USER MANUAL

VIA EPIA-M910

Highly-integrated Mini-ITX board with rich feature set and multiple expansion options

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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.

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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

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 properly 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

- ☐ 1 x VIA EPIA-M910 board
- ☐ 1 x SATA cable
- ☐ 1 x SATA power cable (for DC-in SKU only)
- ☐ 1 x DC power cable (for DC-in SKU only)
- ☐ 1 x I/O bracket

Ordering Information

Part Number	Description
EPIA-M910-12Q	Mini-ITX Board with 1.2GHz VIA QuadCore E-Series CPU with HDMI, VGA, 2 x LVDS, 8 x USB 2.0, 8 x COM, 2 x Gigabit Ethernet, 2 x SATA, PCI slot, PCIe x1 slot, ATX power connector
EPIA-M910-16	Mini-ITX Board with 1.6GHz VIA Nano® X2 E-Series CPU with HDMI, VGA, 2 x LVDS, 8 x USB 2.0, 8 x COM, 2 x Gigabit Ethernet, 2 x SATA, PCI slot, PCIe x1 slot, ATX power connector
EPIA-M910-16P	Mini-ITX Board with 1.6GHz VIA Nano® X2 E-Series CPU with HDMI, VGA, 2 x LVDS, 8 x USB 2.0, 8 x COM, 2 x Gigabit Ethernet, 2 x SATA, PCI slot, PCIe x1, 12V DC-in
EPIA-M910-10E	Mini-ITX Board with 1.0GHz VIA Eden® X2 CPU with HDMI, VGA, 2 x LVDS, 8 x USB 2.0, 8 x COM, 2 x Gigabit Ethernet, 2 x SATA, PCI slot, PCIe x1 slot, ATX power connector
EPIA-M910-10PE	Mini-ITX Board with 1.0GHz VIA Eden® X2 CPU, with HDMI, VGA, 2 x LVDS, 8 x COM, 8 x USB 2.0, 2 x Gigabit Ethernet, 2 x SATA, PCI slot, PCIe x1 slot, 12V DC-in

Optional Accessories

Wireless Modules

Part Number	Description
EMIO-1533-00A2	VNT9271 IEEE 802.11b/g/n USB Wi-Fi module with assembly kit and antenna
EMIO-5531-00A1	VAB-820-W IEEE 802.11b/g/n USB Wi-Fi & Bluetooth module with assembly kit and antenna

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1. Product Overview

The VIA EPIA-M910 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-M910 is based on the VIA VX900 MSP (Media System Processor) chipset that features the VIA C-9 HD DX9 with 3D/2D graphics and video accelerators for rich digital media performance.

The VIA EPIA-M910 includes a powerful, secure, and efficient VIA Nano® X2 E-Series/Eden® X2/QuadCore E-series processor. The VIA Nano® X2 E-Series/Eden® X2 processor includes the VIA Padlock Security Engine, VIA CoolStream™ Architecture, VIA StepAhead™ Technology Suite, and VIA TwinTurbo™ technology.

The VIA EPIA-M910 has two DDR3 1066 DIMM slots that support up to 8GB memory size. The VIA EPIA-M910 provides support for high fidelity audio with its included VIA VT2021 High Definition Audio Codec. In addition it supports two SATA 3Gbps storage devices.

The VIA EPIA-M910 is compatible with a full range of Mini-ITX chassis as well as FlexATX and MicroATX enclosures and power supplies. The VIA EPIA-M910 is fully compatible with Microsoft® and Linux operating systems.

1.1. Key Features and Benefits

1.1.1. VIA Nano® X2 E-Series/Eden® X2/QuadCore E-Series CPU

The VIA Nano® X2 E-Series/Eden® X2 is a dual-core processor and 64-bit superscalar x86 processor based on a 40 nanometer process technology. Packed into an ultra-compact NanoBGA2 package (measuring 21mm x 21mm), it delivers an energy-efficient yet powerful performance with cool and quiet operation.

VIA Nano® X2 E-Series processors are line-up aimed at superb multimedia performance and the VIA Eden® X2 processors are designed for fanless implementation. Both are providing an excellent performance on multitasking applications that makes it perfect for embedded system applications such as industrial PCs, test machines, measuring equipment, digital signage, medical PCs, monitoring systems, gaming machines, in-vehicle entertainment, etc.

VIA QuadCore E-Series processors combine four 64-bit "Isaiah" cores on two dies, offering enhanced multi-tasking and superb multimedia performance on a low power budget. Featuring super scalar, out-of-order architecture, VIA QuadCore E-Series is manufactured using advanced 40 nanometer CMOS technology. The distributed performance of the VIA QuadCore E-Series provides a highly compatible, high-performance, and low-power consumption solution for any computing market.

1.1.2. VIA VX900 MSP Chipset

The VIA VX900 media system processor is designed to enable high quality digital video streaming and DVD playback. The VIA VX900 features VIA C-9 HD DX9 with 3D/2D graphics and video accelerators, DDR3 1066MHz support, motion compensation and dual display support to ensure a rich overall entertainment experience.

Note:

For Windows 7 users only:
If encounter the issue such as the operating system recognizing the VIA Dual-Core CPU as two processors instead of one processor with two cores. Download and install the hotfix released by Microsoft to address this issue. The downloadable hotfix is available at http://support.microsoft.com/kb/2502664.

1.1.3. Modular Expansion Options

The VIA EPIA-M910 ensures long-term usability with its support for industry standard expansion options. Its support for legacy PCI expansion cards helps to smooth and reduce the costs of transitioning to newer expansion technologies. The VIA EPIA-M910 enable companies to slowly roll out upgrades as necessary instead of having to replace everything all at once. This ensures that companies using the VIA EPIA-M910 obtain the maximum benefits from its past investments in PCI expansion cards.

The VIA EPIA-M910 also includes a 1-Lane PCI Express 2.0 expansion slot that provides protection against obsolescence. Companies can feel free to design low-profile systems based on the versatile VIA EPIA-M910.

1.2. Product Specifications

- **Processor**
  - 1.6GHz VIA Nano® X2 E-Series (with fan)
  - 1.0GHz VIA Eden® X2 (fanless)
  - 1.2GHz VIA QuadCore E-Series (with fan)

- **Chipset**
  - VIA VX900 Media System Processor

- **System Memory**
  - 2 x DDR3 1066 DIMM
  - Supports up to 8GB memory size

Note:
The real memory size may show less than 8GB due to some capacity are used for BIOS or other functions.

- **Graphics**
  - Integrated VIA C-9 HD DX9 3D/2D graphics with MPEG-2, WMV9, VC-1 and H.264 video decoding acceleration

- **Onboard Peripherals**
  - **Serial ATA**
    - 2 x SATA connectors
    - 2 x SATA 3.5" HDD Auxiliary Power (for DC-in SKU only)
  - **Onboard LAN**
    - 2 x VIA VT6130 PCIe Gigabit Ethernet Controllers
  - **Onboard Audio**
    - VIA VT2021 High Definition Audio Codec
  - **Onboard Super I/O**
    - Fintek 81865F-I + F81801

- **Onboard I/O Connectors**
  - 2 x USB 2.0 pin headers for 4 ports
  - 2 x SATA connectors
  - 2 x SATA Power connectors (DC-in SKU)
  - 2 x SATA DOM Power selectors
  - 1 x Dual-channel (or 1 x single-channel) 18/24-bit LVDS panel connector (VT1636)
  - 1 x Single-channel 18/24-bit LVDS panel connector (VX900)
  - 1 x Front audio pin header
  - 1 x PS/2 keyboard/mouse pin header
  - 6 x COM pin headers (powered with selectable 5V/12V)
  - 1 x LPC pin header
  - 1 x SMBus pin header
  - 1 x S/PDIF-out connector
  - 2 x Digital I/O pin headers (8 GPI + 8 GPO)
  - 1 x Front panel pin header
  - 2 x Smart Fan pin headers for CPU and System
  - 1 x ATX or DC-in power connector
  - 1 x PCI slot
  - 1 x PCIe x1 slot

- **Back Panel I/O**
  - 2 x COM ports (powered with selectable 5V/12V)
  - 1 x VGA port
  - 1 x HDMI® port
  - 2 x Gigabit Ethernet ports
  - 4 x USB 2.0 ports
  - 3 x Audio jacks: Line-in, Line-out and Mic-in
  - 2 x PS/2 keyboard/mouse ports

- **I/O Bracket**
  - Standard

- **BIOS**
  - AMI BIOS
  - 8Mbit SPI flash memory

- **Operating System**
  - Windows 7
  - Windows Embedded Standard 7
  - Windows Embedded POSReady 7
  - Windows Embedded CE
  - Linux

- **Power**
  - ATX Power or 12V DC-in

- **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% ~ 95% (relative humidity; non-condensing)

- **Form Factor**
  - Mini-ITX
  - 17cm x 17cm (6.7"x 6.7")

- **Compliance**
  - CE
  - FCC

Note:

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

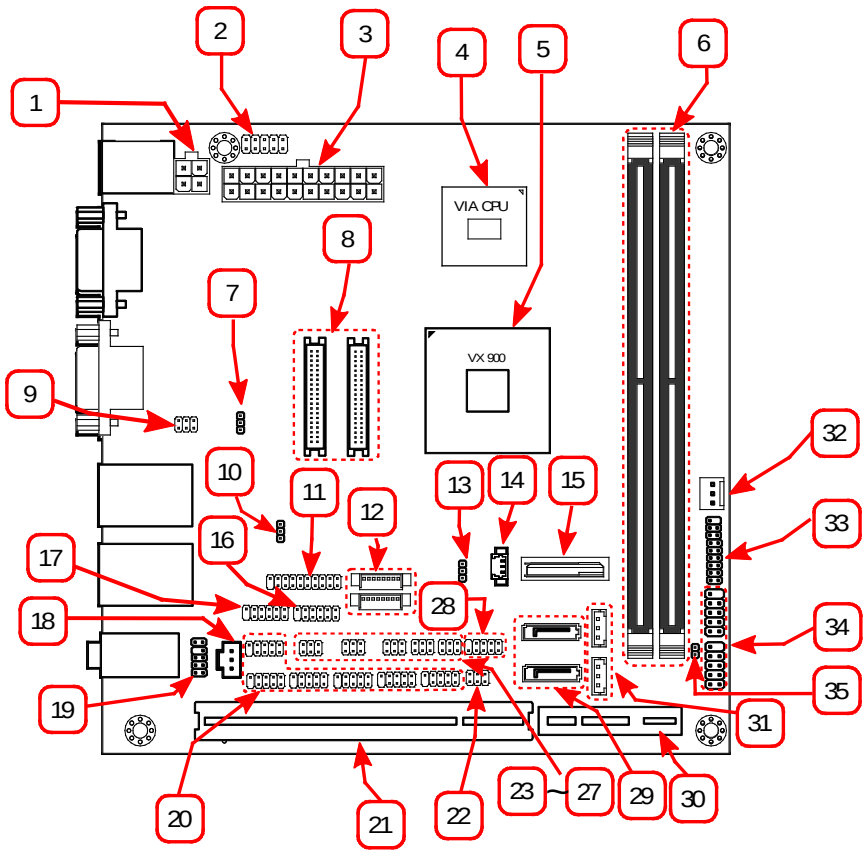


Figure 1: Layout diagram of the VIA EPIA-M910 (top view)

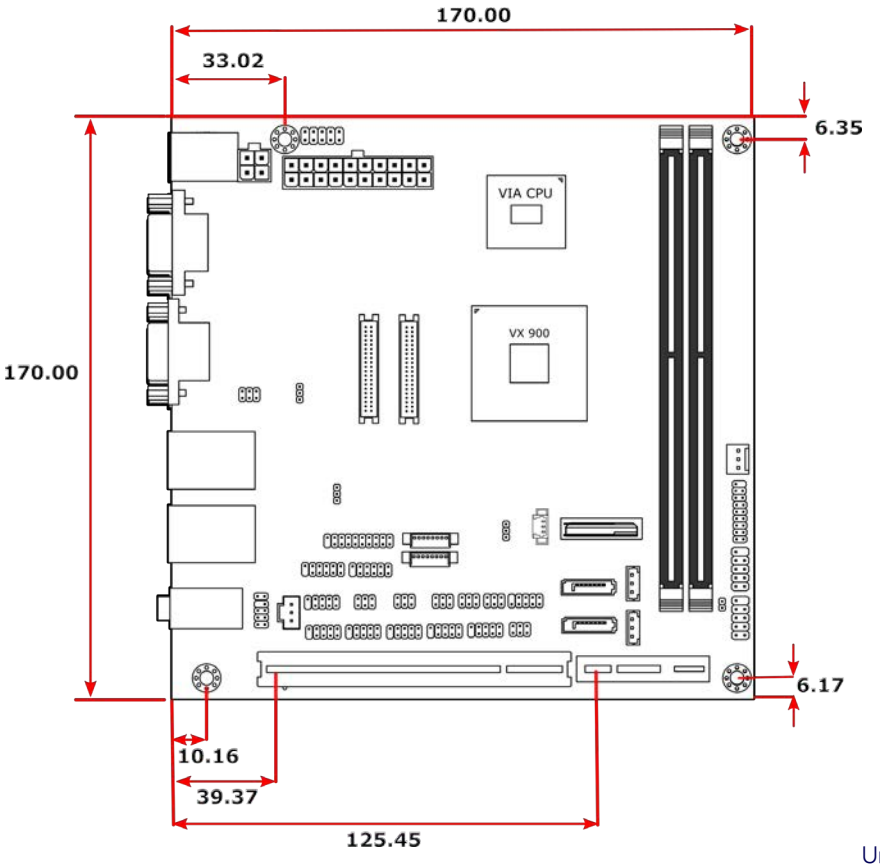
Item	Description
1	DC-in power connector (DC12V1) * for DC-in SKU only
2	PS/2 keyboard and mouse pin header (KBMS)
3	ATX power supply connector (ATX_POWER1)
4	VIA CPU
5	VIA VX900 chipset
6	DDR3 1066 DIMM (DIMM1, DIMM2)
7	AT/ATX mode jumper (J6)
8	LVDS panel connectors (LVDS1, LVDS2)
9	COM voltage jumper for external COM1 and COM2 (J10)
10	SMBus pin header (SMBUS1)
11	LPC pin header (LPC1)
12	LVDS inverter connectors (INVERTER1, INVERTER2)
13	Clear CMOS jumper (CLEAR_CMOS)
14	CPU fan connector (CPUFAN)
15	CMOS battery slot (BAT1)
16	Digital I/O pin headers (DIO2)
17	Digital I/O pin headers (DIO1)
18	S/PDIF-out connector (SPDIF1)
19	Front audio pin header (F_AUDIO1)
20	COM pin headers (COM3, COM4, COM5, COM6, COM7, COM8)
21	PCI slot (PCI_SLOT)

22	SATA DOM power jumper (J1)
23	COM voltage jumper for COM5 and COM6 (J14)
24	COM voltage jumper for COM7 and COM8 (J15)
25	COM voltage jumper for COM3 and COM4 (J13)
26	LVDS (LVDS2) power jumper (J16)
27	LVDS (LVDS1) power jumper (J12)
28	SPI pin header
29	SATA connectors (SATA1, SATA2)
30	PCI Express x1 slot (J2)
31	SATA power connectors (S_PWR1 and S_PWR2) * for DC-in SKU only
32	System fan connector (SYSFAN)
33	Front panel pin header (F_PANEL)
34	USB 2.0 pin headers (USB_1 and USB_2)
35	JATX_on mode jumper (JATX_ON)

Table 1: Layout diagram description table of the VIA EPIA-M910

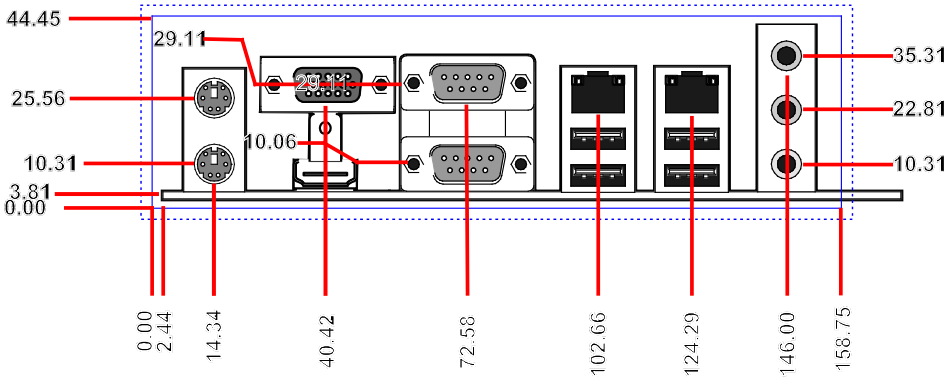
Note:
For the purposes of simplifying the illustration, the connectors for both DC-in and ATX Power versions have been included in the diagram. However, actual products will only have one or the other.

1.4. Product Dimensions



Unit: mm

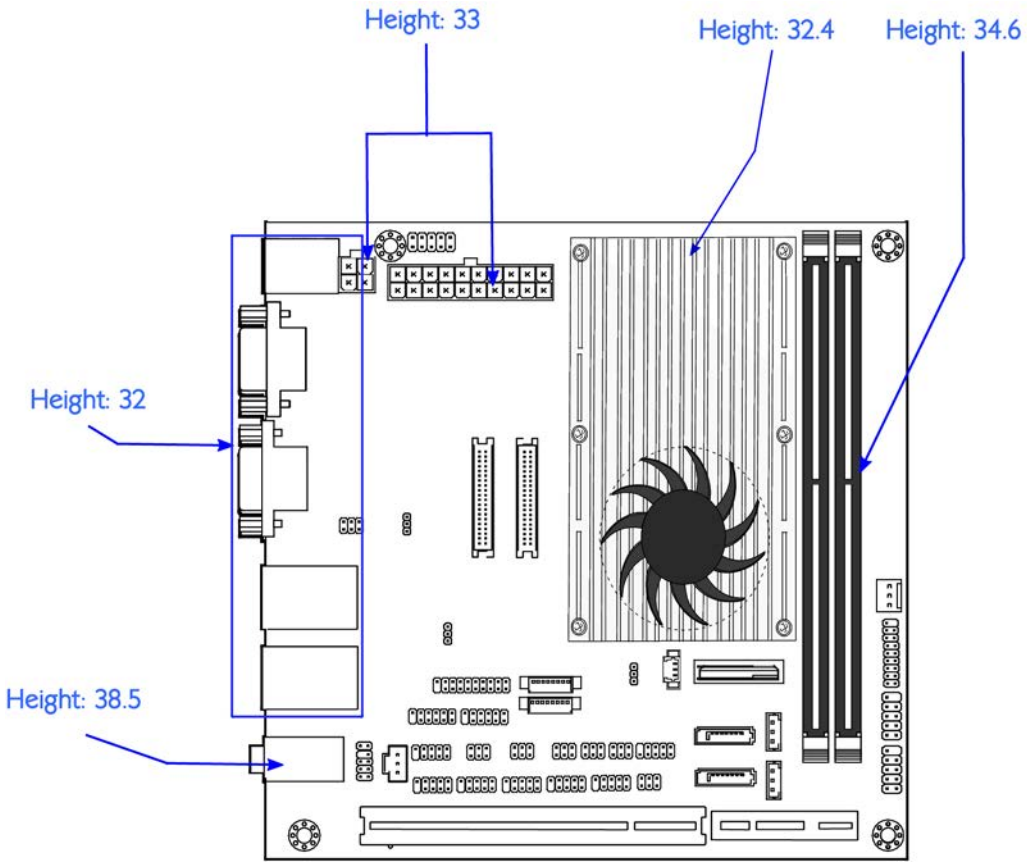
Figure 2: Mounting holes and dimensions of the VIA EPIA-M910



Unit: mm

Figure 3: External I/O port dimensions of the VIA EPIA-M910

1.5. Height Distribution



Unit:mm

Figure 4: Height distribution

Note:

Diagram (Figure 4) shows the height distribution of VIA EPIA-M910 (for EPIA-M910-16, EPIA-M910-16P and EPIA-M910-12Q)

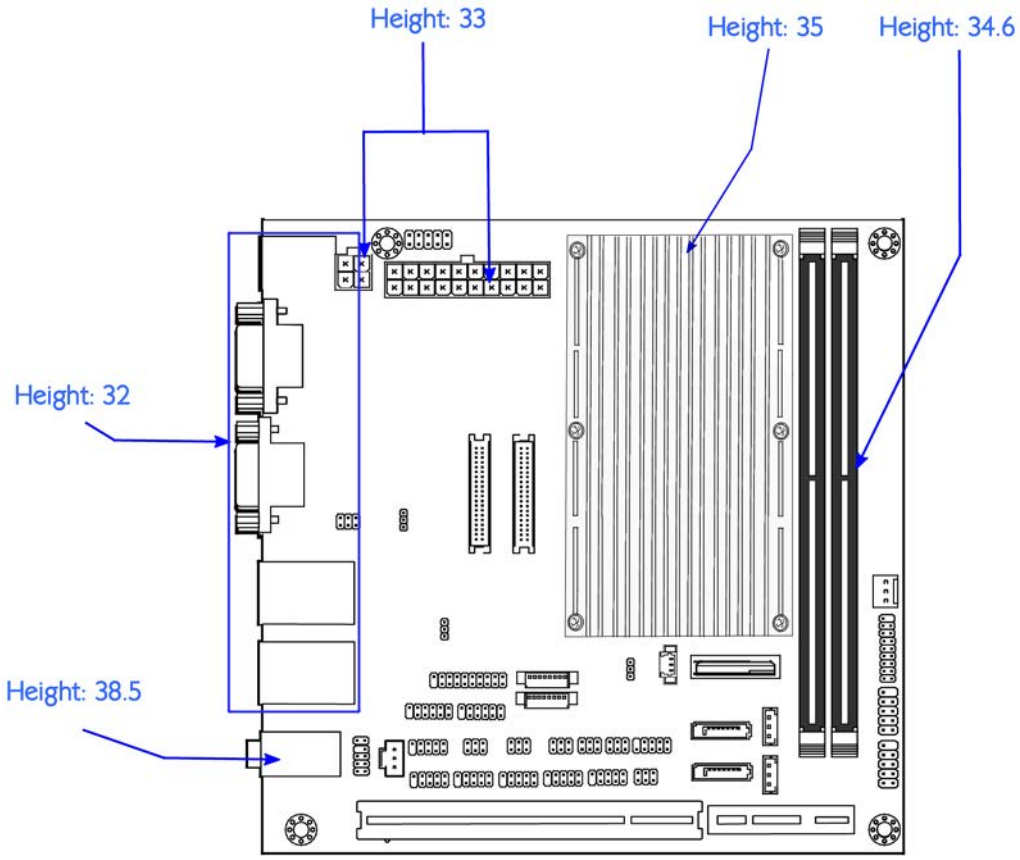


Figure 5: Height distribution of the VIA EPIA-M910 (for EPIA-M910-10E & EPIA-M910-10PE)

Note:
All other heights are under 21.00mm.

