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Server/Workstation
Motherboard

EP2C602D16FM



User Manual

English



Version 1.1

Published February 2016

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- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

ASRock Rack's Website: www.ASRockRack.com

Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at www.ASRockRack.com; or you may contact your dealer for further information.

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Chapter 1 Introduction

Thank you for purchasing ASRock Rack **EP2C602D16FM** motherboard, a reliable motherboard produced under ASRock Rack's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock Rack's commitment to quality and endurance.

In this manual, chapter 1 and 2 contains introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contains the configuration guide to BIOS setup and information of the Support CD.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock Rack website without further notice. You may find the latest memory and CPU support lists on ASRock Rack website as well. ASRock Rack's Website: www.ASRockRack.com

*If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
<http://www.asrockrack.com/support/>*

1.1 Package Contents

- ASRock Rack EP2C602D16FM Motherboard
(SSI CEB Form Factor: 12.0-in x 10.5-in, 30.5 cm x 26.7 cm)
- Support CD
- User Manual
- 4 x SATA3 cables (50cm)
- 2 x SATA3 cables (60cm)
- 2 x I/O Shields (1 for M599, 1 for M350/M540)



If any items are missing or appear damaged, contact your authorized dealer.

1.2 Specifications

EP2C602D16FM	
MB Physical Status	
Form Factor	SSI CEB
Dimension	12" x 10.5" (30.5 cm x 26.7 cm)
Processor System	
CPU	Intel® Xeon processor E5-2600/4600 & v2 series
Socket	- Dual Socket LGA 2011* *Please use narrow type CPU Cooler
Chipset	Intel® C602
System Memory	
Capacity	16 DIMM slots (support NVDIMM)
Type	- Quad Channel memory technology - Supports 1600/1333/1066 ECC DIMM, RDIMM, LRDIMM, and UDIMM
Voltage	1.35V & 1.5V
Expansion Slot	
Additional PCIe switch	Front Right Angle 2 x16 from each CPU to Midplane, total 4 x16 (Support 8 x GPGPU/MIC card)
Storage	
SATA Controller	Intel® C602 : 2 x SATA3 6.0 Gb/s (from mini SAS 8087 connector, SATA0~ SATA 1), 6 x SATA2 3.0Gb/s (from mini SAS 8087 connector, SATA2~ SATA3, SCU0~ SCU3), 2 x SATA2 3.0Gb/s (SATA2 connectors), support RAID 0, 1, 5, 10
Additional SATA Controller	Marvell 9172: 2 x SATA3 6Gbps
Ethernet	
Interface	Gigabit LAN 10/100/1000 Mb/s
LAN Controller	- 2 x RJ45 by Intel® i210 - 1 x RJ45 Dedicated IPMI LAN port - Supports Wake-On-LAN - Supports Energy Efficient Ethernet 802.3az - Supports Dual LAN with Teaming function - Supports PXE
Mezzanine	x8 Mezzanine slot support mezzanine card with 2 x10G Ethernet (2 x RJ45 by Intel® X540 or 2 x SFP+ by Intel® 82599ES)

Management	
BMC Controller	ASPEED AST2300
IPMI Dedicated LAN	1 x Realtek RTL8211E for dedicated management GLAN
Features	- Watch Dog - NMI
Graphics	
Controller	ASPEED AST2300
VRAM	DDR3 16MB
Output	Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz
Rear Panel I/O	
VGA Port	1 x D-Sub
USB 2.0 Port	4
Lan Port	- 2 + 1 (IPMI) Lan port (RJ45) - LAN Ports with LED (ACT/LINK LED and SPEED LED)
Serial Port	1 (COM1)
UID Button/ UID LED	1
Internal Connector	
Auxiliary Panel Header	1 (includes chassis intrusion, location button & LED, front LAN LED)
TPM Header	1
Thermal Sensor Header	1
IPMB Header	1
Fan Header	6 x 4-pin
ATX Power	1 (24-pin) + 2 (8-pin)
USB 2.0 Header	2 (each support 2 USB 2.0)
Type A USB 2.0 Port	1
Front Panel	1
Mezzanine	1
System BIOS	
BIOS Type	64Mb AMI UEFI Legal BIOS
BIOS Features	- Plug and Play (PnP) - ACPI 2.0 Compliance Wake Up Events - SMBIOS 2.8 Support - ASRock Rack Instant Flash

Hardware Monitor	
Temperature	<ul style="list-style-type: none"> - CPU Temperature Sensing - System Temperature Sensing - Card Side Temperature Sensing
Fan	<ul style="list-style-type: none"> - CPU/Rear/Front Fan Tachometer - CPU Quiet Fan (Allow CPU Fan Speed Auto-Adjust by CPU Temperature) - CPU/Rear/Front Fan Multi-Speed Control
Voltage	Voltage Monitoring: CPU1/2, VCCM_AB/CD/EF/GH, +1.50_PCH, 3V/5V/ 12V, +1.05V_PCH, +BAT, 3VSB, 5VSB
Support OS	
OS	<p>Microsoft® Windows®</p> <ul style="list-style-type: none"> - Server 2008 R2 SP1 (64 bit) - Server 2012 (64 bit) - Server 2012 R2 (64 bit) <p>Linux®</p> <ul style="list-style-type: none"> - RedHat Enterprise Linux Server 5.9/6.4 (32 / 64 bit) - CentOS 5.9 / 6.4 (32 / 64 bit) - SUSE Enterprise Linux Server 11 SP3 (32 / 64 bit) - FreeBSD 9.1 (32 / 64 bit) - Fedora core 19 (64 bit) - Ubuntu 12.04.2 (64 bit) / 12.10 (64 bit) <p>Virtual</p> <ul style="list-style-type: none"> - VMWare ESXi 5.5 (not supported for Marvell 9172)
Environment	
Temperature	<p>Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C</p>



This motherboard supports Wake from on Board LAN. To use this function, please make sure that the "Wake on Magic Packet from power off state" is enabled in Device Manager > Intel® Ethernet Connection I210 > Power Management. And the "PCI Devices Power On" is enabled in UEFI SETUP UTILITY > Advanced > ACPI Configuration. After that, onboard LAN1&2 can wake up S5 under OS.



If you install Intel® LAN utility or Marvell SATA utility, this motherboard may fail Windows® Hardware Quality Lab (WHQL) certification tests. If you install the drivers only, it will pass the WHQL tests.

1.3 Unique Features

ASRock Rack Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows[®]. With this utility, you can press the <F6> key during the POST or the <F2> key to enter into the BIOS setup menu to access ASRock Rack Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

English

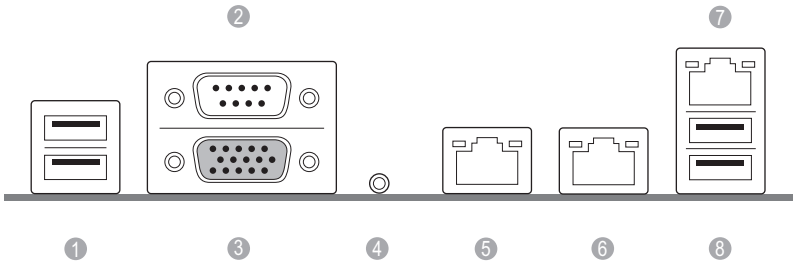


No.	Description
1	BMC SMBus Header (BMC_SMB_1)
2	Intelligent Platform Management Bus header (IPMB_1)
3	ATX Power Connector (ATXPWR1)
4	Rear Fan Connector (REAR_FAN1)
5	2 x 240-pin DDR3 DIMM Slots (DDR3_H1, DDR3_G1, Blue)
6	2 x 240-pin DDR3 DIMM Slots (DDR3_H2, DDR3_G2, White)
7	Front Fan Connector (FRONT_FAN1)
8	CPU 2 Fan Connector (CPU2_FAN)
9	PCIE Switch Board Connector (CON31)
10	LGA 2011 CPU Socket (CPU_API)
11	PCIE Switch Board Connector (CON32)
12	Front Fan Connector (FRONT_FAN2)
13	PCIE Switch Board Connector (CON28)
14	LGA 2011 CPU Socket (CPU_BSP1)
15	PCIE Switch Board Connector (CON29)
16	CPU 1 Fan Connector (CPU_FAN1)
17	2 x 240-pin DDR3 DIMM Slots (DDR3_A2, DDR3_B2, White)
18	2 x 240-pin DDR3 DIMM Slots (DDR3_A1, DDR3_B1, Blue)
19	System Panel Header (PANEL1)
20	Non Maskable Interrupt Button (NMI_BTN1)
21	Auxiliary Panel Header (AUX_PANEL1)
22	Speaker Header (SPEAKER1)
23	TPM Header (TPM1)
24	Front Lan LED Connector (FRNT_LAN34)
25	Thermal Sensor Header (TR1)
26	ME Recovery Jumper (ME_RECOVERY1)
27	SATA2 Connector (M_SATA_1), White
28	SATA2 Connector (M_SATA_0), White
29	SATA2 Connector (SATA_5), Blue
30	SATA2 Connector (SATA_4), Blue
31	Vertical Type A USB 2.0 (USB7)
32	USB 2.0 Header (USB_5_6)
33	SATA2 Connector (SATA_0_3)

No.	Description
34	SCU Connecotr (SCU_0_3)*
35	SATA SGPIO Connector (SATA_SGPIO1)
36	ATX 12V Power Connector (ATX12V1)
37	2 x 240-pin DDR3 DIMM Slots (DDR3_C2, DDR3_D2, White)
38	2 x 240-pin DDR3 DIMM Slots (DDR3_C1, DDR3_D1, Blue)
39	2 x 240-pin DDR3 DIMM Slots (DDR3_E1, DDR3_F1, Blue)
40	2 x 240-pin DDR3 DIMM Slots (DDR3_E2, DDR3_F2, White)
41	Rear Fan Connector (REAR_FAN2)
42	ATX 12V Power Connector (ATX12V_1)
43	PSU SMBus (PSU_SMB1)

**For DIMM installation and configuration instructions, please see p.17 (Installation of Memory Modules (DIMM)) for more details.*

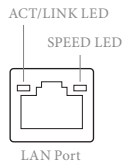
1.5 I/O Panel



No.	Description	No.	Description
1	USB 2.0 Ports (USB_1_2)	5	LAN RJ-45 Port (LAN1)**
2	Serial Port (COM1)	6	LAN RJ-45 Port (LAN2)**
3	VGA Port (VGA1)	7	IPMI LAN Port (MNG_LAN)*
4	UID Switch/LED (UID_SW)	8	USB 2.0 Ports (USB_3_4)

LAN Port LED Indications

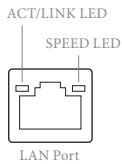
*There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.



