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Dichiarazione di conformità sintetica
Ai sensi dell'art. 2 comma 3 del D.M. 275 del 30/10/2002
Si dichiara che questo prodotto è conforme alle normative vigenti e soddisfa i requisiti essenziali richiesti dalle direttive 2004/108/CE, 2006/95/CE e 1999/05/CE quando ad esso applicabili

Short Declaration of conformity
We declare this product is complying with the laws in force and meeting all the essential requirements as specified by the directives 2004/108/CE, 2006/95/CE and 1999/05/CE whenever these laws may be applied

Table Of Contents

Chapter 1: Introduction

1.1 Before You Start

Thank you for choosing our product. Before you start installing the motherboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the computer from power outlet before operation.
- Before you take the motherboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on motherboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the computer from dangerous area, such as heat source, humid air and water.
- The operating temperatures of the computer should be 0 to 45 degrees Celsius.
- To avoid injury, be careful of:
  Sharp pins on headers and connectors
  Rough edges and sharp corners on the chassis
  Damage to wires that could cause a short circuit

1.2 Package Checklist

- mini-ITX Mainboard x 1
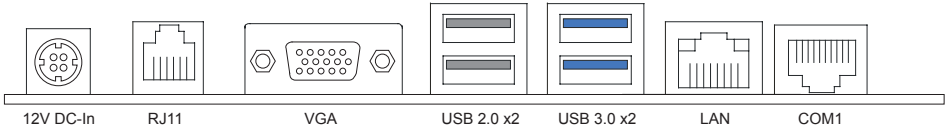- Fully Setup Driver DVD x 1 (optional)
- I/O Bracket x 1
- SATA Cable x 1

▶ Note

» *The package contents may be different due to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.*
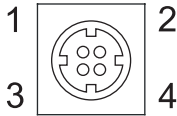
1.3 Specifications

CPU	Supports Intel® 4th Gen LGA1150 CPU Socket Desktop processor(35W TDP only) Formerly Haswell Processor list is as below (22 nm Process only) -- Intel® Core™ i3-4340TE Processor (4M Cache, 2.60 GHz) -- Intel® Core™ i3-4330TE Processor (4M Cache, 2.40 GHz) -- Intel® Pentium® Processor G3320TE (3M Cache, 2.30 GHz) -- Intel® Celeron® Processor G1820TE (2M Cache, 2.20 GHz)
Chipset	Intel® H81
Graphic	Integrated Intel® HD Graphics engine Dual independent displays as below: 1. D-Sub 15 pin VGA output (Max resolution: 1920 x 1200) By using the DP to VGA controller(Realtek RTL2168) and support D-Sub 15 pin VGA output shared the same signal with 2x8 pin VGA BOX header *By using the VBIOS and configured the DDI signal to DP signal* 2. LVDS output (Max resolution: 1920 x 1200) By using the eDP to LVDS RTD2136R transmitter and supports the dual channel 18-24Bits LCD panel *Support the Clone-mode and Extended mode* ** *LCD Brightness, adjust by BIOS, from 30%~100%, default 100%.*
Main Memory	Supports Single Channel DDR3/3L 1600/1333 1x DDR3/3L SO-DIMM Memory Slot, Max. Supports up to 16 GB Memory
SATA	Chipset built-in serial ATA controller support -- 2x SATA III, data transfer rates up to 6.0Gb/s
LAN	1x Realtek 8111G Gigabit Ethernet 10 / 100 / 1000 Mb/s auto negotiation, Half / Full duplex capability
Sound Codec	Realtek Codec ALC662 (support Blue-ray Audio) 1. Reserved 1*4 pins connector for the Line-out port (pitch 2.54 mm) 2. Reserved 2x 1*2 pins wafer connector for Amplifier output (ALC105 class D 3Watt)-Maximum requirement is 2W/8Ohm 1*3 pins BOX connector for the MIC_IN
Expansion Slot	1x Full-size mini-PCIe Slot (mSATA/mini-PCIe mode by BOM select) 1x Half-size mini-PCIe Slot (WiFi Module)
Back Panel I/O	1x 4-pin 12V DC-IN jack 1x RJ11 connector (Cash Drawer) 1x VGA Output, DB-15 connector 2x USB3.0 connectors 2x USB2.0 connectors 1x RJ-45 connector (Gigabit LAN) 1x RJ-45 connector (RJ50)
On Board Connectors & Headers	2x SATA III connector support 6.0Gb/s 2x SATA HDD power connector 1x 2*13 pins, Parallel port box-header 2x 2*5 pins, USB 2.0 ports header 3x 2*5 pins, COM2~4 header 3x 1*3 pins, COM2~4 5V/12V jumper 1x 2*5 pins, Digital I/O header (4-in/4-out) 1x 2*5 pins, front panel header 1x 1*4 pins, CPU PWM-FAN header 2x 1*3 pins, System DC-FAN header 1x 1*6 pins, PS/2 KB/MS header 1x 1*3 pins, 12V/24V Jumper (RJ11) 1x 4 pins, 12V power connector 1x 2*20 pins, LCD LVDS connector support Dual Channel 1x 1*8 pins, LCD Backlight Inverter power connector 1x 1*3 pins, LCD Backlight power select jumper(3.3V/5V) 1x 1*3 pins, LCD Inverter power select jumper(5V/12V) 1x 1*3 pins, Clear CMOS Jumper 1x Buzzer 1x 1*3 pins, Mic-In header 1x 1*4 pins, line out box header 2x 1*2 pins, Amplifier output ALC105 class D 3Watt/Channel Amp
Board Size	170mm (W) x 170 mm (L), uATX
Qualification	RoHS, EuP
Operation Temperature	0°C ~ 40°C
Storage Temperature	-40°C ~ 90°C
Relative Humidity	10% ~ 90% (non-condensing)
Certification	CE/FCC Pre-scan
Other Features	PXE LAN boot ROM /ACPI/Power loss recovery
Energy Star Compliant	Sleep mode 2W / Lower/off mode 1W or lower
RoHS Compliant	Yes
OS Support	POS Ready 7 64bits/Windows 7 Embedded/Windows 8.1/Windows 10 Biostar reserves the right to add or remove support for any OS with or without notice.

1.4 Rear Panel Connectors

| 12V DC-In | RJ11 | VGA | USB 2.0 x2 | USB 3.0 x2 | LAN | COM1 |

DC-12V Input Connector

Pin	Assignment
1	+12V DC_IN
2	+12V DC_IN
3	GND
4	GND

RJ11 Connector (Cash Drawer)
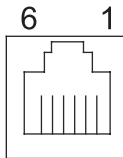
Pin	Assignment
1	CASE OPEN2_N
2	CASH1 _P
3	CASE OPEN_N
4	CASH_PWR (12/24V)*
5	CASH2_P
6	GND

*selected by jumper setting (JP1)

COM1 Serial Port Connectors (RS232)
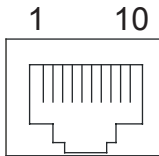
Pin	Assignment
1	NC
2	COM1C_RI* (+5V or +12V)
3	COM1C_CTS
4	COM1C_RTS
5	COM1C_DSR
6	GND
7	COM1C_DTR
8	COM1C_TXD
9	COM1C_RXD
10	COM1C_DCD

*selected by BIOS setting

JP1: Voltage Switch Jumper for Cash Drawer Connector

This jumper is for controlling the Pin4 of RJ11 to switch 12V or 24V.

Pin 1-2 Close: Pin4 of RJ11=24V (Default)

Pin 2-3 Close: Pin4 of RJ11=12V
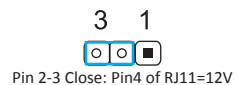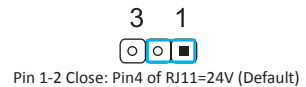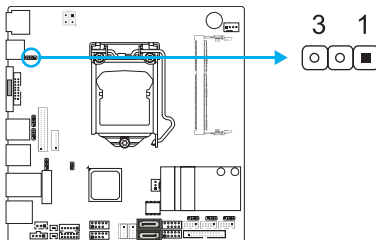
1.5 Motherboard Layout
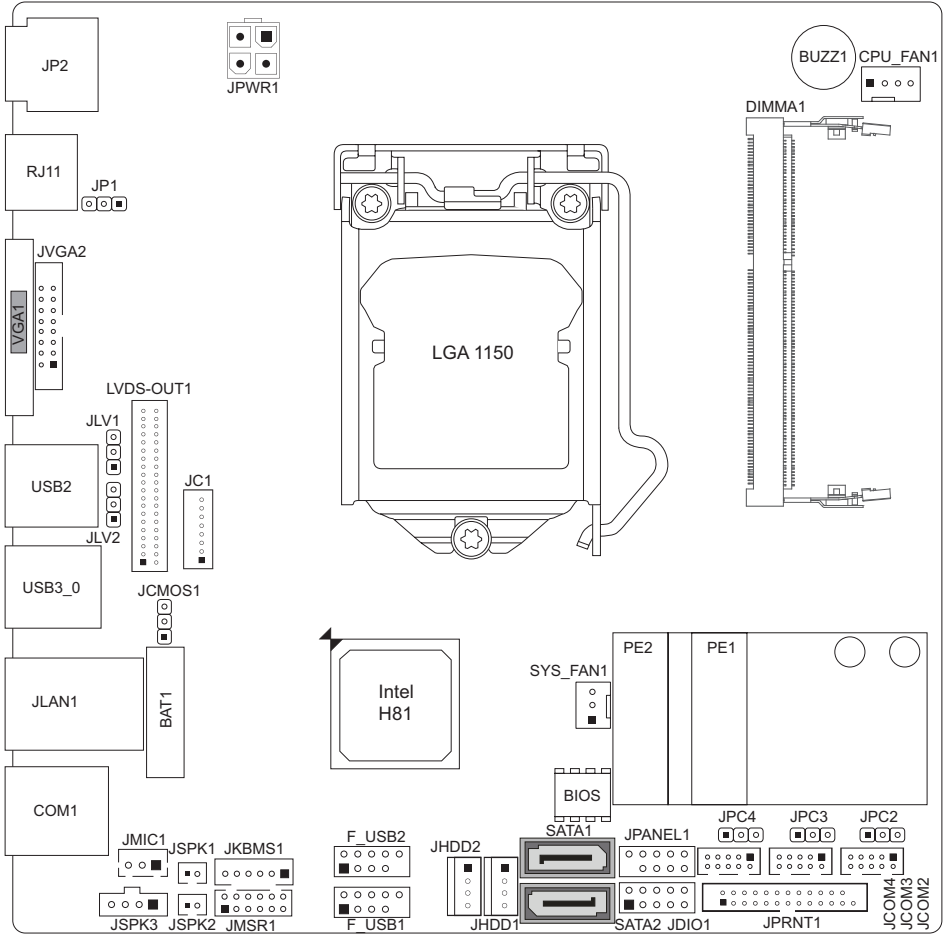
Note

» ■ *represents the 1st pin.*

Chapter 2: Hardware installation

2.1 Install Central Processing Unit (CPU)

Step 1: Locate the CPU socket on the motherboard
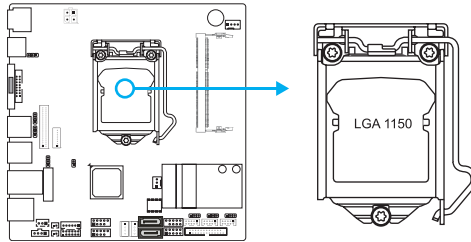
> Note

