P9A-I Series



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Contents

Notices			vi
Safety i	nformatior	1	vii
About t	his guide		ix
P9A-I S	eries Spec	ifications Summary	xi
Chapte	er 1:	Product Introduction	
1.1	Welcome!		1-3
1.2	Package of	contents	1-3
1.3	Serial nur	nber label	1-3
1.4	Special fe	atures	1-3
	1.4.1	Product highlights	1-3
	1.4.2	Innovative ASUS features	1-4
Chapte	er 2:	Hardware Information	
2.1	Before yo	u proceed	2-3
2.2	Motherbo	ard overview	2-4
	2.2.1	Placement direction	2-4
	2.2.2	Screw holes	2-4
	2.2.3	Motherboard layout	2-5
	2.2.4	Layout contents	2-6
2.3	Central Pr	rocessing Unit (CPU)	2-8
2.4	System m	emory	2-8
	2.4.1	Overview	2-8
	2.4.2	Memory Configurations	2-8
	2.4.3	Installing a DIMM on a single clip DIMM socket	2-9
2.5	Expansion	n slots	2-10
	2.5.1	Installing an expansion card	2-10
	2.5.2	Configuring an expansion card	2-10
	2.5.3	Interrupt assignments	2-11
	2.5.4	PCI Express x8 slot (x4 Gen2 link)	2-11
2.6	Onboard I	LEDs	2-12
2.7	Jumpers.		2-13
2.8	Connecto	rs	2-15
	2.8.1	Rear panel connectors	2-15
	2.8.2	Internal connectors	2-16
Chapte	er 3:	Powering Up	
3.1	Starting u	p for the first time	3-3
3.2	Powering	off the computer	3-4

Contents

Chapte	er 4:	BIOS setup	
4.1	Managin	ng and updating your BIOS	4-3
	4.1.1	ASUS CrashFree BIOS 3 utility	4-3
	4.1.2	ASUS EzFlash Utility	4-4
	4.1.3	BUPDATER utility	4-5
4.2	BIOS set	tup program	4-7
	4.2.1	BIOS menu screen	4-8
	4.2.2	Menu bar	4-8
	4.2.3	Menu items	4-9
	4.2.4	Submenu items	4-9
	4.2.5	Navigation keys	4-9
	4.2.6	General help	4-9
	4.2.7	Configuration fields	4-9
	4.2.8	Pop-up window	4-9
	4.2.9	Scroll bar	4-9
4.3	Main me	nu	4-10
	4.3.1	System Language [English]	4-10
	4.3.2	System Date	4-10
	4.3.3	System Time	4-10
4.4	Advance	ed menu	4-11
	4.4.1	Enable CRID [Disabled]	4-11
	4.4.2	ACPI Settings	4-12
	4.4.3	NCT6779D Super IO Configuration	4-13
	4.4.4	Serial Port Console Redirection	4-14
	4.4.5	Onboard LAN I354 Configuration	4-16
	4.4.6	APM	4-17
	4.4.7	PCI Subsystem Settings	4-18
	4.4.8	Network Stack Configuration	4-22
	4.4.9	CSM Configuration	4-22
	4.4.10	Trusted Computing	4-24
	4.4.11	USB Configuration	4-24
	4.4.12	iSCSI Configuration	4-26
	4.4.13	Intel(R) Ethernet Connection I354	4-26
	4.4.14	Driver Health	4-27
4.5	IntelRCS	Setup menu	4-28
	4.5.1	Processor Configuration	4-29
	4.5.2	Thermal Configuration	
	4.5.3	USB Configuration	4-36
	4.5.4	CK420 Configuration	4-36
	4.5.5	Network Configuration	4-37

Contents

	4.5.6	North Bridge Chipset Configuration	
	4.5.7	Wake On Lan Configuration	4-44
	4.5.8	South Bridge Chipset Configuration	4-44
	4.5.9	System Event Log	
4.6	Server N	/Igmt menu	
	4.6.1	System Event Log	
	4.6.2	View FRU information	
	4.6.3	BMC network configuration	
	4.6.4	View System Event Log	
	4.6.5	IPv6 BMC Network Configuration	
4.7	Event Lo	ogs menu	
	4.7.1	Change Smbios Event Log Settings	
	4.7.2	View Smbios Event Log	4-56
4.8	Security	/	4-57
4.9	Boot me	enu	
4.10	Monitor	menu	
4.11	Tool me	nu	
4.12	Exit mer	nu	
Chapte	er 5:	Driver installation	
5.1	Manage	ment applications and utilities installation	5-3
5.2	Running	g the Support DVD	5-3
5.3	Installin	g the LAN driver	5-11
5.4	Installin	g the VGA driver	5-16
5.5	Installin	g the Intel [®] I354 Gigabit Adapters driver	5-19
Appen	dix A:	Reference Information	
A.1	Block di	iagram	A-3
	contact in	formation	1

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received including interference that may cause undesired operation.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

REACH

Complying with the REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulatory framework, we publish the chemical substances in our products at ASUS REACH website at http://csr.asus.com/english/REACH.htm.

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are
 not sure about the voltage of the electrical outlet you are using, contact your local power
 company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.



DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.



DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

Australia statement notice

From 1 January 2012 updated warranties apply to all ASUS products, consistent with the Australian Consumer Law. For the latest product warranty details please visit <u>http://</u><u>support.asus.com</u>. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

If you require assistance please call ASUS Customer Service 1300 2787 88 or visit us at http://support.asus.com

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This user guide contains the following parts:

Chapter 1: Product introduction

This chapter describes the features of the motherboard and the new technologies it supports.

Chapter 2: Hardware information

This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the switches, jumpers, and connectors on the motherboard.

Chapter 3: Powering up

This chapter describes the power up sequence and ways of shutting down the system.

Chapter 4: BIOS setup

This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Chapter 5: Driver installation

This chapter provides instructions for installing the necessary drivers for different system components.

Appendix: Reference information

This appendix includes additional information that you may refer to when configuring the motherboard.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. ASUS websites

The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. Optional documentation

Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.



DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task

IMPORTANT: Instructions that you MUST follow to complete a task.



NOTE: Tips and additional information to help you complete a task.

Typography

Bold text Italics <key></key>	Indicates a menu or an item to select. Used to emphasize a word or a phrase. Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.
<key1> + <key2> + <key3></key3></key2></key1>	Example: <enter> means that you must press the Enter or Return key. If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).</enter>
Command	Example: <ctrl> + <alt> + Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets. Example: At DOS prompt, type the command line:</alt></ctrl>
	format A:/S

P9A-I Series Specifications Summary

Model Name		P9A-I/C2750/SAS/4L P9A-I/C2550/SAS/4L P9A-I/C2550/4L				
Drococor Supp	ort / Sustam Rua	Intel [®] Atom [®] C-Series FCBGA processor (Avoton)				
		C2750 C2550				
Form Factor		Mini-ITX, 6.7 in. x 6.7 in.				
	Fan Speed Control	\checkmark				
ASUS realures	ASWM Enterprise	\checkmark				
	Total Slots	2 (2 Channels)				
Memory	Capacity	Maximum up to 32GB				
	Memory Type	DDR3 1333/1600 ECC/Non-ECC UDIMM				
Expansion Slots (follow	Total PCI//PCI-X/ PCI-E Slots	1				
SSI Location number)	Slot Location 7	1 x PCI-E x8 (x4 Gen2 link)				
	SATA Controller	2 x SATA 6Gb/s ports (1 for SATA 6Gb/s or M.2 connector)				
Storage	SAS Controller	4 x MiniSAS connector (Marvell 88SE9485 x 2; supports up to 16 SAS/ SATA 6Gb/s HDD connections)				
Networking	LAN	AN 4 x Marvell 88E1543 Quad PHY ports 1 x Management port				
Graphic	VGA	Aspeed AST2300 32MB				
	PSU Connector	24-pin ATX power connector 4-pin ATX 12V power connector				
	Fan Header	5 x 4-pin headers				
Onboard I/O	Chassis Intruder	1				
Connectors	Front LAN LED	4				
	Serial Port Header	1				
	SATA DOM Power Connector	1				
	M.2 Connector	1 (NGFF Type 2242, Capacity 16~128 GB)				
	External USB Port	2 x USB 2.0				
Rear I/O	VGA Port	1				
Connectors	RJ-45	4 x GbE LAN 1 x Management LAN				
	Software	ASWM Enterprise				
Management Solution	Out of Band Remote Management	ASMB7-iKVM for KVM-over-Internet				
Manifestin	CPU Temperature	\checkmark				
Monitoring	FAN RPM	\checkmark				
Regulatory Com	pliance	CE, FCC(Class B)				

(continued on the next page)

P9A-I Series Specifications Summary

Environment		Operation temperature: 10°C – 35°C (50°F – 95°F) Non operation temperature: -40°C – 70°C (-40°F – 158°F) Non operation humidity: 20% – 90% (Non condensing)
Dreduct OKUs	Standard Gift Box Pack with ASMB7	\checkmark
Product SKUS	Standard Bulk Pack with ASMB7	\checkmark



Specifications are subject to change without notice.

Chapter 1: Product Introduction

1

Chapter summary

This chapter describes the motherboard features and the new technologies it supports. This chapter contains the following sections:

1.1	Welcome!	1-3
1.2	Package contents	1-3
1.3	Serial number label	1-3
1.4	Special features	1-3

1.1 Welcome!

Thank you for buying an ASUS® P9A-I Series motherboard!

The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of ASUS quality motherboards!

Before you start installing the motherboard and hardware devices on it, check the items in your package with the list below.

1.2 Package contents

Check your motherboard package for the following items.

Items		Standard Gift Box Pack	Standard Bulk Pack
CPU fan (P9A-I/C2750/SAS/4L only)		1	1
I/O Shield		1	1
Cables	SATA 6Gb/s cable	2	-
Caples	COM port cable	1	-
Application CD	Support CD	2	2
Application CD	ASWM Enterprise SDVD	1	1
Packaging Qty.		1 pc per carton	10 pcs per carton



 Install a CPU fan on P9A-I/C2750/SAS/4L, when the airflow through the heatsink is below 1.5CFM.

If any of the above items is damaged or missing, contact your retailer.

1.3 Serial number label

Before requesting support from the ASUS Technical Support team, you must take note of the motherboard's serial number containing 12 characters **xxS2xxxxxxx** shown as the figure below. With the correct serial number of the product, ASUS Technical Support team members can then offer a quicker and satisfying solution to your problems.



1.4 Special features

1.4.1 Product highlights

Latest processor technology

This motherboard supports the latest Intel[®] Atom[®] C-Series FCBGA processor, which has memory and PCI Express controller integrated to support 2-channel (2 DIMMs) DDR3 memory and 4 PCI Express 2.0 lanes. The Intel[®] Atom[®] C-Series FCBGA processor has improve CPU performance and integrated voltage regulators making it one of the most powerful and energy efficient CPU in the world.

Intel[®] Turbo Boost

Intel[®] Turbo Boost automatically allows the processor to run faster than the marked frequency if the processor is operating below its power, current, and temperature specification limits. This technology increases performance of both multi-threaded and single-threaded workloads.

DDR3 memory support

The motherboard supports ECC/Non-ECC UDIMM DDR3 memory that features data transfer rates of 1600/1333 MHz to meet the higher bandwidth requirements of server and workstation applications. The dual-channel DDR3 architecture boosts system performance, eliminates bottlenecks with peak bandwidth up to 25.6GB/s, and dramatically reduces the memory voltage to just 1.5V compared to DDR2's memory voltage of 1.8V.

Marvell 88E1543 Quad PHY LAN Solution

The motherboard comes with four LAN controllers and ports which provide a total solution for your networking needs. The onboard Marvell 88E1543 Quad PHY LAN controllers use the SGMII interface and could achieve network throughput close to Gigabit bandwidth.

Enhanced Intel SpeedStep Technology (EIST)

The Enhanced Intel SpeedStep Technology (EIST) intelligently manages the CPU resources by automatically adjusting the CPU voltage and core frequency depending on the CPU loading and system speed or power requirement.

Serial ATA III technology

The motherboard supports the Serial ATA III 6 Gb/s technology through the Serial ATA interface. Get enhanced scalability, faster data retrieval, double the bandwidth of current bus systems with up to 6Gbps data transfer rates.

M.2 Support

This motherboard features the M.2 slot, which shares bandwidth with the SATA 6Gb/s port and is dedicated to the operating system.

Temperature, fan, and voltage monitoring

The CPU temperature is monitored to prevent overheating and damage. The system fan rotations per minute (RPM) is monitored for timely failure detection. The chip monitors the voltage levels to ensure stable supply of current for critical components.

1.4.2 Innovative ASUS features

ASUS Fan Speed technology

The ASUS Fan Speed technology smartly adjusts the fan speeds according to the system loading to ensure quiet, cool, and efficient operation.

Chapter 2: Hardware Information



Chapter summary

This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard. This chapter contains the following sections:

2.1	Before you proceed	2-3
2.2	Motherboard overview	
2.3	Central Processing Unit (CPU)	
2.4	System memory	
2.5	Expansion slots	2-10
2.6	Onboard LEDs	2-12
2.7	Jumpers	
2.8	Connectors	

2.1 Before you proceed

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



- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the power supply 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.

2.2 Motherboard overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

To optimize the motherboard features, we highly recommend that you install it in an ATX 2.0 compliant chassis.



Ensure to unplug the chassis power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components!

2.2.1 Placement direction

When installing the motherboard, ensure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

2.2.2 Screw holes

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



2.2.3 Motherboard layout

P9A-I/C2750/SAS/4L, P9A-I/C2550/SAS/4L



P9A-I/C2550/4L



2.2.4 Layout contents

Slots/Sockets		Page
1.	DDR3 sockets	2-8
2.	PCI Express x8	2-11

Onboard LEDs		Page
1. Standby Power LED (SB_PWR1)		2-12
2.	Baseboard Management Controller LED (BMC_LED1)	2-12

Jumpers		Page
1.	Clear RTC RAM (3-pin CLRTC1)	2-13
2.	SATA M.2 and SATA II selection (3-pin MSATA_SW1)	2-13
3.	VGA controller setting (3-pin VGA_SW1)	2-14
4.	Baseboard Management Controller setting (3-pin BMC_SW1)	2-14
5.	Marvell 88E1543 Quad PHY LAN controller setting (3-pin PHY_ SW1)	2-14

Rear par	nel connectors	Page
1.	Power button	2-15
2.	Location LED	2-15
3.	Message LED	2-15
4.	HDD Error LED	2-15
5.	Video Graphics Adapter port	2-15
6.	USB 2.0 ports 1 and 2	2-15
7.	RJ-45 ports (4 x GbE LAN, 1 x Management LAN)	2-15

Internal	connectors	Page
1.	Serial ATA 6.0 Gb/s connectors (7-pin SATA 6G_1 connector [Light Blue]) (7-pin SATA 6G_2 connector [Gray], for SATA 6.0 Gb/s or M.2 connector)	2-16
2.	Mini-SAS connectors	2-21
3.	CPU and front fan connectors (4-pin CPU_FAN1, 4-pin FRNT_FAN1~4)	2-17
4.	M.2 Socket 3	2-16
5.	ATX power connectors (24-pin EATXPWR1, 4-pin CON1)	2-18
6.	Serial port connector (10-1 pin COM1)	2-17
7.	System panel connector (20-1 pin PANEL1)	2-19
8.	LAN34_LED connector (5-1 pin LAN34_LED1)	2-22
9.	SATA power connector (4-pin SATAPWR1)	2-18
10.	Thermal sensor cable connector (3-pin TR1)	2-21
11.	Auxiliary panel connector (20-2 pin AUX_PANEL1)	2-20

2.3 Central Processing Unit (CPU)

The motherboard comes with an integrated Intel® Atom® C-Series FCBGA processor.



P9A-I CPU

2.4 System memory

2.4.1 Overview

The motherboard comes with two Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.

A DDR3 module has the same physical dimensions as a DDR2 DIMM but is notched differently to prevent installation on a DDR2 DIMM socket. DDR3 modules are developed for better performance with less power consumption.

The figure illustrates the location of the DDR3 DIMM sockets:



P9A-I 240-pin DDR3 DIMM sockets

- When using only one memory module, install it into slot DIMM_A1.
- Always install identical DIMMs into both the slots.

2.4.2 Memory Configurations

You may install 2 GB, 4 GB, 8 GB, and 16 GB Unbuffered with ECC/Non-ECC DDR3 DIMMs into the DIMM sockets using the memory configurations in this section.

		UDIMM		
DIMM Slot Per Channel	DIMM Populated per Channel	DIMM Type	Speed	Rank per DIMM
1	1	Unbuffered DDR3	1333/1600	Single Rank, Dual Rank



Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.

2.4.3 Installing a DIMM on a single clip DIMM socket

- 1. Unlock a DIMM socket by pressing the retaining clip outward.
- 2. Align a DIMM on the socket such that the notch on the DIMM matches the DIMM slot key on the socket.



A DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket in the wrong direction to avoid damaging the DIMM.

 Hold the DIMM by both of its ends then insert the DIMM vertically into the socket. Apply force to both ends of the DIMM simultaneously until the retaining clip snaps back into place and the DIMM cannot be pushed in any further to ensure proper sitting of the DIMM.





Always insert the DIMM into the socket vertically to prevent DIMM notch damage.

- To install two or more DIMMs, refer to the user guide bundled in the motherboard package.
 - Refer to the user guide for qualified vendor lists of the memory modules.

Removing a DIMM from a single clip DIMM socket

- 1. Press the retaining clip outward to unlock the DIMM.
- 2. Remove the DIMM from the socket.





Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2.5 Expansion slots

In the future, you may need to install expansion cards. The following subsections describe the slots and the expansion cards that they support.



Ensure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

2.5.1 Installing an expansion card

To install an expansion card:

- 1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
- 2. Remove the system unit cover (if your motherboard is already installed in a chassis).
- Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
- 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- 5. Secure the card to the chassis with the screw you removed earlier.
- 6. Replace the system cover.

2.5.2 Configuring an expansion card

After installing the expansion card, configure it by adjusting the software settings.

- 1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 4 for information on BIOS setup.
- 2. Assign an IRQ to the card. Refer to the tables on the next page.
- 3. Install the software drivers for the expansion card.



When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

2.5.3 Interrupt assignments

Standard Interrupt assignments

IRQ	Priority	Standard function
0	1	System Timer
1	2	Keyboard Controller
2	-	Programmable Interrupt
3*	12	Communications Port (COM1)
4*	13	
5	14	Floppy Disk Controller
6*	15	
7	3	System CMOS/Real Time Clock
8*	4	ACPI Mode when used
9*	5	IRQ Holder for PCI Steering
10*	6	IRQ Holder for PCI Steering
11	8	Numeric Data Processor
12*	9	Primary IDE Channel
13*	10	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

2.5.4 PCI Express x8 slot (x4 Gen2 link)

The onboard PCIE x8 slot provides one x4 Gen2 link to CPU1. This slot supports various server class high performance add-on cards such as SCSI RAID card, fiber-channel card, and others.



No.(Slot location)	Short Des	hort Description	
1	PCIE1	1 x PCI-E x8 (x4 Gen2 link)	

2.6 Onboard LEDs

1. Standby Power LED (SB_PWR1)

The motherboard comes with a standby power LED. The green LED lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.



.

2. Baseboard Management Controller LED (BMC_LED1)

The green heartbeat LED blinks per second to indicate that the ASMB7 is working normally. The BMC LED works with the ASUS ASMB7 management device and indicates its initiation status. When the PSU is plugged and the system is OFF, ASUS ASMB7 management device starts system initiation for about one (1) minute. The BMC LED blinks after system initiation finishes.





- The heartbeat LED functions only when you install the ASUS ASMB7 Management card.
- Everytime after the AC power is replugged, you have to wait for about 60 seconds for the system to power up.

2.7 Jumpers

1. Clear RTC RAM (3-pin CLRTC1)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

- 1. Turn OFF the computer and unplug the power cord.
- 2. Move the jumper cap from pins 1–2 (default) to pins 2–3. Keep the cap on pins

2-3 for about 5-10 seconds, then move the cap back to pins 1-2.

- 3. Plug the power cord and turn ON the computer.
- 4. Hold down the key during the boot process and enter BIOS setup to reenter data.



Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!



If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.



P9A-I Clear RTC RAM

2. SATA M.2 and SATA III selection (3-pin MSATA_SW1)

Set to pins 1–2 to allow the system to automatically enable the SATA M.2 or SATA III controllers when SATA M.2 or SATA III devices are detected. Set to pins 2–3 to enable the SATA M.2 controller with SATA III interface disabled.



3. VGA controller setting (3-pin VGA_SW1)

This jumper allows you to enable or disable the onboard VGA controller. Set to pins 1– 2 to activate the VGA feature.



4. Baseboard Management Controller setting (3-pin BMC_SW1)

This jumper allows you to enable or disable the ASMB7 remote server management feature.



P9A-I BMC setting

5. Marvell 88E1543 Quad PHY LAN controller setting (3-pin PHY_SW1)

This jumper allows you to enable or disable the onboard Marvell 88E1543 Quad PHY LAN controller. Set to pins 1–2 to enable the onboard Marvell 88E1543 Quad PHY LAN controller.



P9A-I LAN controller setting

28 Connectors

2.8.1 **Rear panel connectors**



- 1 Power button. Press this button to turn the system on/off.
- 2. RJ-45 port for BMC. This port allows Gigabit connection to a Local Area Network (LAN) through a network hub for BMC management function. Refer to the table below for the LAN port LED indications.
- 3. RJ-45 ports for LAN1-4. These ports allows Gigabit connection to a Local Area Network (LAN) through a network hub. LAN1 can be configured as shared BMC LAN. Refer to the table below for the LAN port LED indications.
- 4. USB 2.0 ports 1 and 2. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
- 5. Video Graphics Adapter (VGA) port. This 15-pin port is for a VGA monitor or other VGA-compatible devices.
- 6. Message LED. The message LED is controlled by Hardware monitor to indicate an abnormal event occurance.
- 7. HDD Error LED. The HDD Error LED lights up or flashes when HDD errors are found.
- 8. Location LED. The Location LED is an onboard LED that lights up when the Location Button on the front panel is pressed. This LED helps you visually locate the server among other servers especially when you are located at the back of the server rack.

LAN port LED indications

Activity/Link LED		Speed LED		AC
Status	Description	Status	Description	
Off	No link	Off	10 Mbps connection	
Green	Linked	Orange	100 Mbps connection	
Green (Blinking)	Data activity	Green	1 Gbps connection	
Green (Blinking then steady)	Ready to wake up from S5 mode	_	_	



SPEED

I ED

LAN port

2.8.2 Internal connectors

1. Serial ATA 6.0 Gb/s connectors

(7-pin SATA 6G_1 connector [Light Blue])

(7-pin SATA 6G_2 connector [Gray], for SATA 6Gb/s or M.2 connector)

These connectors are for the Serial ATA signal cables for Serial ATA hard disk drives that allows up to 6Gb/s of data transfer rate.



P9A-I SATA 6.0Gb/s connectors



- The actual data transfer rate depends on the speed of Serial ATA hard disks installed.
- The gray SATA port 2 shares bandwidth with M.2 Socket 3. Refer to section 2.7 Jumpers of this user guide for more details.

2. M.2 Socket 3

This socket allows you to install an M.2 (NGFF) SSD module.



- This socket supports M Key and type 2242 storage devices.
- The M.2 Socket 3 shares bandwidth with SATA port 2. Refer to section 2.7 Jumpers of this user guide for more details.



The M.2 (NGFF) SSD module is purchased separately.

3. CPU and front fan connectors (4-pin CPU_FAN1, FRNT_FAN1~4)

The fan connectors support cooling fans. Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.



- DO NOT forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components.
- These are not jumpers! DO NOT place jumper caps on the fan connectors!
- All fans feature the ASUS Smart Fan technology.



4. Serial port connector (10-1 pin COM1)

This connector is for a serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.



5. ATX power connectors (24-pin EATXPWR1, 4-pin CON1)

These connectors are for the ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

DO NOT forget to connect the 24-pin and the 4-pin power plugs; otherwise, the system will not boot up.

- Use of a power supply unit (PSU) with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
- This motherboard supports ATX2.0 PSU or later version.
- Ensure that your PSU can provide at least the minimum power required by your system.



P9A-I ATX power connectors

6. SATA power connector (4-pin SATAPWR1)

This connector is for the SATA power cable. The power cable plug is designed to fit this connector in only one orientation. Find the proper orientation and push down firmly until the connector completely fit.



P9A-I SATA power connector

7. System panel connector (20-1 pin PANEL1)

This connector supports several chassis-mounted functions.



P9A-I System panel connector

1. Reset button (2-pin RESET)

This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

2. Power button/soft-off button (2-pin PWRSW)

This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

3. Hard disk drive activity LED (2-pin +HDLED)

This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The HDD Activity LED lights up or flashes when data is read from or written to the HDD.

4. System warning speaker (4-pin SPEAKER)

This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

5. Message LED (2-pin MLED)

This 2-pin connector is for the message LED cable that connects to the front message LED. The message LED is controlled by Hardware monitor to indicate an abnormal event occurance.

6. System power LED (3-pin PLED)

This 3-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

8. Auxiliary panel connector (20-2 pin AUX_PANEL1)

This connector is for additional front panel features including front panel SMB, locator LED and switch, chassis intrusion, and LAN LEDs.



P9A-I Auxiliary panel connector

1. Front panel SMB (6-1 pin FPSMB)

These LEDs connect the front panel SMBus cable.

2. LAN activity LED (2-pin LAN1LINK and 2-pin LAN2LINK)

These LEDs are for Gigabit LAN activity LEDs on the front panel.

3. Chassis intrusion (4-1 pin AUX_CHASSIS)

These LEDs are for the intrusion detection feature for chassis with intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to these LEDs to record a chassis intrusion event. The default setting is short CASEOPEN and GND pin by jumper cap to disable the function.

4. Locator LED (2-pin AUX_LOCLED1 and 2-pin AUX_LOCLED2)

These LEDs are for the Locator LED1 and LED2 on the front panel. Connect the Locator LED cables to these 2-pin connector. The LEDs will light up when the Locator button is pressed.

5. Locator Button/Switch (2-pin AUX_BMCLOCBNT)

These LEDs are for the locator button on the front panel. This button queries the state of the system locator.
9. Mini-SAS connectors (MiniSAS1~4)

This motherboard comes with four mini Serial Attached SCSI (SAS) connectors, the storage technology that supports both Serial Attached SCSI and Serial ATA. Each connector supports up to four deives.



P9A-I Mini-SAS connector

10. Thermal sensor cable connector (3-pin TR1)

These connectors are for temperature monitoring. Connect the thermal sensor cables to these connectors and place the other ends to the devices, which you want to monitor temperature.



P9A-I Thermal sensor cable connector

11. LAN34_LED connector (5-1 pin LAN34_LED1)

These LEDs are for Gigabit LAN activity LEDs on the front panel. Connect the LAN LED cable to the backplane for LAN activity indication.



P9A-I LAN3 & LAN4 LED

Chapter 3: Powering Up

3

Chapter summary

This chapter describes the power up sequence, and ways of shutting down the system. This chapter contains the following sections:

3.1	Starting up for the first time	-3
3.2	Powering off the computer	-4

3.1 Starting up for the first time

- 1. After making all the connections, replace the system case cover.
- 2. Be sure that all switches are off.
- 3. Connect the power cord to the power connector at the back of the system chassis.
- 4. Connect the power cord to a power outlet that is equipped with a surge protector.
- 5. Turn on the devices in the following order:
 - a. Monitor
 - b. External storage devices (starting with the last device on the chain)
 - c. System power
- 6. After applying power, the system power LED on the system front panel case lights up. For systems with ATX power supplies, the system LED lights up when you press the ATX power button. If your monitor complies with "green" standards or if it has a "power standby" feature, the monitor LED may light up or switch between orange and green after the system LED turns on.

The system then runs the power-on self-test or POST. While the tests are running, the BIOS beeps or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections or call your retailer for assistance.

7. At power on, hold down the key to enter the BIOS Setup. Follow the instructions in Chapter 4.

3.2 Powering off the computer

3.2.1 Using the OS shut down function

Using Windows[®] Server 2008 R2:

- 1. Click the **Start** button, move the cursor to the triangle on the right of Log off, then click **Shut Down**.
- 2. From the **Shutdown Event Tracker**, select the option that best describes why you want to shut down the computer.
- 3. Ensure that the **Planned** check box is checked.
- 4. If necessary, key in comments.
- 5. Click OK.

Using Windows[®] Server 2012:

- 1. Press <Ctrl>+<Alt>+.
- 2. Click on the Power icon on the lower right side of the screen.
- 3. Select Shut down.
- In the Shutdown Event Tracker, select the Other (Planned) option in the selection lists. Otherwise, select the option that best describes why you want to shut down the computer.
- 5. Click Continue.

3.2.2 Using the dual function power switch

While the system is ON, press the power switch for less than four seconds to put the system to sleep mode or to soft-off mode, depending on the BIOS setting.



Pressing the power switch for more than four seconds lets the system enter the soft-off mode regardless of the BIOS setting.

Chapter 4: BIOS setup

4

Chapter summary

This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

This chapter contains the following sections:

4.1	Managing and updating your BIOS	4-3
4.2	BIOS setup program	4-7
4.3	Main menu	4-10
4.4	Advanced menu	4-11
4.5	IntelRCSetup menu	4-28
4.6	Server Mgmt menu	4-50
4.7	Event Logs menu	
4.8	Security	4-57
4.9	Boot menu	
4.10	Monitor menu	
4.11	Tool menu	4-62
4.12	Exit menu	

4.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup:

1. ASUS CrashFree BIOS 3

To recover the BIOS using a bootable USB flash disk drive when the BIOS file fails or gets corrupted.

2. ASUS EzFlash

Updates the BIOS using a USB flash disk.

3. BUPDATER

Updates the BIOS in DOS mode using a bootable USB flash disk drive.

Refer to the corresponding sections for details on these utilities.



Save a copy of the original motherboard BIOS file to a bootable USB flash disk drive in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the BUPDATER utility.

4.1.1 ASUS CrashFree BIOS 3 utility

The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using a USB flash drive that contains the updated BIOS file.



Prepare a USB flash drive containing the updated motherboard BIOS before using this utility.

Recovering the BIOS from a USB flash drive

To recover the BIOS from a USB flash drive:

- 1. Insert the USB flash drive with the original or updated BIOS file to one USB port on the system.
- 2. The utility will automatically recover the BIOS. It resets the system when the BIOS recovery finished.



DO NOT shut down or reset the system while recovering the BIOS! Doing so would cause system boot failure!



The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the ASUS website at www.asus.com to download the latest BIOS file.

4.1.2 ASUS EzFlash Utility

The ASUS EzFlash Utility feature allows you to update the BIOS using a USB flash disk without having to use a DOS-based utility.



Download the latest BIOS from the ASUS website at www.asus.com before using this utility.



The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be the same as shown.

To update the BIOS using EzFlash Utility:

- 1. Insert the USB flash disk that contains the latest BIOS file to the USB port.
- 2. Enter the BIOS setup program. Go to the **Tool** menu to select **ASUS EzFlash Utility** and press <Enter> to enable it.

ASUS Tek. EzFlash Utility			
Current PlatformNew PlatformPlatform : P9A-TPlatform : P9A-TVersion : 0201Version : 0202Build Date :04/10/2014Build Date :04/15/2014			
FS0 System Volume Information P9A-I Bios Windows			
[Up/Down/Left/Right]:Switch [Enter]:Choose [q]:Exit			

- 3. Press <Tab> to switch to the Drive field.
- 4. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS then press <Enter>.
- 5. Press <Tab> to switch to the Folder Info field.
- 6. Press the Up/Down arrow keys to find the BIOS file then press <Enter>.
- 7. Reboot the system when the update process is done.



- This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.
- DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!



Ensure to load the BIOS default settings to ensure system compatibility and stability. Press <F5> and select **Yes** to load the BIOS default settings.

4.1.3 BUPDATER utility



The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be the same as shown.

The BUPDATER utility allows you to update the BIOS file in DOS environment using a bootable USB flash disk drive with the updated BIOS file.

Updating the BIOS file

To update the BIOS file using the BUPDATER utility:

- 1. Visit the ASUS website at www.asus.com and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable USB flash disk drive.
- Download the BUPDATER utility (BUPDATER.exe) from the ASUS support website at support.asus.com to the bootable USB flash disk drive you created earlier.
- 3. Boot the system in DOS mode, then at the prompt, type:

BUPDATER /i[filename].CAP

where [filename] is the latest or the original BIOS file on the bootable USB flash disk drive, then press <Enter>.

A:\>BUPDATER /i[file name]CAP



The utility verifies the file, then starts updating the BIOS file.



DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

The utility returns to the DOS prompt after the BIOS update process is completed.

4. Reboot the system from the hard disk drive.



4.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section **4.1 Managing and updating your BIOS**.

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to "Run Setup." This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the firmware chip.

The firmware chip on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl>+<Alt>+, or by pressing the reset button on the system chassis. You can also restart by turning the system off then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.



- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Press <F5> and select Yes to load the BIOS default settings.
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.

4.2.1 BIOS menu screen



Navigation keys

4.2.2 Menu bar

The menu bar on top of the screen has the following main items:

Main	For changing the basic system configuration
Advanced	For changing the advanced system settings
IntelRCSetup	For changing the processor and chipset settings
Server Mgmt	For changing the Server Management settings
Event Logs	For changing the event log settings
Security	For changing the security settings
Boot	For changing the system boot configuration
Monitor	For displaying the system temperature, power status, and changing the fan settings
Tool	For configuring options for special functions
Exit	For selecting the exit options

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

4.2.3 Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting **Main** shows the Main menu items. The other items (Advanced, Event Logs, Boot, Monitor, Security, Tool, and Exit) on the menu bar have their respective menu items.

4.2.4 Submenu items

A solid triangle before each item on any menu screen means that the item has a submenu. To display the submenu, select the item and press <Enter>.

Aptio Setup Utility - Copyright Main Advanced IntelRCSetup Server Mg	(C) 2013 American Mega mt Event Logs Securi	trends, Inc. ty Boot Monitor Tool Exit
Enable CRID		Enable Compatible Revision
ACPI Settings		10
▶ NCT6779D Super IO Configuration		

4.2.5 Navigation keys

At the bottom right corner of a menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

4.2.6 General help

At the top right corner of the menu screen is a brief description of the selected item.

4.2.7 Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable. A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

4.2.8 Pop-up window

Select a menu item and press <Enter> to display a pop-up window with the configuration options for that item.

4.2.9 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> /<Page Down> keys to display the other items on the screen.

4.3 Main menu

When you enter the BIOS Setup program, the Main menu screen appears. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, and language settings.