2. I/O Interface

The VIA EPIA-M910 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

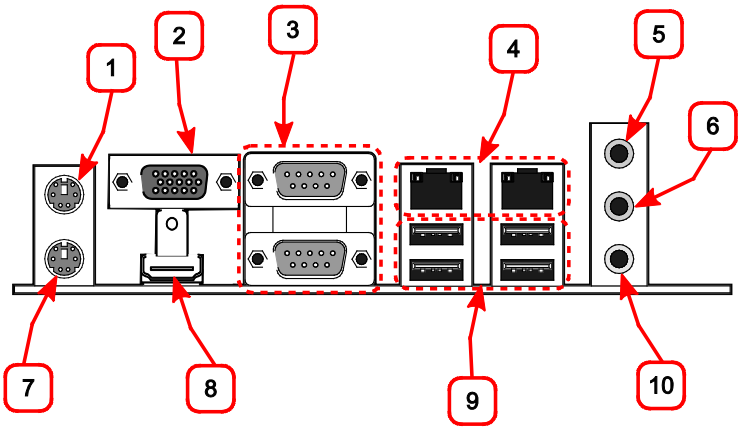


Figure 6: Back panel I/O ports

Item	Description
1	PS/2 mouse port
2	VGA port
3	COM ports
4	Gigabit Ethernet ports
5	Line-in 3.5mm TRS jack
6	Line-out 3.5mm TRS jack
7	PS/2 keyboard port
8	HDMI port
9	USB 2.0 ports
10	Mic-in 3.5mm TRS jack

Table 2: Layout diagram description table of the back panel I/O ports

2.1.1. PS/2 Port

The VIA EPIA-M910 has two integrated PS/2 ports for keyboard and mouse. Each port is using the 6-pin Mini-DIN connector. The color purple is used for a PS/2 keyboard while the color green is used for a PS/2 mouse. The pinouts of the PS/2 port are shown below.

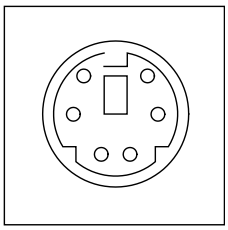


Figure 7: PS/2 port diagram

Pin	Signal
1	Data
2	NC
3	GND
4	+5V
5	Clock
6	NC

Table 3: PS/2 port pinouts

2.1.2. VGA Port

The integrated 15-pin VGA port uses a female DE-15 connector. The VGA port is for connecting to analog displays. The pinouts of the VGA port are shown below.

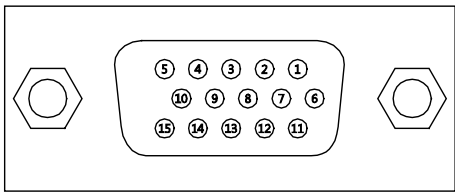


Figure 8: VGA port diagram

Pin	Signal	Pin	Signal	Pin	Signal
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	SDA
3	BLUE	8	GND	13	HSync
4	NC	9	+5V	14	VSync
5	GND	10	NC	15	SCL

Table 4: VGA port pinouts

2.1.3. COM Port

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

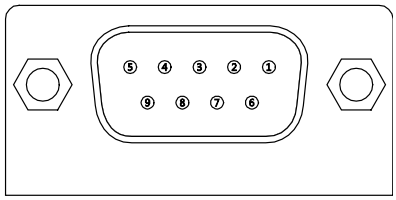


Figure 9: COM port diagram

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

Table 5: COM port pinouts

2.1.4. Gigabit Ethernet Port

The integrated 8-pin Gigabit Ethernet port 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.

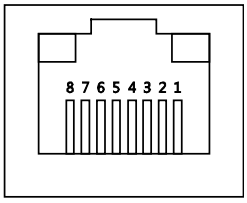


Figure 10: Gigabit Ethernet port diagram

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 6: 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 connector)	Active LED (Right LED on RJ-45 connector)
Link Off	Off	Off
Speed_10Mbit	The LED is always On in either Green or Orange colors	Flash in Yellow color
Speed_100Mbit	The LED is always On in Green color	Flash in Yellow color
Speed_1000Mbit	The LED is always On in Orange color	Flash in Yellow color

Table 7: Gigabit Ethernet LED color definition

2.1.5. 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.

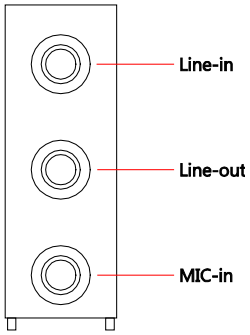


Figure 11: Audio jack receptacle stack diagram

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 8: Audio jack receptacle pinouts

2.1.6. 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.

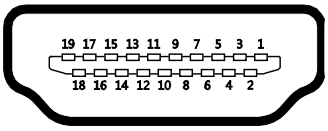


Figure 12: HDMI® port diagram

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 9: HDMI® port pinouts

2.1.7. USB 2.0 Port

The VIA EPIA-M910 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.

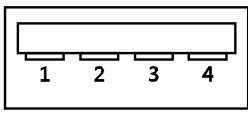


Figure 13: USB 2.0 port diagram

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

Table 10: USB 2.0 port pinouts

2.2. Onboard I/O

2.2.1. ATX Power Connector

The VIA EPIA-M910 has a 20-pin ATX power connector onboard. The ATX power connector is labeled as "ATX_POWER1". The pinouts of the ATX power connector are shown below.

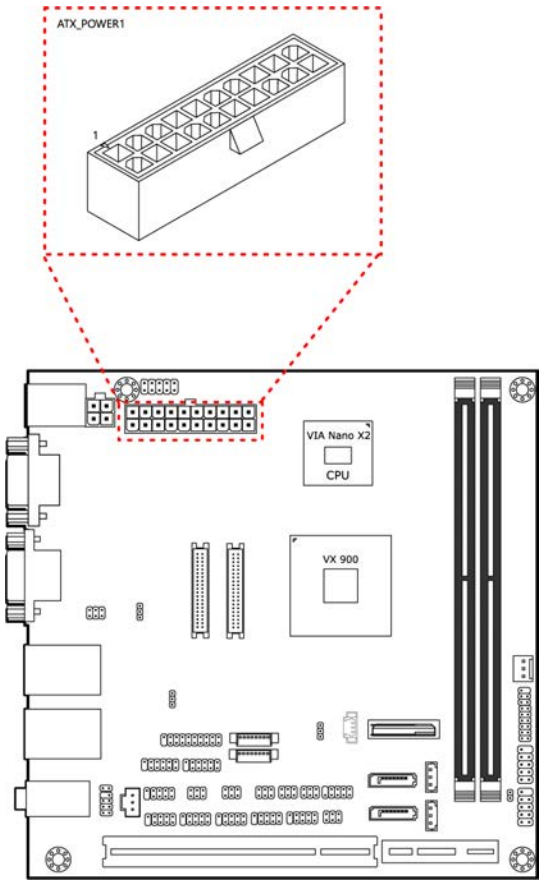


Figure 14: ATX power connector diagram

Pin	Signal	Pin	Signal
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	Power Supply On
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	Power OK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

Table 11: ATX power connector pinouts

2.2.2. LVDS Panel Connectors

The VIA EPIA-M910 has two LVDS panel connectors: LVDS1 and LVDS2. LVDS1 connector is controlled by VIA VX900 chipset while the LVDS2 connector is controlled by VT1636 LVDS transmitter. The pinouts of the LVDS panel connectors are shown below.

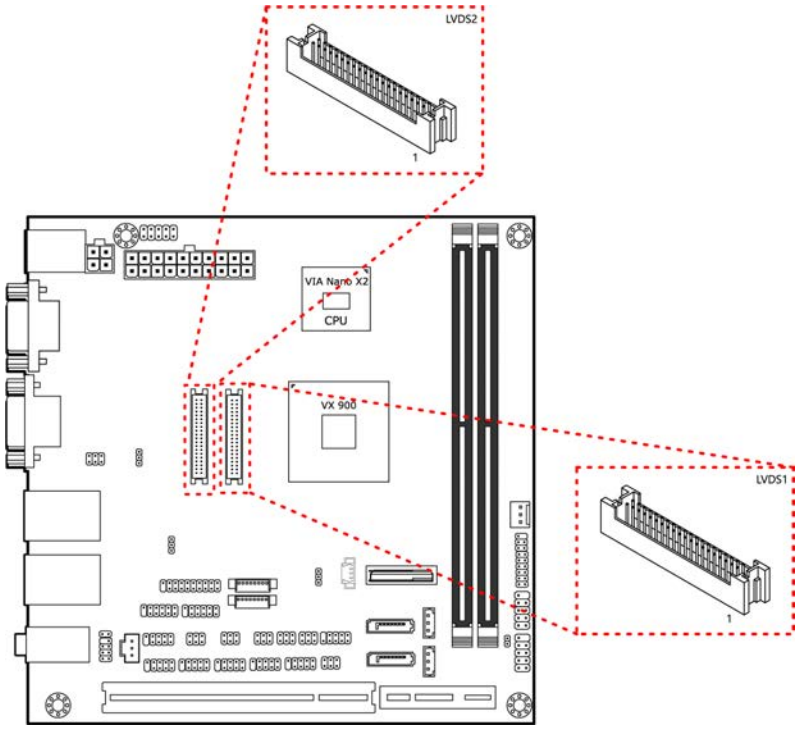


Figure 15: LVDS panel connectors diagram

Pin	Signal	Pin	Signal
M1	GND		
2	PVDD1	1	NC
4	PVDD1	3	NC
6	GND	5	GND
8	GND	7	NC
10	-LD1C0	9	NC
12	+LD1C0	11	GND
14	GND	13	NC
16	-LD1C1	15	NC
18	+LD1C1	17	GND
20	GND	19	NC
22	-LD1C2	21	NC
24	+ LD1C2	23	GND
26	GND	25	NC
28	-LCLK1	27	NC
30	+ LCLK1	29	NC
32	GND	31	GND
34	-LD1C3	33	NC
36	+ LD1C3	35	NC
38	DVP1_SPCLK	37	NC
40	DVP1_SPD	39	NC

Table 12: LVDS1 panel connector pinouts

Pin	Signal	Pin	Signal
M1	GND		
2	PVDD2	1	-A4_L
4	PVDD2	3	A4_L
6	GND	5	GND
8	GND	7	-A5_L
10	-A0_L	9	A5_L
12	A0_L	11	GND
14	GND	13	-A6_L
16	-A1_L	15	A6_L
18	A1_L	17	GND
20	GND	19	-CLK2_L
22	-A2_L	21	CLK2_L
24	A2_L	23	GND
26	GND	25	-A7_L
28	-CLK1_L	27	A7_L
30	CLK1_L	29	NC
32	GND	31	NC
34	-A3_L	33	NC
36	A3_L	35	NC
38	DISPCLKI0	37	NC
40	DISPCLKO0	39	NC

Table 13: LVDS2 panel connector pinouts (dual-channel)

Pin	Signal	Pin	Signal
M1	GND		
2	PVDD2	1	NC
4	PVDD2	3	NC
6	GND	5	NC
8	GND	7	NC
10	-A0_L	9	NC
12	A0_L	11	NC
14	GND	13	NC
16	-A1_L	15	NC
18	A1_L	17	NC
20	GND	19	NC
22	-A2_L	21	NC
24	A2_L	23	NC
26	GND	25	NC
28	-CLK1_L	27	NC
30	CLK1_L	29	NC
32	GND	31	NC
34	-A3_L	33	NC
36	A3_L	35	NC
38	DISPCLKI0	37	NC
40	DISPCLKO0	39	NC

Table 14: LVDS2 panel connector pinouts (single-channel)

Note:
LVDS2 can support one dual-channel LVDS or one single-channel LVDS.

2.2.3. LVDS Inverter Connectors

The VIA EPIA-M910 has two inverters for controlling the LVDS panel backlight and brightness. INVERTER1 corresponds to the LVDS1 panel connector. INVERTER2 corresponds to the LVDS2 panel connector. The pinouts of the LVDS inverter connectors are shown below.

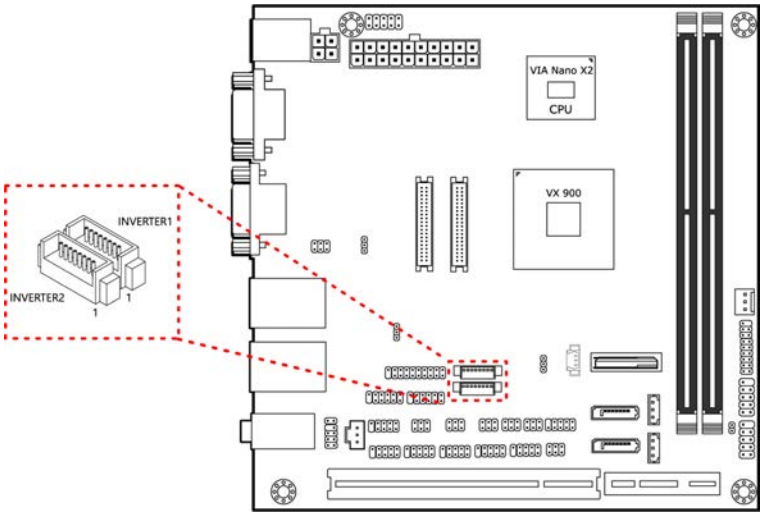


Figure 16: LVDS inverter connectors diagram

INVERTER1	
Pin	Signal
1	INV1_12
2	INV1_12
3	BLON1
4	VX900PWM_CTL
5	BLON1
6	BRIGHTNESS1_CTL
7	GND
8	GND

INVERTER2	
Pin	Signal
1	INV2_12
2	INV2_12
3	BLON2
4	VX900PWM_CTL
5	BLON2
6	BRIGHTNESS2_CTL
7	GND
8	GND

Table 15: LVDS inverter connectors pinouts

2.2.4. Digital I/O Pin Headers

The VIA EPIA-M910 includes two Digital I/O pin headers that supports eight GPO and eight GPI pins. The pinouts of the Digital I/O pin headers are shown below.

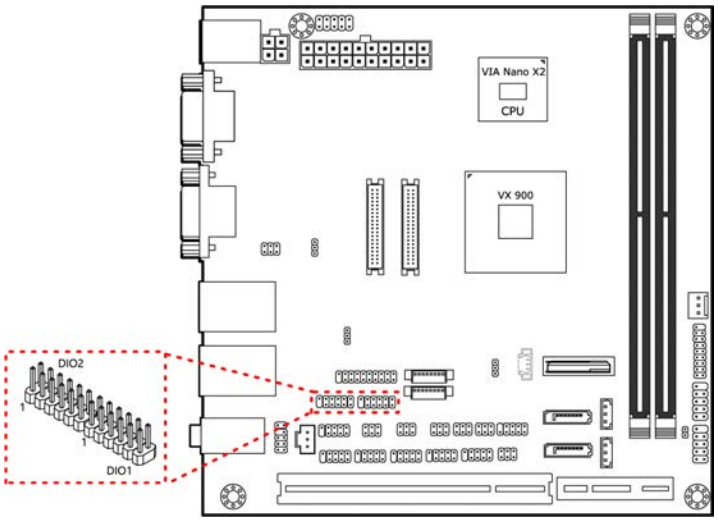


Figure 17: Digital I/O pin headers diagram

DIO 1			
Pin	Signal	Pin	Signal
1	5V_DIO	2	12V_DIO
3	GPO_23	4	GPI_03
5	GPO_22	6	GPI_02
7	GPO_21	8	GPI_01
9	GPO_20	10	GPI_00
11	GND	12	NC

DIO 2			
Pin	Signal	Pin	Signal
1	5V_DIO	2	12V_DIO
3	GPO_27	4	GPI_15
5	GPO_26	6	GPI_11
7	GPO_25	8	GPI_10
9	GPO_24	10	GPI_04
11	GND	12	NC

Table 16: Digital I/O pin headers pinouts

2.2.5. DC-in Power Connector

For the DC version of the VIA EPIA-M910, there is a DC-in power connecter in addition to the DC-in coaxial power connector. This enables two methods for delivering +12V to the VIA EPIA-M910. The pinouts of the DC-in power connector are shown below.

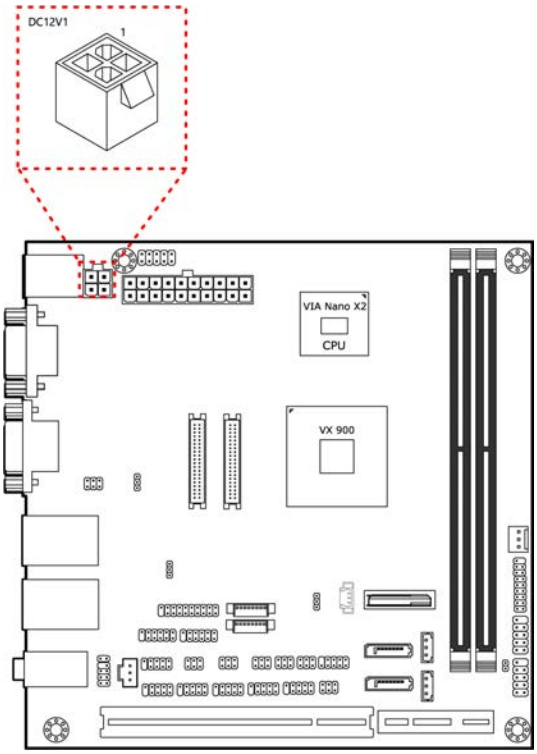


Figure 18: DC-in power connector diagram

Pin	Signal	Pin	Signal
1	GND	3	+12V
2	GND	4	+12V

Table 17: DC-in power connector pinouts

Notes:

1. The DC-in version does not have the ATX power connector.
2. The maximum power for DC-in version is 80W.

2.2.6. SATA Power Connectors

For the DC version of the VIA EPIA-M910, there are two built-in SATA power connectors. These connectors are required to power SATA hard drives. The SATA power connectors are labeled as "S_PWR1" and "S_PWR2". The pinouts of the SATA power connectors are shown below.

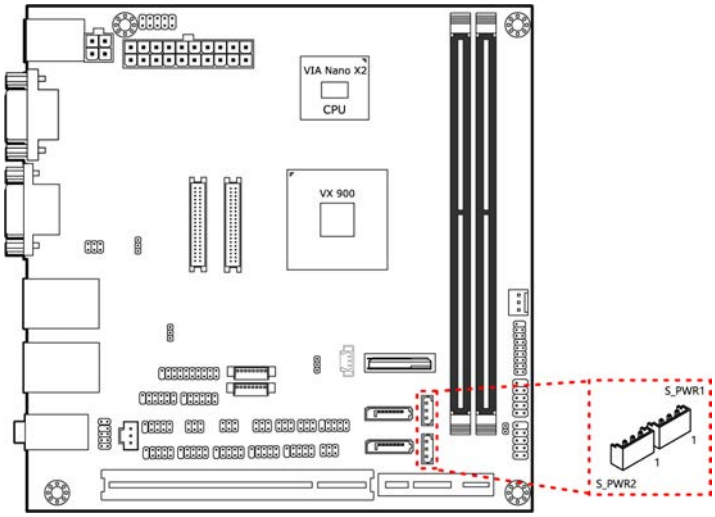


Figure 19: SATA power connectors diagram

S_PWR1	
Pin	Signal
1	+5V
2	+12V
3	GND

S_PWR2	
Pin	Signal
1	+5V
2	+12V
3	GND

Table 18: SATA power connectors pinouts

Note:
The ATX version does not have the SATA power connector because power for SATA hard drives is supplied from the ATX power supply.

2.2.7. CMOS Battery Slot

The VIA EPIA-M910 is equipped with a CMOS battery slot, which is compatible with CR2032 coin batteries. The CMOS battery slot is labeled as "BAT2". 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.

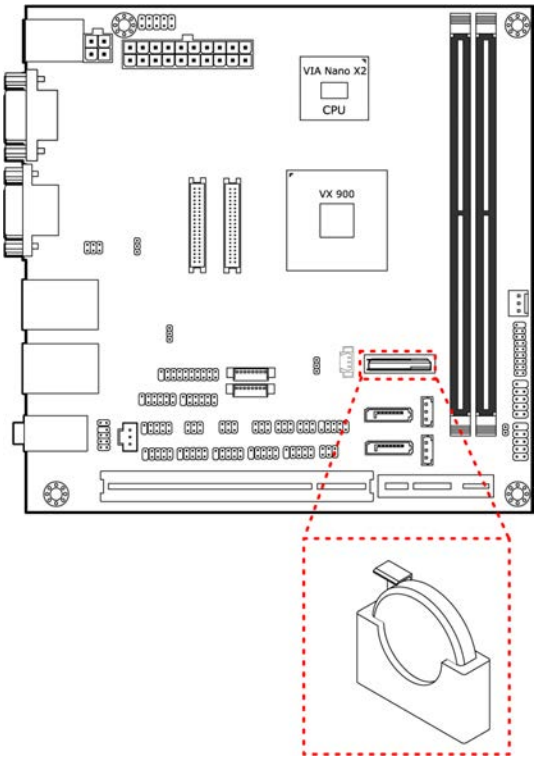


Figure 20: CMOS battery slot diagram

Pin	Signal
1	GND
2	+3V

Table 19: CMOS battery slot pinouts

2.2.8. 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.

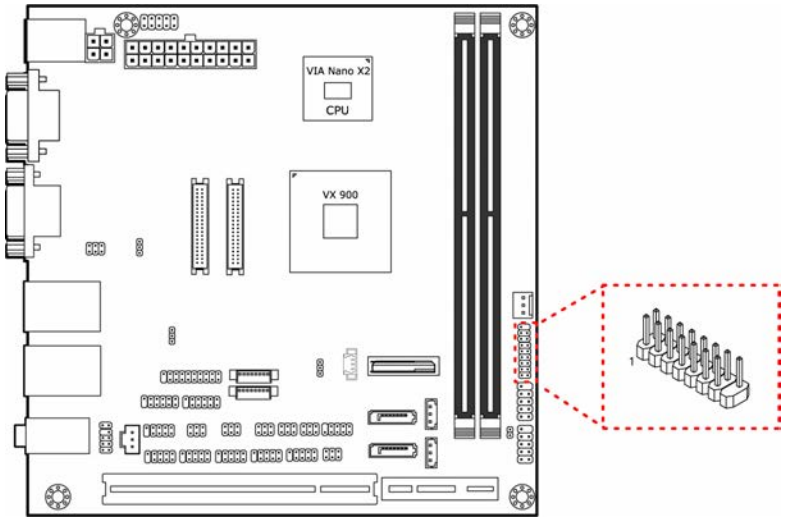


Figure 21: Front panel pin header diagram

Pin	Signal	Pin	Signal
1	+5VDUAL	2	+5V
3	+5VDUAL	4	HD_LED
5	PWR_LED	6	PWR_BTN
7	+5V	8	GND
9	NC	10	-RST_SW
11	NC	12	GND
13	SPEAK	14	NC
15	-	16	NC

Table 20: Front panel pin header pinouts

2.2.9. SMBus Pin Header

The SMBus pin header consists of three pins that allow connecting the SMBus devices. The devices communicate with a SMBus host and/or other SMBus devices using the SMBus interface. It is labeled as "SMBUS". The pinouts of the SMBus pin header are shown below.