» *Remove Pin Cap before installation, and make good preservation for future use. When the CPU is removed, cover the Pin Cap on the empty socket to ensure pin legs won't be damaged.*

» *The motherboard might equip with two different types of pin cap. Please refer below instruction to remove the pin cap.*

Step 2: Pull the socket locking lever out from the socket and then raise the lever up.
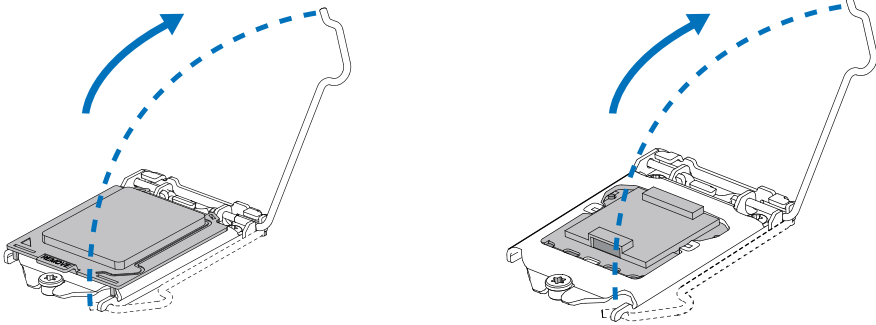
Step 3: Remove the Pin Cap.
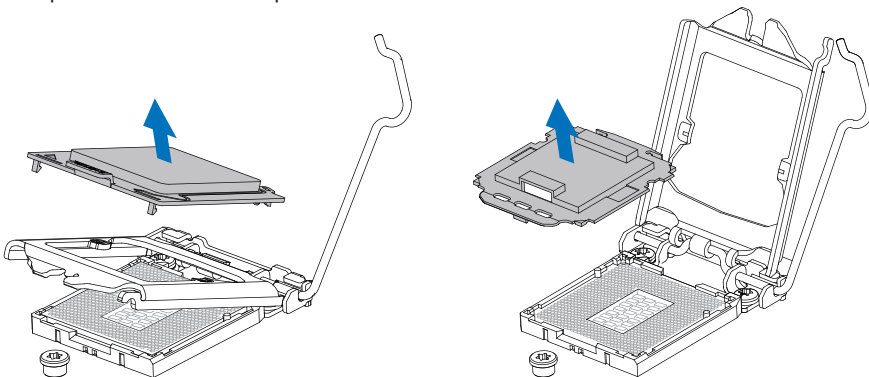
Step 4: Hold processor with your thumb and index fingers, oriented as shown. Align the notches with the socket. Lower the processor straight down without tilting or sliding the processor in the socket.
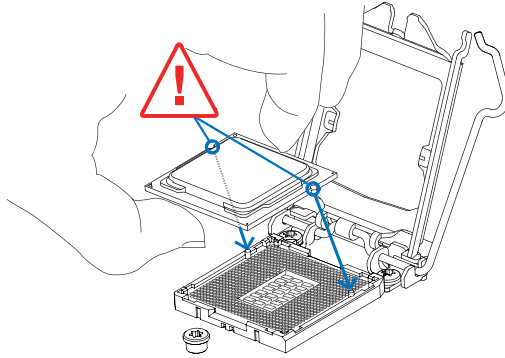
Note

» *The LGA1155 CPU is not compatible with LGA 1150 socket. Do not install a LGA 1155 CPU on the LGA 1150 socket.*

» *The CPU fits only in one correct orientation. Do not force the CPU into the socket to prevent damaging the CPU.*

Step 5: Hold the CPU down firmly, and then lower the lever to locked position to complete the installation.
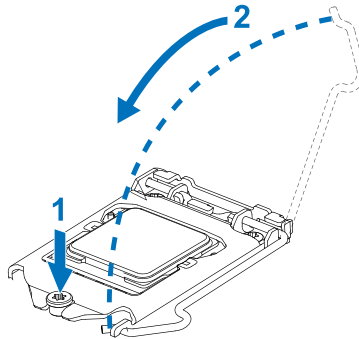
2.2 Install a Heatsink

Step 1: Place the CPU fan assembly on top of the installed CPU and make sure that the four fasteners match the motherboard holes. Orient the assembly and make the fan cable is closest to the CPU fan connector.

Correct Orientation
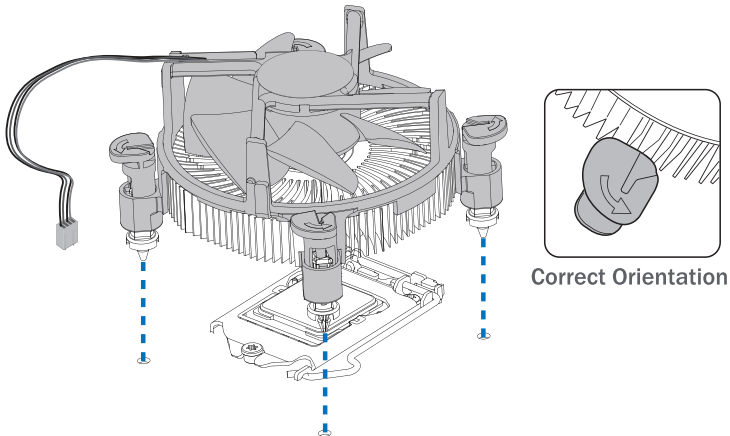
Step 2: Press down two fasteners at one time in a diagonal sequence to secure the CPU fan assembly in place. Ensure that all four fasteners are secured.
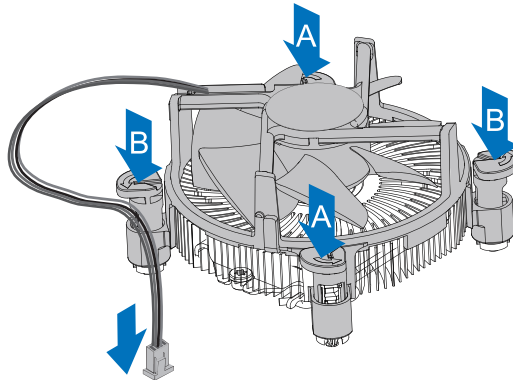
Note

» *Do not forget to connect the CPU fan connector.*
» *For proper installation, please kindly refer to the installation manual of your CPU heatsink.*

2.3 Connect Cooling Fans

These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

CPU_FAN1: CPU fan header
SYS_FAN1: System fan header
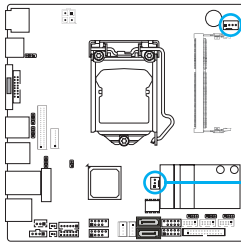
CPU_FAN1

SYS_FAN1

CPU_FAN1	
Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense
4	Smart Fan Control

SYS_FAN1	
Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

▶Note
» *System Fan Headers support 3-pin head connectors. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.*

2.4 Installing System Memory

DIMMA1: Memory Module
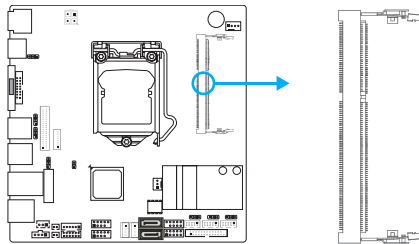
1. Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.
2. Insert the DIMM vertically and firmly into the slot until the retaining clips snap back in place and the DIMM is properly seated.

▶Note
» *If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.*

Memory Capacity

DIMM Socket Location	DDR3/3L Module	Total Memory Size
DIMMA1	1GB/2GB/4GB/8GB/16GB	Max is 16GB

» *When installing more than one memory module, we recommend to use the same brand and capacity memory on this motherboard.*

2.5 Expansion Slots

PE1/PE2: mini-PCIe Slots

This mainboard is equipped with 2x mini-PCIe slots.
- *PE1 slot is only supported for miniPCIe device. (half-size)*
- *PE2 slot is only supported for mSATA or miniPCIe device. (full-size)*
- * mSATA or miniPCIe mode is selected by BOM change.*
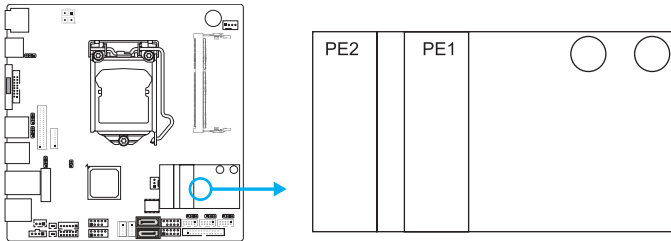
2.6 Power Connector

JPWR1: +12V Power Output Connector (4-pin)
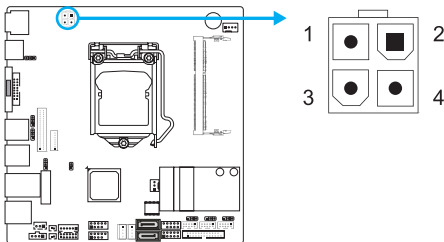
Pin	Assignment
1	+12V output
2	+12V output
3	Ground
4	Ground

JHDD1/2: HDD Power Connector

This connector provides power connection of SATA devices.
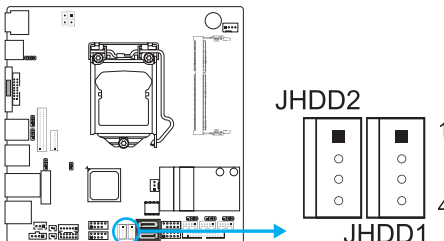
Pin	Assignment
1	+12V output
2	GND
3	HDD_PS
4	+5V output

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2.7 Headers / Connectors / Jumpers
SATA1/2: SATAIII Connectors
These connectors connect to SATA hard disk drives via SATA cables.

SATA1

SATA2
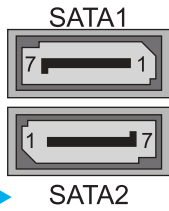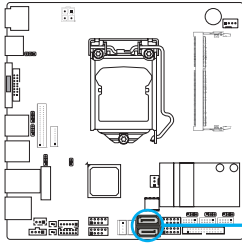
Pin	Assignment
1	Ground
2	TX+
3	TX-
4	Ground
5	RX-
6	RX+
7	Ground

JPANEL1: Front Panel Header

This 10-pin header includes Power-on, Reset, HDD LED, and Power LED connection. It allows user to connect the system case's front panel switch functions.
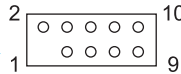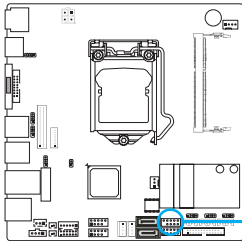
Function	Pin	Assignment	Function	Pin	Assignment
N/A	1	Key		2	Power LED
HDD LED	3	HD LED+	Power LED	4	Power LED+
	5	HD LED-		6	Power LED-
Reset Button	7	Reset	Power Button	8	Power
	9	Reset GND		10	Power GND

F_USB1/2: USB 2.0 Header

The mainboard provides USB 2.0 pin header.

