

MVBAYAI

Intel® Atom® processor motherboard

User's Manual

Rev. 1002

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentations:

- For detailed product information, carefully read the User's Manual.

For product-related information, check on our website at:

<http://www.gigabyte.com>

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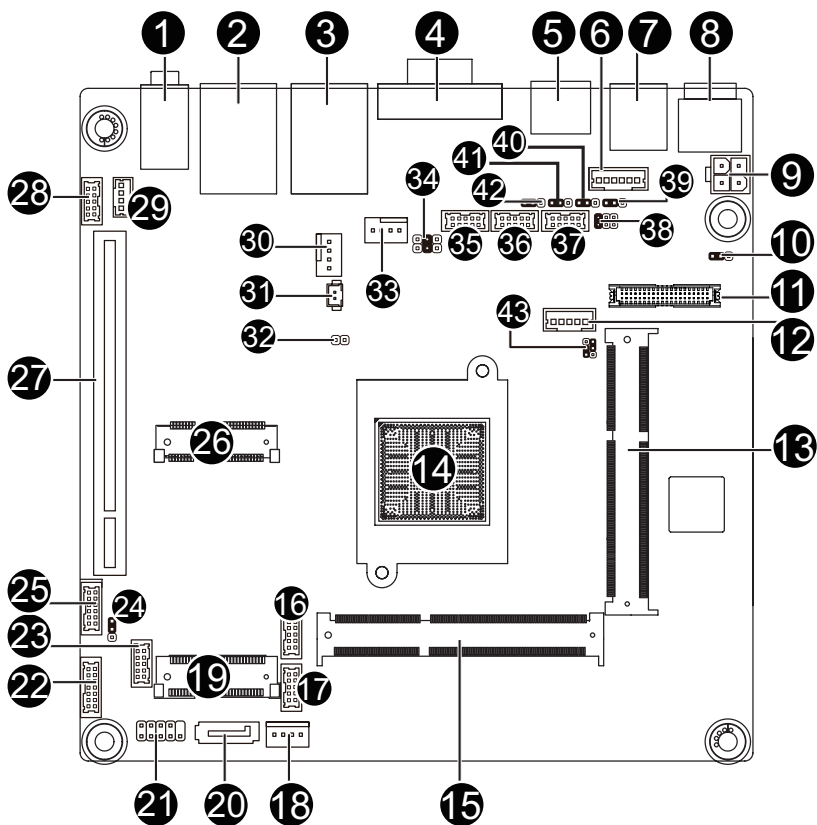
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Box Contents

- ☒ Motherboard
- ☒ IO Shield *1 (12AIO-MVBAY0-00R)
- ☒ SATA power cable *1 (25CRI-100B00-H3R)

- The box contents above are for reference only and the actual items shall depend on the product package you obtain.
The box contents are subject to change without notice.
- The motherboard image is for reference only.

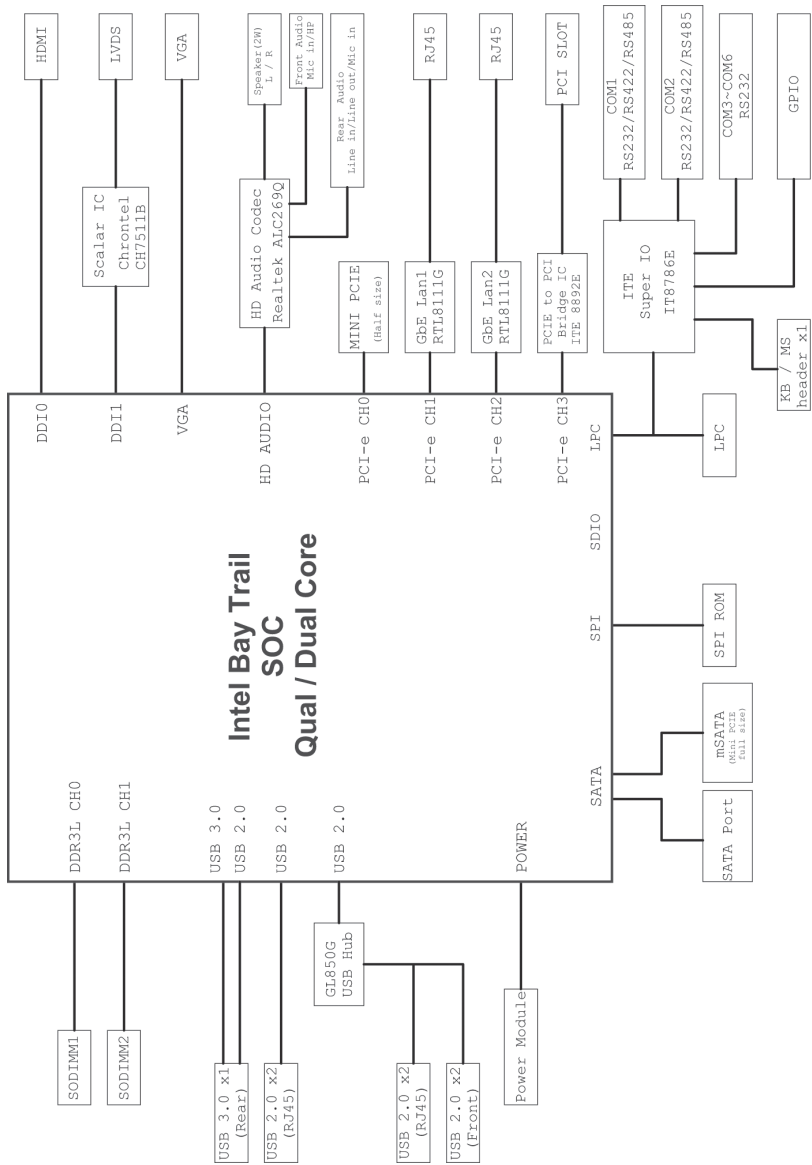
MVBAYAI Motherboard Layout



Item	Code	Description
1	AUDIO	Audio connectors
2	USB_LAN1	RJ45 LAN port (top) / USB 2.0 ports (bottom)
3	USB_LAN2	RJ45 LAN port (top) / USB 2.0 ports (bottom)
4	VGA_COM2	Serial port (top) / VGA port (bottom)
5	HDMI	HDMI port
6	KB_MS	PS/2 Mouse/Keyboard cable connector
7	RUSB1	USB 3.0 port
8	DC_IN	DC In power connector
9	ATX_12V	4 pin main power connector
10	JRS6	LVDS enable/disable jumper
11	LVDS	LVDS connector
12	BKL_CN	LCD Inverter Connector
13	SODIMM1	DDR3 SO-DIMM slot
14	CPU	CPU
15	SODIMM2	DDR3 SO-DIMM slot
16	COM5	Serial port cable connector #5
17	COM6	Serial port cable connector #6
18	SATAPW_1	SATA HDD power connector
19	M_SATA	mSATA/extension board connector
20	SATA1	SATA 3Gb/s connector
21	F_PANEL	Front panel header
22	LPC	LPC connector
23	F_USB1	USB 2.0 header
24	AT_CN	AT/ATX Power Mode Select jumper
25	GPIO_CNT	GPIO connector
26	MIN_PCIE	Mini PCi Express connector
27	PCI	PCI 32bit/33MHz slot
28	F_AUDIO	Front Panel Audio connector
29	SKP_OUT	Audio Amplifier connector
30	CPU_FAN	CPU fan connector
31	BAT_CN	Battery cable connector
32	CLR_CMOS	Clear CMOS jumper
33	SYS_FAN	System fan connector
34	JCOM3	COM3 Power Select jumper
35	COM3	Serial port cable connector #3
36	COM4	Serial port cable connector #4
37	COM1	Serial port cable connector #1
38	JCOM1	COM1 Power Select jumper
39	JRS3	RS232/RS422/RS485 Select Jumper for COM1

40	JRS2	RS232/RS422/RS485 Select Jumper for COM1
41	JRS4	RS232/RS422/RS485 Select Jumper for COM1
42	JRS1	RS232/RS422/RS485 Select Jumper for COM1
43	JP2	LVDS Panel GPIO Control jumper

Block Diagram



Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user's manual and follow these procedures:

- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

1-2 Product Specifications

 CPU	- Support for Intel® Celeron® J1900 (2.0 GHz) processor - TDP 10W - L1/L2 cache varies with CPU
 Memory	2 x SO-DIMM slots support 1.35V DDR3L 1333/1600MHz - Support up to 16GB
 Audio	- Realtek® ALC269 codec - High Definition Audio 2 channel
 LAN	2 x Realtek RTL8111G GbE controllers supports 10/100/1000 Mbps
 Expansion Slots	1 x mini PCI 32bit/33MHz slot 1 x Mini PCI Express slot (full size)
 Onboard Graphics	Build in Intel® Intel® processor
 Storage Interface	1 x SATA 3Gb/s connector 1 x mSATA socket (full size)
 USB	- Up to 6 USB 2.0 ports (4 on the back panel, 2 via the USB brackets connected to the internal USB headers) 1 x USB 3.0 port
 Internal Connectors	1 x 4 pin ATX 12V power connector 1 x SATA 3Gb/s connector 1 x SATA Power connector 1 x CPU fan header 1 x System fan header 5 x Serial port cable connectors 2 x COM power select headers (JCOM1/JCOM3) 1 x Front panel header 1 x Front Panel Audio header 1 x USB 2.0 header 1 x LVDS connector 1 x Brightness control connector 1 x LPC connector 1 x GPIO connector 1 x Speaker out header 1 x PS/2 Keyboard/Mouse header
 Back Panel Connectors	1 x PS/2 connector 1 x USB3.0 port 1 x HDMI port 1 x VGA port 1 x Serial port 4 x USB 2.0 ports 2 x RJ-45 port 3 x Audio connectors

	I/O Controller	♦ iTE IT8892E chip
	Hardware Monitor	♦ System voltage detection ♦ CPU/System temperature detection ♦ CPU/System fan speed control * Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.
	BIOS	♦ AMI BIOS
	Form Factor	♦ Mini ITX Form Factor; 170CM x 170CM
GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.		