Dedicated IPMI LAN Port LED Indications

Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10M bps connection or no link
Blinking Yellow	Data Activity	Yellow	100M bps connection
On	Link	Green	1G bps connection

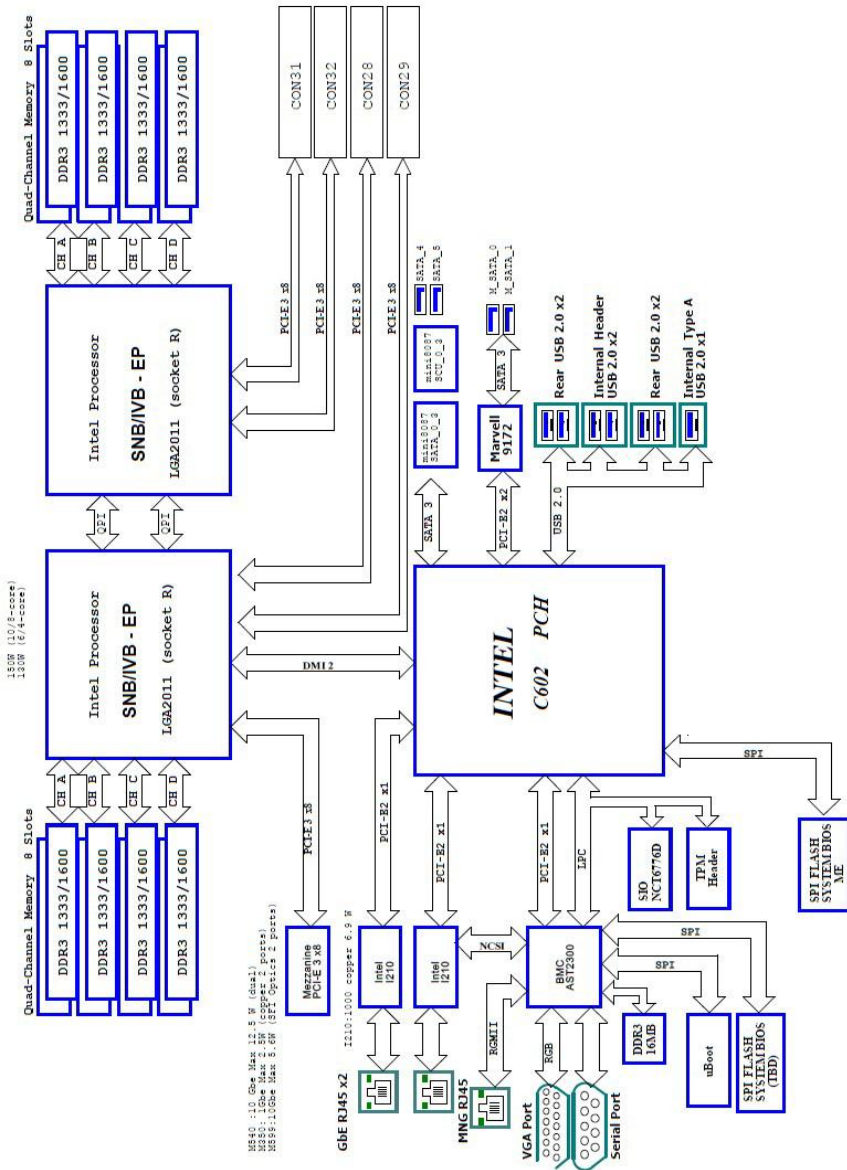
**There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.



LAN Port (LAN1, LAN2) LED Indications

Speed LED		Activity / Link LED	
Status	Description	Status	Description
Off	10Mbps connection or no link	Off	No link
Yellow	100Mbps connection	Blinking Green	Data Activity
Green	1Gbps connection	On	Link

1.6 Block Diagram



Chapter 2 Installation

This is a SSI CEB form factor (12" x 10.5", 30.5 cm x 26.7 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

EP2C602 Series are dual socket motherboards that support Intel® Xeon® E5-2400/1400 Series Processors. Please install a primary processor (BootStrap Processor) into "CPU_BSP1" socket and then install a non-Primary Processor (Application Processors) into "CPU_API1" socket. *For a single CPU, please install it into "CPU_BSP1" socket (framed by a square).



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any components.
2. To avoid damaging the motherboard's components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.



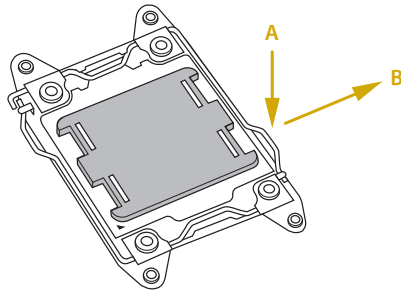
Do not over-tighten the screws! Doing so may damage the motherboard.



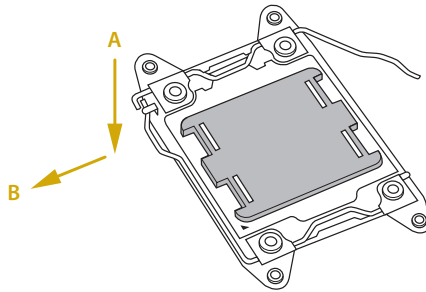
Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.3 Installing the CPU

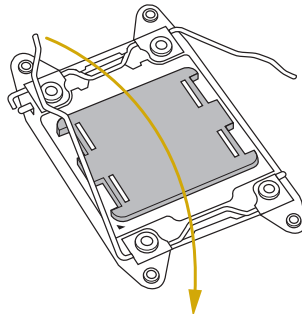
1

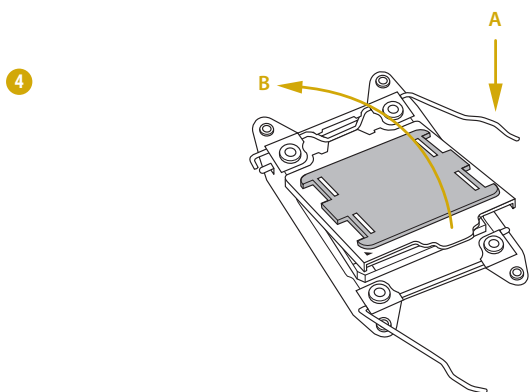
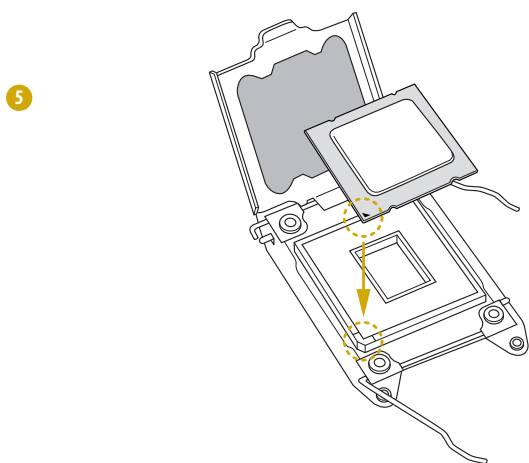
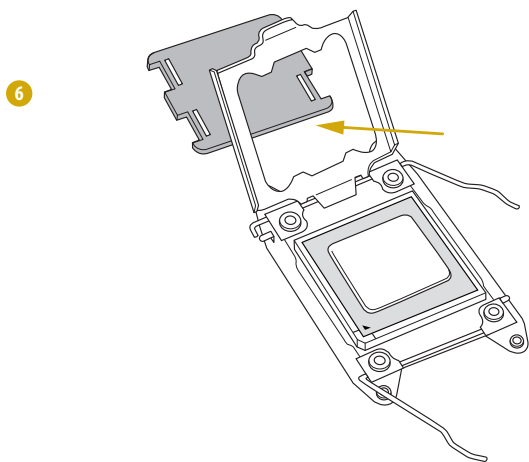


2

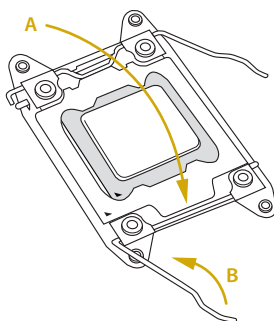


3

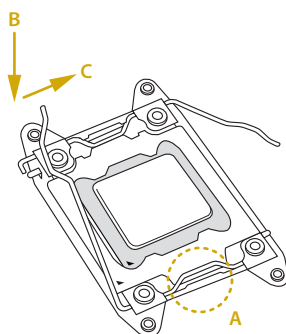




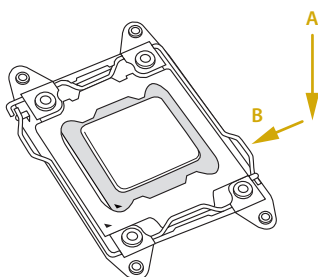
7



8



9

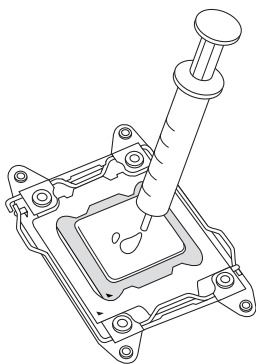


The cover must be placed if returning the motherboard for after service.

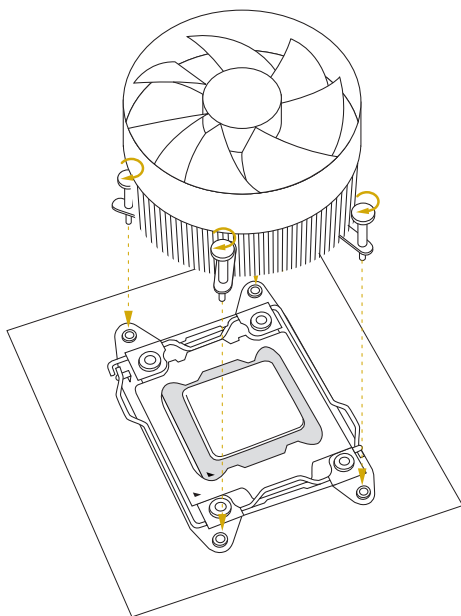
2.4 Installing the CPU Fan and Heatsink



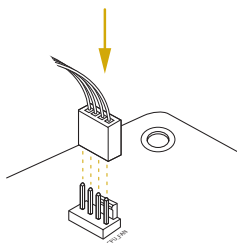
Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.