Aptio Setup Utility - Cop Main Advanced IntelRCSetup Se	yright (C) 2013 American Megat rver Mgmt Event Logs Securit	rends, Inc. y Boot Monitor Tool Exit
BIOS Information BIOS Vendor Core Version Compliancy BIOS Version Build Date	American Megatrends 5.009 UEFI 2.3.1; PI 1.2 0202 x64 04/15/2014	Choose the system default language
System Language		
System Date System Time	[Saturday 01/01/2000] [00:38:01]	
Access Level	Administrator	<pre>→→: Select Screen ↑↓: Select Item Enter: Select t/-: Change Opt. F1: General Help F2: Previous Values F5: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
	a 111 (a) 0010 a 1	

4.3.1 System Language [English]

Allows you to choose the BIOS language version from the options. Configuration options: [English]

4.3.2 System Date

Allows you to set the system date to [Day mm/dd/yyyy].

Where:

Day = Day of the week

mm = month (numeric value)

dd = day (numeric value)

yyyy = year (numeric value)

4.3.3 System Time

Allows you to set the system time to [hh/mm/ss].

hh = hour (numeric value)

mm = minutes (numeric value)

ss = seconds (numeric value)

4.4 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.



Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

Aptio Setup Utility - Copyright (C) 2013 American Megat Main <mark>Advanced</mark> IntelRCSetup Server Mgmt Event Logs Securit	trends, Inc. Ty Boot Monitor Tool Exit
Enable CRID [Disabled]	Enable Compatible Revision ID
ACPI Settings	
NCT6779D Super IO Configuration	
Serial Port Console Redirection	
Onboard LAN I354 Configuration	
▶ APM	
PCI Subsystem Settings	
Network Stack Configuration	
▶ CSM Configuration	
Trusted Computing	
▶ USB Configuration	
► ISCSI Configuration	
Intel(R) Ethernet Connection 1354-40:16:/E:/F:D8:07	
Intel(R) Ethernet Connection I354-40:16:7E:7F:D8:08	
Intel(R) Ethernet Connection I354-40:16:7E:7F:D8:09	
▶ Intel(R) Ethernet Connection I354-40:16:7E:7F:D8:0A	
Driver Health	

4.4.1 Enable CRID [Disabled]

Allows you to enable or disable the compatible revision ID. Configuration options: [Enabled] [Disabled]

4.4.2 ACPI Settings



Enable ACPI Auto Configuration [Disabled]

Allows you to enable or disable BIOS ACPI Auto Configuration. Configuration options: [Enabled] [Disabled]



This following items appear only when you set **Enable ACPI Auto Configuration** to [Disabled].

Enable Hibernation [Disabled]

Enables or disables system ability to Hibernate (0S/S4 sleep state). This option may be not effective with some OS. Configuration options: [Enabled] [Disabled]

ACPI Sleep State [Suspend Disabled]

Allows you to set the ACPI Sleep State. Configuration options: [Suspend Disabled] [S3 only (Suspend to RAM)]

Lock Legacy Resources [Disabled]

Allows you to enable or disable Lock Legacy Resources. Configuration options: [Enabled] [Disabled]

4.4.3 NCT6779D Super IO Configuration



Serial Port 1 Configuration

The sub-items in this menu allows you to set the parameters of the Serial Port 1 (COM1).

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM 1/2). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

This item only appears when you set the Serial Port to [Enabled]. This item allows you to select the serial port base address. Configuration options:

```
[Auto]
[IO=3F8h; IRQ=4]
[IO=3F8h: IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]
[IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]
[IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]
[IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]
```

Parallel Port Configuration

The sub-items in this menu allow you to set the parallel port configuration.

Parallel Port [Enabled]

Allows you to enable or disable the parallel port (LPT/LPTE). Configuration options: [Enabled] [Disabled]



The following items appear only when you set Parallel Port Configuration to [Enabled].

Change Settings [Auto]

Allows you to select an optimal setting for Super I/O devices. Configuration options: [Auto] [IO=378h; IRQ=5;] [IO=378h; IRQ=5,6,7,9,10,11,12;] [IO=278h; IRQ=5,6,7,9,10,11,12;] [IO=3BCh; IRQ=5,6,7,9,10,11,12;]

Device Mode [STD Printe...]

Allows you to select the Printer Port mode. Configuration options: [STD Printer Mode] [SPP Mode] [EPP-1.9 and SPP Mode] [EPP-1.7 and SPP Mode] [ECP Mode] [ECP and EPP 1.9 Mode] [ECP and EPP 1.7 Mode]

4.4.4 Serial Port Console Redirection



COM1 Console Redirection [Disabled]

Allows you to enable or disable the console redirection feature. Configuration options: [Disabled] [Enabled]



The **Console Redirection Settings** becomes configurable when **Console Redirection** is set to [Enabled].

COM1 Console Redirection Settings

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Terminal Type [VT-UTF8]

Allows you to set the terminal type.

 [VT100]
 ASCII char set.

 [VT100+]
 Extends VT100 to support color, function keys, among others

 [VT-UTF8]
 Uses UTF8 encoding to map Unicode chars onto 1 or more bytes

 [ANSI]
 Extended ASCII char set

Bits per second [57600]

Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds. Configuration options: [9600] [19200] [38400] [57600] [115200]

Data Bits [8]

Allows you to set the data bits. Configuration options: [7] [8]

Parity [None]

Allows you to select the parity bit. A parity bit is sent with the data bits to detect transmission errors. Configuration options: [None] [Even] [Odd] [Mark] [Space]

Stop Bits [1]

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning.) The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. Configuration options: [1] [2]

Flow Control [Hardware RTS/CTS]

Flow control can 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 re-start the flow. Hardware flow control uses two wires to send start/stop signals. Configuration options: [None] [Hardware RTS/CTS1

VT -UTF8 Combo Key Support [Enabled]

This allows you to enable the VT -UTF8 Combination Key Support for ANSI/VT100 terminals. Configuration options: [Disabled] [Enabled]

Recorder Mode [Disabled]

This allows you to enable or disable the Recorded mode to capture Terminal data. Configuration options: [Disabled] [Enabled]

Legacy OS Redirection Resolution [80x24]

This allows you to set the number of rows and columns supported on the Legacy OS. Configuration options: [80x24] [80x25]

Putty Keypad [VT100]

This allows you to select the FunctionKey and Keypad on Putty. Configuration options: [VT100] [LINUX] [XTERMR6] [SCO] [ESCN] [VT400]

Redirection After BIOS POST [Always Enable]

This setting allows you to specify if Bootloader is selected than Legacy console redirection. Configuration options: [Always Enable] [Bootloader]

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



The following items only appears when you set the Console Redirection to [Enabled].

Out-of-Band Mgmt Port [COM1]

Allows remote management of a Windows Server OS through a serial port. Configuration options: [COM1] [COM2(Disabled)]

Terminal Type [VT-UTF8]

Allows you to set the terminal type for out-of-band management. Configuration options: [VT100] ASCII char set.

[VT100+] [VT-UTF8]

Extends VT100 to support color, function keys, et.

Uses UTF8 encoding to map Unicode chars onto 1 or more bytes [ANSI] Extended ASCII char set

Bits per second [115200]

Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds. Configuration options: [9600] [19200] [57600] [115200]

Flow Control [None]

Allows you to set the flow control to prevent data loss from buffer overflow. Configuration options: [None] [Hardware RTS/CTS] [Software Xon/Xoff]

4.4.5 Onboard LAN I354 Configuration

This allows you to change the enable or disable the onboard LAN.

Aptio Setup Utility - C Advanced	Copyright (C) 2013 America	an Megatrends, Inc.
Advanced Onboard LAN 1354 Configuration INTEL 1354 LAN1 MAC: INTEL 1354 LAN2 MAC: INTEL 1354 LAN3 MAC: INTEL L354 LAN4 MAC: INTEL LAN Enable INTEL LAN Enable INTEL LAN ROM Type INTEL LAN ROM Type INTEL LAN ROM Type	40:16:7E:7F:D8:07 40:16:7E:7F:D8:08 40:16:7E:7F:D8:09 40:16:7E:7F:D8:0A [Enabled] [PXE] [Enabled] [PXE] [Enabled] [PXE]	Intel LAN Enable/Disable
INTEL Lan4 Enable INTEL LAN ROM Type	[Enabled] [PXE]	

Intel Lan1/Lan2/Lan3/Lan4 Enable [Enabled]

Allows you to enable or disable the Intel LAN function in the system. Configuration Options: [Enabled] [Disabled]

Intel Lan1/Lan2/Lan3/Lan4 ROM Type [PXE]

Allows you to launch the Intel LAN OpROM. Configuration options: [Disabled] [PXE] [iSCSI]

4.4.6 APM

Allows you to configure the Advance Power Management (APM) settings.



Restore AC Power Loss [Last State]

Allows you to set the state the system will go to after an AC power loss. Configuration options: [Power Off] [Power On] [Last State]

Power On By PS/2 Keyboard [Disabled]

[Disabled]	Disables the Power On by a PS/2 keyboard.
[Space Bar]	Sets the Space Bar on the PS/2 keyboard to turn on the system.
[Ctrl-Esc]	Sets the Ctrl+Esc key on the PS/2 keyboard to turn on the system.
[Power Key]	Sets Power key on the PS/2 keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead

Power On By PS/2 Mouse [Disabled]

[Disabled] Disables the Power On by a PS/2 mouse.

[Enabled] Enables the Power On by a PS/2 mouse. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By PCIE [Disabled]

This allows you to enable or diasble the PCIE devices to generate a wake event. Configuration options: [Disabled] [Enabled]

Power On By Ring [Disabled]

[Disabled] Disables Ring to generate a wake event. [Enabled] Enables Ring to generate a wake event.

Power On By RTC [Disabled]

This item allows you to enable or disable RTC to generate a wake event. When set to [Enabled], the items **RTC Alarm Date (Days)** and **Hour/Minute/Second** becomes user-configurable where you can set values.

4.4.7 PCI Subsystem Settings

Allows you to configure PCI, PCI-X, and PCI Express Settings.



PCI Latency Timer [32 PCI Bus Clocks]

Value to be programmed into PCI latency timer register. Configuration options: [32 PCI Bus Clocks] [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]

PCI-X Latency Timer [64 PCI Bus Clocks]

Value to be programmed into PCI latency timer register. Configuration options: [32 PCI Bus Clocks] [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]

VGA Palette Snoop [Disabled]

Enables or disables VGA pallette registers snooping. Configuration options: [Disabled] [Enabled]

PERR# Generation [Disabled]

Enables or disables PCI device to generate PERR#. Configuration options: [Disabled] [Enabled]

SERR# Generation [Disabled]

Enables or disables PCI device to generate SERR#. Configuration options: [Disabled] [Enabled]

Above 4G Decoding [Disabled]

This item allows you to enable or disable 64-bit capable devices to be decoded in above 4G Address Space if your system supports 64-bit PCI decoding. Configuration Options: [Disabled] [Enabled]

SR-IOV Support [Disabled]

This item allows you to enable or disable Single Root IO Virtualization support when a SR-IOV capable PCIe device is installed in your system. Configuration Options: [Disabled] [Enabled]

PCI Express Settings

Allows you to change the settings of the PCI Express Devices.



Relaxed Ordering [Disabled]

Enables or disables PCIe device relaxed ordering. Configuration options: [Disabled] [Enabled]

Extended Tag [Disabled]

Enables or disables Extended Tag. If enabled, allows the device to use an 8-bit tag field as a requester. Configuration options: [Disabled] [Enabled]

No Snoop [Enabled]

Enables or disables the PCIe device No Snoop option. Configuration options: [Disabled] [Enabled]

Maximum Payload [Auto]

Selects the maximum payload size of a PCI Express device or set to [Auto] to allow the BIOS to automatically set the value. Configuration options: [Auto] [128 Bytes] [256 Bytes] [512 Bytes] [1024 Bytes] [2048 Bytes] [4096 Bytes]

Maximum Read Request [Auto]

Selects the maximum read request size of a PCI Express device or set to [Auto] to allow the BIOS to automatically set the value. Configuration options: [Auto] [128 Bytes] [256 Bytes] [512 Bytes] [1024 Bytes] [2048 Bytes] [4096 Bytes]

ASPM Support [Disabled]

This item allows you to enable or disable support to Active State Power Management (ASPM). ASPM is a power management protocol that is used to extend battey life. Configuration options:

[Disabled] Disables ASPM.

[Auto] BIOS auto configuration.

Extended Synch [Disabled]

Enable this item to allow generation of extended synchronization patterns. Configuration options: [Disabled] [Enabled]

Link Training Retry [5]

Selects or disables the number of retry attempts that the software will take to retrain the link if the previous training attempt was unsuccessful. Configuration Options: [Disabled] [2] [3] [5]

Link Training Timeout (us) [1000]

Defines number of Microseconds that the software will wait before polling Link Training bit in Link Status register. The value ranges from 10 to 10000us.

Unpopulated Links [Keep Link ON]

When this item is set to [Disabled], the software will disable unpopulated PCIe links to save power. Configuration Options: [Keep Link ON] [Disable Link]

Restore PCIE Registers [Disabled]

On non-PCIe aware operating systems (like Windows Vista), some devices may not be correctly reinitialized after S3. Enabling this item to restore PCIe device configurations on S3 resume. Enabling this item may cause problems with other hardware after S3 resume. Configuration Options: [Enabled] [Disabled]

PCI Express GEN 2 Settings

Allows you to set up the PCIE Gen 2 configurations.

Aptio Setup Utility - Co Advanced	opyright (C) 2013 Ame	rican Megatrends, Inc.
PCI Express GEN2 Device Registe	er Settings	In device Functions that
Completion Timeout ARI Forwarding AtomicOp Requester Enable AtomicOp Egress Blocking IDO Request Enable IDO Completion Enable ITR Mechanism Enable End-End TLP Prefix Blocking	[Default] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled]	support completion lineous programability, allows system to modify the Completion Timeout value. 'Default' 50us to 50ms. If 'Shorter' is selected, software will use shorter timeout ranges supported by hardware. If 'Longer' is
PCI Express GEN2 Link Register Target Link Speed Clock Power Management Compliance SOS Hardware Autonomous Width Hardware Autonomous Speed	Settings [Auto] [Disabled] [Enabled] [Enabled] [Enabled]	selected, software will use

Completion Timeout [Default]

Allows system to modify the Completion Timeout value for devices that support Completion Timeout programmability. Configuration Options: [Disabled] [Default] [Shorter] [Longer]

ARI Forwarding [Disabled]

If your PCIe device supports this function and this item is set to [Enabled], the downstream port disables its traditional device number field being 0 enforcement when turing a Type1 configuration request into a Type0 configuration request, permitting access to extended functions in an ARI device immediately below the port. Configuration Options: [Disabled] [Enabled]

AtomicOp Requester Enable [Disabled]

If your PCIe device supports this function and this item is set to [Enabled], this function initiates AtomicOp Requests only if Bus Master Enable bit is in the Command Register Set. Configuration Options: [Disabled] [Enabled]

AtomicOp Egress Blocking [Disabled]

If your PCIe device supports this function and this item is set to [Enabled], outbound AtomicOp Requests via Egress ports will be blocked. Configuration Options: [Disabled] [Enabled]

IDO Request Enable [Disabled]

If your PCIe device supports this function, set this item to [Enabled] to allow setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated. Configuration Options: [Disabled] [Enabled]

IDO Completion Enable [Disabled]

If your PCIe device supports this function, set this item to [Enabled] to allow setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated. Configuration Options: [Disabled] [Enabled]

LTR Mechanism Enable [Disabled]

If your PCIe device supports this function, set this item to [Enabled] to enable the Latency Tolerance Reporting (LTP) Mechanism. Configuration Options: [Disabled] [Enabled]

End-End TLP Prefix Blocking [Disabled]

If your PCIe device supports this function, set this item to [Enabled] to block forwarding of TLPs containing End-End TLP Prefixes. Configuration Options: [Disabled] [Enabled]

Target Link Speed [Auto]

If your PCIe device supports this function, set this item to [Force to 2.5 GT/s] for downstream ports. This sets an upper limit on link operational speed by restricting the values advertised by the upstream component in its training sequences. When [Auto] is selected, hareware initialized data will be used. Configuration Options: [Auto] [Force to 2.5 GT/s] [Force to 5.0 GT/s]

Clock Power Management [Disabled]

If your PCIe device supports this function, set this item to [Enabled] to permit the device to use CLKREQ# signal for power management of link clock in accordance to the protocol defined in appropriate form factor specification. Configuration Options: [Disabled] [Enabled]

Compliance SOS [Disabled]

If your PCIe device supports this function, set this item to [Enabled] to force LTSSM to send SKP Ordered Sets between sequences when sending Compliance Pattern or Modified Compliance Pattern. Configuration Options: [Disabled] [Enabled]

Hardware Autonomous Width [Enabled]

If your PCIe device supports this function, set this item to [Disabled] to disable the hardware's ability to change link width except width size reduction for the purpose of correcting unstable link operation. Configuration Options: [Disabled] [Enabled]

Hardware Autonomous Speed [Enabled]

If your PCIe device supports this function, set this item to [Disabled] to disable the hardware's ability to change link speed except speed rate reduction for the purpose of correcting unstable link operation. Configuration Options: [Disabled] [Enabled]

4.4.8 Network Stack Configuration

Aptio Setup Util Advanced	ity - Copyright (C) 2013 Amer	ican Megatrends, Inc.
Network stack	[Disabled]	Enable/Disable UEFI Network Stack

Network Stack [Disabled]

Enables or disables the network stack feature. Configuration options: [Disabled] [Enabled]



The following items appear only when Network Stack is set to [Enabled].