F_USB2

F_USB1
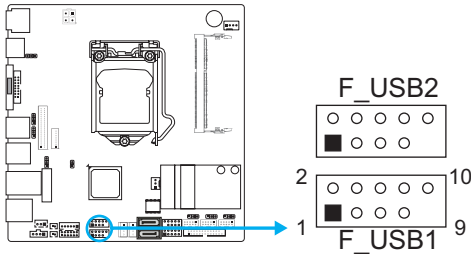
Pin	Assignment	Pin	Assignment
1	+5V (fused)	2	+5V (fused)
3	USB -	4	USB -
5	USB +	6	USB +
7	Ground	8	Ground
9	KEY	10	NA

Serial Port Connectors & Headers

JCOM2/3/4: Serial Port Header

JCOM4   JCOM3   JCOM2
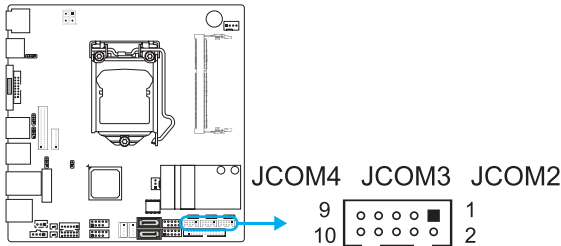
Pin	Assignment	Pin	Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	5V/12V*	10	NA

* Selected by Jumpers

JPC2/3/4: Serial Port Voltage Switch Jumper

JPC4   JPC3   JPC2

Pin 1-2 Close: Pin9= 5V (default)

Pin 2-3 Close: Pin9=12V

![BIOSTAR logo]
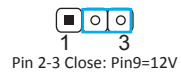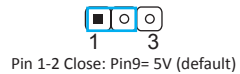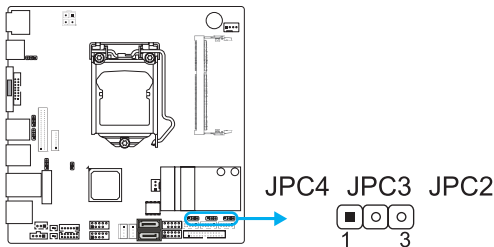
JPRNT1: Printer Port Connector

This header allows you to connect printer port on the PC.
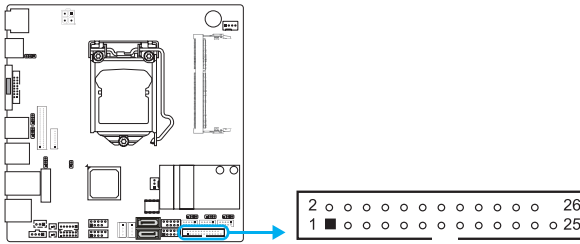
Pin	Assignment	Pin	Assignment
1	-Strobe	2	-ALF
3	Data 0	4	-Error
5	Data 1	6	-Init
7	Data 2	8	-Scltin
9	Data 3	10	Ground
11	Data 4	12	Ground
13	Data 5	14	Ground
15	Data 6	16	Ground
17	Data 7	18	Ground
19	-ACK	20	Ground
21	Busy	22	Ground
23	PE	24	Ground
25	SCLT	26	Key

JDIO1: Digital I/O Connector

This connector offers digital I/O functions and address is set in BIOS.
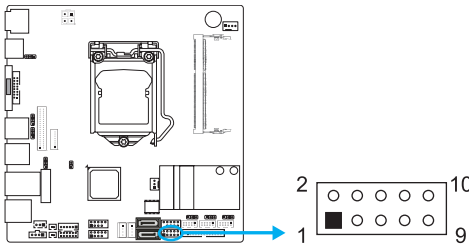
Pin	Assignment	Address	GPIO
1	5V	--	--
2	DI01	548H BIT7	GPIO71
3	DO01	50CH BIT7	GPIO7
4	DI02	548H BIT6	GPIO70
5	DO02	50CH BIT6	GPIO6
6	DI03	548H BIT5	GPIO69
7	DO03	50CH BIT1	GPIO1
8	DI04	548H BIT4-	GPIO68
9	DO04	50CH BIT17	GPI017
10	GND	--	--

JVGA2: VGA Connector (Optional)

This header allows you to connect VGA
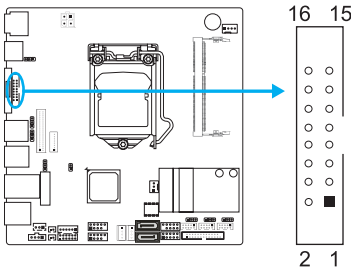
Pin	Assignment	Pin	Assignment
1	VGA_RED	2	+5V_VGA
3	VGA_GREEN	4	GND
5	VGA_BLUE	6	NC
7	NC	8	VGA_5VDDA
9	GND	10	HSYNC_C
11	GND	12	VSYNC_C
13	GND	14	VGA_5VDDCLK
15	GND	16	NC

JLV1: LCD Panel Power Select Jumper

This jumper is for selecting LCD Power(PVDD2).
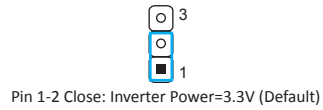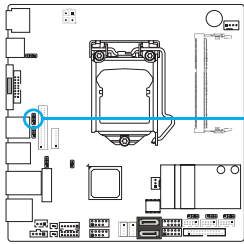
Pin 1-2 Close: Inverter Power=3.3V (Default)

Pin 2-3 Close: Inverter Power=5V

JLV2: LCD Backlight Inverter Power Select Jumper

This jumper is for selecting LCD Backlight Inverter Power
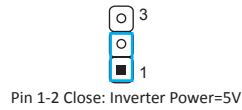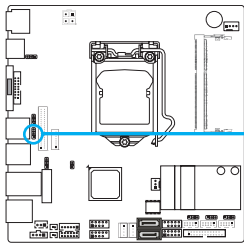
Pin 1-2 Close: Inverter Power=5V

Pin 2-3 Close: Inverter Power=12V (Default)

JC1: LCD Backlight Inverter Connector
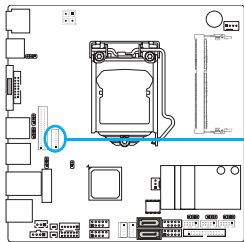
Pin	Assignment
1	5V/12V (selected by JLV2)
2	5V/12V (selected by JLV2)
3	NC
4	NC
5	Backlight On (5V) / Off (0V)
6	Brightness Adjust (0-5V)
7	GND
8	GND

LVDS-OUT1: LVDS Connector

This connector supports 18/24 bit single-channel panels.
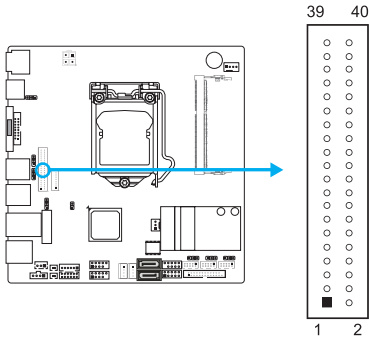
Pin	Assignment	Pin	Assignment
1	LVDSB_DATA0_N	2	PVDD2, 3.3V/5V (selected by JLV1)
3	LVDSB_DATA0_P	4	PVDD2, 3.3V/5V (selected by JLV1)
5	GND	6	GND
7	LVDSB_DATA1_N	8	GND
9	LVDSB_DATA1_P	10	LVDSA_DATA0_N
11	GND	12	LVDSA_DATA0_P
13	LVDSB_DATA2_N	14	GND
15	LVDSB_DATA2_P	16	LVDSA_DATA1_N
17	GND	18	LVDSA_DATA1_P
19	LVDSB_CLK_N	20	GND
21	LVDSB_CLK_P	22	LVDSA_DATA2_N
23	GND	24	LVDSA_DATA2_P
25	LVDSB_DATA3_N	26	GND
27	LVDSB_DATA3_P	28	LVDSA_CLK_N
29	VCC5	30	LVDSA_CLK_P
31	LVDSA_DDC_CLK	32	GND
33	VCC3_3	34	LVDSA_DATA3_N
35	ENABKL	36	LVDSA_DATA3_P
37	INVPWR	38	BL_CTRL
39	INVPWR	40	LVDSA_DCC_DATA

JMSR1: MSR Connector

The mainboard provides MSR connector.
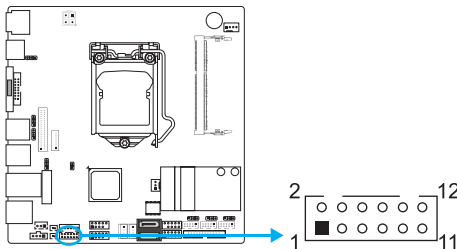
Pin	Assignment	Pin	Assignment
1	POWER_JUSB1	2	GND
3	PS2DAT_MSR	4	PS2CLK_MSR
5	KBDAT_MSR	6	KBCLK_MSR
7	MSR_ID	8	GND
9	POWER_JUSB1	10	MSR_USB_DN
11	MSR_USB_DP	12	GND

JSPK1/2: Audio Connector
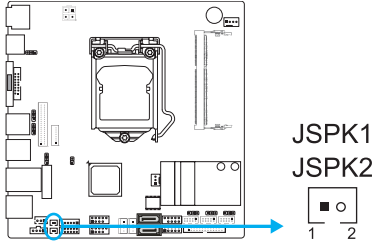
JSPK1
JSPK2

RightSpeaker (JSPK1)	
Pin	Assignment
1	SPKRN
2	SPKRP
Left Speaker (JSPK2)	
Pin	Assignment
1	SPKLN
2	SPKLP

JSPK3: Audio Line Out Connector
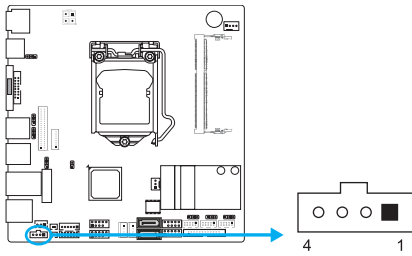
Pin	Assignment
1	LINEOUT_L2
2	GND_AUD
3	GND_AUD
4	LINEOUT_R2

JMIC1: Microphone In Connector
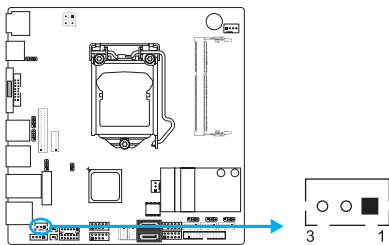
Pin	Assignment
1	MIC1_L
2	GND_AUD
3	MIC1_R

JKBMS1: Keyboard/Mouse Connector

The mainboard provides a PS2 pin header to attach a PS2 keyboard/mouse.
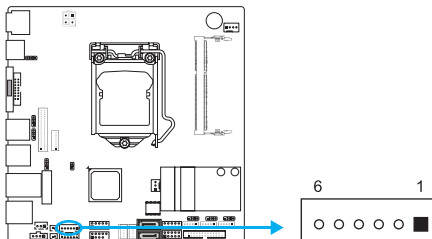
Pin	Assignment
1	MS_CLK
2	MS_DATA
3	KB_CLK
4	KB_DATA
5	GND
6	POWER_JUSB1

JCMOS1: Clear CMOS Jumper

Placing the jumper on pin2-3 allows user to restore the BIOS safe setting and the CMOS data. Please carefully follow the procedures to avoid damaging the motherboard.
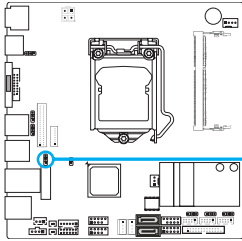
Pin 1-2 Close: Normal Operation
(Default)

Pin 2-3 Close: Clear CMOS data

Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to "Pin 2-3 close".
3. Wait for five seconds.
4. Set the jumper to "Pin 1-2 close".
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.

