USER MANUAL

ARTiGO-A1250

Slim Size System with EPIA-P910

1.00-10312012-102400

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Regulatory Compliance

FCC-A Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

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

Notice 2

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

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.
- ☐ Lay this equipment on a reliable flat surface before setting it up.
- ☐ Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- ☐ Place the power cord in such a way that people cannot step on it.
- ☐ Always unplug the power cord before inserting any add-on card or module.
- ☐ If any of the following situations arises, get the equipment checked by authorized service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment has not worked well or you cannot get it work according to User's Manual.
  - The equipment has dropped and damaged.
  - The equipment has obvious sign of breakage.
- ☐ Do not leave this equipment in an environment unconditioned or in a storage temperature above 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 Content

- ☐ 1 x ARTiGO-A1250 system
- ☐ 1 x AC-to-DC adapter, 2-pole, DC 12V/5A, 60W
- ☐ 1 x Power cable, 180 cm , USA type
- ☐ 1 x Quick Guide

Ordering Information

Part Number	Description
ATG-1250-1D10A1	EPIA-P910 board +910-C daughter board. Fan base fully sealed housing.

Optional Accessories

Part Number	Description
EMIO-1533-00A1	WLAN USB IEEE 802.11b/g/n Standards Assembly Kits

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1. Product Overview

The VIA ARTiGO-A1250 is a compact, ultra-slim and fan-base embedded system with an elegant chassis design. The ARTiGO-A1250 is based on the VIA EPIA-P910 Pico-ITX embedded board and powered by high performance 64-bit VIA QuadCore 1.0+ GHz Processor which is superb in multi-tasking performance, high power computing operation with lower power consumption. The ARTiGO-A1250 is fully compatible with Microsoft® and Linux operating systems.

The ARTiGO-A1250 supports intensive dual sided I/O connectors such as USB 2.0 ports, USB 3.0 ports, VGA port, mini-HDMI® port, GigaLAN port, and audio ports for diversified embedded applications. In addition, the ARTiGO-A1250 offers an expanding option for WiFi networking system through WLAN USB module.

The ARTiGO-A1250's system is a robust aluminum alloy with rugged bottom steel chassis.

1.1. Key Features

1.1.1. Compact, Ultra-slim and Space Saving

The ARTiGO-A1250 has an ultra slim and compact chassis, designed to save space that makes it suitable to install in space critical environment and to ensure maximum reliability. It is using a low noise but high efficient fan as a thermal solution.

1.1.2. Optimize integration with dual sided I/O access

Front and rear I/O access enables the ARTiGO-A1250 to easily support various applications as well as for easy integration and quick setup.

1.1.3. Wide Range of Operating Temperatures

The ARTiGO-A1250 carries a qualified thermal performance design which allows a wide range of operating temperatures from 0°C up to 40°C.

1.1.4. Networking Support

The ARTiGO-A1250 is equipped with one RJ-45 port that supports Gigabit Ethernet. The ARTiGO-A1250 also has WLAN module option that gives the ARTiGO-A1250 a freedom of WiFi network connectivity through WLAN USB module.

1.1.5. Embedded OS ready

The ARTiGO-A1250 is 100% compatible with several operating systems including Microsoft Windows 7, Widows XP, Windows XP Embedded Standard 2009, Windows Embedded Standard 7 and Embedded Linux.

1.2. Product Specifications

☐ **Processor Core Logic System**

- **CPU**
  - VIA QuadCore U4650E@1.0+ GHz
    - 800MHz Front Side Bus speed
    - 1 MB L2 Cache memory (32-way) with ECC per core (4MB total)

- **Chipset**
  - VIA VX11H advanced all-in-one system
    - 1333/1066/800 MHz FSB support

- **System Memory**
  - 1 x SODIMM slcket supporting DDR3 1066/1333 MHz

- **BIOS**
  - AMI BIOS, 32 Mbit EFI SPI Flash BIOS

- **System Power Management**
  - Times Power On
  - ACPI supported

☐ Graphics

- **Controller**
  - Integrated Chrome 645/640 (DX11) Graphics Processor with 2D/3D/Video Acceleration with MPEG-2, VC-1, and H.264 video decoder
- **Display Memory**
  - Optimized Unified Memory Architecture (UMA), supports from 256MB to 1GB frame buffer using system memory
- **CRT Interface**
  - Onboard 1 x VGA connector via P910. There 10-bit true-color RAMDAC up to 350MHz pixel rate with gamma correction capability
  - Supports up to 2560 x 1600 of pixel resolution
- **HDMI® Interface**
  - Supports one mini-HDMI® connector via EPIA P910
- **Dual Independent Display**
  - Two independent display engines built in VX11 chipset,
  - Supports dual independent display of CRT + HDMI® at different resolutions, pixel depths, and refresh rates with completely two different video contents

☐ Gigabit Ethernet
- Controller
  - VIA VT6130 Gigabit Ethernet Controller for PCI Express Interface
- Interface
  - One RJ-45 connector for Gigabit connection
  - Support wake-on-LAN and Boot from LAN (PXE)

☐ High Definition Audio
- Controller
  - VIA VT2021 High Definition Audio Codec
- Interface
  - Supports Line-In, Line-Out and Mic-In connectors

☐ Serial
- USB
  - 2 x USB 2.0 ports connector via P910-C

☐ Storage Interface
- Signal Interface
  - 1 x onboard SATA II port, maximum data transfer rate up to 300MB/s
  - 1 x onboard SATA power connector
- 2.5" Drive Bay
  - 1x 2.5" SATA Disk Drive Bay

☐ System Indicator
- Power Status LED
  - One green color LED
- HDD Activity LED
  - One red color LED

☐ Watchdog Timer
- Output
  - System reset
- Interval
  - Programmable 1 ~ 255 sec.

☐ External I/O connectors
- Front I/O panel
  - 3 X 3.5Ø Audio Jacks (Line-In, Line-Out and Mic-In)
  - 2 x USB 2.0 ports
  - Power status LED indicator
  - HDD activity LED indicator
  - Power On/Off Switch

- **Rear I/O panel**
  - 1 x Gigabit Ethernet port (1 x RJ-45)
  - 2 x USB 3.0 ports
  - 1 x VGA connector
  - 1 x mini-HDMI®
  - 1 x 3.5 Ø DC Jack Power Input connector
  - 1 x Antenna hole reserve cutout to support WiFi networking via Cable connection to EMIO-1533 WLAN module
  - 1 x DC jack strap holder hole reserve cutout

☐ **WLAN (optional)**

- **EMIO-1533**
  - 1 x USB 820.11b/g/n WLAN connector on P910-C for VIA EmIO-1533 WLAN connection

☐ **Power Supply**

- **Power Input Connector**
  - 1 x 3.5 Ø DC Jack connector via cable connect to P910 mainboard
- **Power Consumption**
  - Maximum 30 W
- **Input Voltage**
  - DC 12V Power Input