Ipv4 PXE Support [Enabled]

Enables or disables the Ipv4 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be created. Configuration options: [Disabled] [Enabled]

Ipv6 PXE Support [Enabled]

Enables or disables the Ipv6 PXE Boot Support. If disabled, Ipv6 PXE boot option will not be created. Configuration options: [Disabled] [Enabled]

PXE boot wait time [0]

Sets the wait time to press Esc key to abort the PXE boot.

Media detect time [0]

Sets the wait time (in seconds) to detect a media.

4.4.9 CSM Configuration

Allows you to configure the CSM (Compatibility Support Module) items to fully support the various VGA, bootable devices and add--on devices for better compatibility.

Aptio Setup Utility Advanced	- Copyright (C) 2013 Americ	an Megatrends, Inc.
Compatibility Support Module C	onfiguration	Enable/Disable CSM
CSM Support		
CSM16 Module Version	07.71	
GateA20 Active Option ROM Messages INT19 Trap Response	[Upon Request] [Force BIOS] [Immediate]	
Boot option filter	[Legacy only]	
Option ROM execution		
Network Storage Video Other PCI devices	[Legacy] [Legacy] [Legacy] [UEFI]	

CSM Support [Enabled]

Enables or disables the CSM support. Configuration options: [Disabled] [Enabled]



The following items appear only when CSM Support is set to [Enabled].

GateA20 Active [Upon Request]

This item is useful when any RT code is execute above 1MB. When set to [Upon Request], the GA20 can be disabled using BIOS services. When set to [Always], disabling of GA20 is not allowed. Configuration options: [Upon Request] [Always]

Option ROM Messages [Force BIOS]

Allows you to set the display mode for Option ROM. Configuration options: [Force BIOS] [Keep Current]

INT19 Trap Response [Immediate]

[Immediate] Execute the trap right away.

[Postponed] Execute the trap during legacy boot.

Boot option filter [Legacy only]

Allows you to select the type of devices that you want to boot up. Configuration options: [UEFI and Legacy] [Legacy only] [UEFI only]

Network [Legacy]

Allows you to select the type of network devices that you want to launch. Configuration options: [Do not launch] [UEFI] [Legacy]

Storage [Legacy]

Allows you to select the type of storage devices that you want to launch. Configuration options: [Do not launch] [UEFI] [Legacy]

Video [Legacy]

Allows you to select the type of video devices that you want to launch. Configuration options: [Do not launch] [UEFI] [Legacy]

Other PCI devices [Legacy]

Allows you to select the type of other PCI devices that you want to launch. Configuration options: [UEFI] [Legacy]

4.4.10 Trusted Computing

Aptio Setup Utility - Advanced	Copyright (C) 2013	American Megatrends, Inc.
Configuration Security Device Support	[Disabled]	Enables or Disables BIOS support for security
Current Status Information		device.O.S. will not show Security Device. TCG EFI protocol and INTIA
NO Security Device Found		interface will not be available.

Security Device Support [Disabled]

Allows you to enable or disable BIOS support for security devices. Configuration options: [Disabled] [Enabled]

4.4.11 USB Configuration

This allows you to make changes on the configuration settings of the USB.



The $\ensuremath{\text{USB}}$ bevices item shows the auto-detected values. If no USB device is detected, the item shows $\ensuremath{\text{None}}$.

Legacy USB Support [Enabled]

Allows you to enable or disable the support for legacy USB devices. Setting to [Auto] allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Disabled] [Enabled] [Auto]

XHCI Hand-off [Enabled]

This functions as a workaround for OSes without XHCI hand-off support. Configuration options: [Disabled] [Enabled]

EHCI Hand-off [Disabled]

This functions as a workaround for OSes without EHCI hand-off support. Configuration options: [Disabled] [Enabled]

USB Mass Storage Driver Support [Enabled]

This allows you to enable or disable the USB Mass Storage driver support. Configuration options: [Disabled] [Enabled]

Port 60/64 Emulation [Enabled]

This allows you to enable the I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes. Configuration options: [Disabled] [Enabled]

USB transfer time-out [20 sec]

Allows you to select the USB transfer time-out value. Configuration options: [1 sec] [5 sec] [10 sec] [20 sec]

Device reset time-out [20 sec]

Allows you to select the USB device reset time-out value. Configuration options: [10 sec] [20 sec] [30 sec] [40 sec]

Device power-up delay [Auto]

This allows you to set the maximum time the device will take before it properly reports itself to the Host Controller. Configuration options: [Auto] [Manual]



The following item appears only when Device power-up delay is set to [Manual].

Device power-up delay in seconds [5]

Use the <+> or <--> keys to adjust the value. The values range from 1 to 40 seconds with a 1 second increment.

AMI Virtual CDROM0 1.00 [Auto]

This item allows your system to detect the devices according to their media formats. Configuration options: [Auto] [Floppy] [Forced FDD] [Hard Disk] [CD-ROM]

AMI Virtual Floppy0 1.00 [Auto]

This item allows your system to detect the devices according to their media formats. Configuration options: [Auto] [Floppy] [Forced FDD] [Hard Disk] [CD-ROM]

AMI Virtual HDISK0 1.00 [Auto]

This item allows your system to detect the devices according to their media formats. Configuration options: [Auto] [Floppy] [Forced FDD] [Hard Disk] [CD-ROM]

4.4.12 iSCSI Configuration

This allows you to configure the iSCSI Initiator settings.

Aptio Setup Utility - Copyright (C) 2013 Ame Advanced	rican Megatrends, Inc.
iSCSI Initiator Name	The worldwide unique name
h had an hadanah	TON format is accorted
Add an Attempt	IQN IOIMAL IS accepted.
h Delete Attempte	
Delete Attempts	
Change Attempt Order	

4.4.13 Intel(R) Ethernet Connection I354

Aptio Setup Utility - Advanced	Copyright (C) 2013 America	n Megatrends, Inc.
PORT CONFIGURATION MENU NIC Configuration Blink LEDs PORT CONFIGURATION INFORMATION UEFI Driver: Adapter FBA: Chip Type PCI Device ID Bus:Device:Function Link Status MAC Address Virtual MAC Address	0 Intel(R) PRO/1000 5.8.09 001800-000 Intel i350 1F41 00:14:00 [Disconnected] 40:16:7E:7F:D8:07 40:16:7E:7F:D8:07	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

NIC Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Advanced				
Link Speed Wake On LAN	[Auto Negotiated] [Enabled]	Specifies the port speed used for the selected boot protocol.		

Link Speed [Auto Negotiated]

Specifies the port speed used for the selected boot protocol. Configuration options: [Auto Negotiated] [10 Mbps Half] [10 Mbps Full] [100 Mbps Half] [100 Mbps Full]

Wake On LAN [Enabled]

Enables or disables the system to be powered on using an onboard magic packet. Configuration options: [Disabled] [Enabled]

Blink LEDs [0]

Allows you to identify the physical network port by flashing its LED.

4.4.14 Driver Health

Displays the status of the drivers and controllers.

	Aptio Setu Advanced	o Utility	- Сору	right (C)	2013 America	n Megatrends, Inc.
▶ Intel(F	2) PRO/1000 5	5.8.09 PC	I-E	Healthy		Provides Health Status for the Drivers/ Controllers

4.5 IntelRCSetup menu

The IntelRCSetup menu items allow you to change the processor and chipset settings.

MRC Version 1.0.0.39 Microcode Revision 00000121 Relax Security Configuration [Disabled] Processor Configuration Disabled] Thermal Configuration UsB Configuration Noth Origonation Network Configuration North Bridge Chipset Configuration Wake On Lan Configuration South Bridge Chipset Configuration System Event Log Setup Warning: → ←: Select Screen may cause system to malfunction! → ←: Change Opt. F1: General Help F2: Previous Values F5: Optimized Defaults F10: Save & Exit ESC: Exit ESC: Exit	Aptio Setup Utility - Copyright (C) 2013 American Megat Main Advanced <mark>IntelRCSetup</mark> Server Mgmt Event Logs Securit	rends, Inc. y Boot Monitor Tool Exit
Setup Warning: →←: Select Screen Setting items on this Screen to incorrect values may cause system to malfunction! File General Help F2: Previous Values F5: Optimized Defaults F10: Save & Exit ESC: Exit ESC: Exit	MRC Version 1.0.0.39 Microcode Revision 00000121 Relax Security Configuration [Disabled] Processor Configuration Thermal Configuration USB Configuration NetWork Configuration North Bridge Chipset Configuration Wake On Lan Configuration South Bridge Chipset Configuration System Event Log	Relaxes the security configuration to be able to use BIOS update tools
	Setup Warning: Setting items on this Screen to incorrect values may cause system to malfunction!	<pre>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F5: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

Relax Security Configuration [Disabled]

Enable this item to use the BIOS update tools. Configuration options: [Disabled] [Enabled].

4.5.1 Processor Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. IntelRCSetup				
Processor Configuration		Enable/Disable EIST. GV3		
Processor ID	000406D8	and TM1 must be enabled for TM2 to be available.		
Processor Frequency	2.407GHz	GV3 must be enabled for		
L1 Cache RAM	448KB	Turbo, Auto-Enable for BO		
L2 Cache RAM	4096KB	CPU stepping, all others		
Processor Version	Genuine Intel(R) CPU	disabled, change setting		
		to override.		
EIST (GV3)				
P-state Coordination	[Package]			
TM1	[Enable]			
TM2 Mode	[Adaptive Throtting]			
CPU C State	[Auto]			
Enhanced Halt State (C1E)	[Disable]			
ACPI C2	[C6 NS]			
Monitor/Mwait	[Enable]			
L1 Prefetcher	[Enable]	→←: Select Screen		
L2 Prefetcher	[Enable]	$\uparrow \downarrow$: Select Item		
ACPI 3.0 T-States	[Disable]	Enter: Select		
Fast String	[Enable]	+/-: Change Opt.		
Machine Check	[Enable]	F1: General Help		
Execute Disable Bit	[Enable]	F2: Previous Values		
VMX	[Enable]	F5: Optimized Defaults		
BIST Selection	[Disable]	F10: Save & Exit		
MTRR Default as uncacheable.	[Disable]	ESC: Exit		
Extended APIC	[Enable]			
AES-NI	[Enable]			
PECI Enable	[Enable]			
PECI Trusted	[Disable]			
PECI SMBus Speed	[Standard (80 KHz)]			
Turbo	[Enable]			
Transien 0 10 1040 0-		Manager and a state		

Navigate to the second page of the screen to see the rest of items in this menu by pressing the Up or Down arrow keys.



To quickly go to the last item of the second page, press the **Page Down** button. Press the **Page Up** button to go back to the first item in the first page.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. IntelRCSetup			
RAPL MSR 606 PKG POWER SKU UNIT MSR 610 PKG TURBO PWR LIM MSR 670 PKG TURBO CFGI MSR 672 TURBO WKLD CFG2 Active Processor Cores CPU Flex Ratio Override CPU Core Ratio	a1003 468bb8005b89c4 40c001 0 [All] [Disable] 24	Defines SKU specific units used for power, energy and time	

EIST (GV3) [Auto]

Allows you to enable or disable the Enhanced Intel SpeedStep Technology (EIST). Configuration options: [Auto] [Enable] [Disable]

P-state Coordination [Package]

Selects package or module level P-state Ratio Coordination. VID always resorves to the highest P-state VID of any core in the SoC. Configuration options: [Package] [Module] [Hardware]

TM1 [Enable]

Enables or disables TM1. Configuration options: [Enable] [Disable]

TM2 Mode [Adaptive Throttling]

Selects LFM Throttling or Adaptive Throttling for TM2 mechanisms. Configuration options: [LFM Throttling] [Adaptive Throttling]

CPU C State [Auto]

Allows you to enable or disable the enhanced Cx state of the CPU. Configuration options: [Auto] [Enable] [Disable]

Enhanced Halt State (C1E) [Disable]

Allows you to enable or disable the enhanced C1E state of the CPU. Configuration options: [Enable] [Disable]

ACPI C2 [C6 NS]

Sets the CPU report to OS. Configuration options: [Disable] [C6 NS] [C6 FS]

Monitor/Mwait [Enable]

Enables or disables the Monitor/Mwait instruction. Configuration options: [Enable] [Disable]

L1 Prefetcher [Enable]

This item allows the CPU to prefetch commands and data in the L1 cache, reduces the DRAM loading time and improves the system performance. Configuration options: [Disable] [Enable]

L2 Prefetcher [Enable]

This item allows the CPU to prefetch commands and data in the L2 cache, reduces the DRAM loading time and improves the system performance. Configuration options: [Disable] [Enable]

ACPI 3.0 T-States [Disable]

Enables or disables the ACPI 3.0 T-States. Configuration options: [Disable] [Enable]

Fast String [Enable]

Set this item to [Enable] to enable fast strings for REP MOVS/STOS. Configuration options: [Disable] [Enable]

Machine Check [Enable]

Enables or disables the Machine Check. Configuration options: [Disable] [Enable]

Execute Disable Bit [Enable]

Set this item to [Disable] to force the XD feature flag to always return 0. Configuration options: [Enable] [Disable]

VMX [Enable]

Enables or disables the Vanderpool technology. Configuration options: [Enable] [Disable]
BIST Selection [Disable]

Enables or disables BIST. Configuration options: [Enable] [Disable]

MTRR Default as uncacheable. [Disable]

Enable this item to set MTRR to be uncacheable as default. Configuration options: [Enable] [Disable]

Extended APIC [Enable]

Enables or disables the extended APIC support. Configuration options: [Enable] [Disable]

AES-NI [Enable]

Enables or disables the AES-NI support. Configuration options: [Enable] [Disable]

PECI Enable [Enable]

Enables or disables the Punit PECI support. Configuration options: [Enable] [Disable]

PECI Trusted [Disable]

Enables or disables the Punit Trusted PECI support. Configuration options: [Enable] [Disable]

PECI SMBus Speed [Standard (80 kHz)]

Sets the speed for the physical bus. Configuration options: [Standard (80 kHz)] [Standard (100 kHz)] [Fast Mode (400 kHz)] [Fast Mode (1 MHz)]

Turbo [Enable]

Enables or disables the CPU's turbo capability. This setting only applies for ES2 and higher CPU. Configuration options: [Enable] [Disable]

Active Processor Cores [All]

Allows you to choose the number of CPU cores to activate in SoC package. Configuration options: [All] [4] [2]

CPU Flex Ratio Override [Disable]

Enables or disables the CPU Flex Ratio Override programming. Configuration options: [Disable] [Enable]

4.5.2 Thermal Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. IntelRCSetup				
Thermal Configuration		Offset below TJMAX to		
TJ Target TM1 TM1 over TM2 DTYCYC TM2 Status TM2 Mode TM2 Timeout TM1 over TM2 Timeout TM1 over TM2 Out of Spec Threshold Out of Spec Interrupt Cold to Hot Hysteresis Hot to Cold Hysteresis	<pre>[Enable] [50.0% clkon] Enabled [Adaptive Throtting] 4 16 [Enable] 5 [Disable] 0 2</pre>	set as the PROCHOT# activation temperature. Valid range OC to 63C.		
High Temp Interrupt High Temp Interrupt Threshold 1 Threshold 2 Threshold 2 Interrupt Threshold 2 Interrupt Thermal Bypass Filter Fast PROCHOT Bi-Directional PROCHOT External PROCHOT Interrupt Thermal Range Offset 80h: PTMC Offset 80h: TTR0 Offset 82h: TTR1 Offset 82h: TTS Offset 84h: TELB Offset 85h: TTR0B	[Enable] 5 10 [Disable] [Enable] [Enable] [Enable] [Enable] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<pre>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F5: Optimized Defaults F10: Save & Exit ESC: Exit</pre>		

Navigate to the second page of the screen to see the rest of items in this menu by pressing the Up or Down arrow keys.



To quickly go to the last item of the second page, press the **Page Down** button. Press the **Page Up** button to go back to the first item in the first page.

	Aptio	Setup Utility - IntelRCSetup	Copyright (C)) 2013 Ar	merican	Megatrends,	Inc.
Offset Offset Offset Offset Offset Offset Offset RTF Th Therma	86h: 88h: 88h: 88h: 88h: 82h: 82h: 28h: 28	TTRIB TISB TELOB CLTT_0 CLTT_0 CLTT_BW_0 CLTT_BW_1 CLTT_DTSC PTPS e Period p Events	0 0 0 0 0 7 0 [37.5	% clkor	1]	Chann Trip Speci trans 0x0 -	el 1 Bandwidth Threshold (DUNIT). fy number of actions. Valid Range OxFFFFFFFF

TJ Target [0]

Sets the PROCHOT# activation temperature offset below TJMAX. The values range from 0°C to 63°C.

TM1 [Enable]

Enables or disables TM1. Configuration options: [Enable] [Disable]

TM1 over TM2 DTYCYC [50.0% clkon]

This option determines how much clock modulation is applied when TM1 over TM2 is engaged. Configuration options: [100% clkon] [87.5% clkon] [75.0% clkon] [62.5% clkon] [50.0% clkon] [37.5% clkon] [25.0% clkon] [12.5% clkon]

TM2 Mode [Adaptive Throttling]

Selects LFM Throttling or Adaptive Throttling for TM2 mechanisms. Configuration options: [LFM Throttling] [Adaptive Throttling]

TM2 Timeout [4]

Sets the time between TM2 steps when configured for adaptive mode.

TM1 Over TM2 Timeout [16]

Sets the duration (in seconds) that TM2 holds off TM1 from being engaged.

