MATMH61

Intel® Socket LGA1155 processor motherboard

User's Manual

Rev. 1201

Copyright

Disclaimer

Documentation Classifications

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

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

For product-related information, check on our website at:
http://www.gigabyte.com

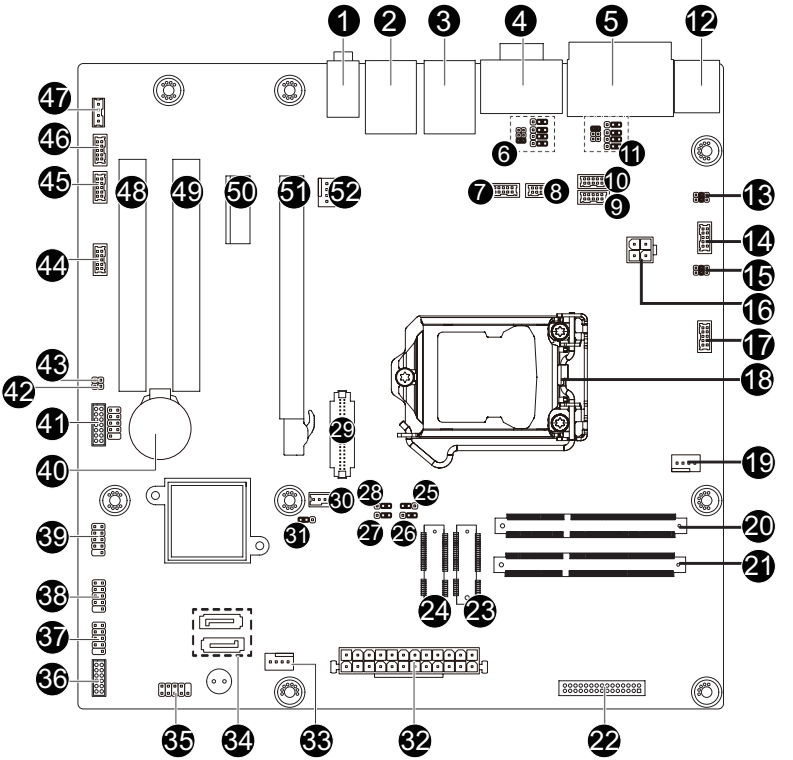
Table of Contents

Box Contents

- ☑ MATMH61 motherboard
- ☑ Driver CD
- ☑ Two SATA cables
- ☑ I/O Shield

- 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.

MATMH61 Motherboard Layout



Item	Code	Description
1	AUDIO	Audio connectors
2	USB_LAN2	RJ45 LAN port (top) / USB 2.0 ports (buttom)
3	USB_LAN1	RJ45 LAN port (top) / USB 2.0 ports (buttom)
4	COM34	Serial ports
5	VGA_DVI	VGA port (top)/DVI port (buttom)
6	JCOM5/JRS23/JRS22/JRS27/ JRS29	RS232/RS422/RS485 Select Jumper for COM4
7	COM5	Serial port cable connector #5
8	COM6	Serial port cable connector #6
9	COM7	Serial port cable connector #7
10	COM8	Serial port cable connector #8
11	JRS14/JRS15/JRS22/JRS19/ JCOM3	RS232/RS422/RS485 Select Jumper for COM3
12	KB_MS	PS/2 Mouse (top)/Keyboard (buttom) connectors
13	JCOM6	COM9 Power Select jumper
14	COM9	Serial port cable connector #9
15	JCOM8	COM10 Power Select jumper
16	ATX_12V	4 pin power connector
17	COM10	Serial port cable connector #10
18	CPU	Intel LGA 1155 socket
19	CPU_FAN	CPU fan connector
20	SODIMMA	DDR3 SO-DIMM slot
21	SODIMMB	DDR3 SO-DIMM slot
22	LPT	LPT connector
23	MIN_PCIE1	Mini PCi Express connector
24	MIN_PCIE2	Mini PCi Express connector
25	JRS9	LVDS Enable Jumper
26	JRS10	LVDS Enable Jumper
27	JRS8	LVDS Enable Jumper
28	JRS7	LVDS Enable Jumper
29	LVDS	LVDS coneector
30	BKL_CN	LCD Inverter Connector
31	JRS6	LVDS Enable Jumper
32	ATX	24 pin main power connector
33	SYS_FAN2	System fan connector #2
34	SATA1/SATA2	Mini PCi Express connector
35	F_PANEL	Front Panel header

Item	Code	Description
36	GPIO_CNT	GPIO connector
37	F_USB3	Front USB 2.0 header #3
38	F_USB2	Front USB 2.0 header #2
39	F_USB1	Front USB 2.0 header #1
40	BATTERY	Battery socket
41	LPC	LPC connector
42	CI	Case open intrusion header
43	CLR_CMOS	Clear CMOS jumper
44	COM1	Serial port cable connector #1
45	COM2	Serial port cable connector #2
46	F_AUDIO	Front audio header
47	SPK_OUT	Audio Amplifier connector
48	PCI2	PCI 32bit/33MHz slot
49	PCI1	PCI 32bit/33MHz slot
50	PCIE1X1	PCI Express x1 slot
51	PCIE16X1	PCI Express x16 slot
52	SYS_FAN	System fan connector

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	◆ Supports Intel® Gen 3 Core i7/i5/i3 processor in Socket LGA1155 ◆ Support Up to 95W ◆ L3 cache varies with CPU
Chipset	◆ Intel® H61 chipset
Memory	◆ 2 x SO-DIMM slots support DDR3 1333/1066MHz ◆ Support up 16GB
Audio	◆ Realtek® ALC269 codec ◆ High Definition Audio ◆ 2 channel
LAN	◆ 2 x Realtek RTL8111E supports 10/100/1000 Mbps
Expansion Slots	◆ 2 x mini PCI Express x1 slot
Onboard Graphics	◆ Build in Intel® Intel® H61 chipset
Storage Interface	◆ 2 x SATA 3Gb/s connectors
USB	◆ Up to 10 USB 2.0/1.1 ports (4 on the back panel, 6 via the USB brackets connected to the internal USB headers)
Internal Connectors	◆ 1 x 4 pin ATX 12V power connector ◆ 1 x 24 pin ATX main power connector ◆ 2 x SATA 3Gb/s connectors ◆ 1 x CPU fan header ◆ 2 x System fan header ◆ 8 x Serial port cable connectors ◆ 2 x COM power select connectors ◆ 1 x Front panel header ◆ 1 x Audio header ◆ 3 x USB 2.0 headers ◆ 1 x LVDS connector ◆ 1 x Brightness control connector ◆ 1 x LPT connector ◆ 1 x LPC connector ◆ 1 x GPIO connector ◆ 1 x Front audio header ◆ 1 x Speaker out header
Back Panel Connectors	◆ 2 x PS/2 connectors ◆ 1 x VGA port ◆ 1 x DVI port ◆ 2 x COM ports ◆ 2 x USB 2.0 ports ◆ 2 x RJ-45 port ◆ 3 x Audio connectors
I/O Controller	◆ iTE IT8728 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	◆	uATX Form Factor; 9.6 inch x 9.6 inch

* GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.

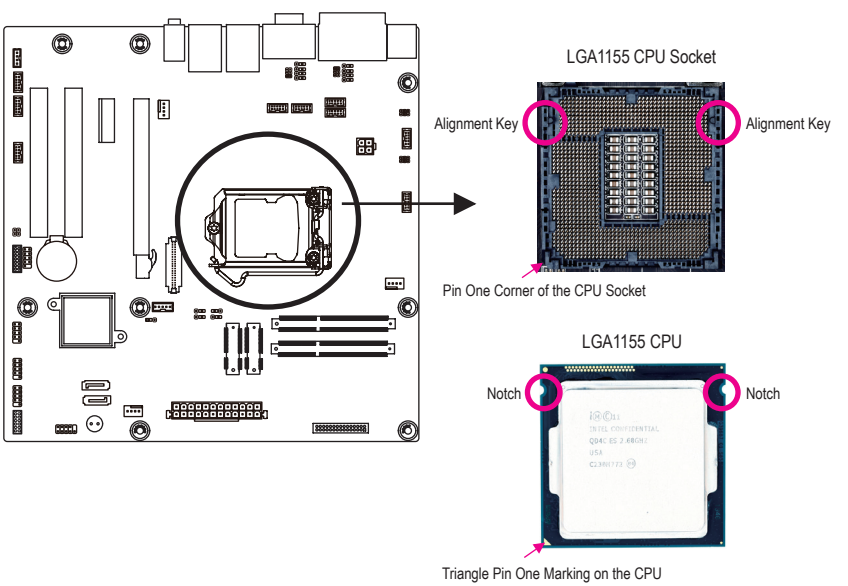
1-3 Installing the CPU and CPU Cooler

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

- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

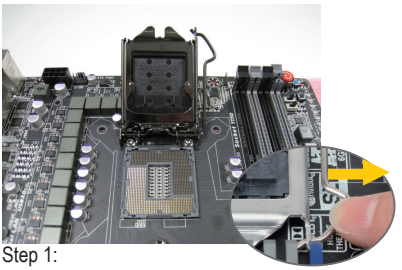
1-3-1 Installing the CPU

A. Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.



B. Follow the steps below to correctly install the CPU into the motherboard CPU socket.

Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet power plug to prevent any damage to prevent damage to the CPU.



Step 1:

Gently press the CPU socket lever handle down and away from the socket with your finger. Then completely lift the CPU socket lever and the metal load plate will be lifted as well.

Step 2:

Remove the CPU socket cover as shown. Hold your index finger down on the rear grip of the socket cover and use your thumb to lift up the front edge (next to the "REMOVE" mark) and then remove the cover. (DO NOT touch socket contacts. To protect the CPU socket, always replace the protective socket cover when the CPU is not installed.)

Step 3:

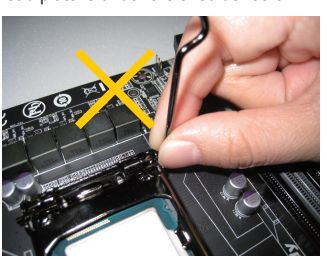
Hold the CPU with your thumb and index fingers. Align the CPU pin one marking (triangle) with the pin one corner of the CPU socket (or you may align the CPU notches with the socket alignment keys) and gently insert the CPU into position.

Step 4:

Once the CPU is properly inserted, use one hand to hold the socket lever and use the other to lightly replace the load plate. When replacing the load plate, make sure the front end of the load plate is under the shoulder screw.

Step 5:

Push the CPU socket lever back into its locked position.

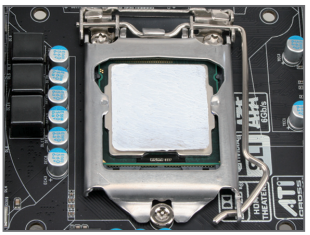


NOTE:

Hold the CPU socket lever by the handle, not the lever base portion.

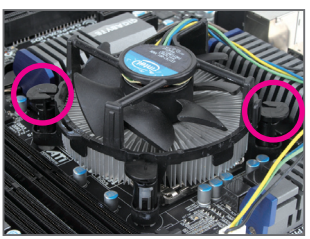
1-3-2 Installing the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard. (The following procedure uses Intel® boxed cooler as the example cooler.)