☐ **Mechanical Power Supply**

- **Chassis Construction**
  - Aluminum top cover chassis housing
  - Galvanized steel sheet (SECC) body chassis housing
- **Venting Holes**
  - Stylish Venting holes on left & right pleat
- **Mounting**
  - VESA mounting holes on bottom chassis
- **System Dimension**
  - 177 mm (w) x 30 mm (H) x 125 mm (D)

☐ **Environmental Specification**

- **Operating Temperature**
  - 0°C up to 40°C for VIA QuadCore U4650E@1.0+ GHz (under working environment at PMON disable from P910 BIOS)
- **Storage Temperature**
  - -10°C to 60°C
- **Relative Humidity**
  - 0% ~ 90% @ 40°C, non-condensing

- **EMC Approved**
  - Industrial PC, CE, FCC Class B
- **Safety**
  - CB/CCC

☐ **Software Compatibility (Operating System)**

- Microsoft Windows 7
- Microsoft Windows XP
- Microsoft Windows XP Embedded Standard 2009
- Microsoft Windows Embedded Standard 7
- Embedded Linux

Reminder:

The ambient temperature and the CPU loadings affect the system fan rpm. Therefore, the higher rpm will generate higher fan noise (dB). The smart fan of ARTiGO-A1250 system runs at lowest speed (default) at 25°C room temperature and when the CPU loading is less than 60%.

1.3. ARTiGO-A1250 Dimensions

Figure 1: Dimensions of the ARTiGO-A1250 (front view)

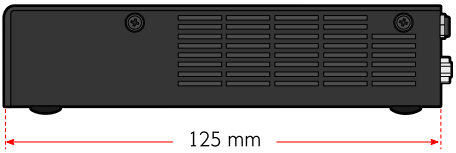


Figure 2: Dimensions of the ARTiGO-A1250 (side view)

1.4. ARTiGO-A1250 Layout

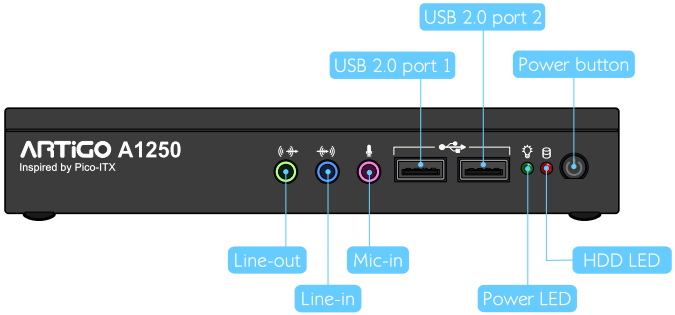


Figure 3: Front Panel layout

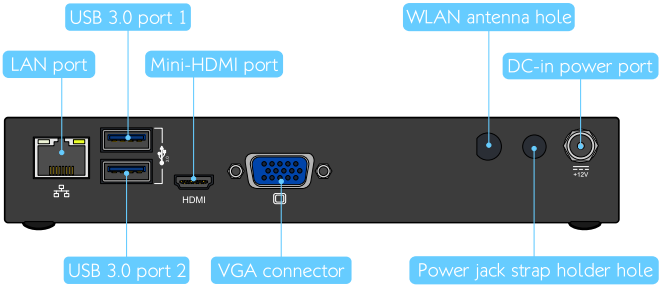


Figure 4: Rear Panel layout

2. External I/O Pin Descriptions and Functionality

The VIA ARTiGO-A1250 has a wide selection of interfaces located on the front and rear panels as part of the external I/O.

2.1. Front Panel

2.1.1. Power Button

The ARTiGO-1250 comes with a Power On/Off button, that supports Soft Power-On/Off (Instant Off or 4 second delay) and Suspend.

Figure 5: Power button switch diagram

2.1.2. LED Indicators (Power LED and HDD LED)

There are two LEDs on the front panel that indicate the system status:

- PWR LED flashes in green and indicates the status of the system's power status.
- HDD LED flashes in red and indicates any storage activity for the HDD.

Figure 6: Power and HDD LED indicator diagrams

2.1.3. USB 2.0 Port

The ARTiGO-A1250 provides two USB 2.0 ports in the front panel for Plug & Play and hot swapping access to external devices. The USB interface complies with USB UHCI, Rev. 2.0.

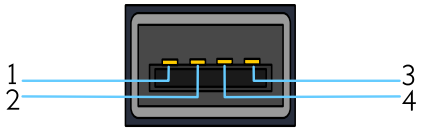


Figure 7: USB 2.0 port pinout diagram

Pin	Signal
1	VCC
2	USB_PO-
3	USB_PO+
4	GND

Table 1: USB 2.0 port pinout

Reminder:

1. The maximum power for both USB ports (together) is 2.5W.
2. Please reserve at least one USB port for keyboard or mouse usage.

2.1.4. Audio Jacks

The ARTiGO-A1250 offers High Definition Audio through three 3.5 mm TRS jack connectors: Line-in, Line-out and Mic-in.

The Line-In jack is for connecting an external audio devices such as CD player, tape player and etc. The Line-out jack is for connecting to external speakers or headphones. The Mic-in jack is for connecting to a microphone.

Figure 8: Audio jack receptacle stack diagram

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

Table 2: Audio jack receptacle description

2.2. Rear Panel

2.2.1. Power Input (DC-In) Jack

The ARTiGO-A1250 comes with a DC power input jack on the real panel that carries $12V_{DC}$. External power input.

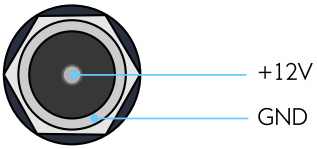


Figure 9: Power input jack diagram

Pin	Signal
1	GND
2	$12V_{DC}$

Table 3: Power input jack pinout

2.2.2. LAN Port: Gigabit Ethernet

The ARTiGO-A1250 system is equipped with one Gigabit Ethernet port (LAN1) on rear panel. The port is fully compliant with IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX), and 802.3ab (1000BASE-T) standards. The pinout of the LAN1 port is shown below

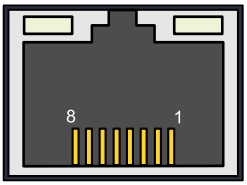


Figure 10: Gigabit Ethernet port pinout diagram

LAN1	
Pin	Signal
1	LAN1_TD0+
2	LAN1_TD0-
3	LAN1_TD1+
4	LAN1_TD1-
5	LAN1_TD2+
6	LAN1_TD2-
7	LAN1_TD3+
8	LAN1_TD3-

Table 4: Gigabit Ethernet port pinout

The LAN port (RJ-45) 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 5: Gigabit Ethernet LED color definition

2.2.3. USB 3.0 Port

The ARTiGO-1250 is equipped with two USB 3.0 ports, also known as SuperSpeed USB. The USB 3.0 port has a maximum data transfer rate up to 5 Gbps and offers a backwards compatible with previous USB 2.0 specifications. It gives complete Plug and Play and hot swap capability for external devices. The pinout of the typical USB 3.0 port is shown below.