TM1 Over TM2 [Enable]

Set this item to [Enable] to allow TM1 to engage after the TM1 Over TM2 Timeout if TM2 has not cooled the processor. Configuration options: [Enable] [Disable]

Out of Spec Threshold [5]

Reach the temperature over TJMAX before the BIOS must execute a graceful shutdown. The values range from $0^{\circ}C$ to $63^{\circ}C$.

Out of Spec Interrupt [Disable]

Enables or disables the generation of a thermal interrupt whenever Out of Spec temperature threshold is crossed. Configuration options: [Enable] [Disable]

Cold to Hot Hysteresis [0]

Sets the temperature above the temperature when TJ Target PROCHOT# asserts (i.e. HOT). The values range from 0° C to 7° C.

Hot to Cold Hysteresis [2]

Sets the temperature below the temperature when TJ Target PROCHOT# is de-asserted (i.e. NOT_HOT). The values range from 0°C to 7°C.

Low Temp Interrupt [Enable]

Set this item to [Enable] to trigger an interrupt when the temperature goes from HOT to NOT_ HOT. Configuration options: [Enable] [Disable]

High Temp Interrupt [Enable]

Set this item to [Enable] to trigger an interrupt when the temperature goes from NOT_HOT to HOT. Configuration options: [Enable] [Disable]

Threshold 1 [5]

Sets the temperature below TJMAX to signal an interrupt whenever the temperature crosses this threshold. The values range from 0°C to 127°C.

Threshold 2 [10]

Sets the temperature below TJMAX to signal an interrupt whenever the temperature crosses this threshold. The values range from 0°C to 127°C.

Threshold 1 Interrupt [Disable]

Enables or disables the generation of a thermal interrupt whenever Threshold 1 is crossed. Configuration options: [Enable] [Disable]

Threshold 2 Interrupt [Disable]

Enables or disables the generation of a thermal interrupt whenever Threshold 2 is crossed. Configuration options: [Enable] [Disable]

Thermal Bypass Filter [Enable]

When this item is enabled, the thermal averaging is bypassed and DTS reports the current temperature offset. Configuration options: [Enable] [Disable]

Fast PROCHOT [Disable]

Enables or disables FastProcHot. Configuration options: [Enable] [Disable]

Bi-Directional PROCHOT [Enable]

When this item is enabled, PROCHOT# is an output pin only depending on the setting of the CPU feature flag CPUID_EDX (eax=1) Bit 29. Configuration options: [Enable] [Disable]

External PROCHOT Interrupt [Enable]

Enables or disables the generation of an interrupt when an external device drives the PROCHOT# pin. Configuration options: [Enable] [Disable]

Thermal Range [0]

Specifies the lower valid range for DIG_TEMP_READOUT.

Offset 80h: PTMC [0]

Sets the programmable thermtrip management control.

Offset 81h: TTR0 [0]

Sets the rank 0 Bandwidth Trip Thresholds (BUNIT).

Offset 82h: TTR1 [0]

Sets the rank 1 Bandwidth Trip Thresholds (BUNIT).

Offset 83h: TTS [0]

Sets the total Bandwidth Trip Thresholds (BUNIT).

Offset 84h: TELB [0]

Sets the thermal enforcement limits for BW trips (BUNIT).

Offset 85h: TTR0B [0] Sets the channel 0 Bandwidth Trip Thresholds (DUNIT).

Offset 86h: TTR1B [0] Sets the channel 1 Bandwidth Trip Thresholds (DUNIT).

Offset 87h: TTSB [0] Sets the total Bandwidth Trip Thresholds (DUNIT).

Offset 88h: TEL0B [0] Sets the thermal enforcement limits for BW trips (DUNIT).

Offset 8Bh: CLTT_0 [0] Sets the CLTT_0 thermal compare parameters.

Offset 8Ch: CLTT_1 [0] Sets the CLTT_1 thermal compare parameters.

Offset 8Dh: CLTT_BW_0 [0] Sets the CLTT_BW_0 thermal compare parameters.

Offset 8Eh: CLTT_BW_1 [0] Sets the CLTT_BW_1 thermal compare parameters.

Offset C2h: CLTT [0] Sets the CLTT BW Trip Event policies.

Offset B0h: DTSC [7] Sets the digital thermal sensor control.

Offset B2h: PTPS [0] Sets the programmable Trip Point settings.

RTF Throttle Period [37.5% clkon]

Specifies the root fabric throttling period. Configuration options: [100% clkon] [87.5% clkon] [75.0% clkon] [62.5% clkon] [50.0% clkon] [37.5% clkon] [25.0% clkon] [12.5% clkon]

Thermal Trip Events

Allows you to set the thermal trip events.

Aptio Setup Utility - Copyri IntelRCSetup	ight (C) 2013 Ame	erican Megatrends, Inc.
Thermal Trip Events Offset B5h: TTE_AUX1 Offset B6h: TTE_AUX1 Offset B7h: TTE_AUX2 Offset B8h: TTE_AUX3 Offset B9h: TTE_VRIccMax Offset BAh: TTE_VRIccMax Offset BCh: TTE_SIM0 Offset BCh: TTE_SIM1 Offset BCh: TTE_SIM2 Offset BFh: TTE_SIM2 Offset BFh: TTE_SIM3 Offset C0h: BWTE Offset C1h: TTE_MEMHOT		[20]:SLM3 Prochot [19]:SLM2 Prochot [18]:SLM1 Prochot [17]:SLM0 Prochot [16]:XXFROCHOT [15]:MEMHOT [14]:Assert AFICA [11]:MSI [10]:SMI [9]:SCI [8]:SATA Throttle [5]:RTF Throttle [1]: Memory Bandwidth [0]:DDR 2x Refresh (MRC configures for TE_AUX0)

4.5.3 USB Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. IntelRCSetup		
USB Configuration USB Support USB IO PM	[Enabled] [Enabled]	USB Support Parameters

USB Support [Enabled]

Enables or disables the USB support. Configuration options: [Enabled] [Disabled]

USB IO PM [Enabled]

Enables or disables the USB IO PM. Configuration options: [Enabled] [Disabled]

4.5.4 CK420 Configuration

	Aptio Setup Utility - Copyright IntelRCSetup	: (C) 2013 American Megat	rends, Inc.
CK420	Configuration		Spread spectrum Off/On
CK420	Spread spectrum	[Enabled]	

CK420 Spread spectrum [Enabled]

Enables or disables the CK420 Spread spectrum. Configuration options: [Enabled] [Disabled]

4.5.5 Network Configuration

Aptio Setup Utility - IntelRCSetup	Copyright (C) 2013 American Megat	rends, Inc.
EFI Network	[Enabled]	Enable/Disable EFI Network support for LANs

EFI Network [Enabled]

Enables or disables the EFI Network support for LANs. Configuration options: [Enabled] [Disabled]

4.5.6 North Bridge Chipset Configuration

Aptio Setup Utility - Copyr IntelRCSetup	right (C) 2013 American Megat	rrends, Inc.
North Bridge Chipset Configuration		Configures Pass Gate and
Memory Information		Pass Date Test
Total Memory	1024 MB	
Memory Frequency	DDR3 - 1333 MHz	
Pass Gate Setup		
Fast Boot	[Disabled]	
Smm Size (MB)	[8]	
Force Memory Map Ax	[Enabled]	
Memory Frequency	[Auto]	
Memory Channels	[Auto]	
MRC Debug Messages	[Medium]	
DDR Voltage	[Auto]	
Fine Ddr Voltage	100	
Mmio High	[Auto]	→←: Select Screen
CKE Power Down	[Enabled]	$\uparrow \downarrow$: Select Item
ECC Support	[Enabled]	Enter: Select
Faulty Part Tracking	[Disabled]	+/-: Change Opt.
On Correctable Faulty Part	[Halt]	F1: General Help
Patrol Scrub Enable	[Enabled]	F2: Previous Values
Patrol Scrub Period	[24 hours]	F5: Optimized Defaults
Demand Scrub Enable	[Enabled]	F10: Save & Exit
AB Segments in DRAM	[Disabled]	ESC: Exit
E Segment in DRAM	[Enabled]	
F Segment in DRAM	[Enabled]	
ZQ Calibration	[Enabled]	
Rank Margin Tool	[Disabled]	
RMT CPGC exp_loop_cnt	[12]	
RMT CPGC num_bursts	[6]	

Navigate to the second page of the screen to see the rest of items in this menu by pressing the Up or Down arrow keys.

5

To quickly go to the last item of the second page, press the **Page Down** button. Press the **Page Up** button to go back to the first item in the first page.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. IntelRCSetup			
Propagate Errors to Cores (EMCMCDE CMD Rate Out of order memory processin Out of order aging threshold New request bypass Dynamic Self Refresh PMOP Value for PCO PMOP Value for PCO PMOP Value for PCX Per-Bit Margins Open Page Policy Timer Memory Thermal Scrambler Slow Power Down Exit Vref Override Enable Timing Configuration	Disabled] [Auto] [Enabled] 31 [Enabled] [Enabled] [30-60 ns] [Disabled] [Enabled] [Enabled] [Disabled]	To configure the Bunit Machine Check Mode to propagate errors to cores	

Pass Gate Setup

Aptio Setup Utility - Copyrigh IntelRCSetup	t (C) 2013 American Megat	crends, Inc.
Pass Gate Setup		Enables/Disables Pass
Pass Gate Feature Configuration		Gate Feature
Pass Gate Feature Enable		
2x Refresh Rate	[Disabled]	
Pass Gate Stress Test Configurat	ion	
Pass Gate Test	[Disabled]	
Pass Gate Refresh	[Disabled]	
Pass Gate Test Direction	[Lowest->Highest]	
Pass Gate Test Repetition	900	
Pass Gate Test Iterations	1	
Pass Gate Swizzle	[Auto]	
Pass Gate Pattern	[0's]	
Pass Gate Target Pattern	[1's]	
Pass Gate Speed	[1x only]	
		$\rightarrow \leftarrow$: Select Screen
Channel 0:		T↓: Select Item
Rank 0	[Enabled]	Enter: Select
Rank 1	[Enabled]	+/-: Change Opt.
Rank 2	[Enabled]	F1: General Help
Rank 3	[Enabled]	F2: Previous Values
		F5: Optimized Defaults
Channel 1:		FIU: Save & Exit
Rank 0	[Enabled]	ESC: EXIT
Rank 1	[Enabled]	
Rank 2	[Enabled]	
Rank 3	[Enabled]	
Pass Gate MonteCarlo	[Disabled]	
Pass Gate Max Failures	50	
Pass Gate Max Repetition	900	
Pass Gate Min Repetition	10	
Transier 0.16.1042	int (a) 2012 American	Manatanan da Tara

Pass Gate Feature Enable [Enabled]

Enables or disables the Pass Gate feature. Configuration options: [Enabled] [Disabled]

2x Refresh Rate [Disabled]

Set this item to [Enabled] to apply 2x Refresh Rate regardless of the temperature. Configuration options: [Enabled] [Disabled]

Pass Gate Test [Disabled]

Enables or disables the Pass Gate test. Configuration options: [Enabled] [Disabled]

Pass Gate Refresh [Disabled]

Set this item to [Enabled] to enable a refresh period during the pass gate test and the test will become non-deterministic. Configuration options: [Enabled] [Disabled]

Pass Gate Test Direction [Lowest->Highest]

Sets the Pass Gate test to go through from the lowest to the highest memory modules or from the highest to the lowest memory modules. Configuration options: [Auto] [Lowest->Highest] [Highest->Lowest]

Pass Gate Test Repetition [900]

Sets the Pass Gate test repetitions over the same row.

Pass Gate Test Iterations [1]

Sets the Pass Gate test iterations on a row.

Pass Gate Swizzle [Auto]

Enables the Pass Gate Swizzle mode for Samsung memory modules. Configuration options: [Enabled] [Auto]

Pass Gate Pattern [0's]

Sets the Pass Gate pattern. Configuration options: [0's] [1's]

Pass Gate Target Pattern [1's]

Sets the target Pass Gate pattern. Configuration options: [0's] [1's]

Pass Gate Speed [1x Only]

Sets the Pass Gate speed. Configuration options: [Auto] [1x Only]

Channel 0:

Rank 0 [Enabled]

Allows Rank 0 to be tested. Configuration options: [Enabled] [Disabled] Rank 1 [Enabled]

Allows Rank 1 to be tested. Configuration options: [Enabled] [Disabled]

Rank 2 [Enabled]

Allows Rank 2 to be tested. Configuration options: [Enabled] [Disabled] Rank 3 [Enabled]

Allows Rank 3 to be tested. Configuration options: [Enabled] [Disabled]

Channel 1:

Rank 0 [Enabled]

Allows Rank 0 to be tested. Configuration options: [Enabled] [Disabled]

Rank 1 [Enabled]

Allows Rank 1 to be tested. Configuration options: [Enabled] [Disabled] Rank 2 [Enabled]

Allows Rank 2 to be tested. Configuration options: [Enabled] [Disabled]

Rank 3 [Enabled]

Allows Rank 3 to be tested. Configuration options: [Enabled] [Disabled]

Pass Gate MonteCarlo [Disabled]

Set this item to [Enabled] to search in Algorithm to find PG Max. Configuration options: [Enabled] [Disabled]



The following items become configurable only when you set $\ensuremath{\textbf{Pass Gate MonteCarlo}}$ to [Enabled].

Pass Gate Max Failures [50] Sets the number of failures before going into the repetition value. Pass Gate Max Repetition [900] Sets the maximum repetitions for MonteCarlo (Start Value). Pass Gate Min Repetition [10] Sets the step decrement value.

Fast Boot [Disabled]

Enable this item to accelerate the boot speed. Configuration options: [Enabled] [Disabled]

Smm Size (MB) [8]

Specifies the size of the SMM/TSEG region 1 MB aligned.

Force Memory Map Ax [Enabled]

Enable this item to force Memory Map for Ax parts. Configuration options: [Enabled] [Auto]

Memory Frequency [Auto]

Sets the memory frequency. Configuration options: [Auto] [DDR3-1333] [DDR3-1600]

Memory Channels [Auto]

Sets the working memory channels. Configuration options: [Auto] [Single Channel]

MRC Debug Messages [Medium]

Sets the display of debug output in MRC. Configuration options: [Disabled] [Minimum] [Medium] [Maximum]

DDR Voltage [Auto]

Sets the memory voltage. Configuration options: [Auto] [1.25V] [1.35V] [1.50V]

Fine Ddr Voltage [100]

Sets the Fine Ddr voltage.

Mmio High [Auto]

Sets the Mmio High size. Configuration options: [Auto] [256MB] [512MB] [1024MB] [2048MB] [4096MB] [8192MB]

CKE Power Down [Enabled]

Enables or disables the CKE Power Down feature. Configuration options: [Enabled] [Disabled]

ECC Support [Enabled]

Enables or disables the ECC support. Configuration options: [Enabled] [Disabled]

Faulty Part Tracking [Disabled]

Enables or disables the Faulty Part Tracking feature. Configuration options: [Enabled] [Disabled]

On Correctable Faulty Part [Halt]

This item becomes configurable only when you set the previous item to [Enabled]. Sets to half or continue when a Correctable Faulty DIMM problem appears. Configuration options: [Halt] [Continue]

Patrol Scrub Enable [Enabled]

Enables or disables the Patrol Scrub support. Configuration options: [Enabled] [Disabled]

Patrol Scrub Period [24 hours]

Sets the Patrol Scrub period. Configuration options: [24 hours] [10 hours] [4 hours] [1 hour]

Demand Scrub Enable [Enabled]

Enables or disables the Demand Scrub support. Configuration options: [Enabled] [Disabled]

AB Segments in DRAM [Disabled]

When this item is enabled, reads and writes targeting A or B segment are routed to DRAM. Configuration options: [Enabled] [Disabled]

E Segment in DRAM [Enabled]

When this item is enabled, reads and writes targeting E segment are routed to DRAM. Configuration options: [Enabled] [Disabled]

F Segment in DRAM [Enabled]

When this item is enabled, reads and writes targeting F segment are routed to DRAM. Configuration options: [Enabled] [Disabled]

ZQ Calibration [Enabled]

Enables or disables the ZQ calibration. Configuration options: [Enabled] [Disabled]

Rank Margin Tool [Disabled]

Enables or disables the Rank Margin Tool support. Configuration options: [Enabled] [Disabled]

RMT CPGC exp_loop_cnt [12]

Sets the CPGC exp_loop_cnt field for RMT execution.

RMT CPGC num_bursts [6]

Sets the CPGC num_bursts field for RMT execution.

Propagate Errors to Cores (BMCMODE) [Disabled]

Enables or disables the Bunit Machine Check Mode to propagate errors to cores. Configuration options: [Enabled] [Disabled]

CMD Rate [Auto]

Sets the CMD rate. Configuration options: [Auto] [1N] [2N] [3N]

Out of order memory processing [Enabled]

Enable this item to improve system performance. Configuration options: [Enabled] [Disabled]

Out of order aging threshold [31]

Specifies the number of requests that can be processed ahead of another request sitting in the In-Progress request queue before 000 is disabled.

New request bypass [Enabled]

Enable this item to enable new memory requests to be processed immediately and skip the In-Progress request queue when the queue is empty. Configuration options: [Enabled] [Disabled]

Dynamic Self Refresh [Enabled]

Enables or disables dynamic self refresh in the memory controller. Configuration options: [Enabled] [Disabled]

PMOP Value for PCO [4]

Sets the power mode Opcode for PCO.

PMOP Value for PCX [7]

Sets the power mode Opcode for PCX.