1



2

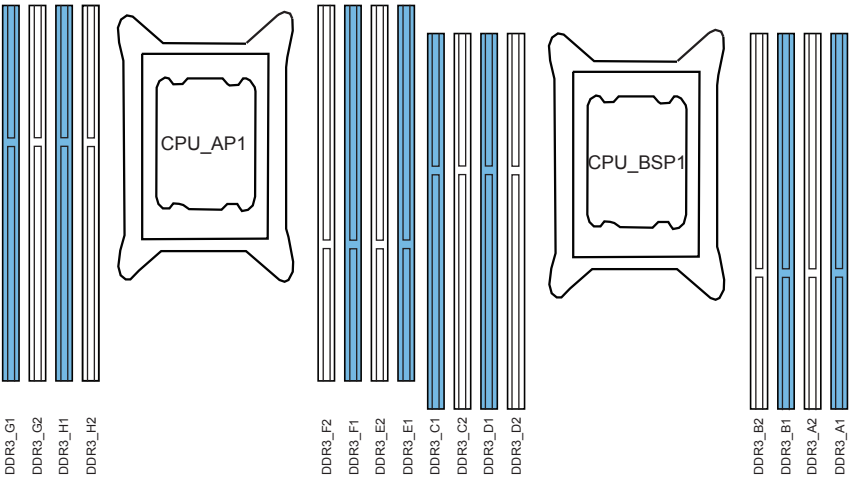


2.5 Installation of Memory Modules (DIMM)

This motherboard provides sixteen 240-pin DDR3 (Double Data Rate 3) DIMM slots in two groups, and supports Dual Channel Memory Technology.

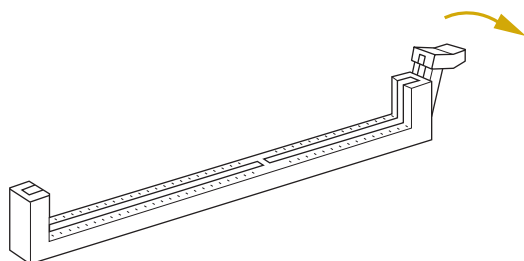
You may install 2GB, 4GB, 8GB and 16 GB RDIMMs, ECC/Non-ECC UDIMMs, and LR-DIMMs into the sockets.

Capacity	CPU_BSP1	CPU_AP1
256GB	DDR3_A1, B1, C1, D1 (Blue) DDR3_A2, B2, C2, D2 (White)	DDR3_E1, F1, G1, H1 (Blue) DDR3_E2, F2, G2, H2 (White)

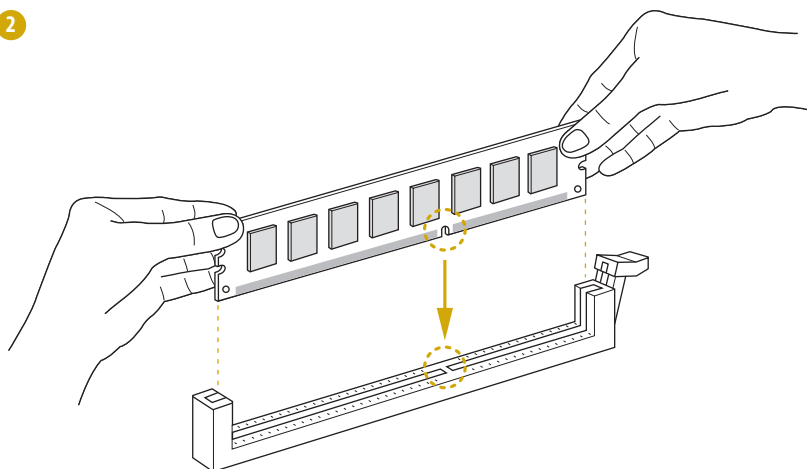


1. It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and DIMM may be damaged.
2. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR3 DIMM pairs.
3. It is unable to activate Dual Channel Memory Technology with only one or three memory module installed.
4. Some DDR3 1GB double-sided DIMMs with 16 chips may not work on this motherboard. It is not recommended to install them on this motherboard.

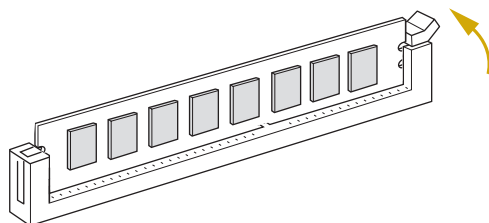
1



2



3



The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Recommended Memory Configurations

A single memory module should be installed in the BLUE socket.

If you install only one CPU (CPU1) on the motherboard, make sure to install DIMMs into DDR3_A, DDR3_B, DDR3_C, or DDR3_D slot(s).

1 CPU Configuration

	CPU1							
	A1	A2	B1	B2	C1	C2	D1	D2
1 DIMM	#							
2 DIMMS	#		#					
4 DIMMS	#		#		#		#	
8 DIMMS	#	#	#	#	#	#	#	#

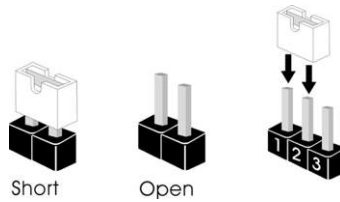
2 CPU Configuration

	CPU1							
	A1	A2	B1	B2	C1	C2	D1	D2
1 DIMM	#							
2 DIMMS	#		#					
4 DIMMS	#		#		#		#	
8 DIMMS	#		#		#		#	
12 DIMMS	#	#	#	#	#	#	#	#
16 DIMMS	#	#	#	#	#	#	#	#

	CPU2							
	E1	E2	F1	F2	G1	G2	H1	H2
1 DIMM								
2 DIMMS								
4 DIMMS								
8 DIMMS	#		#		#		#	
12 DIMMS	#		#		#		#	
16 DIMMS	#	#	#	#	#	#	#	#

2.6 Jumper Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.



ME Recovery Jumper
(3-pin ME_RECOVERY1)
(see p.6, No. 26)

1_2

Default

2_3

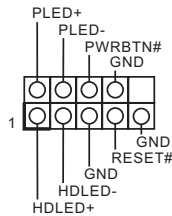
ME Recovery Mode

2.7 Onboard Headers and Connectors



Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1)
(see p.6, No. 19)



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



PWRBTN (Power Switch):

Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):

Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):

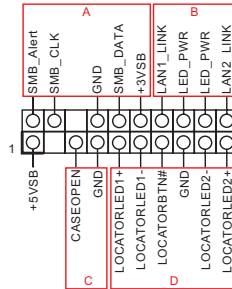
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):

Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

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.

Auxiliary Panel Header (18-pin AUX_PANEL_1) (see p.6, No. 21)



This header supports multiple functions on the front panel, including the front panel SMB, internet status indicator and chassis intrusion pin.



A. Front panel SMBus connecting pin (6-1 pin FPSMB)

This header allows you to connect SMBus (System Management Bus) equipment. It can be used for communication between peripheral equipment in the system, which has slower transmission rates, and power management equipment.

B. Internet status indicator (2-pin LAN1_LED, LAN2_LED)

These two 2-pin headers allow you to use the Gigabit internet indicator cable to connect to the LAN status indicator. When this indicator flickers, it means that the internet is properly connected.

C. Chassis intrusion pin (2-pin CHASSIS)

This header is provided for host computer chassis with chassis intrusion detection designs. In addition, it must also work with external detection equipment, such as a chassis intrusion detection sensor or a microswitch. When this function is activated, if any chassis component movement occurs, the sensor will immediately detect it and send a signal to this header, and the system will then record this chassis intrusion event. The default setting is set to the CASEOPEN and GND pin; this function is off.

D. Locator LED (6-pin LOCATOR)

This header is for the locator switch and LED on the front panel.

Serial ATA2 Connectors

(SATA_0_3)

(see p.6, No. 33)

(SATA_4, Blue)

(see p.6, No. 30)

(SATA_5, Blue)

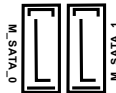
(see p.6, No. 29)

(M_SATA_0, White)

(see p.6, No. 28)

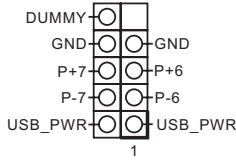
(M_SATA_1, White)

(see p.6, No. 27)



These five SATA2 connectors support SATA data cables for internal storage devices with up to 3.0 Gb/s data transfer rate.

USB 2.0 Header
(9-pin USB_5_6)
(see p.6, No. 32)

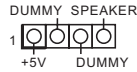


Besides two USB 2.0 ports on the I/O panel, there is one header on this motherboard. Each USB 2.0 header can support two ports.

USB 2.0 Connector
(USB_7)
(see p.6, No. 31)

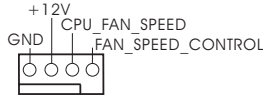


Chassis Speaker Header
(4-pin SPEAKER1)
(see p.6, No. 22)



Please connect the chassis speaker to this header.

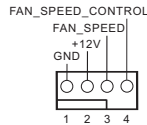
CPU Fan Connectors
(4-pin CPU_FAN1)
(see p.6, No. 16)
(4-pin CPU2_FAN)
(see p.6, No. 8)



This motherboard provides two 4-Pin CPU fan (Quiet Fan) connectors. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

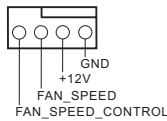
**For more details, please refer to the Cooler QVL list on the ASRock Rack website.*

Front and Rear Fan Connectors
(4-pin FRNT_FAN1)
(see p.6, No. 7)
(4-pin FRNT_FAN2)
(see p.6, No. 12)

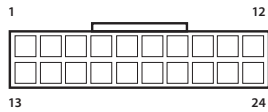


Please connect fan cables to the fan connectors and match the black wire to the ground pin. All fans support Fan Control.

(4-pin REAR_FAN1)
(see p.6, No. 4)
(4-pin REAR_FAN2)
(see p.6, No. 41)

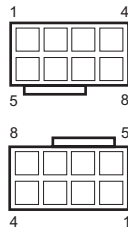


ATX Power Connector
(24-pin ATXPWR1)
(see p.6, No. 3)



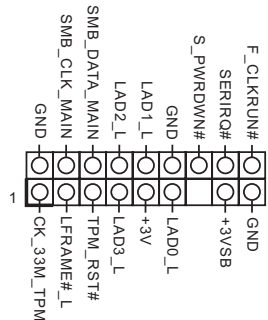
This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.

ATX 12V Power Connectors
(8-pin 1ATX12V1)
(see p.6, No. 36)
(8-pin 1ATX12V_1)
(see p.6, No. 42)



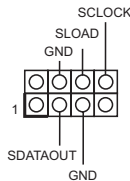
This motherboard provides two 8-pin ATX 12V power connectors.

TPM Header
(17-pin TPM1)
(see p.6, No. 23)



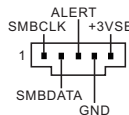
This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

Serial General Purpose Input/Output Headers
(7-pin SATA_SGPI01)
(see p.6, No. 35)



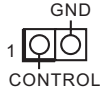
This header supports Serial Link interface for onboard SATA connections.

PSU SMBus
(PSU_SMB1)
(see p.6, No. 43)



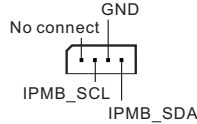
PSU SMBus monitors the status of the power supply, fan and system temperature.

Non Maskable Interrupt
Button Header
(NMI_BTN1)
(see p.6, No. 20)



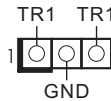
Please connect a NMI device
to this header.

