OPS500-501 Series

Intel Open Pluggable Specification Box

User's Manual

Disclaimers

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Safety Approvals

CE Marking

- FCC Class A

◆ FCC Compliance

This equipment has been tested in compliance with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are mean to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

A. Increase the separation between the equipment and receiver.

B. Connect the equipment to another outlet of a circuit that does not connect with the receiver.

C. Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with the emission limits.

Safety Precautions

Before getting started, please read the following important safety precautions.

1. The OPS500-501 series does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the OPS500-501 series before any installation. Be sure both the system and external devices turned OFF already. Make sure the OPS500-501 series set to ground properly.
4. The brightness of the flat panel display will be getting weaker as frequently used. However, the operating period varies depending on the application environment.
5. The flat panel display is not susceptible to shock or vibration. When assembling the OPS500-501 series, make sure toinstall it securely.
6. Do not leave this equipment in an uncontrolled environment where the storage temperature is below 0℃ or above 45℃. It may damage the equipment.
7. External equipment intended for connection to signal input/out or other connectors shall comply with relevant UL/IEC standard.
8. Do not open the back cover of the system. If opening the cover for maintenance is necessary, only allow technicians to implement it. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
9. Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
10. Please wear a wrist-grounding strap if you handling boards and eletronic components.

Trademarks Acknowledgments

Table of Contents

CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the OPS500-501 series. Chapter 1 includes the following sections:

- **General Description**
- **Specification**
- **Michanical Assembly**
- **Package List**

1.1 General Description

Intel Open Pluggable Specification (OPS) Compliance

OPS500-501 series is based on the 7th / 6th generation Intel® Core™ processor on board with Intel® Q170 Express Chipset platform and it also future products. The Pluggable Module is dedicated to provide an interchangeable solution to the digital signage media players with compatible connector. This document provides the module form factor, connector specification, reference thermal solution, and boundary conditions in order to ensure the functionally of the module in all compatible display panel system.

OPS500-501 series meets Intel Open Pluggable Specification for design and development, simplifying system upgrade maintenance for manufacturers and developers that supports Intel® 7th / 6th Generation Core I series family, which stand for high flexible and user-friendly digital signage applications.

Easy maintenance

OPS500-501 series offers a best solution for digital signage market. Compliant with Intel OPS architecture, digital signage players are capable of deploying interchangeable systems faster and easing upgrading/maintenance, while lowering costs for development and implementation. Additionally, having the ability to simply slot-in and out the unique pluggable engine box makes daily hassle easier and faster for users.

OPS500-501 series has pluggable engine box design; you can change storage, DRAM and update configurations more easily

1.2 System Specifications

1.2.1 Main CPU Board

- **CPU**
  - 7th / 6th Gen. Intel® Core™ i7/i5/i3/Celeron Processors, LGA1151, 35W TDP
  - Intel® Core™ I7-6700TE/ 7700T processor
  - Intel® Core™ I5-6500TE/ 7500T processor
  - Intel® Core™ I3-6100TE/ 7101TE processor
  - Intel® Celeron® G3900TE / G4400TE processor
- **System Chipset**
  - Intel® Q170 PCH
- **BIOS**
  - American Megatrends Inc. UEFI (Unified Extensible Firmware Interface).
- **System Memory**
  - One 260-pin DDR4 2133MHz SO-DIMM, maximun up to 16GB
- **Wireless Module (Optional)**
  - Optional IEEE802.11 b/g/n, Bluetooth 2.0

1.2.2 I/O System

- **Front I/O**
  - One HDMI1.4 (Up to 3840 x 2160@30Hz)
  - Two USB ports 3.0
  - One USB port 2.0
  - One RS-232(COM2)
  - One Power On/Off button
  - One Reset button
  - Two LED Indicaters (PWR & HDD Active LED)
- **Rear I/O**
  - One 80Pin JAE TX25A

    1 x HDMI 2.0 (Up to 3840 x 2160@60Hz)

    1 x DP 1.2 (Up to 3840 x 2160@60Hz)

    1 x USB 3.0

    2 x USB 2.0

    1 x UART (TX/RX)

    1 x Audio out L/R

    DC input +12V~+19V

    Control signals (PWR_STATUS, PS_ON#, PB_DET, SYS_FAN)

- One 12/19V DC-Jack connector for optional adpter usage

- **Ethernet**
  - 10/100/1000Mbps Ethernet (with Intel® I219LM)
- **Audio**
  - Line-out/ Mic-in by phone jack
- **Expansion**
  - One Full-size PCI Express Mini card (USB+PCIe+SATA signals supported)
- **Storage**
  - One 2.5" SATA HDD tray
- **Antenna opening**
  - Two Antenna opening in the front I/O side
- **Net Weight**
  - 0.9Kg(1.99 lb) without cooler
- **Dimension (Main Body Size)**
  - 200 mm x 119 mm(D) x 30 mm(H)
- **Operation Temperature**
  - 0℃ to 45℃ (with airflow 1.2 m/s)
- **Power Input**
  - 12V~19VDC

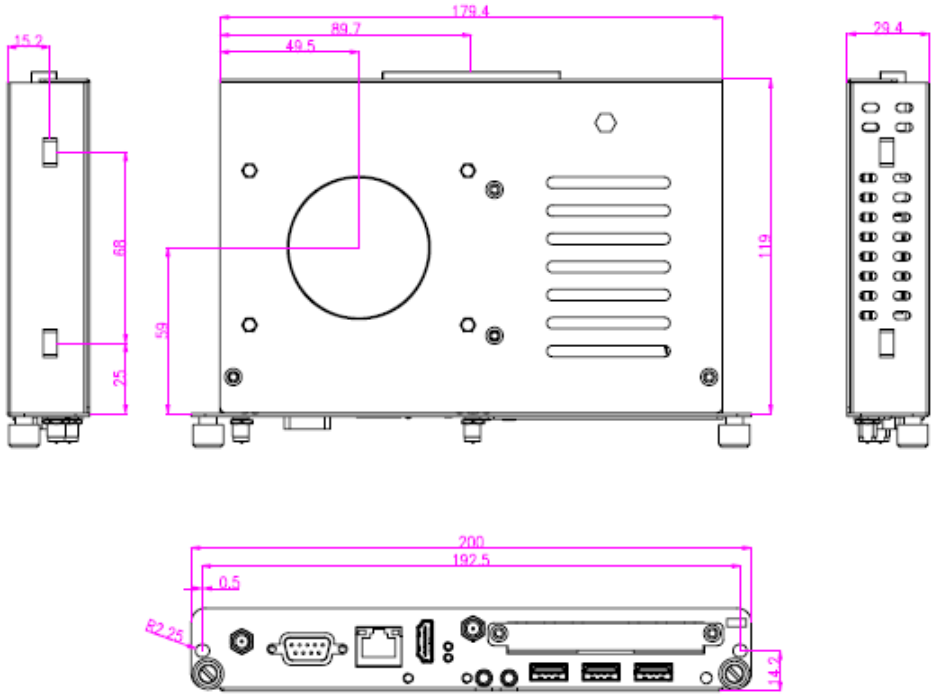
NOTE: All specifications and images are subject to change without notice.

1.3 Mechanical Assembly

1.3.1 Dimensions

This diagram shows you dimensions and outlines of the OPS500-501 series

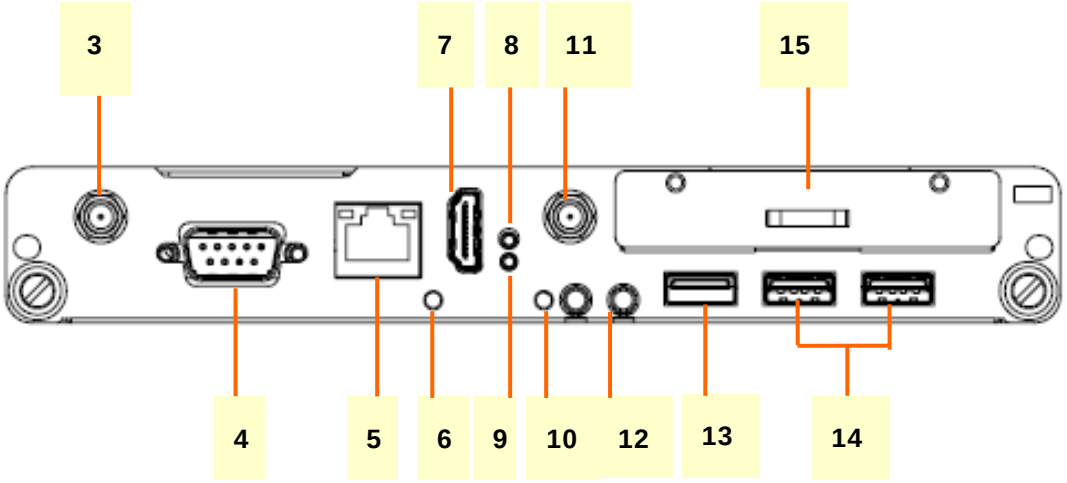
The overall dimension of the module including the mounting frame is 200mm x 119mm x 30mm, and it shows the location of the screw holes of front panel as well as the security lock.

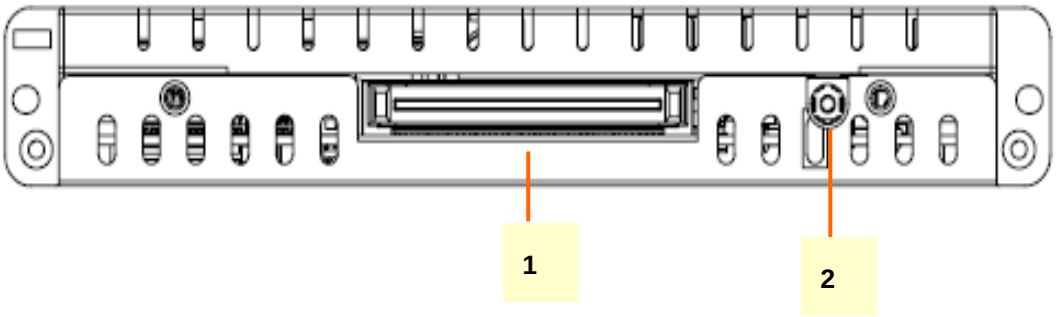


※While plugging the OPS module, please make sure the heat sink side of OPS module toward the outside. Axiomtek will be out of reasonability if there is any damage occurred due to it.

1.3.2 I/O outlet

The following figures show you the locations of the OPS500-501 series I/O outlets.





No.	Connector	No.	Connector
1	JAE TXA-25	2	DC-Jack
3	Antenna opening	4	RS-232
5	Ethernet	6	Power Indicator
7	HDMI 1.4 Output	8	Power Switch
9	Reset	10	HDD Indicator
11	Antenna opening	12	Audio(Mic-in & Line-out)
13	1 x USB 2.0	14	2 x USB 3.0
15	2.5" SATA HDD tray		