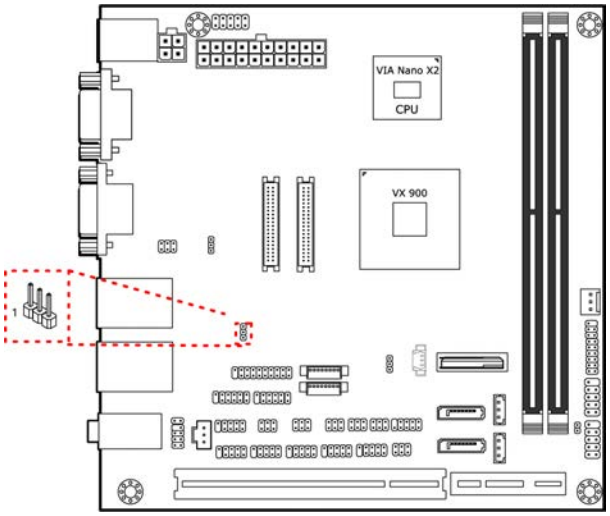


Figure 22: SMBus pin header diagram

Pin	Signal
1	SMBCK
2	SMBDT
3	GND

Table 21: SMBus pin header pinouts

2.2.10. CPU and System Fan Connectors

There are two fan connectors on board: one for the CPU and one for the chassis. The fan connector for the CPU is labeled as "CPUFAN1" and the fan connector for the system is labeled as "SYSFAN1". The fans provide variable fan speeds controlled by the BIOS. The pinouts of the fan connectors are shown below.

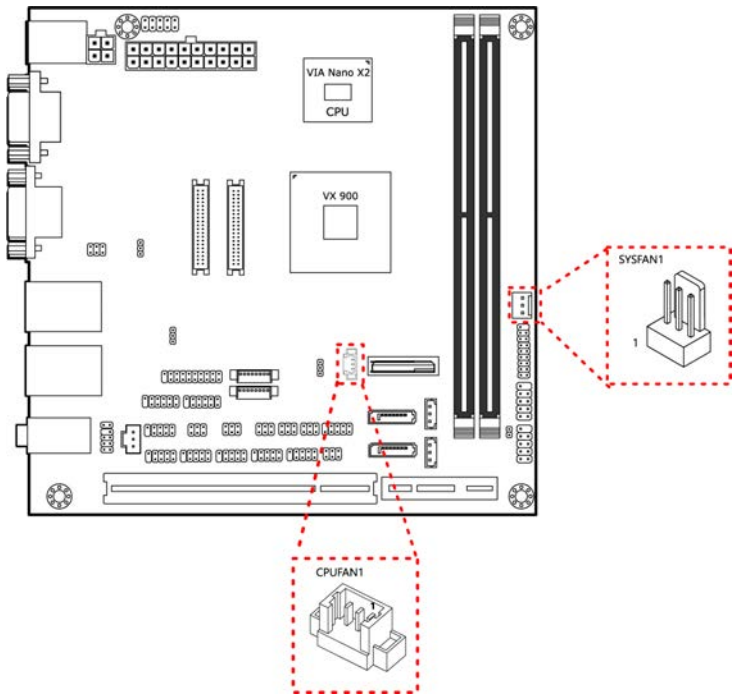


Figure 23: CPU and system fan connectors diagram

CPU fan	
Pin	Signal
1	FANI01
2	F_PWM1
3	GND

System fan	
Pin	Signal
1	FANI02
2	F_PWM2
3	GND

Table 22: CPU and system fan connectors pinouts

2.2.11. SATA Connectors

The two SATA connectors on board can support up to 3Gbps transfer speeds. The SATA connectors are labeled as "SATA1" and "SATA2". The pinouts of the SATA connectors are shown below.

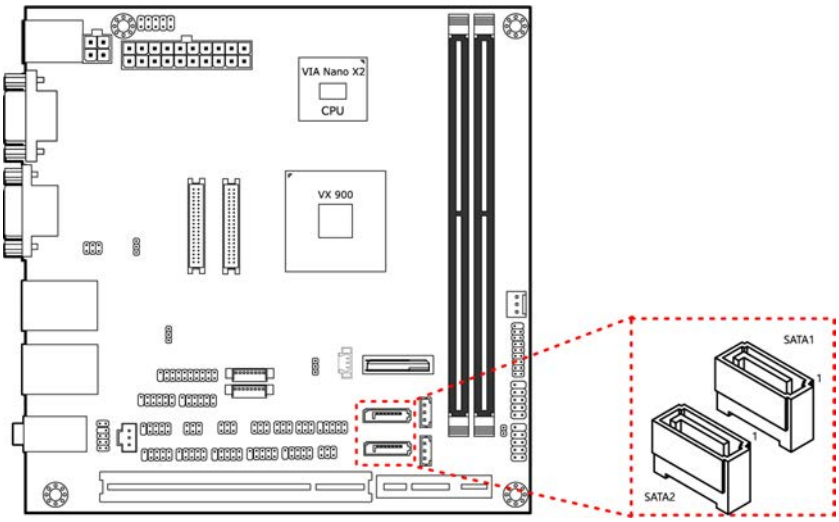


Figure 24: SATA connectors diagram

Note:
To use the SATA Disk-on-Module flash drive on the board, please use the SATA2 connector.

SATA1		SATA2	
Pin	Signal	Pin	Signal
1	GND	1	GND
2	STXP_1	2	STXP_2
3	STXN_1	3	STXN_2
4	GND	4	GND
5	SRXN_1	5	SRXN_2
6	SRXP_1	6	SRXP_2
7	SATA1_+5V	7	SATA2_+5V

Table 23: SATA connectors pinouts

2.2.12. USB 2.0 Pin Headers

The VIA EPIA-M910 has two USB 2.0 pin header blocks that support up to four USB 2.0 ports. The pin header blocks are labeled as "USB_1" and "USB_2". The pinouts of the USB pin headers are shown below.

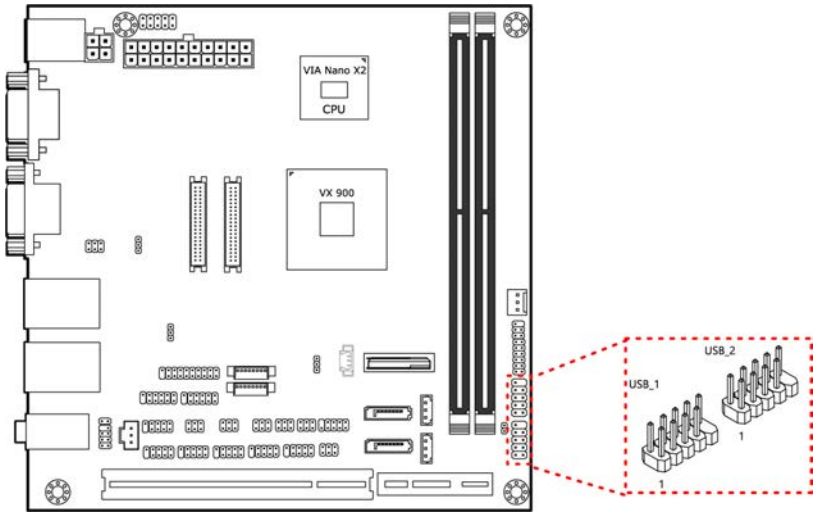


Figure 24: USB 2.0 pin headers diagram

USB_1			
Pin	Signal	Pin	Signal
1	VUSB6	2	VUSB6
3	USBD_T6-	4	USBD_T3-
5	USBD_T6+	6	USBD_T3+
7	GND	8	GND
9	—	10	GND

USB_2			
Pin	Signal	Pin	Signal
1	VUSB2	2	VUSB2
3	USBD_T7-	4	USBD_T2-
5	USBD_T7+	6	USBD_T2+
7	GND	8	GND
9	—	10	GND

Table 24: USB 2.0 pin headers pinouts

2.2.13. COM Pin Headers

There are a total of six COM pin headers on the VIA EPIA-M910. Each COM pin header supports the RS-232 standard. The pin headers are labeled as "COM3", "COM4", "COM5", "COM6", "COM7" and "COM8". All of the COM pin headers can support +5V or +12V. The pinouts of the COM pin headers are shown below.

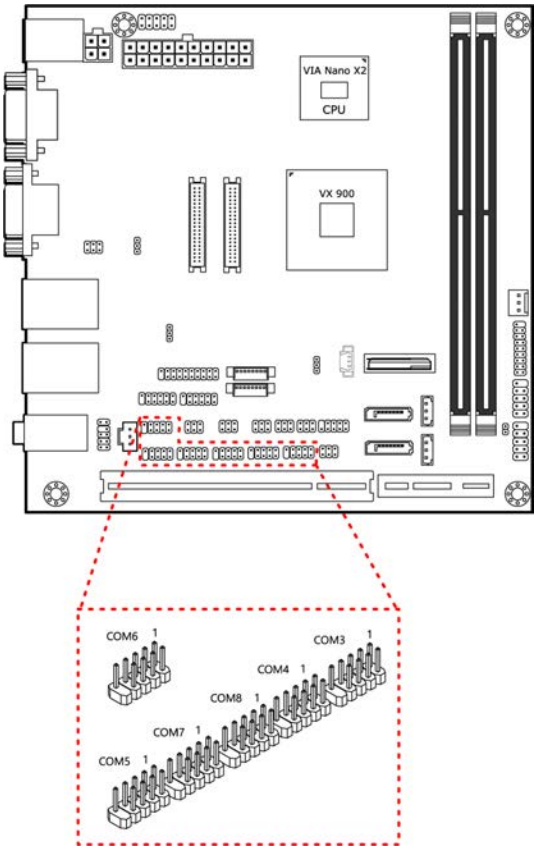


Figure 25: COM pin headers diagram

Pin	Signal	Pin	Signal
1	COM_DCDX	2	COM_RXDX
3	COM_TXDX	4	COM_DTRX
5	GND	6	COM_DSRX
7	COM_RTSX	8	COM_CTSX
9	COM_RIX	10	—

Table 25: COM pin headers pinouts

2.2.14. PS/2 Keyboard and Mouse Pin Header

The VIA EPIA-M910 has a pin header for the PS/2 keyboard and mouse. The pin header is labeled as "KBMS1". The pinouts of the PS/2 keyboard and mouse pin header are shown below.

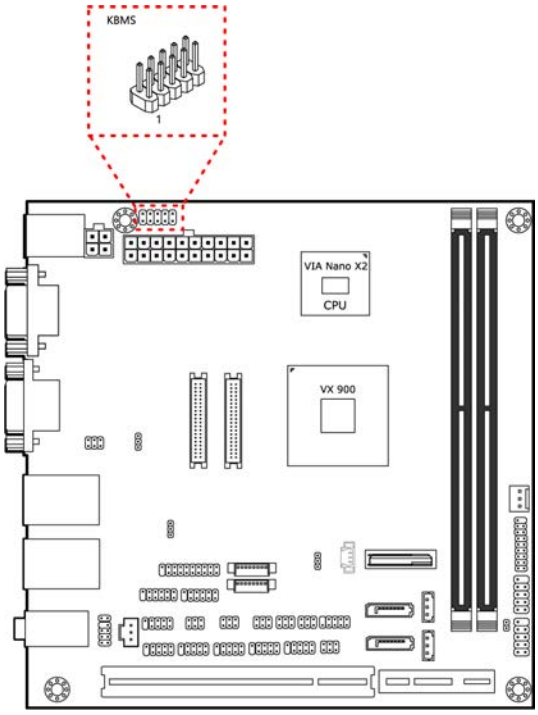


Figure 26: PS/2 keyboard and mouse pin header diagram

Pin	Signal	Pin	Signal
1	+5VDUAL	2	GND
3	KB_CLK	4	KB_DATA
5	EKBCLK	6	EKBDATA
7	MS_CLK	8	MS_DATA
9	EMSCLK	10	EMSDATA

Table 26: PS/2 keyboard and mouse pin header pinouts

Note:
When the pin header is not in use, please short pin 3&5, pin 4&6, pin 7&9 and pin 8&10

2.2.15. Front Audio Pin Header

In addition to the TRS audio jacks on the external I/O coastline, the VIA EPIA-M910 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.

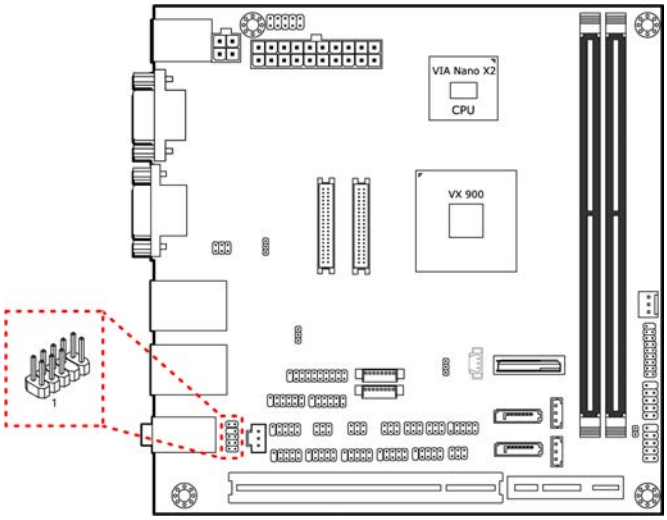


Figure 27: Front audio pin header diagram

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 27: Front audio pin header pinouts

2.2.16. S/PDIF-out Connector

The VIA EPIA-M910 has one 3-pin S/PDIF (Sony/Philips Digital Interface Format) connector. The S/PDIF-out output provides digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. The connector is labeled as "SPDIF1". The pinouts of the S/PDIF-out connector are shown below.

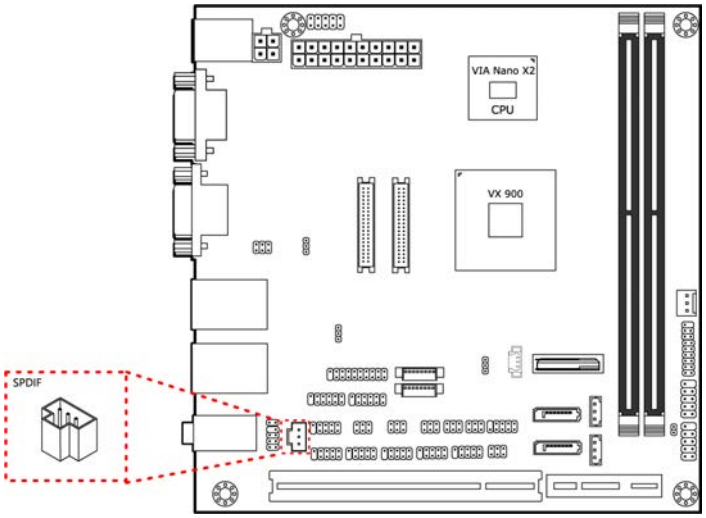


Figure 28: S/PDIF-out connector diagram

Pin	Signal
1	+5V
2	SPDIF_O
3	GND

Table 28: S/PDIF-out connector pinouts

2.2.17. SPI Pin Header

The VIA EPIA-M910 has one 8-pin SPI pin header. The SPI (Serial Peripheral Interface) 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.

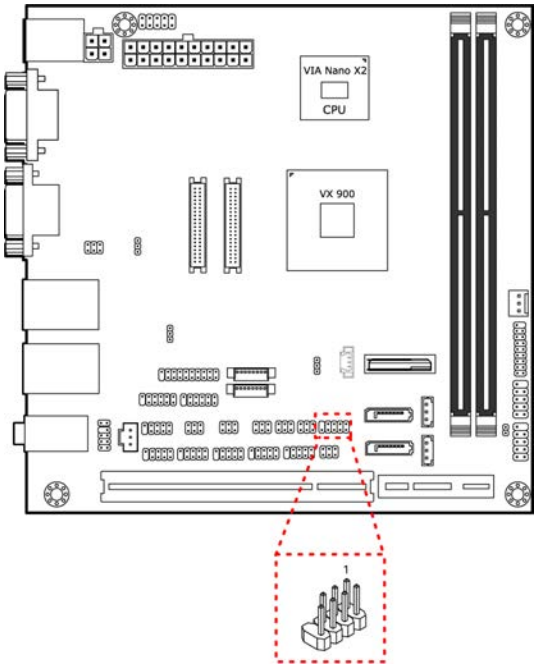


Figure 29: SPI pin header diagram

Pin	Signal	Pin	Signal
1	SPI_VCC	2	GND
3	SPI_SS0	4	SPI_CLK
5	SPI_DI	6	SPI_DO
7	—	8	-RST_SW

Table 29: SPI pin header pinouts

2.2.18. LPC Pin Header

The VIA EPIA-M910 has one LPC pin header for connecting the LPC devices. The pin header is labeled as "LPC". The pinouts of the LPC pin header are shown below.

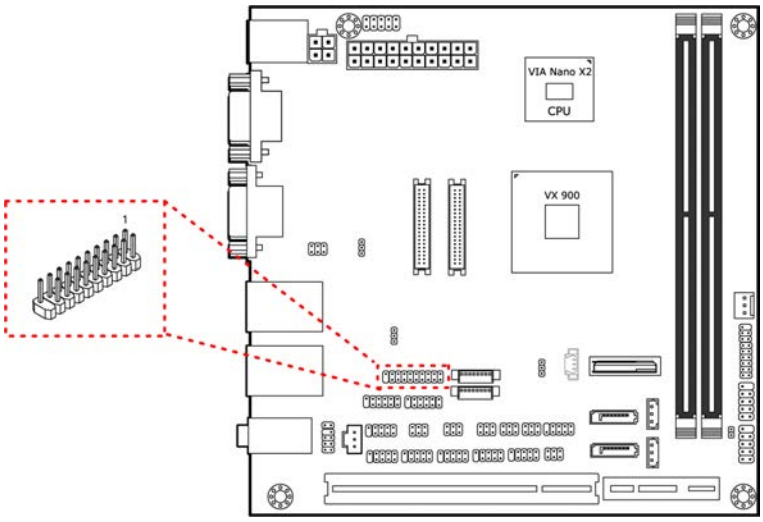


Figure 30: LPC pin header diagram

Pin	Signal	Pin	Signal
1	LPC_AD1	2	LPC_33_CLK
3	-PCI_RST-1	4	GND
5	LPC_AD0	6	NC
7	LPC_AD2	8	-LPC_FRAME
9	SERIRQ	10	LPC_AD3
11	-LPC_DRQ1	12	-EXTSMI
13	+5V	14	+3.3V
15	+5V	16	+3.3V
17	GND	18	GND
19	GND		

Table 30: LPC pin header pinouts

3. Jumpers

This section will explain how to configure the VIA EPIA-M910 to match the needs of your application by setting the jumpers.

Jumper Description

A jumper consists of pair conductive pins used to close in or bypass an electronic circuit to set up or configure 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 the crowded location of the board that makes it difficult to access. Therefore, using a long-nose pliers in installing and removing the jumper cap is very helpful.

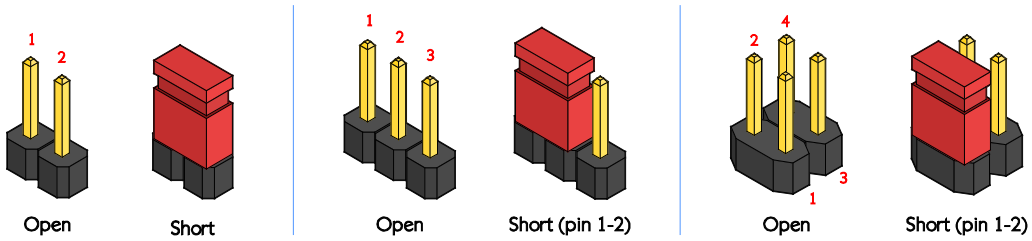


Figure 31: Jumper settings example

Caution:

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

3.1. Clear CMOS Jumper

The VIA EPIA-M910 comes with a Clear CMOS jumper. The onboard CMOS RAM stores system configuration data and has an onboard battery power supply. To reset the CMOS settings, set the jumper on pins 2 and 3 while the system is off, then return the jumper to pins 1 and 2 afterwards. Setting the jumper while the system is on will damage the board. The default setting is "Short" pins 1 and 2.

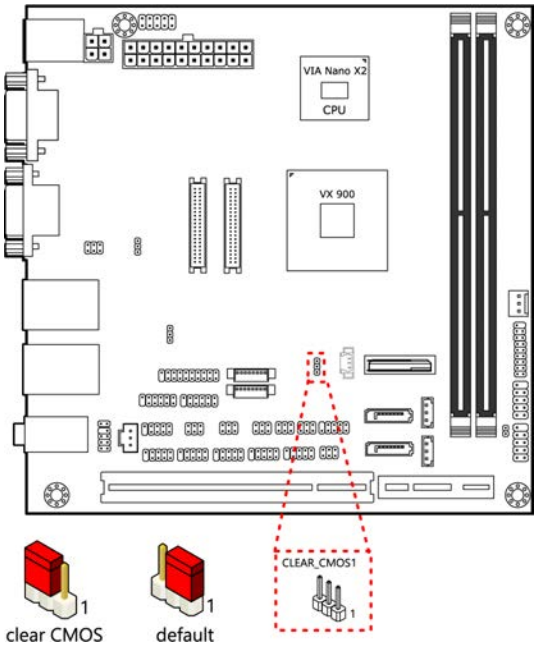


Figure 32: Clear CMOS jumper diagram

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

Table 31: Clear CMOS jumper settings

Note:

Except when clearing the RTC RAM, never remove the cap from the Clear CMOS jumper default position. Removing the cap will cause system boot failure. Avoid clearing the CMOS while the system is on; it will damage the board.

3.2. SATA DOM Power Jumper

The SATA connectors can be used to support Disk-on-Module flash drives. The power for SATA DOM is controlled by the jumper labeled as "J1". When the jumpers are set, +5V will be delivered to the 7th pin of the SATA connectors. The jumper settings are shown below.

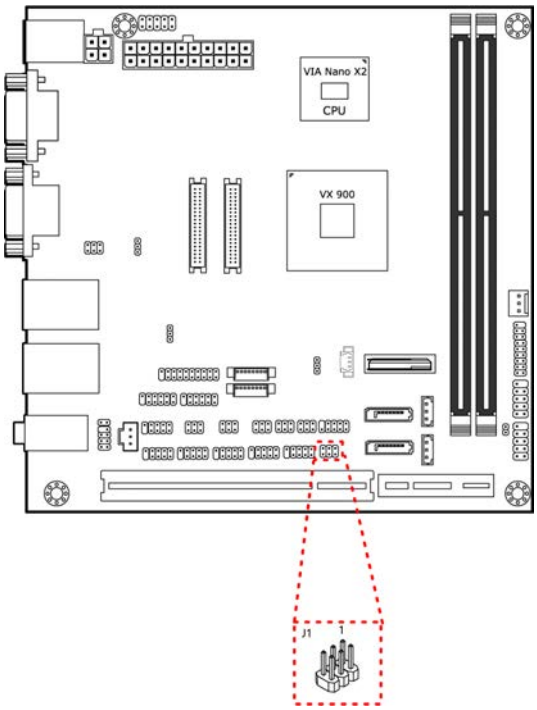


Figure 33: SATA DOM power jumper diagram

SATA1 Settings	Pin 2	Pin 4	Pin 6
DOM support	Short	Short	Open
Regular (default)	Open	Short	Short

SATA2 Settings	Pin 1	Pin 3	Pin 5
DOM support	Short	Short	Open
Regular (default)	Open	Short	Short

Table 32: SATA DOM power jumper settings

3.3. COM1 and COM2 Voltage Jumper

The voltage for COM1 and COM2 is controlled by the jumper labeled as "J10". 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.