1-3 Installing the Memory



Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

1-3-1 Installing a Memory

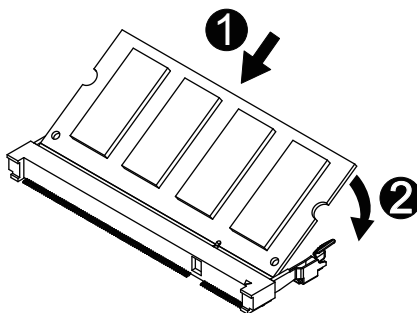
Installation Step:

Step 1. Align the memory with the SO-DIMM module and insert the SO-DIMM memory module into the SO-DIMM slot.

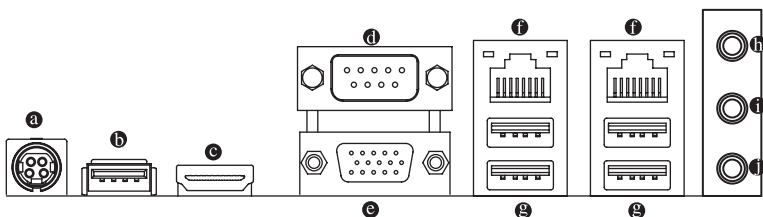
Please note that memory module has a foolproof insertion design. A memory module can be installed in only one direction.

Step 2. Push the memory and seat it firmly.

Step 3. Reverse the installation steps when you wish to remove the SO-DIMM module.



1-4 Back Panel Connectors



(a) DC Power Jack

Connect the DC power to this port.

(b) USB 3.0 Port

The USB port supports the USB 3.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

(c) HDMI Port

The HDMI (High-Definition Multimedia Interface) provides an all-digital audio/video interface to transmit the uncompressed audio/video signals and is HDCP compliant. Connect the HDMI audio/video device to this port. The HDMI Technology can support a maximum resolution of 1920x1080p but the actual resolutions supported depend on the monitor being used.



- When After installing the HDMI device, make sure the default device for sound playback is the HDMI device. (The item name may differ by operating system. Refer the figures below for details.), and enter BIOS Setup, then set Onboard VGA output connect to D-SUB/ HDMI under Advanced BIOS Features..
- Please note the HDMI audio output only supports AC3, DTS and 2-channel-LPCM formats. (AC3 and DTS require the use of an external decoder for decoding.)

(d) Serial Port

Connects to serial-based mouse or data processing devices.

(e) Video Port

The video in port allows connect to video in, which can also apply to video loop thru function.

(f) RJ-45 LAN Port

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

(g) USB 2.0 Port

The USB port supports the USB 2.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

(h) Line In Jack (Blue)

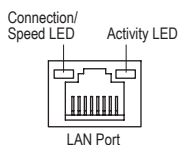
The default line in jack. Use this audio jack for line in devices such as an optical drive, walkman, etc.

(i) Line Out Jack (Green)

The default line out jack. Use this audio jack for a headphone or 2-channel speaker. This jack can be used to connect front speakers in a 4/5.1/7.1-channel audio configuration.

(j) MIC In (Pink)

The default MIC In jack. Microphone can be connected to MIC In jack.



Connection/Speed LED:

State	Description
Orange	1 Gbps data rate
Green	100 Mbps data rate
Off	10 Mbps data rate

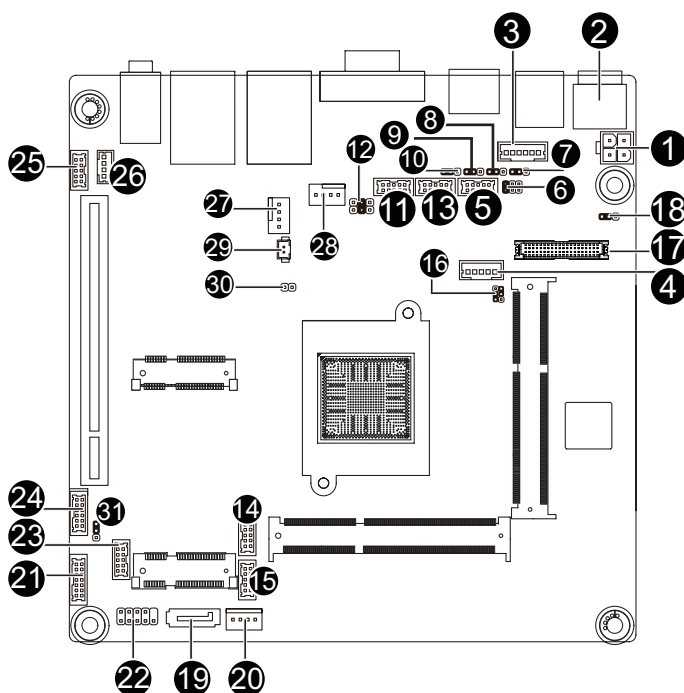
Activity LED:

State	Description
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring



- When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
- When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.

1-5 Internal Connectors



1) ATX_12V	17) LVDS
2) DC_IN	18) JRS6
3) KB_MS	19) SATA1
4) BKL_CN	20) SATAPW_1
5) COM1	21) LPC
6) JCOM1	22) F_PANEL
7) JRS3	23) F_USB1
8) JRS2	24) GPIO_CNT
9) JRS4	25) F_AUDIO
10) JRS1	26) SPK_OUT
11) COM3	27) CPU_FAN
12) JCOM3	28) SYS_FAN
13) COM4	29) BAT_CON
14) COM5	30) CLR_CMOS
15) COM6	31) AT_CN
16) JP2	



Read the following guidelines before connecting external devices:

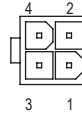
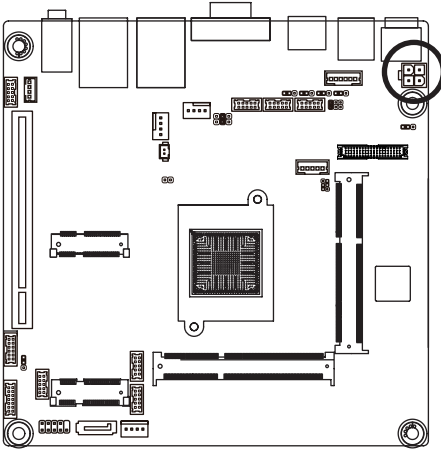
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.

1) ATX_12V (2x4 12V Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.



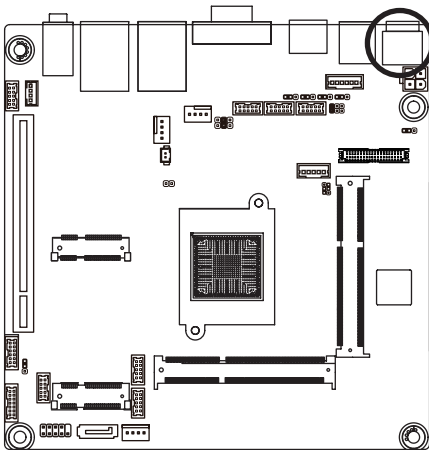
To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (60W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.