Per-Bit Margins [Disabled]

Enable this item to show per-bit margins in MRC training. Configuration options: [Enabled] [Disabled]

Open Page Policy Timer [30-60 ns]

Sets the page closure timer. Configuration options: [Disabled] [Immediate] [30-60 ns] [60-120 ns] [120-240 ns] [240-480 ns] [480-960 ns] [1-2 us]

Memory Thermal [Disabled]

Enables or disables the Memory Thermal Management mode. Configuration options: [Enabled] [Disabled]

Scrambler [Enabled]

Enables or disables the scrambler. Configuration options: [Enabled] [Disabled]

Slow Power Down Exit [Enabled]

Enables or disables slow power down exit from pre-charge. Configuration options: [Enabled] [Disabled]

Vref Override Enable [Disabled]

Enables or disables Vref Override. Configuration options: [Enabled] [Disabled]

Timing Configuration

The subitems in this menu allow you to set the DRAM timing control features. Use the <+> and <--> keys to adjust the value. To restore the default setting, type [auto] using the keyboard and press the <Enter> key.

Aptio Setup Utility - IntelRCSetup	Copyright (C) 2013 American Mega	atrends, Inc.
Timing Configuration tCL tRCD tRP tRAS tRTP tRD tFAW tCCD tWTP tWCL	[Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto]	Set tCL to Auto / 5 / 6/ 7 / 8 / 9 / 10 / 11 / 12/ 13 DRAM Clocks

tCL [Auto]

Configuration options: [Auto] [5] ~ [13]

tRCD [Auto]

Configuration options: [Auto] [5] ~ [13]

tRP [Auto]

Configuration options: [Auto] [5] ~ [13]

tRAS [Auto]

Configuration options: [Auto] [14] ~ [34]

tRTP [Auto]

Configuration options: [Auto] $[4] \sim [7]$

tRRD [Auto]

Configuration options: [Auto] [4] ~ [7]

tFAW [Auto]

Configuration options: [Auto] [16] ~ [36]

tCCD [Auto]

Configuration options: [Auto] [4] [12] [18]

tWTP [Auto]

Configuration options: [Auto] [15] ~ [30]

tWCL [Auto]

Configuration options: [Auto] [5] ~ [9]

4.5.7 Wake On Lan Configuration

Aptio Setup U Inte	Stility - Copyright (C) 2013 American SlRCSetup	n Megatrends, Inc.
Wake On Lan Config	guration	Wake On Lan Configuration
Wake On Lan Config	guration [Enable]	settings

Wake On Lan Configuration [Enable]

Enables or disables the Wake On LAN feature. Configuration options: [Enable] [Disable]

4.5.8 South Bridge Chipset Configuration

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. IntelRCSetup				
South Bridge Chipset Configuration		IQAT Configuration		
 IQAT Configuration SMBUS Controller SMBUSIOSFClockGating Restore On Power Loss SATA Configuration PCI Express Ports Configuration 	[Enabled] [Enabled] [Power Off]			
▶ PPM Config				

IQAT Configuration

Aptio Set	up Utility - Copyright IntelRCSetup	(C) 2013 American Mega	trends, Inc.
IQAT		[Enabled]	Hides IQAT device from an OS

IQAT [Enabled]

Enable this item to hide the IQAT devices from an OS. Configuration options: [Enabled] [Disabled]

SMBUS Controller [Enabled]

Enables or disables the SMBus controller. Configuration options: [Enabled] [Disabled]

SMBusIOSFClockGating [Enabled]

Enables or disables the SMBus IOSF Clock Gating. Configuration options: [Enabled] [Disabled]

Restore On Power Loss [Power Off]

- [Power On] The system goes into on state after an AC power loss.
- [Power Off] The system goes into off state after an AC power loss.
- [Auto] The system goes into either off or on state, whatever the system state was before the AC power loss.

SATA Configuration

SATA controller		Enables/Disables sata
Sata controller	[Enabled]	controller if supported
Sata mode	[AHCI]	by current opu sko.
IDE Mode	[Legacy]	
Sata speed	[Gen 3]	
LPM	[Disabled]	
Overwrite SIR values	[Disabled]	
SATA Port 1	[Not Installed]	
Sata port 1	[Enabled]	
Spin up	[Disabled]	
Hot plug	[Enabled]	
External device	[Disabled]	
Mechanical Switch	[Disabled]	
		→←: Select Screen
SATA Port 2	[Not Installed]	↑↓: Select Item Enter: Select
Sata port 2	[Enabled]	+/-: Change Opt.
Spin up	[Disabled]	F1: General Help
External device	[Disabled]	F2: Previous Values
Hot plug	[Enabled]	F5: Optimized Defaults
Mechanical Switch	[Disabled]	F10: Save & Exit
		ESC: Exit

Sata controller [Enabled]

Enables or disables the SATA device. Configuration options: [Enabled] [Disabled]

Sata mode [AHCI]

Allows you to choose how SATA controller(s) should operate. Configuration options: [AHCI] [IDE]

IDE Mode [Legacy]

This item appears only when you set the SATA Mode Selection item to [IDE]. Configuration options: [Native] [Legacy]

Sata speed [Gen 3]

Allows you to choose the SATA device operating speed. Configuration options: [Gen 1] [Gen 2] [Gen 3]

LPM [Disabled]

This item is designed for LPM (link power management) support with a better energy saving conditions. When disabled, the hot plug function of SATA ports are disabled. Configuration options: [Disabled] [Enabled]

Overwrite SIR values [Disabled]

Selects whether or not to allow to overwrite SIR values. Configuration options: [Disabled] [Enabled]

SATA Port 1

Sata port 1 [Enabled]

Enables or disables the SATA device connected to SATA port 1. Configuration options: [Enabled] [Disabled]

Spin up [Disabled]

Enables or disables the Spin-Up device. Configuration options: [Enabled] [Disabled]

Hot plug [Enabled]

Allows you to enable or disable SATA Hot Plug support. Configuration options: [Disabled] [Enabled]

External device [Disabled]

Enables or disables other external devices. Configuration options: [Enabled] [Disabled] Mechanical Switch [Disabled]

Enables or disables the mechanical switch. Configuration options: [Enabled] [Disabled]

SATA Port 2

Sata port 2 [Enabled]

Enables or disables the SATA device connected to SATA port 1. Configuration options: [Enabled] [Disabled]

Spin up [Disabled]

Enables or disables the Spin-Up device. Configuration options: [Enabled] [Disabled]

External device [Disabled]

Enables or disables other external devices. Configuration options: [Enabled] [Disabled] Hot plug [Enabled]

Allows you to enable or disable SATA Hot Plug support. Configuration options: [Disabled] [Enabled]

Mechanical Switch [Disabled]

Enables or disables the mechanical switch. Configuration options: [Enabled] [Disabled]

PCI Express Ports Configuration

Aptio Setup Utility - Copyrig IntelRCSetup	nt (C) 2013 American Megat	crends, Inc.
PCI Express Ports Configuration PCI Express Root Port 1 PCI Express Root Port 2 PCI Express Root Port 3 PCI Express Root Port 4 PCI-to-PCI Bridge PCO-PCI Bridge Root Ports De-emphasis Lane Power Gate Bifurcation Clock Gating Settings	[Enabled] [P3P2P1P0 X4X4X4X4] [Enabled]	PCI Express Root Port 1 Settings

PCI Express Root Port 1/2/3/4

Aptio Setup Utility - IntelRCSetup	Copyright (C) 2013 .	American Megatrends,	Inc.
Extra Bus Reserved	0	Extra	Bus Reserved (0-7)
Reserved Memory	10	for b	ridges behind this
Reserved I/O	4	Root 1	Bridge

Extra Bus Reserved [0]

Sets extra bus reserved for bridges behind the Root Bridge. Configuration options: [0]~[7]

Reserved Memory [10]

Sets the reserved and prefetchable memory size for the Root Bridge. Configuration options: [1MB]~[20MB]

Reserved I/O [4]

Sets the reserved I/O for the Root Bridge. Configuration options: [4K] [8K] [12K] [16K] [20K]

PCI-to-PCI Bridge

Aptio Setup Utility - IntelRCSetup	Copyright (C) 20	13 American Megatrends,	Inc.
Extra Bus Reserved	0	Extra for b Root	Bus Reserved (0-7) ridges behind this Bridge

Extra Bus Reserved [0]

Sets extra bus reserved for bridges behind the Root Bridge. Configuration options: [0]-[7]

Root Ports De-emphasis

Aptio Setup Utility - IntelRCSetup	Copyright (C) 2013 American Megat	rends, Inc.
Root Ports De-emphasis	[-6 dB]	Selectable De-emphasis (SD)
PR2 De-emphasis PR3 De-emphasis PR4 De-emphasis	[-6 dB] [-6 dB] [-6 dB]	

PR1/2/3/4 De-emphasis [-6 dB]

Sets the de-emphasis level for root ports 1, 2, 3 and 4. Configuration options: [-6 dB] [-3.5 dB]

Lane Power Gate [Enabled]

Enables or disables the power gate for PCle root ports. Configuration options: [Enabled] [Disabled]

Bifurcation [P3P2P1P0 X4X4X4X4]

Sets the root complex bifurcation. Configuration options: [Auto] [-----P0 X16] [--P2--P0 X8X8] [--P2P1P0 X8X4X4] [P3P2--P0 X4X4X8] [P3P2P1P0 X4X4X4X4]

Clock Gating Settings [Enabled]

Enables or disables Clock Gating for PCIe devices. Configuration options: [Enabled] [Disabled]

PPM Config

Aptio Setup Utility - IntelRCSetup	Copyright (C) 2013 American Mega	trends, Inc.
C-state POPUP	[Enabled]	Enable/Disable C-state POPUP

C-state POPUP [Enabled]

Enable this item to allow the system to transit from C3/C4 State to C2 State. Configuration options: [Enabled] [Disabled]

4.5.9 System Event Log

Aptio	Setup Utility - Copyright IntelRCSetup	: (C) 2013 American Megat	rrends, Inc.
System Eve	nt Log		System Error Enable/
System Err Memory Even PCIe Event	ors nt Log Log		Disable Auto setup options. If Auto is selected the enabling or
Whea Setti: Native AER	ngs	[Enable]	the driver is skipped.

System Errors [Enable]

Enables or disables system error reporting. Configuration options: [Enabled] [Disabled] [Auto]

Memory Event Log

Aptio Setup Utility - Copyright IntelRCSetup	(C) 2013 American Megat	crends, Inc.
Memory Event Log		Enable/Disable Memory
Memory Elog Support Log Correctable Errors Log Un-Correctable Errors	[Enable] [Enable] [Enable]	Error logging support

Memory Elog Support [Enable]

Enables or disables memory error logging support. Configuration options: [Enabled] [Disabled]

Log Correctable Errors [Enable]

Enables or disables correctable memory error logging support. Configuration options: [Enabled] [Disabled]

Log Un-Correctable Errors [Enable]

Enables or disables un-correctable memory error logging support. Configuration options: [Enabled] [Disabled]

PCIe Event Log

Aptio Setup Utility - Copy. IntelRCSetup	right (C) 2013 American Me	egatrends, Inc.
PCIe Event Log		Enable/Disable PCIe Error
PCIe Elog Support Log Fatal Error Log Non-Fatal Error Log Correctable Error	[Enable] [Enabled] [Enabled] [Enabled]	logging support

PCle Elog Support [Enable]

Enables or disables PCIe error logging support. Configuration options: [Enabled] [Disabled]

Log Fatal Error [Enabled]

Enable this item to generate a system event when a fatal PCIe error appears. Configuration options: [Enabled] [Disabled]

Log Non-Fatal Error [Enabled]

Enable this item to generate a system event when a non-fatal PCIe error appears. Configuration options: [Enabled] [Disabled]

Log Correctable Errors [Enable]

Enable this item to generate a system event when a correctable PCIe error appears. Configuration options: [Enabled] [Disabled]

Whea Settings

Aptio Setup Utility - Copyright (C) 2013 American Megat IntelRCSetup	crends, Inc.
Whea Settings	Enable/Disable WHEA ACPI
WHEA Support [Enable] WHEA Error Injection 5.0 Extension [Enable] Whea Logging [Enable]	support

WHEA Support [Enable]

Allows you to enable or disable the Windows[®] Hardware Error Architecture (WHEA) support. Configuration options: [Enable] [Disable]

WHEA Error Injection 5.0 Extension [Enable]

Enable this item to set error type with address and vendor extensions. Configuration options: [Enable] [Disable]

Whea Logging [Enable]

Enables or disables WHEA logging of errors. Configuration options: [Enable] [Disable]

Native AER [Enable]

Enables or disables Native Advanced Error reporting. Configuration options: [Enable] [Disable]

4.6 Server Mgmt menu

The Server Mgmt menu displays the server management status, and allows you to change the settings.

Aptio Setup Utility - Copyri Main Advanced IntelPCSetup Serve	ght (C) 2013 American Mega r Mamt Evont Logs Socuri	trends, Inc.
Main Advanced interresetup serve	I Mgme Event 1098 Securi	Ly BOOL MONICOL 1001 EXIC
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version OS Watchdog Timer OS Wtd Timer Tolicy Serial Mux System Event Log View FRU information BMC network configuration View System Event Log IPv6 BMC Network Configuration	PASSED 32 1 1.08 2.0 [Disabled] [10 minutes] [Reset] [Disabled]	If enabled, starts a BIOS timer which can only be shut off by Intel Management Software after the OS loads. Helps determine that the OS successfully loaded or follows the OS Boot Watchdog Timer policy.
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F5: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.16.1243. Cop	yright (C) 2013 American	Megatrends, Inc.

OS Watchdog Timer [Disabled]

If enabled, starts a BIOS timer which can only be shut off by Intel Management Software after the OS loads. Helps determine that the OS sucessfully loaded or follows the OS Boot Watchdog TImer Policy. Configuration options: [Enabled] [Disabled]

OS Wtd Timer Timeout [10 minutes]

Allows you to configure the length of the OS Boot Watchdog Timer. Not available if OS Boot Watchdog Timer is disabled. Configuration options: [5 minutes] [10 minutes] [15 minutes] [20 minutes]

OS Wtd Timer Policy [Reset]

Allows you to configure how the system should respond if the OS Boot Watchdog Timer expires. Not available if O/S Boot Watchdog Timer is disabled. Configuration options: [Do Nothing] [Reset] [Power Down]

Serial Mux [Disabled]

Enables or disables the Serial Mux configuration. Configuration options: [Enabled] [Disabled]

4.6.1 System Event Log

The Server Mgmt menu displays the server management status, and allows you to change the settings.

Serve	r Mgmt	
Enabling/Disabling Options SEL Components	[Enabled]	Change this to enable or disable all features
Erasing Settings Erase SEL When SEL is Full	[No] [Do Nothing]	or System Event Logging during boot.
Custom EFI Logging Options Log EFI Status Codes	[Error code]	
NOTE: All values changed here do not take effect until computer is restarted.		

SEL Components [Enabled]

Allows you to enable or disable all features of system Event Logging during boot. Configuration options: [Disabled] [Enabled]



 The following items become configurable only when you set SEL Components to [Enabled].

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

Erase SEL [No]

Allows you to choose options for erasing SEL. Configuration options: [No] [Yes, On next reset] [Yes, On every reset]

When SEL is Full [Do Nothing]

Allows you to choose options for reactions to a full SEL. Configuration options: [Do Nothing] [Erase Immediately]

Log EFI Status Codes [Error code]

Sets the logging of EFI status codes. Configuration options: [Disabled] [Both] [Error code] [Progress code]

4.6.2 View FRU information

This menu displays the FRU information.

s	Gerver Mgmt	
FRU information		
System Manufacturer	Intel	
System Product Name	EPGSVR	
System Version	-	
System Serial Number	-	
Board Manufacturer	-	
Board Product Name	-	
Board Version	-	
Board Serial Number	-	
Chassis Manufacturer	Intel	
Chassis Product Name	-	
Chassis Serial Number	-	
SDR Revision	-	
System UUID	-	

4.6.3 BMC network configuration

This menu displays the FRU information.

Server Mgmt			
BMC network configuration DM_LAN1 DM_LAN1 IP Address in BMC: DM_LAN1 Subnet Mask in BMC: DM_LAN1 Gateway Address in BMC: DM_LAN1 Address Source in BMC: Configuration Address source	000.000.000.000 000.000.000 000.000.000	Select to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase	
LAN1 LAN1 IP Address in BMC: LAN1 Subnet Mask in BMC: LAN1 Gateway Address in BMC: LAN1 MAC Address in BMC: LAN1 Address Source in BMC: Configuration Address source	000.000.000.000 000.000.000.000 000.000.000.000 00.00.		

Configuration Address source [Previous State]

Select to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase. Configuration options: [Previous State] [Static] [DynamicBmcDhcp] [DynamicBmcNonDhcp]

The following items appear only when you set Configuration Address source to [Static].

Station IP address [0.0.0.0] Allows you to key in Station IP address. Subnet mask [0.0.0.0] Allows you to key in Subnet mask. Gateway IP address [0.0.0.0] Allows you to key in Gateway IP address.

4.6.4 View System Event Log

This menu displays all system event logs.



4.6.5 IPv6 BMC Network Configuration

This menu displays the FRU information.