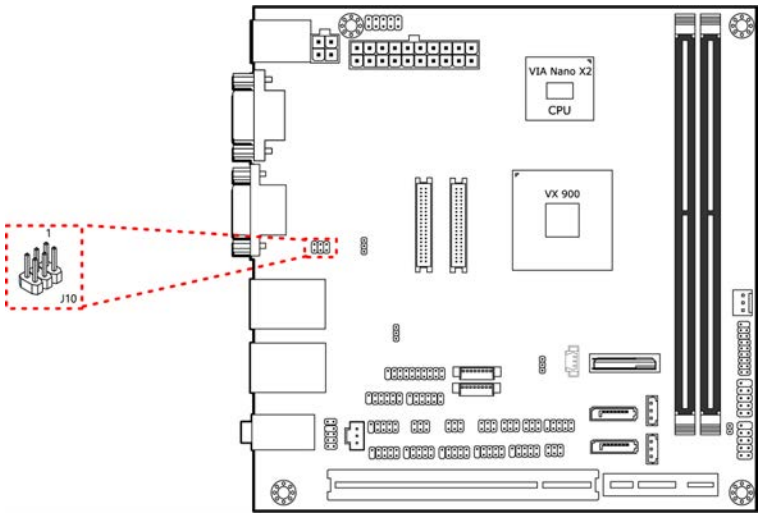


Figure 34: COM1 and COM2 voltage jumper diagram

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 33: COM1 and COM2 voltage jumper settings

3.4. COM3 and COM4 Voltage Jumper

The voltage for COM3 and COM4 is controlled by the jumper labeled as "J13". 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.

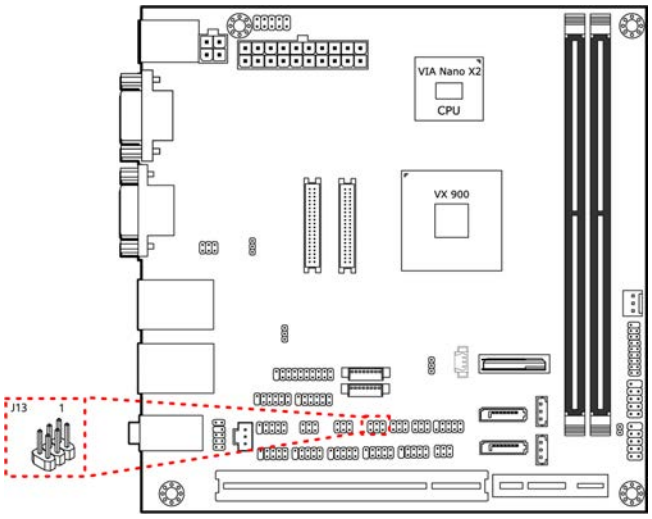


Figure 35: COM3 and COM4 voltage jumper diagram

COM3 Settings	Pin 2	Pin 4	Pin 6
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

COM4 Settings	Pin 1	Pin 3	Pin 5
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

Table 34: COM3 and COM4 voltage jumper settings

3.5. COM5 and COM6 Voltage Jumper

The voltage for COM5 and COM6 is controlled by the jumper labeled as "J14". The voltage can be either +5V or +12V. +5V is the default setting. The odd pin numbers correspond to COM5. The even pin numbers correspond to COM6. The jumper settings are shown below.

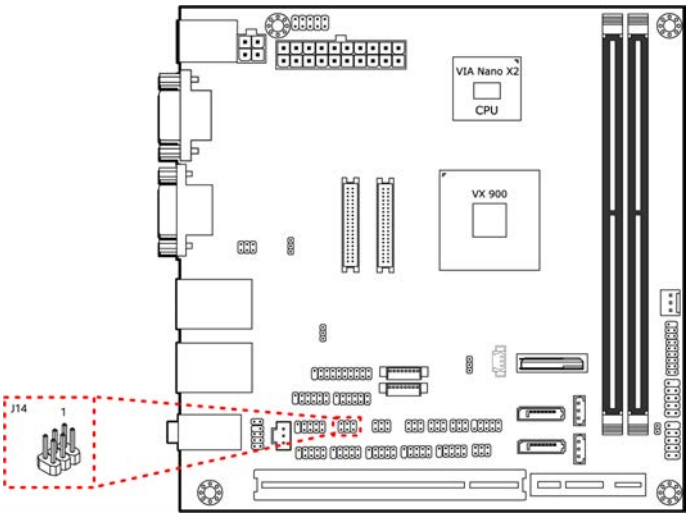


Figure 36: COM5 and COM6 voltage jumper diagram

COM5 Settings	Pin 2	Pin 4	Pin 6
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

COM6 Settings	Pin 1	Pin 3	Pin 5
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

Table 35: COM5 and COM6 voltage jumper settings

3.6. COM7 and COM8 Voltage Jumper

The voltage for COM7 and COM8 is controlled by the jumper labeled as "J15". The voltage can be either +5V or +12V. +5V is the default setting. The odd pin numbers correspond to COM7. The even pin numbers correspond to COM8. The jumper settings are shown below.

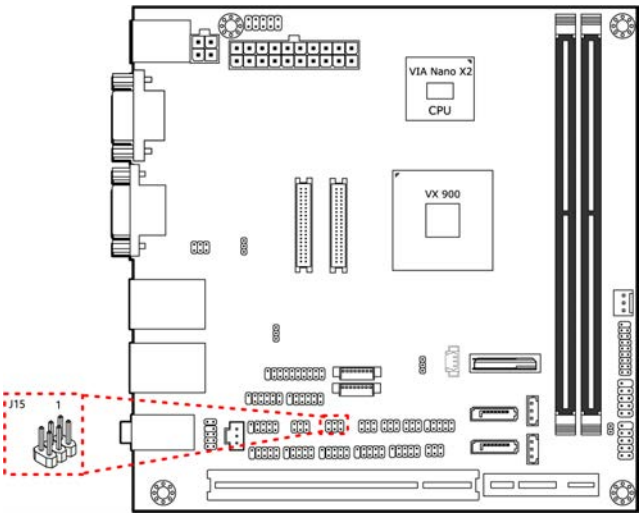


Figure 37: COM7 and COM8 voltage jumper diagram

COM7 Settings	Pin 2	Pin 4	Pin 6
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

COM8 Settings	Pin 1	Pin 3	Pin 5
+5V (default)	Short	Short	Open
+12V	Open	Short	Short

Table 36: COM7 and COM8 voltage jumper settings

3.7. LVDS Power Jumpers

The LVDS panel connectors and LVDS inverters can operate on different input voltages. The VIA EPIA-M910 has one jumper (J12) that controls the voltage delivered to the LVDS1 panel connector and input voltage delivered to the INVERTER1 connector. The VIA EPIA-M910 has one jumper (J16) that controls the voltage delivered to the LVDS2 panel connector and input voltage delivered to the INVERTER2 connector.

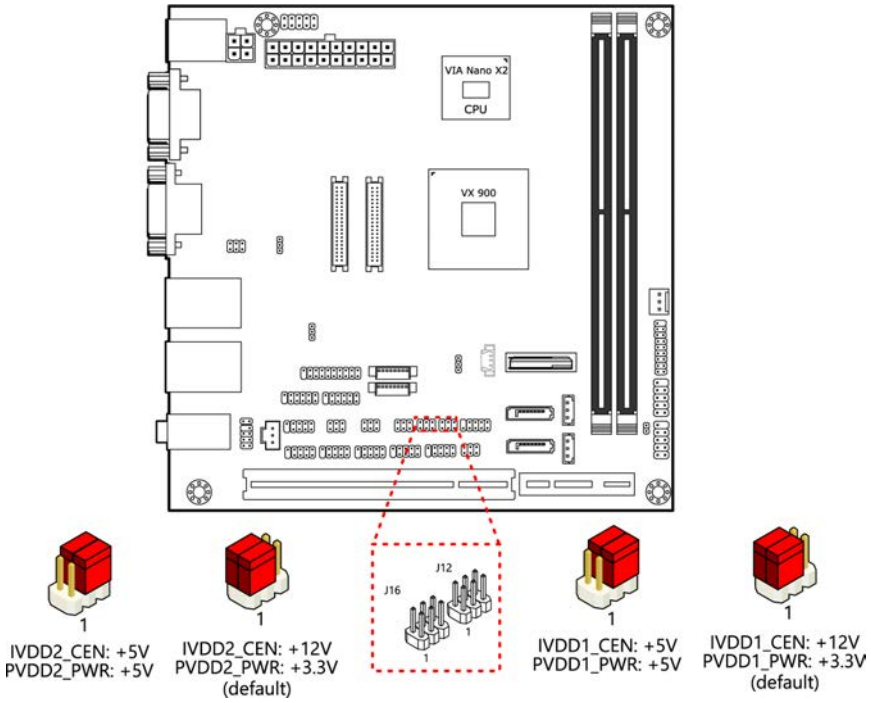


Figure 38: LVDS power jumpers diagram

LVDS1 (J12)			
Inverter1 power settings	Pin 1	Pin 3	Pin 5
+12V (default)	Short	Short	Open
+5V	Open	Short	Short
LVDS1 power	Pin 2	Pin 4	Pin 6
+3.3V (default)	Short	Short	Open
+5V	Open	Short	Short

LVDS2 (J16)			
Inverter2 power settings	Pin 1	Pin 3	Pin 5
+12V (default)	Short	Short	Open
+5V	Open	Short	Short
LVDS2 power settings	Pin 2	Pin 4	Pin 6
+3.3V (default)	Short	Short	Open
+5V	Open	Short	Short

Table 37: LVDS power jumpers settings

3.8. AT/ATX Mode Jumper

The AT/ATX jumper (J6) allows the user to specify AT or ATX power mode support. To enable support for +3.3V, the jumper must be set to ATX mode.

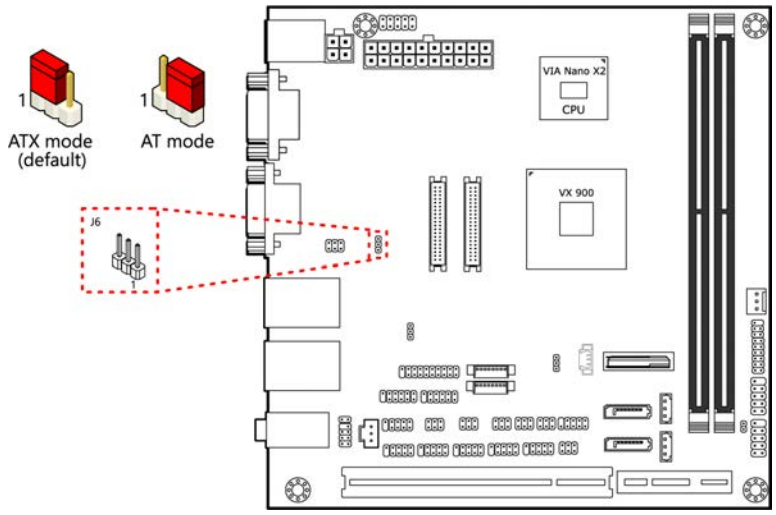


Figure 39: AT/ATX mode jumper diagram

Settings	Pin 1	Pin 2	Pin 3
ATX mode (default)	Short	Short	Open
AT mode	Open	Short	Short

Table 38: AT/ATX mode jumper settings

3.9. JATX_on Mode Jumper

The JATX_on jumper allows the user to boot AT mode without battery.

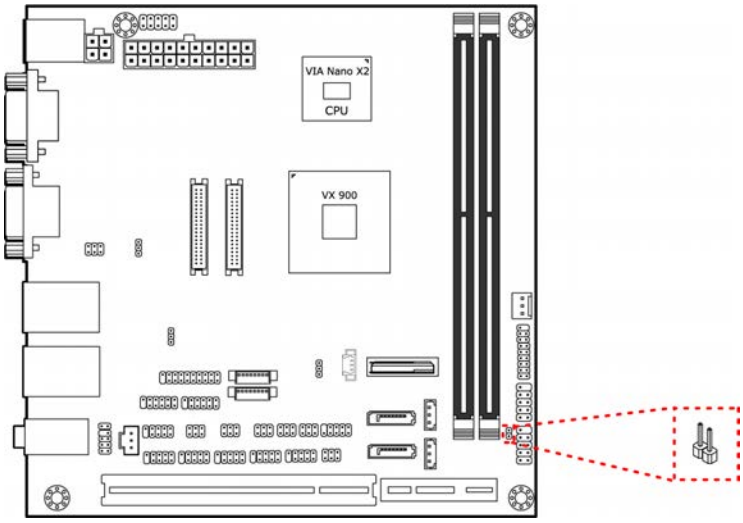


Figure 40: JATX_on mode jumper diagram

Settings	Pin 1	Pin 2
AT mode	Short	Short
Normal	Open	Open

Table 39: JATX_on mode jumper settings

4. Expansion Slots

4.1. DDR3 Memory Slots

The VIA EPIA-M910 provides two DDR3 DIMM memory slots. The memory slots can accommodate up to 8GB of 1066MHz DDR3 memory. The memory slots are labeled as "DIMM1" and "DIMM2". The location of the DDR3 memory slots are as shown below.

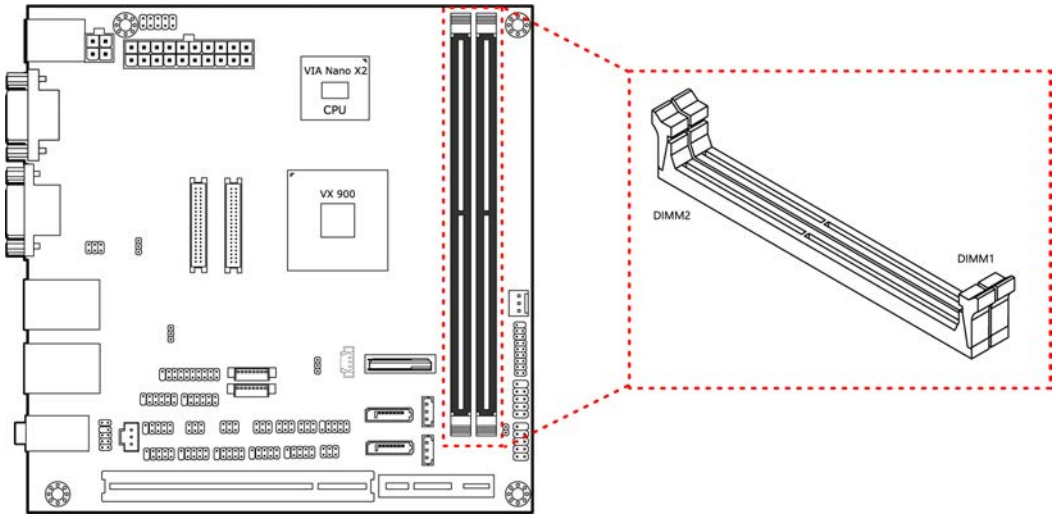


Figure 41: DDR3 memory slots diagram

4.1.1. Installing a Memory Module

Step 1

Disengage the locking mechanism at both ends of the DIMM slot by pressing the retaining clips outward.

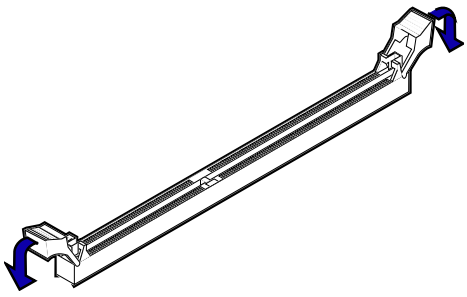


Figure 42: Unlocking the memory DIMM slot

Step 2

Align the notch on the DIMM memory module with the counter part on the DIMM slot.

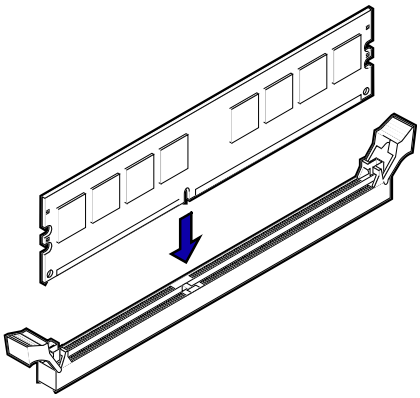


Figure 43: Inserting the memory module

Step 3

Insert the DIMM memory module into the slot and push down at both ends until the locking clips lock the DIMM memory module into place.

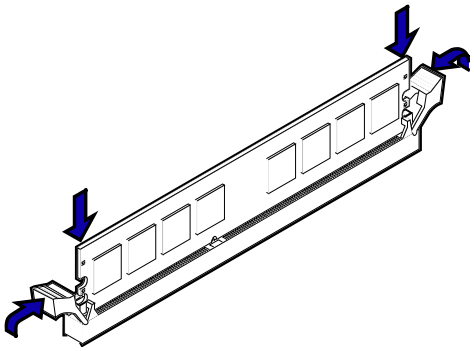


Figure 44: Locking the memory module

4.1.2. Removing a Memory Module

Step 1

To disengage the locking clips, push outward the locking clips on both ends of memory slot. When the locking clips have cleared, the DIMM memory module will automatically pop up. Remove the memory module.

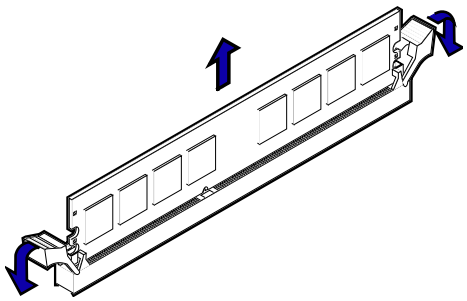


Figure 45: Removing the memory module

4.2. PCI Slot

The onboard PCI slot, labeled as "PCI_SLOT1", supports 5V 32-bit PCI cards. It is not compatible with PCI cards requiring 3.3V signaling. The location of the PCI slot is shown below.

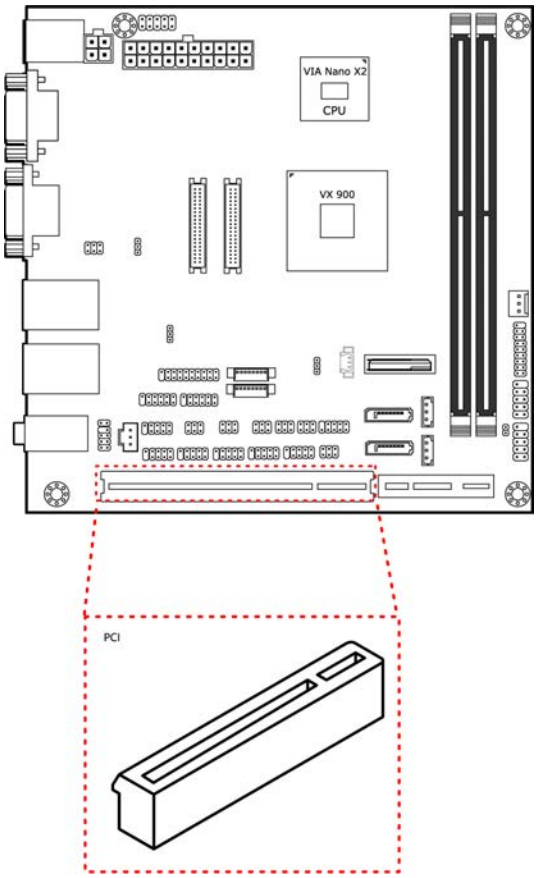


Figure 46: PCI slot diagram

Notes:

1. The orientation of PCI card can be changed from vertical to horizontal using a riser card module.
2. When adding or removing expansion card, unplug first the power supply.

4.2.1. PCI Express Slot

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

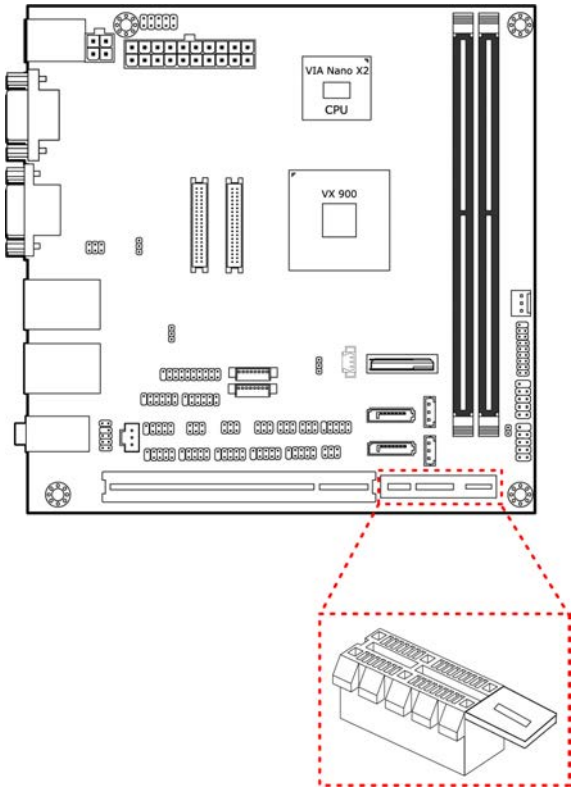


Figure 47: PCI Express slot diagram

Note:

The optional riser card module is PCIE-03. PCIE-03 is a combination riser card that connects to both the PCI Express and PCI slots.

5. Hardware Installation

5.1. Installing into a Chassis

The VIA EPIA-M910 can be fitted into any chassis that has the 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-M910.

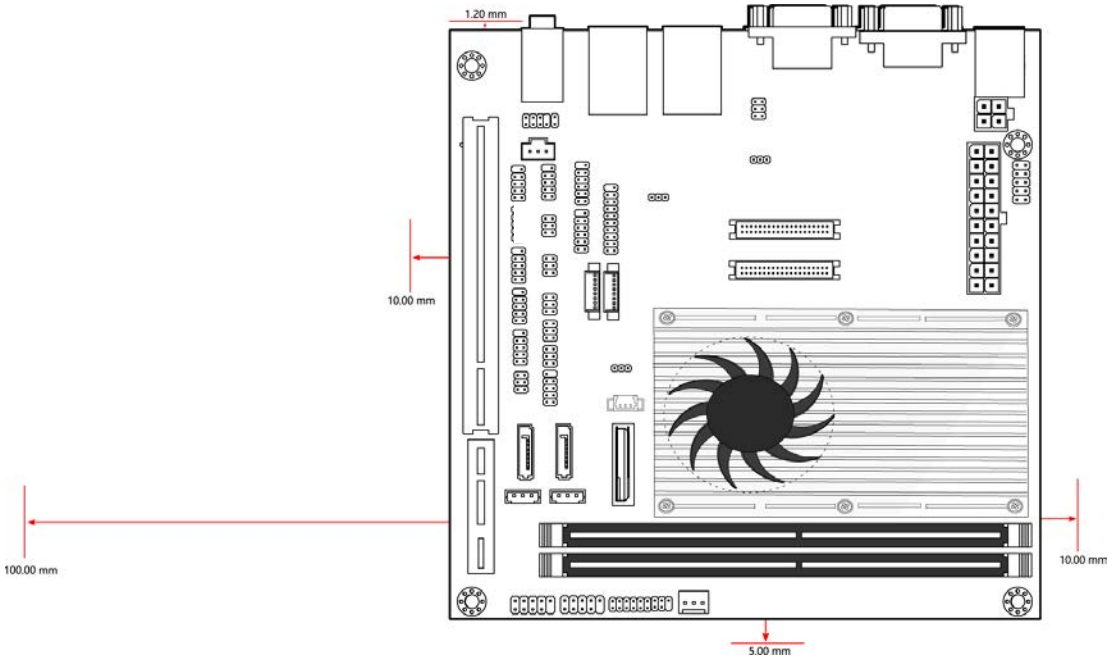


Figure 48: Suggested minimum chassis dimensions

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 1.00mm. The side on the opposite end of the I/O coastline should have a buffer of at least 5.00mm. The two sides adjacent to the I/O coastline should have at least a 10.00mm buffer.