Jumper Setting

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is "close", if not, that means the jumper is "open".

Pin opened   Pin closed   Pin 1-2 closed
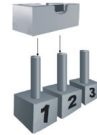
Chapter 3: BIOS Setup

Introduction

The purpose of this manual is to describe the settings in the AMI UEFI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to NVRAM.

UEFI BIOS determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in UEFI BIOS.

The rest of this manual will to guide you through the options and settings in UEFI BIOS Setup.

Plug and Play Support

This AMI UEFI BIOS supports the Plug and Play Version 1.0A specification.

EPA Green PC Support

This AMI UEFI BIOS supports Version 1.03 of the EPA Green PC specification.

ACPI Support

AMI ACPI UEFI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This AMI UEFI BIOS also supports Version 2.3 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

Supported CPUs

This AMI UEFI BIOS supports the latest CPU.

Using Setup

When starting up the computer, press <Del> during the Power-On Self-Test (POST) to enter the UEFI BIOS setup utility. In the UEFI BIOS setup utility, you will see General Help description at the top right corner, and this is providing a brief description of the selected item. Navigation Keys for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.

▶ Note

» *The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.*

» *For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described in this manual is for your reference only. The actual UEFI BIOS information and settings on board may be slightly different from this manual.*

» *The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.*

3.1 Main Menu

Once you enter AMI UEFI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.

```
                Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
   Main  Advanced  Chipset  Boot  Security  Save & Exit

   BIOS Information                                          Choose the system default
                                                            language
   Compliancy                    UEFI 2.3.1; PI 1.2
   Project Code                  EIH81-IHP
   Model Name                    EIH81-IHP
   BIOS Version                  EH81I328.BA
   Build Date                    03/28/2016

   Total Memory                  2048 MB (DDR3 1067)

   System Language               [English]

   System Date                   [Wed 04/13/2016]           →←: Select Screen
   System Time                   [11:18:43]                 ↑↓: Select Item
                                                            Enter: Select
   Access Level                  Administrator              +/-: Change Opt.
                                                            F1: General Help
                                                            F3: Optimized Defaults
                                                            F10: Save & Exit
                                                            F11: Print Screen
                                                            F12: BIOS Flash
                                                            ESC: Exit



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```

BIOS Information

It shows system information including UEFI BIOS version, Project Code, Model Name, Build Date and etc.

Total Memory

Shows system memory size, VGA shard memory will be excluded.

System Language

Choose the system default language.

System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

System Time

Set the system internal clock.

3.2 Advanced Menu

The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

```
              Aptio Setup Utility — Copyright (C) 2012 American Megatrends, Inc.
       Main  Advanced  Chipset  Boot  Security  Save & Exit

  ▶ PCI Subsystem Settings                              PCI, PCI-X and PCI Express
  ▶ ACPI Settings                                       Settings.
  ▶ CPU Settings and Informations
  ▶ SATA Configuration
  ▶ USB Configuration
  ▶ F81866 Super IO Configuration
  ▶ F81866 H/W Monitor
  ▶ Network Stack

  ▶ Realtek PCIe GBE Family Controller (MAC:B8:97:5A:BF:75:49)


                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Optimized Defaults
                                                        F10: Save & Exit
                                                        F11: Print Screen
                                                        F12: BIOS Flash
                                                        ESC: Exit

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```

> Note
» *Beware of that setting inappropriate values in items of this menu may cause system to malfunction.*
» *The options and default settings might be different by RAM or CPU models.*

PCI Subsystem Settings

```
              Aptio Setup Utility — Copyright (C) 2012 American Megatrends, Inc.
       Advanced

  PCI Common Settings                                   Value to be programmed into
  PCI Latency Timer                 [32 PCI Bus Clocks] PCI Latency Timer Register.

  PCI Express Device Register Settings
  No Snoop                          [Enabled]
  Maximum Payload                   [Auto]
  Maximum Read Request              [Auto]




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Optimized Defaults
                                                        F10: Save & Exit
                                                        F11: Print Screen
                                                        F12: BIOS Flash
                                                        ESC: Exit

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```

PCI Latency Timer
This item sets the value to be programmed into PCI Latency Timer Register.
Options: 32 PCI Bus Clocks (Default) / 64 PCI Bus Clocks / 96 PCI Bus Clocks / 128 PCI Bus Clocks / 160 PCI Bus Clocks / 192 PCI Bus Clocks / 224 PCI Bus Clocks / 248 PCI Bus Clocks

No Snoop
Enables or disables PCI Express Device No Snoop option.
Options: Enabled (Default) / Disabled

Maximum Payload

This item sets Maximum Payload of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

Maximum Read Request

This item sets Maximum Read Request Size of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

ACPI Settings

```
            Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
   Advanced

   ACPI Settings                                            Enables or Disables BIOS ACPI
                                                            Auto Configuration.
   Enable ACPI Auto Configuration        [Disabled]

   Enable Hibernation                    [Enabled]
   ACPI Sleep State                      [S3 only(Suspend to ...]
   Lock Legacy Resources                 [Disabled]
   S3 Video Repost                       [Disabled]
   PME Wake up from S5                    [Disabled]
   Wake system with Fixed Time           [Disabled]
   Wake up date                          [EveryDay]
   Wake up hour                          0
   Wake up minute                        0
   Wake up second                        0                  →←: Select Screen
   USB Device Wakeup from S3/S4          [Disabled]         ↑↓: Select Item
   Restore AC Power Loss                 [Power Off]        Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F3: Optimized Defaults
                                                            F10: Save & Exit
                                                            F11: Print Screen
                                                            F12: BIOS Flash
                                                            ESC: Exit

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```

Enable ACPI Auto Configuration

This item enables or disables BIOS ACPI auto configuration.

Options: Disabled (Default) / Enabled

Enable Hibernation

This item enables or disables system ability to hibernate (OS/S4 sleep state)/ This option may be not effective with some OS.

Options: Enabled (Default) / Disabled

ACPI Sleep State

This item selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Options: S3 only (Suspend to RAM) (Default) / Suspend Disabled

Lock Legacy Resources

This item enables or disables lock of legacy resources.

Options: Disabled (Default) / Enabled

S3 Video Repost

This item enables or disables S3 Video Repost..

Options: Disabled (Default) / Enabled

PME Wake up from S5

This item enables the system to wake from S5 using PME event.

Options: Disabled (Default) / Enabled

Wake system with Fixed Time

This item enables or disables the system to wake on by alarm event. When this item is enabled, the system will wake on the hr::min::sec specified.

Options: Disabled (Default) / Enabled

Wake up date

You can choose which date the system will boot up.

Wake up hour / Wake up minute / Wake up second

You can choose the system boot up time, input hour, minute and second to specify.

CPU Configuration

```
             Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
         Advanced

       CPU Settings and Informations                              Disabled for Windows XP

       Intel(R) Core(TM) i3-4360T CPU @ 3.20GHz
       CPU Signature                    306c3
       Processor Family                 6
       Microcode Patch                  19
       FSB Speed                        100 MHz
       CPU Speed                        3200 MHz
       Processor Cores                  2
       Intel HT Technology              Supported
       Intel VT-x Technology            Supported
       Intel SMX Technology             Not Supported

       Limit CPUID Maximum              [Disabled]           →←: Select Screen
       Execute Disable Bit              [Enabled]            ↑↓: Select Item
       Intel Virtualization Technology  [Enabled]            Enter: Select
       Hardware Prefetcher              [Enabled]            +/-: Change Opt.
       Adjacent Cache Line Prefetch     [Enabled]            F1: General Help
         Package C state demotion       [Disabled]           F3: Optimized Defaults
         C1 state auto undemotion       [Enabled]            F10: Save & Exit
         C3 state auto undemotion       [Enabled]            F11: Print Screen
         Package C state undemotion     [Disabled]           F12: BIOS Flash
         C state Pre-Wake               [Enabled]            ESC: Exit
       LakeTiny Feature                 [Enabled]

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```

Limit CPUID Maximum

When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system.

Options: Disabled (Default) / Enabled

Execute-Disable Bit

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.).

Options: Enabled (Default) / Disabled

Intel Virtualization Technology

Virtualization Technology can virtually separate your system resource into several parts, thus enhance the performance when running virtual machines or multi interface systems.

Options: Enabled (Default) / Disabled

Hardware Prefetcher

The processor has a hardware prefetcher that automatically analyzes its requirements and prefetches data and instructions from the memory into the Level 2 cache that are likely to be required in the near future. This reduces the latency associated with memory reads.

Options: Enabled (Default) / Disabled

Adjacent Cache Line Prefetch

The processor has a hardware adjacent cache line prefetch mechanism that automatically fetches an extra 64-byte cache line whenever the processor requests for a 64-byte cache line. This reduces cache latency by making the next cache line immediately available if the processor requires it as well.

Options: Enabled (Default) / Disabled

Package C state demotion

This item enables or disables C state demotion.

Options: Disabled (Default) / Enabled

C1 state auto undemotion

This item enables or disables Un-demotion from Demoted C1.

Options: Enabled (Default) / Disabled

C3 state auto undemotion

This item enables or disables Un-demotion from Demoted C3.

Options: Enabled (Default) / Disabled

Package C state undemotion

This item enables or disables package C state undemotion.

Options: Disabled (Default) / Enabled

C state Pre-Wake

This item enables or disables C state Pre-Wake feature.

Options: Enabled (Default) / Disabled

LakeTiny Feature

This item enables or disables LakeTiny for C state configuration.

Options: Enabled (Default) / Disabled

SATA Configuration
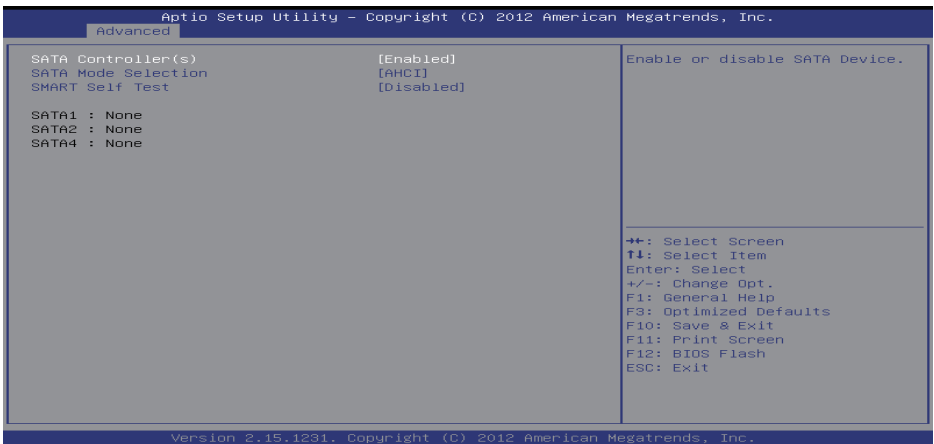
SATA Controller(s)

This item enables/disables Serial ATA Device.

Options: Enabled (Default) / Disabled

SATA Mode Selection

This item determines how SATA controller(s) operate.

Options: AHCI (Default) / IDE

SMART Self Test
This item runs SMART Self Test on all HDDs during POST.
Options: Disabled (Default) / Enabled

USB Configuration

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
            Advanced

   USB Configuration                                      Mode of operation of xHCI
                                                          controller.
   USB Module Version                8.10.27

   USB Devices:
       1 Drive, 1 Keyboard, 1 Mouse, 2 Hubs

   XHCI Mode                         [Smart Auto]

   Legacy USB Support                [Enabled]
   USB Mass Storage Driver Support   [Enabled]

   USB hardware delays and time-outs:
   USB transfer time-out             [5 sec]           →←: Select Screen
   Device reset time-out             [10 sec]          ↑↓: Select Item
   Device power-up delay             [Auto]            Enter: Select
                                                       +/-: Change Opt.
   Mass Storage Devices:                               F1: General Help
   JetFlashTranscend 4GB 1100        [Auto]            F3: Optimized Defaults
                                                       F10: Save & Exit
                                                       F11: Print Screen
                                                       F12: BIOS Flash
                                                       ESC: Exit

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```

XHCI Mode
The item selects Mode of operation of xHCI controller.
Options: Smart Auto (Default) / Auto / Enabled / Disabled / Manual
  » *Note: The following items appear only when you set the XHCI Mode to [Manual]*

XHCI Pre-Boot Driver
The item allows you to enable or disable XHCI Pre-Boot Driver support.
Options: Enabled (Default) / Disabled

Legacy USB Support
This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This is a useful feature when using such USB devices with operating systems that do not natively support USB (e.g. Microsoft DOS or Windows NT).
Options: Enabled (Default) / Disabled / Auto

USB Mass Storage Driver Support
The item allows you to enable or disable USB Mass Storage Driver Support.
Options: Enabled (Default) / Disabled

USB transfer time-out
The time-out value for Control, Bulk, and Interrupt transfers.
Options: 5 sec (Default) / 1 sec / 10 sec / 20 sec

Device reset time-out
The item sets USB mass storage device Start Unit command time-out.
Options: 10 sec (Default) / 20 sec / 30 sec / 40 sec

Device power-up delay
"Auto" uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.
Options: Auto (Default) / Manual
  » *Note: The following items appear only when you set the Device power-up delay to [Manual]*

Device power-up delay in seconds
Delay range is 1 ~ 40 seconds, in one second increments.
Options: 5 (Default)

Suprt IO Configuration

