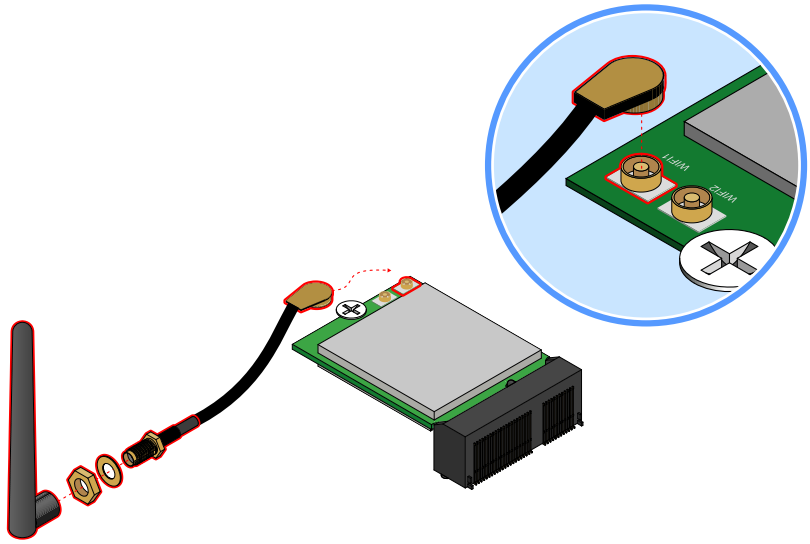

Figure 64: Installing the antennas and connecting the USB Wi-Fi cables (VIA EMIO-8530)

A.2 Inserting the SIM Card

Step 1

Firmly push back the SIM card slot to unlock the opening.

Step 2

Pull up the slot and place the SIM card inside. Close the SIM card slot and lock it by sliding it back.

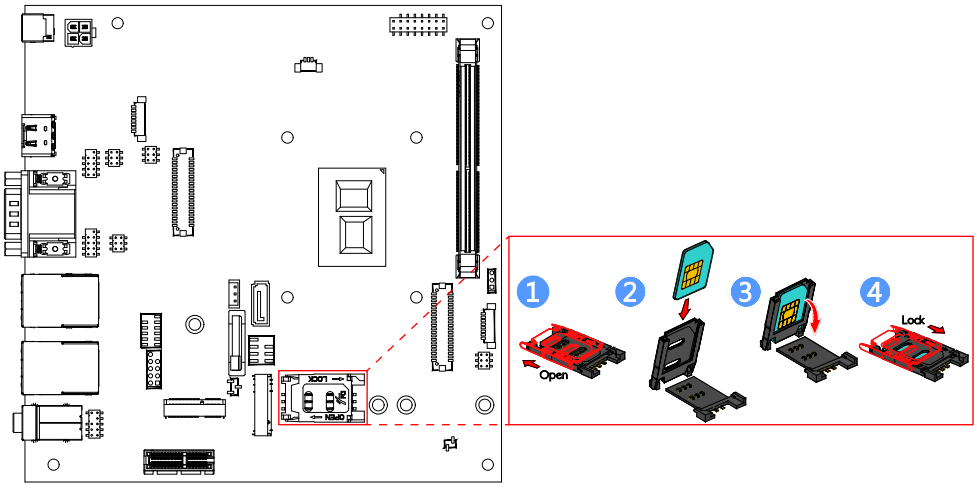

Figure 65: Inserting the SIM card

A.3 Installing the VIA EMIO-8570 4G LTE & GPS M.2 Module Kit

Step 1

Insert the standoff included in M.2 screw pack into the hole closest to the M.2 slot. Align the notch on the VIA EMIO-8570 module with the counterpart on the M2_B_2280_1 slot. Then insert the module at a 30° angle. Align the mounting hole on the VIA EMIO-8570 module with the mounting hole-on the standoff, and then secure the VIA EMIO-8570 module in place with one of the screws included in the M.2 screw pack.