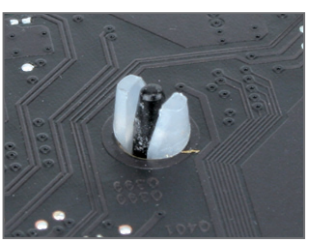
Step 1:

Apply an even and thin layer of thermal paste on the surface of the installed CPU.



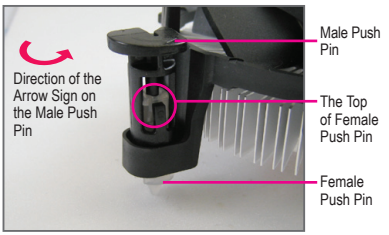
Step 3:

Place the cooler atop the CPU, aligning the four push pins through the pin holes on the motherboard. Push down on the push pins diagonally.



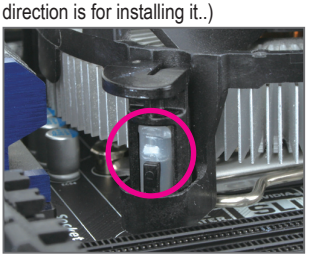
Step 5:

After the installation, check the back of the motherboard. If the push pin is inserted as the picture above shows, the installation is complete.



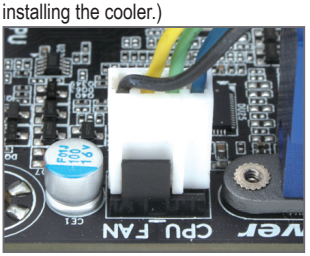
Step 2:

Before installing the cooler, note the direction of the arrow sign on the male push pin. (Turning the push pin along the direction of the arrow is for removing the cooler, and the opposite direction is for installing it..)



Step 4:

You should hear a "click" when pushing down each push pin. Check that the Male and Female push pins are joined closely. (Refer to your CPU cooler installation manual for instructions on installing the cooler.)



Step 6:

Finally, attach the power connector of the CPU cooler to the CPU fan header (CPU_FAN) on the motherboard.

Use extreme care when removing the CPU cooler because the thermal grease/tape between the CPU cooler and CPU may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

1-4 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.

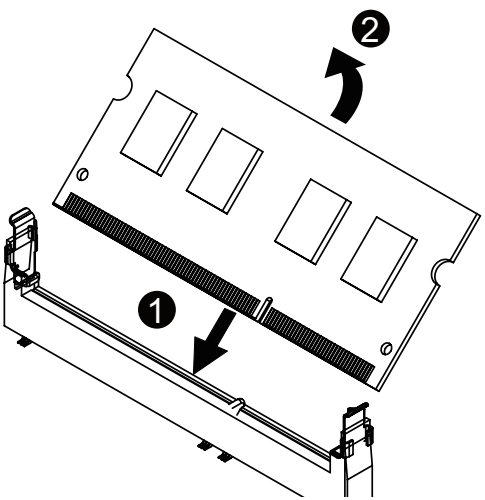
1-4-1 Installing a Memory

Installation Step:

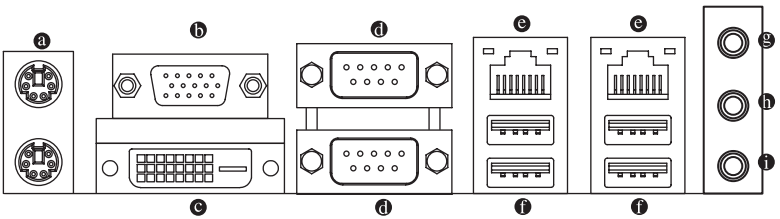
Step 1. Align the memory with the SO-DIMM module and insert the SO-DIMM memory module into the SO-DIMM slot.
Please note that memory module has a foolproof insertion design. A memory module can be installed In only one direction.

Step 2. Push the memory and seat it firmly.

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



1-5 Back Panel Connectors



a PS/2 Keyboard and PS/2 Mouse Connector

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboardto the lower port (purple).

b Video Port

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

c DVI-D Port

The DVI-D port supports DVI-D specifictation. Connect a monitor that supports DVI-D connection to this port.

d Serial Port

Connects to serial-based mouse or data processing devices.

e 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.

f 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.

g Line In Jack (Blue)

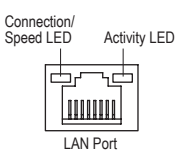
The default line in jack. Use this audio jack for line in devices such as an optical drive, walkman, etc.

g 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.

h MIC In (Pink)

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



Connection/Speed LED:

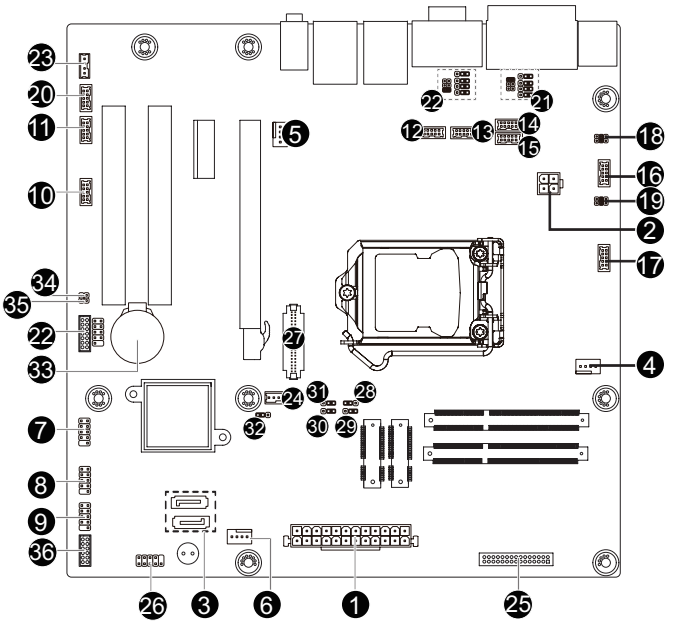
State	Description
Orange	1 Gbps data rate
Green	100 Mbps data rate
Off	10 Mbps data rate

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.

1-6 Internal Connectors



1)	ATX	19)	JCOM8
2)	ATX_12V	20)	F_AUDIO
3)	SATA1/SATA2	21)	JCOM3/JRS14/JRS15/JRS21/JRS19
4)	CPU_FAN	22)	JCOM5/JRS23/JRS22/JRS27/JRS29
5)	SYS_FAN	23)	SPK_OUT
6)	SYS_FAN2	24)	BKL_CN
7)	F_USB1	25)	LPT
8)	F_USB2	26)	F_PANEL
9)	F_USB3	27)	LVDS
10)	COM1	28)	JRS9
11)	COM2	29)	JRS10
12)	COM5	30)	JRS8
13)	COM6	31)	JRS7
14)	COM7	32)	JRS6
15)	COM8	33)	BATTERY
16)	COM9	34)	CLR_CMOS
17)	COM10	35)	CI
18)	JCOM6	36)	GPIO_CNT

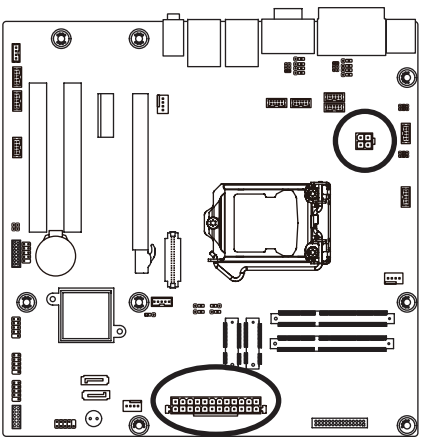
Read the following guidelines before connecting external devices:

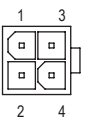
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the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

1/2) ATX/ATX_12V (2x4 12V Power Connector and 2x12 Main 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.

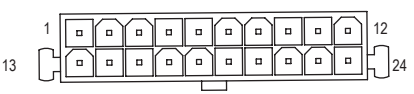
To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.





ATX_12V

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

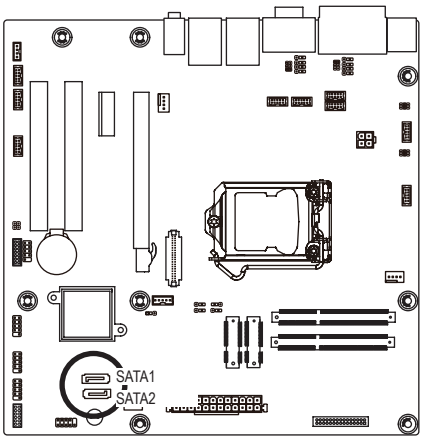


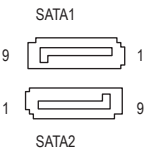
ATX

Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power OK	20	NA
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

3) SATA1/SATA2 (SATA 3Gb/s Connectors)

The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and 1.5Gb/s standard. Each SATA connector supports a single SATA device.





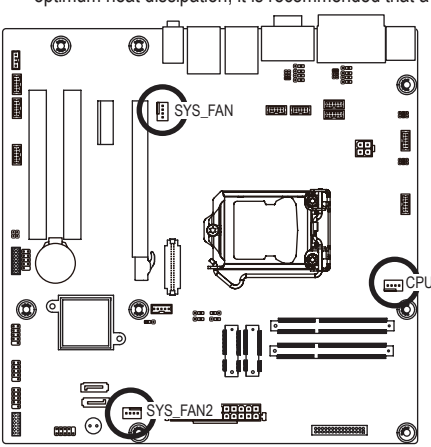
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND
8	VCC
9	GND

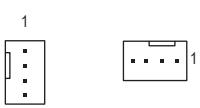
- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are configured, the total number of hard drives must be an even number.
- A RAID 10 configuration requires four hard drives.

(Note) When a RAID configuration is built across the SATA 6Gb/s channels, the system performance of the RAID configuration may vary depends on the devices are connected.

4/5/6) CPU_FAN/SYS_FAN (CPU Fan/System Fan Headers)

The motherboard has one 4-pin CPU fan header (CPU_FAN), and two 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.



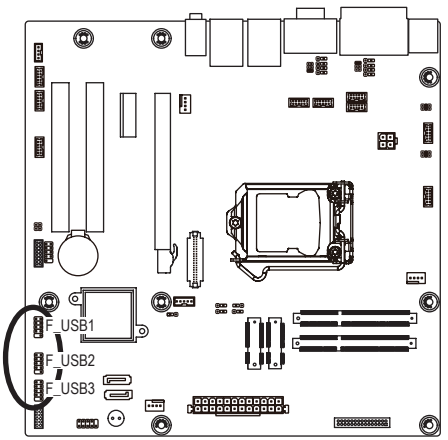


Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control

- 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.

7/8/9) F_USB1/F_USB2/F_USB3 (USB Headers)

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.