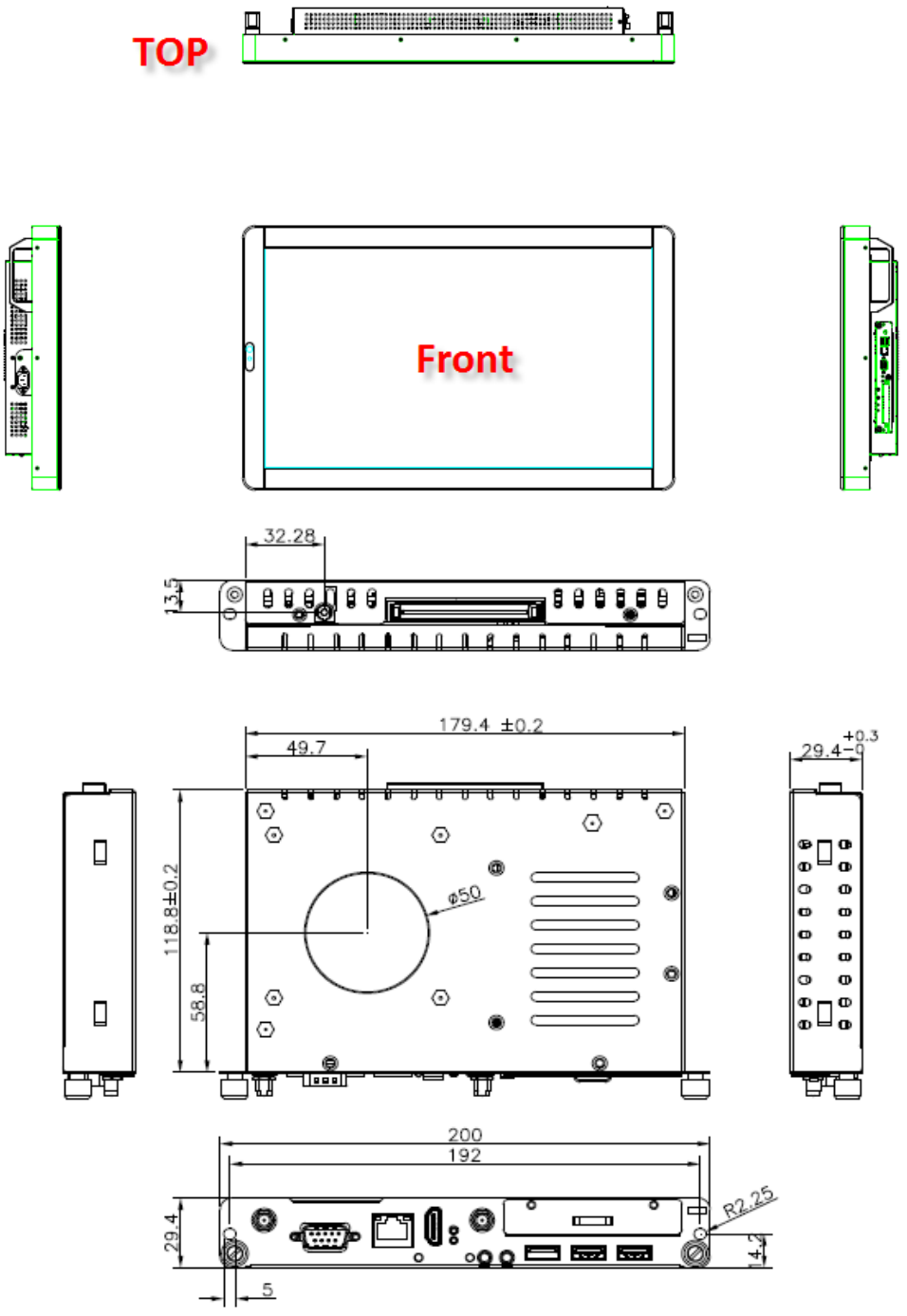
1.3.3 Mechanical Specifications

OPS500-501 series is docked in the reference display panel

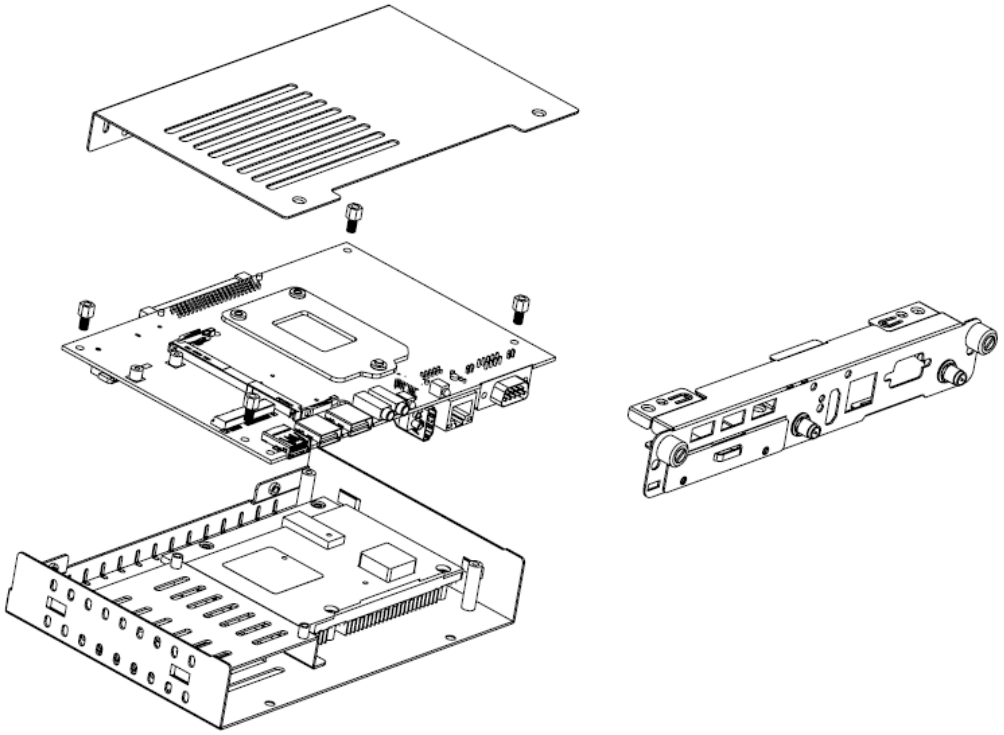
The OPS500-501 Pluggable Module docked at a display panel system.

In this reference design, the module is docked and undocked in the vertical direction.

NOTE: ***Please contact Axiomtek for available option display panel.***

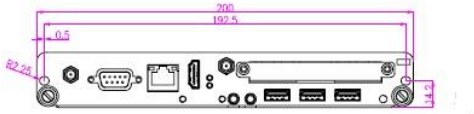


Exploded View of the Pluggable Module

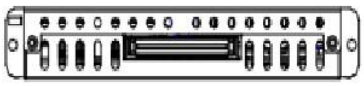


The Guide Rail Mechanism for the OPS500-501 series Module

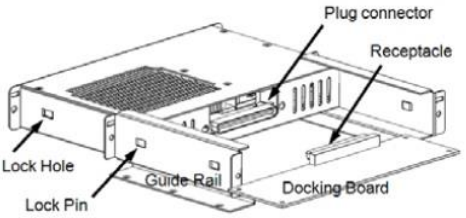
You can use the rails alongside of OPS500-501 series Module to dock and undock the plug connector at the back of the module to connect with docking board. There are two lock pins on each side of the rail, and they serve as the locking mechanism to attach the lock holes on the series module.

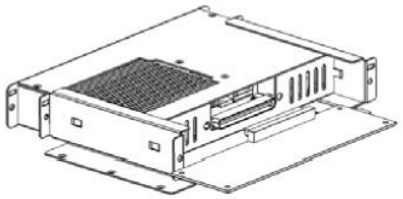


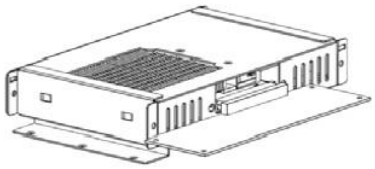
FRONT VIEW



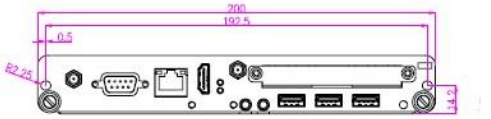
BACK VIEW



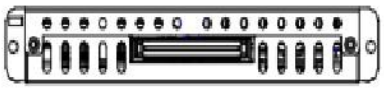




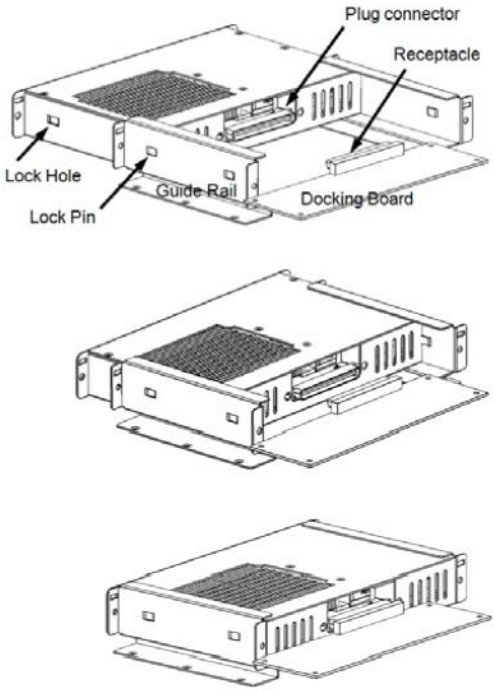
Location of Lock Hole on the Pluggable Module



FRONT VIEW

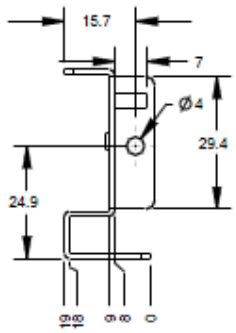


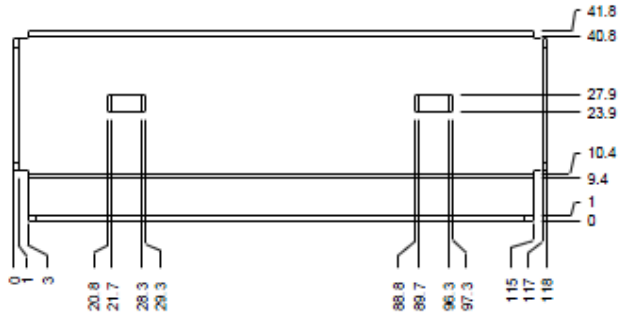
BACK VIEW

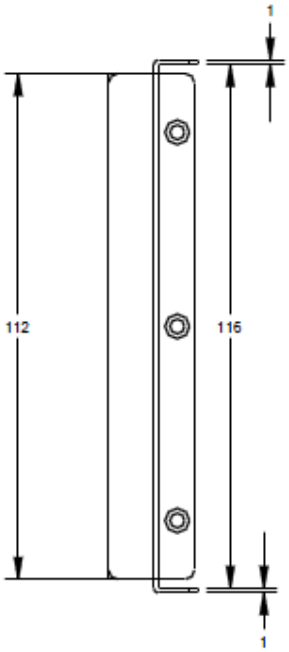


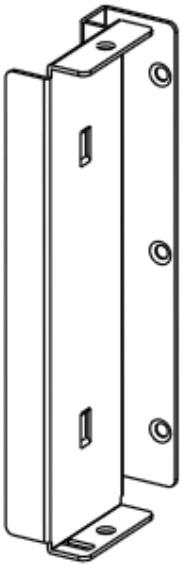
*The drawing is base on Intel Open Pluggable Specification

Dimensions of the Guide Rail



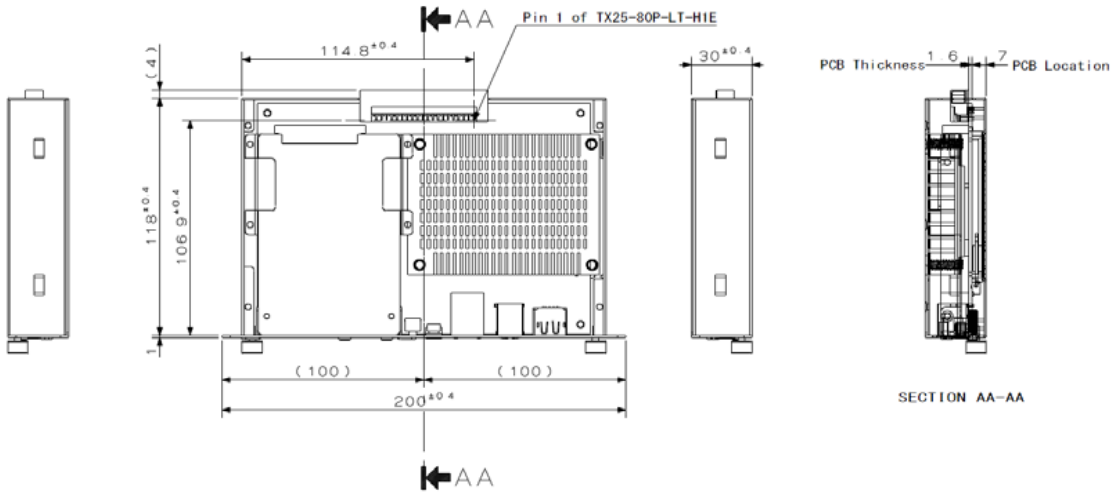






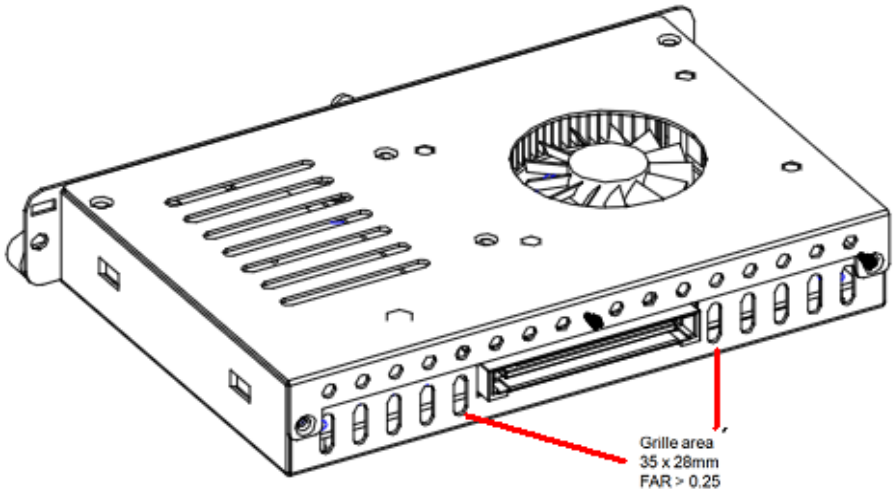
Location of JAE TX25A Plug Connector

Please refer to the following drawing for location of the JAE TX25A plug connector. Pin 1 of the connector is located at 114.8 mm from the edge of the module, and 106.9 mm from the inner side of the front panel. For mating tolerance of TX25A plug connector and TX24A receptacle connector, please refer to the JAE improved connector specification



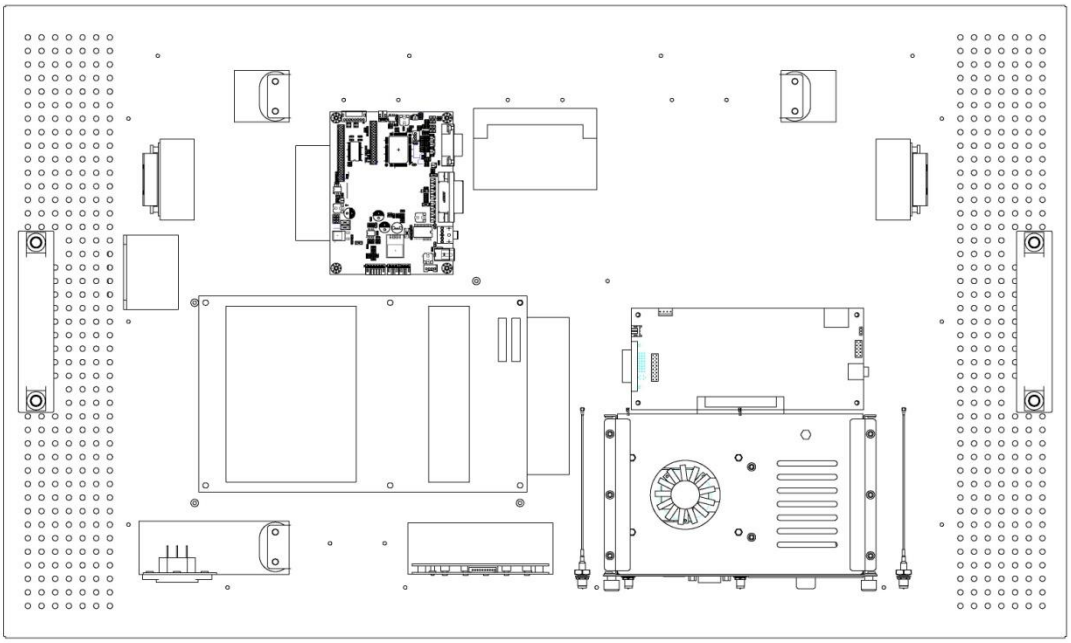
Vent Holes at the Pluggable Module Back Panel

On the OPS500-501 series module, it is recommended by Intel that some vent holes be opened at the back so that hot air can escape more easily from the module that the FAR in on both sides of the module back panel should be greater than 0.25.