Server Mymt			
IPv6 BMC Network Configuration		Display the Full or Brief	
IPv6 Display Full Field		1PV6 Field	
IPv6 Display Full Formula	[Enable]		
IPv6 Display Letter Case	[Upper Case]		
IPv6 BMC DM_LAN1: IPv6 BMC Lan Option IPv6 BMC Lan IP Address source DM_LAN1 IP Address in BMC: DM_LAN1 Prefix Length in BMC: DM_LAN1 Gateway Address in BMC : DM_LAN1 Address in BMC: DM_LAN1 Address Source in BMC:	[Enable] [Previous State] 0:0:0:0:0:0:0:0 64 0:0:0:0:0:0:0:0 00.1F.C6.00.00.07 DHCP Mode		
IPv6 BMC LAN1 IPv6 BMC Lan Option	[Enable]		
IPv6 BMC Lan IP Address source	[Previous State]		
LAN1 IP Address in BMC:	0:0:0:0:0:0:0:0		
LAN1 Prefix Length in BMC:	0		
LAN1 Gateway Address in BMC:	0:0:0:0:0:0:0:0		
LAN1 MAC Address in BMC:	00.00.00.00.00.00		
LAN1 Address Source in BMC:	DHCP Mode		

IPv6 Display Full Field [Enable]

Enable this item to display the full or brief IPv6 field. Configuration options: [Disable] [Enable]

IPv6 Display Full Formula [Enable]

Enable this item to display the full or brief IPv6 formula. Configuration options: [Disable] [Enable]

IPv6 Display Letter Case [Upper Case]

Configuration options: [Lower Case] [Upper Case]

IPv6 BMC Lan Option [Enable]

Enables or disables the IPv6 BMC LAN channel. When set to [Disable], BMC networking cannot be modified during the BIOS phase. Configuration options: [Disable] [Enable]

IPv6 BMC Lan IP Address source [Previous State]

Select to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase. Configuration options: [Previous State] [Static] [Dynamic-Obtained by BMC running DHCP]



The following items appear only when you set IPv6 BMC Lan IP Address source to [Static].

IPv6 BMC Lan IP Address Allows you to key in IPv6 BMC Lan IP address. IPv6 BMC Lan IP Prefix Length Allows you to key in IPv6 BMC Lan IP prefix length. IPv6 BMC Lan Default Gateway Allows you to key in default Gateway IP address for IPv6 BMC Lan. IPv6 BMC Lan DNS Settings Allows you to key in the DNS settings for IPv6 BMC Lan. IPv6 BMC Lan Link IP Address Allows you to key in IPv6 BMC Lan Link IP address. IPv6 BMC Lan Link IP Prefix Length Allows you to key in IPv6 BMC Lan Link IP prefix length.

4.7 Event Logs menu

The Event Logs menu items allow you to change the event log settings and view the system event logs.

Aptio Setup Utility - Cop	yright (C) 2013 Americ	can Megatrends, Inc.
Main Advanced IntelRCSetup Se	rver Mgmt Event Logs	Security Boot Monitor Tool Exit
 Change Smbios Event Log Set View Smbios Event Log 	ttings	Press <enter> to change the Smbios Event Log configuration.</enter>

4.7.1 Change Smbios Event Log Settings

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Event Logs		
Enabling/Disabling Options Smbios Event Log	[Enabled]	Change this to enable or disable all features of Smbios Event Logging during
Erasing Settings		DOOT.
Erase Event Log	[No]	
When Log is Full	[Do Nothing]	
Smbios Event Log Standard S Log System Boot Event MECI METW	ettings [Disabled] 1 60	
Custom Options		
Log OEM Codes	[Enabled]	
Convert OEM Codes	[Disabled]	
NOTE: All values changed here do not take effect until computer is restarted.		

Smbios Event Log [Enabled]

Allows you to enable or disable all features of Smbios event logging during boot. Configuration options: [Disabled] [Enabled]

Erase Event Log [No]

This item only appears when Smbios Event Log is set to [Enabled]. This item allows you to select the options for erasing Smbios event log. Configuration options: [No] [Yes, Next reset] [Yes, Every reset]

When Log is Full [Do Nothing]

This item only appears when Smbios Event Log is set to [Enabled]. This item allows you to select the options for reaction when the event logs are full. Configuration options: [Do Nothing] [Erase Immediately]

Log System Boot Event [Disabled]

Enables or disables logging of system boot event. Configuration options: [Disabled] [Enabled]

MECI [1]

Sets the Multiple Event Count Increment (MECI). The values range from 1 to 255.

METW [60]

Sets the Multiple Event Time Window (METW). The values range from 0 to 99.

Log OEM Codes [Enabled]

Enables or disables logging of EFI status codes as OEM codes (if not already converted to legacy). Configuration options: [Disabled] [Enabled]

Convert OEM Codes [Disabled]

Enables or disables converting EFI status codes to Standard Smbios types (Not all may be translated). Configuration options: [Disabled] [Enabled]

4.7.2 View Smbios Event Log

This menu displays all Smbios event logs.

Aptio	Setup Uti	lity - Copyri	ght (C) 2013 Ameri Event Logs	can Megatrends, Inc.
DATE 01/01/2000	TIME 01:19:45	ERROR CODE Smbios 0x16	SEVERITY N/A	DESCRIPTION Log Area Reset

4.8 Security

This menu allows a new password to be created or a current password to be cchanged. The menu also enables or disables the Secure Boot state and lets the user configure the System Mode state.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Main Advanced IntelRCSetup Server Mgmt Event Logs <mark>Security</mark> Boot Monitor Tool Exit		
Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password must be %d to %d characters long. in the following range: Minimum length 3 Maximum length 20	To clear the Administrator Password, key in the current password in the Enter Current Password box, and then press <enter> when prompted to create/confirm the password.</enter>	
Administrator Password User Password Clear User Password > Secure Boot Menu > Secure Flash update		

Administrator Password

To set an administrator password:

- 1. Select the Administrator Password item and press < Enter>.
- 2. From the Create New Administrator Password box, key in a password, then press <Enter>.
- 3. Confirm the password when prompted.

To change an administrator password:

- 1. Select the Administrator Password item and press < Enter>.
- 2. From the Enter Current Administrator Password box, key in the current password, then press <Enter>.
- From the Create New Administrator Password box, key in a new password, then press <Enter>.
- 4. Confirm the password when prompted.



To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password.

User Password

To set a user password:

- 1. Select the User Password item and press <Enter>.
- 2. From the Create New User Password box, key in a password, then press <Enter>.
- 3. Confirm the password when prompted.

To change a user password:

- 1. Select the User Password item and press <Enter>.
- From the Enter Current User Password box, key in the current password, then press <Enter>.
- 3. From the Create New User Password box, key in a new password, then press < Enter>.
- 4. Confirm the password when prompted.

To clear a user password:

- 1. Select the Clear User Password item and press < Enter>.
- 2. Select Yes from the Warning message window then press <Enter>.

Secure Boot Menu

This item allows you to customize the Secure Boot settings.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Security		
System Mode Secure Boot	Disabled Not Active	Secure Boot can be enabled if 1.System running in
Secure Boot Secure Boot Mode Key Management	[Disabled] [Custom]	User mode with enrolled Platform Key (PK) 2.CSM function is disabled

Secure Boot [Disabled]

This item allows you to enable or disable the Secure Boot flow control. Configuration options: [Disabled] [Enabled]

Secure Boot Mode [Custom]

This item allows you to select the mode of the Secure boot to change Execution policy and Secure Boot Key management. Configuration options: [Standard] [Custom]

Key Management

This item only appears when you set the Secure Boot Mode to [Custom]. This allows you to modify Secure Boot variables and set Key Management page.

Aptio Setup Utility - Copyrig	ght (C) 2013 Americ Security	can Megatrends, Inc.
Default Key Provision Enroll All Factory Default Keys Save All Secure Boot Variables	[Disabled]	Install Factory default Secure Boot Keys when System is in Setup Mode.
Platform Key Delete PK Set new PK	NOT INSTALLED	
Key Exchange Key Delete KEK Set new KEK Append KEK	NOT INSTALLED	
Authorized Signatures Delete DB Set new DB Append DB	NOT INSTALLED	
Authorized TimeStamps Delete DBT Set new DBT Append DBT	NOT INSTALLED	<pre>\L. Select Schen \L. Select tem Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values</pre>
Forbidden Signatures Delete DBX Set new DBX Append DBX	NOT INSTALLED	F5: Optimized Defaults F10: Save & Exit ESC: Exit

Default Key Provision [Disabled]

Configuration options: [Disabled] [Enabled]

Enroll All Factory Default Keys

This item will ask you if you want to Install Factory Default secure keys. Select Yes if you want to load the default secure keys, otherwise select No.

Save All Secure Boot Variables

This item will ask you if you want to save all secure boot variables. Select Yes if you want to save all secure boot variables, otherwise select No.

Platform Key (PK)/ Key Exchange Key (KEK)/ Authorized Signatures (DB)/ Authorized TimeStamps (DBT)/ Forbidden Signatures (DBX)

Configuration options: [Set New] [Delete] [Append]

4.9 Boot menu

The items in Boot menu allows you to change the options on how the system will boot.



Setup Prompt Timeout [xx]

This item allows you to adjust the number of seconds to wait for setup activation key. Use the <+> and <-> keys to specify the values.

Bootup NumLock State [On]

Allows you to select the power-on state for the NumLock. Configuration options: [Off] [On]

Boot Logo Display [Enabled]

[Disabled] Displays the boot logo during POST.

[Enabled] Hides the boot logo during POST.

HDD BootSector Write [Normal]

Enables or disables writes to Hard Disk Sector 0. Configuration options: [Normal] [Write Protect]

Boot Option Priorities

These 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.



 To select the boot device during system startup, press <F8> when ASUS Logo appears.

To access Windows[®] OS in Safe Mode, press <F8> after POST.

CD/DVD ROM Drive BBS Priorities/ Hard Drive BBS Priorities/ Network Device BBS Priorities

This allows you to set the order of the legacy devices in this group.

4.10 Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.

CPU/MB Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the CPU and motherboard component temperatures.

CPU_FAN1 Speed, FRNT_FAN1/2/3/4 Speed [xxxx RPM] or [Ignore] / [N/A]

The onboard hardware monitor automatically detects and displays the speed of CPU fans, and front fans in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows **N/A**.

VCORE Voltage, +12V, +5V, +VDDQ, +3VSB, +3.3V, and VBAT

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

Fan Speed Control [Generic Mode]

Allows you to configure the ASUS Smart Fan feature that smartly adjusts the fan speeds for more efficient system operation. Configuration options: [Low Speed Mode] [Generic Mode] [High Speed Mode] [Full Speed Mode] [Manual Speed Mode]



The following items appear only when you set Fan Speed Control to [Manual Speed Mode].

CPU Fan Duty (%) [50]

Use the <+> and <--> keys to adjust the CPU fan duty cycle. The values range from 10% to 100%.

Sys Fan Duty (%) [50]

Use the <+> and <--> keys to adjust the system fan duty cycle. The values range from 10% to 100%.

AUX0 Fan Duty (%) [50]/ AUX1 Fan Duty (%) [50]/ AUX2 Fan Duty (%) [50]

Use the <+> and <--> keys to adjust the AUX fan duty cycle. The values range from 10% to 100%.

4.11 Tool menu

The Tool menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.

Aptio Setup Utilit	y - Copyright (C) 2013 Amer	ican Megatrends, Inc.
Main Advanced IntelRCSe	Cup Server Mgmt Event Log	s Security Boot Monitor <mark>Tool</mark> Exit
Start EzFlash		Press ENTER to run the utility to select and update BIOS.

Start EzFlash utility

Allows you to run the Start EzFlash utility. For more information, see section **4.1.2 ASUS** EzFlash Utility.

4.12 Exit menu

The Exit menu items allow you to save or discard your changes to the BIOS items.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.				
Main Auvanceu interAcsetup server Mgmt Event Logs securi	Cy BOOL MONICOL 1001 EXIC			
Save Changes & Exit Discard Changes & Exit Save Changes & Reset Discard Changes & Reset	Exit system setup after saving the changes.			
Save Options Save Changes Discard Changes				
Restore Defaults Save as User Defaults Restore User Defaults				
Boot Override AMI Virtual CDROMO 1.00 AMI Virtual Floppy0 1.00				
AMI Virtual HDISKO 1.00 TBA CF Slot 0000 w1543	$\rightarrow \leftarrow$: Select Screen $\uparrow \downarrow$. Select Item			
IBA GE Slot 00A1 v1543	Enter: Select			
IBA GE Slot 00A2 v1543 IBA GE Slot 00A3 v1543	+/-: Change Opt. F1: General Help F2: Previous Values			
Launch EFI Shell from filesystem device	F5: Optimized Defaults F10: Save & Exit ESC: Exit			
Moreion 2 16 12/3 Converget (C) 2013 American Magatrande Inc.				
Version 2.10.1245. copyright (c) 2015 American Megatrends, inc.				

Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Save Changes & Exit

This option allows you to exit the Setup program after saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select **Yes** to save changes and exit.

Discard Changes & Exit

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select **Yes** to discard changes and exit.

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select **Yes** to save changes and exit.

Discard Changes & Reset

This option allows you to reset without saving your changes. When you select this option and press <ENTER>, a confirmation window appears. Select **Yes** to discard changes and reset.

Save Changes

This option allows you to save the changes you have made. When you select this option and press <ENTER>, a confirmation window appears. Select **Yes** to save changes.

Discard Changes

This option allows you to discard the changes you have made. When you select this option and press <ENTER>, a confirmation window appears. Select **Yes** to discard changes.

Restore Defaults

This option allows you restore or load the default values for all the setup options. When you select this option and press <ENTER>, a confirmation window appears. Select **Yes** to apply the default values or press <Esc> to exit.

Save as User Defaults

This option allows you save the changes you have made as user defaults. When you select this option and press <ENTER>, a confirmation window appears. Select **Yes** to save the changes as user defaults.

Restore User Defaults

This option allows you restore or load the user defaults for all the setup options. When you select this option and press <ENTER>, a confirmation window appears. Select **Yes** to apply the user defaults.

Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

Launch EFI Shell from filesystem device

This option allows you to launch the EFI Shell application (shellx64.efi) from one of the available filesystem devices. Select Yes to proceed, or No to cancel, and then press <Enter>.

Chapter	4:	BIOS	setup)
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Chapter 5: Driver installation

5

Chapter summary

This chapter provides the instructions for installing the necessary drivers for different system components in both Linux[®] and Windows[®] Operating Systems.

This chapter contains the following sections:

5.1	Management applications and utilities installation	5-3
5.2	Running the Support DVD	5-3
5.3	Installing the LAN driver	5-11
5.4	Installing the VGA driver	5-16
5.5	Installing the Intel [®] I354 Gigabit Adapters driver	5-19
5.1 Management applications and utilities installation

The support DVD that is bundled with your motherboard contains drivers, management applications, and utilities that you can install to maximize the features of your motherboard.

- The contents of the support DVD are subject to change at any time without notice. Visit the ASUS website (www.asus.com) for the latest updates on software and utilities.
 - The support DVD is supported on Windows[®] Server 2008 R2 and Windows[®] Server 2012.

5.2 Running the Support DVD

When you place the support DVD into the optical drive, the DVD automatically displays the main screen if Autorun is enabled in your computer. By default, the Drivers tab is displayed.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

The main screen of the Support DVD contains the following tabs:

- 1. Drivers
- 2. Utilities
- 3. Make Disk
- 4. Manual
- 5. Contact



The main screen of the Support DVD looks exactly the same on the Windows® Server 2008 R2 and on the Windows® Server 2012 Operating System (OS).

5.2.1 Drivers menu tab

The Drivers Menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.



5.2.2 Utilities menu tab

The Utilities menu displays the software applications and utilities that the motherboard supports.



5.2.3 Make Disk menu tab

The Make Disk menu contains items to create the Marvell 9485 SAS/SATA2 controller driver disks.



5.2.4 Manual menu

The Manual menu contains the motherboard user guide.



The user guide is in Portable Document Format (PDF). Install the Adobe $^{\otimes}$ Reader from the Utilities menu before opening it.



5.2.5 Contact information menu

The Contact menu displays the ASUS contact information, e-mail addresses, and useful links if you need more information or technical support for your motherboard.



5.2.6 Installing the Intel[®] chipset device software driver

This section provides the instructions on how to install the Intel[®] chipset device software on the system.

You need to manually install the Intel[®] chipset device software on a Windows[®] Operating System.

To install the Intel[®] chipset device software on Windows[®] Server 2008 R2:

- 1. Restart the computer.
- 2. Log in with Administrator privileges.
- 3. Insert the Motherboard Support DVD to the optical drive.

The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

4. Click Intel[®] Chipset Device Software from the Drivers tab to start the installation.

 From the Intel[®] Chipset Device Software, click Next to start the installation.



6. In the License Agreement window, click Yes to continue.

Intel® Chipset Device Software			
Intel® Chipset Device Soft License Agreement	tware		(intel)
You must accept all of the terms of the learne a program. Do you accept the terms of the learne a program. Do you accept the terms of INTEL SOFTWARE LICENCE AGREEMENT (COM Do not use or load the software and an assoc Software, you accept to the terms of the Agree install or use the Software. The software that "If you are an Original Equipment Manufacture" "If you are an Original Equipment Manufacture "If you are an Original Equipment Manufacture" "If you are an Original Equipment Manufacture" "If you are an Original Equipment Manufacture "If you are an Original Equipment Manufacture" (If you are an Original Equipment Manufacture (If you are an Original Equipment An under (If yo	greement in order / IHV / ISV Distrib LLING OR USING. isated materials (or is and conditions. ement. If you do r er (OEM), Indeper this complete LICI	to continue the ution & Single U ollectively, the " By loading or us tot wish to so ag indent Hardware ENSE AGREEMEP	setup ser) Software") ing the ree, do not Vendor tT applies;
	< Back	Yes Intel® Instal	No ation Framework

7. Read the Readme File information and click **Next** to continue.

tel® Chipset De	vice Software			
Intel® Ch Readme Fi	ipset Device Sof le Information	tware	Te	intel
Refer to the Rea Press the Page D	dme file below to view the sys own key to view the rest of th	tem requirements e file.	and installation inf	ormation.
* Product * Release	: Intel(R) Chipset : Production Versi	Device So on	ftware	3
* Target: * Date: 3	Intel(R) Atom(TM) ugust 01 2013	processor	C2000 prod	lct fam
4				
		< Back	Next >	Cancel
			Totel® Tostalla	ion Framework

8. Click **Install** in the **Windows Security** window.

Windows Security	×
Would you like to install this device software?	
Name: Intel System devices Publisher: Intel Corp - Chipset INF	
Always trust software from "Intel Corp - Chipset INF". Install Don't Install	ונ
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?	