F_USB1

Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	-USBP9
4	-USBP8
5	+USBP9
6	+USBP8
7	GND
8	GND
9	No Pin
10	NC

F_USB2

Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	-USBP11
4	-USBP10
5	+USBP11
6	+USBP10
7	GND
8	GND
9	No Pin
10	NC

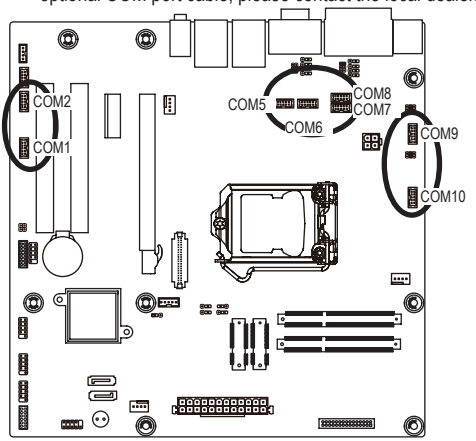
F_USB3

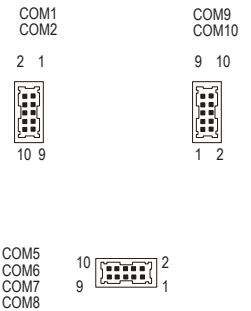
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	-USBP13
4	-USBP12
5	+USBP13
6	+USBP12
7	GND
8	GND
9	No Pin
10	NC

When the system is in S4/S5 mode, only the USB ports routed to the F_USB1 header can support the ON/OFF Charge function.

10/11/12/13/14/15/16/17) COM1/COM2/COM5/COM6/COM7/COM8/COM9/COM10 (Serial Port Cable Connectors)

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.





COM1

Pin No.	Definition
1	NRXD1-
2	NDCD1-
3	NDTR1-
4	NTXD1-
5	NDSR1-
6	GND
7	NCTS1-
8	NRTS1-
9	NC
10	NRI1-

COM2

Pin No.	Definition
1	NRXD2-
2	NDCD2-
3	NDTR2-
4	NTXD2-
5	NDSR2-
6	GND
7	NCTS2-
8	NRTS2-
9	NC
10	NRI2-

COM5

Pin No.	Definition
1	NRXD5-
2	NDCD5-
3	NDTR5-
4	NTXD5-
5	NDSR5-
6	GND
7	NCTS5-
8	NRTS5-
9	NC
10	NRI5-

COM6

Pin No.	Definition
1	NRXD6-
2	NDCD6-
3	NDTR6-
4	NTXD6-
5	NDSR6-
6	GND
7	NCTS6-
8	NRTS6-
9	NC
10	NRI6-

COM7

Pin No.	Definition
1	NRXD7-
2	NDCD7-
3	NDTR7-
4	NTXD7-
5	NDSR7-
6	GND
7	NCTS7-
8	NRTS7-
9	NC
10	NRI7-

COM8

Pin No.	Definition
1	NRXD8-
2	NDCD8-
3	NDTR8-
4	NTXD8-
5	NDSR8-
6	GND
7	NCTS8-
8	NRTS8-
9	NC
10	NRI8-

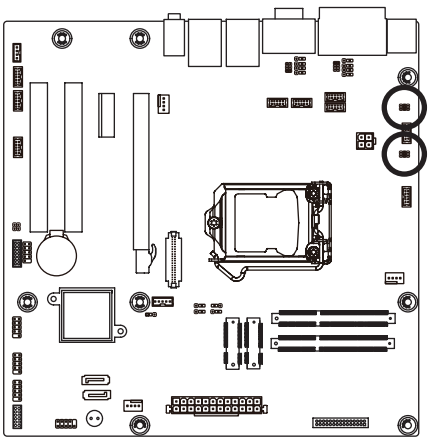
COM9

Pin No.	Definition
1	NRXD9-
2	NDCD9-
3	NDTR9-
4	NTXD9-
5	NDSR9-
6	GND
7	NCTS9-
8	NRTS9-
9	NC
10	RI9-/5V/12

COM10

Pin No.	Definition
1	NRXD10-
2	NDCD10-
3	NDTR10-
4	NTXD10-
5	NDSR10-
6	GND
7	NCTS10-
8	NRTS10-
9	NC
10	RI10-/5V/12

18/19) JCOM8/JCOM6 (5V/12V/RI Signal Select Header for Serial Port 9/10)



1-2 Close: 5V (Power COM)

3-4 Close: RI (STAND COM)

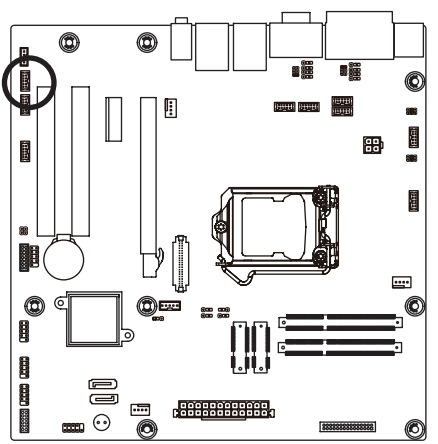
5-6 Close: 12V (Power COM)

Pin No.	Definition
1	VCC
2	RI9-/5V/12V
3	NRI9-
4	RI9-/5V/12V
5	+12V
6	RI9-/5V/12V

Pin No.	Definition
1	VCC
2	RI10-/5V/12V
3	NRI10-
4	RI10-/5V/12V
5	+12V
6	RI10-/5V/12V

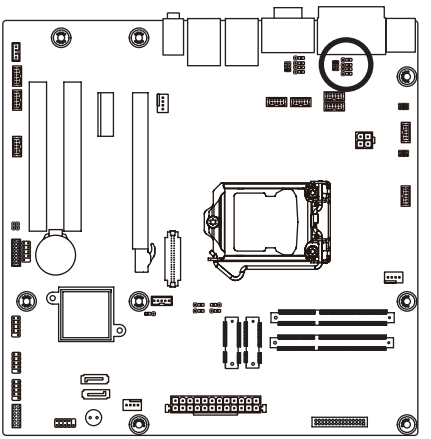
21) F_AUDIO (Front Panel Audio Header)

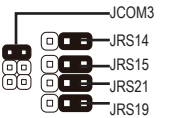
The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header. Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module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



Pin No.	Definition
1	MIC_L
2	-AGND
3	MIC_R
4	-ACZ_DET
5	HPOUT_R
6	SRTN1
7	FAUDIO_JD
8	NC
9	HPOUT_L
10	SRTN2

21) JCOM3/JRS14/JRS15/JRS21/JRS19
(RS232/RS422/RS485 Select Header for Serial Port 3)





1 1-2 Close: RS422/RS485

1 2-3 Close: RS232 (Default setting)

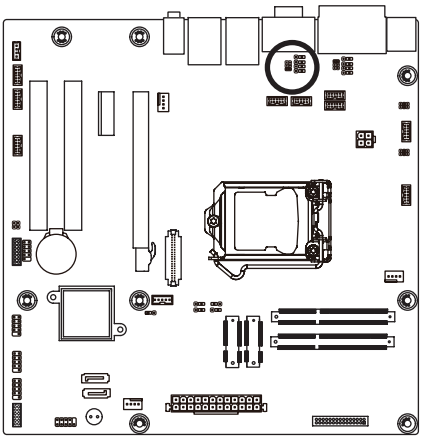
2 1
6 5
1-2 Close: RS232

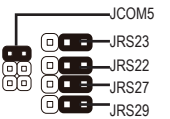
2 1
6 5
3-4 Close: RS422

2 1
6 5
5-6 Close: RS485

Pin No.	Definition
1	RXD232
2	RXD3
3	RXD422
4	RXD3
5	RXD485
6	RXD3

22) JCOM5/JRS23/JRS22/JRS27/JRS29
(RS232/RS422/RS485 Select Header for Serial Port 4)





1 1-2 Close: RS422/RS485

1 2-3 Close: RS232 (Default setting)

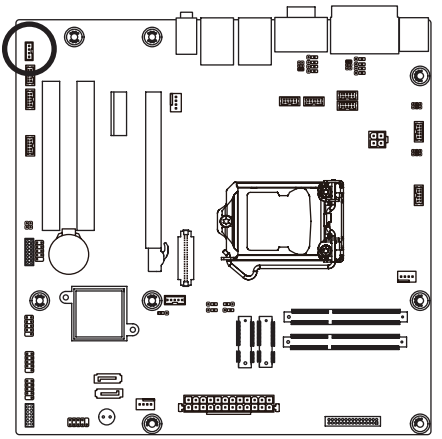
5 6
1 2 1-2 Close: RS232

5 6
1 2 3-4 Close: RS422

5 6
1 2 5-6 Close: RS485

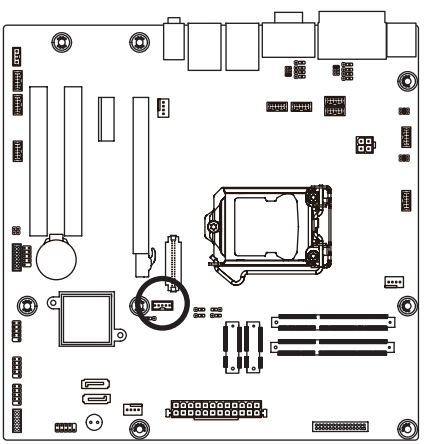
Pin No.	Definition
1	RXD232
2	RXD4
3	RXD422
4	RXD4
5	RXD485
6	RXD4

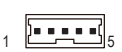
23) SPK_OUT (Audio Amplifier Connector)



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

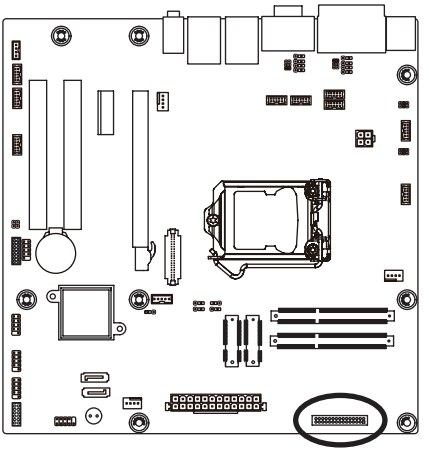
24) BLK_CN (LCD Inverter Connector)





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

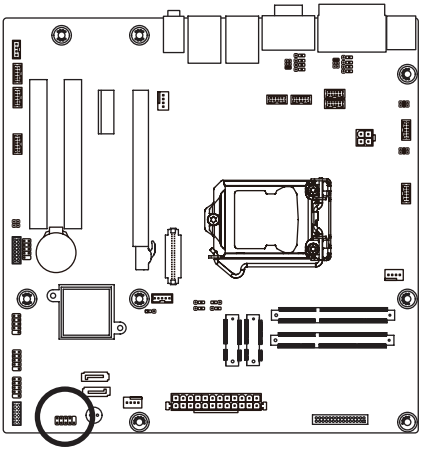
25) LPT (LPT Connector)



Pin No.	Definition	Pin No.	Definition
1	STB-	16	GND
2	PD3	17	PD1
3	GND	18	PD7
4	GND	19	GND
5	AFD-	20	GND
6	PD4	21	INIT-
7	GND	22	ACK-
8	GND	23	GND
9	PD0	24	GND
10	PD5	25	PD2
11	GND	26	BUSY
12	GND	27	GND
13	ERR-	28	PE
14	PD6	29	SLIN-
15	GND	30	SLCT

26) F_PANEL (Front Panel Header)

Connect the power switch, reset switch, speaker, chassis intrusion switch/sensor 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.