1.3.4 Reference Design

Display Panel Rear View – Internal



The digital signage OPS500-501 series prototype is based on a 32" display panel with the functional blocks illustrated. It is mainly a 3-board partitioning design consisting of the pluggable module, docking board and the panel control board.

1.4 Package List

When you receive the OPS500-501 series, the bundled package should contain the following items:

- **OPS500-501 x 1**
- **Driver CD x 1**
- **THERMAL GREASE(Syringe 1G)**
- **M2 x 5 screw x 2**
- **M4 x 6 screw x 2**

If you cannot find the package or any items are missing, please contact Axiomtek distributors immediately.

CHAPTER 2
HARDWARE INSTALLATION

The OPS500-501 series is convenient for your various hardware configurations, such as Storage, Memory Module.

The chapter 2 will show you how to install the hardware. It includes:

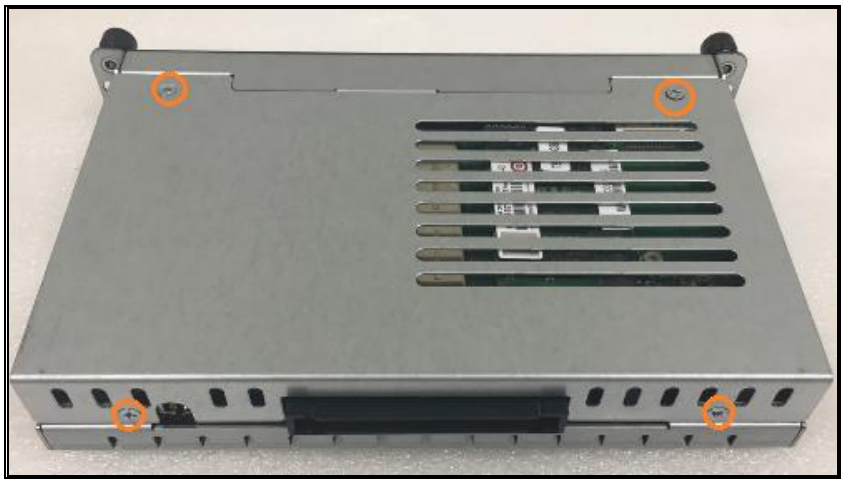
- **HDD, DRAM, Wireless or mSATA module Installation**
- **Pluggable Module Method**

2.1 Storage, DRAM, Wireless or mSATA module Installations

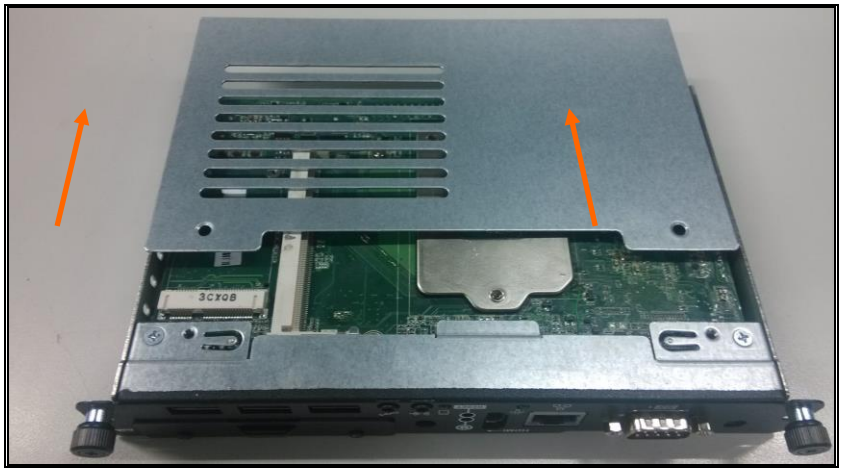
The OPS500-501 series model offers a convenient drive bay module for users to install 2.5" HDD/SSD Storage, DDR4 SO-DIMM DRAM, wireless & mSATA modules. Please follow the steps:

2.1.1 DDR4 SO-DIMM DRAM Installation

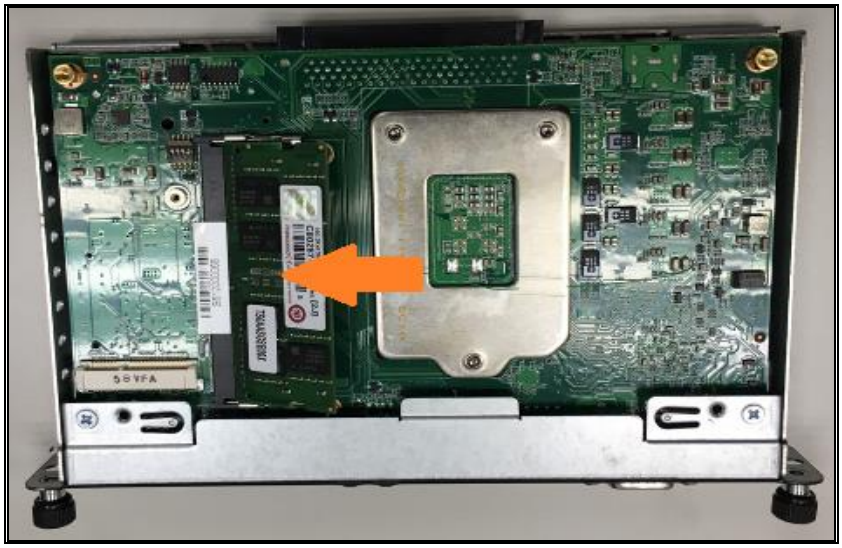
Step 1 Loosen the screws on the real of chassis as illustrated.



Step 2 After losing the screws, extract the real of chassis out of the module.



Step 3 Place the memory module into the socket and press it firmly. The socket latches are levered upwards and clipped on to the edges of the SO-DIMM.



2.1.2 2.5" HDD/ SSD Instllation

The OPS500-501 series provides one 2.5" SATA HDD tray to install 2.5" HDD/SSD. When please refer to the following instructions and illustration.

Step 1 Loosen the screws per illustrated.

Step 2 **Please refer to the below photo to connect the 2.5" HDD/SSD with HDD's bracket for assembly.**

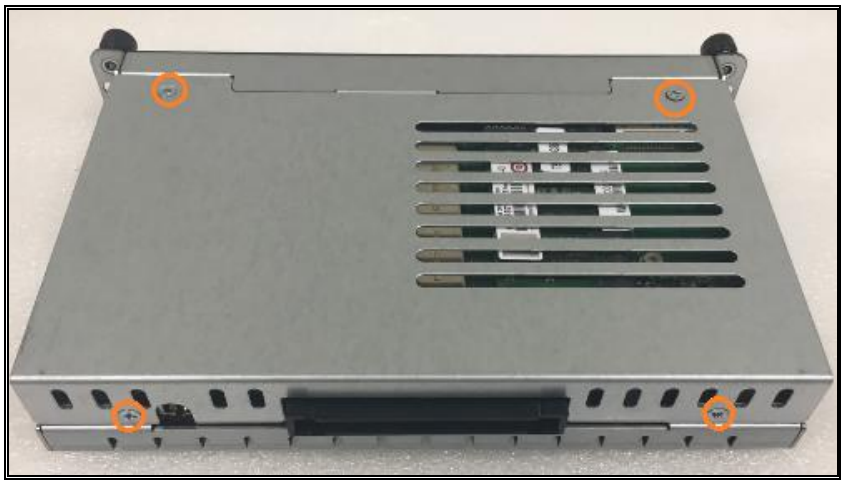
Step 3 **Then plug HDD drive in to HDD connector.**

Step 4 **Finally, fasten two screws on HDD cover firmly to complete installation.**

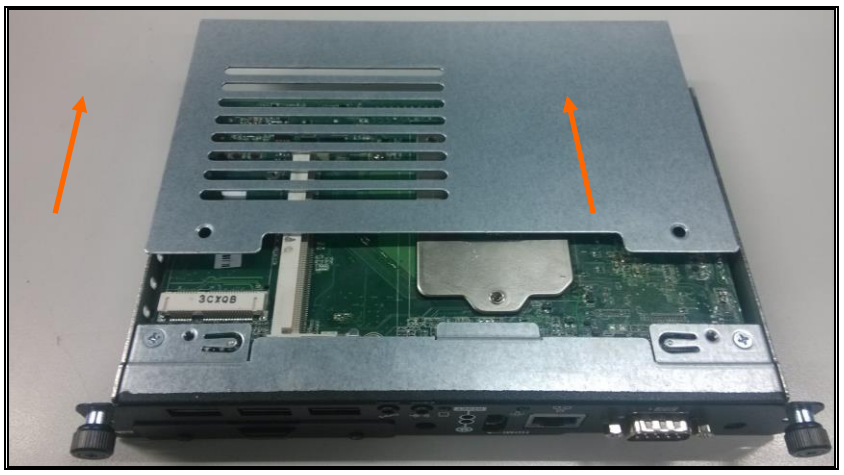
2.1.3 Mini PCIe Module Installation

The OPS500-501 series provides one Mini card slot for user to install mini cards, please refer to the following instructions and illustration.

Step 1 Loosen the screws per illustrated.

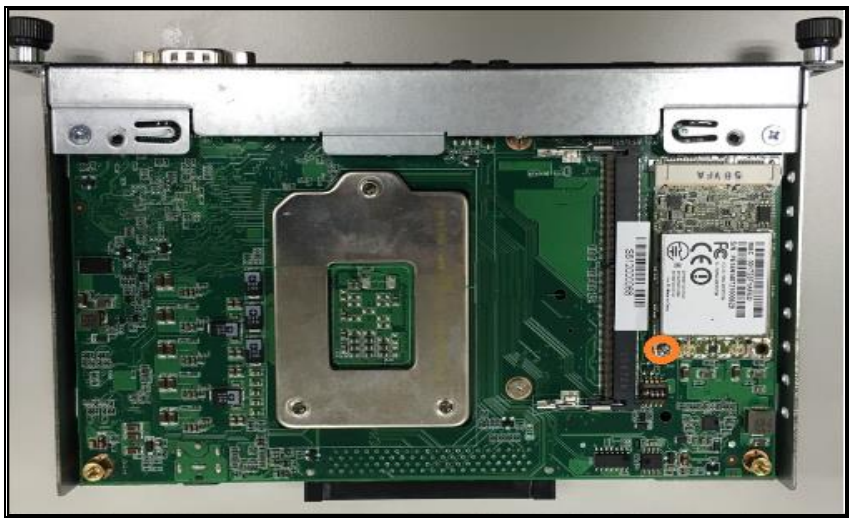


Step 2 After losing the screws, extract the real of chassis out of the module carefully.

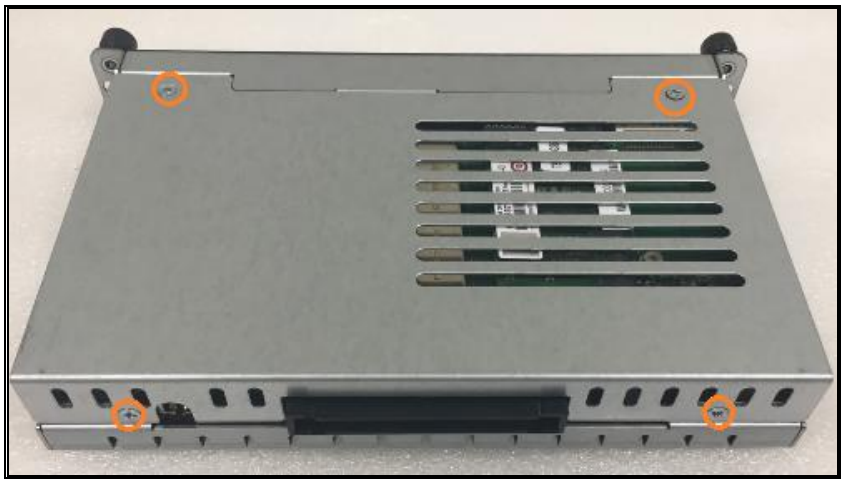


Step 3 Please find the position of Mini PCIe slot on the bottom side of OPS.

Step 4 Please insert the module then fasten screw carefully.

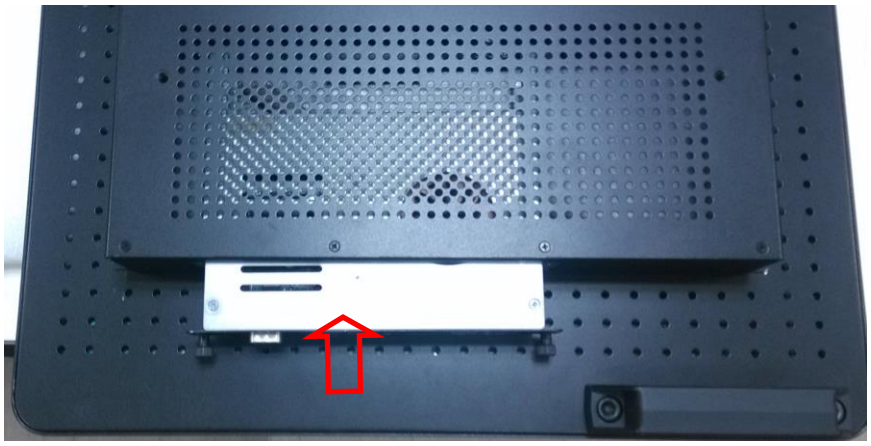


Step 5 Fasten all of screws to complete installation.