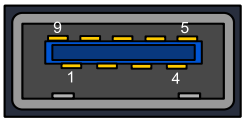


Figure 11: USB 3.0 port pinout diagram

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

Table 6: USB 3.0 port pinout

2.2.4. VGA Connector

The ARTiGO-A1250 provides a high resolution VGA interface through a 15-pin D-sub female connector to support analog VGA monitors. It supports up to 2560 x 1600 @ 60Hz resolution and up to 512 MB shared memory.

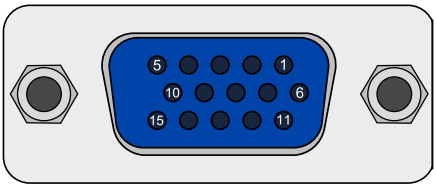


Figure 12: VGA connector pinout diagram

Pin	Signal
1	Red
2	Green
3	Blue
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	DDC DAT
13	H-SYNC
14	V-SYNC
15	DDC CLK

Table 7: VGA connector pinout

2.2.5. Mini HDMI® Port

The integrated 19-pin HDMI® port uses an HDMI® Type C connector as defined in the HDMI® specification. The Mini-HDMI® port is for connecting to HDMI® displays. The pinout of the Mini HDMI® port is shown below.

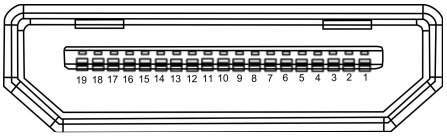


Figure 13: Mini HDMI® port pinout diagram

Pin	Signal	Pin	Signal
1	TMDS Data2 Shield	2	TMDS Data2+
3	TMDS Data2–	4	TMDS Data1 Shield
5	TMDS Data1+	6	TMDS Data1–
7	TMDS Data0 Shield	8	TMDS Data0+
9	TMDS Data0–	10	TMDS Clock Shield
11	TMDS Clock+	12	TMDS Clock–
13	DDC/CEC Ground	14	CEC
15	SCL	16	SDA
17	Reserved (N.C. on device)	18	+5V Power
19	Hot Plug Detect		

Table 8: Mini-HDMI® port pinout

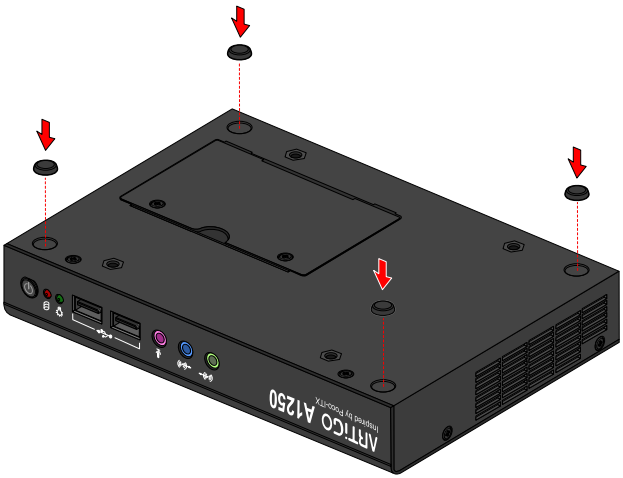
3. Hardware Installation

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

3.1. Installing the Rubber Feet and Memory

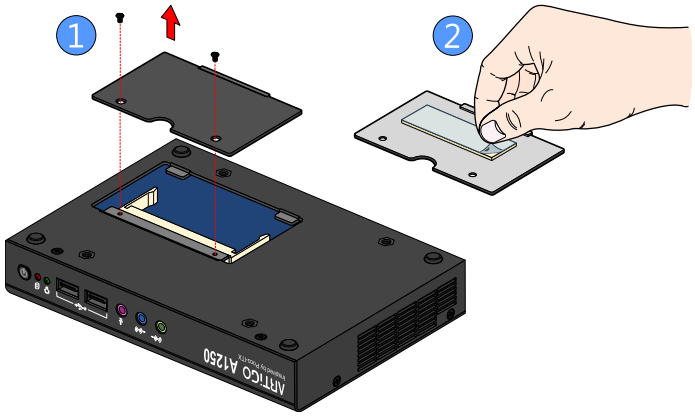
Step 1

At the bottom side of ARTiGO-1250, attach carefully each rubber foot to the designated area then firmly press it down to ensure the rubber foot is properly in place.



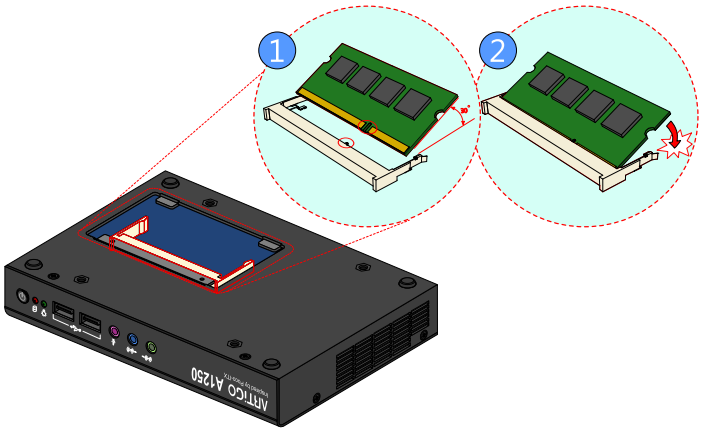
Step 2

Remove the two screws from the memory access cover then gently lift up the cover. Flip over the memory access cover and remove the memory thermal pad plastic cover.



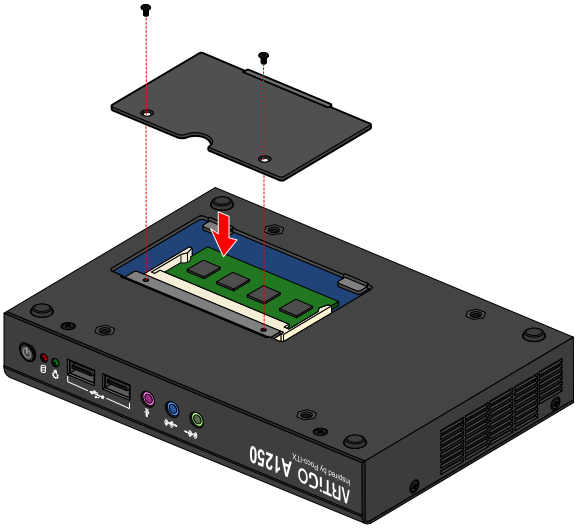
Step 3

Gently insert the DDR3 memory module into the SODIMM socket at 30 degrees angle. Push down the memory module until it snaps into place.



Step 4

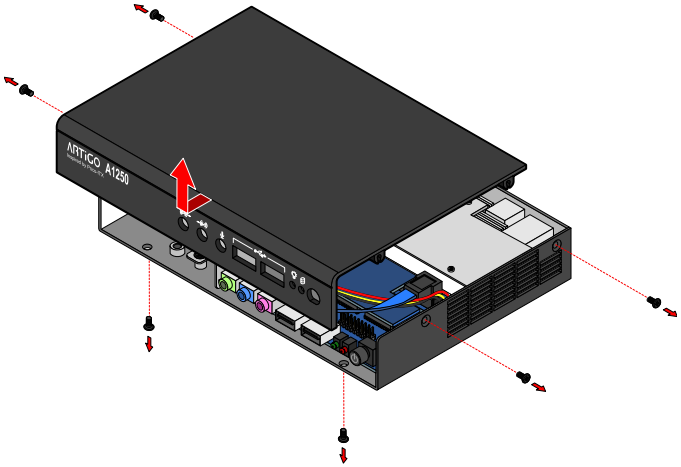
Reinstall the memory access cover and secure it with two screws.