Intelligent Platform
Management Bus header
(4-pin IPMB_1)
(see p.6, No. 2)



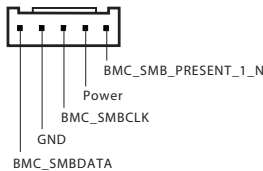
This 4-pin connector is used
to provide a cabled base-board
or front panel connection for
value added features and 3rd-
party add-in cards, such as
Emergency Management cards,
that provide management
features using the IPMB.

Thermal Sensor Header
(3-pin TR1)
(see p.6, No. 25)



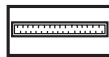
Please connect the thermal
sensor cable to either pin 1-2
or pin 2-3 and the other end to
the device which you wish to
monitor its temperature.

Baseboard Management
Controller SMBus Header
(5-pin BMC_SMB_1)
(see p.6, No. 1)



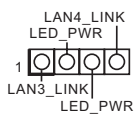
This header is used for the SM
BUS devices.

SCU Connector
(SCU_0-3)
(see p.6, No. 34)



The SCU connector support
sSAS/SATA data cables for
internal storage devices. The
current SAS2/SATA3 interface
allows up to 6.0 Gb/s data
transfer rate. For connecting
SAS HDDs, please contact SAS
data cable dealers.

Front Lan LED Connector
(FRONT_LED_LAN34)
(see p.6, No. 24)



This 4-pin connector is used
for the front LAN status
indicator.

2.8 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

2.9 Dual LAN and Teaming Operation Guide

Dual LAN with Teaming enabled on this motherboard allows two single connections to act as one single connection for twice the transmission bandwidth, making data transmission more effective and improving the quality of transmission of distant images. Fault tolerance on the dual LAN network prevents network downtime by transferring the workload from a failed port to a working port.



The speed of transmission is subject to the actual network environment or status even with Teaming enabled.

Before setting up Teaming, please make sure whether your Switch (or Router) supports Teaming (IEEE 802.3ad Link Aggregation). You can specify a preferred adapter in Intel PROSet. Under normal conditions, the Primary adapter handles all non-TCP/IP traffic. The Secondary adapter will receive fallback traffic if the primary fails. If the Preferred Primary adapter fails, but is later restored to an active status, control is automatically switched back to the Preferred Primary adapter.

Step 1

From **Device Manager**, open the properties of a team.

Step 2

Click the **Settings** tab.

Step 3

Click the **Modify Team** button.

Step 4

Select the adapter you want to be the primary adapter and click the **Set Primary** button.

If you do not specify a preferred primary adapter, the software will choose an adapter of the highest capability (model and speed) to act as the default primary. If a failover occurs, another adapter becomes the primary. The adapter will, however, rejoin the team as a non-primary.

Chapter 3 UEFI Setup Utility

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY; otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctrl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Item	Description
Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
H/W Monitor	To display current hardware status
Server Mgmt	To manage the server
Boot	To set up the default system device to locate and load the Operating System
Security	To set up the security features
Exit	To exit the current screen or the UEFI SETUP UTILITY
Event Logs	For event log configuration

Use <↔> key or <→> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

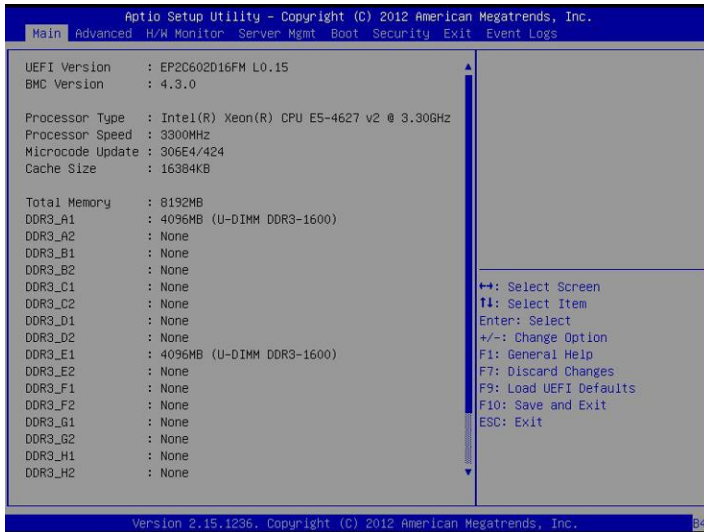
3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Tab>	Switch to next function
<Enter>	To bring up the selected screen
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F7>	Discard changes and exit the UEFI SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

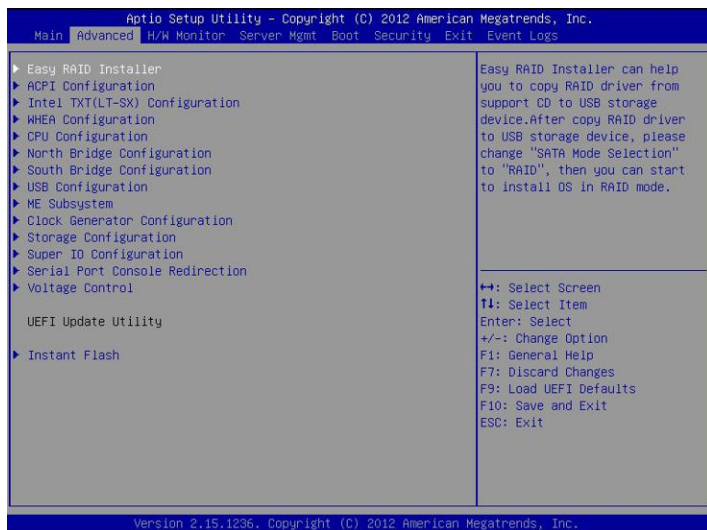
3.2 Main Screen

Once you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview. The Main screen provides system overview information and allows you to set the system time and date.



3.3 Advanced Screen

In this section, you may set the configurations for the following items: Easy RAID Installer, ACPI Configuration, Intel TXT(LS-SX) Configuration, WHEA Configuration, CPU Configuration, North Bridge Configuration, South Bridge Configuration, USB Configuration, ME Subsystem, Clock Generator Configuration, Storage Configuration, Super IO Configuration, Serial Port Console Redirection, Voltage Control and Instant Flash.

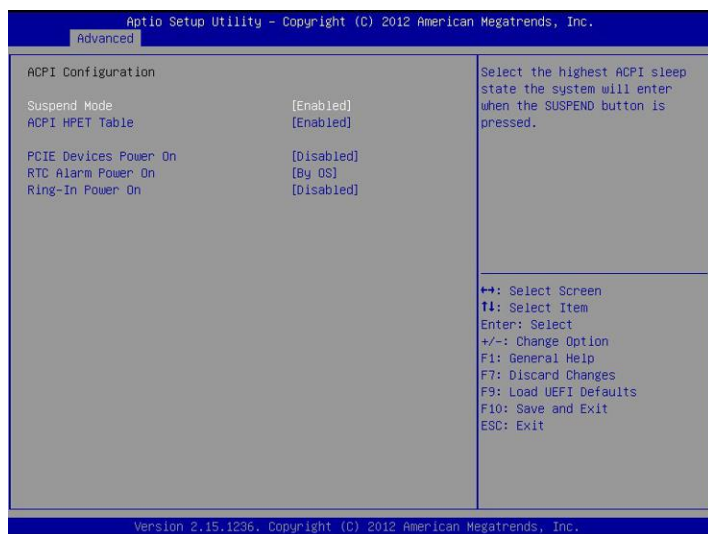


Setting wrong values in this section may cause the system to malfunction.

3.3.1 Easy RAID Installer

Easy RAID Installer can help you to copy RAID driver from support CD to USB storage device. After copying RAID driver to USB storage device, please change “SATA Mode Selection” to “RAID”, then you can start to install OS in RAID mode.

3.3.2 ACPI Configuration



Suspend Mode

Use this item to select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows' certification.

PCIE Devices Power On

Use this item to enable or disable PCIE devices to turn on the system from the power-soft-off mode.

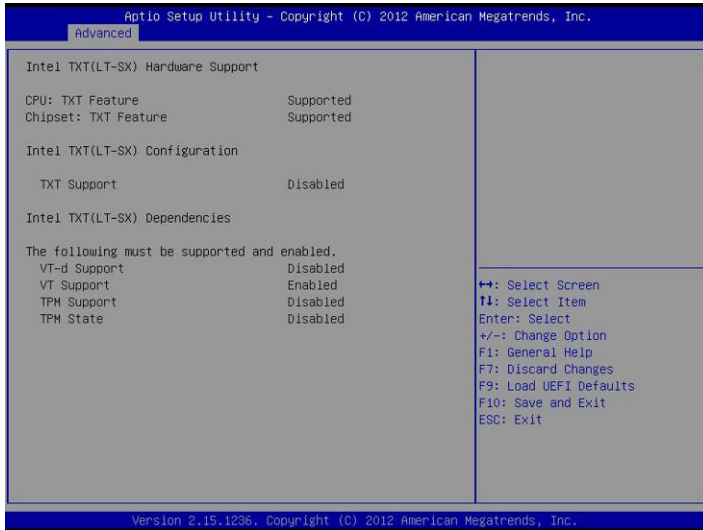
RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

Ring-In Power On

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

3.3.3 Intel TXT(LT-SX) Configuration

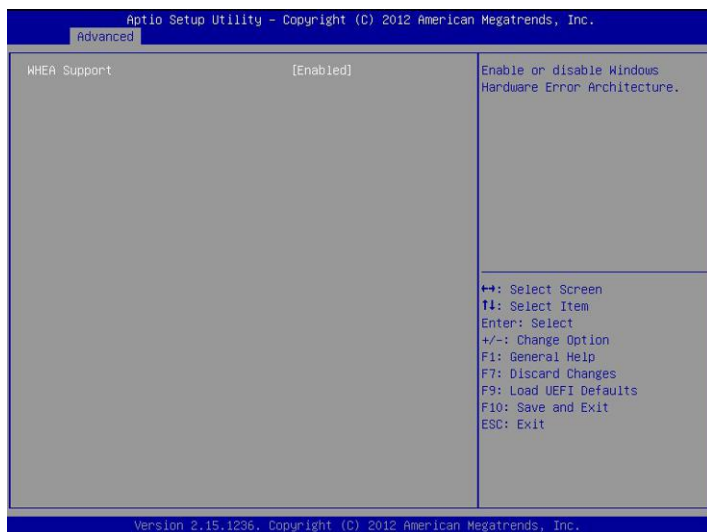


Intel Trusted Execution Technology (TXT) Hardware Support



Please install a Trusted Platform Module (TPM) on the motherboard to enable the Intel TXT(LT-SX) Configuration.