2.2 Pluggble Module Method

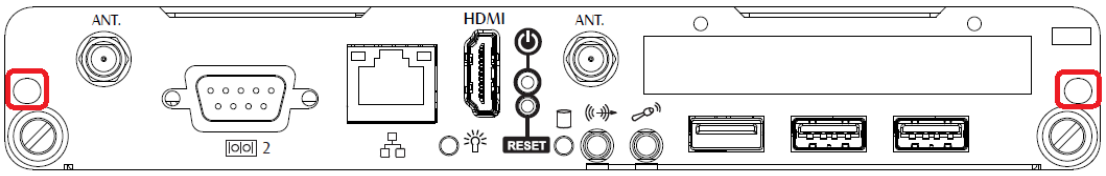
NOTE: ***Please contact Axiomtek for the available option display***



Step 1 Pluggable the box into display

Caution: When plugging OPS500-501 series module into an OPS display, make sure the module's heat sink is facing outside of the display. Axiomtek is not responsible for any damage caused by wrong installation.

Step 2 Fasten the screws as illustrated.



CHAPTER 3
CONNECTORS

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

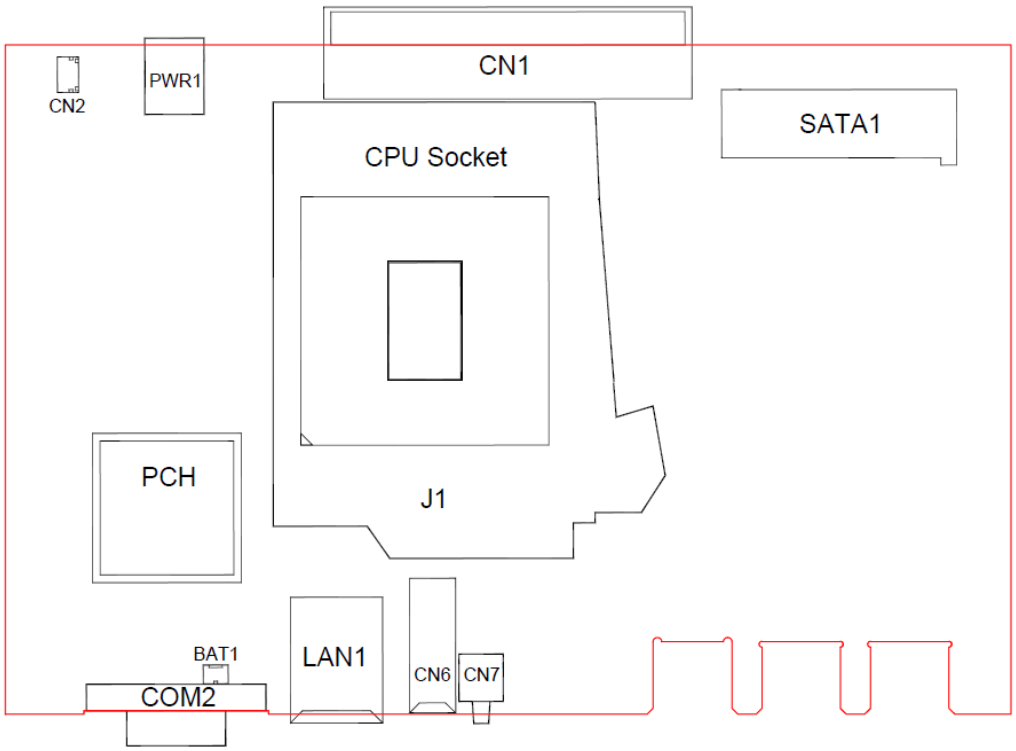
3.1 Connectors

Connectors connect this board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly connected.

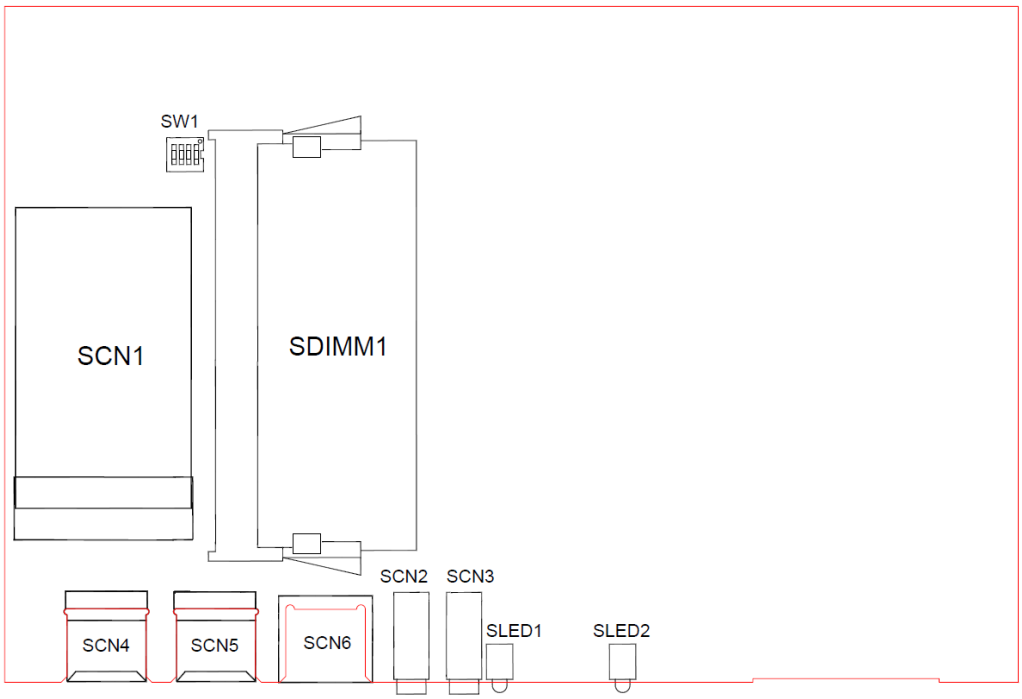
Here is a summary table shows you all connectors on the board.

Connector	Label
JAE TX25A Connector	CN1
CPU FAN Connector	CN2
HDMI Connector	CN6
Power & Reset Button	CN7
Audio MIC-IN Connector	SCN2
Audio LINE-OUT Connector	SCN3
RTC Battery Connector	BAT1
Full-size Mini PCIe (mSATA supported)	SCN1
USB3.0 Port	SCN4 / SCN5
USB2.0 Port	SCN6
COM Port	COM2
SATA Connector(5V Only)	SATA1
RJ45 (I219LM)	LAN1
DC Power Jack	PWR1
AT/ATX Mode	SW1
CMOS Clear	
PCIe or mSATA Mode for SCN1	
SLP_S3 Docking Support	

Board Layout



Top side

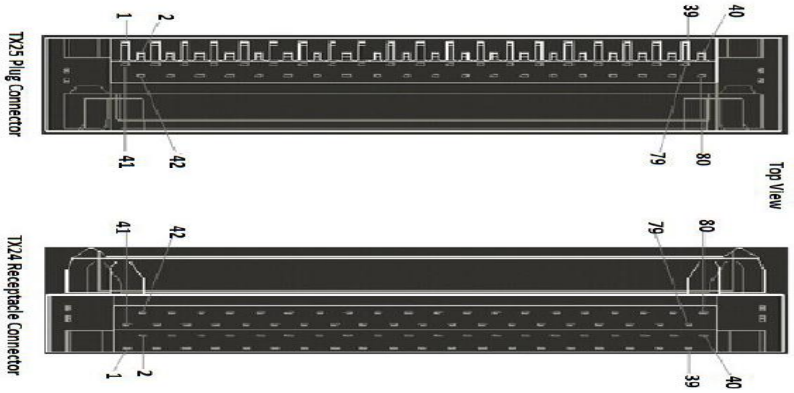


Bottom side

3.1.1 JAE TX25A Connector (CN1)

Connector JAE TX25A CN1 is for JAE improced interface supported.

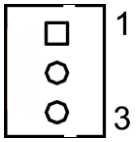
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	DDP_3N	2	DDP_3P	3	GND	4	DDP_2N
5	DDP_2P	6	GND	7	DDP_1N	8	DDP_1P
9	GND	10	DDP_0N	11	DDP_0P	12	GND
13	DDP_AUXN	14	DDP_AUXP	15	DDP_HPD	16	GND
17	TMDS_CLK-	18	TMDS_CLK+	19	GND	20	TMDS0-
21	TMDS0+	22	GND	23	TMDS1-	24	TMDS1+
25	GND	26	TMDS2-	27	TMDS2+	28	GND
29	DVI_DDC_DATA	30	DVI_DDC_CLK	31	DVI_HPD	32	GND
33	+12V~+19V	34	+12V~+19V	35	+12V~+19V	36	+12V~+19V
37	+12V~+19V	38	+12V~+19V	39	+12V~+19V	40	+12V~+19V
41	RSVD	42	RSVD	43	RSVD	44	RSVD
45	RSVD	46	RSVD	47	RSVD	48	RSVD
49	SLP_S3	50	SYS_FAN	51	UART_RXD	52	UART_TXD
53	GND	54	StdA_SSRX-	55	StdA_SSRX+	56	GND
57	StdA_SSTX-	58	StdA_SSTX+	59	GND	60	USB_PN2
61	USB_PP2	62	GND	63	USB_PN1	64	USB_PP1
65	GND	66	USB_PN0	67	USB_PP0	68	GND
69	AZ_LINEOUT_L	70	AZ_LINEOUT_R	71	NC	72	PB_DET
73	PS_ON#	74	PWR_STATUS	75	GND	76	GND
77	GND	78	GND	79	GND	80	GND



3.1.2 CPU FAN (CN2)

CN2 provides power input and FAN control signal, and you can connect CPU FAN through this connector.

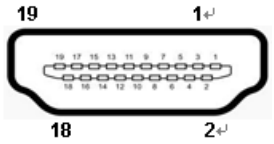
Pin	Signal
1	GND
2	FAN CTRL
3	FAN DET



3.1.3 HDMI Connector (CN6)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable.

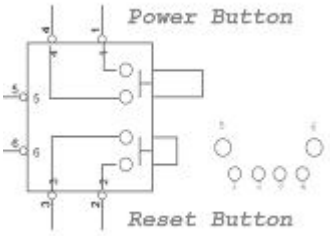
Pin	Signal	Pin	Signal
1	HDMI OUT_DATA2+	2	GND
3	HDMI OUT_DATA2-	4	HDMI OUT_DATA1+
5	GND	6	HDMI OUT_DATA1-
7	HDMI OUT_DATA0+	8	GND
9	HDMI OUT_DATA0-	10	HDMI OUT Clock+
11	GND	12	HDMI OUT Clock-
13	N.C.	14	N.C.
15	HDMI OUT_SCL	16	HDMI OUT_SDA
17	GND	18	+5V
19	HDMI_HTPLG		



3.1.4 Power & Reset Button (CN7)

The CN7 is one reset button that reboots your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

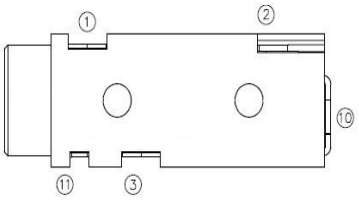
Pin	Signal
1	GND
2	GND
3	RST_BTN
4	PWR_BTN
5	GND
6	GND



3.1.5 Audio MIC-IN Connector (SCN2)

The MIC-IN audio jack is applying for Audio Mic-In usage.

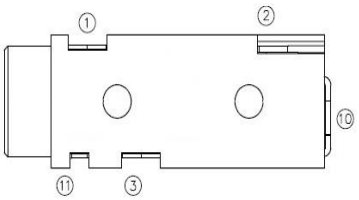
Pin	Signal
1	GND
2	MIC_IN_L
3	MIC_IN_R
10	MIC_DETECT
11	GND



3.1.6 Audio Line-Out Connector (SCN3)

The Line-Out audio jack is applying for Audio Line-Out usage.

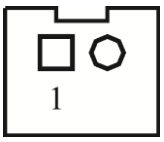
Pin	Signal
1	GND
2	LINE_OUT_L
3	LINE_OUT_R
10	LINE_OUT _DETECT
11	GND



3.1.7 Battery 2 PIN (BAT1)

The two pin power connector is supplying the power for battery.

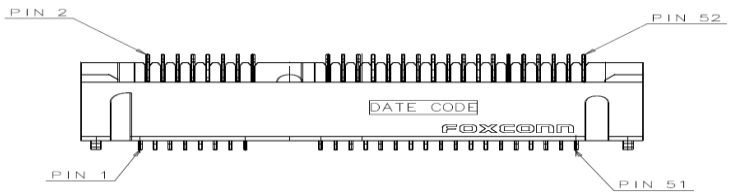
Pin	Signal
1	+VBAT
2	GND



3.1.8 Mini Card Slot (SCN1)

One PCI-Express Mini Card connector supports PCI-Express x1 link, USB 2.0 link and mSATA for usage.