For the side that is close to the PCI slot, the buffer should be at least 100.00mm if a riser card module 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 PCI slot.

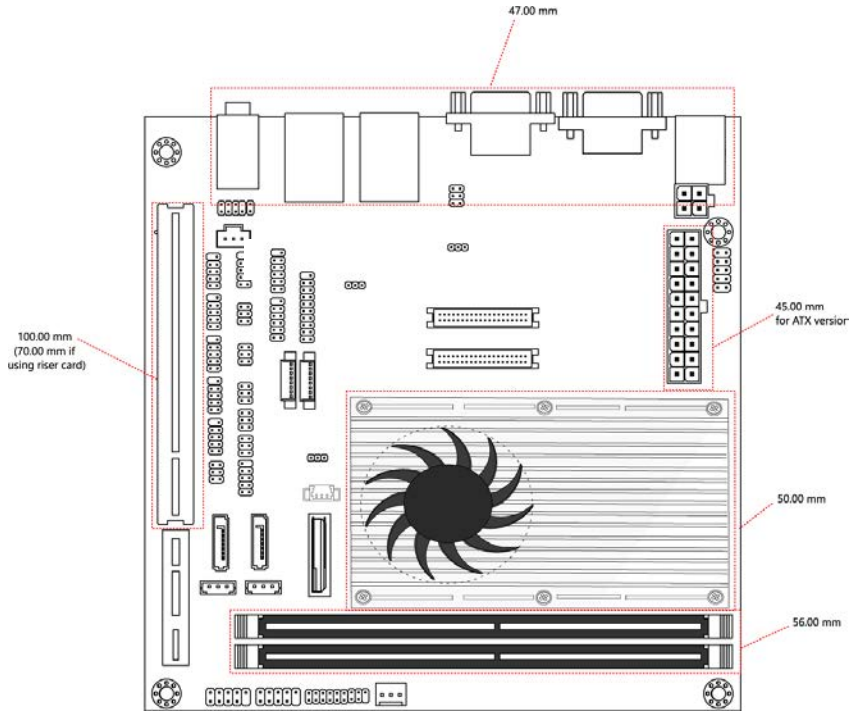


Figure 49: Suggested minimum internal chassis ceiling height

5.1.3. Suggested Keepout Areas

The figure below shows the areas of the VIA EPIA-M910 that is highly suggested to leave unobstructed.

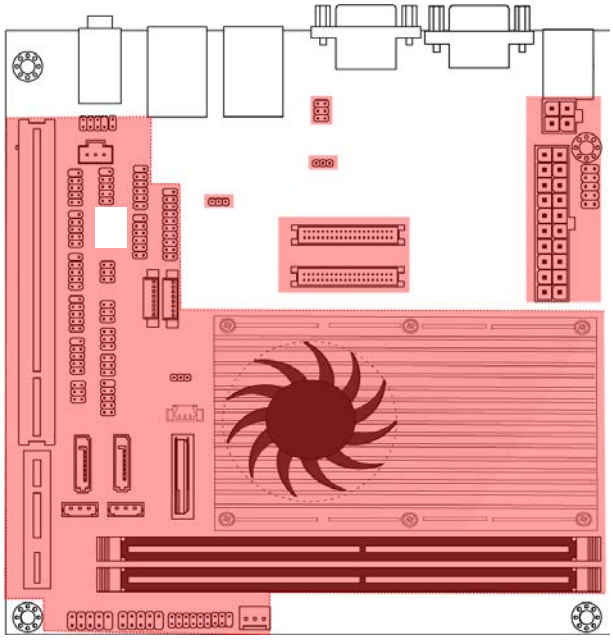


Figure 50: Suggested keepout areas

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

Page up / +[1] Increase the numeric value

Page down / -[1] Decrease the numeric value

F1 General help[2]

F10 Save all the changes and exit

Notes:

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. Main Menu

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

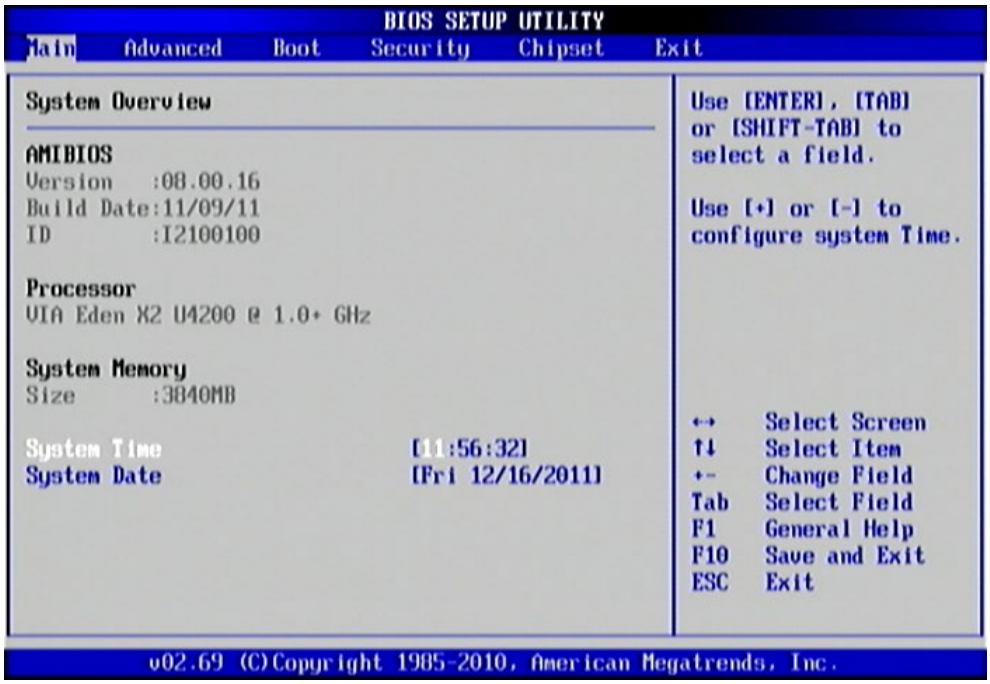


Figure 51: Illustration of the Main menu screen

6.5.1. AMIBIOS

The content in this section of the screen shows the current BIOS version, build date, and ID number.

6.5.2. Processor

This content in this section shows the CPU information that has been detected. This information includes the CPU name and speed

6.5.3. System Memory

This section shows the amount of available memory that has been detected.

6.5.4. 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].

6.5.5. 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].

6.6. Advanced Settings

The Advanced Settings screen shows a list of categories that can provide access to a sub-screen. Sub-screen links can be identified by the preceding right-facing arrowhead.

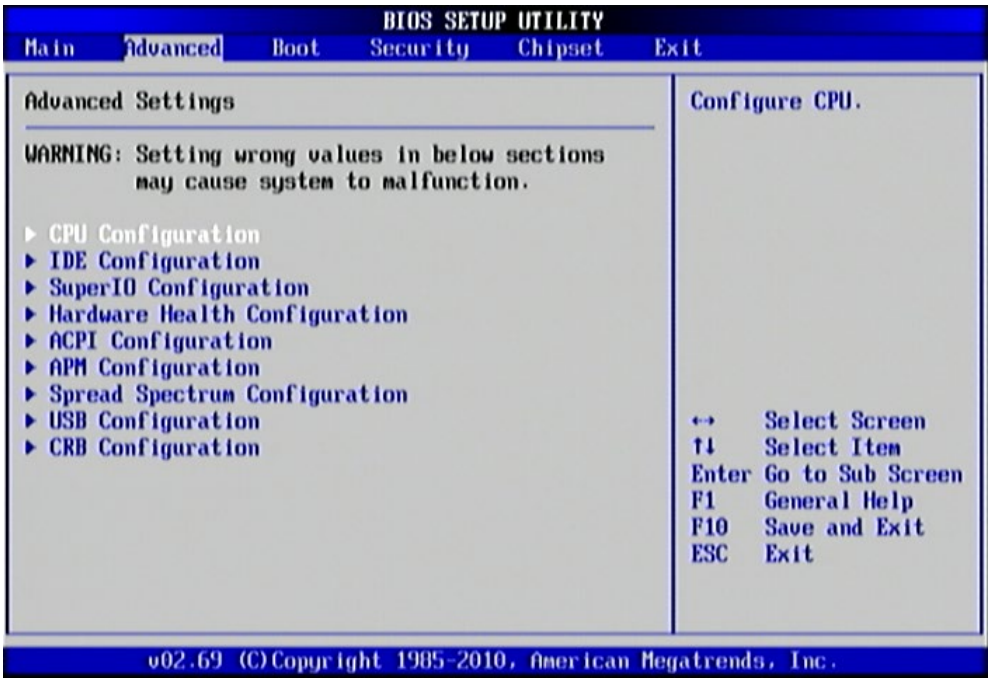


Figure 52: Illustration of the Advanced Settings screen

The Advanced Settings screen contains the following links:

- CPU Configuration
- IDE Configuration
- SuperIO Configuration
- Hardware Health Configuration
- ACPI Configuration
- APM Configuration
- Spread Spectrum Configuration
- USB Configuration
- CRB Configuration

6.6.1. CPU Configuration

The CPU Configuration screen shows detailed information about the built-in processor. In addition to the processor information, the thermal controls can be set.

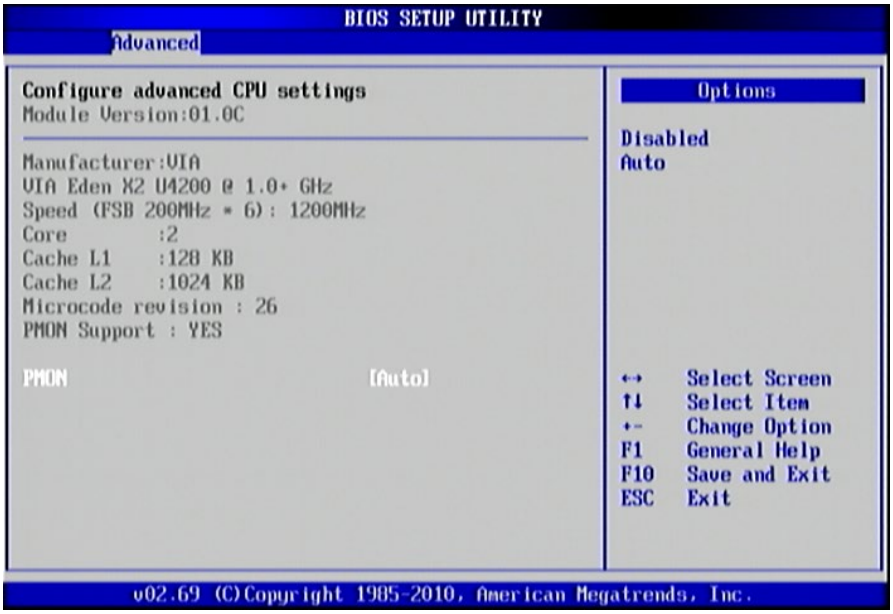


Figure 53: Illustration of the CPU Configuration screen

6.6.1.1. PMON

The Nano CPU PMON Function has two settings: "Auto" and "Disabled". When set to "Auto", the PMON function will be enabled and controlled the CPU speed to perform automatically at best performance to comply with the given system applications.

6.6.2. IDE Configuration

The IDE Configuration screen shows links to the primary master and slave IDE hard drive information screens.

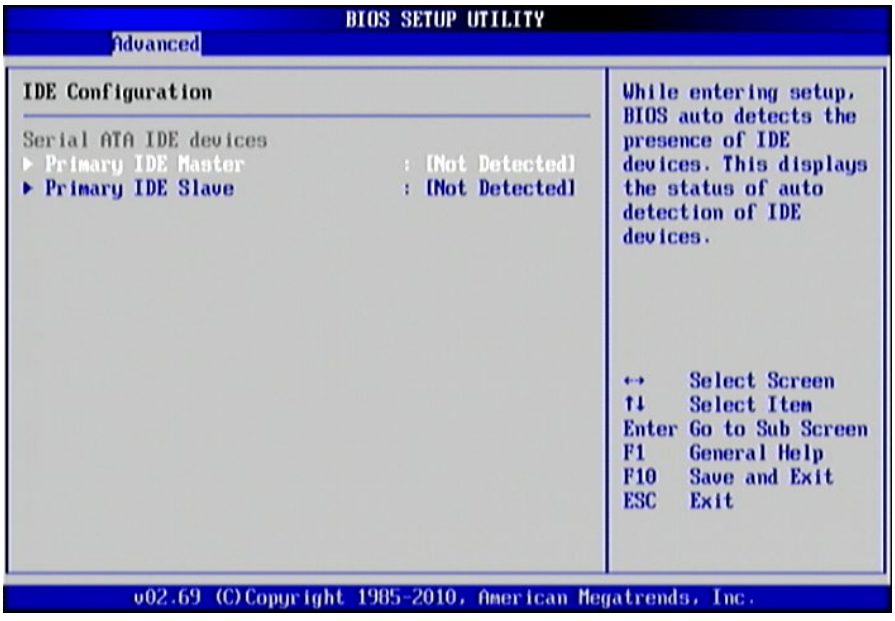


Figure 54: Illustration of SATA Configuration screen

6.6.3. SuperIO Configuration

The SuperIO Configuration screen shows the specific addresses and IRQs of the onboard serial ports.

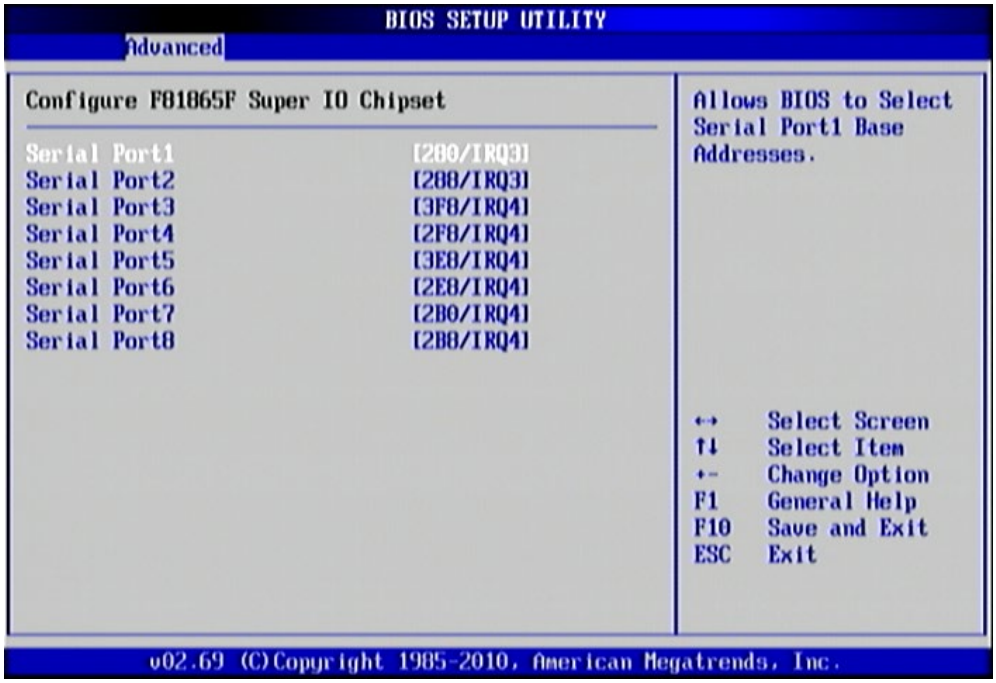


Figure 55: Illustration of SuperIO Configuration screen

6.6.3.1. Serial Ports 1 to 8 Address

The Serial Port 1 to 2 has three selectable options.

Port	Address and IRQs
1	280/IRQ3
2	288/IRQ3
3	3F8/IRQ4
4	2F8/IRQ4
5	3E8/IRQ4
6	2E8/IRQ4
7	2B0/IRQ4
8	2B8/IRQ4

Table 40: Serial port addresses and IRQs

6.6.4. Hardware Health Configuration

The Hardware Health Configuration screen has no editable fields. The system temperature is taken from an optional sensor that is connected to the J5 pin header.

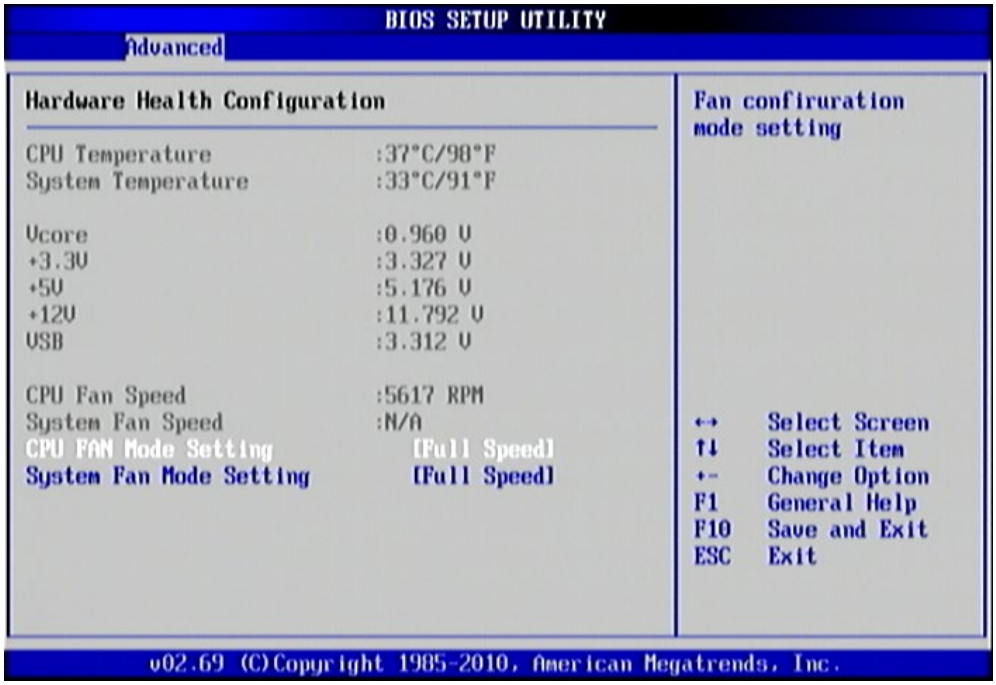


Figure 56: Illustration of Hardware Health Configuration screen

6.6.4.1. CPU/System Fan Mode Setting

The CPU/System FAN has two selectable mode options.

Auto

When set to Auto, the speed of the CPU fan is varied according to CPU temperature.

Full Speed

When set to Full Speed, the CPU fan speed is fixed and running at highest speed.

6.6.5. ACPI Settings

ACPI grants the operating system direct control over system power management. The ACPI Configuration screen can be used to set a number of power management related functions.

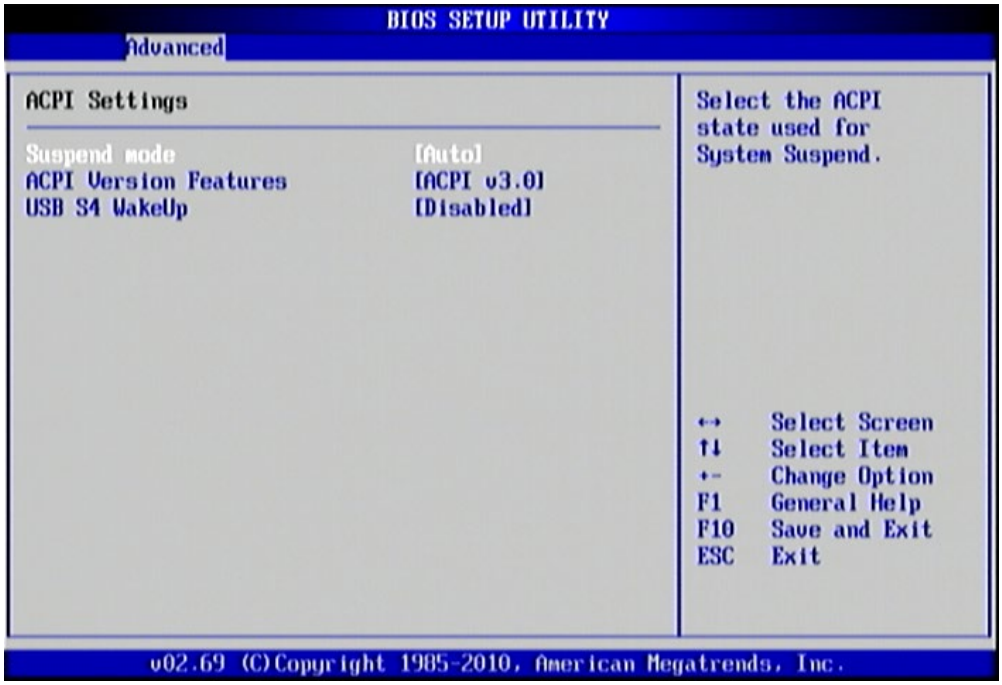


Figure 57: Illustration of ACPI Configuration screen

6.6.5.1. Suspend Mode

The Suspend Mode field has three selectable options.

S1 (POS)
S1/Power On Suspend (POS) is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system contexts.

S3 (STR)
S3/Suspend To RAM (STR) is a power-down state. In this state, power is supplied only to essential components such as main memory and wakeup-capable devices. The system context is saved to main memory, and context is restored from the memory when a "wakeup" event occurs.

Auto
When the Suspend Mode is set to Auto, the operating system will control the power state.

6.6.5.2. ACPI Version Features

The ACPI Version has three selectable version options.

ACPI v1.0
Supports ACPI v1.0

ACPI v2.0
Supports ACPI v2.0

ACPI v3.0
Supports ACPI v3.0

6.6.5.3. USB S4 Wakeup

The USB S4 WakeUp enables the system to resume through the USB device port from S4 state. There are two options: "Enabled" or "Disabled".

6.6.6. APM Settings

APM enables the operating system to co-work with the BIOS to control the system power management. The APM Configuration screen can be used to set a number of power management functions.

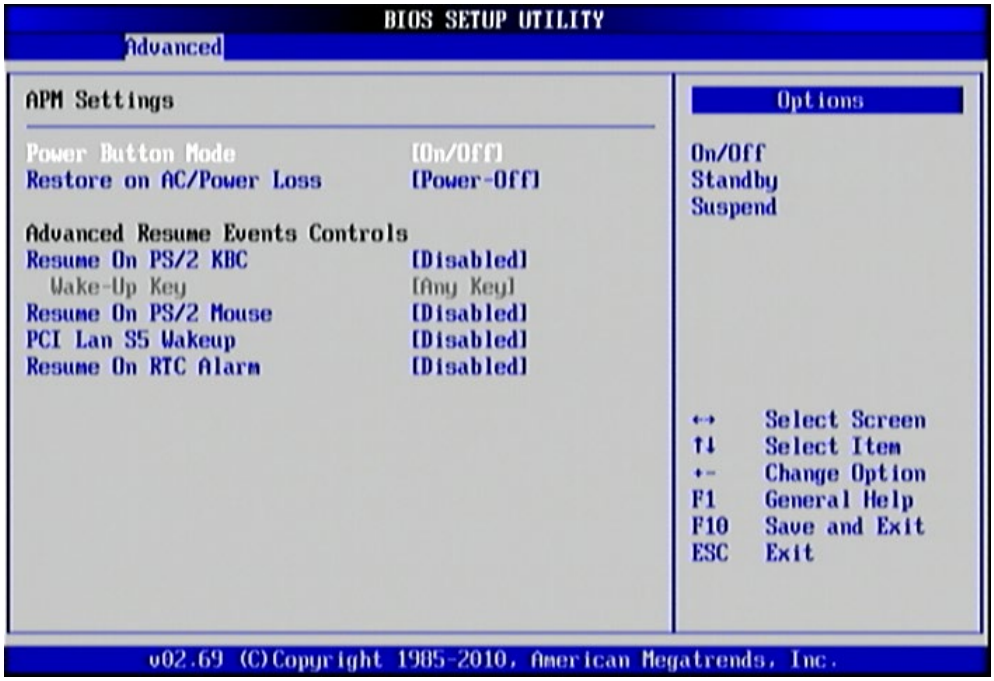


Figure 58: Illustration of APM Configuration screen

6.6.6.1. Power Button Mode

The Power Button Mode has three options.