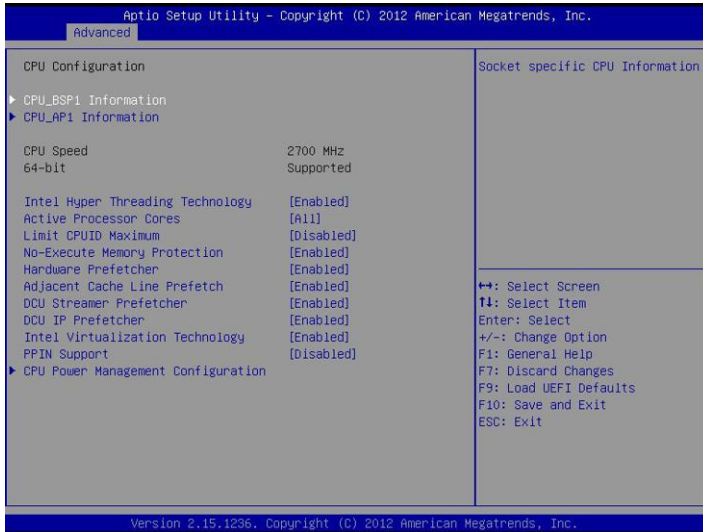
3.3.4 WHEA Configuration



WHEA Support

Use this option to enable or disable Windows Hardware Error Architecture (WHEA). The default value is [Enabled].

3.3.5 CPU Configuration



CPU_BSP1 Information

Display information regarding the primary processor (Boot Strap Processor).

CPU_AP1 Information

Display information regarding the non-Primary Processor.

Intel Hyper Threading Technology

Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved.

Active Processor Cores

Select the number of cores to enable in each processor package.

Limit CPUID Maximum

This function allows you to limit CPUID maximum value. (It is set as Disabled for Windows® XP.)

No-Execute Memory Protection

Processors with No-Execution Memory Protection Technology may prevent certain classes of malicious buffer overflow attacks.

Hardware Prefetcher

Automatically prefetch data and code for the processor. Enable for better performance.

Adjacent Cache Line Prefetch

Automatically prefetch the subsequent cache line while retrieving the currently requested cache line. Enable for better performance.

DCU Streamer Prefetcher

If enabled, the DCU (data cache unit) Streamer Prefetcher prefetches the next L1 Data line based upon multiple loads in same cache line. It is recommended to enable this option to enhance data processing capacity.

DCU IP Prefetcher

If enabled, the DCU (data cache unit) IP (Instruction Pointer) Prefetcher predicts what memory addresses are going to be used by the program and delivers that data just in time.

Intel Virtualization Technology

Intel Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitions, so that one computer system can function as multiple virtual systems.

PPIN Support

Use this item to enable or disable the PPIN support.

CPU Power Management Configuration

Power Technology

Use this item to enable the power management features.

Energy Performance

Use this item to configure energy performance.

Factory Long Duration Power Limit

Long Duration Power Limit

Use this item to configure long duration power limit in watts.

Factory Long Duration Maintained

Long Duration Maintained

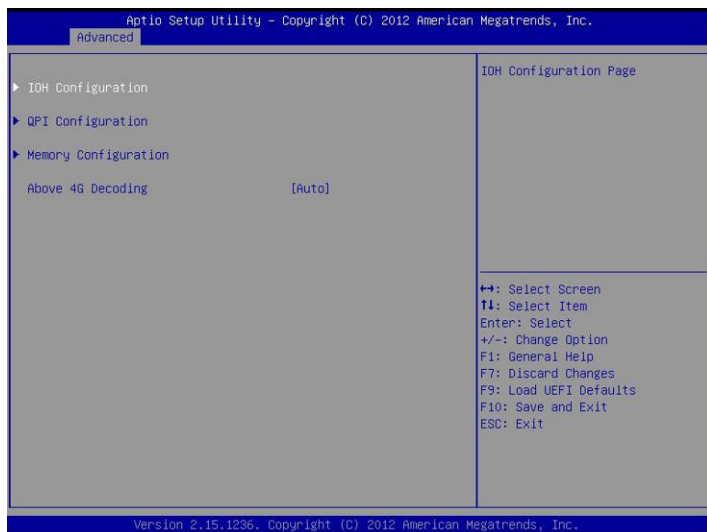
Use this item to configure time window which the long duration power is maintained.

Recommended Short Duration Power 1

Short Duration Power Limited

Use this item to configure short duration power limit in watts.

3.3.6 North Bridge Configuration



IOH Configuration

ADR Configuration

Use this item to set up Asynchronous DRAM Refresh (ADR) Configuration.

Intel(R) VT-d

Use this item to enable or disable Intel(R) Virtualization Technology for Directed I/O. The default value is [Enabled].

Intel(R) I/OAT

Use this to enable or disable Intel® I/O Acceleration Technology.

Primary Graphics Adapter

If a PCI Express graphics card is installed on the motherboard, you may use this option to select PCI Express or Onboard as the primary graphics adapter.

Onboard VGA

Use this to enable or disable the Onboard VGA function. The default value is [Auto].

**This item is not available when the Primary Graphic Adapter is set to [Onboard].*

PCIE 1 and 2 UpStream Link Speed

This allows you to select Target Link Speed as Gen1, Gen2 or Gen3. The default value is [Gen2].

PCIE 3 and 4 UpStream Link Speed

This allows you to select Target Link Speed as Gen1, Gen2 or Gen3. The default value is [Gen2].

PCIE 5 and 6 UpStream Link Speed

This allows you to select Target Link Speed as Gen1, Gen2 or Gen3. The default value is [Gen2].

PCIE 7 and 8 UpStream Link Speed

This allows you to select Target Link Speed as Gen1, Gen2 or Gen3. The default value is [Gen2].

QPI Configuration

Isoc

Use this to enable or disable Isoc. It is recommended to select [Enabled].

QPI Link Speed Mode

Use this item to select the QPI link speed as either the Fast Mode or Slow Mode.

QPI Link Frequency Select

This allows you to select the QPI Link Frequency.

Memory Configuration

Memory Mode

Select the mode for memory initialization.

- [Independent]: Independent channel mode.
- [Mirroring]: The memory subsystem writes identical data to two channels simultaneously. Identical memory modules should be installed in the two channels closest to the processor.
- [Lock Step]: The two channels closest to the processor are combined to form a single channel. Memory modules must be identical in size, speed, and technology in corresponding slots.
- [Sparing]: This mode occurs when on-demand inactive memory is automatically activated by the system to temporarily replace failed memory until a service action can be performed.

ECC Support

Use this item to enable or disable DDR ECC support.

DRAM RAPL BWLIMIT

This item sets the limits on the average power consumption and the bandwidth of a DRAM module.

Perfmon and DFX Devices

This item can set the Perfmon and DFX devices hidden or unhidden.

DRAM RAPL(Running Average Power Limit) Mode

RAPL (Running Average Power Limit) provides mechanisms to enforce power consumption limits on supported processors. The default is [DRAM RAPL Mode 1].

Numa

Use this item to enable or disable Non uniform Memory Access (NUMA).

MPST Support

Use this item to enable or disable MPST Support. Along with enabling MPST Support, it also requires NUMA to be enabled and Channel Interleaving to be set to 1-way for MPST tables to be published.

DRAM Frequency

Use this item to configure DRAM frequency.

Channel Interleaving

It allows you to enable Channel Memory Interleaving. The default value is [Auto].

Rank Interleaving

It allows you to select a rank memory interleaving method. The default value is [Auto].

Patrol Scrub

Patrol Scrub is a background activity initiated by the processor to seek out and fix memory errors. The default value is [Enabled].

Demand Scrub

Fix the error when the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error. The default value is [Disabled].

Data Scrambling

Enable this feature to ensure data security and integrity.

Thermal Throtting

Use this automatic memory throttling feature to reduce power consumption. The default value is [CLTT] (Closed Loop Thermal Throttling).

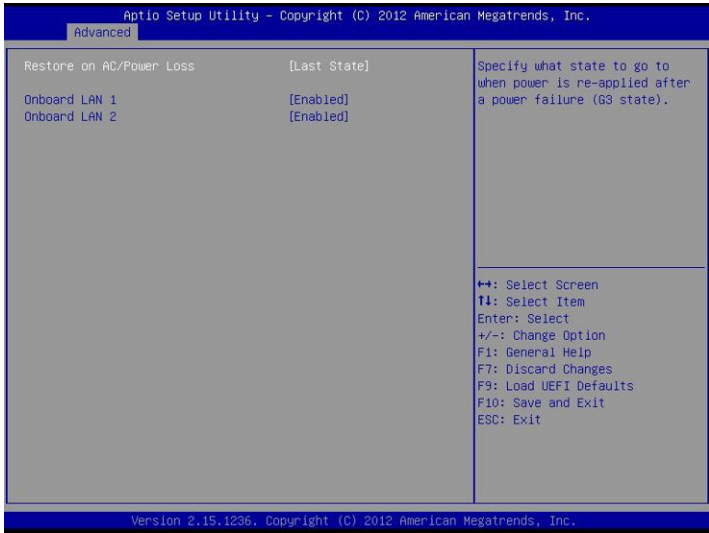
DIMM Information

Display DIMM information.

Above 4G Decoding

Use this option to enable or disable 64bit capable devices to be decoded in above 4G address space (only if system supports 64bit PCI decoding).

3.3.7 South Bridge Configuration



Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers. If [Last State] is selected, the AC/power resumes or remains off when the power recovers, depending on the last state when an unexpected AC/power loss occurs.

Onboard LAN 1

This allows you to enable or disable the Onboard LAN 1 feature.

Onboard LAN 2

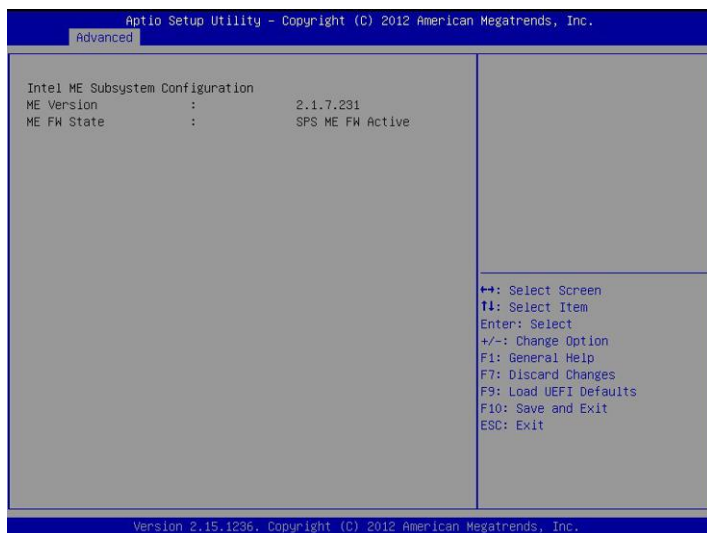
This allows you to enable or disable the Onboard LAN 2 feature.