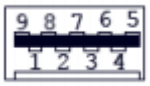
Pin	Signal	Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VAUX	3	RVD1
4	GND	5	RVD2	6	+1.5V
7	CLKREQ#	8	RVD19	9	GND
10	RVD18	11	REFCLK-	12	RVD16
13	REFCLK+	14	RVD15	15	GND
16	RVD14	17	RVD3	18	GND
19	RVD4	20	+3.3VAUX	21	GND
22	PERST#	23	PERN0	24	+3.3VAUX
25	PERP0	26	GND	27	GND
28	+1.5V	29	GND	30	SMB_CLK
31	PETN0	32	SMB_DATA	33	PETP0
34	GND	35	GND	36	USB_D-
37	RVD5	38	USB_D+	39	+3.3VAUX
40	GND	41	+3.3VAUX	42	LED_WWAN#
43	RVD8	44	LED_WLAN#	45	RVD9
46	LED_WPAN#	47	RVD10	48	+1.5V
49	RVD11	50	GND	51	RVD12
52	+3.3VAUX	53	NH1	54	NH2
55	NH3	56	NH4		



3.1.9 USB 3.0 Port (SCN4/SCN5)

The Universal Serial Bus connectors are compliant with USB 3.0 (5Gb/s), and ideally for installing USB peripherals such as keyboard, mouse, scanner, etc.

Pin	Signal
1	USB3_POWER
2	USB D0-
3	USB D0+
4	GND
5	USB3_SSRX0-
6	USB3_SSRX0+
7	GND
8	USB3_ SSTX0-
9	USB3_ SSTX0+



3.1.10 USB 2.0 Port (SCN6)

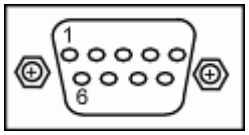
The Universal Serial Bus connectors are compliant with USB 2.0 (480Mbps), and ideally for installing USB peripherals such as keyboard, mouse, scanner, etc.

Pin	Signal
1	USB_POWER
2	USB D0-
3	USB D0+
4	GND

3.1.11 COM Port (COM2)

The COM Port connector (COM2) is a standard DB-9 connector. The pin assignment of RS-232 is listed on the following table

Pin	Signal
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator



3.1.12 SATA & SATA Power Connector (SATA1)

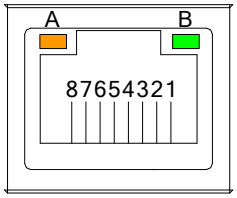
The Serial Advanced Technology Attachment (Serial ATA or SATA) connector supports high-speed SATA with power supply for 2.5" HDD/SSD by one 22pin connector. This SATA 3.0 port with 6Gb/s performance for storage usage.

Pin	Signal	Pin	Signal
S1	GND	P1	+3.3V
S2	SATA0_TX+	P2	+3.3V
S3	SATA0_TX-	P3	+3.3V
S4	GND	P4	GND
S5	SATA0_RX-	P5	GND
S6	SATA0_RX+	P6	GND
S7	GND	P7	+5V
		P8	+5V
		P9	+5V
		P10	GND
		P11	GND
		P12	GND
		P13	NC
		P14	NC
		P15	NC

3.1.13 RJ45 (I219LM) (LAN1)

The RJ-45 connector LAN1 is for Ethernet. To connect the board to 100-Base-T or 1000-Base-T hub, just plug one end of the cable into LAN1 and connect the other end (phone jack) to a 100-Base-T hub or 1000-Base-T hub.

Pin	Signal
1	Tx+ (Data transmission positive)
2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)
4	RJ-1(For 1000 base T-Only)
5	RJ-1(For 1000 base T-Only)
6	Rx- (Data reception negative)
7	RJ-1(For 1000 base T-Only)
8	RJ-1(For 1000 base T-Only)
A	Active LED
B	Speed LED



3.1.14 DC Power Jack (PWR1)

PWR1 is a ø2.5mm DC Power Jack. Loose connection may cause system instability and make sure all components/devices are been installed properly before connecting.

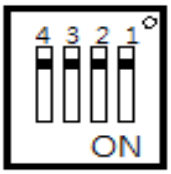
Pin	Signal
1	+12V or +19V
2	GND

3.1.15 SW1 Setting

ATX/AT Mode, CMOS Clear, PCIe/mSATA for SCN1 and SLP_S3_Docking can be set through SW1.

NOTE: ***SCN1 supports PCIe or mSATA interface that can be set in BIOS. In this case, SW1 pin 3 should be set as "OFF."***

Pin	Description	ON	OFF (Default)
1	AT / ATX Mode	AT	ATX
2	CMOS Clear	Clear CMOS	Normal
3	PCIe/mSATA Select	mSATA	PCIe
4	SLP_S3_Docking	On	Off



Power LED

The Power LED lights up when the system is powered ON

HDD Activity LED

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed.

CHAPTER 4
AMI BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

4.1 Starting

To enter the setup screens, follow the steps below:

- **Turn on the computer and press the <Del> key immediately.**
- **After you press the <Del> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.**

4.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.

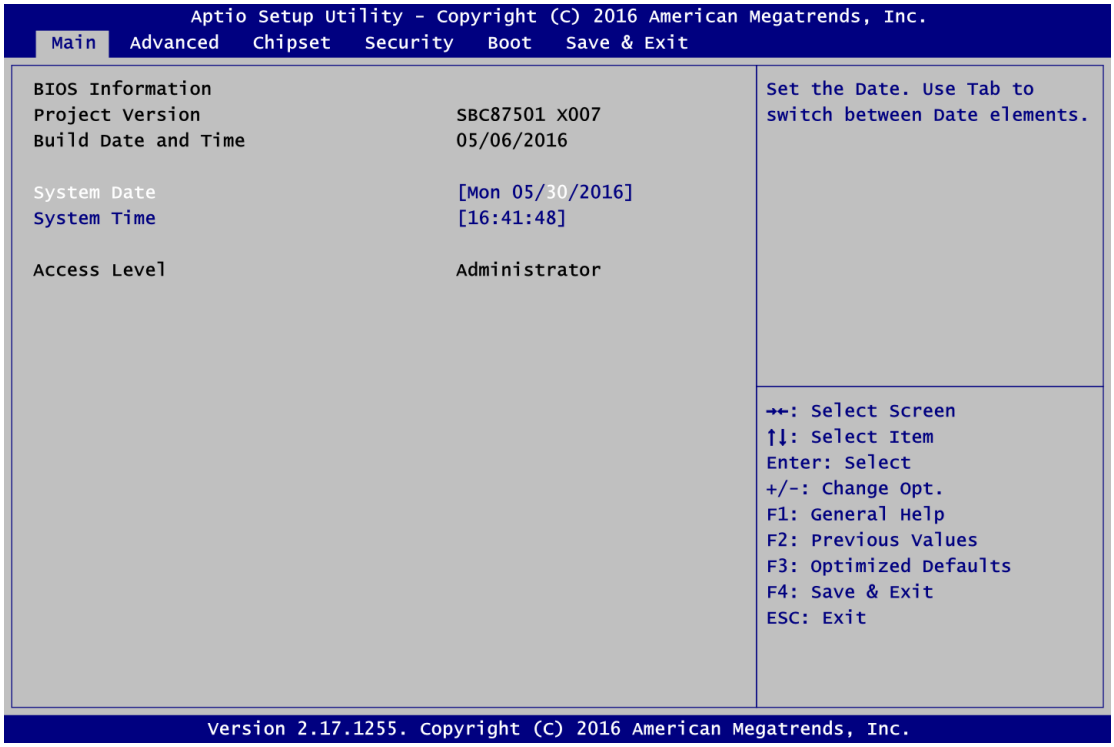
NOTE: Some of navigation keys differ from one screen to another.

Hot Key	Description
← →Left/Right	The Left <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F2	The <F2> key allows you to Load Previous Values.
F3	The <F3> key allows you to Load Optimized Defaults.
F4	The <F4> key allows you to save any changes you have made and exit Setup. Press the <F4> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

4.3 Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

- **BIOS Information**



➢ **System Date/Time**

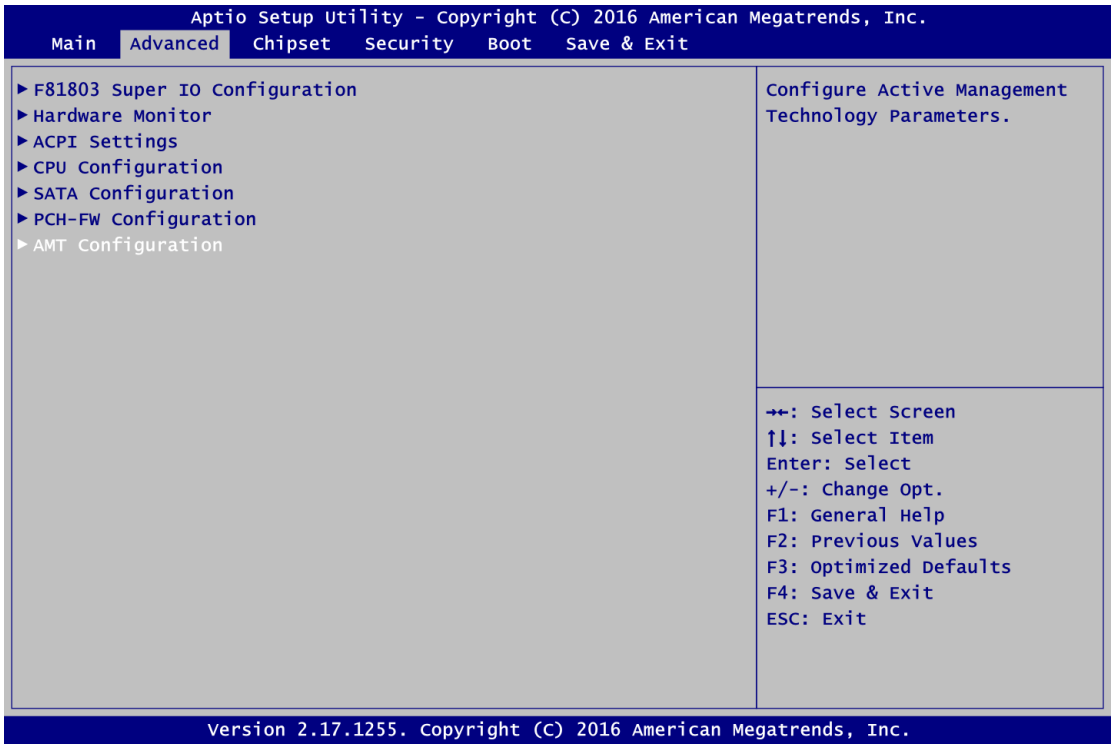
Use this option to change the system date and time. Highlight System Date or System Time using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Enter> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

4.4 Advanced Menu

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

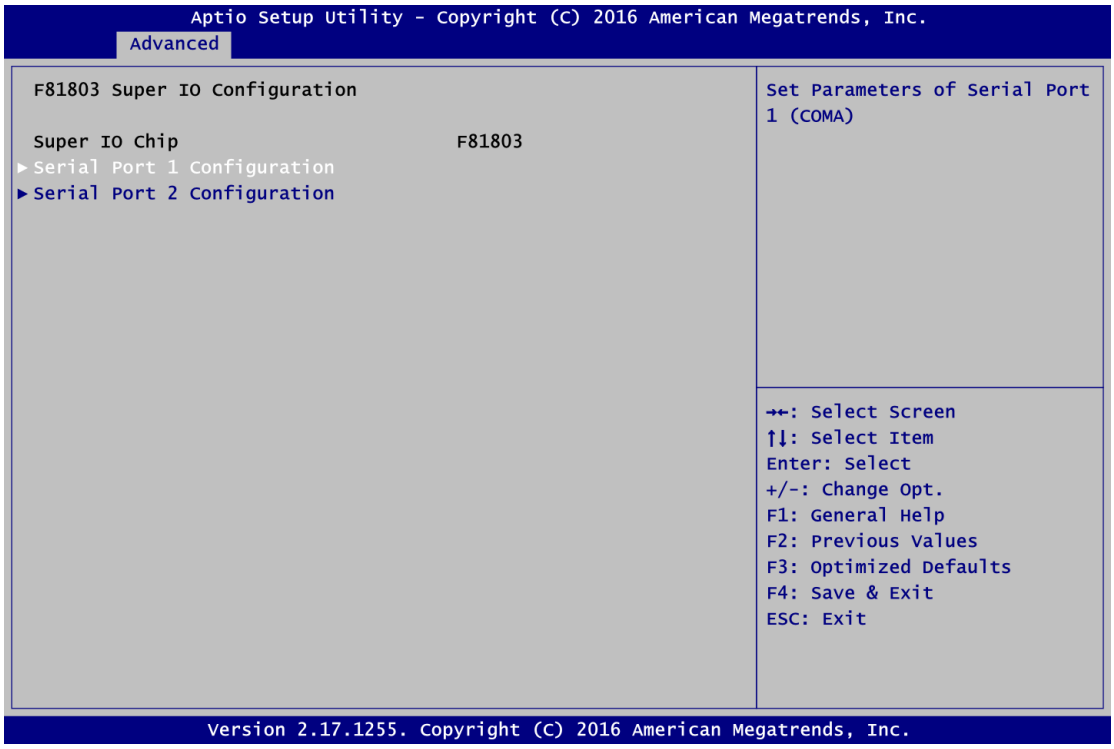
- **F81803 Super IO Configuration**
- **Hardware Monitor**
- **ACPI Settings**
- **CPU Configuration**
- **SATA Configuration**
- **PCH-FW Configuration**
- **AMT Configuration**

For items marked with "►", please press <Enter> for more options.