ATX_12V

Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

2) DC_IN (SC In Power Connector)



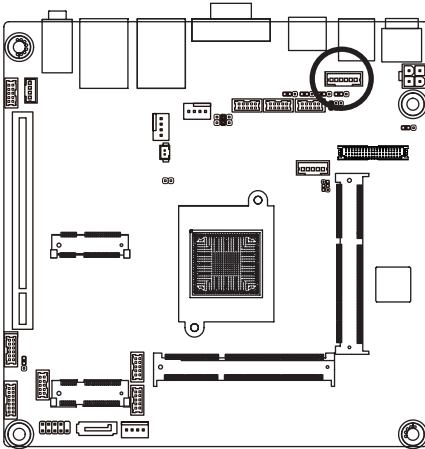
GND (Pin 1 & 2)



VIN (Pin 3 & 4)

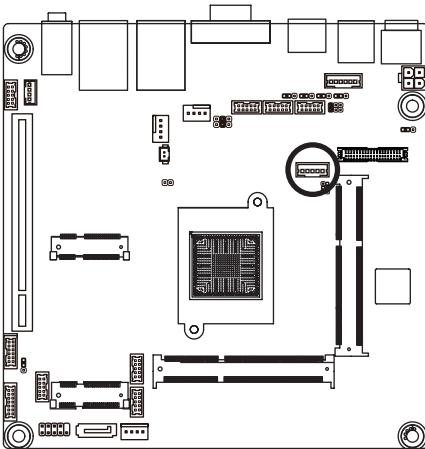
Pin No.	Definition
1	GND
2	GND
3	VIN_IN
4	VIN_IN
5	GND
6	GND
7	GND
8	GND
9	GND

3) KB_MS (PS/2 Mouse/Keyboard cable connector)



Pin No.	Definition
1	PS POWER
2	MCLK
3	MDATA
4	KCLK
5	KDATA
6	GND

4) BKL_CN (LCD Inverter Connector)



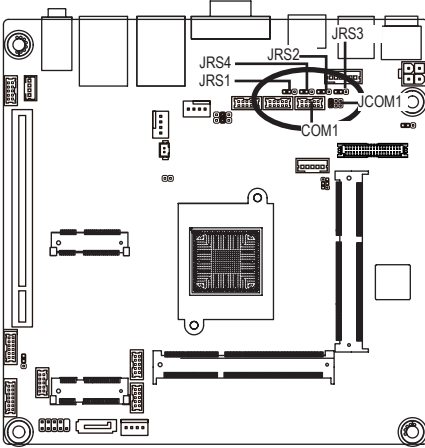
Pin No.	Definition
1	VCC
2	BLKCTL
3	ENABKL
4	GND
5	+12V

5) COM1 (Serial Port 1 Cable Connector)/JRS3/JRS2/JRS4/JRS1

6) JCOM1 (COM1 Select RS232/422/485 Jumper)

7/8/9/10) RS232/RS422/RS485 Select Jumpers for COM1)

The COM header can provide one serial port via an optional COM port cable. For purchasing the optional COM port cable, please contact the local dealer.



Pin No.	Definition
1	NRXD1_D-
2	NDXD1_D-
3	NDTR1_D-
4	NTXD1_D-
5	NDSR1-
6	GND
7	NCTS1-
8	NRTS1-
9	NC
10	NR1-

JRS1/JRS2/JRS3/JRS4:

 1 1-2 Close: RS232 (Default setting)

 1 2-3 Close: RS422/RS485

JCOM1:

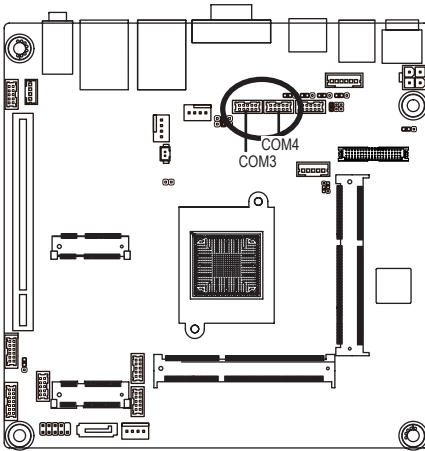
  1-2 Close: RS232

  3-4 Close: RS422

  5-6 Close: RS485

Pin No.	Definition
1	RXD232
2	RXD1
3	RXD422
4	RXD1
5	RXD485
6	RXD1

11/12) COM3/COM4 (Serial Port 3/4 Cable Connectors)



COM3/COM4



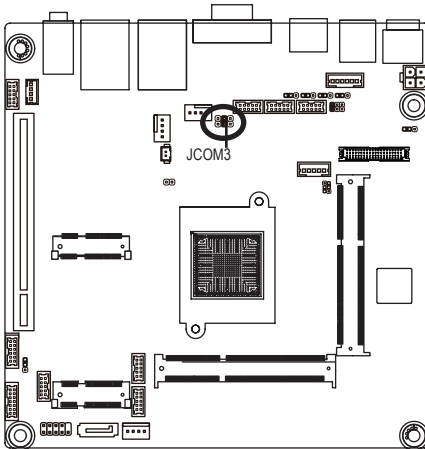
COM3

Pin No.	Definition
1	NRXD3-
2	NDCCD3-
3	NDTR3-
4	NTXD3-
5	NDSR3-
6	GND
7	NCTS3-
8	NRTS3-
9	NC
10	RI3-/1.5V/12V

COM4

Pin No.	Definition
1	NRXD4-
2	NDCCD4-
3	NDTR4-
4	NTXD4-
5	NDSR4-
6	GND
7	NCTS4-
8	NRTS4-
9	NC
10	NR4-

13) JCOM3 (5V/12V/RI Signal Select Header for Serial Port 3)



Pin No.	Definition
1	+5V
2	GND
3	NR13-(RI#)
4	GND
5	+12V
6	GND



1-2 Close: 5V (Power COM)

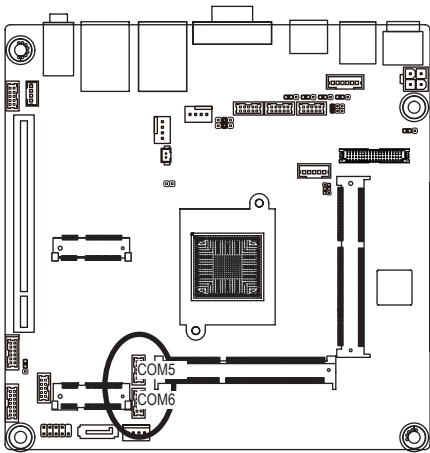


3-4 Close: RI (STAND COM)

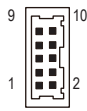


5-6 Close: 12V (Power COM)

14/15) COM5/COM6 (Serial Port 5/6 Cable Connectors)



COM5/COM6



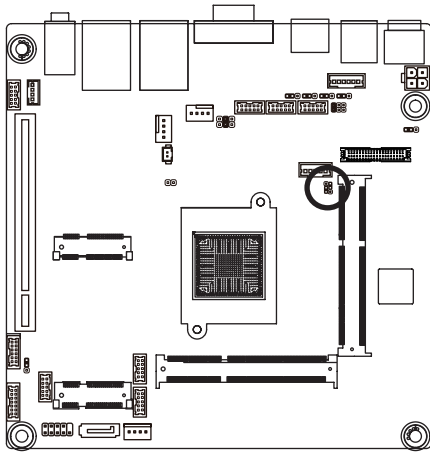
COM5

Pin No.	Definition
1	NRXD5-
2	NDGD5-
3	NDTR5-
4	NTXD5-
5	NDSR5-
6	GND
7	NCTS5-
8	NRTS5-
9	NC
10	NR15-

COM6

Pin No.	Definition
1	NRXD6-
2	NDGD6-
3	NDTR6-
4	NTXD6-
5	NDSR6-
6	GND
7	NCTS6-
8	NRTS6-
9	NC
10	NR16-

16) JP2 (LVDS Panel GPIO 1 & 2 Control Jumper)

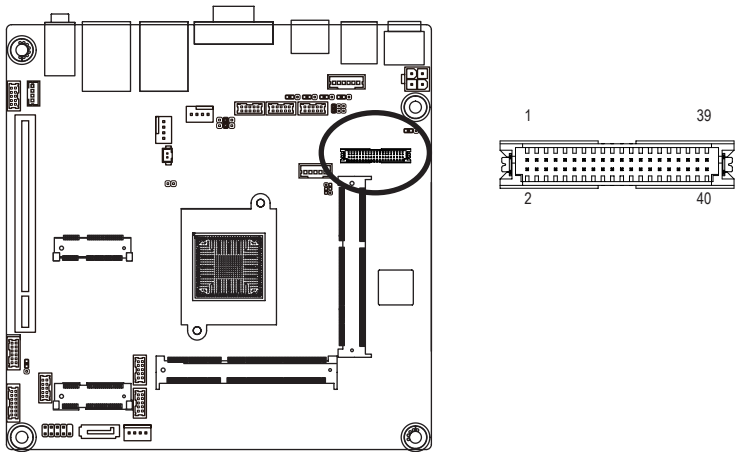


01		Default	For 1024*768
10		--	For 1024*600

Pin No.	Definition
1	VCC3
2	VCC3
3	GPIO_1
4	GPIO_2
5	GND
6	GND

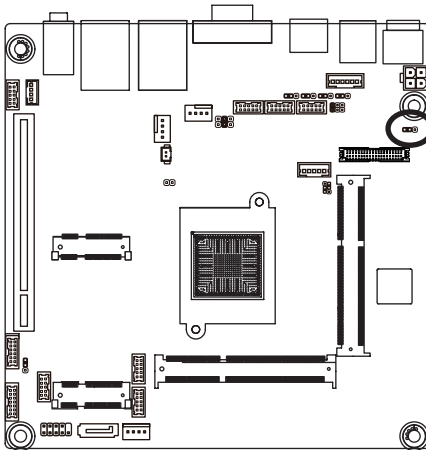
17) LVDS (LVDS Connector)

LVDS stands for Low-voltage differential signaling, which uses high-speed analog circuit techniques to provide multigigabit data transfers on copper interconnects and is a generic interface standard for high-speed data transmission.