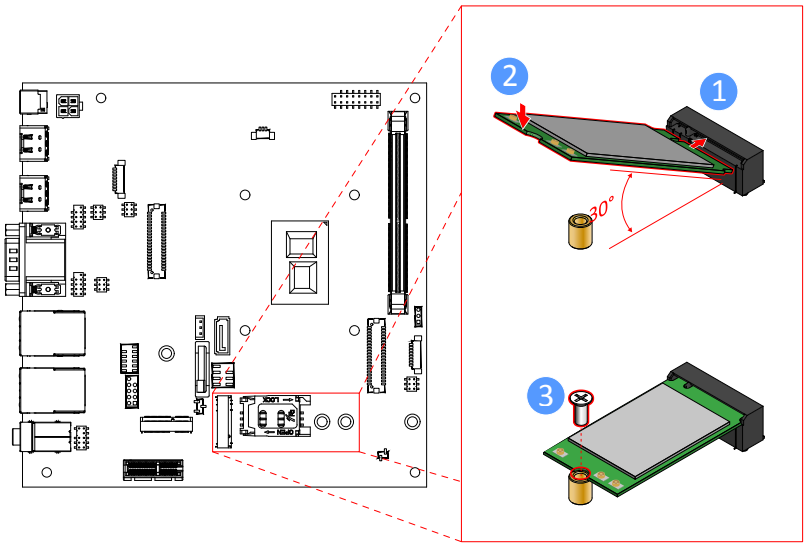

Figure 66: Installing VIA EMIO-8570 module

Step 2

To assemble the 4G Main antenna, place the washer over the threaded end of the antenna cable, add the washer, fasten it with the nut, and install the external antenna. Connect the other end of the 4G Main antenna cable to the micro-RF connector (I-PEX), labeled “M” on the VIA EMIO-8570 module.

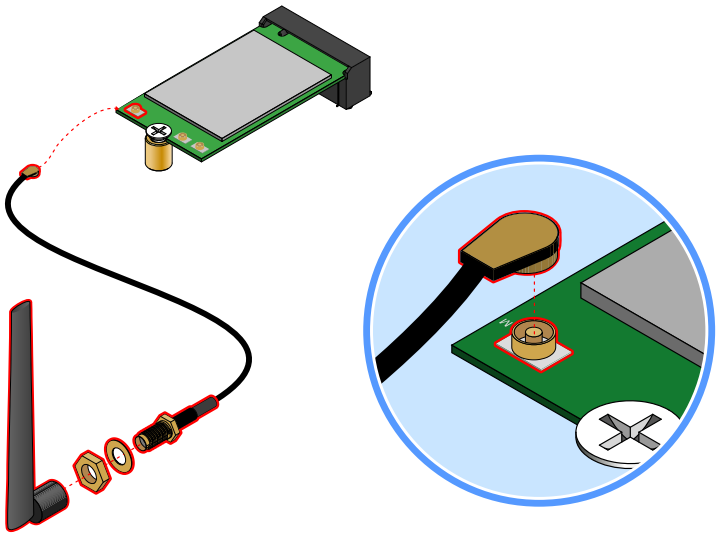

Figure 67: Installing the antennas and connecting the 4G Main antenna (VIA EMIO-8570)

Note:
If the second LTE antenna is required, follow the steps above and connect the DIV antenna cable to the micro-RF connector (I-PEX), labeled “D” on the VIA EMIO-8570 module.

Step 3

To assemble the GPS Main antenna, place the washer over the threaded end of the antenna cable, add the washer, fasten it with the nut, and install the external antenna. Connect the other end of the GPS antenna cable to the micro-RF connector (I-PEX), labeled “G” on the VIA EMIO-8570 module.

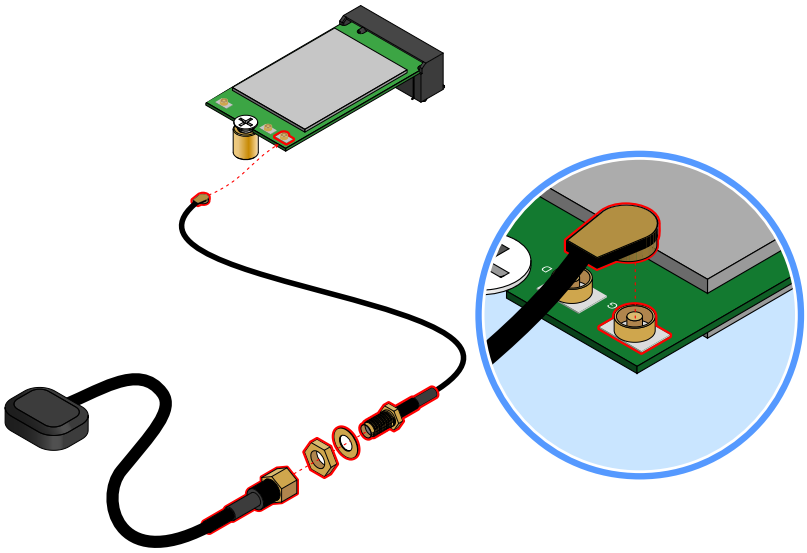

Figure 68: Installing the antennas and connecting the GPS antenna (VIA EMIO-8570)

A.4 Installing the M.2 SATA SSD

Step 1

Insert the standoff included in M.2 screw pack into the appropriate hole on the VIA EPIA-M930 board that matches the length of the M.2 SATA SSD being installed. Align the notch on the M.2 SATA SSD with the counterpart on the M2_B_2280_1 slot. Then insert the drive at a 30° angle. Align the mounting hole on the M.2 SATA SSD with the mounting hole on the standoff, and then secure the drive in place with one of the screws included in the M.2 screw pack.