```
            Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Advanced

   F81866 Super IO Configuration                          Set Parameters of Serial Port
                                                          0 (COMA)
   F81866 Super IO Chip              F81866
 ► Serial Port 1 Configuration
 ► Serial Port 2 Configuration
 ► Serial Port 3 Configuration
 ► Serial Port 4 Configuration
   UART IRQ Mode                     [PCI IRQ Sharing]
 ► Parallel Port Configuration

   UART1 RI Function                 [Non Voltage]

   Watch Dog Degree                  [Second]            →←: Select Screen
   Watch Dog Timer                   0                   ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F3: Optimized Defaults
                                                         F10: Save & Exit
                                                         F11: Print Screen
                                                         F12: BIOS Flash
                                                         ESC: Exit

            Version 2.15.1231. Copyright (C) 2012 American Megatrends, Inc.
```

Serial Port 1 Configuration

```
            Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Advanced

   Serial Port 1 Configuration                            Enable or Disable Serial Port
                                                          (COM)
   Serial Port                       [Enabled]
   Device Settings                   IO=3F8h; IRQ=4;

   Change Settings                   [Auto]




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F3: Optimized Defaults
                                                         F10: Save & Exit
                                                         F11: Print Screen
                                                         F12: BIOS Flash
                                                         ESC: Exit

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```

Serial Port
This item enables or disables Serial Port (COM).
Options: Enabled (Default) / Disabled

Change Settings
This item selects an optimal setting for Super IO device.
Options: Auto (Default) / IO=3F8h; IRQ=4 / IO=3F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F8h;
IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=3E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E8h; IRQ= 3, 4, 5, 6,
7, 10, 11, 12

Serial Port 2 Configuration

```
                 Aptio Setup Utility — Copyright (C) 2012 American Megatrends, Inc.
        Advanced

   Serial Port 2 Configuration                                    Enable or Disable Serial Port
                                                                  (COM)
   Serial Port                          [Enabled]
   Device Settings                      IO=2F8h; IRQ=3;

   Change Settings                      [Auto]




                                                                  ↔: Select Screen
                                                                  ↑↓: Select Item
                                                                  Enter: Select
                                                                  +/-: Change Opt.
                                                                  F1: General Help
                                                                  F3: Optimized Defaults
                                                                  F10: Save & Exit
                                                                  F11: Print Screen
                                                                  F12: BIOS Flash
                                                                  ESC: Exit


                 Version 2.15.1231. Copyright (C) 2012 American Megatrends, Inc.
```

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2F8h; IRQ=3 / IO=3F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=3E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12

Serial Port 3 Configuration
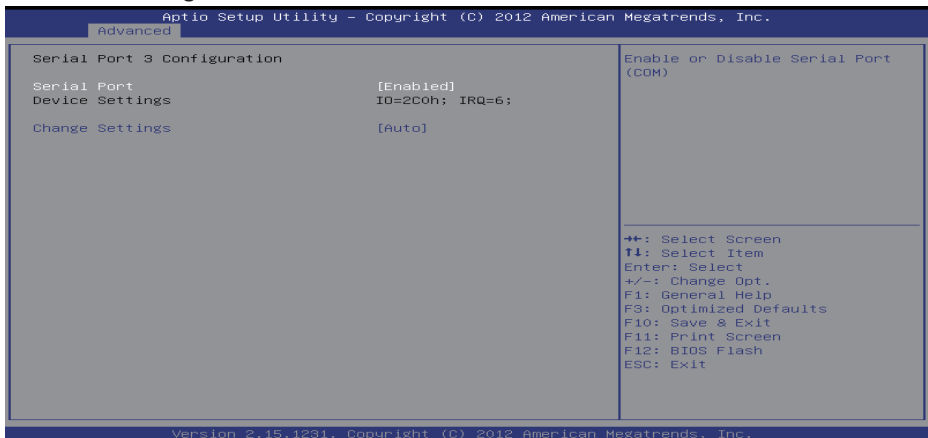
```
                 Aptio Setup Utility — Copyright (C) 2012 American Megatrends, Inc.
        Advanced

   Serial Port 3 Configuration                                    Enable or Disable Serial Port
                                                                  (COM)
   Serial Port                          [Enabled]
   Device Settings                      IO=2C0h; IRQ=6;

   Change Settings                      [Auto]




                                                                  ↔: Select Screen
                                                                  ↑↓: Select Item
                                                                  Enter: Select
                                                                  +/-: Change Opt.
                                                                  F1: General Help
                                                                  F3: Optimized Defaults
                                                                  F10: Save & Exit
                                                                  F11: Print Screen
                                                                  F12: BIOS Flash
                                                                  ESC: Exit


                 Version 2.15.1231. Copyright (C) 2012 American Megatrends, Inc.
```

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2C0h; IRQ=7 / IO=3F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=3E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F0h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E0h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12

Serial Port 4 Configuration
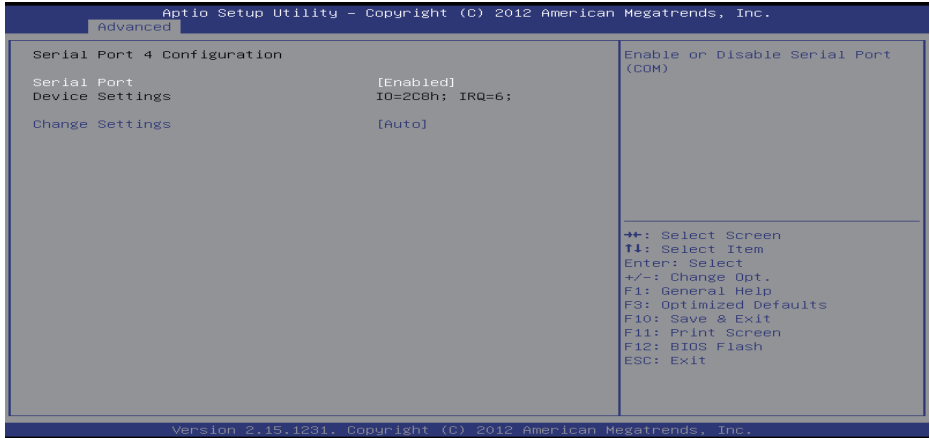
```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
    Advanced

  Serial Port 4 Configuration                              Enable or Disable Serial Port
                                                           (COM)
  Serial Port                         [Enabled]
  Device Settings                     IO=2C8h; IRQ=6;

  Change Settings                     [Auto]

                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F3: Optimized Defaults
                                                           F10: Save & Exit
                                                           F11: Print Screen
                                                           F12: BIOS Flash
                                                           ESC: Exit

            Version 2.15.1231. Copyright (C) 2012 American Megatrends, Inc.
```

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2C8h; IRQ=7 / IO=3F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=3E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F0h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E0h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2F0h; IRQ=7 / IO=3F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=3E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E8h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2F0h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12 / IO=2E0h; IRQ= 3, 4, 5, 6, 7, 10, 11, 12

UART IRQ Mode

This item allows you to determine PCI IRQ sharing for OS (EX. Windows) ISA IRQ for DOS.

Options: PCI IRQ Sharing (Default) / ISA IRQ

Parallel Port Configuration

```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
      Advanced

  Parallel Port Configuration                                    Enable or Disable Parallel
                                                                 Port (LPT/LPTE)
  Parallel Port                       [Enabled]
  Device Settings                     IO=378h; IRQ=7;

  Change Settings                     [Auto]
  Device Mode                         [STD Printer Mode]




                                                                 →←: Select Screen
                                                                 ↑↓: Select Item
                                                                 Enter: Select
                                                                 +/–: Change Opt.
                                                                 F1: General Help
                                                                 F3: Optimized Defaults
                                                                 F10: Save & Exit
                                                                 F11: Print Screen
                                                                 F12: BIOS Flash
                                                                 ESC: Exit


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```

Parallel Port

This item enables or disables Parallel Port (LPT/LPTE).
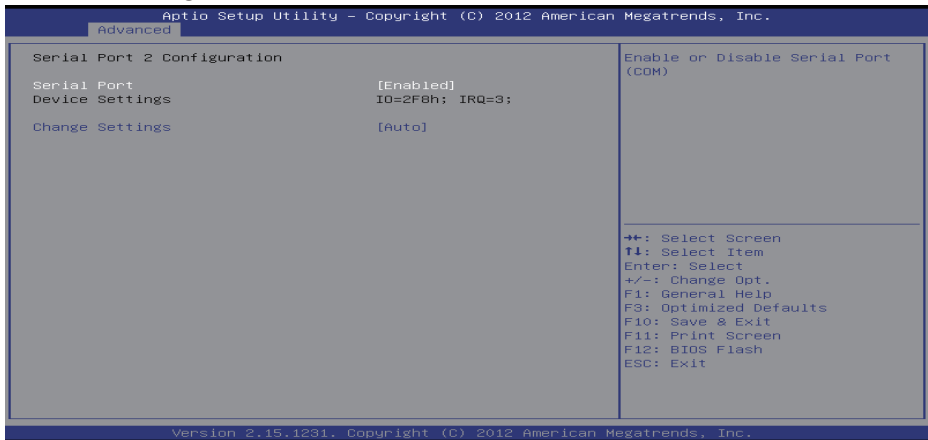
Options: Enabled (Default) / Disabled

Change Settings

This item allows you to select an optimal setting for Super IO device.

Options: Auto (Default) / IO=378h; IRQ=7 / IO=378h; IRQ=5, 6, 7, 10, 11, 12 / IO=278h; IRQ=5, 6, 7, 10, 11, 12 / IO=3BCh; IRQ=5, 6, 7, 10, 11, 12

Device Mode

This item allows you to determine how the parallel port should function.

Options: STD Printer Mode (Default) / SPP Mode / EPP-1.9 and SPP Mode / EPP-1.7 and SPP Mode / ECP Mode / ECP and EPP 1.7 Mode / ECP and EPP 1.7 Mode

UART1 RI Function

This item allows you to set COM1 port #RI ping function selection.

Options: Non Voltage (Default) / +5V / +12V

Watch Dog Degree

This item allows you to determine the functional degree of Watch Dog.

Options: Second (Default) / Minute

Watch Dog Timer

Options: 0 for disabled (Default) / Min=1, Max=255

![BIOSTAR logo]

H/W Monitor