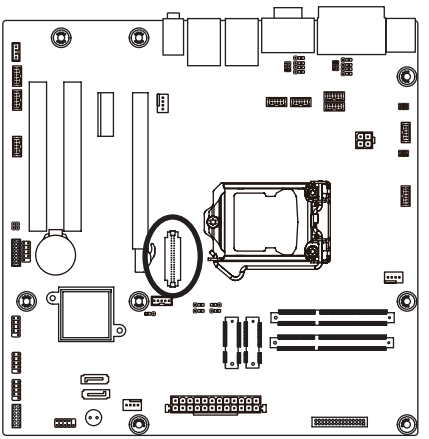


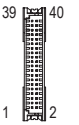
Pin No.	Signal Name	Definition
1	HD+	Hard Disk LED Signal anode (+)
2	MPD+	Power LED Signal anode (+)
3	HD-	Hard Disk LED Signal cathode(-)
4	MPD-	Power LED Signal cathode(-)
5	GND	Ground
6	-PWR BT_F	Power Button cathode(-)
7	-SYS_RST	Reset Button
8	GND	Ground
9	NC	No connect
10	NC	No Pin

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, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

27) LVDS (LVDS Headers)

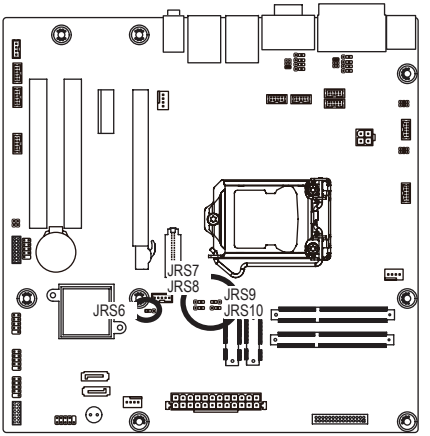
LVDS stands for Low-voltage differential signaling, which uses high-speed analog circuit techniques to provide multigigabit data transfers on copper interconnects and is a generic interface standard for high-speed data transmission.





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	GND
19	GND	39	+12V
20	GND	40	+12V

28/29/30/31/32) JRS9/JRS10/JRS8/JRS7/JRS6 (LVDS Enable Jumpers)



JRS6

1

Pin No.	Definition
1	HPDET
2	HPDET_C
3	NC

JRS7

1

Pin No.	Definition
1	VCC3
2	CGPIO 0
3	GND

JRS8

1

Pin No.	Definition
1	VCC3
2	CGPIO 1
3	GND

JRS9

1

Pin No.	Definition
1	VCC3
2	CGPIO 2
3	GND

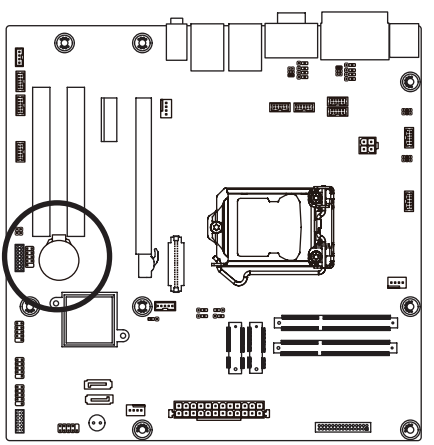
JRS10

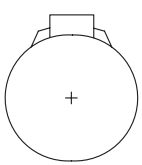
1

Pin No.	Definition
1	VCC3
2	CGPIO 3
3	GND

33) BATTERY (Battery Scoket)

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.

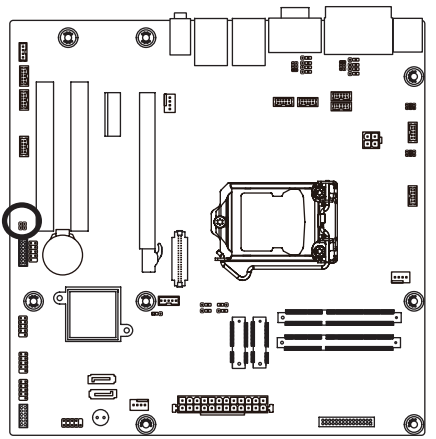




- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself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

34) 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 to temporarily short the two pins or use a metal object like a screwdriver to touch the two pins for a few seconds.

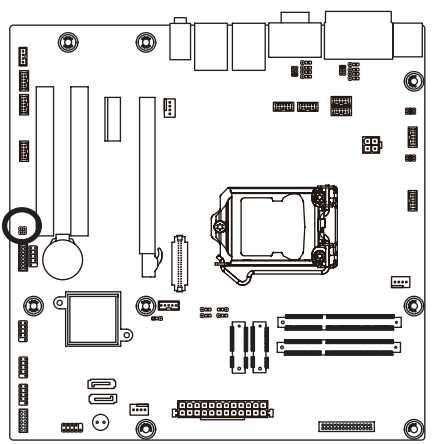


Open: Normal operation (Default setting)

Close: Clear CMOS data

35) CI (Case Open Intrusion Header)

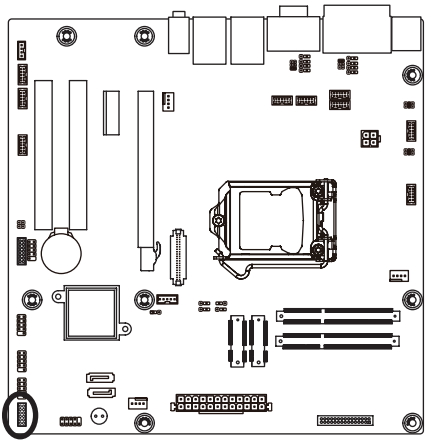
This motherboard provides a chassis intrusion alert function if the chassis cover is removed.



Open: Normal operation (Default setting)

Close: Active case open intrusion alert.

36) GPIO_CNT (GPIO Connector)



Pin No.	Definition
1	GPIO1
2	GPIO68
3	GPIO6
4	GPIO69
5	GPIO7
6	GPIO70
7	GPIO17
8	GPIO71
9	SMBCLK
10	SMBDATA
11	VCC
12	GND

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 <DEL> 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
<F9>	Load the Optimized BIOS default settings for the current submenus
<F10>	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. (Pressing <F10> can also carry out this task.)
  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.

- If you do not find the settings you want in the Main Menu or a submenu, press <Ctrl>+<F1> to access more advanced options.
- When the system is not stable as usual, select the **Restore User 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**

☞ **BIOS Version**

Display version number of the BIOS setup utility.

☞ **BIOS Vendor**

Display BIOS vendor information.

☞ **Core Version**

Display version of the processor.

☞ **Compliency**

Display compliency information.

☞ **Project Version**

Display version number of the project.

☞ **BIOS Build Date and Time**

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

☞ **Memory Information**

☞ **Total Memory / Memory Frequency**

Displays the technical specifications for the installed memory.

☞ **System Date**

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

☞ **System Time**

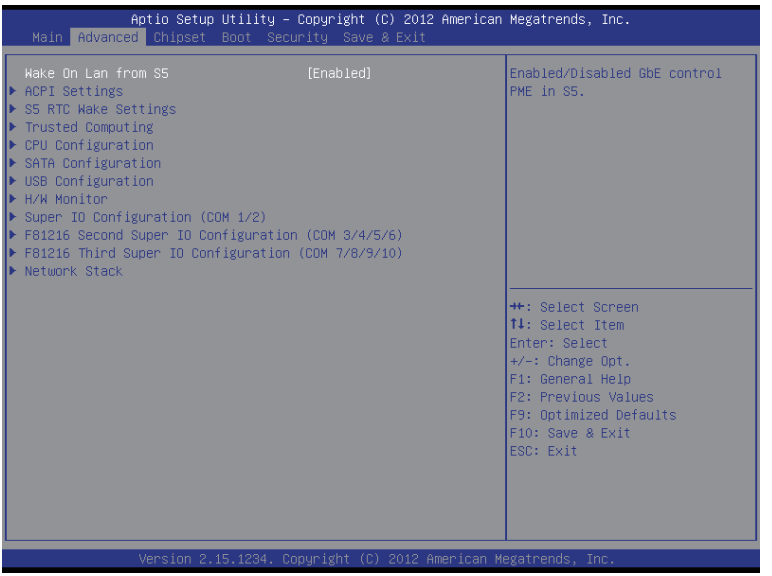
Set the system time following the hour-minute- second format.

☞ **Access Level**

Display the current accessing level information.

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.

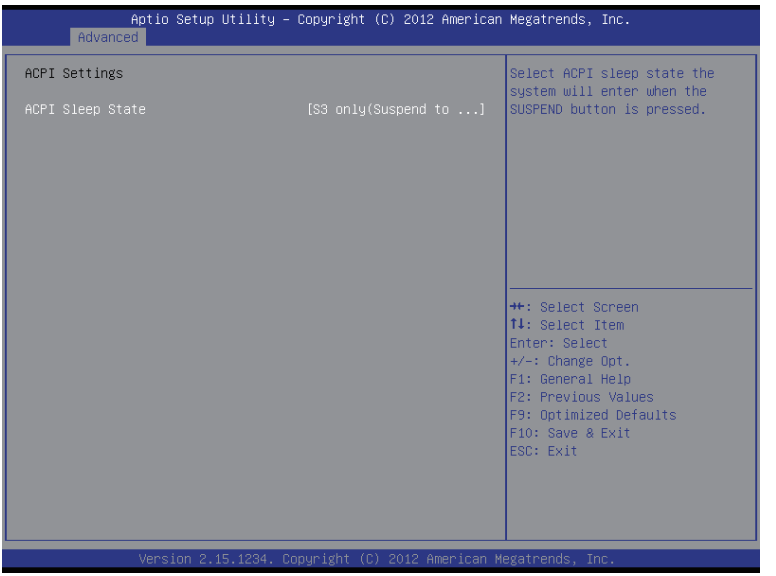


☞ Wake On Lan from S5

Enable/Disable GbE control PME in S5.

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

2-2-1 ACPI Settings

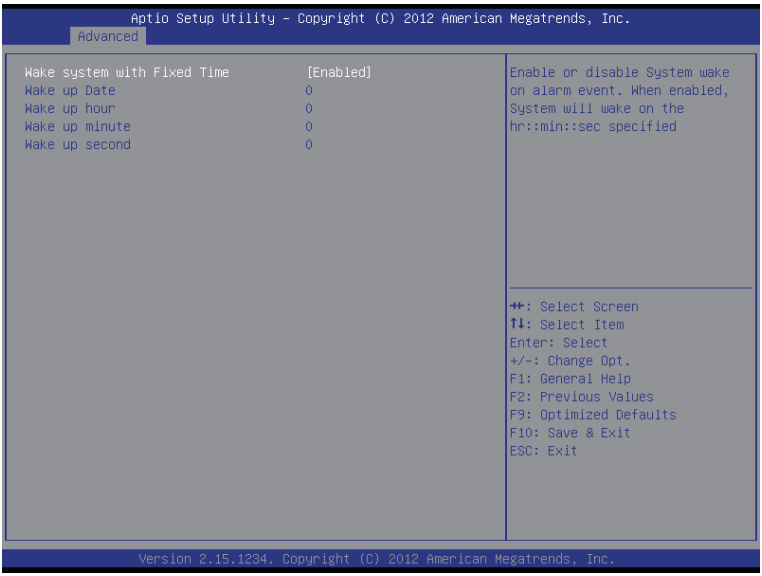


☞ **ACPI Settings**

☞ **ACPI Sleep State**

Select the highest ACPI sleep state the system will enter, when the suspend button is pressed. Suspend Disabled/S1 only (CPU Stop Clock)/S3 only (Suspend to RAM).
Default setting is **S3 only (Suspend to RAM)**.