3.3.8 USB Configuration



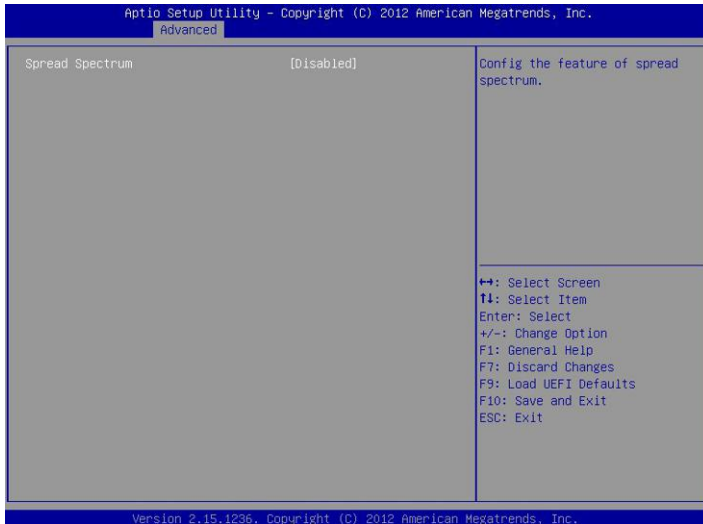
USB Configuration screen displays the USB 2.0 Controller and Legacy USB Support state.

3.3.9 ME Subsystem



ME Subsystem screen displays the Intel ME Subsystem Configuration information, such as ME Version and ME FW State.

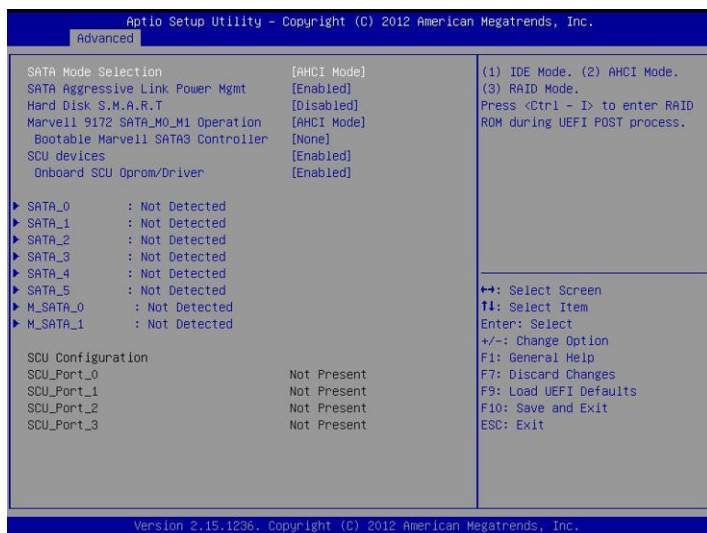
3.3.10 Clock Generator Configuration



Spread Spectrum

Use this item to enable or disable the spread spectrum feature. The default value is [Disabled].

3.3.11 Storage Configuration



SATA Mode Selection

Use this to select SATA mode. Configuration options: [Disabled], [IDE Mode], [AHCI Mode] and [RAID Mode]. The default value is [AHCI Mode].



AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

SATA Aggressive Link Power Mgmt

Use this item to configure SATA Aggressive Link Power Management.

Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

Marvell 9172 SATA_M0_M1 Operation

This item is for eSATA ports. Use this to select Marvell SATA operation mode. Configuration options: [Disabled], [IDE Mode], [AHCI Mode], [RAID Mode] and [Disabled]. The default value is [AHCI Mode]. Press <Ctrl - I> to enter RAID ROM during UEFI Post process.

Bootable Marvell SATA3 Controller

Use this to enable or disable Onboard Marvell SATA3 Option ROM. If Option ROM is disabled, you cannot use the SATA devices connected to the Marvell SATA3 controller as Boot Device.

SCU Devices

Use this to enable or disable SCU devices. SMBus 0,1,2 will be disabled while SCU devices are disabled. Press <Ctrl - I> to enter RAID ROM during UEFI POST process.

Onboard SCU Oprom/Driver

Use this to enable or disable LSI SAS Option ROM. If Option ROM is disabled, you cannot use the SATA devices connected to the LSI SAS controller as Boot Device.

Depending on how many SATA ports you have, you will see SATA_x / M_SATA_x (x means numbers) listed on the screen, with its status indicated as SATA device [(Model Name)] or [Not Detected].

Enter either one of the options will see the followings:

SATA_X Hot Plug

Use this item to enable or disable Hot Plug for the designated port.

External SATA_X

Use this item to enable SATA safe removal notifications. Please note that the SATA device will be downgraded to SATA2.

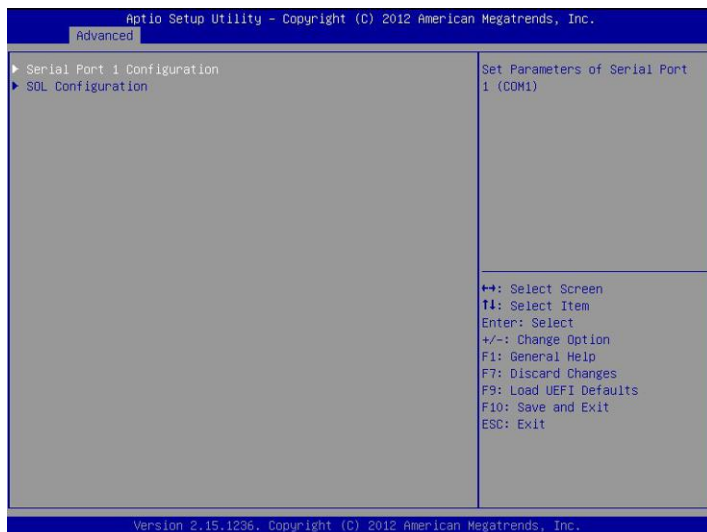


We recommend to use IntelC602 SATA ports for your bootable devices. This will minimize your boot time and get the best performance. But if you still want to boot from the LSI controller or Marvell SATA3 controller, you can enable these from the UEFI.

Staggered Spin-up

Use this item to enable or disable Staggered Spin-up.

3.3.12 Super IO Configuration



Serial Port 1 Configuration

Use this item to configure the onboard serial port 1.

Select and enter the "Serial Port 1 Configuration" and you will see the followings:

Serial Port

Use this item to enable or disable the onboard serial port.

Change Settings

Use this item to select an optimal setting for Super IO device.

SOL Configuration

Use this item to set parameters of SOL.

Select and enter the "SOL Configuration" and you will see the followings:

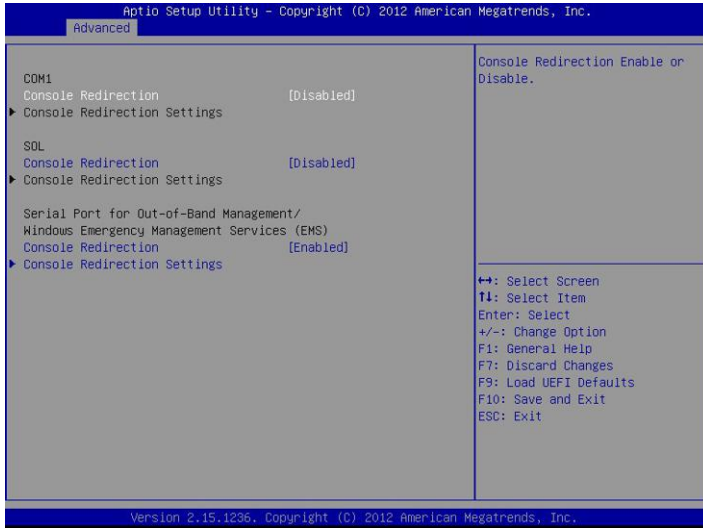
SOL Port

Use this item to enable or disable the SOL port.

SOL Port Address

Use this item to select an optimal the SOL port.

3.3.13 Serial Port Console Redirection



Console Redirection

Use this option to enable or disable Console Redirection. If this item is set to Enabled, you can select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information.

Terminal Type

Use this item to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100+	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second

Use this item to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [57600] and [115200].

Data Bits

Use this item to set the data transmission size. The options include [7] and [8] (Bits).

Parity

Use this item to select the parity bit. The options include [None], [Even], [Odd], [Mark] and [Space]

Stop Bits

The item indicates the end of a serial data packet. The standard setting is [1] Stop Bit. Select [2] Stop Bits for slower devices.

Flow Control

Use this item to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None], [Hardware RTS/CTS], and [Software Xon/Xoff].

VT-UTF8 Combo Key Support

Use this item to enable or disable the VT-UTF8 Combo Key Support for ANSI/VT100 terminals.

Recorder Mode

Use this item to enable or disable Recorder Mode to capture terminal data and send it as text messages.

Resolution 100x31

Use this item to enable or disable extended terminal resolution support.

Legacy OS Redirection Resolution

Use this item to select the number of rows and columns used in legacy OS redirection.

Putty Keypad

Use this item to select Function Key and Keypad on Putty.

Redirection After BIOS POST

If the [LoadBooster] is selected, legacy console redirection is disabled before booting to legacy OS. If [Always Enabled] is selected, legacy console redirection is enabled for legacy OS. The default value is [Always Enabled].

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

Console Redirection

Use this option to enable or disable Console Redirection. If this item is set to Enabled, you can select COM Port or SOL Port to be used for Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information.

Out-of-Band Mgmt Port

Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.

Terminal Type

Use this item to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100+	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second

Use this item to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [57600] and [115200].

Flow Control

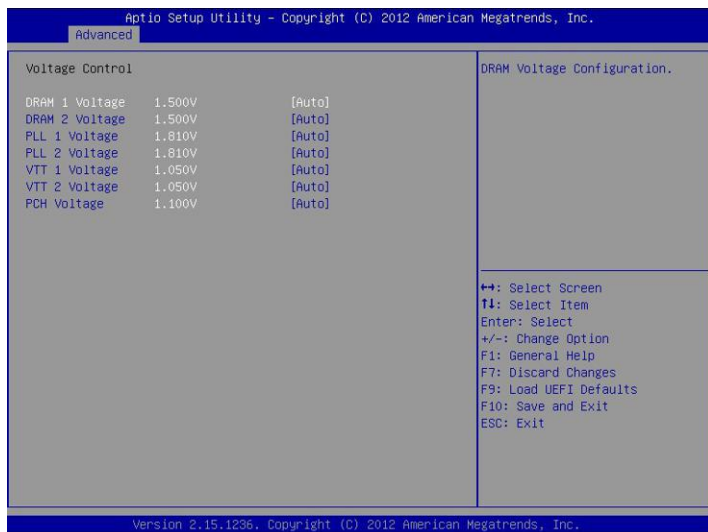
Use this item to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None], [Hardware RTS/CTS], and [Software Xon/Xoff].