- **F81803 Super IO Configuration**

Set parameters of Serial Port 1(COM1)/Serial Port 2(COM2)



➢ **Serial Port**

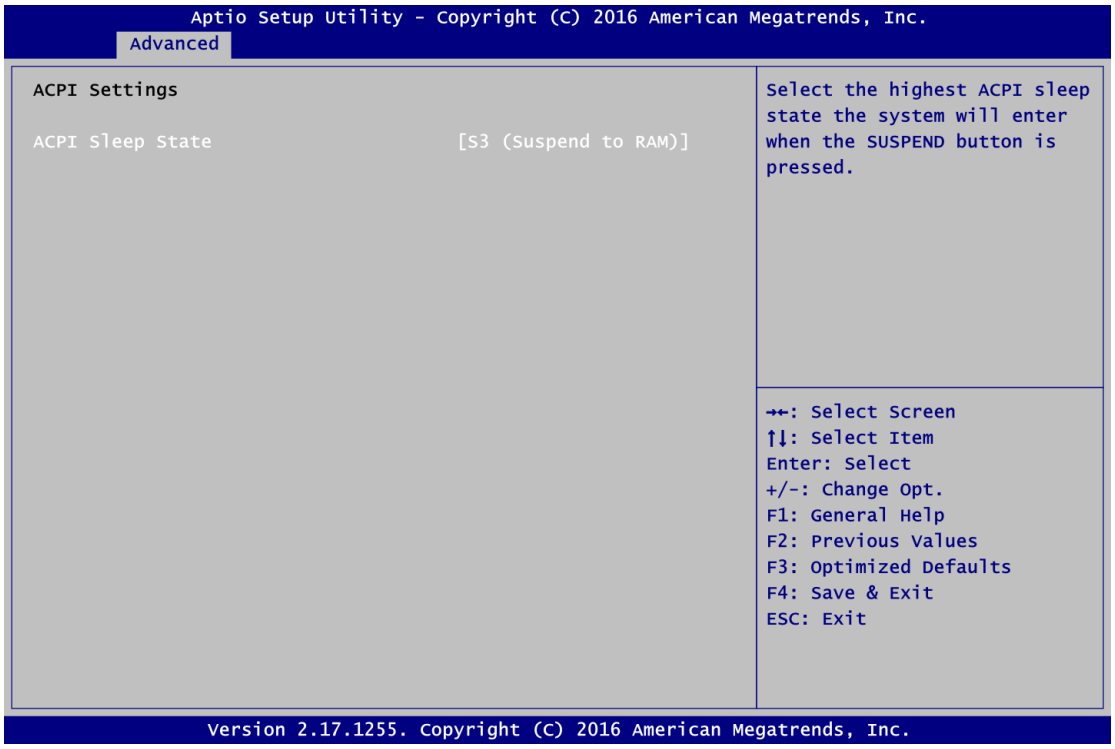
Enable or Disable serial port.

➢ **Device Settings**

Display the serial port resource.

- **ACPI Settings**

You can use this screen to select options for the ACPI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

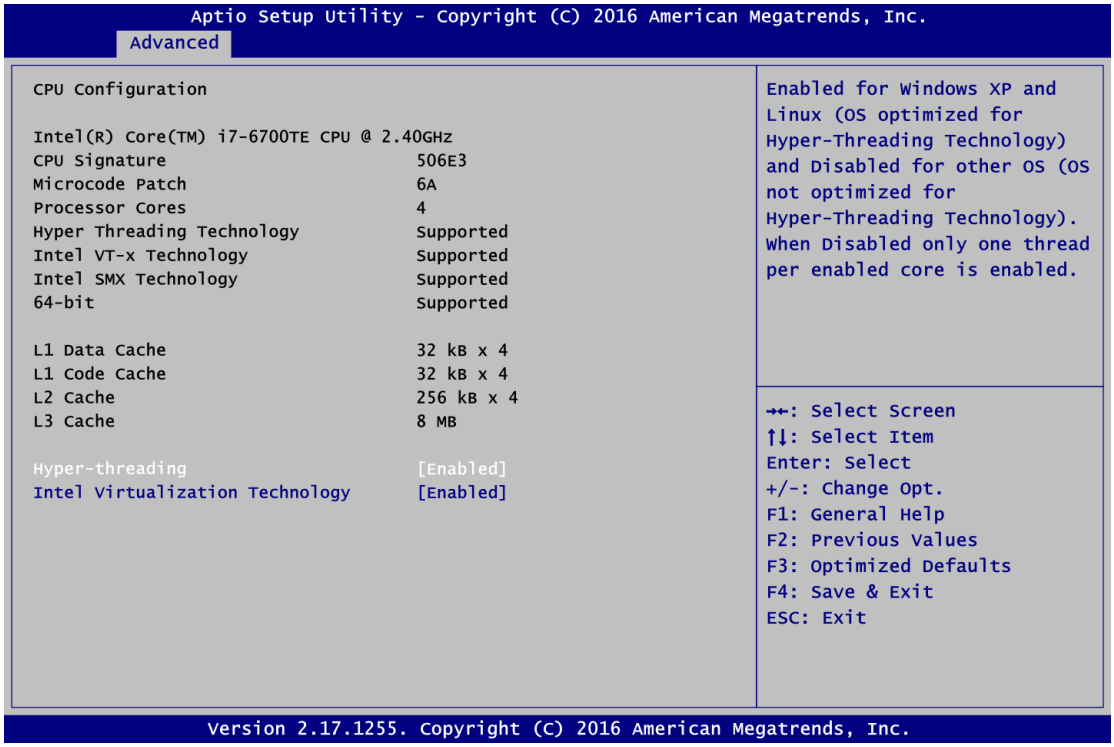


➢ **ACPI Sleep State**

Allow you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Here are the options for your selection, S3 (Suspend to RAM)

- **CPU Configuration**

This screen shows the CPU Configuration, and you can change the value of the selected option.



➢ **Hyper Threading**

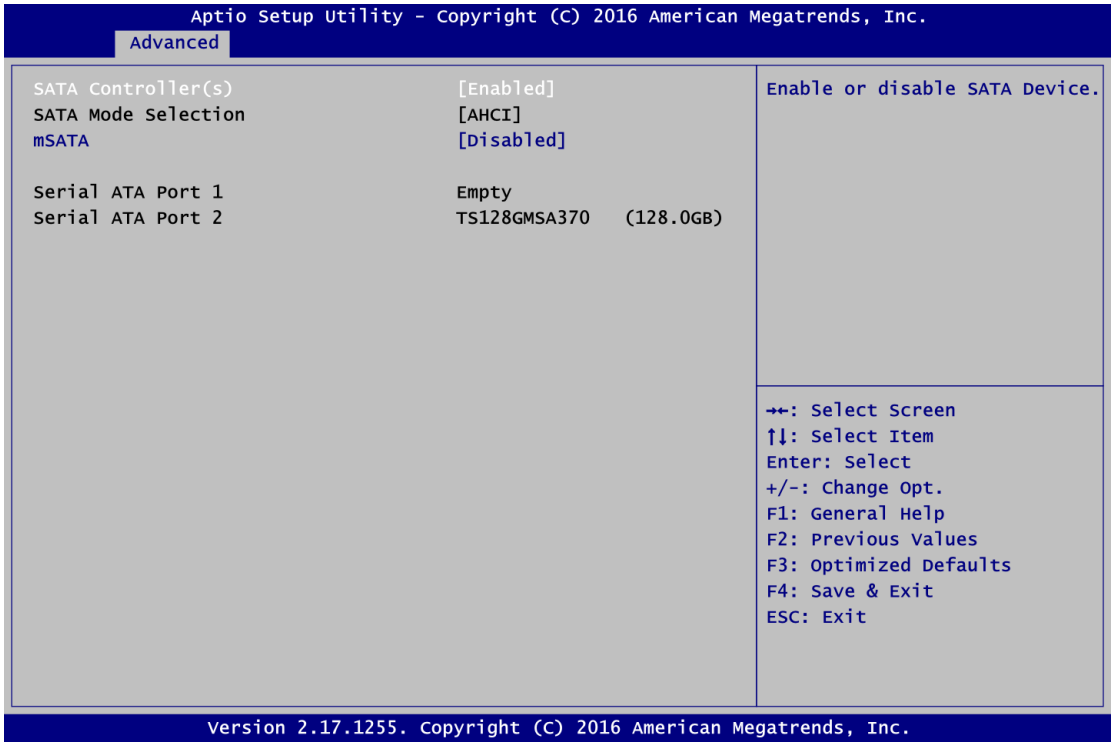
To select Hyper-threading function which is Intel's proprietary simultaneous multithreading (SMT) implementation used to improve parallelization of computations (doing multiple tasks at once) performed on x86 microprocessors..

➢ **Intel Virtualization Technology**

Allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

- **SATA Configuration**

You can use this screen to select options for the SATA Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



- **Serial-ATA Controller(S)**

  Use this item to enable or disable the integrated SATA controllers. (Default: Enabled)

- **mSATA**

  Users can adjust the mPCIe slot to SATA mode to install mSATA storage.

  (Default: Disabled)

- **Serial ATA Port 1**

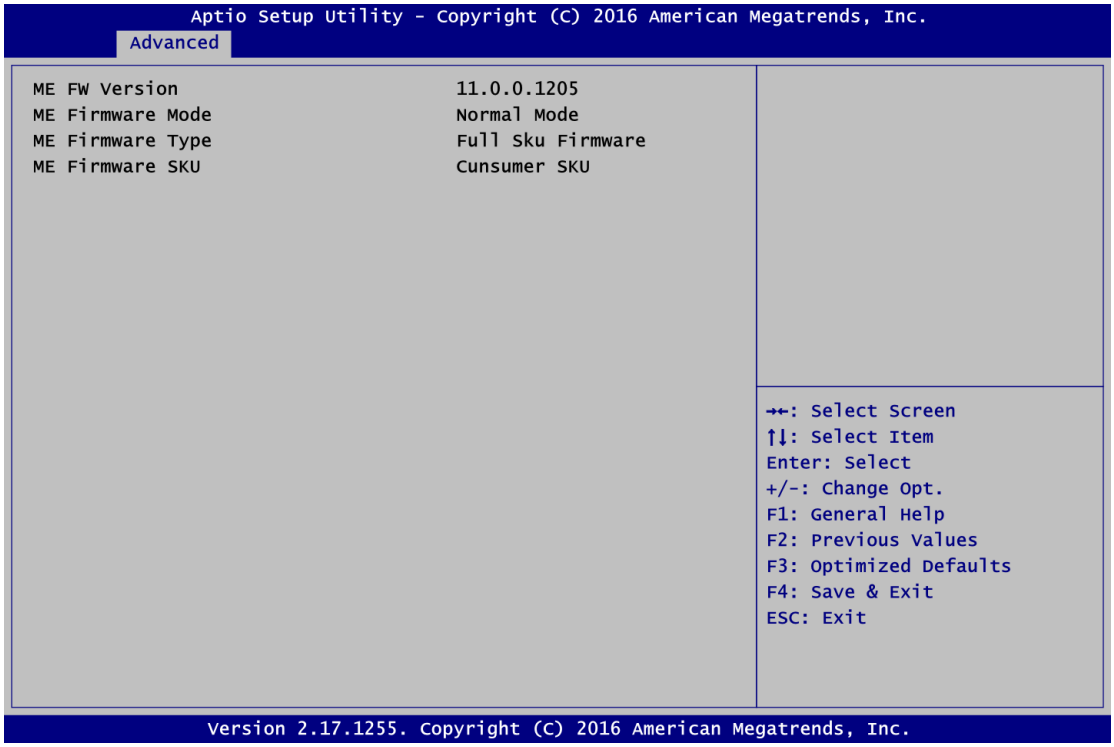
  Enable or Disable SATA 1 Port

- **Serial ATA Port 2**

  Enable or Disable SATA 1 Port

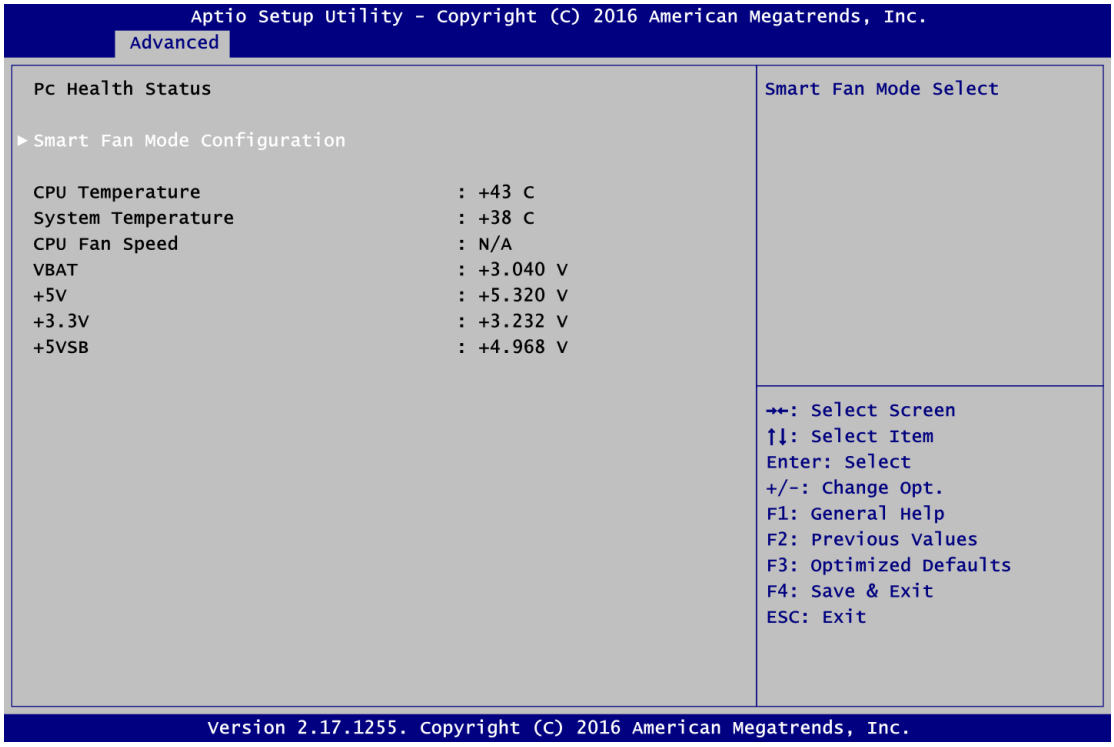
- **PCH-FW Configuration**

You can use this screen to confirm ME Firmware version.