2-2-2 S5 RTC Wake Settings



☞ **Wake system with Fixed Time**

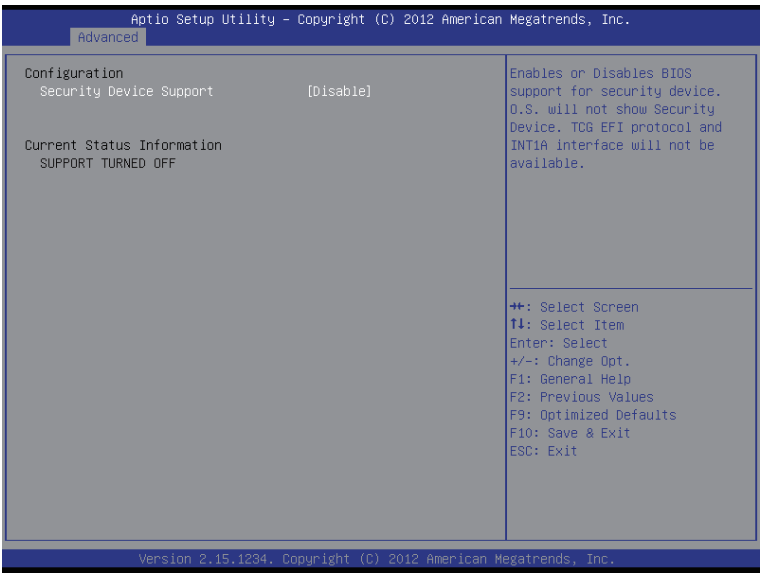
Enable/Disable system wake on alarm event. When this item is enabled, system will wake on the Hour:Mintues:Seconds when specified time is defined.

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

☞ **Wake up Date/hour/mintue/second**

Press [Enter] to configure the system wake up time.

2-2-3 Trusted Computing (Optional)



☞ **Configuration**

☞ **Security Device Support**

Enable/Disable BIOS support for security device. O.S will not show security device. TCG EFI protocol and INT1A interface will not be available.

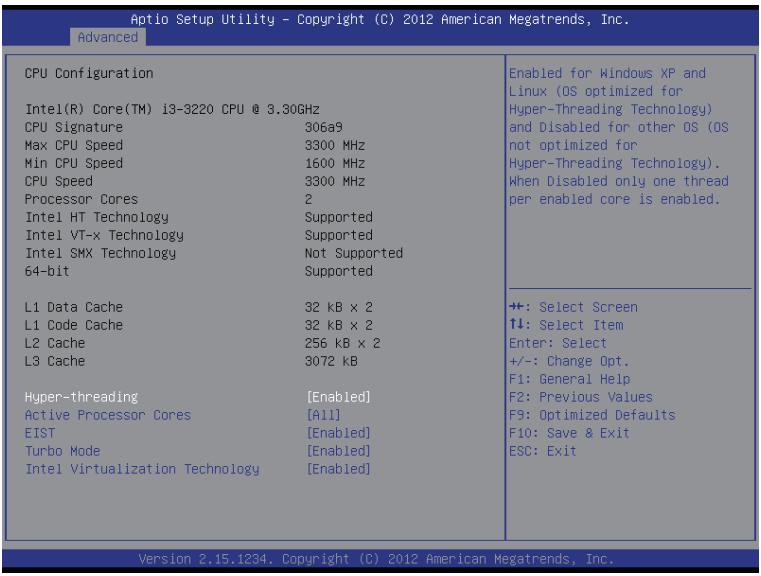
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Current Status Information**

Display current TPM status information.

- The function items in this page are only applicable when the extension card is attached.

2-2-4 CPU Configuration



☞ **CPU Configuration**

☞ **CPU Type/ Signature / Max CPU Speed / Min CPU Speed / CPU Speed / Processor Cores / Intel HT Technology / Intel VT-x Technology / Intel SMX Technology / 64-bit**

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.

☞ **Hyper-threading** (Note)

The Intel Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can execute their threads, thereby improving performance.

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

☞ **Active Processor Cores** (Note)

Allows you to determine whether to enable all CPU cores.

Options available: All/1/2/3. Default setting is **All**.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ 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 item is enabled, tje processor will automatically ramp up the clock speed of 1-2 of its processing cores to improve its performance.

When this item is disabled, the processor will not overclock any of its core.

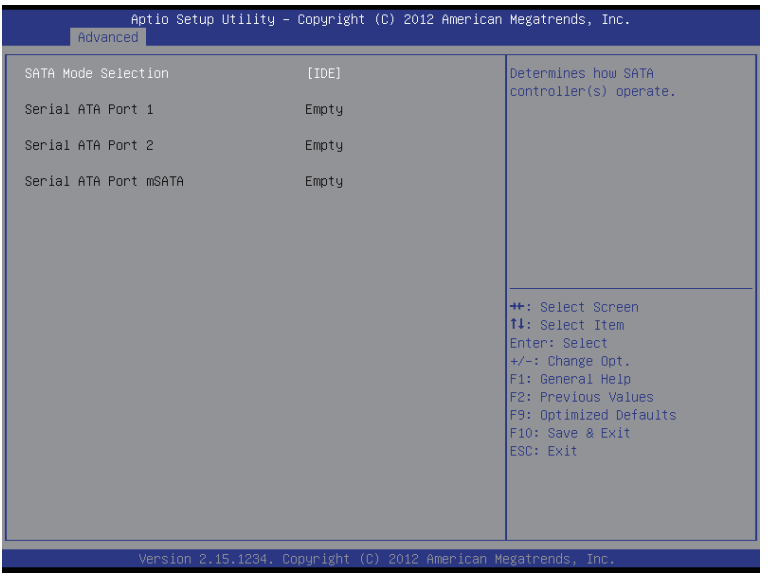
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ 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**.

2-2-5 SATA Configuration



☞ SATA Mode Selection

Select the on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its AHCI functions 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 **IDE**.

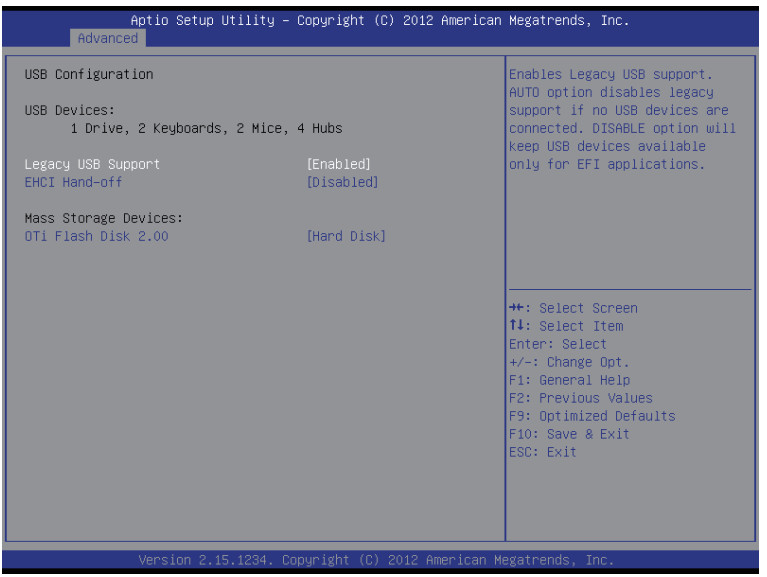
☞ Serial ATA Port 1/Serial ATA Port 2/Serial ATA Port mSATA

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.

2-2-6 USB Configuration



☞ **USB Configuration**

☞ **Legacy USB Support**

Enables or disables support for legacy USB devices.

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

☞ **EHCI Hand-off**

Enable/Disable EHCI (USB 2.0) Hand-off function.

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

☞ **Mass Storage Device**(Note)

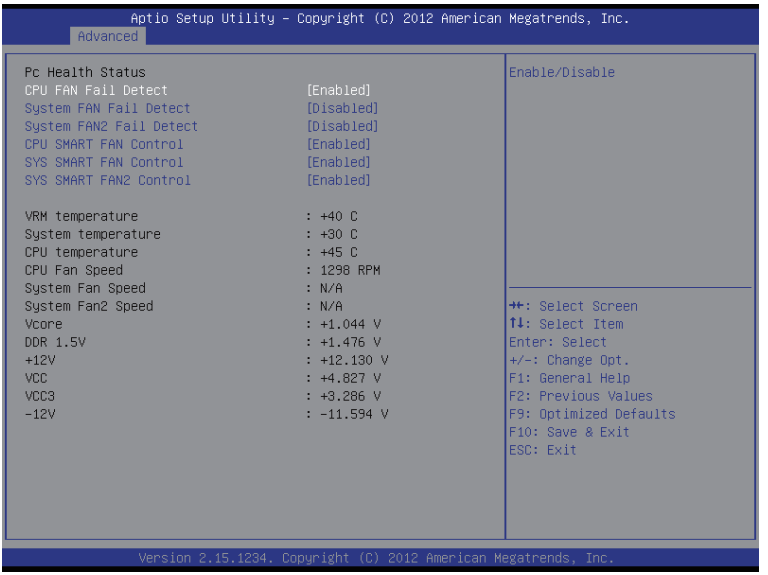
This BIOS feature determines if the USB flash drive be treated as a floppy disk drive or a hard drive.

Options available: Auto.

(Note) This item is present only if you connect USB types of device.

2-2-7 H/W 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.



☞ CPU/System FAN/System FAN 2 Fail Detect

Enable CPU/System Fan Fail detection.

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

☞ CPU/System/System 2 SMART FAN Function

Enable CPU/System Smart Fan function.

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

☞ VRM/System/CPU Temperature

Displays current system and CPU temperature.

☞ CPU/System/System 2 Fan Speed (RPM)

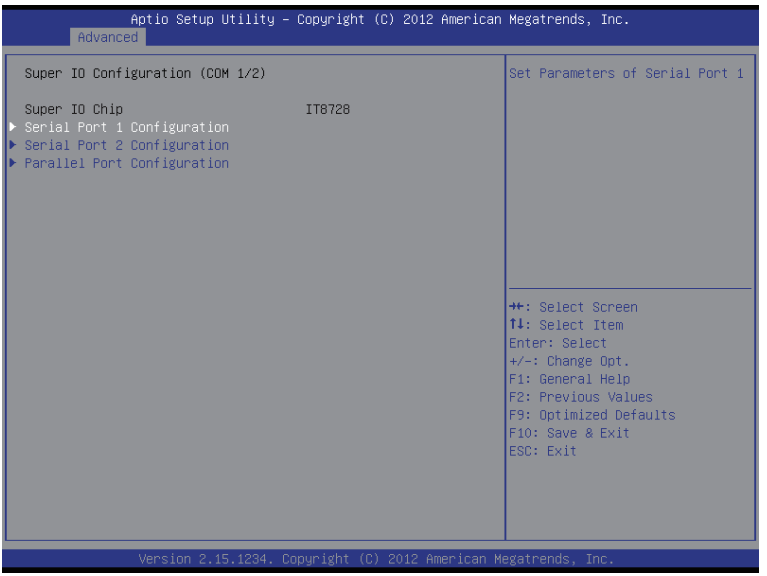
Displays current CPU and system fan speed.