On/Off
When On/Off is selected, pressing the power button will instantly cause the system to power on or off.

Standby
When Standby is selected, the power button must be pressed and held down for 4 seconds before the system will power off.

Suspend
When Suspend is selected, pressing the power button will instantly cause the system to enter suspend mode.

6.6.6.2. Restore on AC/Power Loss

Restore on AC/Power Loss defines how the system will respond after AC power has been interrupted while the system is on. There are three options.

Power Off
The Power Off option keeps the system in an off state until the power button is pressed again.

Power On
The Power On option restarts the system when the power has returned.

Last State
The Last State option restores the system to its previous state when the power was interrupted.

6.6.6.3. Resume on PS/2 KBC

Resume on PS/2 KBC wakes up a system that has been put into suspend or standby mode. When this feature is enabled, keyboard activity as defined in the **Wake-Up Key** feature will cause the system to wake up. This feature has three options.

S3/S4/S5
The S3/S4/S5 option enables PS/2 keyboard activity to be detected if the system is in S3/S4/S5 power saving mode.

Disabled
The Disabled option disables the detection of all PS/2 keyboard activity.

6.6.6.4. Wake-Up Key

The Wake-Up Key feature can only be set when **Resume on PS/2 KBC** is set to "S3/S4/S5". Otherwise, this feature will be not selectable. This feature has two options.

Any Key
The Any Key option enables any key on the keyboard to trigger the Wake-Up event.

Specific Key
The Specific Key option unlocks the **Wake-Up Password** feature.

6.6.6.5. Wake-Up Password

The Wake-Up Password feature can only be set when the **Wake-Up Key** feature is set to "Specific Key". This feature enables the user to specify a key sequence that must be entered in order to wake up the system.

The key sequence can consist of up to 6 alphanumeric characters and some special characters. Function keys and modifier keys (such as Ctrl, Alt, Del, etc.) cannot be used.

6.6.6.6. Resume on PS/2 Mouse

Resume on PS/2 Mouse wakes up a system that has been put into suspend or standby mode. When this feature is enabled, any PS/2 mouse activity that is detected will cause the system to wake up. This feature has three options.

Note:
This feature supports Erp/Eup provision.

S3
The S3 option enables any PS/2 mouse activity to be detected if the system is in S3 power saving mode.

S3/S4/S5
The S3/S4/S5 option enables any PS/2 mouse activity to be detected if the system is in S3/S4/S5 power saving mode.

Disabled
The Disabled option disables the detection of all PS/2 mouse activity.

6.6.6.7. PCI Lan S5 Wakeup

The PCI LAN S5 Wakeup feature enables the BIOS to allow remote wake-up from the S5 power off state through the PCI bus. This feature has two options: "Support PCI Lan" and "S5 Wakeup".

6.6.6.8. Resume on RTC Alarm

Resume on RTC Alarm can only be used if **Resume on Software RTC Alarm** is not enabled. This feature enables the BIOS to automatically power on the system at a scheduled time. When enabled, the **RTC Alarm Date** and **System Time** features will be unlocked.

6.6.6.9. RTC Alarm Date (Days)

The RTC Alarm Date feature is visible only when **Resume on RTC Alarm** is enabled. This feature enables the user to specify a specific date each month or daily recurrence. Use the **+** and **-** keys on the number pad to change the value of the RTC Alarm Date.

Every Day
The Every Day option triggers the RTC Alarm daily.

1 – 31
When a specific numeric date is selected, the RTC Alarm will be triggered on that day of the month.

6.6.6.10. System Time

The System Time option enables the user to specify the time the system should power on for the date that is set in **RTC Alarm Date**.

6.6.7. Spread Spectrum Configuration

The Spread Spectrum Configuration screen enables access to the Spread Spectrum Setting feature.

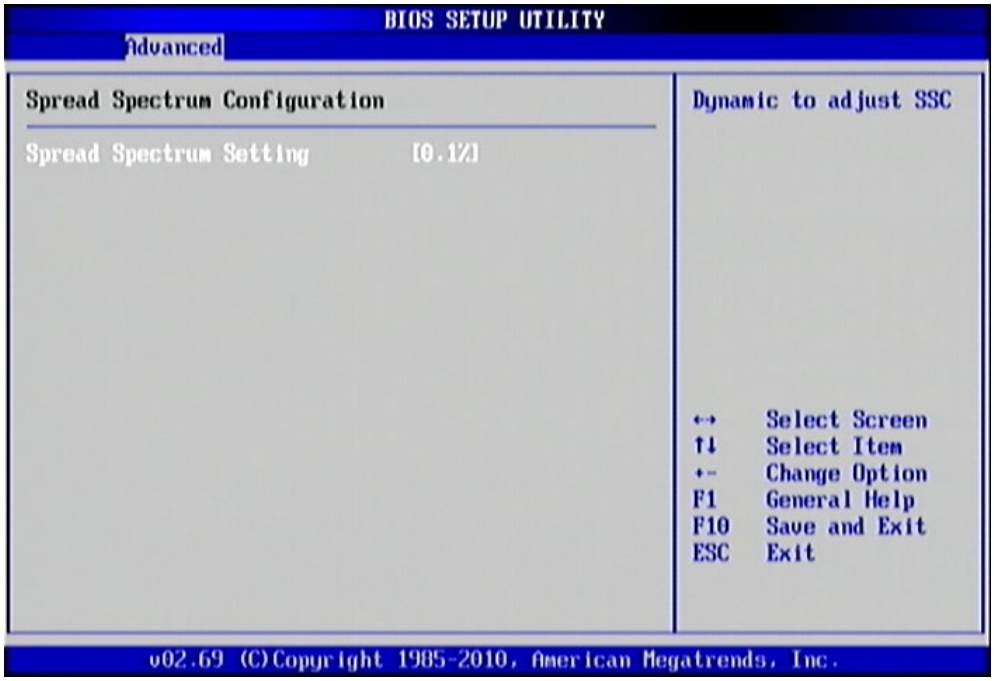


Figure 59: Illustration of Spread Spectrum Configuration screen

6.6.7.1. CPU Spread Spectrum Setting

The Spread Spectrum Setting feature enables the BIOS to modulate the clock frequencies originating from the board. The settings are in percentages of modulation. Higher percentages result in greater modulation of clock frequencies. This feature has settings that range from 0.1% to 0.9%.

6.6.8. USB Configuration

The USB Configuration screen shows the number of connected USB devices.

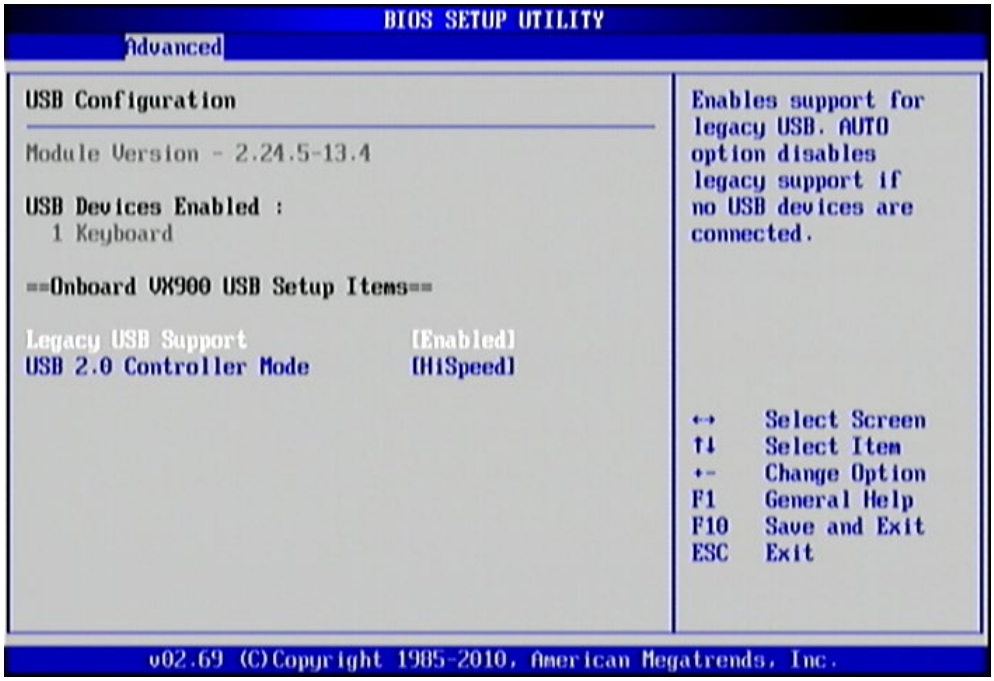


Figure 60: Illustration of USB Configuration screen

6.6.8.1. Legacy USB Support

The Legacy USB Support feature enables environments that do not have native USB support to use USB devices. This feature has three options.

Auto
The Auto option automatically disables legacy support if no USB devices are connected.

Enabled
The Enabled option keeps the Legacy USB Support feature on at all times.

Disabled
The Disabled option keeps the Legacy USB Support feature off at all times.

6.6.8.2. USB 2.0 Controller Mode

The USB 2.0 Controller Mode feature enables the user to set the USB 2.0 controller in HiSpeed (480Mbps) or FullSpeed (12Mbps) mode.

FullSpeed
The FullSpeed option limits the USB 2.0 controller to transfer data at 12Mbps.

HiSpeed
The HiSpeed option enables the USB 2.0 controller to transfer data at 480Mbps. The connected USB device must support USB 2.0 HiSpeed in order to benefit from this setting.

6.6.9. CRB Configuration

The CRB Configuration screen shows the available BIOS-controlled DRAM clock, graphics adapter, display device and LAN control features.

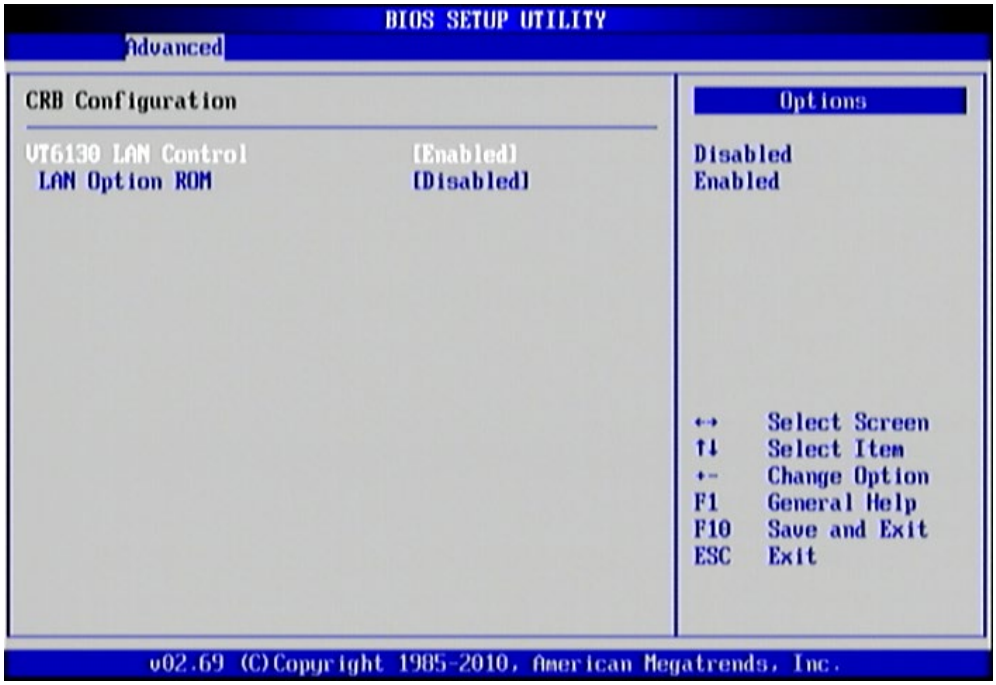


Figure 61: Illustration of CRB Configuration screen

6.6.9.1. VT6130 LAN Control

The VT6130 LAN Control feature determines whether the onboard LAN controller will be used or not.

6.6.9.2. LAN Option ROM

The LAN Option ROM feature will only be visible if the **VT6130 LAN Control** feature is enabled. If the LAN Option ROM feature is enabled, then the system will load a separate ROM for the LAN controller in order to boot from Gigabit LAN.

6.7. Boot Settings

The Boot Settings screen has a single link that goes to the **Boot Settings Configuration** and **Boot Device Priority** screens.

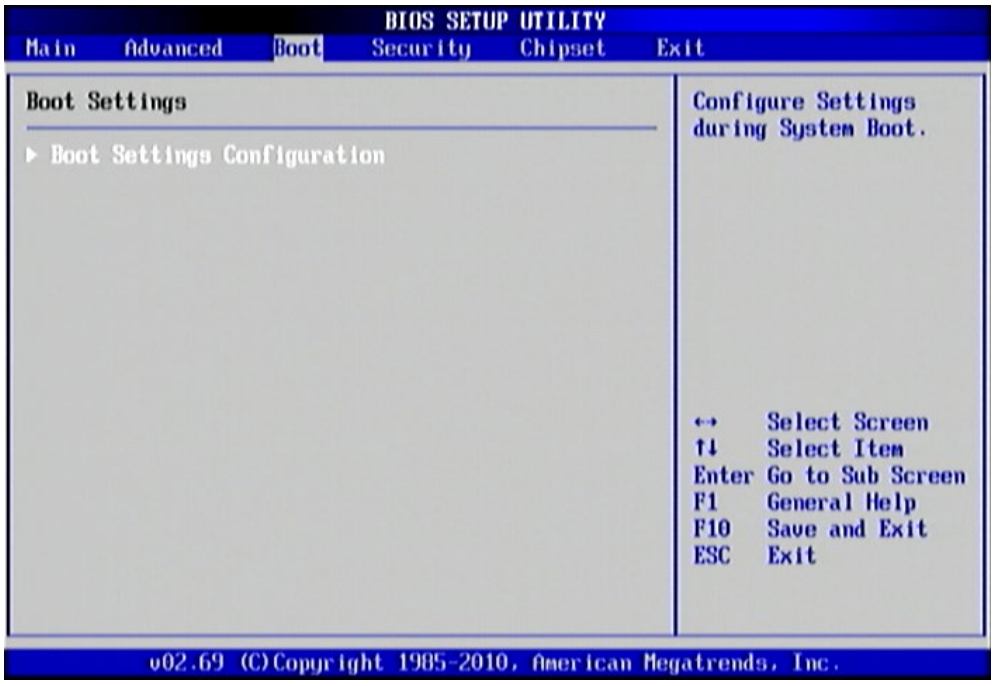


Figure 62: Illustration of Boot Settings screen

6.7.1. Boot Settings Configuration

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

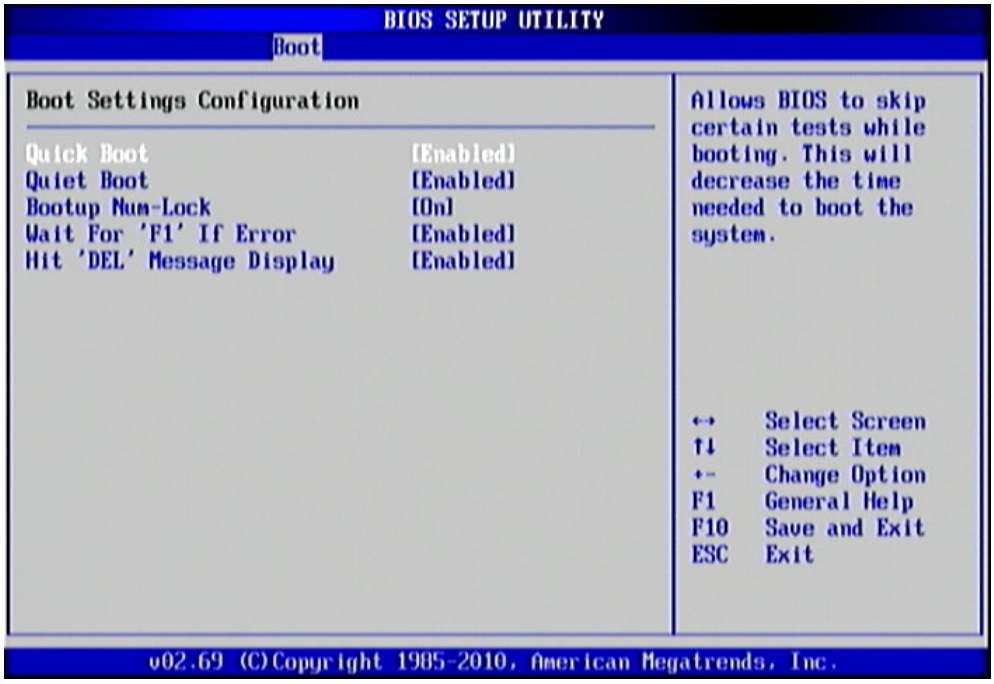


Figure 63: Illustration of Boot Settings Configuration screen

6.7.1.1. Quick Boot

The Quick Boot feature enables the BIOS to skip certain tests in order to speed up the boot sequence. This feature has two options: enabled and disabled.

6.7.1.2. Quiet Boot

The Quiet Boot feature hides all of the Power-on Self Test (POST) messages during the boot sequence. Instead of the POST messages, the user will see an OEM logo. This feature has two options: enabled and disabled.

6.7.1.3. Bootup Num-Lock

The Bootup Num-Lock feature determines how the 10-key pad will behave. When the feature is enabled, the 10-key pad will behave as a number pad. When the feature is disabled, the 10-key pad will behave as cursor navigation keys.

6.7.1.4. Wait for 'F1' if Error

This feature determines how the system will respond if an error is detected during the boot sequence. If this feature is enabled, the BIOS will pause booting and wait for the user to press F1 to enter the BIOS setup menu. This feature has two options: enabled and disabled.

6.7.1.5. Hit 'DEL' Message Display

This feature determines if the BIOS will display a POST message that informs the user how to access the BIOS Setup Utility.[1] This feature has two options: enabled and disabled.

Note:

If the Quiet Boot option is enabled, the settings of this feature will have no effect.

6.8. Security Settings

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

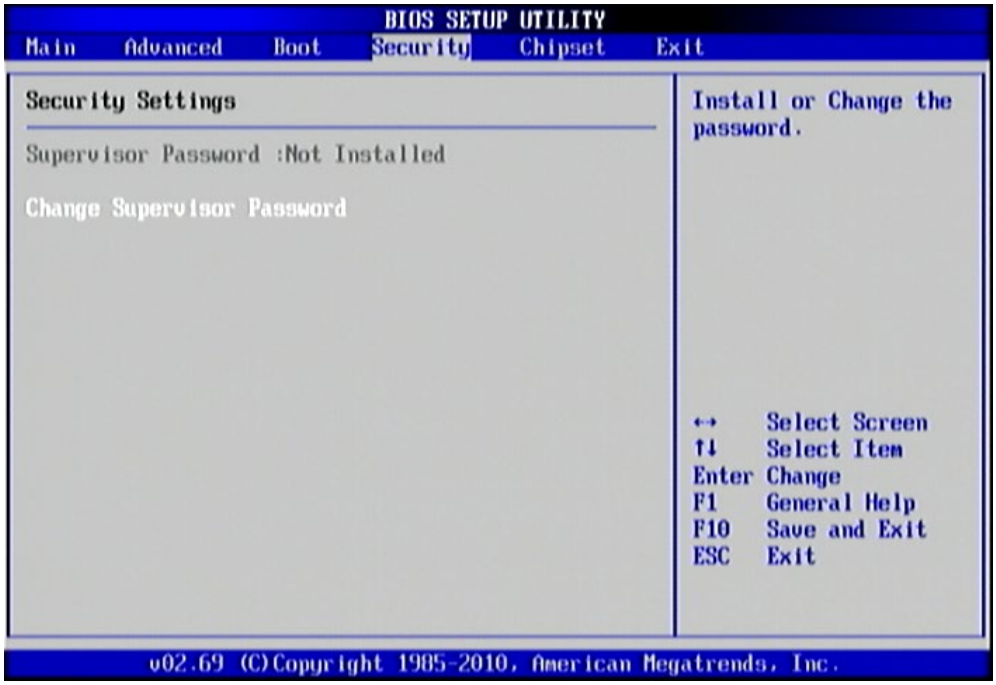


Figure 64: Illustration of Security Settings screen

6.8.1. Security Settings

6.8.1.1. Change Supervisor 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.

6.8.1.2. Password Check

This feature is compulsory when the **Change Supervisor Password** option is set. The user will have up to three chances to enter the correct password before the BIOS forces the system to stop booting. If the user does not enter the correct password, the keyboard will also lock up. The only way to get past this is to do a hard reboot (i.e., use the system reset button or cut off the power to the system). A soft reboot (i.e., Ctrl+Alt+Del) will not work because the keyboard will be locked. This feature has two options.

Setup
The Setup option forces users to enter a password in order to access the BIOS Setup Utility.

Always
The Always option forces users to enter a password in order to boot up the system.

6.9. Advanced Chipset Settings

The Advanced Chipset Settings screen has two links for accessing North and South bridge functions. Though the VX900 is a single chip solution, the North and South bridge categories are still for grouping features.

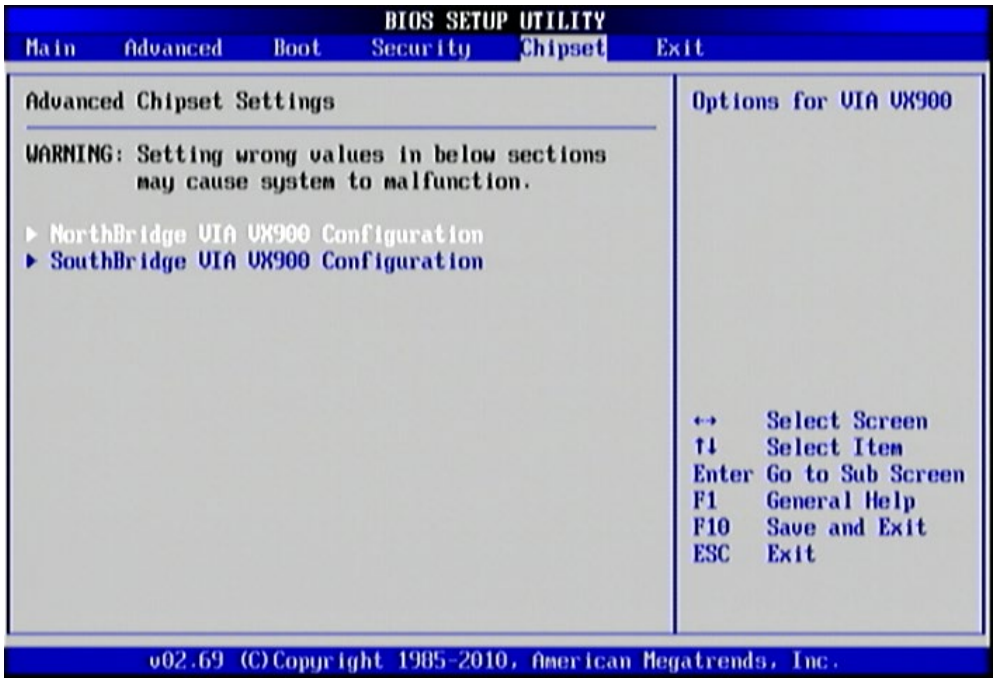


Figure 65: Illustration of Advanced Chipset Settings screen

6.9.1. North Bridge VIA VX900 Configuration

The North Bridge VIA VX900 Configuration screen contains two links to sub-screen.