```
         Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Advanced

   Pc Health Status                                    Enable or Disable Smart Fan

   Smart Fan Function              [Disabled]
   CPU temperature                 : +40 °C
   System temperature              : +22 °C
   CPU Fan Speed                   : 3018 RPM
   System Fan1 Speed               : N/A
   CPU Vcore                       : +1.744 V
   DRAM Voltage                    : +1.336 V
   + 5V                            : +5.087 V
   +12V                            : +12.056 V
   +5VSB                           : +5.040 V
   +3.3V                           : +3.296 V
                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F3: Optimized Defaults
                                                       F10: Save & Exit
                                                       F11: Print Screen
                                                       F12: BIOS Flash
                                                       ESC: Exit

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```

Smart Fan Function

This item allows you to control the CPU Smart Fan function.

Options: Disabled (Default) / Enabled

» *Note: The Smart Fan Mode Configuration will appear only when you set the Smart Fan Function to [Enabled]*

Smart Fan Mode Configuration

```
         Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Advanced

   Smart Fan Mode Configuration                        Smart Fan  Mode Select

   Fan 1 Smart Fan Control          [Auto Duty-Cycle Mode]
   Temperature 1                    60
   Temperature 2                    50
   Temperature 3                    40
   Temperature 4                    30
   Duty Cycle 1                     85
   Duty Cycle 2                     70
   Duty Cycle 3                     60
   Duty Cycle 4                     50

   Fan 2 Smart Fan Control          [Auto Duty-Cycle Mode]
   Temperature 1                    60                  →←: Select Screen
   Temperature 2                    50                  ↑↓: Select Item
   Temperature 3                    40                  Enter: Select
   Temperature 4                    30                  +/-: Change Opt.
   Duty Cycle 1                     85                  F1: General Help
   Duty Cycle 2                     70                  F3: Optimized Defaults
   Duty Cycle 3                     60                  F10: Save & Exit
   Duty Cycle 4                     50                  F11: Print Screen
                                                        F12: BIOS Flash
                                                        ESC: Exit

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```

Fan 1/2 Smart Fan Control

This item selects Smart Fan Mode.

Options: Auto Duty_Cycle Mode (Default) / Manual RPM Mode / Manual Duty Mode / Auto RPM Mode

Temperature 1/2/3/4

Auto fan speed control. Fan speed will follow different temperature by different duty cycle 1-100

Duty Cycle 1/2/3/4

Auto fan speed control. Fan speed will follow different temperature by different duty cycle 1-100

Network Stack

```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
     Main  Advanced  Chipset  Boot  Security  Save & Exit

     Boot Configuration                                          Enables or disables boot with
                                                                 initialization of a minimal
     Setup Prompt Timeout               2                        set of devices required to
     Bootup NumLock State               [On]                     launch active boot option. Has
                                                                 no effect for BBS boot options.
     Full Screen Logo Display           [Enabled]
     Fast Boot                          [Disable Link]
     GateA20 Active                     [Upon Request]
     Option ROM Messages                [Force BIOS]
     INT19 Trap Response                [Postponed]
     BIOS Flash protection         ┌──── Fast Boot ────┐
                                   │ Disable Link      │
     Launch CSM                    │ Enabled           │
     Boot option filter            └───────────────────┘         →←: Select Screen
     Launch PXE OpROM policy            [                         ↑↓: Select Item
     Launch Storage OpROM policy        [Legacy only]            Enter: Select
     Launch Video OpROM policy          [Legacy only]            +/–: Change Opt.
     Other PCI device ROM priority      [UEFI OpROM]             F1: General Help
                                                                 F3: Optimized Defaults
     Boot Success Beep                  [Enabled]                F10: Save & Exit
                                                                 F11: Print Screen
     Boot Option Priorities                                      F12: BIOS Flash
     Boot Option #1                     [JetFlashTranscend 4...] ESC: Exit
     Boot Option #2                     [UEFI: JetFlashTrans...]

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```

Network stack

This item allows you enables or disables UEFI network stack

Options: Disabled Link (Default) / Enabled

» *Note: The following items appear only when you set the Device Network stack to [Enabled]*

Ipv4/ Ipv6 PEX Support

This item allows you enables or disables Ipv4/ Ipv6 PEX Support

Options: Enabled (Default) / Disabled

Realtek PCIe GBE Family Controller

```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
     Advanced

     Driver Information
     Driver Name:                    Realtek UEFI UNDI Driver
     Driver Version:                 2.022
     Driver Released Date:           2013/03/26

     Device Information
     Device Name:                    Realtek PCIe GBE Family
     PCI Slot:                       02:00:00
     MAC Address:                    B8:97:5A:BF:75:49

                                                                 →←: Select Screen
                                                                 ↑↓: Select Item
                                                                 Enter: Select
                                                                 +/–: Change Opt.
                                                                 F1: General Help
                                                                 F3: Optimized Defaults
                                                                 F10: Save & Exit
                                                                 F11: Print Screen
                                                                 F12: BIOS Flash
                                                                 ESC: Exit

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```

BIOSTAR

3.3 Chipset Menu

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

> **Note**
> » *Beware of that setting inappropriate values in items of this menu may cause system to malfunction.*

```
               Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Main   Advanced   Chipset   Boot   Security   Save & Exit

 ▶ PCH-IO Configuration                                    PCH Parameters

 ▶ System Agent (SA) Configuration




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F3: Optimized Defaults
                                                      F10: Save & Exit
                                                      F11: Print Screen
                                                      F12: BIOS Flash
                                                      ESC: Exit

               Version 2.15.1231. Copyright (C) 2012 American Megatrends, Inc.
```
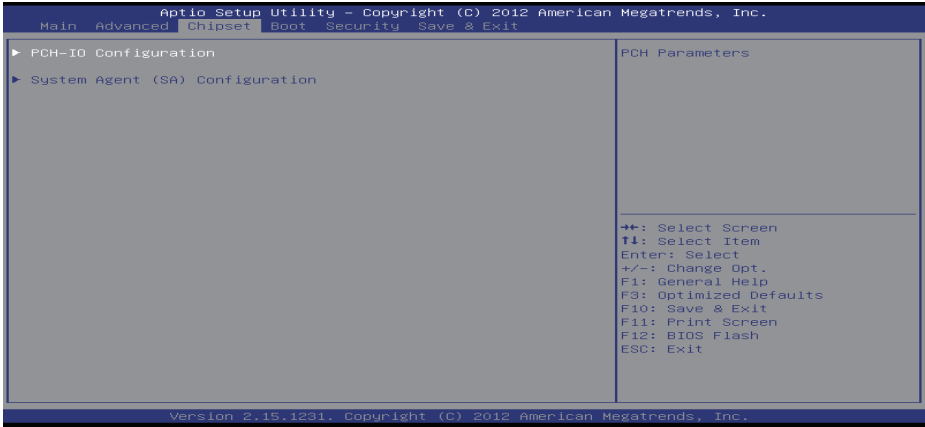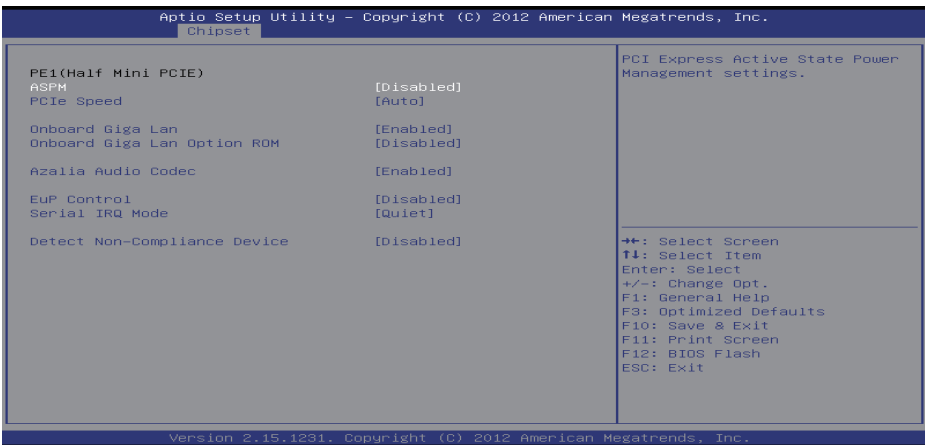
PCH-IO Configuration

```
               Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                    Chipset

   PE1(Half Mini PCIE)                                     PCI Express Active State Power
   ASPM                          [Disabled]                Management settings.
   PCIe Speed                    [Auto]

   Onboard Giga Lan              [Enabled]
   Onboard Giga Lan Option ROM   [Disabled]

   Azalia Audio Codec            [Enabled]

   EuP Control                   [Disabled]
   Serial IRQ Mode               [Quiet]

   Detect Non-Compliance Device  [Disabled]
                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F3: Optimized Defaults
                                                      F10: Save & Exit
                                                      F11: Print Screen
                                                      F12: BIOS Flash
                                                      ESC: Exit

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```

ASPM

This item sets PCI Express Active State Power Management settings.
Options: Disabled (Default) / Auto / L0s / L1 / L0sL1

PCIe Speed

This item selects PCI Express port speed.
Options: Auto (Default) / Gen1 / Gen2

Onbaord Giga LAN

This item enables/disables onboard NIC.

Options: Enabled (Default) / Disabled

Onboard Giga LAN Option ROM

This item enables/disables Onboard LAN Option ROM.

Options: Disabled (Default) / Enabled

Azalia Audio Codec

This item controls detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled.

Options: Enabled (Default) / Disabled

EuP Control

When EuP is enabled, the system will meet EuP requirement.