3.2. Installing 2.5 inch SATA Hard Disk Drive

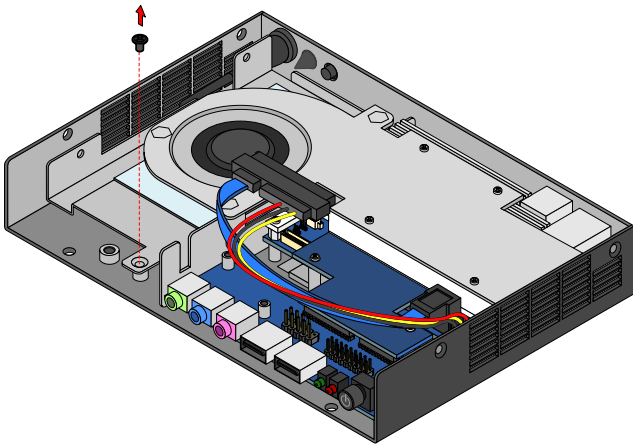
Step 1

Remove the six screws of the top cover from both sides and bottom side of the chassis. Slightly pull the cover horizontally then gently pull up the cover.



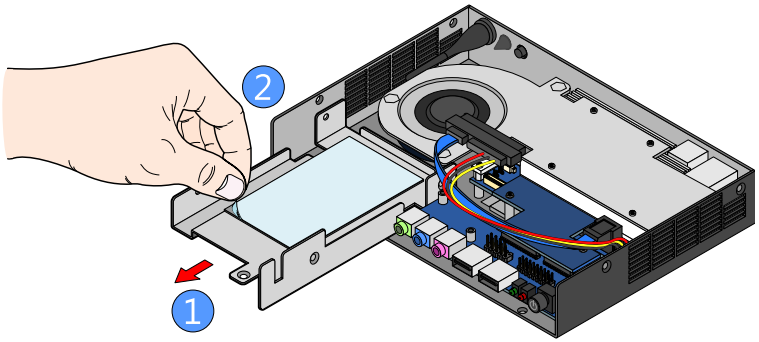
Step 2

Unscrew the hard disk bracket tray.



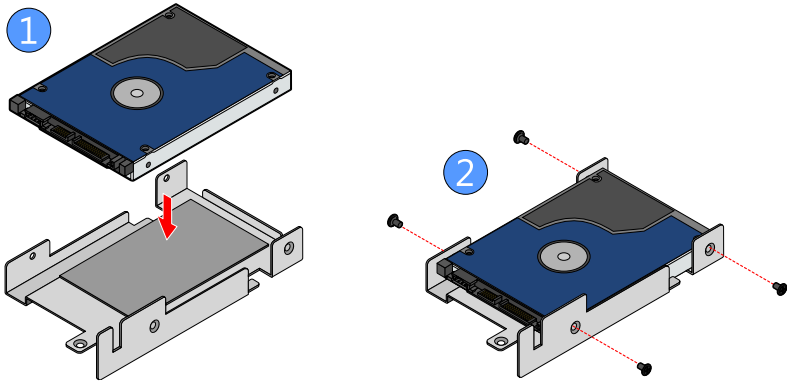
Step 3

Pull out the hard disk bracket tray. Then remove the cover plastic of the hard disk thermal pad.



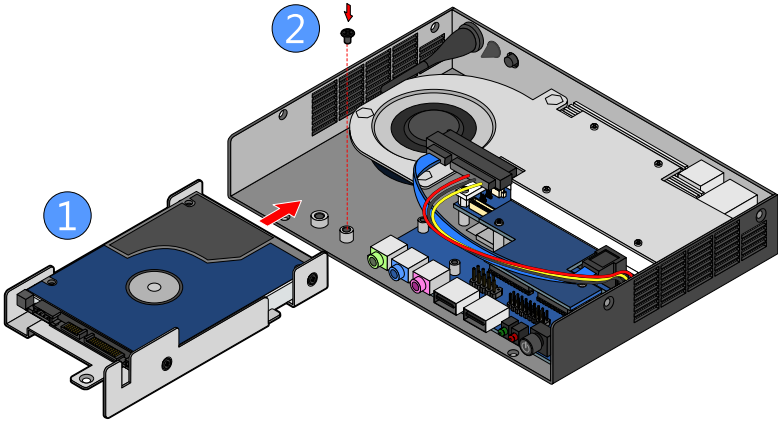
Step 4

Flip over the hard disk drive and install it to the hard disk bracket tray over the thermal pad. Make sure the plastic cover of the thermal pad has been removed before installing the hard disk. Then secure the hard disk with four screws.



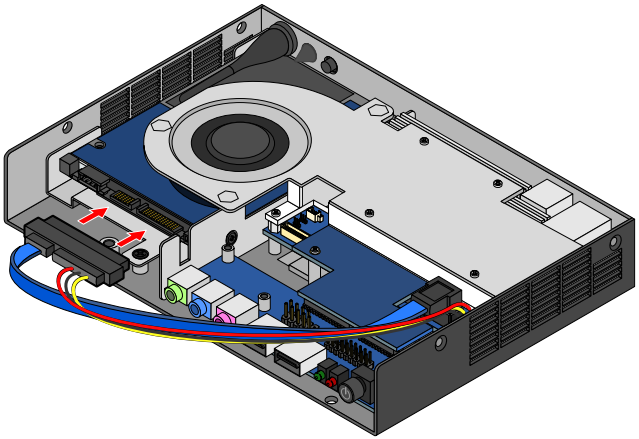
Step 5

Gently slide back the bracket tray with the 2.5 inch hard disk. Ensure that no wiring has been pinched while reinstalling the bracket tray. Secure the bracket tray with screw.



Step 6

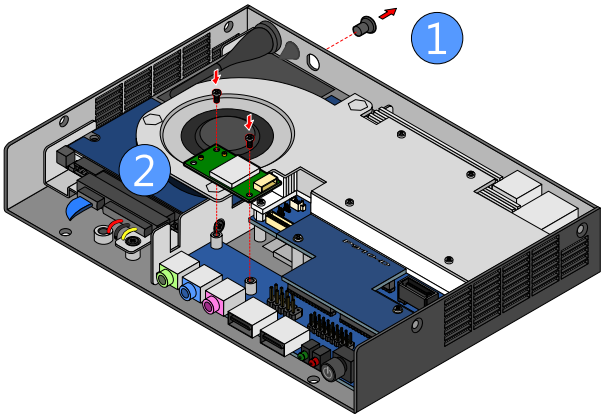
Connect the SATA cable (power and data) to the hard disk drive.