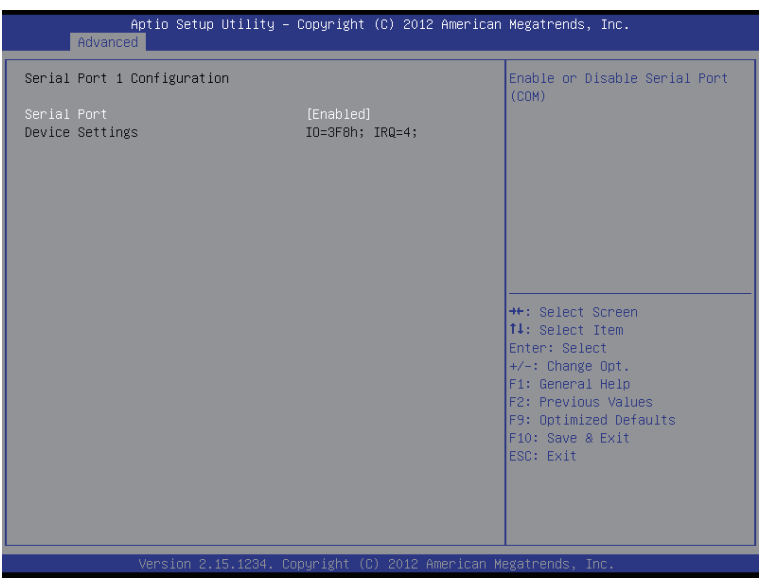
☞ System Related Voltage Information:

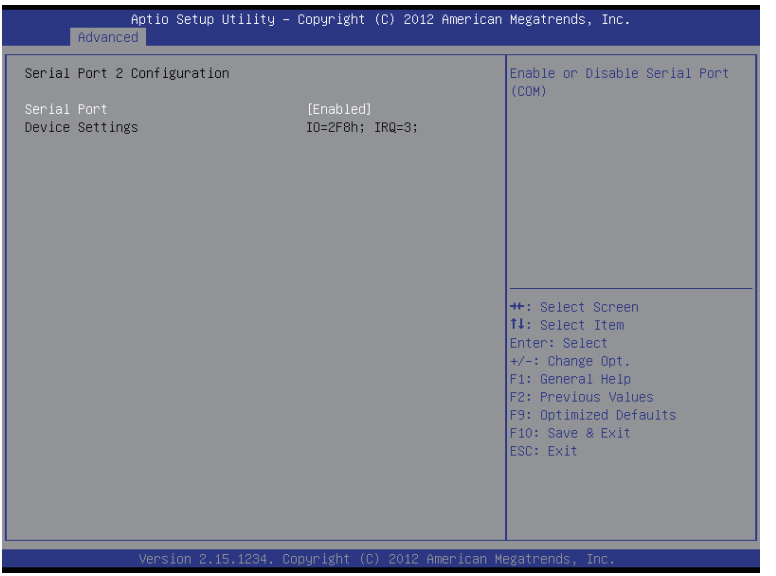
Vcore/DDR 1.5V/+12V/VCC/VCC3/-12V

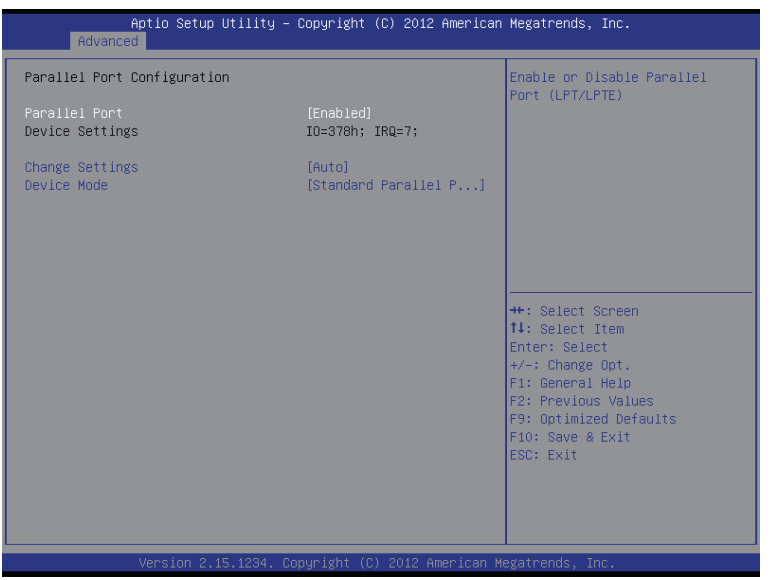
Displays current system and CPU voltage information.

2-2-8 Super I/O Configuration (COM 1/2)






Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Serial Port 2 Configuration
Serial Port [Enabled]
Device Settings IO=2F8h; IRQ=3;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Parallel Port Configuration
Parallel Port [Enabled]
Device Settings IO=378h; IRQ=7;
Change Settings [Auto]
Device Mode [Standard Parallel P...]
Enable or Disable Parallel Port (LPT/LPTE)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.

☞ **Super I/O Configuration (COM 1/2)**

☞ **Super I/O Chip**

Display the model name of Super IO chip.

☞ **Serial Port 1/2/Parallel Port Configuration**

☞ **Serial Port 1/Serial Port 2**

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

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

☞ **Device Settings**

Display the Serial Port 1/2 base I/O addressand IRQ.

☞ **Parallel Port**

When enabled allows you to configure the parallel port setting.

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

☞ **Device Settings**

Display the Parallel Port base I/O addressand IRQ.

☞ **Change Settings**

Change Paralle port device settings. When set to Auto allows the server's BIOS or OS to select a configuration.

Options available: Auto/IO=378h;IRQ=5/IO=378h;IRQ=5,6,7,9,110,11,12/
IO=278h;IRQ=5,6,7,9,110,11,12/ IO=3BCh;IRQ=5,6,7,9,110,11,12
Default setting is **Auto**.

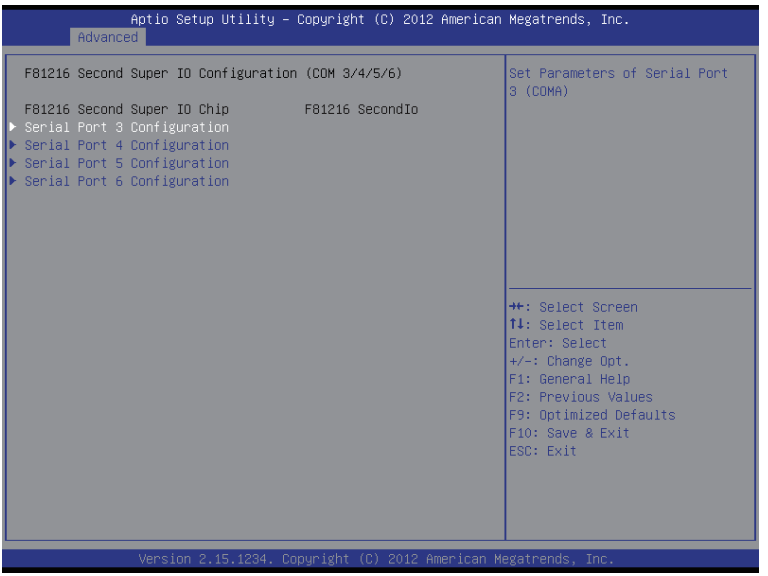
☞ **Device Mode**

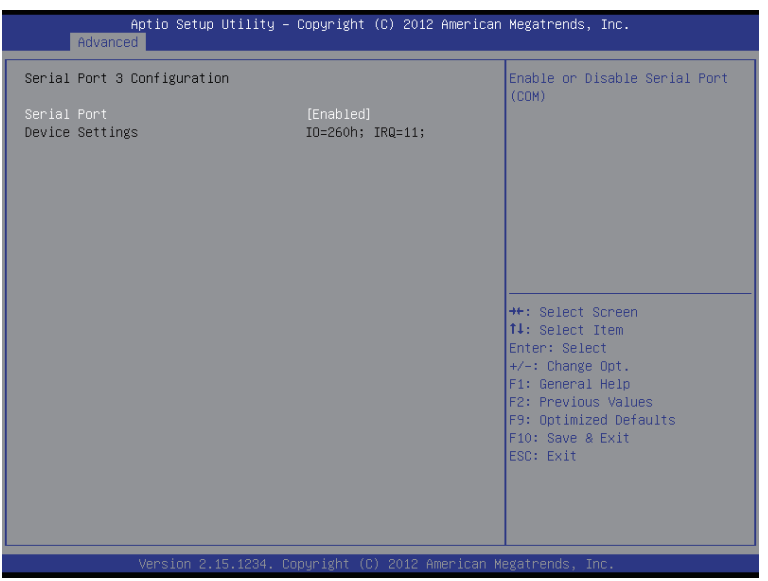
Configure the device mode for parallel port.

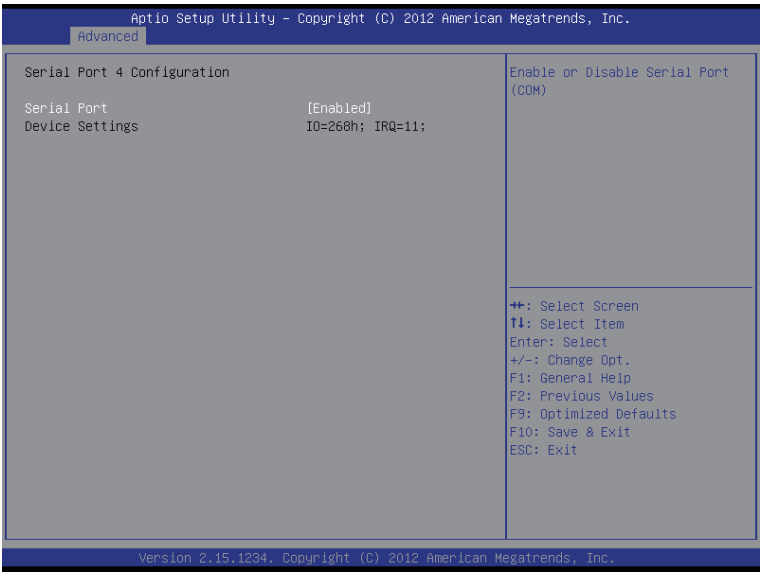
Options available: Standard Parallel Port Mode/EPP Mode/ECP Mode/EPP Mode & ECP Mode.

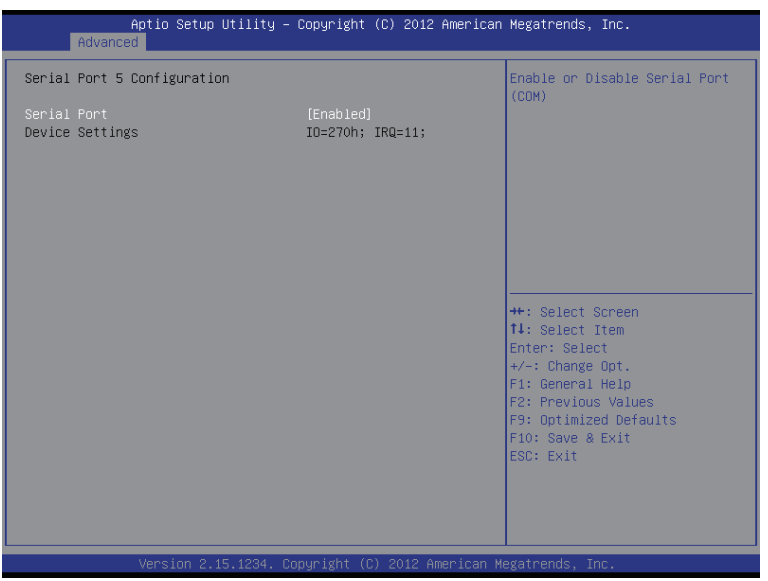
Default setting is **Standard Parallel Port Mode**.