Pin No.	Definition	Pin No.	Definition
1	VCC3	21	A5P_C
2	VCC	22	A4P_C
3	VCC3	23	A5M_C
4	VCC	24	A4M_C
5	SPC0	25	GND
6	SPD0	26	GND
7	GND	27	A7P_C
8	GND	28	A6P_C
9	A1P_C	29	A7M_C
10	A0P_C	30	A6M_C
11	A1M_C	31	GND
12	A0M_C	32	GND
13	GND	33	CLK2P_C
14	GND	34	CLK1P_C
15	A3P_C	35	CLK2M_C
16	A2P_C	36	CLK1M_C
17	A3M_C	37	GND
18	A2M_C	38	NC
19	GND	39	+12V
20	GND	40	+12V

18) JRS6 (LVDS Enable/Disable Jumper)



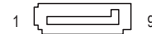
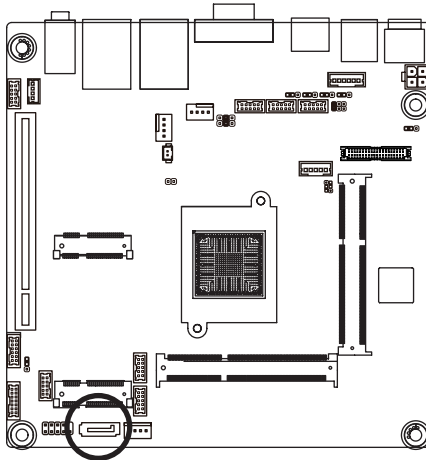
1  1-2 Close: Enable LVDS function. (Default setting)

1  2-3 Close: Disable LVDS function.

Pin No.	Definition
1	DDI1_HPD
2	HPDET_C
3	NC

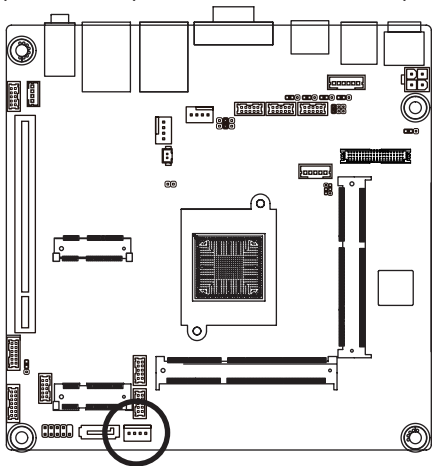
19) SATA1 (SATA 3Gb/s Connector)

The SATA connectors conform to SATA 3Gb/s standard and are compatible with 1.5Gb/s standard. Each SATA connector supports a single SATA device.



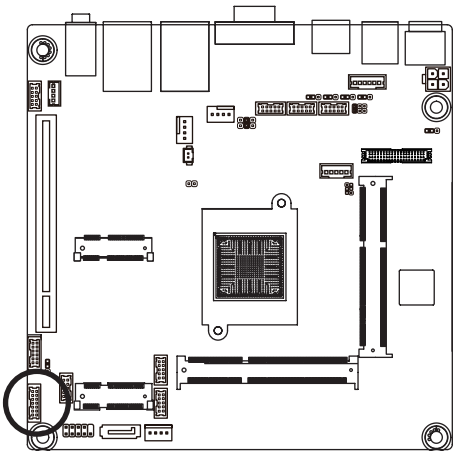
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND
8	VCC
9	GND

20) SATAPW_1 (SATA HDD Power Connector)



Pin No.	Definition
1	+12V
2	GND
3	GND
4	VCC

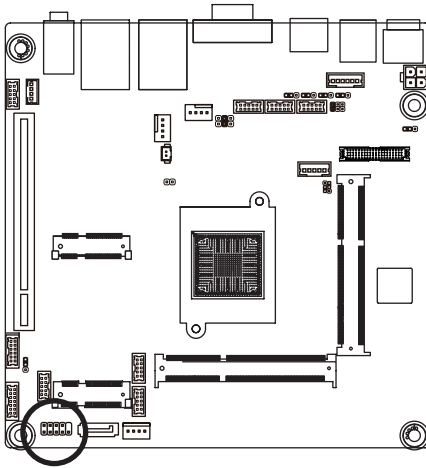
21) LPC (Low Pin Connector)



Pin No.	Definition
1	LAD0
2	+3.3V
3	LAD1
4	-PLTRST2_N
5	LAD2
6	-LFRAME
7	LAD3
8	LPC25
9	SERIRQ_N
10	GND
11	+5V
12	GND
13	+5V
14	GND

22) F_PANEL (Front Panel Header)

Connect the power switch, reset switch, speaker, and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.



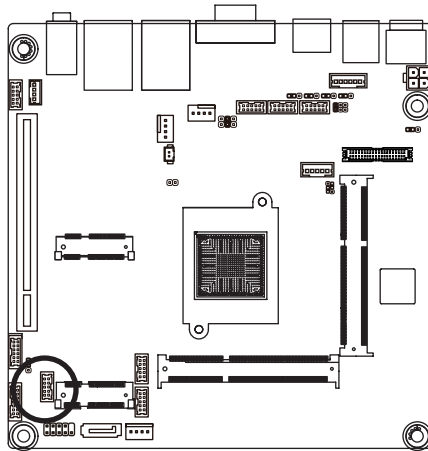
Pin No.	Signal Name	Definition
1	HD+	Hard Disk LED Signal anode (+)
2	MPD+	Power LED Signal anode (+)
3	HD-	Hard Disk LED Signal cathode(-)
4	GND	Ground
5	GND	Ground
6	PW+	Power Button anode (+)
7	RST+	Reset Button
8	GND	Ground
9	NC	No connect
10	NC	No Pin



The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

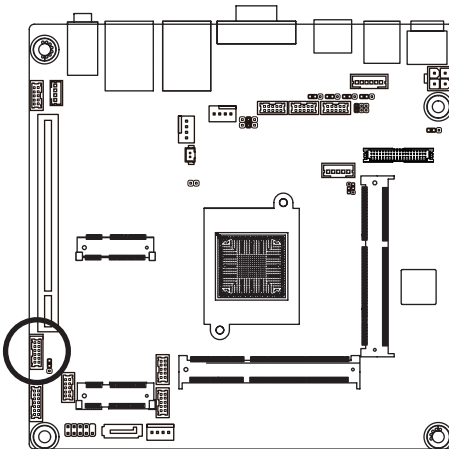
23) F_USB1 (USB Header)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.



Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	-FUSBP2
4	-FUSBP3
5	+FUSBP2
6	+FUSBP3
7	GND
8	GND
9	GND
10	GND

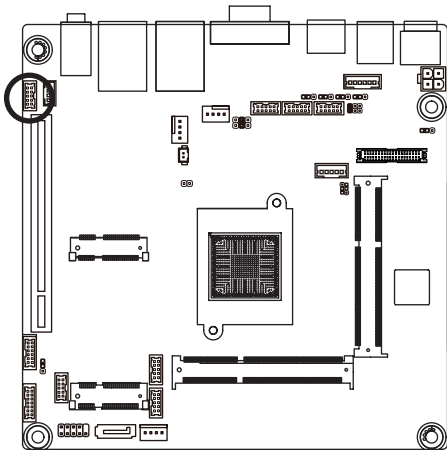
24) GPIO_CNT (GPIO connector)



Pin No.	Definition
1	SOGPO_1
2	SOGPI_1
3	SOGPO_2
4	SOGPI_2
5	SOGPO_3
6	SOGPI_3
7	SOGPO_4
8	SOGPI_4
9	SMCLK_N
10	SMDATA_N
11	+5V
12	GND

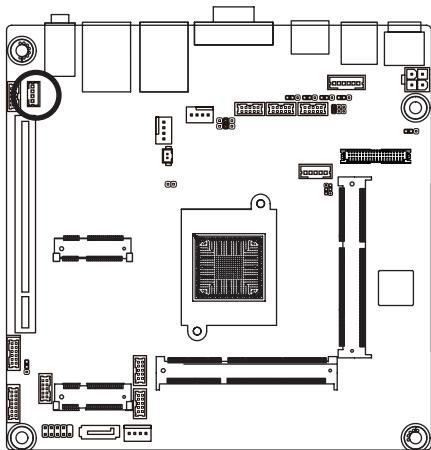
25) F_AUDIO (Front Panel Audio Header)

The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header. Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module connector and the motherboard header will make the device unable to work or even damage it.