Options: Disabled (Default) / Enabled in S5 / Enabled in S4-S5
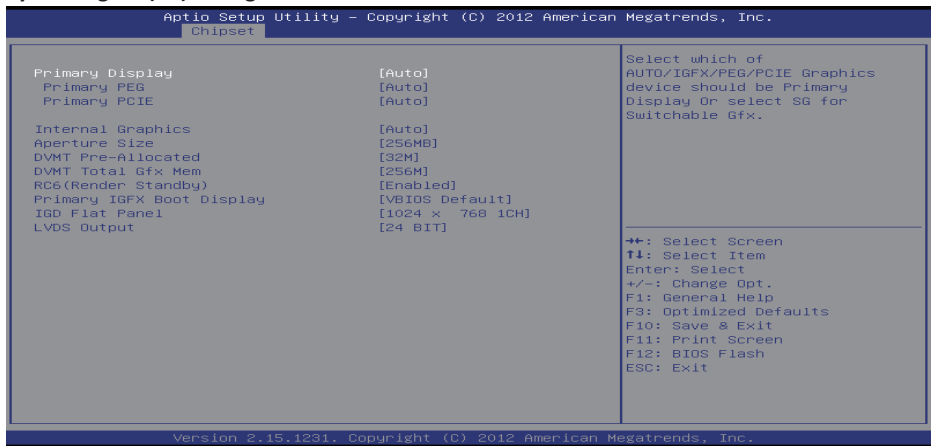
Serial IRQ Mode

This item configures serial IRQ Mode.

Options: Quite (Default) / Continuous

Detect Non-Compliance Device

Detect Non-Compliance PCI Express Device. If enable, it will take more time at POST time.

Options: Disabled (Default) / Enabled

System Agent (SA) Configuration

```
          Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
              Chipset

                                                               Select which of
   Primary Display              [Auto]                         AUTO/IGFX/PEG/PCIE Graphics
     Primary PEG                [Auto]                         device should be Primary
     Primary PCIE               [Auto]                         Display Or select SG for
                                                               Switchable Gfx.
   Internal Graphics            [Auto]
   Aperture Size                [256MB]
   DVMT Pre-Allocated           [32M]
   DVMT Total Gfx Mem           [256M]
   RC6(Render Standby)          [Enabled]
   Primary IGFX Boot Display    [VBIOS Default]
     IGD Flat Panel             [1024 x  768 1CH]
     LVDS Output                [24 BIT]
                                                               →←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F3: Optimized Defaults
                                                               F10: Save & Exit
                                                               F11: Print Screen
                                                               F12: BIOS Flash
                                                               ESC: Exit

          Version 2.15.1231. Copyright (C) 2012 American Megatrends, Inc.
```

Primary Display

This item selects which of IGFX/PEG/PCI Graphics device should be Primary Display or select SG for Switchable Gfx.

Options: Auto (Default) / IGFX / PEG / PCIE

Primary PEG

This item selects AUTO/PEG11/PEG12 Graphics device should be Primary PEG

Options: Auto (Default) / PEG11/ PEG12

Primary PCIE

This item selects AUTO / PCIE1 / PCIE2 / PCIE3 / PCIE4 / PCIE5 / PCIE6 / PCIE7 Graphics device should be Primary PCIE

Options: Auto (Default) / PCIE1 / PCIE2 / PCIE3 / PCIE4 / PCIE5 / PCIE6 / PCIE7

Internal Graphics
This item keeps IGD enabled based on the setup options.
Options: Auto (Default) / Disabled / Enabled

Aperture Size
This item selects the Aperature Size.
Options: 256MB (Default) / 128MB / 512MB

DVMT Pre-Allocated
This item selects DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
Options: 32M (Default) / 64M / 96M / 128M / 160M / 192M / 224M / 256M / 288M / 320M / 352M / 384M / 416M / 448M / 480M / 512M / 1024M

DVMT Total Gfx Mem
This item selects DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.
Options: 256MB (Default) / 128MB / MAX

RC6 (Render Standby)
This item enables or disables render standby support.
Options: Enabled (Default) / Disabled

Primary IGFX Boot Display
This item selects the video device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary diaplay.
Options: VBIOS Default (Default) / CRT / VDS

IGD Flat Panel
This item sets IGD Flat Panel options.
Options: 1024 x 768 1CH (Default) / 800 x 600 1CH / 1280 x 800 1CH / 1280 x 1024 2CH / 1366 x 768 1CH / 1440 x 900 2CH / 1600 x 900 2CH / 1600 x 1200 2CH / 1920 x 1080 2CH / 1920 x 1200 2CH
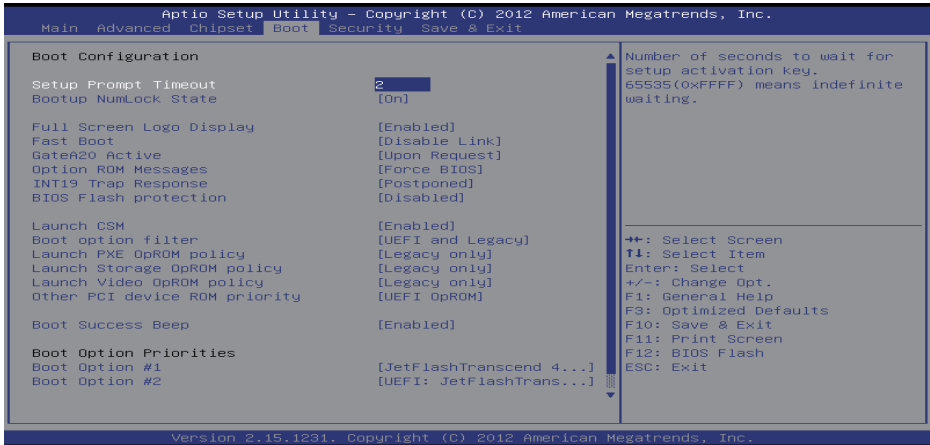
LVDS Output
This item sets LVDS output 24BIT or 18 BIT.
Options: 24 BIT (Default) / 18 BIT

3.4 Boot Menu

This menu allows you to setup the system boot options.

```
            Aptio Setup Utility — Copyright (C) 2012 American Megatrends, Inc.
   Main   Advanced   Chipset   Boot   Security   Save & Exit

   Boot Configuration                                    Number of seconds to wait for
                                                         setup activation key.
   Setup Prompt Timeout              2                   65535(0xFFFF) means indefinite
   Bootup NumLock State              [On]                waiting.

   Full Screen Logo Display          [Enabled]
   Fast Boot                         [Disable Link]
   GateA20 Active                    [Upon Request]
   Option ROM Messages               [Force BIOS]
   INT19 Trap Response               [Postponed]
   BIOS Flash protection             [Disabled]

   Launch CSM                        [Enabled]
   Boot option filter                [UEFI and Legacy]   →←: Select Screen
   Launch PXE OpROM policy           [Legacy only]       ↑↓: Select Item
   Launch Storage OpROM policy       [Legacy only]       Enter: Select
   Launch Video OpROM policy         [Legacy only]       +/−: Change Opt.
   Other PCI device ROM priority     [UEFI OpROM]        F1: General Help
                                                         F3: Optimized Defaults
   Boot Success Beep                 [Enabled]           F10: Save & Exit
                                                         F11: Print Screen
   Boot Option Priorities                                F12: BIOS Flash
   Boot Option #1                    [JetFlashTranscend 4...]  ESC: Exit
   Boot Option #2                    [UEFI: JetFlashTrans...]

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```

Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key.
Options: 2 (Default)

Bootup NumLock State

This item selects the keyboard NumLock state.
Options: On (Default) / Off

Full Screen Logo Display

This item allows you to enable/disable Full Screen Logo Show function.
Options: Enabled (Default) / Disabled

Fast Boot

This item allows you to enable/disable Full Screen LOGO Show function.
Options: Disabled Link(Default) / Enabled

 » *Note: The following items appear only when you set the Fast Boot function to [Enabled]*

VGA Support

If Auto, only install Legacy OpRom with Legacy OS and logo would NOT be shown during post. EFI driver will still installed with EFI.
Options: EFI Driver (Default) / Auto

USB Support

If Disabled, all USB devices will NOT be available until after OS boot. If Partial Initial, specific USB port/device will NOT be available before OS boot. If Enabled, all USB devices will be available in OS and Post.
Options: Partial Initial (Default) / Full Initial / Disable Link

PS2 Devices Support

If Disabled, PS2 devices will be skipped.
Options: Enabled (Default) / Disable Link

Network Stack Driver Support

If Disabled, Network Stack Drivers will be skipped.
Options: Disable Link (Default) / Enabled

![BIOSTAR logo]

GateA20 Active

Upon Request – FA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB
Options: Upon Request (Default) / Always

Option ROM Messages

This item sets the display mode for option ROM.
Options: Force BIOS (Default) / Keep Current

INT19 Trap Response

BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE – execute the trap right away; POSTPONED – execute the trap during legacy boot.
Options: Postponed (Default) / Immediate

BIOS Flash protection

While enabled, it can't flash write and flash erase by SMI.
Options: Disabled (Default) / Enabled

Launch CSM

This option controls if CSM will be launched
Options: Enabled (Default) / Disabled

Boot option filter

This option controls what devices system can boot to.
Options: UEFI and Legacy (Default) / Legacy only / UEFI only

Launch PXE OpROM policy

This option controls the execution of UEFI and Legacy PXE OpROM
Options: Legacy only (Default) / UEFI only / Do not launch

Launch Storage OpROM policy

This option controls the execution of UEFI and Legacy Storage OpROM
Options: Legacy only (Default) / UEFI only / Do not launch

Launch Video OpROM policy

This option controls the execution of UEFI and Legacy Video OpROM
Options: Legacy only (Default) / UEFI only / Do not launch

Other PCI device ROM priority

For PCI devices other than Network, Mass storage or video defines which OpROM to launch.
Options: UEFI OpROM (Default) / Legacy OpROM

Boot Success Beep

When this item is set to Enabled, BIOS will let user know boot success with beep.
Options: Enabled (Default) / Disabled

Boot Option Priorities

The items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.
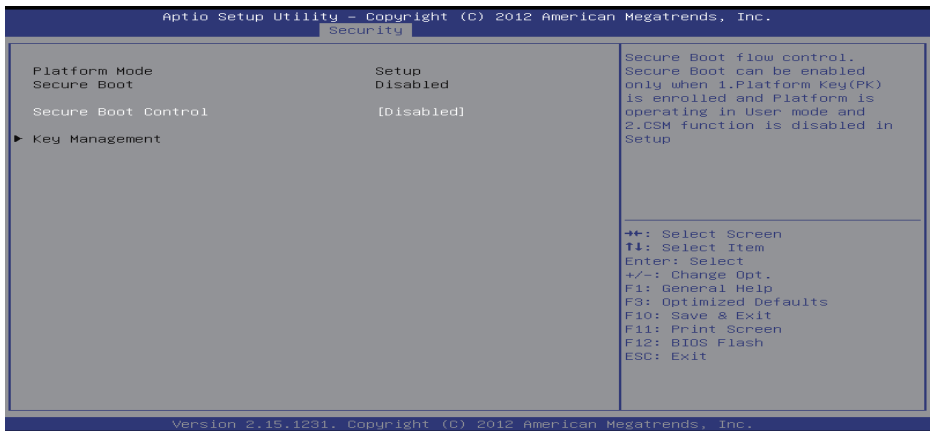
3.5 Security Menu
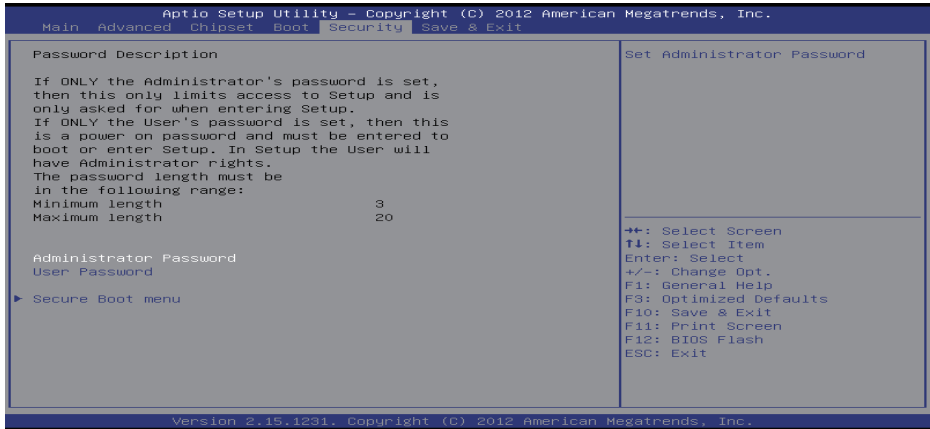
Administrator Password

This item sets Administrator Password.

User Password

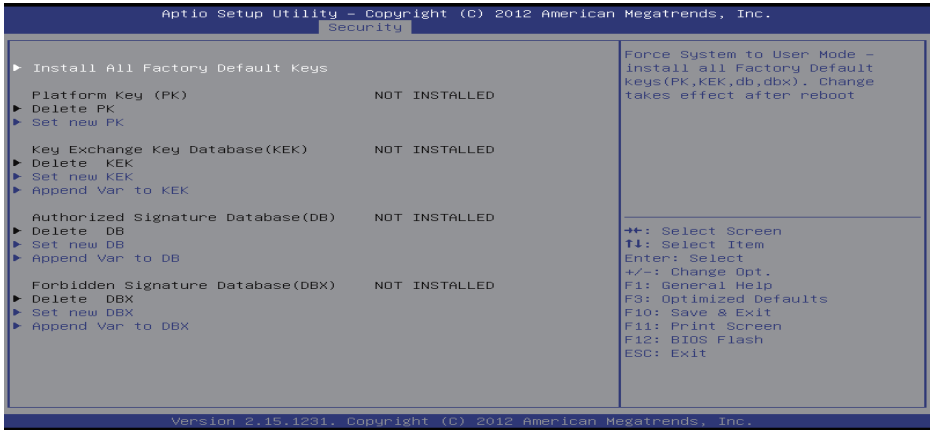This item sets User Password.

Secure Boot Menu

Secure Boot Control

Secure Boot flow control. Secure Boot can be enabled only when 1. Platform Key (PK) is enrolled and Platform is operating in user mode and 2.CSM function is disabled in Setup.

Options: Disabled (Default) / Enabled

» *Note: The following items appear only when you set the Secure Boot Control function to [Enabled]*

Key Management