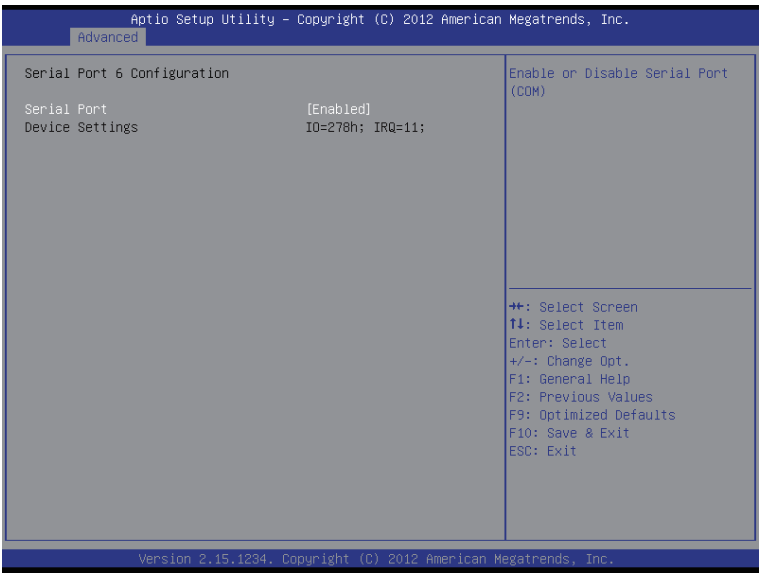
2-2-9 F81216 Second Super I/O Configuration (COM 3/4/5/6)






Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Serial Port 4 Configuration
Serial Port [Enabled]
Device Settings IO=268h; IRQ=11;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Serial Port 5 Configuration
Serial Port [Enabled]
Device Settings IO=270h; IRQ=11;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.



☞ **Super I/O Configuration (COM 3/4/5/6)**

☞ **F81216 Second Super I/O Chip**

Display the model name of Super IO chip.

☞ **Serial Port 3/4/5/6 Configuration**

☞ **Serial Port 3/Serial Port 4/Serial Port 5/Serial Port 6**

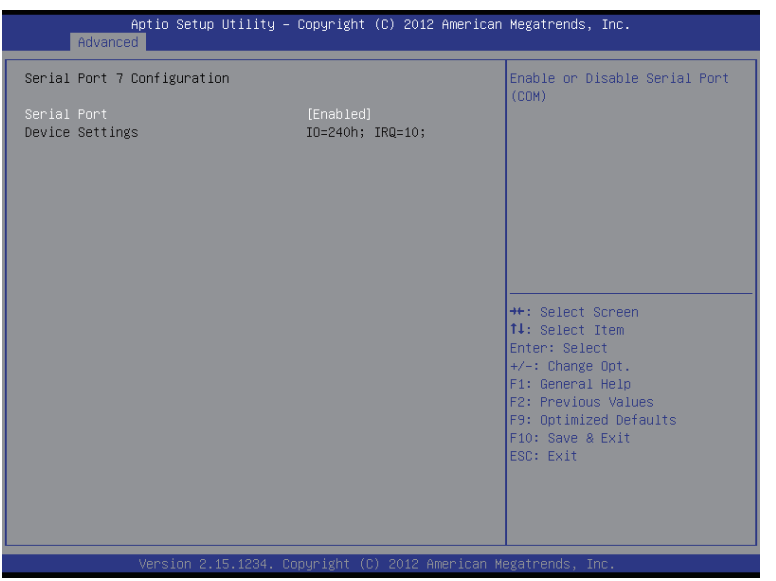
When enabled allows you to configure the serial port settings. When set to Disabled, displays no configuration for the serial port.

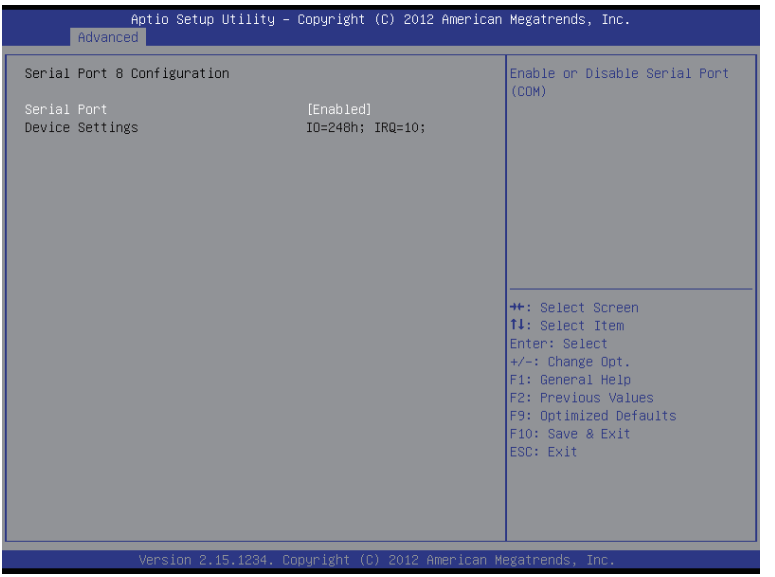
Options available: Enabled/Disabled. Default setting is **Enabled**.

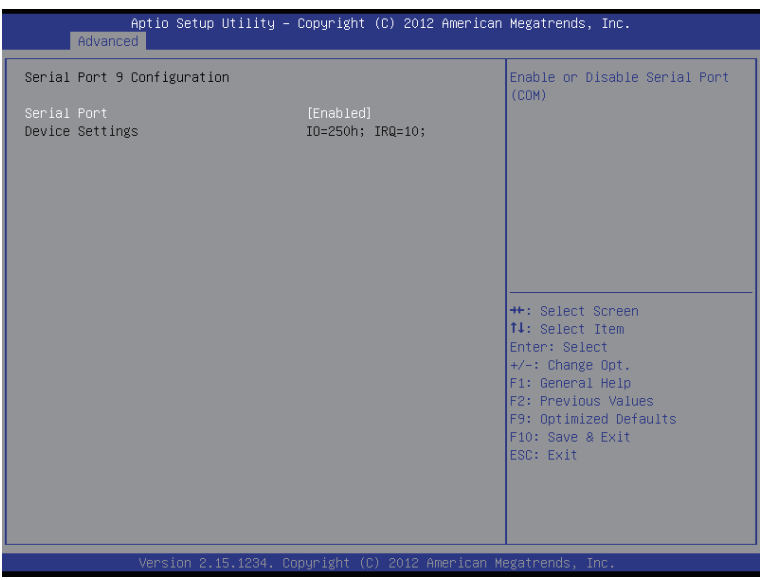
☞ **Device Settings**

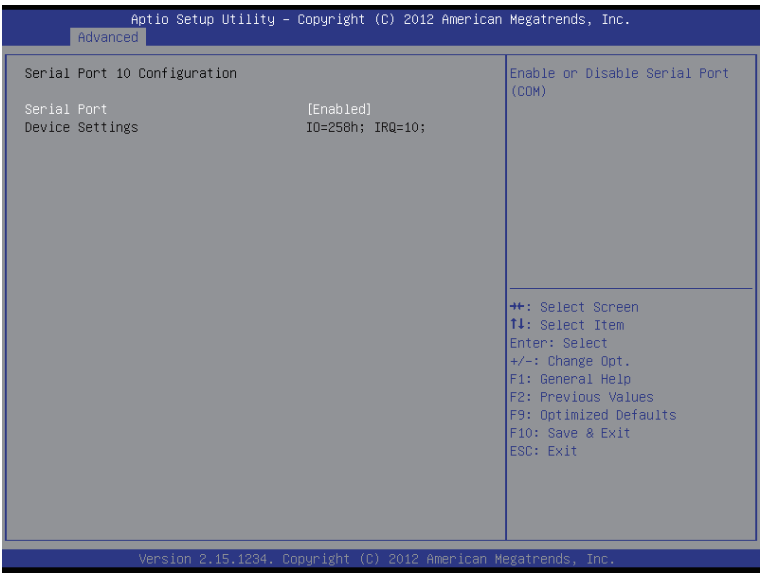
Display the Serial Port 3/4/5/6 base I/O addressand IRQ.

2-2-10 F81216 Third Super I/O Configuration (COM 7/8/9/10)




Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Serial Port 8 Configuration
Serial Port [Enabled]
Device Settings IO=248h; IRQ=10;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Serial Port 9 Configuration
Serial Port [Enabled]
Device Settings IO=250h; IRQ=10;
Enable or Disable Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.



- **Super I/O Configuration (COM 7/8/9/10)**
- **F81216 Third Super I/O Chip**

  Display the model name of Super IO chip.
- **Serial Port 7/8/9/10 Configuration**
- **Serial Port 7/Serial Port 8/Serial Port 9/Serial Port 10**

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

  Options available: Enabled/Disabled. Default setting is **Enabled**.
- **Device Settings**

  Display the Serial Port 7/8/9/10 base I/O addressand IRQ.

2-2-11 Network Stack

☞ **Network stack**

Enable/Disable UEFI network stack.

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

☞ **Ipv4 PXE Support**

Enable/Disable Ipv4 PXE Support.

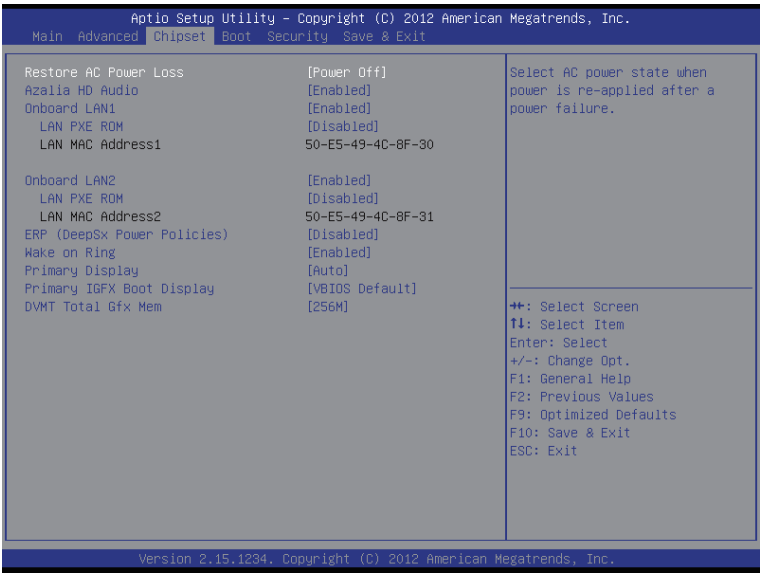
Options available: Enabled/DIsabled. Default setting is **Disabled**.