Pin No.	Definition
1	MIC_L
2	GND
3	MIC_R
4	-ACZ_DET
5	HPOUT_R
6	GND
7	FAUDIO_J
8	NC
9	HPOUT_L
10	GND

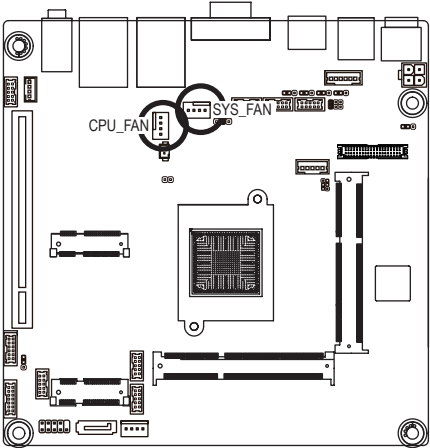
26) SPK_OUT (Audio Amplifier Connector)



Pin No.	Definition
1	OUT_R+
2	OUT_R-
3	OUT_L-
4	OUT_L+

27/28) CPU_FAN/SYS_FAN (CPU Fan/System Fan Headers)

The motherboard has one 4-pin CPU fan header (CPU_FAN), and one 4-pin (SYS_FAN) system fan headers. Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.



CPU_FAN



SYS_FAN



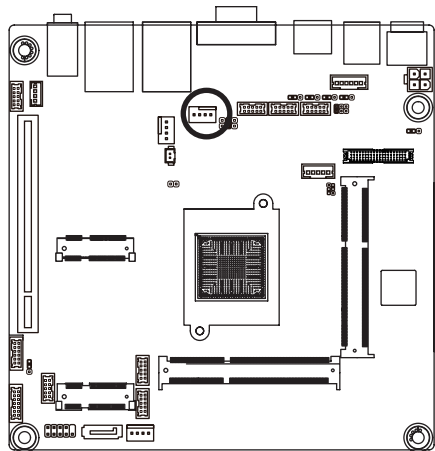
Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control



- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

29) BATTERY (Battery Socket)

The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.



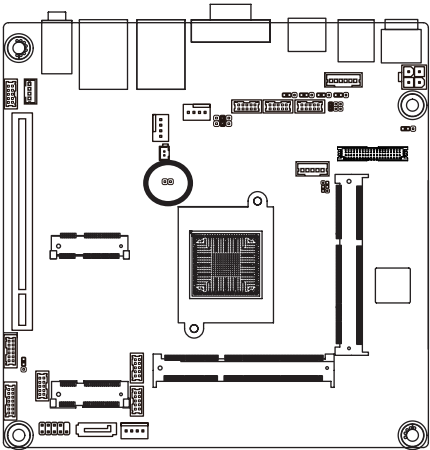
Pin No.	Definition
1	RTC Reset
2	GND



- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- Used batteries must be handled in accordance with local environmental regulations.

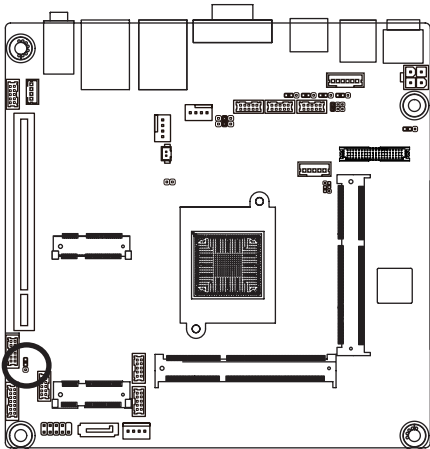
30) CLR_CMOS (Clearing CMOS Jumper)

Use this jumper to clear the CMOS values (e.g. date information and BIOS configurations) and reset the CMOS values to factory defaults. To clear the CMOS values, place a jumper cap on the two pins or temporarily short the two pins or use a metal object like a screwdriver to touch the two pins for a few seconds.



-  Open: Normal operation (Default setting)
-  Close: Clear CMOS data

31) AT_CN (AT/ATX Power Mode Select Jumper)



-  1-2 Close: AT mode.
-  2-3 Close: ATX mode. (Default setting)

Pin No.	Definition
1	TXD5_AT MODE
2	TXD5
3	TXD5_AT

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the CMOS on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the key during the POST when the power is turned on.



- BIOS flashing is potentially risky, if you do not encounter problems of using the current BIOS version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the "Restore Defaults" section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<↑><↓>	Move the selection bar to select an item
<←><→>	Move the selection bar to select the screen
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<+>	Increase the numeric value or make changes
<->	Decrease the numeric value or make changes
<F1>	General Help
<F2>	Restore the previous BIOS settings for the current submenus
<F3>	Load the Optimized BIOS default settings for the current submenus
<F4>	Save all the changes and exit the BIOS Setup program

- **Main**

This setup page includes all the items in standard compatible BIOS

- **Advanced**

This setup page includes all the items of AMI BIOS special enhanced features.

(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

- **Chipset**

Northbridge and Southbridge additional features configuration.

- **Boot**

This setup page provides items for configuration of boot sequence.

- **Security**

Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup.

A supervisor password allows you to make changes in BIOS Setup.

A user password only allows you to view the BIOS settings but not to make changes.

- **Save & Exit**

Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup.

Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

2-1 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter other sub-menu.

Main Menu Help

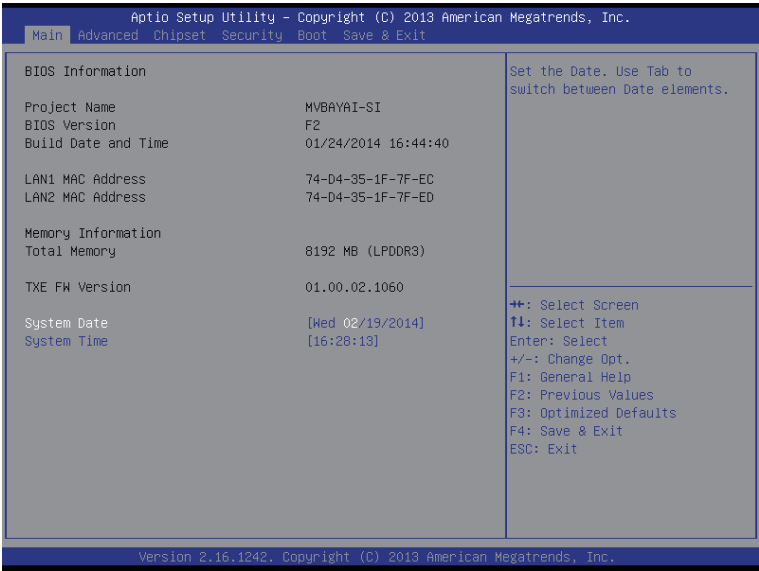
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.



- When the system is not stable as usual, select the **Restore Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.



🔑 **BIOS Information**

🔑 **Project Name**

Display name of the project.

🔑 **BIOS Version**

Display version number of the BIOS.

🔑 **BIOS Build Date and Time**

Displays the date and time when the BIOS setup utility was created.

🔑 **LAN1/2 MAC Address**

Displays the LAN1 and LAN2 MAC address information.

🔑 **Memory Information**

🔑 **Total Memory**

Display the total memory size of the installed memory.

🔑 **TXE FW Version**

Display the TXE firmware version.

🔑 **System Date**

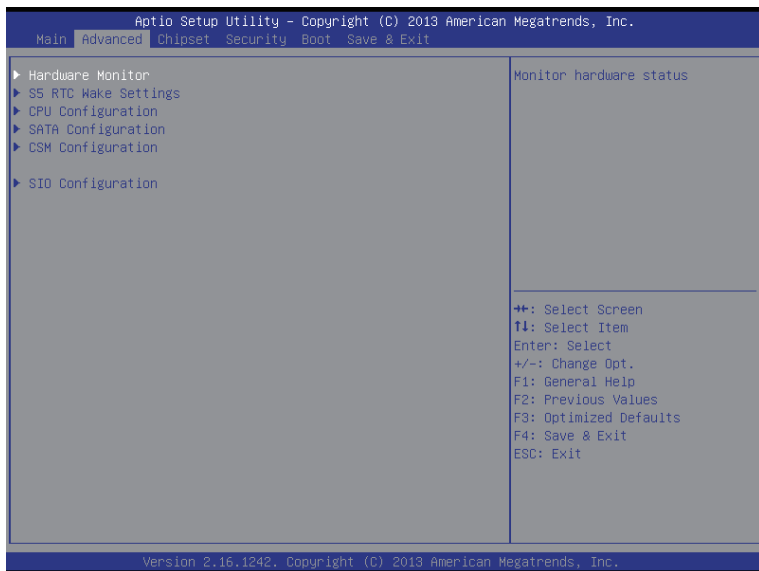
Set the date following the weekday-month-day- year format.

🔑 **System Time**

Set the system time following the hour-minute- second format.