```
               Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
                                     Security

 ▶ Install All Factory Default Keys                          Force System to User Mode –
                                                             install all Factory Default
   Platform Key (PK)                     NOT INSTALLED       keys(PK,KEK,db,dbx). Change
 ▶ Delete PK                                                 takes effect after reboot
 ▶ Set new PK

   Key Exchange Key Database(KEK)        NOT INSTALLED
 ▶ Delete  KEK
 ▶ Set new KEK
 ▶ Append Var to KEK

   Authorized Signature Database(DB)     NOT INSTALLED       →←: Select Screen
 ▶ Delete  DB                                                ↑↓: Select Item
 ▶ Set new DB                                                Enter: Select
 ▶ Append Var to DB                                          +/-: Change Opt.
                                                             F1: General Help
   Forbidden Signature Database(DBX)     NOT INSTALLED       F3: Optimized Defaults
 ▶ Delete  DBX                                               F10: Save & Exit
 ▶ Set new DBX                                               F11: Print Screen
 ▶ Append Var to DBX                                         F12: BIOS Flash
                                                             ESC: Exit


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```

Install or Delete All Factory Default Keys

It allows you to immediately load/clear the default Security Boot keys, Platform key (PK), Key-exchange Key (KEK), Signature database (db), and Revoked Signatures (dbx). The Platform Key (PK) state will change from Unloaded mode to Loaded mode. The settings are applied after reboot or at the next reboot.

Platform Key (PK)

Delete PK – Allows you to delete the PK file from your system.

Set new PK – Allows you set new PK file.

Key Exchange Key Database (KEK)

Delete KEK – Allows you to delete the KEK file from your system.

Set new KEK – Allows you set new KEK file.

Append Var to KEK – Allows you append Var to KEK.

Authorized Signature Database (DB)

Delete DB – Allows you to delete the DB file from your system.

Set new DB – Allows you set new DB file.

Append Var to DB – Allows you append Var to DB.
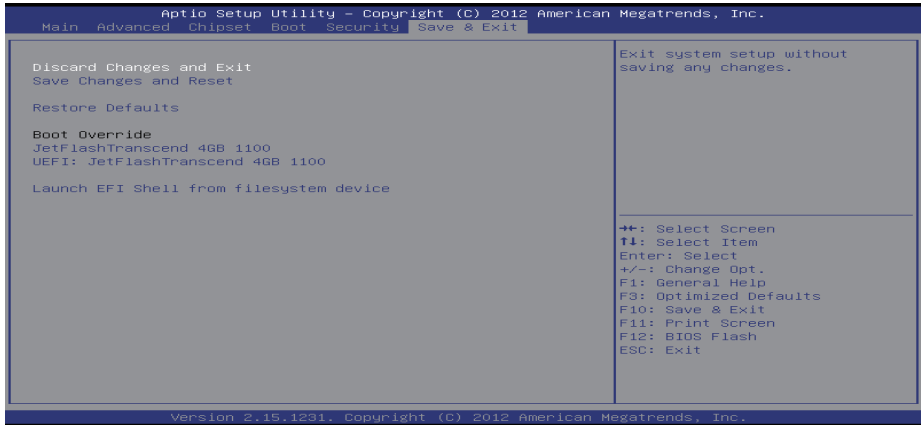
Forbidden Signature Database (DBX)

Delete DBX – Allows you to delete the DBX file from your system.

Set new DBX – Allows you set new DBK file.

Append Var to DBX – Allows you append Var to DBX.

3.6 Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.

```
                Aptio Setup Utility — Copyright (C) 2012 American Megatrends, Inc.
     Main  Advanced  Chipset  Boot  Security  Save & Exit

                                                            Exit system setup without
 Discard Changes and Exit                                   saving any changes.
 Save Changes and Reset

 Restore Defaults

 Boot Override
 JetFlashTranscend 4GB 1100
 UEFI: JetFlashTranscend 4GB 1100

 Launch EFI Shell from filesystem device

                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/−: Change Opt.
                                                            F1: General Help
                                                            F3: Optimized Defaults
                                                            F10: Save & Exit
                                                            F11: Print Screen
                                                            F12: BIOS Flash
                                                            ESC: Exit


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```

Discard Changes and Exit

Abandon all changes made during the current session and exit setup.

Save Changes and Reset

Reset the system after saving the changes.

Restore Defaults

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

Chapter 4: Useful help

4.1 Driver Installation

After you installed your operating system, please insert the Fully Setup Driver DVD into your optical drive and install the driver for better system performance.
You will see the following window after you insert the DVD

The setup guide will auto detect your motherboard and operating system.

> **Note**
>
> » *If this window didn't show up after you insert the Driver DVD, please use file browser to locate and execute the file SETUP.EXE under your optical drive.*

A. Driver Installation
To install the driver, please click on the Driver icon. The setup guide will list the compatible driver for your motherboard and operating system. Click on each device driver to launch the installation program.

B. Software Installation
To install the software, please click on the Software icon. The setup guide will list the software available for your system, click on each software title to launch the installation program.

C. Manual
Aside from the paperback manual, we also provide manual in the Driver DVD. Click on the Manual icon to browse for available manual.

> **Note**
>
> » *You will need Acrobat Reader to open the manual file. Please download the latest version of Acrobat Reader software from http://www.adobe.com/products/acrobat/readstep2.html*

4.2 AMI BIOS Beep Code

Boot Block Beep Codes

Number of Beeps	Description
Continuing	Memory sizing error or Memory module not found

POST BIOS Beep Codes

Number of Beeps	Description
1	Success booting.
8	Display memory error (system video adapter)

4.3 AMI BIOS post code

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
07	Fixes CPU POST interface calling pointer.
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache – Init Local APIC.
C1	Set up boot strap processor Information.
C2	Set up boot strap processor for POST.
C5	Enumerate and set up application processors.
C6	Re-enable cache for boot strap processor.
C7	Early CPU Init Exit.
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
20	Relocate System Management Interrupt vector for all CPU in the system.
24	Uncompress and initialize any platform specific BIOS modules. GPNV is initialized at this checkpoint.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information. USB controllers are initialized at this point.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.

Checkpoint	Description
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, etc.) successfully installed in the system and update the BDA, EBDA…etc.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory. Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested. Check boot password if installed.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported).
8E	Program the peripheral parameters. Enable/Disable NMI as selected.
90	Initialization of system management interrupt by invoking all handlers. Please note this checkpoint comes right after checkpoint 20h.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module. Display boot option popup menu.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector.
AB	Prepare BBS for Int 19 boot. Init MP tables.
AC	End of POST initialization of chipset registers. De-initializes the ADM module.
B1	Save system context for ACPI. Prepare CPU for OS boot including final MTRR values.
00	Passes control to OS Loader (typically INT19h).

4.4 Troubleshooting

Probable	Solution
1. There is no power in the system. Power LED does not shine; the fan of the power supply does not work 2. Indicator light on keyboard does not shine.	1. Make sure power cable is securely plugged in. 2. Replace cable. 3. Contact technical support.
System is inoperative. Keyboard lights are on, power indicator lights are lit, and hard drives are running.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.
System does not boot from a hard disk drive, but can be booted from optical drive.	1. Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup. 2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.
System only boots from an optical drive. Hard disks can be read, applications can be used, but system fails to boot from a hard disk.	1. Back up data and applications files. 2. Reformat the hard drive. Re-install applications and data using backup disks.
Screen message shows "Invalid Configuration" or "CMOS Failure."	Review system's equipment. Make sure correct information is in setup.
System cannot boot after user installs a second hard drive.	1. Set master/slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.

CPU Overheated
If the system shutdown automatically after power on system for seconds, that means the CPU protection function has been activated.

When the CPU is over heated, the motherboard will shutdown automatically to avoid a damage of the CPU, and the system may not power on again.

In this case, please double check:
1. The CPU cooler surface is placed evenly with the CPU surface.
2. CPU fan is rotated normally.
3. CPU fan speed is fulfilling with the CPU speed.

After confirmed, please follow steps below to relief the CPU protection function.
1. Remove the power cord from power supply for seconds.
2. Wait for seconds.
3. Plug in the power cord and boot up the system.

Or you can:
1. Clear the CMOS data. (See "Close CMOS Header: JCMOS1" section)
2. Wait for seconds.
3. Power on the system again.

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