3.3. Installing the WLAN kit

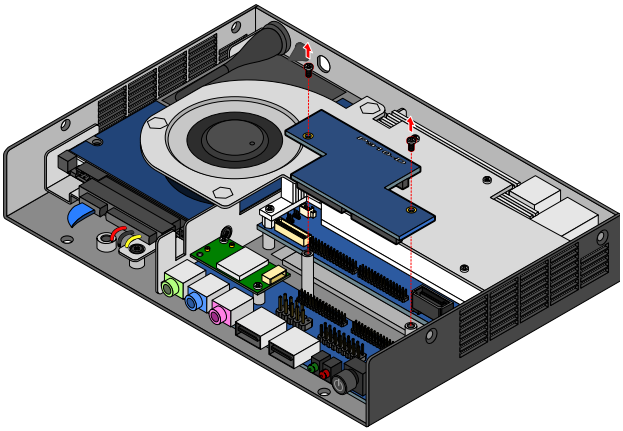
Step 1

Remove the antenna WLAN hole cover at the back panel of ARTiGO-1250.
Install the WLAN module and secure it with two screws.



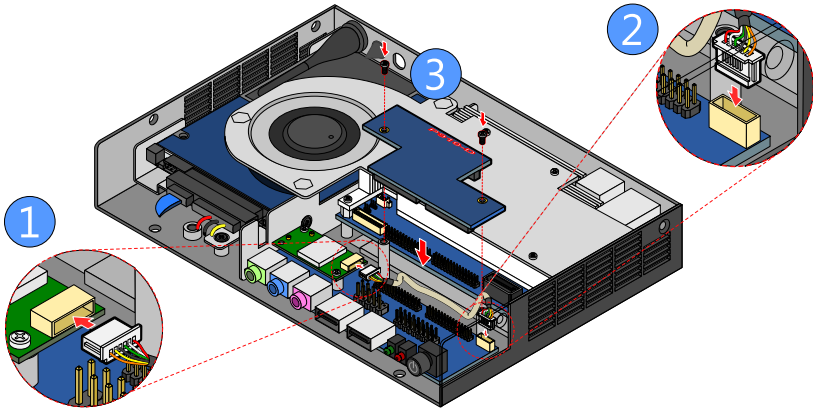
Step 2

Remove the P910-D bridge board connector.



Step 3

Attach the WLAN cable to the WLAN module. Then attach the other end of the cable to the P910-C daughter board. The WLAN cable must be layout underneath the P910-D bridge board connector before reinstalling the P910-D bridge board connector.

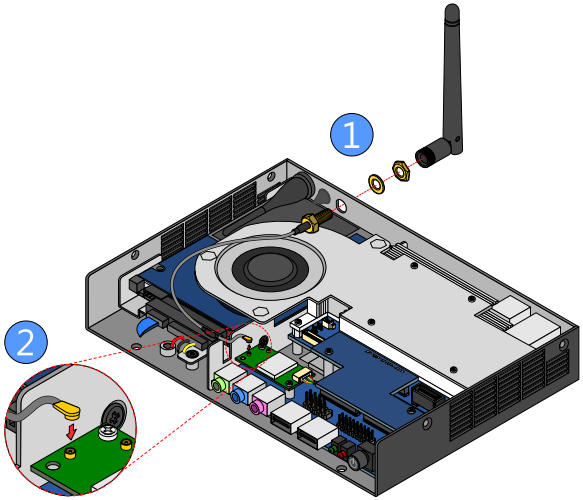


Reminder:

Be sure to install the P910-D bridge board connector in the correct orientation. The top marking "P910-D" should be on the top side as indicated in the figure.

Step 4

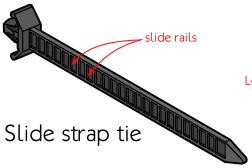
Insert the WLAN port connector into the antenna hole from the inside of the chassis. Insert the washer, fasten it with the nut and install the external antenna. Gently connect the mini coaxial cable of the WLAN port connector to the mini RF connector on the WLAN module.



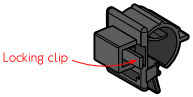
3.4. Installing the Power DC Jack Strap Holder

Step 1

Prepare the DC jack strap holder. The DC jack strap holder consists of two parts: Slide strap tie and jack holder.



Slide strap tie



Jack holder

Note:

The Jack holder has locking clip that controls the locking and releasing of the jack holder. Slightly pulling the locking clip will unlock the jack holder from the rail of slide strap tie.

Step 2

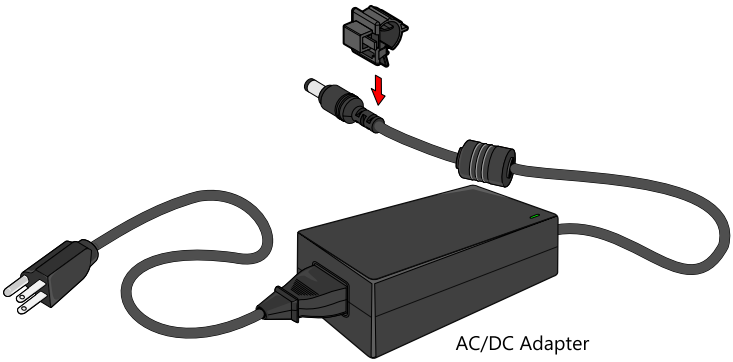
Remove the DC jack strap holder hole cover (rubber) at the back panel of the chassis. The hole is located between the antenna hole and DC-In power port.

Step 3

Insert the strap cable tie into the hole. Ensure the strap cable tie is fully inserted in vertical position and the slide rails are facing the left side as indicated in the figure.

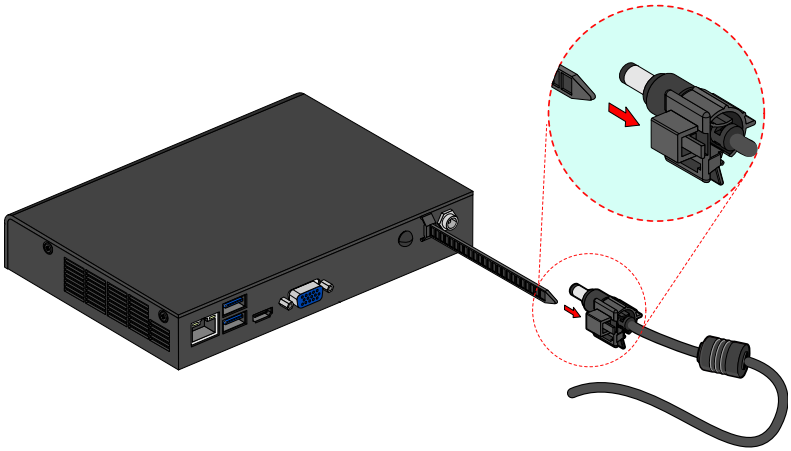
Step 4

Attach the jack holder to the DC jack cable.