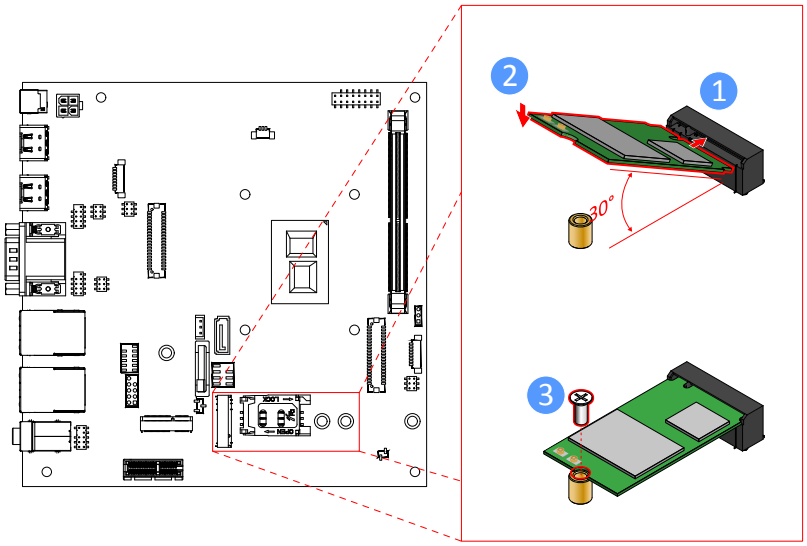

Figure 69: Installing the SATA M.2 SSD module

Appendix B Power Consumption Report

Power consumption tests were performed on the VIA EPIA-M930. The following tables represent the breakdown of the voltage, amp and wattage values while running common system applications.

B.1 VIA EPIA-M930 Rev. 1

The tests were performed based on the following additional components:

- CPU: Intel Celeron Processor J6413 4Cores @ 1.8GHz
- Memory: Innodisk DDR4 3200MHz 8GB
- HDD: SATAII 500GB TOSHIBA MQ01ABF050
- System OS: Windows 10 64-bit
- AC adaptor: DC Output 12V/8.5A 102W Max.
- Display: HDMI monitor + x2 LVDS Panel

B.1.1 IDLE Status

Test Condition	Volts	Amperes	Watts
Maximum	11.95	3.144	37.571
Average	11.95	2.744	32.791
Minimum	11.95	2.68	32.026

B.1.2 S3 Status

Test Condition	Volts	Amperes	Watts
Maximum	12.32	0.048	0.591
Average	12.32	0.044	0.542
Minimum	12.32	0.04	0.493

B.1.3 Functional Test: Run BurnIn Test V7.1 Pro

Test Condition	Volts	Amperes	Watts
Maximum	11.92	3.528	42.054
Average	11.92	2.924	34.854
Minimum	11.92	2.768	32.995

Appendix C Mating Connector Vendors List

The following table provides the mating connector vendor list for the VIA EPIA-M930.

Connectors	Part No.	Mating Vendor & P/N	
Front panel pin header (F_PANEL)	99G30-05354I	Neltron 2214S-XXG-85	SAMTEC SSW Series
		Neltron 2214R-XXG-85	
Front audio pin header (F_AUDIO1)	99G30-05458I	Neltron 2207S-XXG	N.A.
		Neltron 2207R-XXG	
		Neltron 2207SM-XXG- 45	
System fan connector (SYSFAN)	99H30-172492	Molex 51021-0300	N.A.
Backlight control connectors (INVERTER1 & INVERTER2)	99H30-172232	ACES 85206-0800	MOLEX 51021-**00
LVDS panel connectors (LVDS1 & LVDS2)	99G30-170152	ACES 44002-XX00	DF13-**DS-1.258C
USB 2.0 pin header (USB_1 & USB_2)	99G30-05072K	Neltron 2214S-XXG-85	SAMTEC SSW Series
		Neltron 2214R-XXG-85	

Table 28: VIA EPIA-M930 mating connector vendors list

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