The Windows Security window may appear more than once and you may have to click **Install** several times to continue with the installation.

9. When finished, click Next.

ntel® Chipset Device Software	
Intel® Chipset Device Software Setup Progress	intel
Please wait while the following setup operations are performed:	
[Installing Driver: Intel(R) Altom(TM) processor C2000 product fn Version 9 - 4.3. 1009 [Installing Driver: Intel(R) Altom(TM) processor C2000 product fa Installing Driver: Intel(R) Altom(TM) processor C2000 product fa Version 9 - 4.3. 1009 Installing Driver: Intel(R) Altom(TM) processor C2000 product fa	mly RCEC - 1F 16 mly PCU SMBus - 1F 3C mly SMBus 2.0 - 1F 15 mly USB Enhanced Host Contr
Click Next to continue.	Next
el® Chipset Device Software	
ntel® Chipset Device Software Setup Is Complete	intel
'ou must restart this computer for the changes to take effect. W omputer now?	/ould you like to restart the
O Yes, I want to restart this computer now. \bigcirc No, I will restart this computer later.	
lick Finish then remove any installation media from the drives	

 When prompted to restart the computer, select Yes, I want to restart this computer now then click Finish to complete the installation.

Finish

To install the Intel[®] chipset device software on Windows[®] Server 2012:

- 1. Restart the computer.
- 2. Log in with Administrator privileges.
- 3. Insert the Motherboard Support DVD to the optical drive.

The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

- 4. Click Intel[®] Chipset Device Software from the Drivers menu to start the installation.
- 5. From the Intel[®] Chipset Device Software, click Next.



 In the License Agreement window, click Yes to continue the process.



7. Read the Readme File information and click **Next** to continue.

Intel® Chipset Device Software
Intel® Chipset Device Software
Refer to the Readine file below to view the system requirements and installation information. Press the Plage Down key to view the rest of the file. Product: Instel(R) Chipset Device Software Release: Production Version • Version: 9.4.3.1011 • Target: Instel(R) Atom(TM) processor C2000 product fam • Date: August 01 2013
<

8. When finished, click Next.

ntel® Ch etup Prog	ipset Device Software ress	intel
Please wait while	the following setup operations are performed:	
Installing Driver: Version: 9.4.3.10 Installing Driver: Version: 9.4.3.10 Installing Driver: Version: 9.4.3.10 Installing Driver: Version: 9.4.3.10	Intel(R) Atom(TM) processor C2000 product family R 199 109 109 109 109 109 109 109	CEC - 1F16 MBus 2.0 - 1F15 CU SMBus - 1F3C ISB Enhanced Host Contr
Installing Driver: Version: 9.4, 3, 10 Installing Driver: Version: 9.4, 3, 10 Installing Driver: Version: 9.4, 3, 10 Installing Driver: Version: 9.4, 3, 10 Click Next to con	Intel(R) Atom(TM) processor C2000 product family R 090 Intel(R) Atom(TM) processor C2000 product family S 090 Intel(R) Atom(TM) processor C2000 product family P Intel(R) Atom(TM) processor C2000 product family L 111	ICEC - 1F16 MBus 2.0 - 1F15 CU SMBus - 1F3C ISB Enhanced Host Contr

 When prompted to restart the computer, select Yes, I want to restart this computer now then click Finish to complete the installation.



5.3 Installing the LAN driver

This section provides the instructions on how to install the ${\rm Intel}^{\rm 0}\,{\rm Network}\,\,{\rm Connections}\,\,{\rm Software}\,\,{\rm drivers}$ on the system.

You need to manually install the LAN controller driver on a Windows $^{\! \otimes}$ operating system.

To install the LAN controller device on Windows® Server 2008 R2:

- 1. Restart the computer.
- 2. Log in with Administrator privileges.
- 3. Insert the Motherboard Support DVD to the optical drive.

The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

 Click Intel[®] Network Connections Software on the Drivers tab to start the installation.



5. From the Intel[®] Network Connections window, click Install Drivers and Software.



6. Click Next in the Welcome to the install wizard for Intel(R) Network Connections.

Intel(R) Network Connections Install Wizard	×
Welcome to the install wizard for Intel(R) Network Connections	(intel)
Installs drivers, Intel(R) Network Connections, and Advanced Networking Services.	
WARNENG: This program is protected by copyright law and international treates.	
< Back. Next >	Cancel

7. From the License Agreement window, select I accept the terms in the license agreement then click Next.

License Agreeme	nt	(- t - t
Please read the fo	allowing license agreement carefully.	inter
	INTEL SOFTWARE LICENSE AGREEMENT	-
IMPORT	ANT - READ BEFORE COPYING, INSTALLING O	R USING.
IMPORT. Do not copy, insta (collectively, the " ("Agreement") un	ANT - READ BEFORE COPYING, INSTALLING O II, or use this software and any associated m Software") provided under this license agree til you have carefully read the following term	R USING. naterials ement s and conditions.
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8. Select the drivers you want to install in the **Setup Options** window and click **Next**.

Setup Options		
Select the program features you want insta	alled.	intel
rstall:		
Drivers Monore for Windows* Device Monore Network Services Windows* PowerShell Madule Intel(R) Network Connections SNMP A	Manager gent	
Feature Description		

9. From the Ready to Install the Program window, click Install.

🛃 Intel(R) Network Connections Install Wizard	×
Ready to Install the Program	(intal)
The wizard is ready to begin installation.	(inter
Click Install to begin the installation.	
If you want to review or change any of your installation settings, dick Back. Clic exit the wizard.	k Cancel to
< Back Install	Cancel

 Click Yes when the Microsoft Management Console dialog box appears.



The **Microsoft Management Console** dialog box appears when the system detects open or running applications that needs to be closed. You have to terminate open or running applications specified in the dialog box to proceed with the installation.

11. When done, click **Finish** to complete the installation.

Installing Intel(R) Network Connections	
The program teatures you selected are being installed.	Intel
Intel®) Network Connections Setion is necession the Intel® PROSE for Windows® Device Nanagor Do you want to dote the following applications and continue with Intel®) Network Connections software configuration? Microsoft Management Console	X
retalliheld	Cancel



To install the LAN controller device on Windows® Server 2012:

- 1. Restart the computer.
- 2. Log in with Administrator privileges.
- 3. Insert the Motherboard Support DVD to the optical drive.

The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

4. Click Intel® Network Connections Software on the Drivers menu to start the installation.

5. From the Intel® Network Connections window, click Install Drivers and Software.



Click Next in the Welcome to the install wizard for Intel(R) Network Connections window.



7. From the License Agreement window, select I accept the terms in the license agreement then click Next.

		_
ø	Intel(R) Network Connections Install Wizard	:
1	License Agreement Please read the following license agreement carefully.	
_		-
	INTEL SOFTWARE LICENSE AGREEMENT	
	IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.	
D (4 (*	to not copy, install, or use this software and any associated materials collectively, the "Software") provided under this license agreement "Agreement") until you have carefully read the following terms and conditions.	
B	by copying, installing, or otherwise using the Software, you agree to be bound by the terms of this Agreement. If you do not agree to the terms of this Agreement, we have the Software to the terms of the Agreement, we have the Software to the terms of the Software terms of term	
۲	I accept the terms in the license agreement Print	
) I do not accept the terms in the license agreement	
	< Back Next > Cancel]

8. Select the drivers you want to install in the **Setup Options** window and click **Next**.

Intel(R) Network Connections	^
Setup Options Select the program features you want installed.	(intel)
Install: Constant Constant Co	
Feature Description Drivers for all wired Intel Network Connections <	Cancel

9. Click Install to continue.



10. When done, click **Finish** to complete the installation.

퀑	Intel(R) Network Connections Install Wizard	×
Install wi	zard Completed	(intel)
	To access new features, open Device Manager, and view the properties of the network adapters.	
	< Back Finish	Cancel

5.4 Installing the VGA driver

This section provides the instructions on how to install the **ASPEED Video Graphics Adapter** (VGA) driver.

To install the ASPEED VGA driver on Windows® Server 2008 R2:

- 1. Restart the computer.
- 2. Log in with Administrator privileges.
- 3. Insert the Motherboard Support DVD to the optical drive.

The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

 From the Main menu, click ASPEED AST2300 Display Driver on the Drivers tab to start the installation.



5. Click Next in the Welcome to the InstallShield Wizard for ASPEED Graphics WinS08R2x64 v.0.99.



6. Click **Install** to begin the installation.



7. When done, click **Finish**.



8. When prompted to restart the computer, click **Yes**.

🔀 ASPEEL	OGraphics Win508R2_x64 v	.0.99 Installer Inform🔀
0	You must restart your system changes made to ASPEED Gray v.0.99 to take effect. Click Ye you plan to restart later.	for the configuration ohics WinS08R2_x64 s to restart now or No if
	Yes	No

To install the ASPEED VGA driver on Windows® Server 2012:

- 1. Restart the computer.
- 2. Log in with Administrator privileges.
- 3. Insert the Motherboard Support DVD to the optical drive.

The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

- 4. Click ASPEED AST2300 Display Driver on the Drivers tab to start the installation.
- From the Welcome to the InstallShield Wizard for Win2012 window, click Next.



6. Click **Install** to begin the installation.



7. When done, click Finish.



Chapter 5: Driver installation

5.5 Installing the Intel® I354 Gigabit Adapters driver

This section provides the instructions on how to install the Intel® I354 Gigabit Adapters sdriver on the system.

To install the Intel® I354 Gigabit Adapters driver on Windows® Server 2008 R2:

- 1. Restart the computer.
- 2. Log on with Administrator privileges.
- 3. Insert the motherboard/system support DVD to the optical drive.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

 Click Intel I354 Gigabit Adapters Driver in the Drivers tab of the main screen to start the installation.





🖟 Intel(R) Network Connections Install Wizard	×
Welcome to the install wizard for Intel(R) Network Connections	(intel)
The initial wave of will allow you to modify or remove tintel(iv) Network Connections. To continue, disk Next.	
< Back. Next >	Cancel

6. From the Program Maintenance window, select Modify then click Next.



7. Select the options you want to install then click **Next** to continue.

Setup Options		(intel)
Select the program reatures you want ins	aleo.	\mathbf{C}
Install:		
Drivers		
Advanced Network Services	emanager	
Windows* PowerShell Module		
Intel(R) Network Connections SNMP	Agent	
Feature Description		1

 Click Install in the Ready to Modify the Program window to begin with the loading of the selected options.

Intel(R) Network Connections Install Wizard	×
Ready to Modify the Program	(intal)
The wizard is ready to begin installation.	inter
Click Install to begin the installation.	
If you want to review or change any of your installation settings, dick Back exit the wizard.	. Click Cancel to
	1
< Back Instal	Cancel

9. When done, click **Finish**.

🚰 Intel(R) Network Connections Install Wiza	ard 🔀
Install wizard Completed	(intel)
To acress new features, spon D properties of the network adapt	wice Manager, and view the 5-
	Back Finish Cancel

To install the Intel® I354 Gigabit Adapters driver on Windows® Server 2012:

- 1. Restart the computer.
- 2. Log on with Administrator privileges.
- 3. Insert the motherboard/system support DVD to the optical drive.



If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **Bin** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

- Click Intel I354 Gigabit Adapters Driver in the Drivers tab of the main screen to start the installation.
- 5. Click Next to continue.



6. From the **Program Maintenance** window, select **Modify** then click **Next**.



 Select the options you want to install then click Next to continue.

Intel(R) N	letwork Connections	×
Setup Options		(intel)
Select the program features you want	installed.	inter
Install:		
Drivers		
Intel(R) PROSet for Windows* Dev	vice Manager	
Advanced Network Services		
Totel(R) Network Connections SNM	IP Agent	
	- regula	
Feature Description		
Drivers for all wired Intel Network Conne	ctions	
	< Back Next >	Cancel

8. In the **Ready to Modify the Program** window, click **Install** to load the options you selected.

詞 Intel(R) Network C	onnections Install Wizard	×
Ready to Modify the Program The wizard is ready to begin installation.		(intel)
Click Install to begin the installation.		
If you want to review or change any of yo exit the wizard.	our installation settings, click Back. C	Click Cancel to
	< Back Instal	Cancel

9. When done, click Finish.

討 Intel(R) Network	Connections Install Wizard	x
Install wizard Completed		(intel)
To access new features properties of the netwo	, geen Device Manager, and view the As adapters.	
	< Back Finish	Cancel

Appendix A: Reference Information



Chapter summary

This appendix includes additional information that you may refer to when configuring the motherboard. This chapter contains the following sections:

A.1	Block diagram	A -:	3
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A.1 Block diagram

P9A-I/C2750/SAS/4L and P9A-I/C2550/SAS/4L



P9A-I/C2550/4L



ASUS contact information

ASUSTeK COMPUTER INC.

Address
Telephone
Fax
E-mail
Web site

15 Li-Te Road, Peitou, Taipei, Taiwan 11259 +886-2-2894-3447 +886-2-2890-7798 info@asus.com.tw http://www.asus.com.tw

Technical Support Telephone Fax Online Support

+86-21-38429911 +86-21-58668722 ext: 9101 http://support.asus.com/techserv/techserv.aspx

ASUSTeK COMPUTER INC. (Taiwan)

Address Telephone Fax E-mail Web site 15 Li-Te Road, Peitou, Taipei, Taiwan 11259 +886-2-2894-3447 +886-2-2890-7798 info@asus.com.tw http://www.asus.com.tw

Technical Support

Telephone Online Support +886-2-2894-3447 (0800-093-456) http://support.asus.com/techserv/techserv.aspx

ASUSTeK COMPUTER INC. (China)

Address

Telephone Fax Web site No.508, Chundong Road, Xinzhuang Industrial Zone, Minhang District, Shanghai, China. +86-21-5442-1616 +86-21-5442-0099 http://www.asus.com.cn

Technical Support Telephone

Online Support

+86-21-3407-4610 (800-820-6655) http://support.asus.com/techserv/techserv.aspx

ASUS contact information

ASUS COMPUTER INTERNATIONAL (America)

Address Fax Web site 800 Corporate Way, Fremont, CA 94539, USA +1-510-608-4555 http://usa.asus.com

Technical Support Support fax General support Online support

+1-812-284-0883 +1-812-282-2787 http://support.asus.com/techserv/techserv.aspx

ASUS COMPUTER GmbH (Germany and Austria)

Address Fax Web site Online contact Harkort Str. 21-23, D-40880 Ratingen, Germany +49-2102-959911 http://www.asus.de http://www.asus.de/sales

Technical Support

Telephone +49-1805-010923 Support Fax +49-2102-959911 Online support http://support.asus.com/techserv/techserv.aspx

ASUS Czech Service s.r.o. (Europe)

Address Na Rovince 887, 720 00 Ostrava – Hrabovő, Czech Republic Telephone +420-596766888 Web site http://www.asus.cz

Technical Support Telephone +420-596-766-891 Fax +420-596-766-329 E-mail advance.rma.eu@asus.com Online Support http://support.asus.com/techserv/techserv.aspx

ASUS contact information

ASUS Holland BV (The Netherlands)

Address	Marconistraat 2, 7825GD	EMMEN,	The Netherlands
Web site	http://www.asus.com		

Technical Support	
Telephone	+31-(0)591-5-70292
Fax	+31-(0)591-666853
E-mail	advance.rma.eu@asus.com
Online Support	http://support.asus.com/techserv/techserv.aspx

ASUS Polska Sp. z o.o. (Poland)

	-	•			
Address		UI. Post⊡pu 6,	02-676	Warszawa,	Poland
Web site		http://pl.asus.c	от		

Technical Support
Telephone
Online Support

+48-225718033 http://support.asus.com/techserv/techserv.aspx

ASK-Service (Russia and CIS)

Address	г.Москва, ул. Орджоникидзе, д.10, Россия
Telephone	(495) 640-32-75
Web site	http://ru.asus.com

Technical Support

Telephone	008-800-100-A
Online Support	http://vip.asus.

008-800-100-ASUS (008-800-100-2787) http://vip.asus.com/eservice/techserv.aspx?SLanguage=ru

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DECLARATION OF CONFORMITY Per FCC Part 2 Section 2. 1077(a) Per FCC Part 2 Section 2. 1077(a) Responsible Party Name: Asus Computer International Address: 800 Corporate Way, Fremont, CA 94539.	Phone/Fax No: (510)739-3777/(510)608-4555 hereby declares that the product Product Namo - Motherhoard	Model Number : P9A-I/C2550/SAS/4L; P9A-I/C2550/SAS/4L; P9A-I/C2550/SAS/4L;	Conforms to the following specifications:	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.	Representative Person's Name : Steve Chang / President	Signature:	Date : May. 21, 2014 Ver. 14031	
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