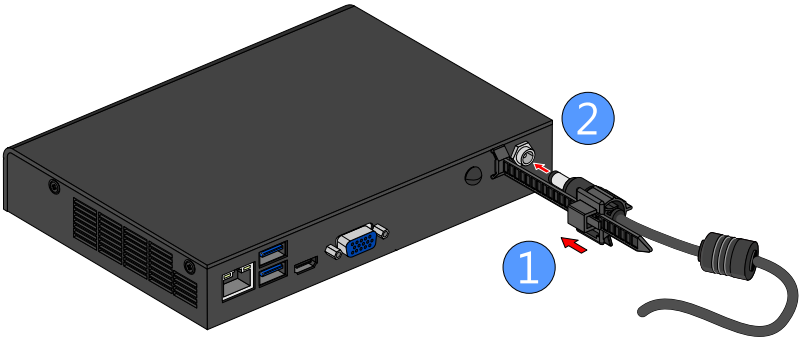
Step 5

Insert the slide strap tie into the side of the jack.



Step 6

Slide in deeply the jack holder until the power DC jack reaches the DC-in power port. Then connect the DC jack into the DC-in power port.



4. BIOS Setup Utility

4.1. 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.

4.2. 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

+[1] Increase the numeric value

-[1] Decrease the numeric value

F1 General help[2]

F2 Previous value

F3 Load optimized defaults

F4 Save all the changes and exit

Note:

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

4.3. 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.

4.4. System Overview

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 14: Illustration of the Main menu screen

4.4.1. BIOS Information

The content in this section of the screen shows the information about the vendor, the Core version, UEFI specification version, the project version and date & time of the project build.

4.4.2. Memory Information

This section shows the amount of memory that is installed on the hardware platform.

4.4.3. System Language

This option allows the user to configure the language that the user wants to use.

4.4.4. 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].

4.4.5. 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].

4.5. 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.

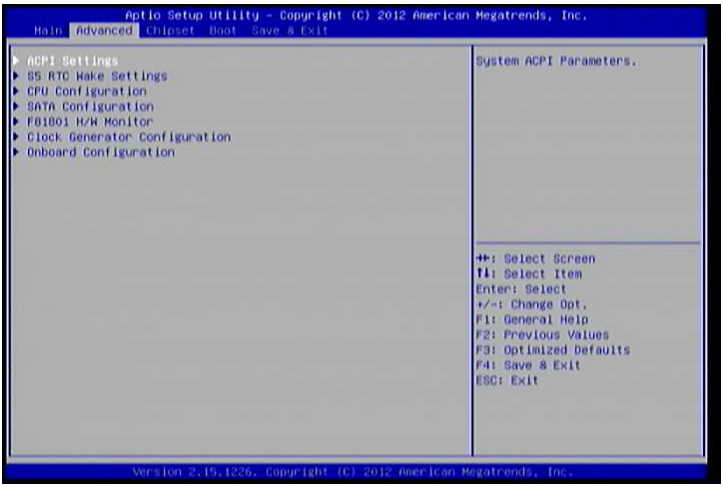


Figure 15: Illustration of the Advanced Settings screen

The Advanced Settings screen contains the following links:

- ACPI Settings
- S5 RTC Wake Settings
- CPU Configuration
- SATA Configuration
- F81801 H/W Monitor
- Clock Generator Configuration
- Onboard Configuration

4.5.1. 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.

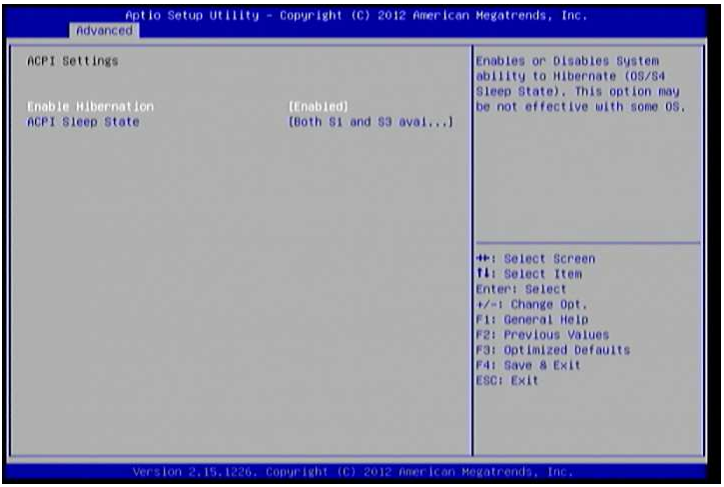


Figure 16: Illustration of the ACPI Settings screen

4.5.1.1. Enable Hibernation

Enable/disable system ability to Hibernate.

4.5.1.2. ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the SUSPEND button is selected. Available options are: Suspend Disabled / S1 only(CPU Stop Clock) /S3 only(Suspend to RAM) / Both S1 and S3 available for OS to choose from.

4.5.2. S5 RTC Wake Settings

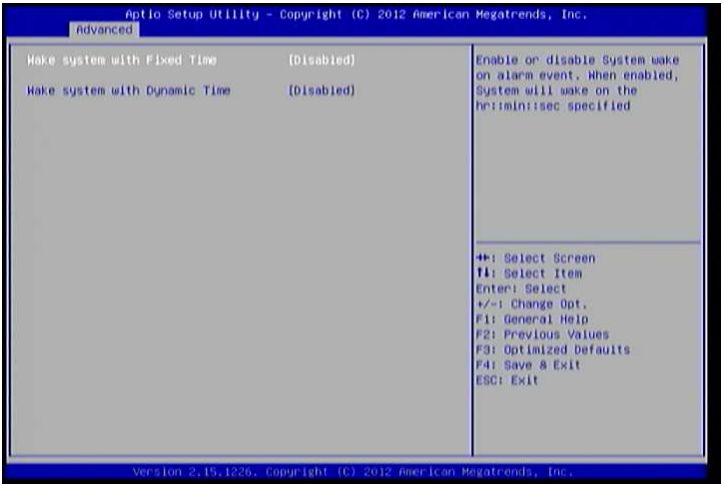


Figure 17: Illustration of the S5 RTC Wake Settings screen

4.5.2.1. Wake system with Fixed Time

Enable or disable system wake on alarm event. When enabled, system will wake on the hr:min:sec specified.

4.5.2.2. Wake system with Dynamic Time

Enable or disable Wake system with Dynamic Time.

4.5.3. 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.

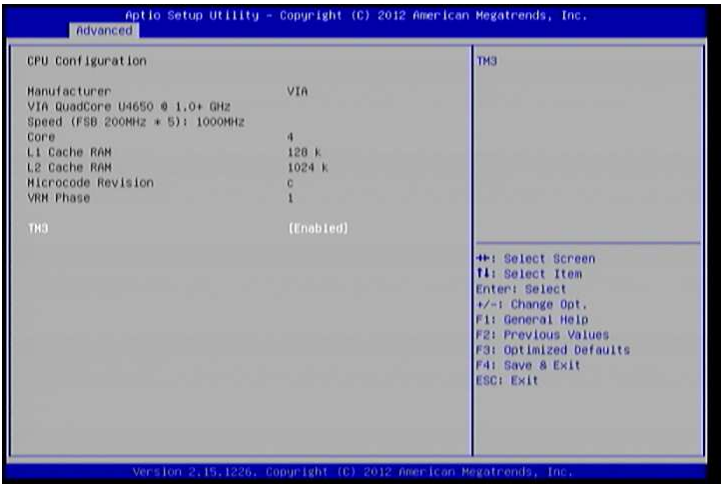


Figure 18: Illustration of CPU Configuration screen

4.5.3.1. TM3

The TM3 Function has two settings: Disabled and Enabled. When the setting is changed to "Disabled", the CPU's built-in thermal sensor will not function. When the setting is changed to "Enabled", the thermal sensor will automatically adjust the CPU ratio and V CORE to prevent the CPU from overheating.