Data Bits

Parity

Stop Bits

3.3.14 Voltage Control



DRAM 1 Voltage

Use this to select DRAM 1 Voltage. The default value is [Auto].

DRAM 2 Voltage

Use this to select DRAM 2 Voltage. The default value is [Auto].

PLL 1 Voltage

Use this to select PLL 1 Voltage. The default value is [Auto].

PLL 2 Voltage

Use this to select PLL 2 Voltage. The default value is [Auto].

VTT 1 Voltage

Use this to select VTT 1 Voltage. The default value is [Auto].

VTT 2 Voltage

Use this to select VTT 2 Voltage. The default value is [Auto].

PCH Voltage

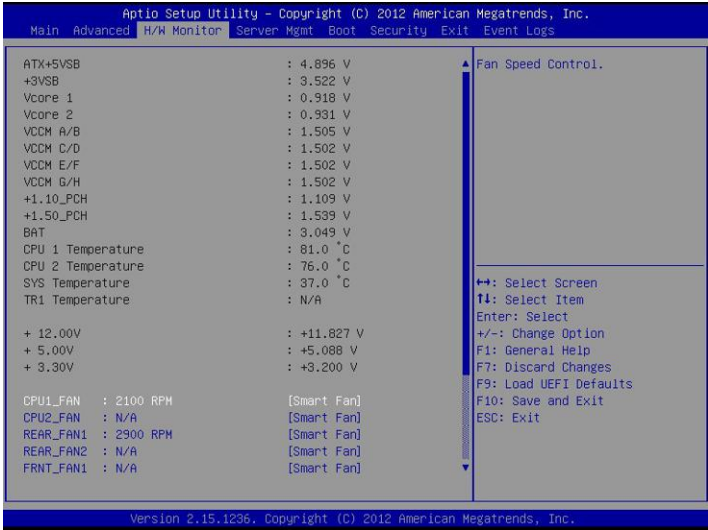
Use this to select PCH Voltage. The default value is [Auto].

3.3.15 Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows[®]. Just save the new UEFI file to your USB flash drive, floppy disk or hard drive and launch this tool, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after the UEFI update process is completed.

3.4 H/W Monitor Screen (Hardware Health Event Monitoring)

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



CPU1_FAN

This allows you to set the CPU1's fan speed. The default value is [Smart Fan].

CPU2_FAN

This allows you to set the CPU2's fan speed. The default value is [Smart Fan].

REAR_FAN1

This allows you to set the rear fan 1's speed. The default value is [Smart Fan].

REAR_FAN2

This allows you to set the rear fan 2's speed. The default value is [Smart Fan].

FRNT_FAN1

This allows you to set the front fan 1's speed. The default value is [Smart Fan].

FRNT_FAN2

This allows you to set the front fan 2's speed. The default value is [Smart Fan].

Smart Fan Control

This allows you to set the Smart fan's level speed.

Smart Fan Duty Control

Smart Fan Duty x (x means 1 to 11 stage)

This allows you to set duty cycle for each stage.

Smart Fan Temp Control

Smart Fan Temp x (x means 1 to 11 stage)

This allows you to set temperature for each stage.

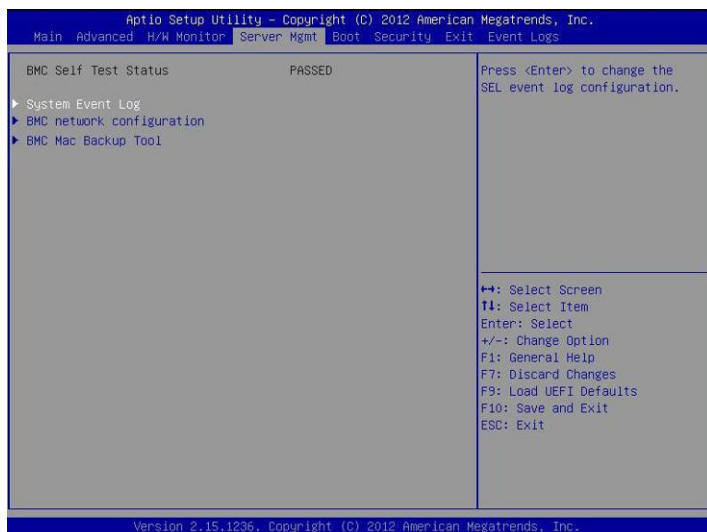
Watch Dog Timer

This allows you to enable or disable the Watch Dog Timer. The default value is [Disabled].

Case Open Feature

This allows you to enable or disable the Case Open Feature. The default value is [Disabled].

3.5 Server Mgmt (Server Management)



System Event Log

Press <Enter> to change the SEL event log configuration.

SEL Components

Change this to enable or disable all features of System Event Logging during boot.

Erase SEL

Use this to choose options for erasing SEL.

When SEL is Full

Use this to choose options for reactions to a full SEL.

Log EFI Status Codes

Use this item to disable the logging of EFI Status Codes or log only error code or only progress or both.

BMC Network Configuration

Enter to configure BMC Network parameters.

Configuration Address Source

Select to configure BMC network parameters statically or dynamically (by BIOS or BMC).

Configuration options: [Unspecified], [Static], and [Dynamic].

Unspecified: BMC network parameters are configured by BMC itself.

Static: Manually enter the IP Address, Subnet Mask and Gateway Address in the BIOS for BMC LAN channel configuration.

Dynamic: IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server.

To configure BMC network parameters using the BIOS setup, select either [Static] or [Dynamic] option.

To configure BMC network parameters using the BMC web interface, select [Unspecified] option.



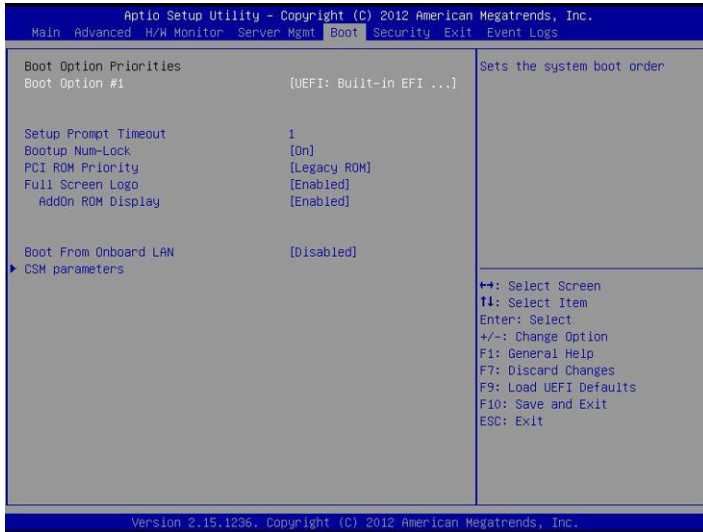
When [Dynamic] or [Static] is selected, do NOT modify the BMC network settings on the IPMI web page.

BMC Mac Backup Tool

Use this to restore BMC Mac from the backup.

3.6 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Boot Option #1

Use this item to set the system boot order.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

PCI ROM Priority

Use this item to adjust PCI ROM Priority. The default value is [LegacyROM]

Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option “Full Screen Logo” but you want to see the AddOn ROM information when the system boots, please select

[Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

CSM Parameters

Use this option to configure the parameters of OpROM execution, boot options filter, etc.

Boot Option Filter

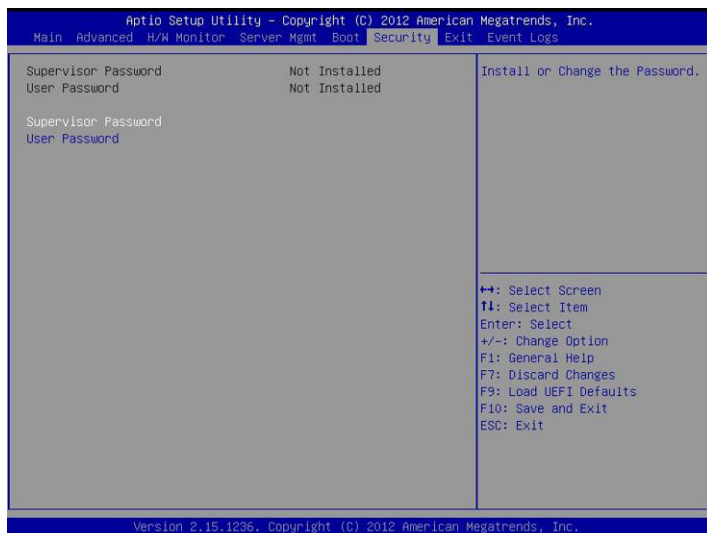
Use this option to control what devices system can boot to. Configuration options: [UEFI and Legacy], [Legacy only] and [UEFI only].

Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select [Legacy only] to run those that support legacy option ROM only.

3.7 Security Screen

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.



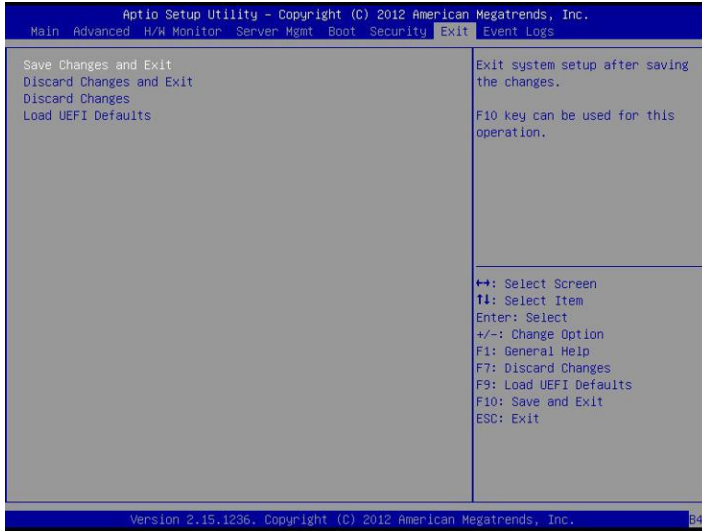
Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

User Password

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

3.8 Exit Screen



Save Changes and Exit

When you select this option, the following message “Save configuration changes and exit setup?” will pop-out. Press <F10> key or select [Yes] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, the following message “Discard changes and exit setup?” will pop-out. Press <ESC> key or select [Yes] to exit the UEFI SETUP UTILITY without saving any changes.