- **PC Health Status**

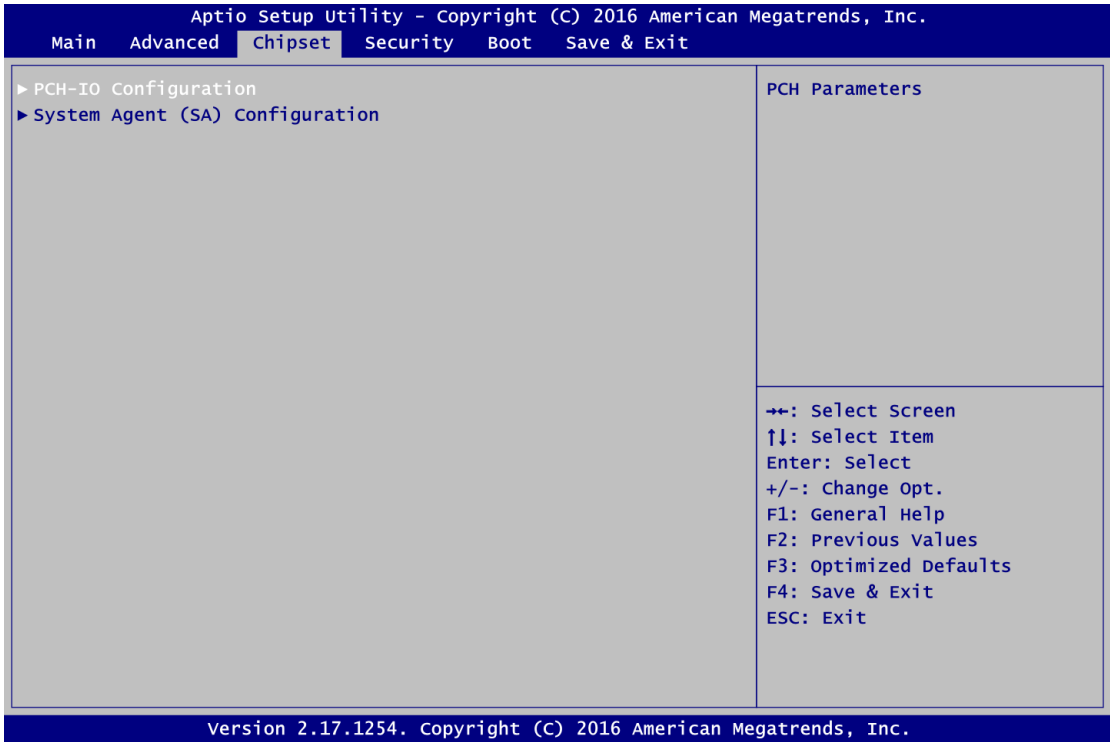
This screen shows the Hardware Health Configuration, and enable or disable smart fan.



4.5 Chipset Menu

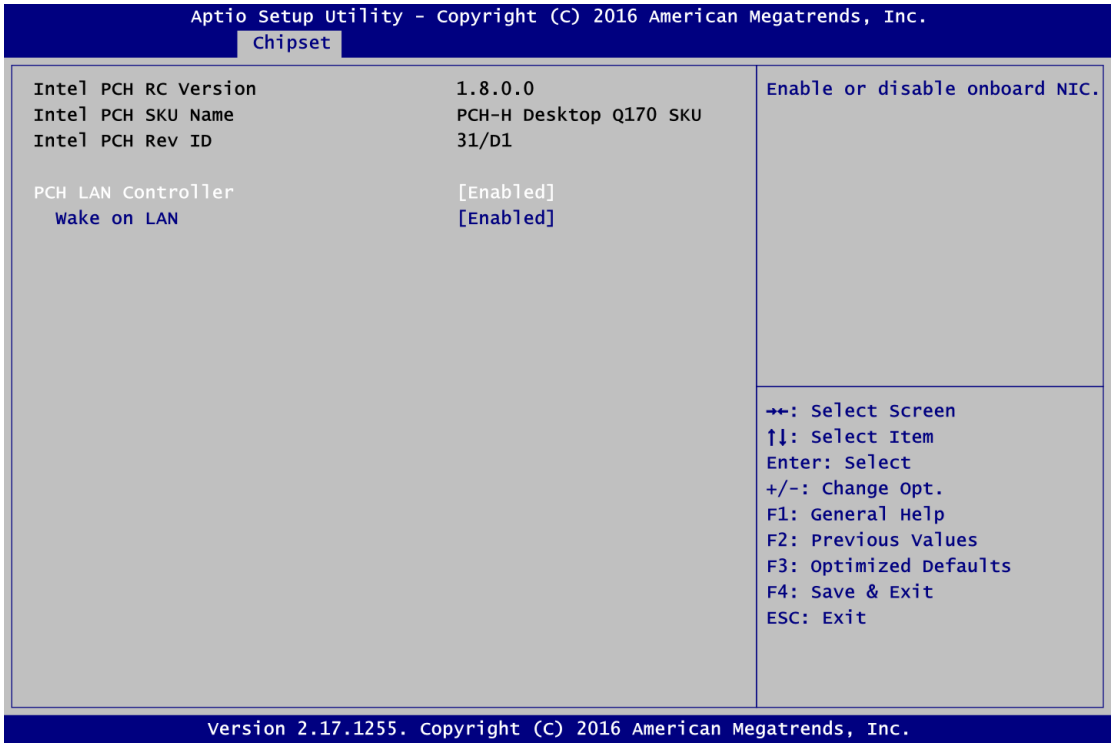
The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

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



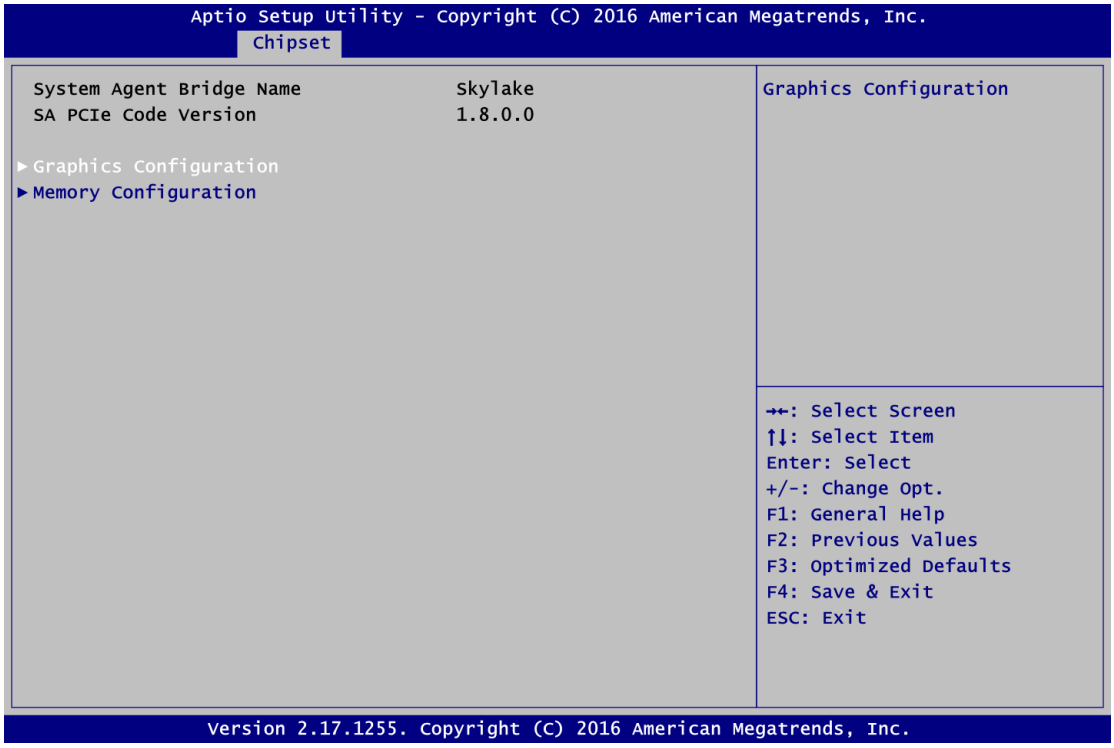
- **PCH–IO Configuration**

PCH Configuration settings



- **System Agent(SA) Configuration**

To adjust graphics and memory detail configurations.



- **Graphics Configuration**

  Configure graphics settings.

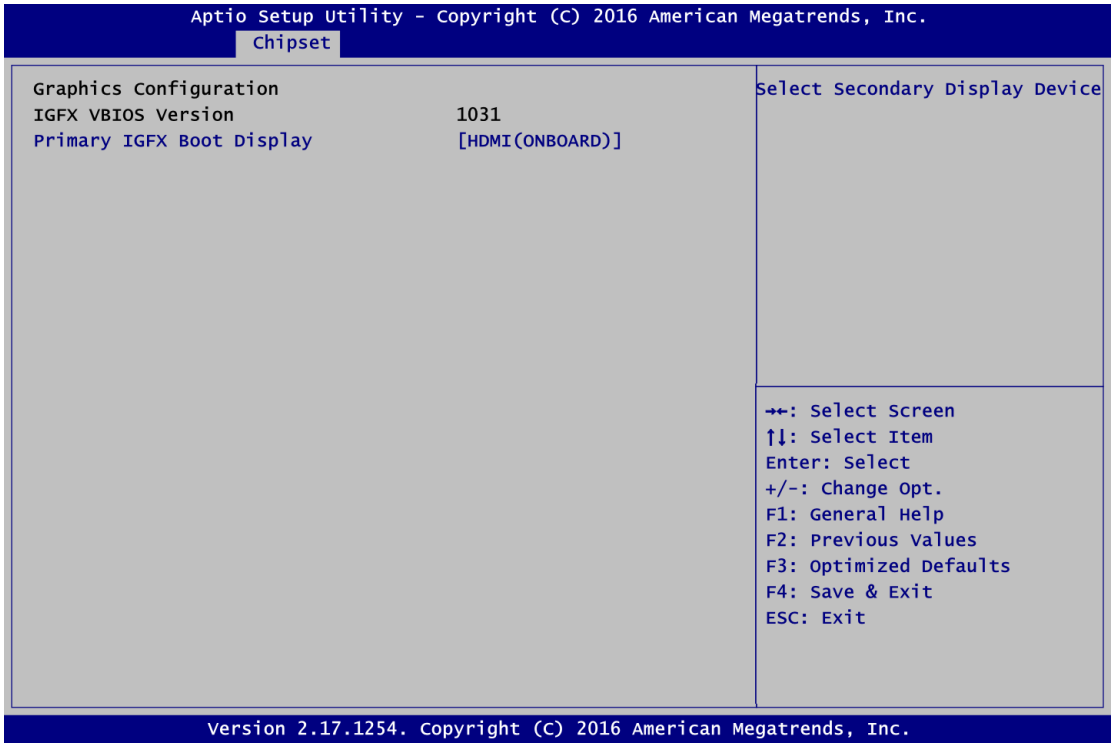
- **Memory Information**

  Memory configuration parameters

- **Graphics Configuration**

Select the Video Device which will be activated druing POST.

This has no effect if external grpahis present.

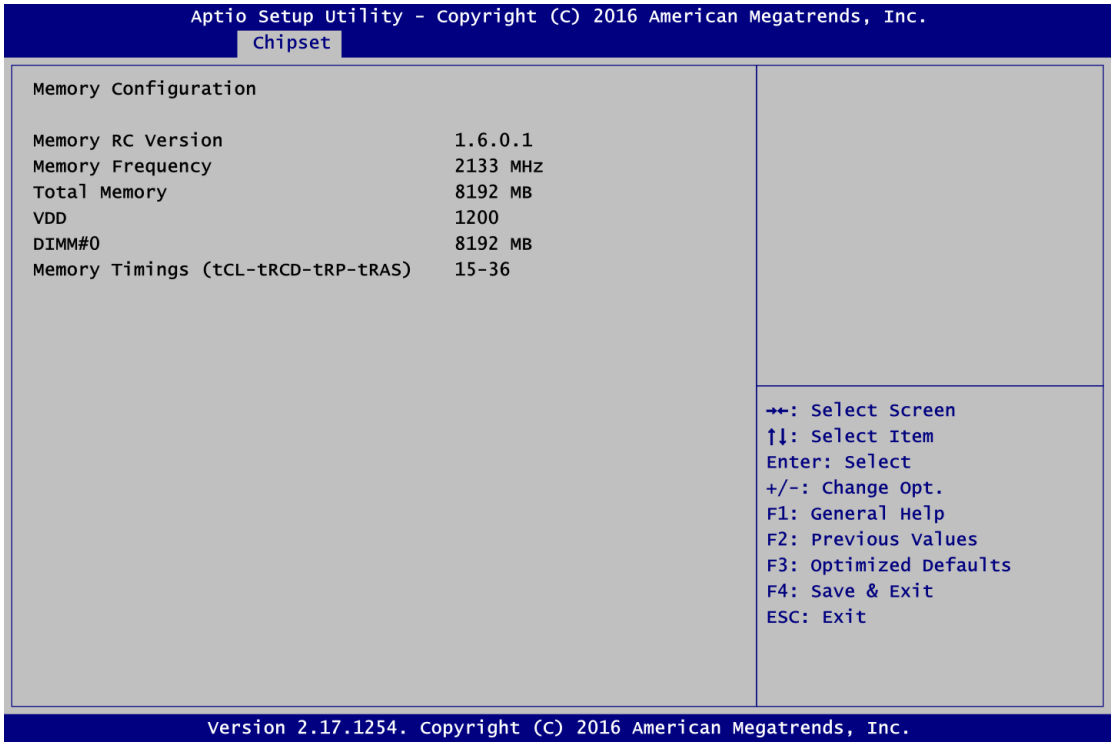


➢ **Primary IGFX Boot Display**

Select the video device which will be activated during POST. It has no effect if external graphics presents VGA modes will be supported only on primary display