4.5.4. SATA Configuration

The SATA Configuration screen allows the user to view and configure the settings of the SATA configuration settings.

Figure 19: Illustration of SATA Configuration screen

4.5.4.1. SATA Mode

This option allows the user to manually configure SATA controller for a particular mode.

IDE Mode

Set this value to change the SATA to IDE mode.

AHCI Mode

Set this value to change the SATA to AHCI mode.

4.5.5. PC Health Status

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

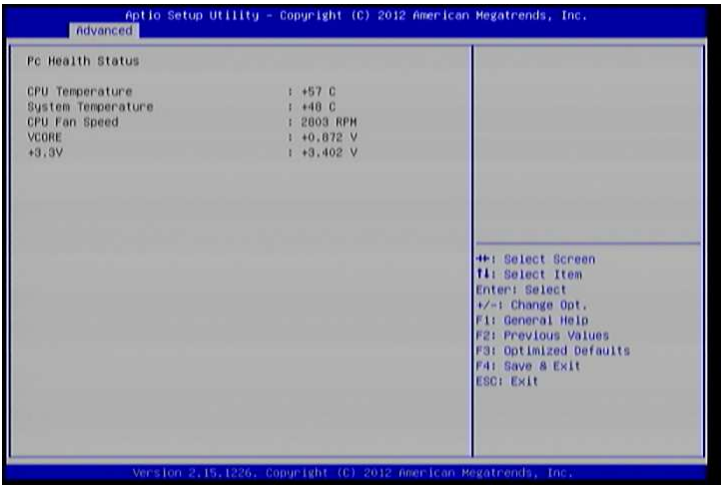


Figure 20: Illustration of PC Health Status screen

4.5.6. Clock Generator Configuration

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

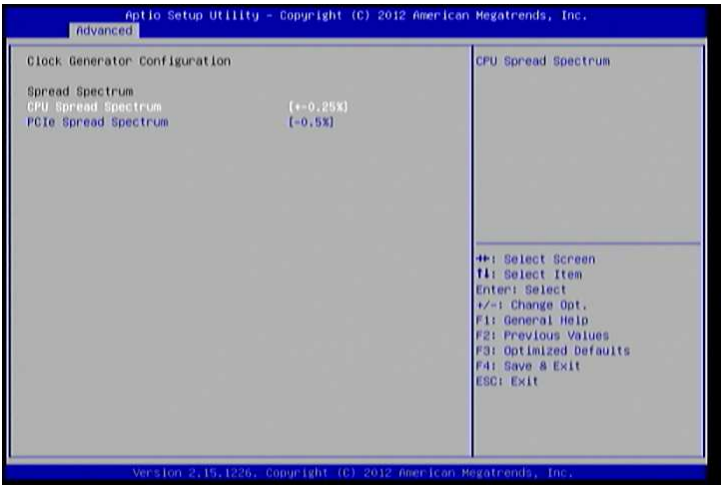


Figure 21: Illustration of Clock Generator Configuration screen

4.5.6.1. CPU Spread Spectrum

The Spread Spectrum Setting feature enables the BIOS to modulate the clock frequencies originating from the mainboard. The settings are in percentages of modulation. Higher percentages result in greater modulation of clock frequencies. This feature has 3 options: Disabled, +-0.25% and -0.5%.

4.5.6.2. PCIe Spread Spectrum

Select PCIe Spread Spectrum. This feature has 2 options: Disabled and -0.5%.

4.5.7. OnBoard Device Configuration

The OnBoard Device Configuration screen has the following features.

Figure 22: Illustration of OnBoard Device Configuration screen

4.5.7.1. OnBoard LAN Enable

The OnBoard LAN Enable feature determines whether the onboard LAN controller will be used or not.

4.5.7.2. 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.

4.5.7.3. S5 Wakeup On LAN

The S5 Wakeup On LAN feature enables the BIOS to allow remote wake-up from the S5 power off state through the PCI bus.

4.5.7.4. 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.

4.6. Chipset Settings

The Chipset 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 23: Illustration of Chipset Settings screen

The Chipset Settings screen contains the following links:

- DRAM Configuration
- Video Configuration
- PMU-ACPI Configuration
- Others Configuration

4.6.1. DRAM Configuration

The DRAM Configuration screen has two features for controlling the system DRAM. All other DRAM features are automated and cannot be accessed.

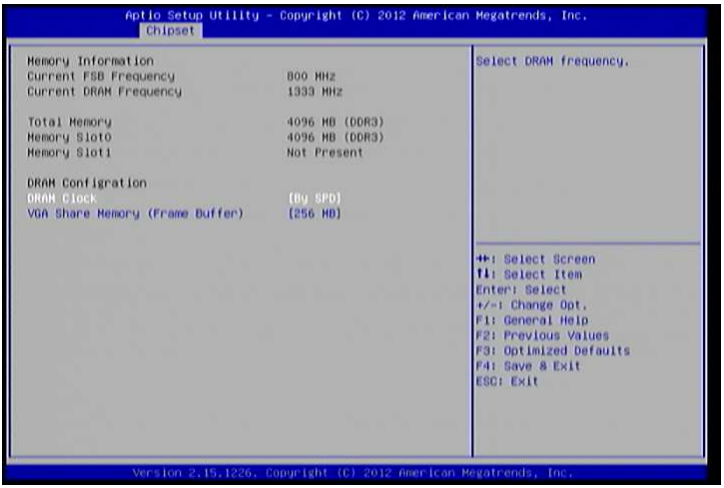


Figure 24: Illustration of DRAM Configuration screen

4.6.1.1. 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 eleven options.

By SPD

By SPD option enables the BIOS to select a compatible clock frequency for the installed memory.

400 MHz

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

533 MHz

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

566 MHz

The 566 MHz option forces the BIOS to be fixed at 1132 MHz for DDR3 memory modules.

600 MHz

The 600 MHz option forces the BIOS to be fixed at 1200 MHz for DDR3 memory modules.

633 MHz

The 633 MHz option forces the BIOS to be fixed at 1266 MHz for DDR3 memory modules.

667 MHz

The 667 MHz option forces the BIOS to be fixed at 1334 MHz for DDR3 memory modules.