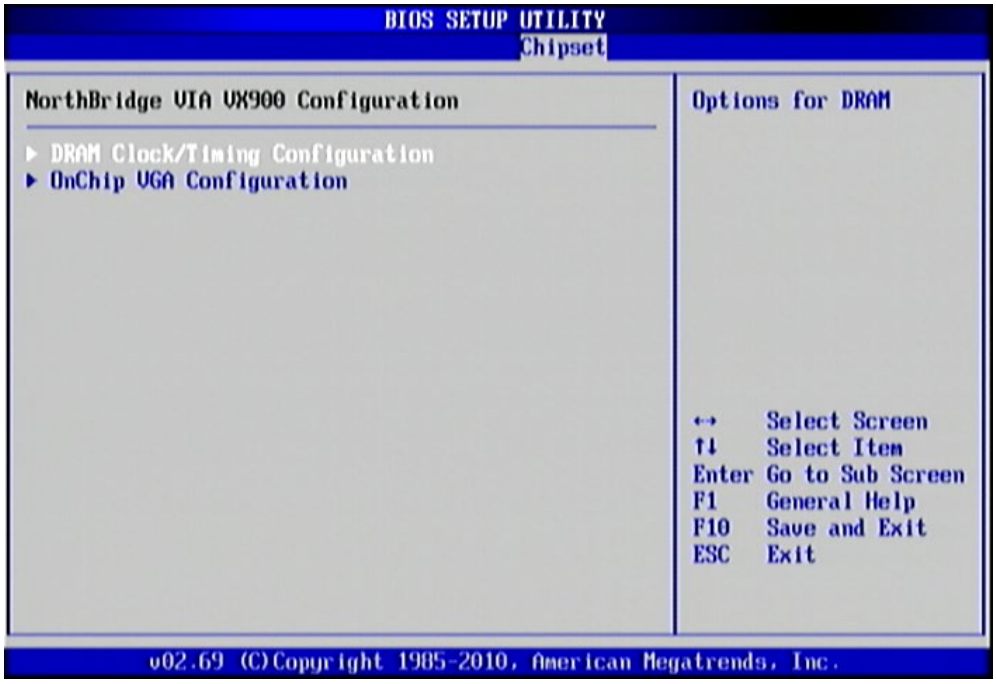


Figure 66: Illustration of North Bridge VIA VX900 Configuration screen

6.9.1.1. DRAM Clock/Timing Configuration

The DRAM Clock/Timing Configuration screen has one feature for controlling the system DRAM. All other DRAM features are automated and cannot be accessed.

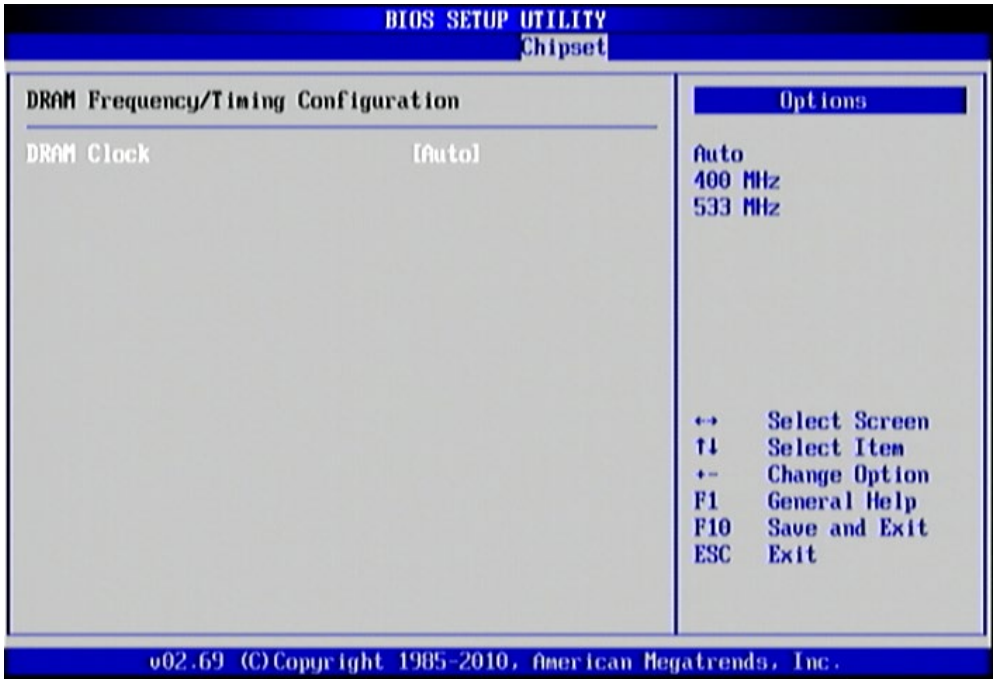


Figure 67: Illustration of DRAM Frequency/Timing Configuration screen

6.9.1.1.1. DRAM Clock

The DRAM Clock option enables the user to determine how the BIOS handles the memory clock frequency. The memory clock can either be dynamic or static. This feature has three options.

Auto

The Auto option enables the BIOS to select a compatible clock frequency for the installed memory.

400MHz

The 400MHz option forces the BIOS to be fixed at 800MHz for DDR3 memory modules.

533MHz

The 533MHz option forces the BIOS to be fixed at 1066MHz for DDR3 memory modules.

6.9.1.2. OnChip VGA Configuration

The OnChip VGA Configuration screen has features for controlling the integrated graphics controller in the VX900 chipset.

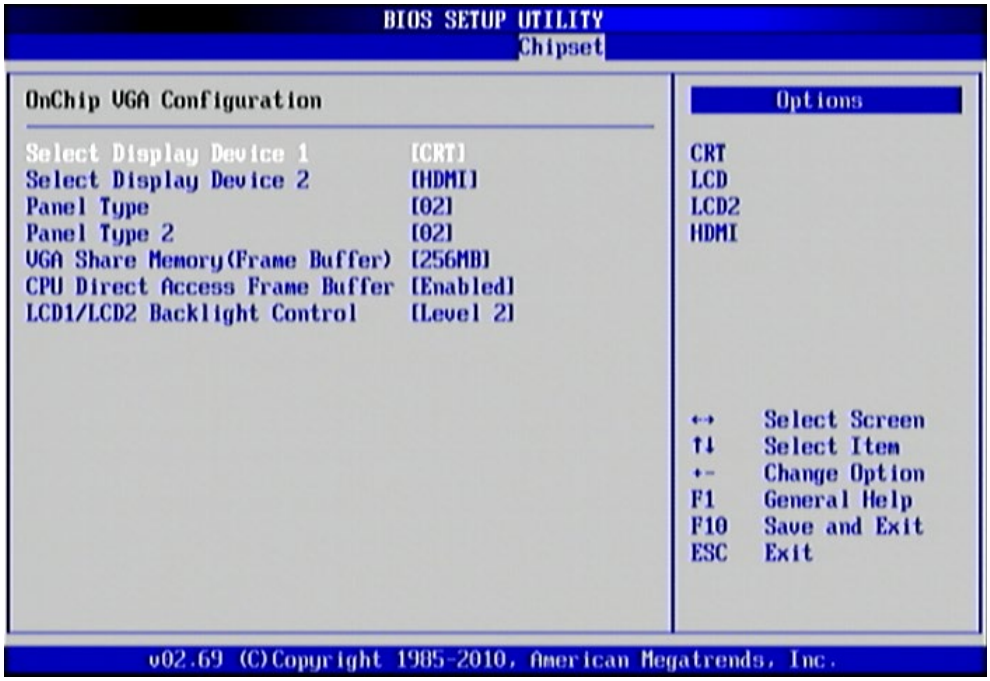


Figure 68: Illustration of OnChip VGA Configuration screen

6.9.1.2.1. Select Display Device 1 and 2

The Select Display Device feature enables the user to choose a specific display interface. This feature has four options: CRT, LCD, LCD2 and HDMI. If both Select Display Device 1 and Select Display Device 2 are set to the same interface, then any display device connected to the other interface will not function. For example, if both Select Display 1 and 2 are set to CRT, then no data will be sent to the HDMI, LCD and LCD2 port.

6.9.1.2.2. Panel Type

The Panel Type feature enables the user to specify the resolution of the display being used with the system. The panel types are predefined in the VGA VBIOS.

Panel Type	Resolution	Panel Type	Resolution
00	640 x 480	08	800 x 480
01	800 x 600	09	1024 x 600
02	1024 x 768	10	1366 x 768
03	1280 x 768	11	1600 x 1200
04	1280 x 1024	12	1680 x 1050
05	1400 x 1050	13	1920 x 1200
06	1440 x 900	14	1920 x 1080
07	1280 x 800	15	1024 x 576

6.9.1.2.3. VGA Share Memory (Frame Buffer)

The VGA Share Memory feature enables the user to choose the amount of the system memory to reserve for use by the integrated graphics controller. The selections of memory amount that can be reserved are 128MB, 256MB and 512MB.

6.9.1.2.4. CPU Direct Access Frame Buffer

The CPU Direct Access Frame Buffer feature enables the CPU to write to the portion of memory reserved for the integrated graphics controller. This feature has two options: "Disabled" and" Enabled".

6.9.1.2.5. LCD/LCD2 Backlight Control

The Backlight Control feature control by VX900 enables the user to control the brightness of the LCD/LCD2 backlight. This feature has five options.

Level 1 0% PWM Duty

Level 1 25% PWM Duty

Level 2 50% PWM Duty

Level 3 75% PWM Duty

Level 4 100% PWM Duty

6.9.2. South Bridge VIA VX900 Configuration

The South Bridge VIA VX900 Configuration screen has the following features.

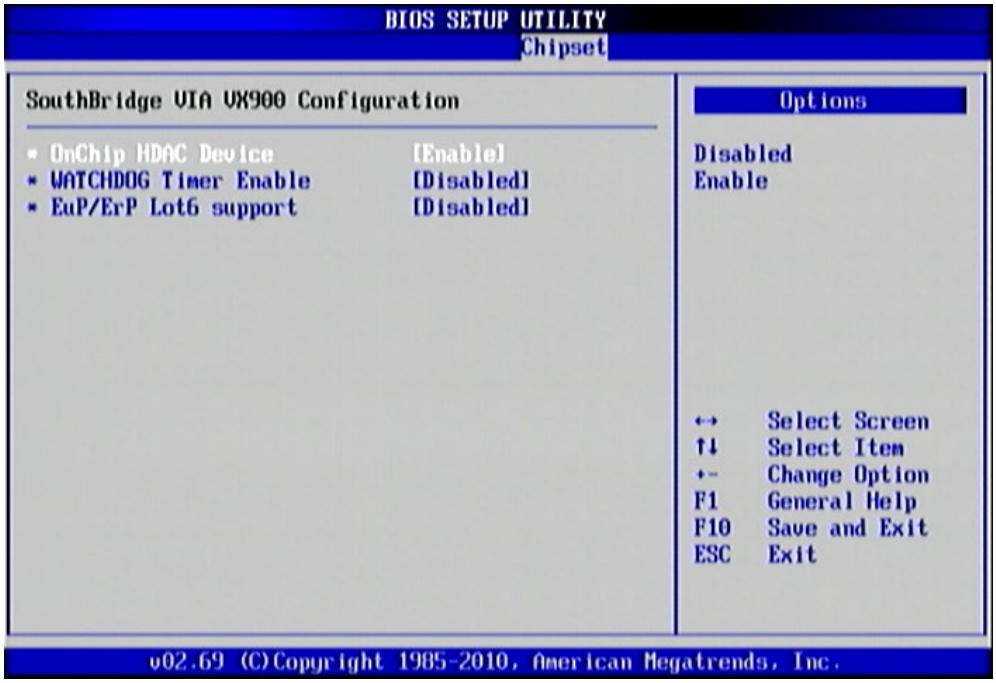


Figure 69: Illustration of South Bridge VIA VX900 Configuration screen

6.9.2.1. OnChip HDAC Device

The OnChip HDAC Device feature enables the BIOS to control the high definition audio codec in the chipset. This feature has two options: "Enable" or "Disable".

6.9.2.2. WATCHDOG Timer Enable

The WATCHDOG Timer Enable feature unlocks three other features that enable the BIOS to monitor the state of the system. This feature has two options: "Enabled" or "Disabled".

6.9.2.3. Eup/ErP Lot6 support

The EuP/ErP Lot6 Support feature enables the BIOS to reduce the power draw to less than 1W when the system is in standby mode. This feature has two options: enabled and disabled.

6.10. Exit Options

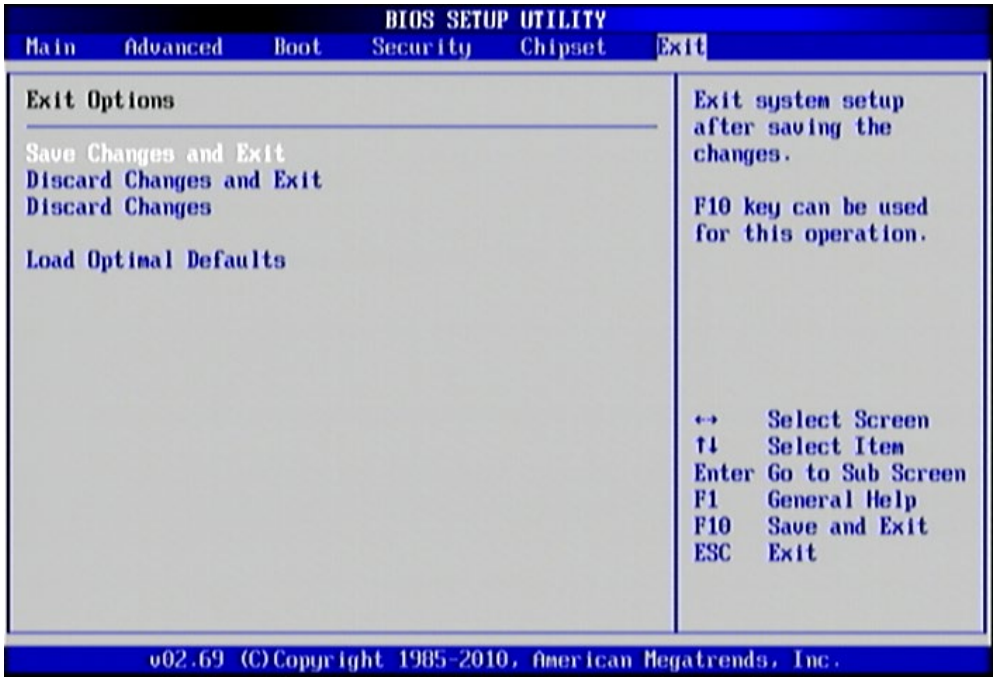


Figure 70: Illustration of Exit Options screen

6.10.1. Save Changes and Exit

Save all changes to the BIOS and exit the BIOS Setup Utility. The "F10" hotkey can also be used to trigger this command.

6.10.2. Discard Changes and Exit

Exit the BIOS Setup Utility without saving any changes. The "Esc" hotkey can also be used to trigger this command.

6.10.3. Discard Changes

This command reverts all changes to the settings that were in place when the BIOS Setup Utility was launched.

6.10.4. Load Optimal Defaults

Load optimal default values for all the setup items. The default optimized values are defined by the board manufacturer to provide optimized environment for a basic system.

7. Software and Technical Support

7.1. Microsoft and Linux Support

The VIA-EPIA-M910 is compatible with Microsoft Windows and Linux operating systems.

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.
- Visiting www.viatech.com for the latest updated drivers.
- Installing a third party driver (such as the ALSA driver from the Advanced Linux Sound Architecture project for integrated audio).

7.2. Technical Supports and Assistance

- For utilities downloads, latest documentation and information about the VIA EPIA-M910, please visit our website at https://www.viatech.com/en/products/boards/mini-itx/epia-m910/
- 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

A.1. Installing the VIA EMIO-1533 USB Wi-Fi Module

Step 1

Mount the VIA EMIO-1533 module to the prepared standoff in the chassis. Align the two mounting holes on the VIA EMIO-1533 module with the mounting holes on the standoffs, and then secure the VIA EMIO-1533 module in place with two screws.

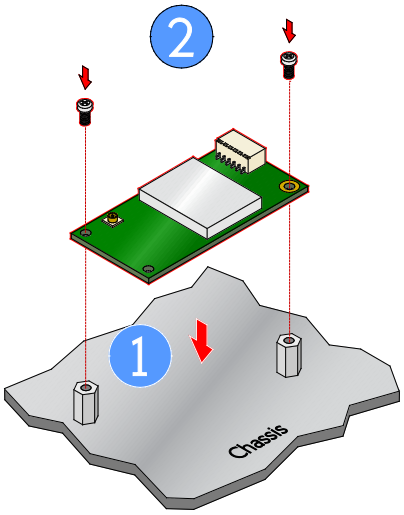


Figure 71: Installing VIA EMIO-1533 module to the chassis

Step 2

Connect one end of the USB Wi-Fi cable to pin 1, 3, 5, and 7 of onboard USB 2.0 pin header (USB_1 or USB_2) on VIA EPIA-M910 board, and then connect the other end of the cable to the VIA EMIO-1533 module.

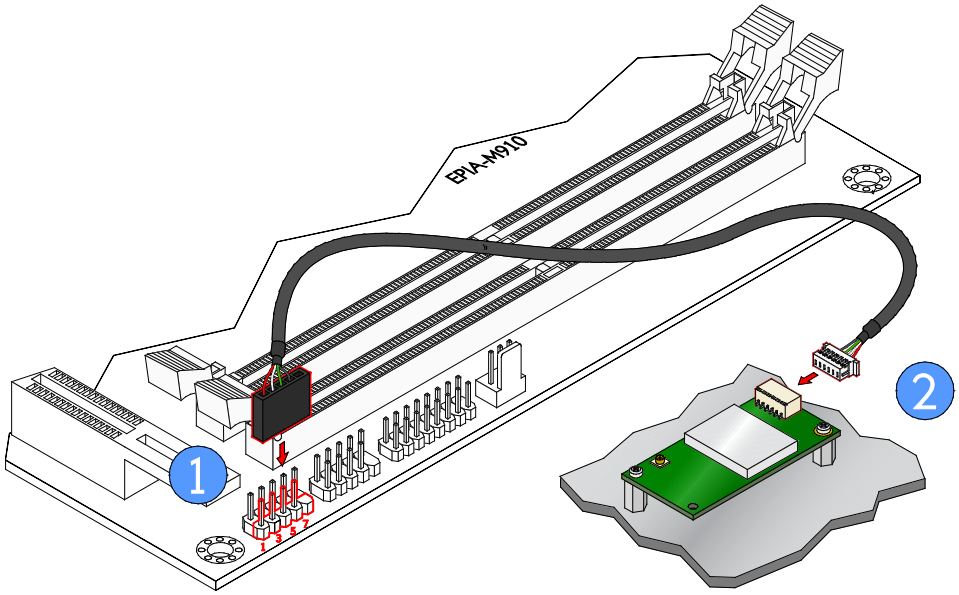


Figure 72: Connecting the USB Wi-Fi cable (VIA EMIO-1533)

Step 3

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

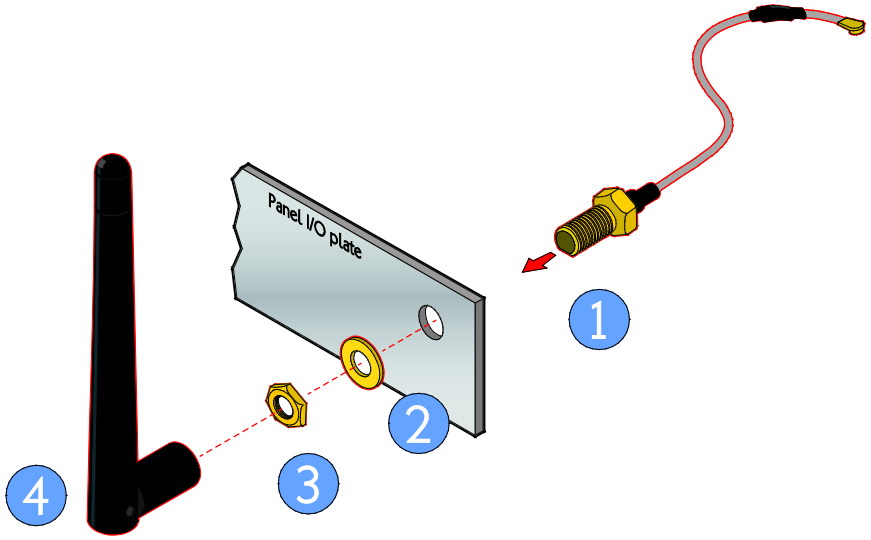


Figure 73: Installing Wi-Fi antenna cable (VIA EMIO-1533)

Step 4

Connect the other end of the Wi-Fi antenna cable to the micro-RF connector labeled "I-PEX" on the VIA EMIO-1533 module.