- **Memory Information**

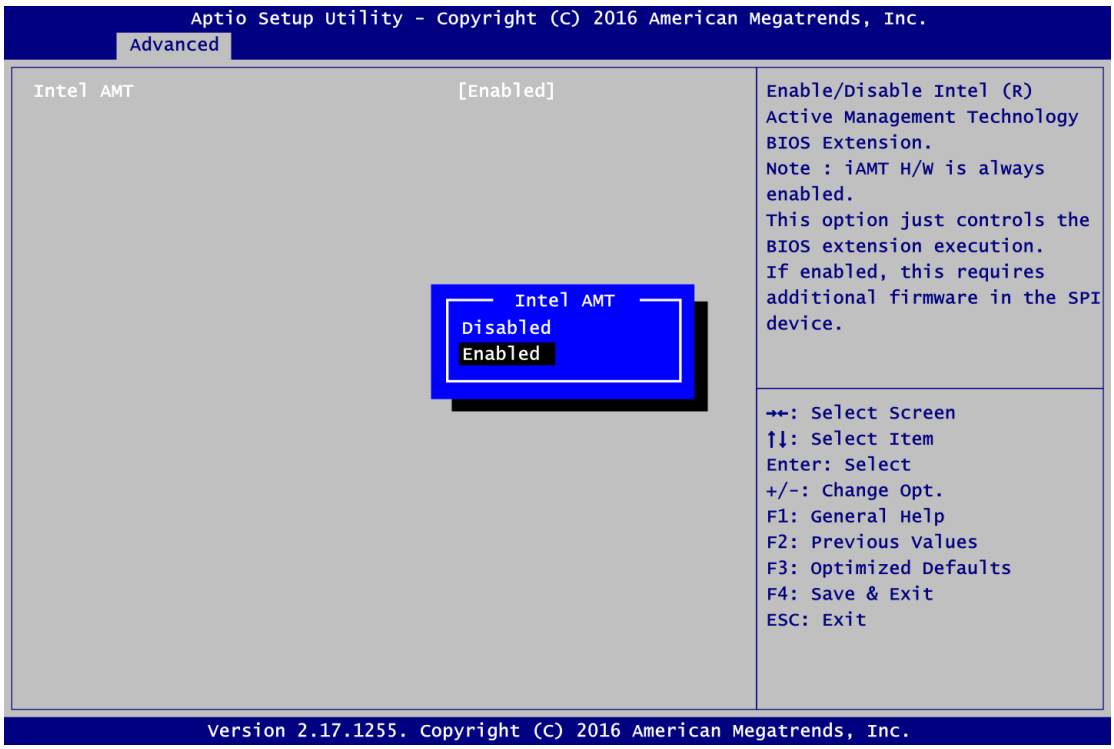
Memory configuration parameters



This screen shows the system memory information.

- **AMT Configuration**

This section is used to configure Active Management Technology (AMT) options.



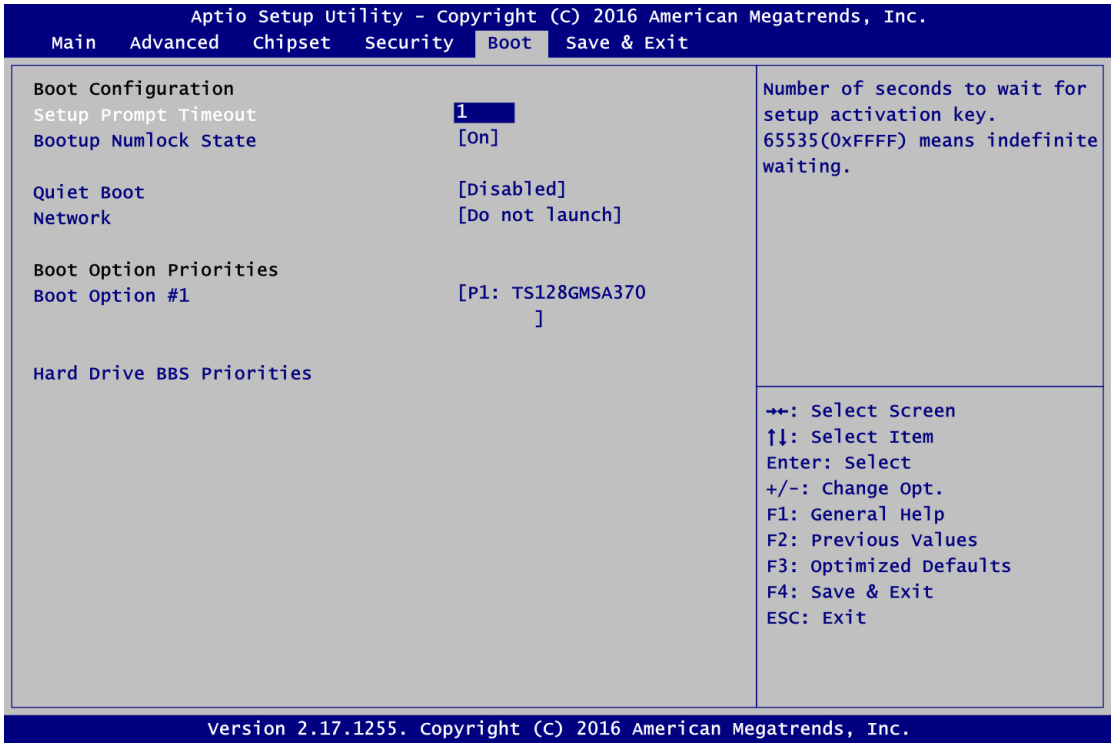
➢ **Intel® AMT**

Enables or disables Intel® Active Management Technology.

4.6 Boot Menu

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus:

- **Setup Prompt Timeout**
- **Boot up Num Lock State**
- **Quiet Boot**
- **Boot Option Priorities**



➢ **Setup Prompt Timeout**

Set the number of seconds to wait for Setup activation key.

➢ **Boot up Mum Lock State**

Use this item to select the power-on state for the Mum Lock. The default setting is on.

➢ **Quiet Boot**

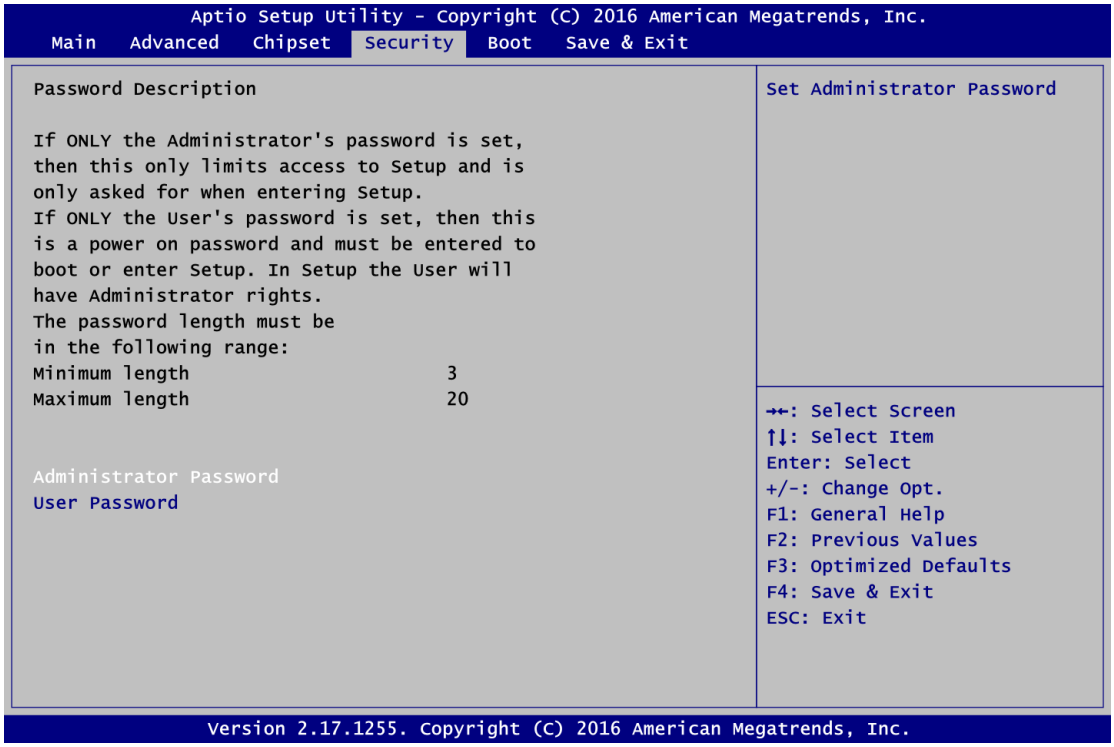
Use this item to enable or disable the Quite Boot state. The default setting is disabling.

➢ **Boot Option Priorities**

Sets the system boot order

4.7 Security Menu

The Security menu allows users to change the security settings for the system.



- **Administrator Password**

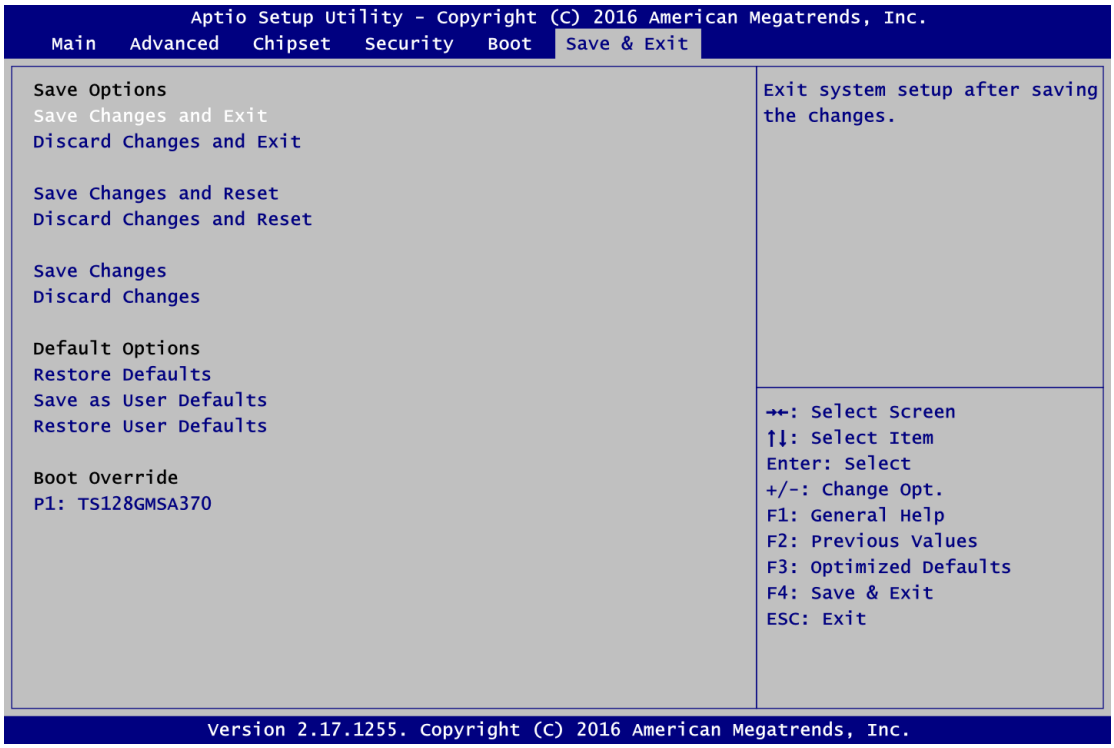
  This item indicates whether an administrator password has been set. If the Administrator password is set, BIOS will ask and wait for administrator password entered.

- **User Password**

  This item indicates whether a user password has been set. If the password is set, BIOS will ask and wait for User password entered

4.8 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or failsafe default values.



- **Save Changes and Exit**

  When you have completed the system configuration changes, select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit BIOS Setup.

- **Discard Changes and Exit**

  This option provide quit Setup without making any permanent changes to the system configurationSelect Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit BIOS Setup.

- **Save Changes and Reset**

  When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

- **Discard Changes and Reset**

  Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

- **Save Changes**

  When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

- **Discard Changes**

  Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

- **Restore Defaults**

  It automatically sets all Setup options to a complete set of default settings when you select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Restore Defaults from the save & Exit menu and press <Enter>.

- **Save as User Defaults**

  Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

- **Restore User Defaults**

  It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

APPENDIX A
WATCHDOG TIMER

Watchdog Timer Setting

After the system stops working for a while, it can be auto-reset by the Watchdog Timer. The integrated Watchdog Timer can be set up in the system reset mode by program.

Using the Watchdog Function Start

1.Enable configuration(Following is example to enable configuration by using debug)

-O 2E 87

-O 2E 87

2. Select Logic device:

-O 2E 07

-O 2F 07

3. WDT Device Enable

-O 2E 2B

-O 2F 00

-O 2E 30

-O 2F 01

4. Activate WDT:

-O 2E F0

-O 2F 80

5. Set base timer:

-O 2E F6

-O 2F 0A ➔Set Reset Time (Ex. A: 10 Sec)

6. Set timer unit

-O 2E F5

-O 2F 71(1: Sec ; 9: Minute)

7. Disable WDT

-O 2E 30

-O 2F 00

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