700 MHz

The 700 MHz option forces the BIOS to be fixed at 1400 MHz for DDR3 memory modules

733 MHz

The 733 MHz option forces the BIOS to be fixed at 1466 MHz for DDR3 memory modules

766 MHz

The 766 MHz option forces the BIOS to be fixed at 1532 MHz for DDR3 memory modules

800 MHz

The 800 MHz option forces the BIOS to be fixed at 1600 MHz for DDR3 memory modules

4.6.1.2. 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 256MB, 512MB and 1024MB.

4.6.2. Video Configuration

The Video Configuration screen has features for controlling the integrated graphics controller in the VX11H chipset.

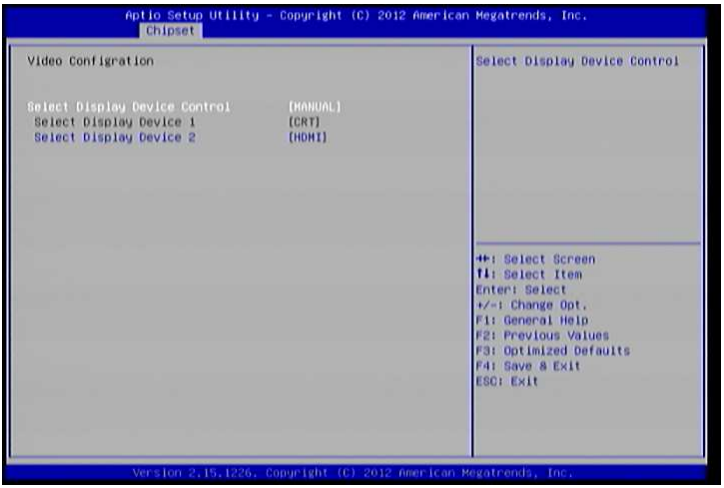


Figure 25: Illustration of Video Configuration screen

4.6.2.1. Select Display Device Control

Available selections are: Auto and Manual.

4.6.2.2. Select Display Device 1 and 2

The Select Display Device feature enables the user to choose a specific display interface. This feature has two options: CRT 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 port.

4.6.3. PMU_ACPI Configuration

The PMU_ACPI Configuration screen can be used to set a number of power management related functions.

Figure 26: Illustration of PMU_ACPI Configuration screen

4.6.3.1. Other Control

Figure 27: Illustration of Other Control screen

4.6.3.1.1. AC Loss Auto-restart

AC Loss Auto-restart 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.

4.6.3.1.2. 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".

4.6.4. Others Configuration

The Others Configuration screen can be used to set Watchdog Timer Configuration and Keyboard/Mouse Wakeup Configuration.

Figure 28: Illustration of Others Configuration screen

4.6.4.1. WATCHDOG Timer Enable

When this feature is enabled, an embedded timing device automatically prompts corrective action upon system malfunction detection.

4.6.4.2. Keyboard/Mouse Wakeup Control

When this feature is enabled, pressing any key of the keyboard or moving the mouse can wake up the system from suspend.

4.7. Boot Settings

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

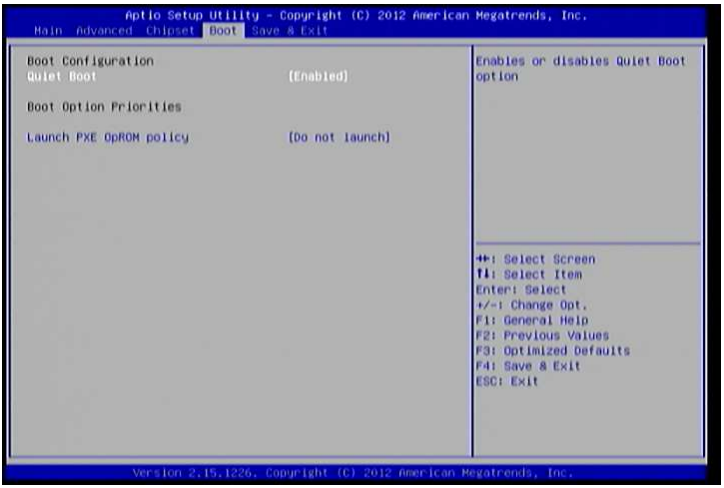


Figure 29: Illustration of Boot Settings screen

4.7.1. Boot Configuration

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

4.7.1.1. 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.

4.7.2. Boot Option Priorities

The Boot Option Priorities screen lists all bootable devices.

4.7.2.1. Launch PXE OpROM policy

Do not launch

Prevent the option for Legacy Network Device.

Legacy only

Allow the option for Legacy Network Device.

4.8. Save & Exit

The Save & Exit Configuration screen has the following features:

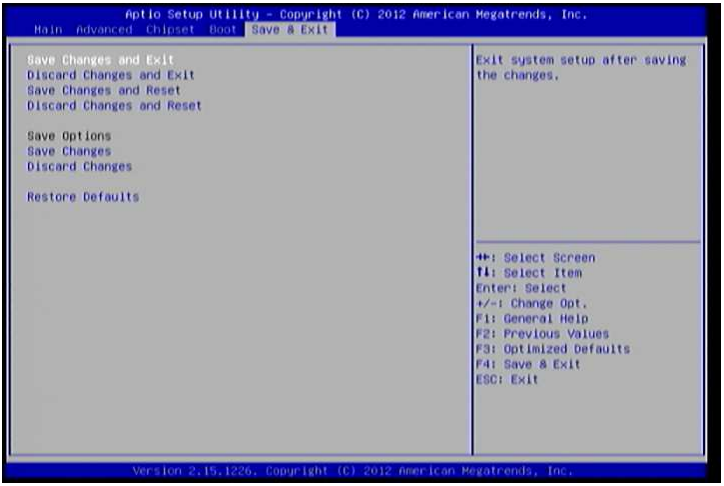


Figure 30: Illustration of Save & Exit screen

4.8.1. 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.

4.8.2. Discard Changes and Exit

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

4.8.3. Save Changes and Reset

Save all changes to the BIOS and reboot the system. The new system configuration parameters will take effect.

4.8.4. Discard Changes and Reset

This command reverts all changes to the settings that were in place when the BIOS Setup Utility was launched. The "F7" hotkey can also be used to trigger this command.

4.8.5. Save Options

Save Changes done so far to any of the setup options.

4.8.6. Save Changes

Save system configuration and continue. For some of the options it required to reset the system to take effect.

4.8.7. Discard Changes

Undo the previous changes.

4.8.8. Restore Defaults

Restore default values for all setup options.

5. Driver Installation

5.1. Microsoft Driver Support

The VIA ARTiGO-A1250 mainboard is compatible with Microsoft operating systems. The latest Windows drivers can be downloaded from the VEPD website at www.viaembedded.com.

For embedded operating systems, the related drivers can be found in the VIA Embedded website at www.viaembedded.com.

5.2. Linux Driver Support

The VIA ARTiGO-A1250 mainboard is highly compatible with many Linux distributions.

Support and drivers are provided through various methods including:

- Drivers provided by VIA
- Using a driver built into a distribution package
- Visiting www.viaembedded.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)

For OEM clients and system integrators developing a product for long term production, other code and resources may also be made available. Contact VEPD to submit a request.