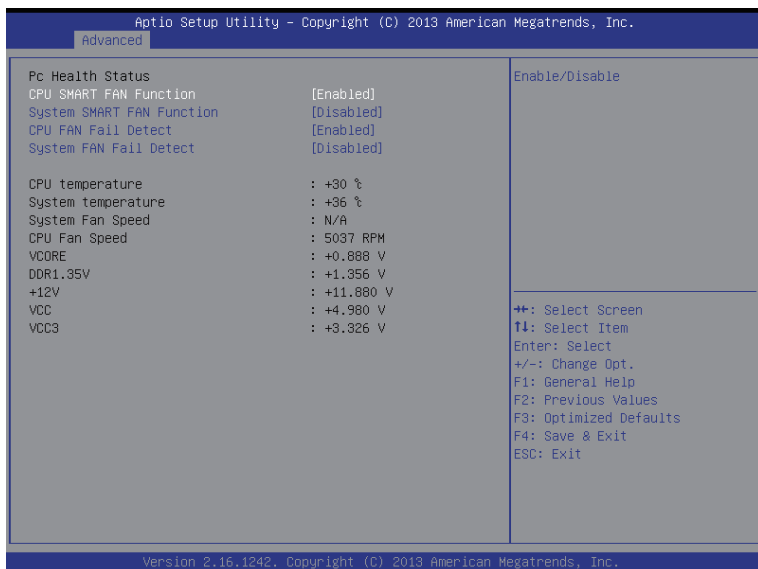
2-2 Advanced Menu

The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press Enter to access the related submenu screen.



2-2-1 Hardware Monitor

Press Enter to view the Hardware Monitor screen which displays a real-time record of the CPU/system temperature, and fan speed, Items on this window are non-configurable.



☞ PC Health Status

☞ CPU/System SMART FAN Function

Enable CPU/System Fan Stop Warning function.

Option available: Enabled/Disabled. Default setting is **Enabled**.

☞ CPU/System FAN Fail Detect

Enable/Disable CPU/System FAN Fail Detect function.

Option available: Enabled/Disabled.

Default setting for CPU FAN Fail Detect is **Enabled**.

Default setting for System FAN Fail Detect is **Disabled**.

☞ CPU Temperature/System Temperature

Displays current CPU and System temperature.

☞ CPU/System Fan Speed (RPM)

Displays current CPU and system fan speed.

☞ VCORE/DDR1.35/+12V/VCC/VCC3

Displays current CPU and system voltage status.

2-2-2 S5 RTC Wake Settings



Wake system from S5

Enable or disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified. Default setting is **Disabled**.

Wake up hour^(Note)

Press <+> and <-> to define the wake up hour.

Wake up minute^(Note)

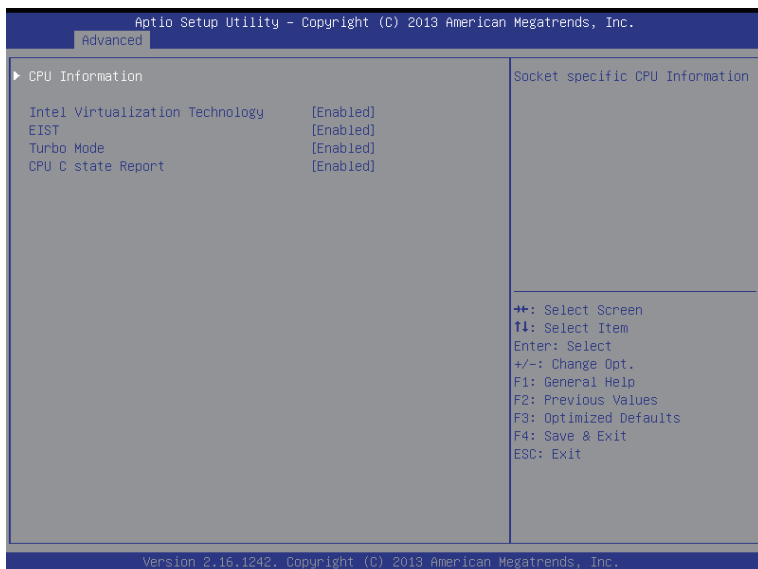
Press <+> and <-> to define the wake up minute.

Wake up second^(Note)

Press <+> and <-> to define the wake up second.

(Note) This item appears when **Wake system from S5** is set to **Fixed time**.

2-2-3 CPU Configuration



☞ CPU Information

Press [Enter] to view the installed CPU information.

☞ Intel Virtualization Technology

Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ EIST (Enhanced Intel SpeedStep Technology)

Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Turbo Mode

When this feature is enabled, the processor can dynamically overclock one or two of its four processing cores to improve performance with applications that are not multi-threaded or optimized for quad-core processors.

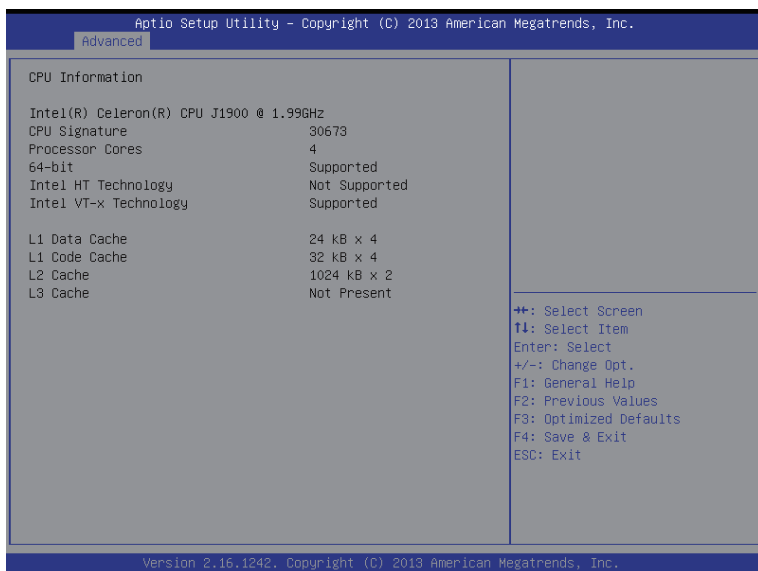
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ CPU C State Report

Enable/Disable CPU C State report function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

2-2-3-1 CPU Information



☞ CPU Type/Signature/Processor Cores/64-bit/Intel HT Technology/ Intel VT-x Technology

Displays the technical specifications for the installed processor.

☞ Cache Information

☞ L1 Data Cache / L1 Code Cache / L2 Cache / L3 Cache

Displays the technical specifications for the installed processor.

2-2-4 SATA Configuration



SATA Mode Selection

Select the on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its AHCI function and runs in the IDE emulation mode.

AHCI Mode: When set to AHCI, the SATA controller enables its AHCI functionality.

Options available: IDE/AHCI. Default setting is **AHCI Mode**.

Serial ATA Port 1/mSATA Port

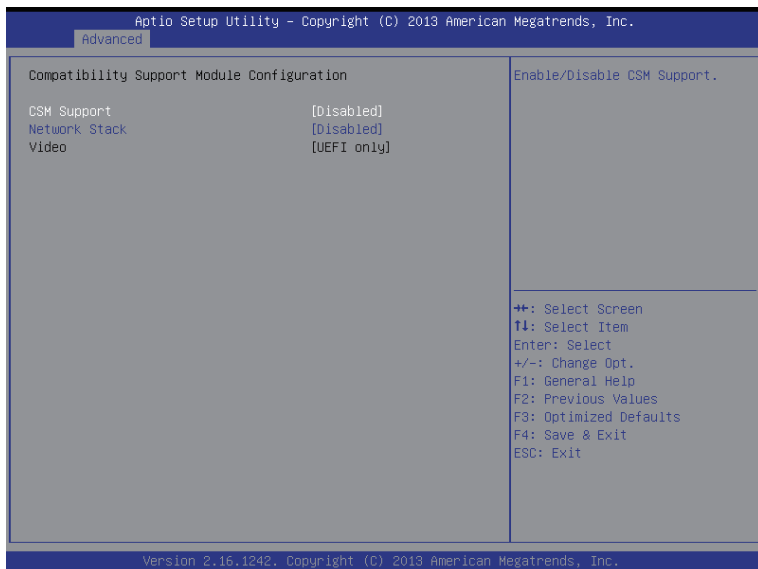
The category identifies Serial ATA and mSATA types of hard disk that are installed in the computer.

System will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

Hard drive information should be labeled on the outside device casing. Enter the appropriate option based on this information.

2-2-5 CSM Configuration



Compatibility Support Module Configuration

Press Enter to configure the advanced items.

CSM Support

Enable/Disable Compatibility Support Module (CSM) support function.

Options available: Enabled/Disabled. Default setting is **Disabled**.



- The following five items appears and configurable when the **Launch CSM** is set to **Enabled**.
- If the **Launch CSM** is set to **Disabled**, the following five items will not be able to support Legacy mode.

Network stack

Enable/Disable UEFI network stack.