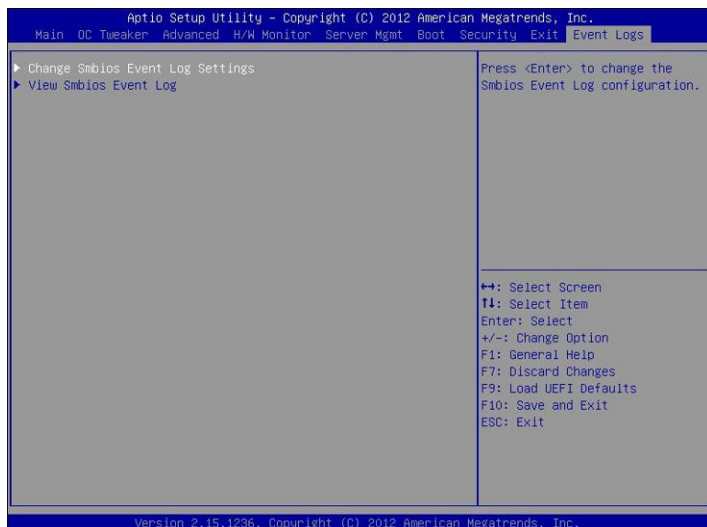
Discard Changes

When you select this option, the following message “Discard changes?” will pop-out. Press <F7> key or select [Yes] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

3.9 Event Logs



Change Smbios Event Log Settings

This allows you to configure the Smbios Event Log Settings.

When entering the item, you will see the followings:

Smbios Event Log

Use this item to enable or disable all features of the SMBIOS Event Logging during system boot.

Erasing Event Log

The options include [No], [Yes, Next reset] and [Yes, Every reset]. If Yes is selected, all logged events will be erased.

When Log is Full

Use this item to choose options for reactions to a full Smbios Event Log. The options include [Do Nothing] and [Erase Immediately].

MECI (Multiple Event Count Increment)

Use this item to enter the increment value for the multiple event counter. The valid range is from 1 to 33.

METW (Multiple Event Time Window)

Use this item to specify the number of minutes which must pass between duplicate log

entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes.

View Smbios Event Log

This allows you to view the Smbios Event Log records.



All values changed here do not take effect until computer is restarted.

Chapter 4 Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® Server 2008 R2 SP1 / 2012 / 2012 R2 / Linux compliant. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

**Please download the Intel® SATA Floppy Image driver from the ASRock Rack's website (www.asrockrack.com) to your USB drive or simply install the SATA driver from the Support CD while installing OS in SATA RAID mode.*

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSetup.exe" from the root folder in the Support CD to display the menu.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application softwares that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, welcome to visit ASRock Rack's website at <http://www.ASRockRack.com>; or you may contact your dealer for further information.

Chapter 5 Troubleshooting

5.1 Troubleshooting Procedures

Follow the procedures below to troubleshoot your system.



Always unplug the power cord before adding, removing or changing any hardware components. Failure to do so may cause physical injuries to you and damages to motherboard components.

1. Disconnect the power cable and check whether the PWR LED is off.
2. Unplug all cables, connectors and remove all add-on cards from the motherboard. Make sure that the jumpers are set to default settings.
3. Confirm that there are no short circuits between the motherboard and the chassis.
4. Install a CPU and fan on the motherboard, then connect the chassis speaker and power LED.

If there is no power...

1. Confirm that there are no short circuits between the motherboard and the chassis.
2. Make sure that the jumpers are set to default settings.
3. Check the settings of the 115V/230V switch on the power supply.
4. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.

If there is no video...

1. Try replugging the monitor cables and power cord.
2. Check for memory errors.

If there are memory errors...

1. Verify that the DIMM modules are properly seated in the slots.
2. Use recommended DDR3 1600/1333/1066 non ECC, unbuffered DIMMs.
3. If you have installed more than one DIMM modules, they should be identical with the same brand, speed, size and chip-type.
4. Try inserting different DIMM modules into different slots to identify faulty ones.
5. Check the settings of the 115V/230V switch on the power supply.

Unable to save system setup configurations...

1. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.
2. Confirm whether your power supply provides adequate and stable power.

Other problems...

1. Try searching keywords related to your problem on ASRock Rack's FAQ page:
<http://www.asrockrack.com/support>

5.2 Technical Support Procedures

If you have tried the troubleshooting procedures mentioned above and the problems are still unsolved, please contact ASRock Rack's technical support with the following information:

1. Your contact information
2. Model name, BIOS version and problem type.
3. System configuration.
4. Problem description.

You may contact ASRock Rack's technical support at:

<http://www.asrockrack.com/support/tsd.asp>

5.3 Returning Merchandise for Service

For warranty service, the receipt or a copy of your invoice marked with the date of purchase is required. By calling your vendor or going to our RMA website (<http://event.asrockrack.com/tsd.asp>) you may obtain a Returned Merchandise Authorization (RMA) number.

The RMA number should be displayed on the outside of the shipping carton which is mailed prepaid or hand-carried when you return the motherboard to the manufacturer. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty does not cover damages incurred in shipping or from failure due to alteration, misuse, abuse or improper maintenance of products.

Contact your distributor first for any product related problems during the warranty period.

Chapter 6: Net Framework Installation Guide

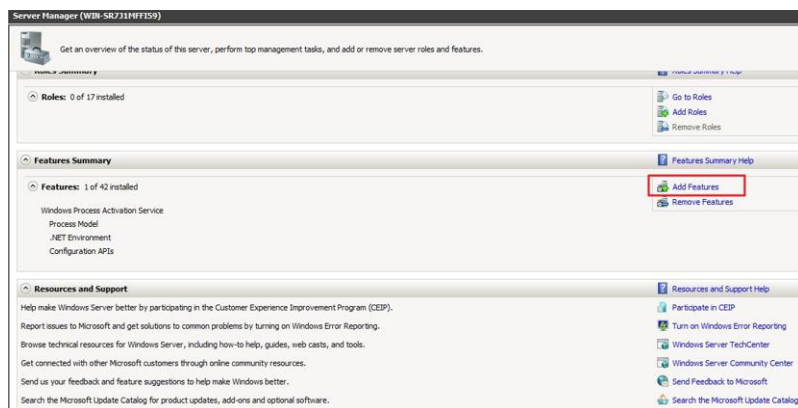
To let Intel® RSTe works properly, it is required to install Net Framework. Please follow the steps below to enable “.Net Framework” feature on Microsoft® Windows® Server 2008 R2.

6.1 Installing .Net Framework 3.5.1 (For Server 2008 R2)

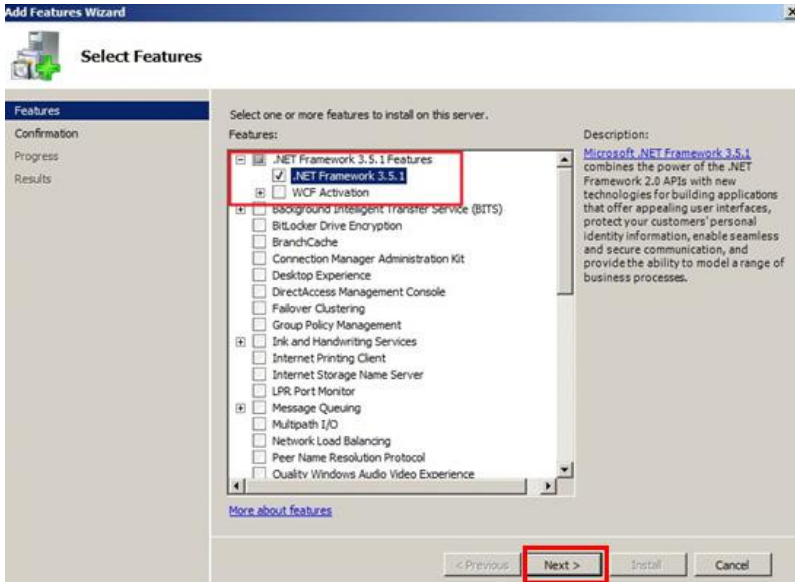
1. Double-click the Server Manager icon in the Windows system tray.



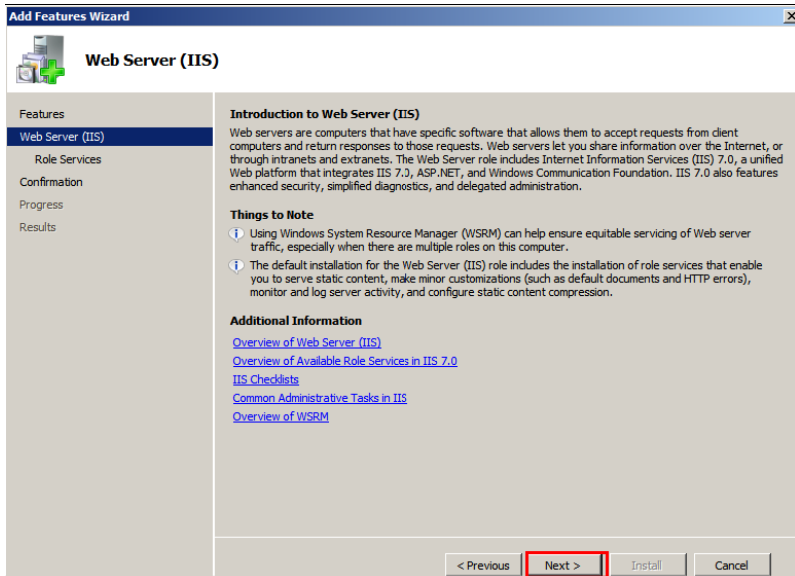
2. Click Add Features in the right hand pane.



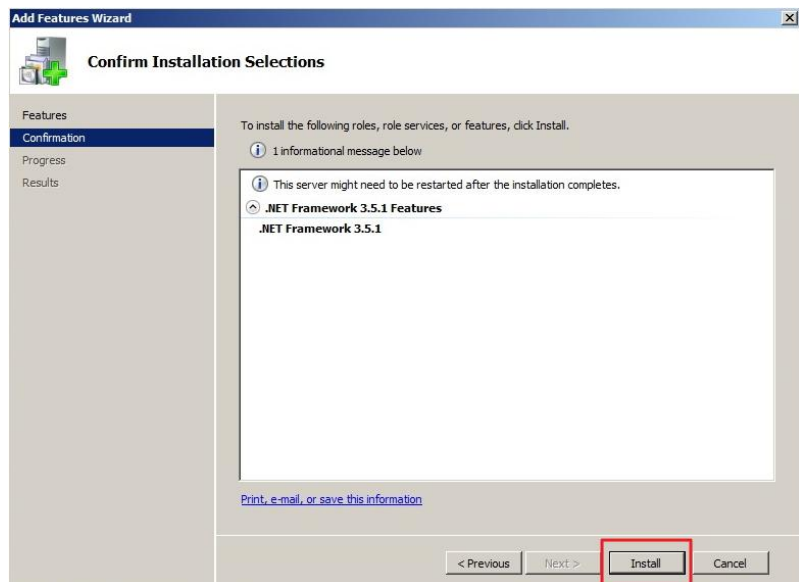
3. Check the box next to .Net Framework 3.5.1 and then click **Next**.



4. Click **Next** to continue.



5. Click **Install** to start installing .Net Framework 3.5.1.



6. After the installation completes, click **Close**.