☞ **Ipv6 PXE Support**

Enable/Disable Ipv6 PXE Support.

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

2-3 Chipset Menu



☞ 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 sate when AC power is removed.

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

☞ Azalia HD Audio

Enable/Disable onboard audio controller.

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

☞ Onboard LAN1/2

Enable/Disable onboard LAN 1/2 controller.

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

☞ LAN1/2 PXE ROM

Enable/Disable LAN1/2 PXE ROM.

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

☞ LAN1/2 MAC Address

Display the LAN1/2 MAC address information.

☞ ERP (DeepSx Power Policies)

Enable/Disable ERP function.

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

☞ **Wake On Ring**

Enable/Disable Wake On Ring function.

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

☞ **Primary Display**

Configure the primary display device.

Options available: Auto/IGFX/PEG. Default setting is **Auto**.

☞ **Primary IGFX Boot Display**

Select the Video device which will be activated during POST.

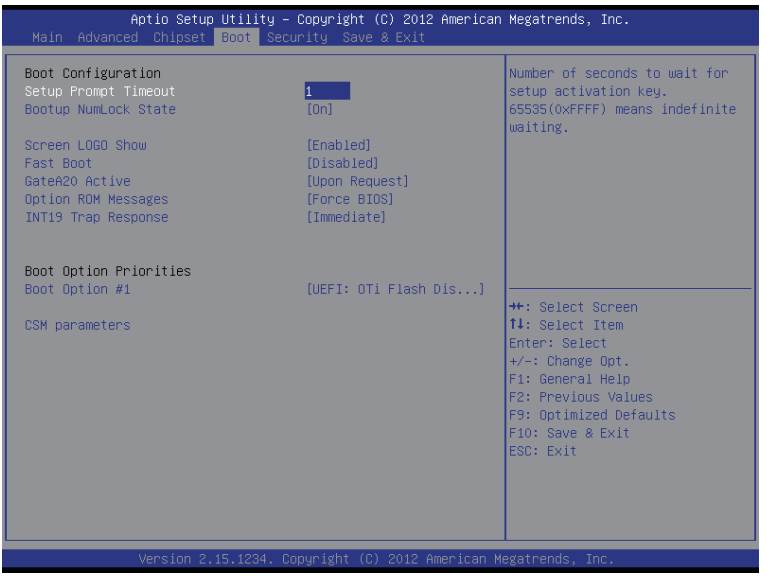
Options available: VBIOS Default/CRT/DVI/LVDS. Default setting is **VBIOS Default**.

☞ **DVMT Total Gfx Mem**

Options available: 128MB/256MB/Maximum DVMT. Default setting is **256MB**.

2-4 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

☞ Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting."
Press the numberic keys to input the desired value.

☞ Bootup NumLock State

Enable or Disable Bootup NumLock function.
Options available: On/Off. Default setting is **On**.

☞ Screen Logo Show

Enable/Disable showing Screen Logo during system boot.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Fast Boot

This BIOS feature alows 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**.

☞ GateA20 Active

This BIOS feature is used to determine the method bywhich Gate A20 is controlled.
Options available: Upon Request/Always. Default setting is **Upon Request**.

☞ Option ROM Messages

Set display mode for Option ROM.
Options available: Force BIOS/Keep Current. Default setting is **Force BIOS**.

☞ **INT19 Trap Response**

Configure the BIOS reaction on INT19 trapping by Option ROMs. When set to Immediate, the trap is executed immediately When set to Postponed, the trap is executed during legacy boot.

Options available: Immediate/Postponed. Default setting is **Immediate**.

☞ **Boot Option Priorities**

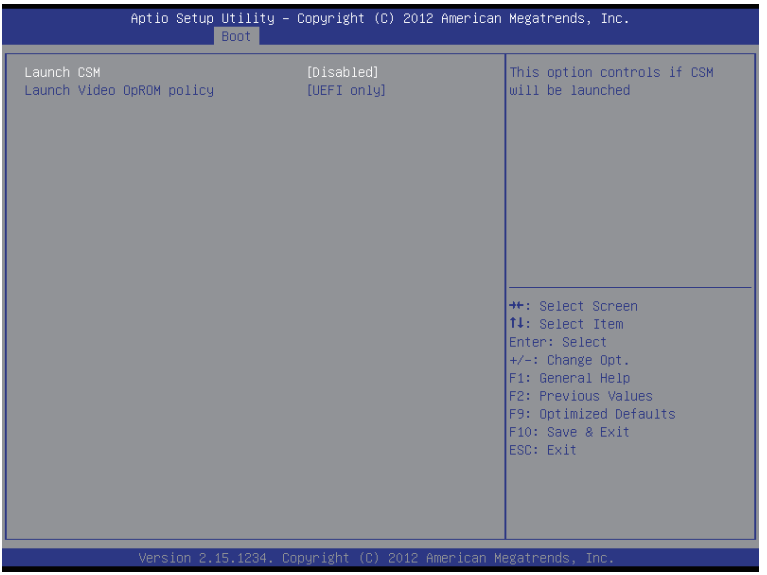
☞ **Boot Option #1**

Press Enter to configure the boot priority.

☞ **CSM parameters**

Press Enter to configure the advanced items.

2-4-1 CSM Parameters



☞ CSM parameters

Press Enter to configure the advanced items.

☞ Launch CSM (Compatibility Support Module)

Enable/Disable Compatibility Support Module (CSM) launch.

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

- 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.

☞ Launch Video OpROM policy

Determines which devices system will boot to.

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

2-5 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:

- Adminstrator 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.

☞ **AdministratorPassword**

Press Enter to configure the Administrator password.

☞ **User Password**

Press Enter to configure the user password.

☞ **Case Open**

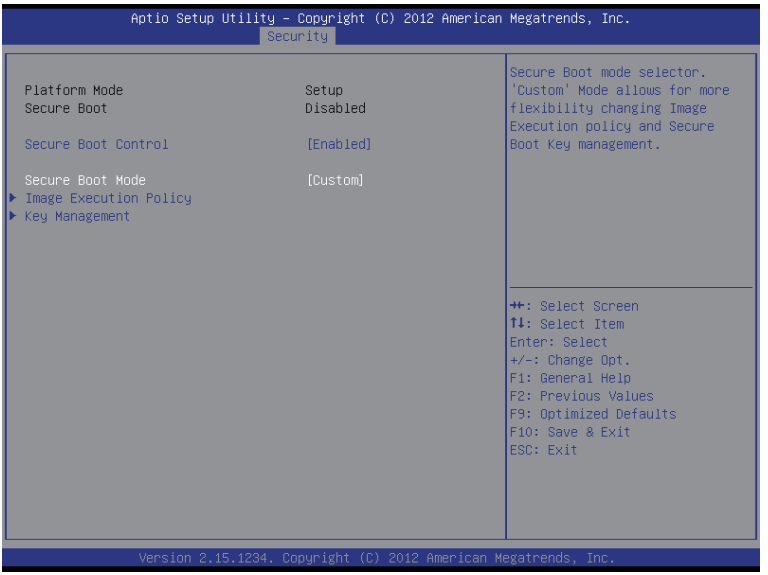
Confiure case open intrusion alert.

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

☞ **Secure Boot menu**

Press Enter to configure the advanced items.

2-5-1 Secure Boot menu



☞ Platform Mode

Display the System Mode state.

☞ Secure Boot

Display the System Mode State.

☞ Secure Boot Control

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 **Enabled**.

☞ Secure Boot Mode

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

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

☞ Image Execution Policy

Press Enter to configure the advanced items.

☞ Key Management

Press Enter to configure the advanced items.

2-5-1-1 Image Execution Policy

☞ **Image Execution policy**

☞ **Internal FV**

Image Execution Policy per device path on Security Violation.

Options available: Always Execute. Default setting is **Always Execute**.

☞ **Option ROM**

Image Execution Policy per device path on Security Violation.

Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

☞ **Removable Media**

Image Execution Policy per device path on Security Violation.

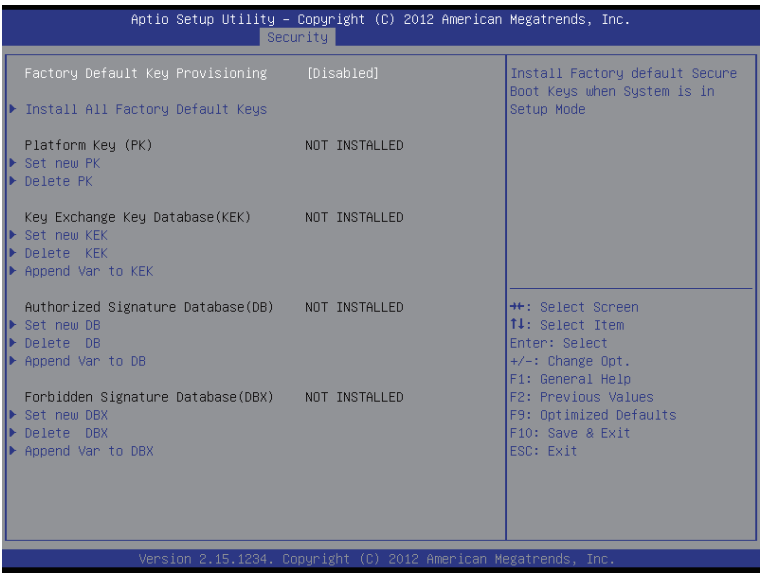
Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

☞ **Fixed Media**

Image Execution Policy per device path on Security Violation.

Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

2-5-1-2 Key Management



☞ Key Management

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

☞ Factory 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 Signaures Database (dbx).

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

☞ Install 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.

2-6 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 Exit**

Saves changes made and close the BIOS setup.

Options available: Yes/No.

☞ **Discard Changes and Exit**

Discards changes made and close the BIOS setup.

Options available: Yes/No.

☞ **Save Options**

☞ **Save Changes**

Saves changes made in the BIOS setup.

Options available: Yes/No.

☞ **Discard Changes**

Discards changes made and close the BIOS setup.

☞ **Save as User Defaults**

Press <Enter> on this item and then press the <Y> key to save as user default settings.

Options available: Yes/No.

☞ **Restore User Defaults**

Press <Enter> on this item and then press the <Y> key to restore user default settings.

Chapter 3 Appendix

3-1 Regulatory Statements

Regulatory Notices

This document must not be copied without our written permission, and the contents there of must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted. We believe that the information contained herein was accurate in all respects at the time of printing. GIGABYTE cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by GIGABYTE.

Our Commitment to Preserving the Environment

In addition to high-efficiency performance, all GIGABYTE motherboards fulfill European Union regulations for RoHS (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste Electrical and Electronic Equipment) environmental directives, as well as most major worldwide safety requirements. To prevent releases of harmful substances into the environment and to maximize the use of our natural resources, GIGABYTE provides the following information on how you can responsibly recycle or reuse most of the materials in your "end of life" product.

Restriction of Hazardous Substances (RoHS) Directive Statement

GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

Waste Electrical & Electronic Equipment (WEEE) Directive Statement

GIGABYTE will fulfill the national laws as interpreted from the 2002/96/EC WEEE (Waste Electrical and Electronic Equipment) directive. The WEEE Directive specifies the treatment, collection, recycling and disposal of electric and electronic devices and their components. Under the Directive, used equipment must be marked, collected separately, and disposed of properly.

WEEE Symbol Statement

The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.