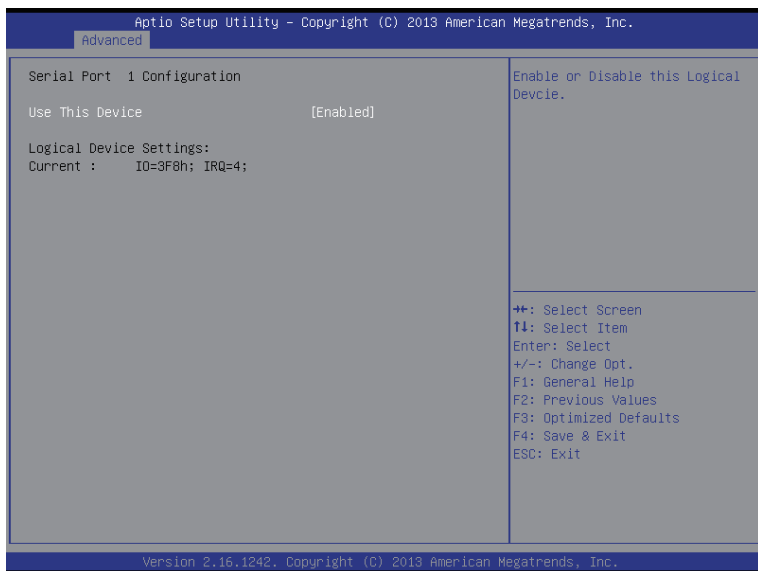
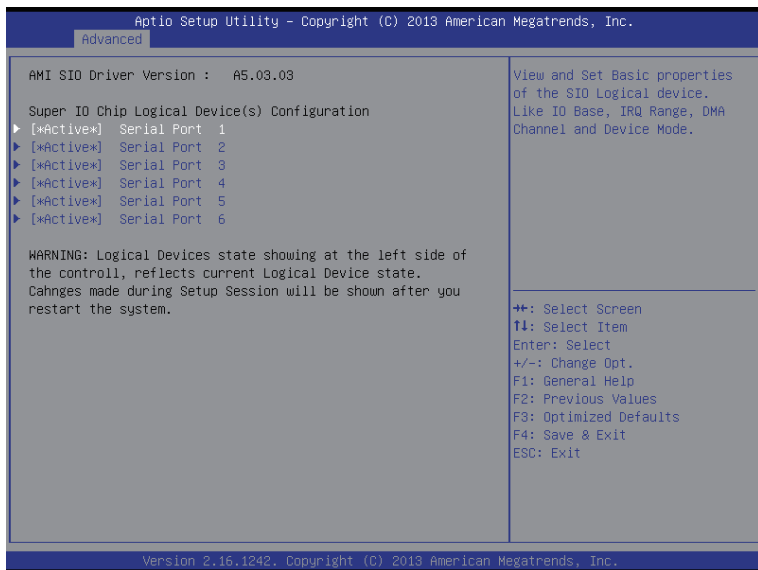
Options available: Enabled/Disabled. Default setting is **Disabled**.

Video

Controls the execution UEFI and Legacy Video OpROM.

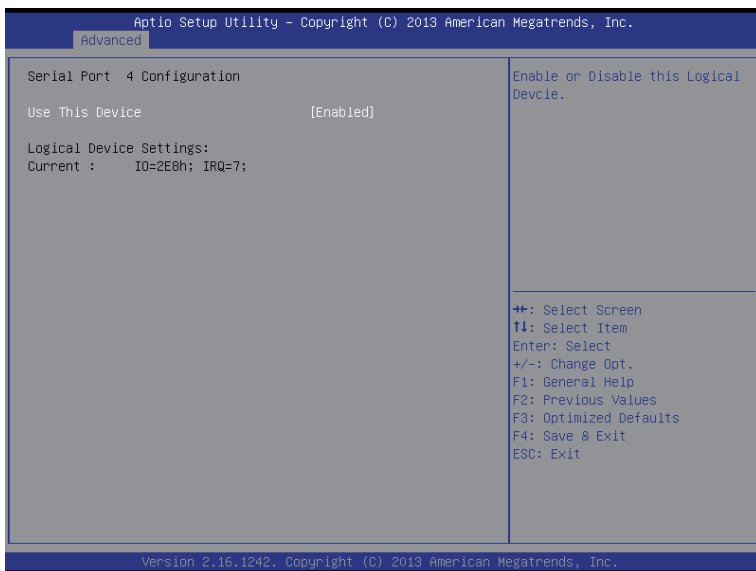
Options available: UEFI/Legacy/Do not launch. Default setting is **UEFI only**.

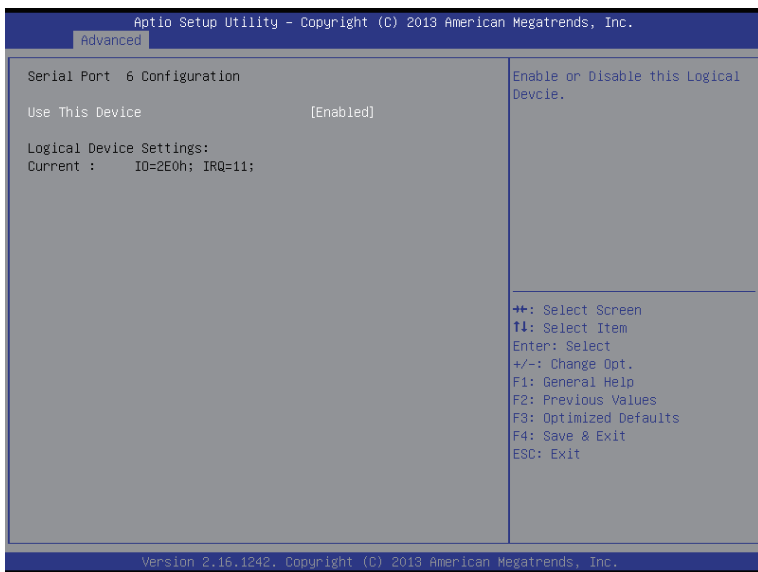
2-2-6 SIO Configuration



Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
Serial Port 2 Configuration Use This Device [Enabled] Logical Device Settings: Current : IO=2F8h; IRQ=3;	Enable or Disable this Logical Devcie. ++: Select Screen T1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.	

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
Serial Port 3 Configuration Use This Device [Enabled] Logical Device Settings: Current : IO=3E8h; IRQ=6;	Enable or Disable this Logical Devcie. ++: Select Screen T1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.	





🔑 **AMI SIO Driver Version**

Display the AMI SIO driver version information.

🔑 **Super IO Chip Logical Device(s) Configuration**

🔑 **[*Active*] Serial Port 1/2/3/4/5/6**

Press [Enter] for configuration of advanced items.

🔑 **Serial Port 1 Configuration**

🔑 **Use This Device**

When enabled allows you to configure the serial port 1 settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

🔑 **Logical Device Settings**

Display the Serial Port 1 base I/O address and IRQ.

🔑 **Serial Port 2 Configuration**

🔑 **Use This Device**

When enabled allows you to configure the serial port 2 settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

🔑 **Logical Device Settings**

Display the Serial Port 2 base I/O address and IRQ.

🔑 **Serial Port 3 Configuration**

🔑 **Use This Device**

When enabled allows you to configure the serial port 3 settings. When set to Disabled, displays no

configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Logical Device Settings**

Display the Serial Port 3 base I/O address and IRQ.

☞ **Serial Port 4 Configuration**

☞ **Use This Device**

When enabled allows you to configure the serial port 4 settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Logical Device Settings**

Display the Serial Port 4 base I/O address and IRQ.

☞ **Serial Port 5 Configuration**

☞ **Use This Device**

When enabled allows you to configure the serial port 5 settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Logical Device Settings**

Display the Serial Port 5 base I/O address and IRQ.

☞ **Serial Port 6 Configuration**

☞ **Use This Device**

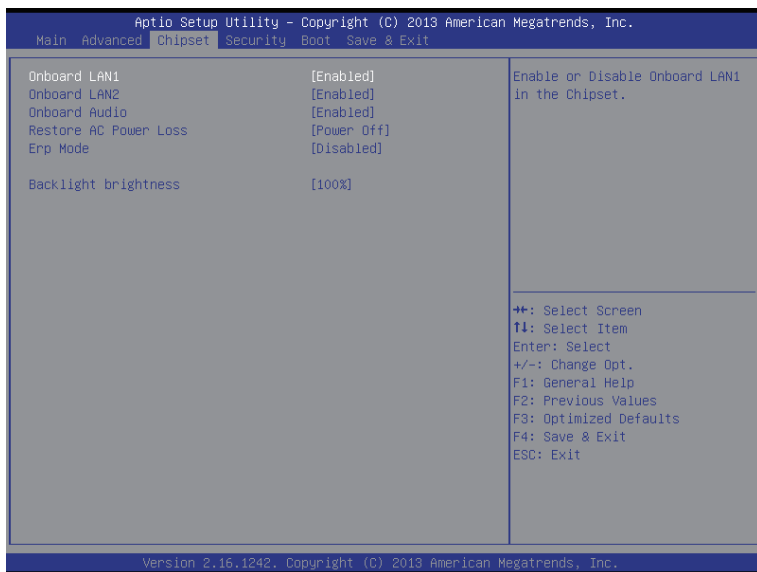
When enabled allows you to configure the serial port 6 settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Logical Device Settings**

Display the Serial Port 6 base I/O address and IRQ.