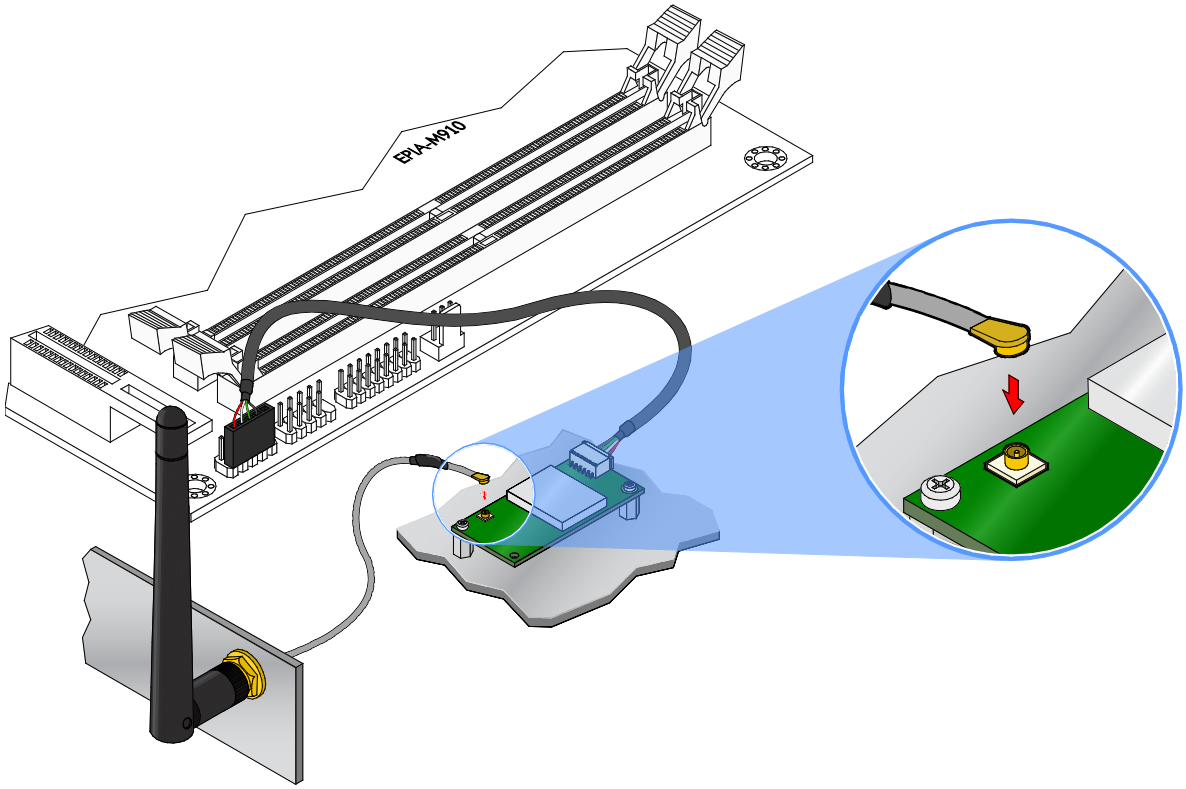


Figure 74: Connecting Wi-Fi antenna cable to the micro-RF connector (VIA EMIO-1533)

A.2. Installing the VIA EMIO-5531 USB Wi-Fi & Bluetooth Module

Step 1

Mount the VIA EMIO-5531 module to the prepared standoff in the chassis. Align the two mounting holes on the VIA EMIO-5531 module with the mounting holes on the standoffs. And then secure the VIA EMIO-5531 module in place with two screws.

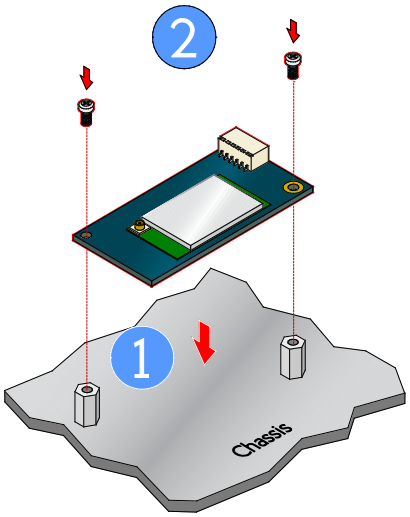


Figure 75: Installing VIA EMIO-5531 module to the chassis

Step 2

Connect one end of USB Wi-Fi cable to pin 1, 3, 5, and 7 of onboard USB 2.0 pin header (USB_1 or USB_2) on VIA EPIA-M910 board, and then connect the other end of the cable to the VIA EMIO-5531 module.

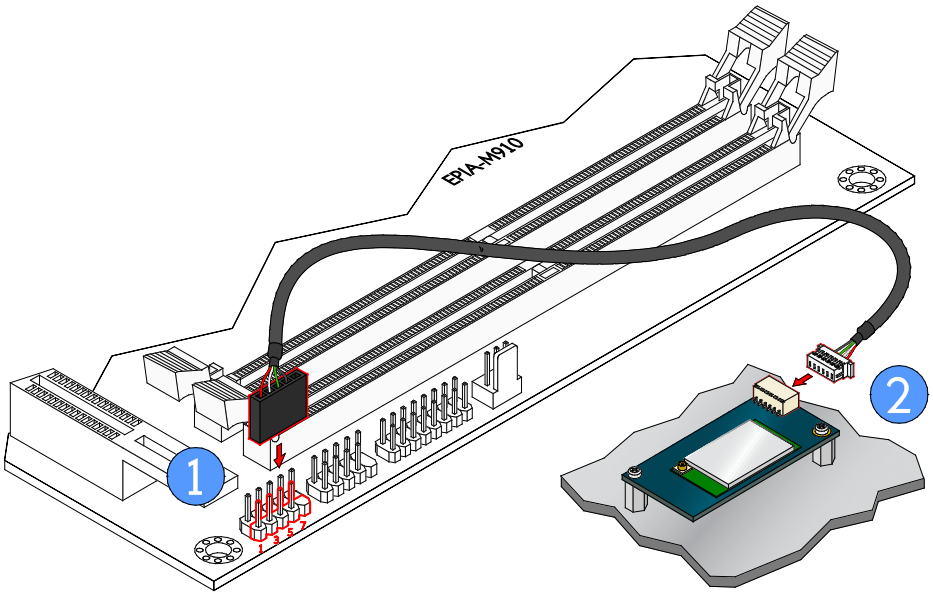


Figure 76: Connecting the USB Wi-Fi cable (VIA EMIO-5531)

Step 3

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

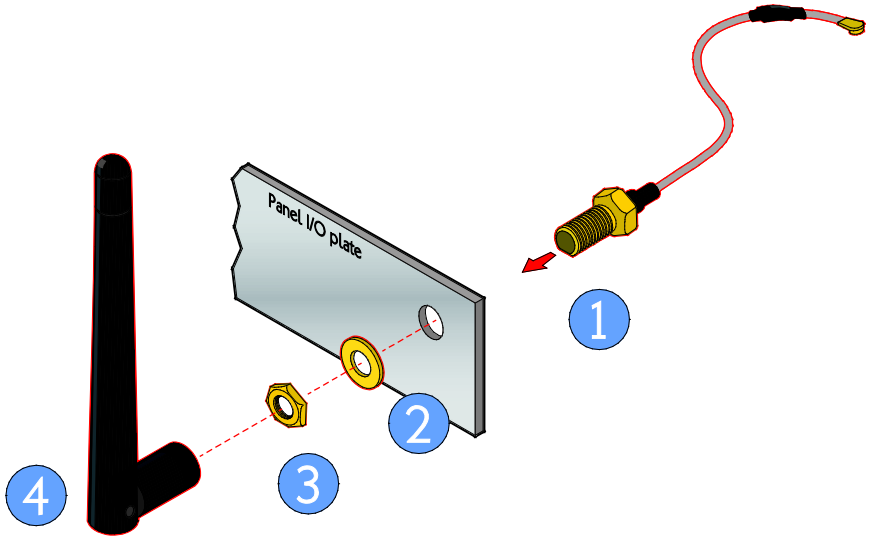


Figure 77: Installing Wi-Fi antenna cable (VIA EMIO-5531)

Step 4

Connect the other end of the Wi-Fi antenna cable to the micro-RF connector labeled "I-PEX" on the VIA EMIO-5531 module.

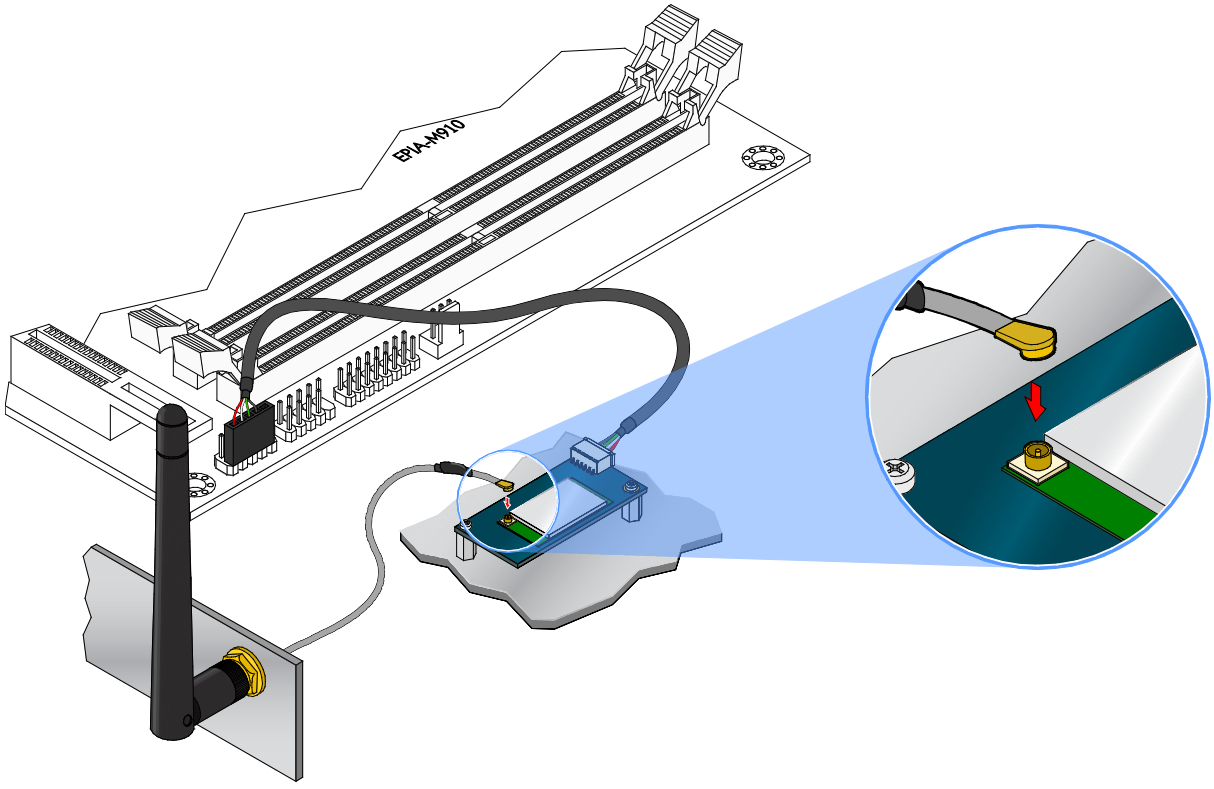


Figure 78: Connecting Wi-Fi antenna cable to the micro-RF connector (VIA EMIO-5531)

Appendix B. Power Consumption Report

Power consumption tests were performed on the VIA EPIA-M910. The following tables represent the breakdown of the voltage, amp and wattage values while running common system applications.

B.1. EPIA-M910-16

The tests were performed based on the following additional components:

- **Memory:** Kingston DDR3-1333 4GB
- **HDD:** SATA 80G Samsung
- **DVD:** Sony

B.1.1. Playing DVD – Power DVD 5.0

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.007	1.048	3.151
Main Board +5V	4.873	1.225	5.969
Main Board 5VSB	4.810	1.164	5.599
Main Board +12V	11.826	1.723	20.376
Main Board Power Consumption			35.096

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.973	1.007	2.994
Main Board +5V	4.837	0.842	4.073
Main Board 5VSB	4.783	1.137	5.438
Main Board +12V	11.785	0.709	8.356
Main Board Power Consumption			20.860

B.1.2. Playing MP3-Media Player

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.988	0.994	2.970
Main Board +5V	4.840	1.008	4.879
Main Board 5VSB	4.748	1.743	8.276
Main Board +12V	11.774	2.202	25.926
Main Board Power Consumption			42.051

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.972	0.978	2.907
Main Board +5V	4.824	0.629	3.034
Main Board 5VSB	4.733	1.726	8.169
Main Board +12V	11.729	0.672	7.882
Main Board Power Consumption			21.992

B.1.3. Running Network Application

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.988	0.973	2.907
Main Board +5V	4.837	1.048	5.069
Main Board 5VSB	4.752	1.752	8.326
Main Board +12V	11.766	2.034	23.932
Main Board Power Consumption			40.234

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.902	0.934	2.710
Main Board +5V	4.751	0.843	4.005
Main Board 5VSB	4.659	1.707	7.953
Main Board +12V	11.460	1.702	19.505
Main Board Power Consumption			34.173

B.1.4. IDLE

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.998	1.007	3.019
Main Board +5V	4.842	0.949	4.595
Main Board 5VSB	4.752	1.736	8.249
Main Board +12V	11.779	1.326	15.619
Main Board Power Consumption			31.482

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.989	0.976	2.917
Main Board +5V	4.834	0.618	2.987
Main Board 5VSB	4.746	1.698	8.059
Main Board +12V	11.767	0.536	6.307
Main Board Power Consumption			20.270

B.1.5. RUN Burn-in Test

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.899	0.991	2.873
Main Board +5V	4.749	1.376	6.535
Main Board 5VSB	4.647	1.741	8.090
Main Board +12V	11.447	2.383	27.278
Main Board Power Consumption			44.776

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	2.865	0.930	2.664
Main Board +5V	4.705	0.951	4.474
Main Board +12V	4.615	1.728	7.975
Main Board 5VSB	11.311	2.143	24.239
Main Board Power Consumption			39.353

B.1.6. S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.015	0.594	2.979
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			2.979

Main Board Power Consumption			2.979
MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.014	0.580	2.908
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			2.908

B.1.7. S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.022	0.542	2.722
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			2.722

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.020	0.529	2.656
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			2.656

B.1.8. EuP/ErP Enable S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.067	0.115	0.583
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.583

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.065	0.103	0.522
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.522

B.1.9. EuP/ErP Enable S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.072	0.072	0.365
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.365

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.071	0.054	0.274
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.274

B.2. EPIA-M910-16P

The tests were performed based on the following additional components:

- **Memory:** Kingston DDR3-1333 4GB
- **HDD:** SATA 80G Samsung
- **DVD:** Sony

B.2.1. Playing DVD – Power DVD 5.0

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.902	3.061	36.432
Main Board Power Consumption			36.432

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.853	2.073	24.571
Main Board Power Consumption			24.571

B.2.2. Playing MP3 – Media Player

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.862	3.264	38.718
Main Board Power Consumption			38.718

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.810	2.006	23.691
Main Board Power Consumption			23.691

B.2.3. Running Network Application

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.810	3.517	41.536
Main Board Power Consumption			41.536

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.732	3.413	40.041
Main Board Power Consumption			40.041

B.2.4. IDLE

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.884	1.770	21.035
Main Board Power Consumption			21.035

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.879	1.731	20.563
Main Board Power Consumption			20.563

B.2.5. RUN Burn-in Test

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.751	3.785	44.478
Main Board Power Consumption			44.478

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.723	3.478	40.773
Main Board Power Consumption			40.773

B.2.6. S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.040	0.279	3.359
Main Board Power Consumption			3.359

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.036	0.262	3.153
Main Board Power Consumption			3.153

B.2.7. S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.043	0.259	3.119
Main Board Power Consumption			3.119

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.041	0.246	2.962
Main Board Power Consumption			2.962

B.2.8. EuP/ErP Enable S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.074	0.068	0.821
Main Board Power Consumption			0.821

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.071	0.054	0.652
Main Board Power Consumption			0.652

B.2.9. EuP/ErP Enable S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.075	0.048	0.580
Main Board Power Consumption			0.580

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.072	0.031	0.374
Main Board Power Consumption			0.374

B.3. EPIA-M910-10E

The tests were performed based on the following additional components:

- **Memory:** Kingston DDR3-1333 4GB
- **HDD:** SATA 80G Samsung
- **DVD:** Sony

B.3.1. Playing DVD – Power DVD 5.0

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.097	0.884	2.738
Main Board +5V	4.801	1.467	7.043
Main Board 5VSB	4.726	1.731	8.181
Main Board +12V	11.863	0.953	11.305
Main Board Power Consumption			29.267

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.087	0.860	2.655
Main Board +5V	4.778	1.292	6.173
Main Board 5VSB	4.712	1.718	8.095
Main Board +12V	11.839	0.449	5.316
Main Board Power Consumption			22.239

B.3.2. Playing MP3 – Media Player

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.104	0.867	2.691
Main Board +5V	4.801	1.248	5.992
Main Board 5VSB	4.731	1.733	8.199
Main Board +12V	11.865	1.127	13.372
Main Board Power Consumption			30.253

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.093	0.855	2.645
Main Board +5V	4.790	1.129	5.408
Main Board 5VSB	4.720	1.718	8.109
Main Board +12V	11.837	0.469	5.552
Main Board Power Consumption			21.713

B.3.3. Running Network Application

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.060	0.857	2.622
Main Board +5V	4.757	1.456	6.926
Main Board 5VSB	4.701	1.733	8.147
Main Board +12V	11.766	1.209	14.225
Main Board Power Consumption			31.921

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.039	0.818	2.486
Main Board +5V	4.733	1.383	6.546
Main Board 5VSB	4.664	1.692	7.891
Main Board +12V	11.717	1.030	12.069
Main Board Power Consumption			28.992

B.3.4. IDLE

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.111	0.853	2.654
Main Board +5V	4.807	1.247	5.994
Main Board 5VSB	4.738	1.685	7.984
Main Board +12V	11.874	0.375	4.453
Main Board Power Consumption			21.084

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.109	0.839	2.608
Main Board +5V	4.806	1.101	5.291
Main Board 5VSB	4.737	1.672	7.920
Main Board +12V	11.872	0.306	3.633
Main Board Power Consumption			19.453

B.3.5. RUN Burn-in Test

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.053	0.840	2.565
Main Board +5V	4.756	1.560	7.419
Main Board 5VSB	4.680	1.735	8.120
Main Board +12V	11.758	1.231	14.474
Main Board Power Consumption			32.578

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.031	0.828	2.510
Main Board +5V	4.727	1.383	6.537
Main Board 5VSB	4.655	1.721	8.011
Main Board +12V	11.710	1.015	11.886
Main Board Power Consumption			28.944

B.3.6. S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.030	0.472	2.374
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			2.374

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.026	0.453	2.277
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			2.277

B.3.7. S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.078	0.073	0.371
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.371

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.075	0.058	0.294
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.294

B.3.8. EuP/ErP Enable S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.070	0.121	0.613
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.613

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.068	0.107	0.542
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.542

B.3.9. EuP/ErP Enable Power OFF

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.075	0.066	0.335
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.335

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.075	0.055	0.279
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.279

B.4. EPIA-M910-10PE

The tests were performed based on the following additional components:

- **Memory:** Kingston DDR3-1333 4GB
- **HDD:** SATA 80G Samsung
- **DVD:** Sony

B.4.1. Playing DVD – Power DVD 5.0

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.833	2.473	29.263
Main Board Power Consumption			29.263

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.774	1.884	22.182
Main Board Power Consumption			22.182

B.4.2. Playing MP3 – Media Player

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.872	2.487	29.526
Main Board Power Consumption			29.526

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.829	1.695	20.050
Main Board Power Consumption			20.050

B.4.3. Running Network Application

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.825	2.534	29.965
Main Board Power Consumption			29.965

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.796	2.371	27.968
Main Board Power Consumption			27.968

B.4.4. IDLE

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.822	1.807	21.362
Main Board Power Consumption			21.362

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.817	1.761	20.810
Main Board Power Consumption			20.810

B.4.5. RUN Burn-in Test

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.793	2.649	31.240
Main Board Power Consumption			31.240

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	11.740	2.415	28.352
Main Board Power Consumption			28.352

B.4.6. S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.060	0.165	1.990
Main Board Power Consumption			1.990

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.056	0.147	1.772
Main Board Power Consumption			1.772

B.4.7. S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.067	0.135	1.629
Main Board Power Consumption			1.629

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.063	0.123	1.484
Main Board Power Consumption			1.484

B.4.8. EuP/ErP Enable S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.076	0.071	0.857
Main Board Power Consumption			0.857

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.072	0.056	0.676
Main Board Power Consumption			0.676

B.4.9. EuP/ErP Enable S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.079	0.047	0.568
Main Board Power Consumption			0.568

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +12V	12.076	0.033	0.399
Main Board Power Consumption			0.399

B.5. EPIA-M910-12Q

The tests were performed based on the following additional components:

- **Memory:** Kingston DDR3-1333 2GB
- **HDD:** SATA 80G Samsung
- **DVD:** Sony

B.5.1. Playing DVD – Power DVD 5.0

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.227	0.875	2.824
Main Board +5V	4.903	1.586	7.776
Main Board 5VSB	4.906	0.543	2.664
Main Board +12V	11.949	1.464	17.493
Main Board Power Consumption			30.757

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.215	0.870	2.797
Main Board +5V	4.891	0.511	2.499
Main Board 5VSB	4.887	1.337	6.534
Main Board +12V	11.886	0.707	8.403
Main Board Power Consumption			20.234

B.5.2. Playing MP3 – Media Player

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.246	0.916	2.973
Main Board +5V	4.925	1.417	6.979
Main Board 5VSB	4.923	0.583	2.870
Main Board +12V	11.968	1.625	19.448
Main Board Power Consumption			32.270

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.236	0.885	2.864
Main Board +5V	4.913	1.267	6.225
Main Board 5VSB	4.913	0.508	2.496
Main Board +12V	11.910	0.686	8.170
Main Board Power Consumption			19.755

B.5.3. Running Network Application

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.075	0.984	3.026
Main Board +5V	4.758	1.493	7.104
Main Board 5VSB	4.582	1.804	8.266
Main Board +12V	11.576	2.000	23.152
Main Board Power Consumption			41.547

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.041	0.938	2.852
Main Board +5V	4.715	1.423	6.709
Main Board 5VSB	4.527	1.786	8.085
Main Board +12V	11.430	1.931	22.071
Main Board Power Consumption			39.718

B.5.4. IDLE

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.238	0.985	3.189
Main Board +5V	4.922	1.336	6.576
Main Board 5VSB	4.919	0.512	2.519
Main Board +12V	11.974	1.445	17.302
Main Board Power Consumption			29.586

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.236	0.980	3.171
Main Board +5V	4.920	1.180	5.806
Main Board 5VSB	4.916	0.503	2.473
Main Board +12V	11.940	0.465	5.552
Main Board Power Consumption			17.002

B.5.5. RUN Burn-in Test

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.178	0.884	2.809
Main Board +5V	4.861	1.876	9.119
Main Board 5VSB	4.855	0.065	0.316
Main Board +12V	11.719	1.956	22.922
Main Board Power Consumption			35.167

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.141	0.826	2.594
Main Board +5V	4.810	1.448	6.965
Main Board 5VSB	4.818	0.520	2.505
Main Board +12V	11.573	1.791	20.727
Main Board Power Consumption			32.792

B.5.6. S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.058	0.403	2.038
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			2.038

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.052	0.394	1.990
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			1.990

B.5.7. S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.064	0.364	1.843
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			1.843

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.061	0.339	1.716
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			1.716

B.5.8. EuP/ErP Enable S3

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.077	0.177	0.899
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.899

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.074	0.175	0.888
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.888

B.5.9. EuP/ErP Enable S5

MAX	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.086	0.120	0.610
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.610

MEAN	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	5.080	0.116	0.589
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.589

Appendix C. Mating Connector Vendors List

The following table listed the mating connector vendors list of VIA EPIA-M910.

Connector	Part No.	Mating Vendor & P/N	
F_Audio	99G30-05458I	Neltron	MMS-1XX-01-XX-DV
		2207S-XXG	
		2207R-XXG	
		2207SM-XXG-45	
F_PANEL	99G30-05009I	Neltron	SAMTEC SSW Series
		2214S-XXG-85	
		2214R-XXG-85	
FAN	99G30-020035	Neltron	N/A
		2218H-03	N/A
Inverter	99G30-020537	ACES	MOLEX
		85206-0800	51021-**00
LVDS	99G30-170152	ACES	HRS
		44002-4000	DF13-**DS-1.258C
USB	99G30-05072K	Neltron 2214S-XXG-85/2214R-XXG-85	SAMTEC SSW Series

Table 41: VIA EPIA-M910 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