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PL-10590
Networking Appliance
User's Manual
Version 1.0

2U Rackmounted Dual Intel® Haswell-EP Xeon E5-2600V3 Series Processor and C612 PCH Network System, 3 PCIe x16 slot for expansion LAN module, IPMI, 1 USB, 4 SATA HDD, 2 GbE, CF, 2 PCIe x8 slot, Redundant PSU

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Revision History			
Date	**Version**	**Modification**	**Editor**
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Chapter 1. General Information

1.1 Introduction

The PL-10590 is powered by an Intel® Haswell-EP Xeon processor (code name: Grantley). The platform was developed for maximum performance, scalability and functionality in 2U network service appliance. PL-10590 is designed with two Intel® Xeon E5-2600V3 series processors and supports Intel® QuickPath Interconnects running up to 9.6 GT/s speeds. Intel® QPI (Quick Path Interconnect) links are a high speed, point-to-point interconnect bus between the processor and chipset that reduces memory socket latency and increases performance. The E5-2600V3 series processor is up to 18 cores, 45MB cache and total with 80 PCIe lanes. Each E5-2600V3 processor support four DDR4 memory (up to 2133 MHz) and maximum memory capacity is up to 128 GB.

In addition, PL-10590 supports four 3.5" SATA hard disks or solid state drives and provides a choice of different types of expansion modules; such as 10 Gigabit SFP+, Gigabit copper with BYPASS function and Gigabit fiber ports. The maximum of Ethernet port for PL-10590 is 24 GbE ports.

1.2 Specifications

Processor System	CPU	Supports Dual Intel® Haswell-EP E5-2600V3 Series, LGA 2011-3
	Chipset	Intel® Wellsburg C612 PCH
	QPI	QPI up to 9.6 GT/s
	BIOS	AMI® 128Mb SPI BIOS
Memory	Technology	Total 8 DIMMs (Four channels per CPU, one DIMM per channel, four DIMMs per CPU) 1.ECC/Registered DDR4 2133 MHz memory, up to 16GB per DIMM 2. LRDIMM：DDR4 2133 MHz, up to 16GB per DIMM.
	Capacity	ECC UDIMM/RDIMM：up to 128GB LRDIMM：up to 128GB
Expansion	Expansion	1. One SO-DIMM slot for IPMI card with VGA support

	Slots	2.Two Gen.3 PCIe x8 slot	
Ethernet	Ethernet Modules for Option	R323A	Expansion module with 4 x SFP ports and 4 x RJ45 GbE ports, Intel82580EB
		R323B	Expansion module with 4 x SFP ports and 4 x RJ45 GbE ports, Intel82580EB with two pairs bypass function
		R324A	Expansion module with 8 SFP ports, Intel 82580EB
		R325A	Expansion module with 8 RJ45 GbE ports, Intel 82580EB
		R325B	Expansion module with 8 RJ45 GbE ports, Intel 82580EB with four pairs bypass function
		R266A	Expansion module with 2 SFP+ 10GbE ports, Intel82599ES w/o re-driver
		R333A	Expansion module with 2 QSFP+ ports, Intel® XL710
		R316A	Expansion module with 2 SFP+ 10GbE ports, Intel82599ES with non-latching bypass
		R316B	Expansion module with 2 SFP+ 10GbE ports, Intel82599ES with latching bypass
		R258B	Expansion module with 4 RJ45 10G ports, Intel X540-BT2
Hardware Acceleration Module	Cryptographic	NA	
Storage	SATA HDD	Support four 3.5" SATA HDD	
	RAID	RAID 0,1,5,10 via PCH	
	Compact Flash Socket	One CompactFlash™ Type I/II	
Front Accessible I/O	USB Port	One external USB 2.0	
	Console Port	One RJ45 Console port (COM1, RS232)	
	Management Port	One MGMT port, Intel i210 One IPMI port support, Intel i210	

	Display Port	One VGA pin header（R303C need plug in main board）
Power Supply	Watt	2U 500W ATX redundant power supply
Mechanical and Environment	Form Factor	2U rackmounted
	LCD Module	One 16x2 LCM with four Key buttons
	Keypad	NA
	LED	4x GPO LEDs via R319A GPO4 (Green) GPO5 (Yellow) GPO6 (Yellow) GPO7 (Yellow)
	Dimension（W x D x H）	430mm (W) x 639mm (D) x 88mm (H) (17.2”W x 25.56”D x 3.52”H)
	Operating Temperature	Operating: 0 ~ 40°C (32 ~ 104°F)
	Storage Temperature	-20 ~ 75°C (-4 ~ 167°F)
	Humidity	10 ~ 85% relative humidity, non-operating, non-condensing
Weight	1pc/CTN, 20 kgs	
Certification	CE/FCC	