2-3 Chipset Menu



☞ Onboard LAN1/2

Enable/Disable onboard LAN controller.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Onboard Audio

Enable/Disable onboard audio controller.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Restore AC Power Loss

This option provides user to set the mode of operation if an AC / power loss occurs.

Power On: System power state when AC cord is re-plugged.

Power Off: Do not power on system when AC power is back.

Last State: Set system to the last state when AC power is removed.

Options available: Power On/Power Off/Last State. Default setting is **Power Off**.

☞ Erp Mode

Enable/Disable Erp support function.

Options available: Enabled/Disabled. Default setting is **Disabled**.

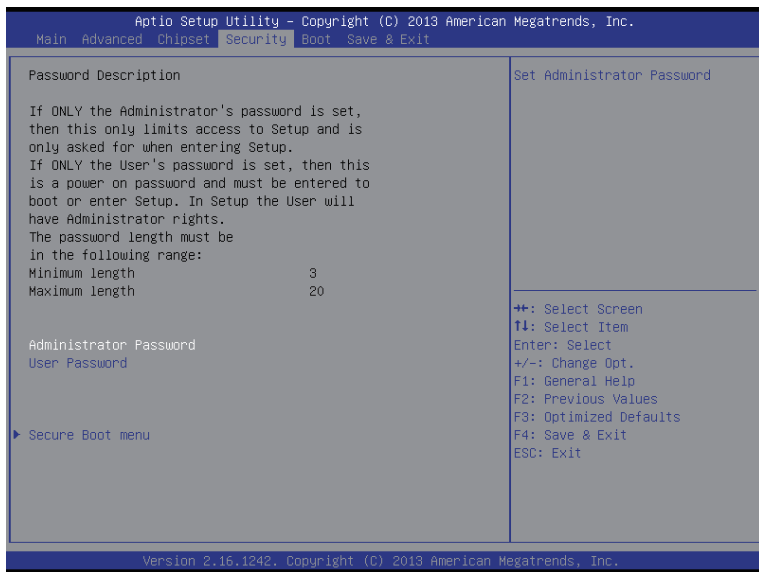
☞ Backlight brightness

Configure the backlight brightness.

Options available: 5%/25%/50%/75%/100%. Default setting is **100%**.

2-4 Security Menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



There are two types of passwords that you can set:

- **Administrator Password**
Entering this password will allow the user to access and change all settings in the Setup Utility.
- **User Password**
Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

⚙ **Administrator Password**

Press Enter to configure the Administrator password.

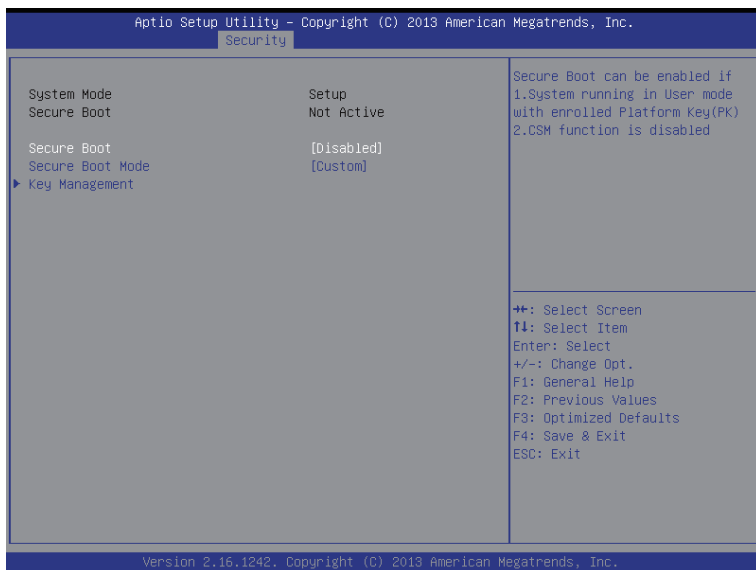
⚙ **User Password**

Press Enter to configure the user password.

⚙ **Secure Boot menu**

Press [Enter] for configuration of advanced items.

2-4-1 Secure Boot menu



System Mode

Display the System Mode state.

Secure Boot

Display the System Mode State.

Secure Boot

Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all the files being loaded before Windows 8 loads and gets to the login screen have not been tampered with.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Secure Boot Mode^(Note)

Define the Secure Boot Mode. Set this item to **Custom** to advanced items configuration.

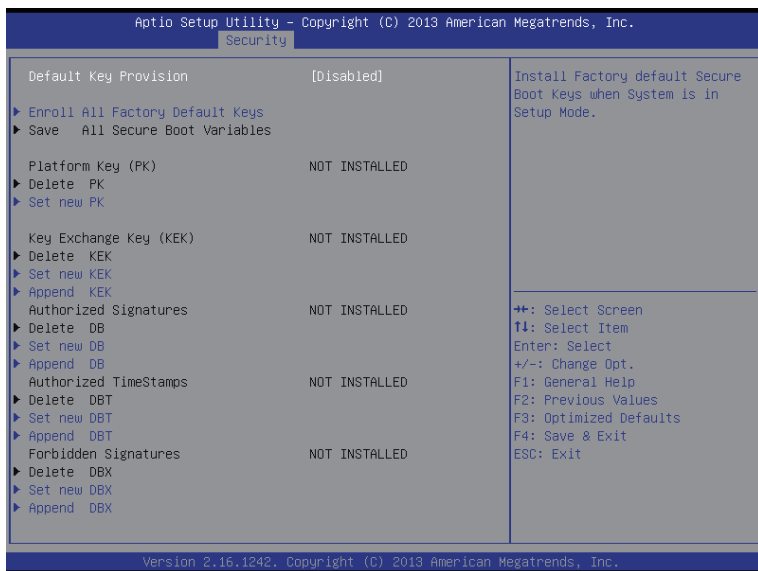
Option available: Standard/Custom. Default setting is **Custom**.

Key Management

Press Enter to configure the advanced items.

(Note) Advanced items prompt when this item is set to **Custom**.

2-4-1-1 Key Management



Key Management

This item appears only when the **Secure Boot Mode** is set to **Custom**.

Default Key Provisioning

Force the system to Setup Mode. This will clear all Secure Boot Variables such as Platform Key (PK), Key-exchange Key (KEK), Authorized Signature Database (db), and Forbidden Signatures Database (dbx).

Options available: Enabled/Disabled. Default setting is **Disabled**.

Enroll All Factory Default Keys

Press [Enter] to install all factory default keys.

Save All Secure Boot Variables

Press [Enter] to save all Secure Boot Variables.

Platform Key (PK)

Display the status of Platform Key.

Delete the PK

Press [Enter] to delete the existed PK. Once the PK is deleted, all the system's Secure Boot keys will not be activated.

Set new PK File

Press [Enter] to configure a new PK.

Key Exchange Key Database (KEK)

Display the status of Platform Key.

Delete KEK

Press [Enter] to delete the KEK from your system.

☞ **Set new KEK**

Press [Enter] to configure a new KEK.

☞ **Append Var to KEK**

Press [Enter] to load additional KEK from a storage devices for an additional db and dbx management.

☞ **Authorized Signature Database (DB)**

Display the status of Authorized Signature Database.

☞ **Delete DB**

Press [Enter] to delete the db from your system.

☞ **Set new DB**

Press [Enter] to configure a new db.

☞ **Append aVar to DB**

Press [Enter] to load additional db from a storage devices.

☞ **Forbidden Signature Database (DBX)**

Display the status of Forbidden Signature Database.

☞ **Delete the DBX**

Press [Enter] to delete the dbx from your system.

☞ **Set DBX from File**

Press [Enter] to configure a new dbx.

☞ **Append Var to DBX**

Press [Enter] to load additional db from a storage devices.

2-5 Boot Menu

The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the drive(s) specified is not bootable.



🔑 Boot Configuration

🔑 Quiet Boot

Enables or disables showing the logo during POST.

Options available: Enabled/Disabled. Default setting is **Disabled**.

🔑 Fast Boot

This BIOS feature allows you to decrease the time it takes to boot up the system by skipping certain booting procedures.

Options available: Enabled/Disabled. Default setting is **Disabled**.

🔑 Boot Option Priorities

🔑 Boot Option #1/#2

Press Enter to configure the boot priority.

By default, the server searches for boot devices in the following sequence:

1. UEFI device.
2. Hard drive.

2-6 Save & Exit Menu

The Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press **Enter**.



☞ Save Changes and Reset

Saves changes made and close the BIOS setup.

Options available: Yes/No.

☞ Discard Changes and Reset

Discards changes made and close the BIOS setup.

Options available: Yes/No.

☞ Restore Defaults

Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly.

Options available: Yes/No.

☞ Boot Override

Press Enter to configure the device as the boot-up drive.

☞ UEFI: Built-in in EFI Shell

Press <Enter> on this item to Launch EFI Shell from filesystem device.