1.3 Ordering Information

PL-10590A-A	2U Rack-Mount, Intel Haswell-EP with C612 PCH, DDR4, 3 PCIe slots for Expansion Module , PCIe x8 slot, Console, USB, 2GbE, SATA, CF
R303C	IPMI card with VGA support
R323A	Expansion module with 4 x SFP ports and 4 x RJ45 GbE ports, Intel82580EB
R323B	Expansion module with 4 x SFP ports and 4 x RJ45 GbE ports, Intel82580EB with two pairs bypass function
R324A	Expansion module with 8 SFP ports, Intel 82580EB
R325A	Expansion module with 8 RJ45 GbE ports, Intel 82580EB
R325B	Expansion module with 8 RJ45 GbE ports, Intel 82580EB with four pairs bypass function

R266A	Expansion module with 2 SFP+ 10GbE ports, Intel82599ES w/o re-driver
R333A	Expansion module with 2 QSFP+ ports, Intel® XL710
R316A	Expansion module with 2 SFP+ 10GbE ports, Intel82599ES with non-latching bypass
R316B	Expansion module with 2 SFP+ 10GbE ports, Intel82599ES with latching bypass
R258B	Expansion module with 4 RJ45 10G ports, Intel X540-BT2
DK002	**Cable development kit:** CB-CO5204-00 Cross over 2M CB-DB9200-01 Null modem cable 2M CB-EC5200-00 Ethernet cat.5 cable 2M CB-IPS200-00 KBMS cable, 15CM CB-IUSB2B-00 USB cable, 25CM CB-IVGA01-00 VGA cable, 20CM CB-RJDB91-00 RJ-45 to DB-9 cable 2M

1.4 Packaging

Please make sure that the following items have been included in the package before installation.

1. PL-10590 Appliance
2. Cables (Optional)
3. CD-ROM that contains the following folders：
   4.1 Manual
   4.2 System Driver
   4.3 Ethernet Driver
   4.4 Utility Tools

If any of the above items are missing or damaged please contact your dealer or retailer from whom you purchased the PL-10590. Keep the box and carton for near-term shipping or storage. After you unpack the goods, inspect and make sure the packaging is intact. Do not connect the power adapter to the appliance of if it appears damaged.

Note: *Keep the PL-10590 in the original packaging until you start installation.*

1.5 Precautions

Please make sure you properly ground yourself before handling the PL-10590 appliance or its system components. Electrostatic discharge can be easily damage the PL-10590 appliance.

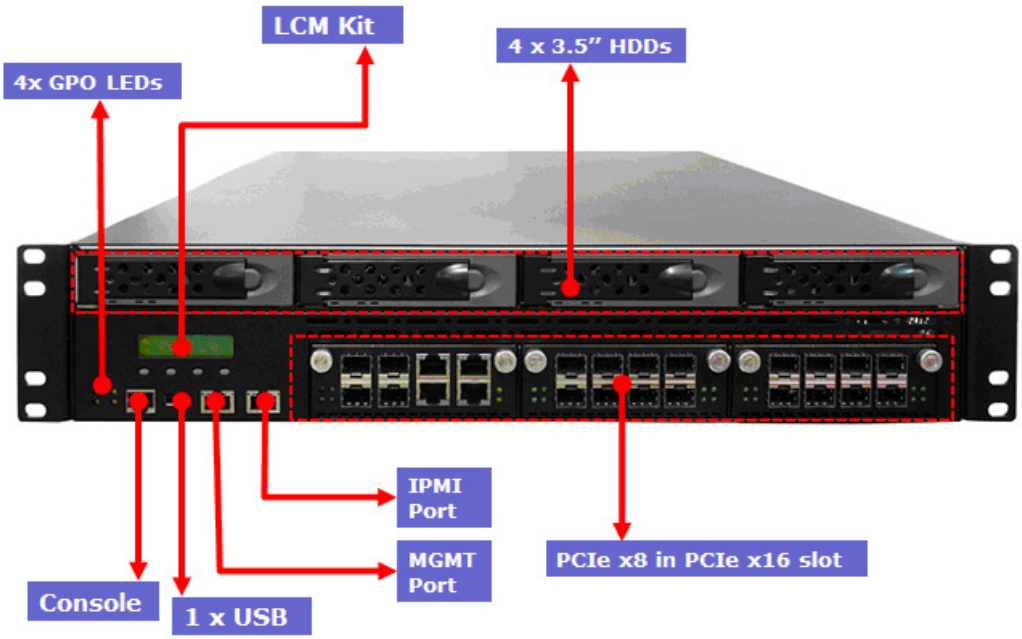
Do not remove the anti-static packing until you are ready to install the PL-10590 appliance.

Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

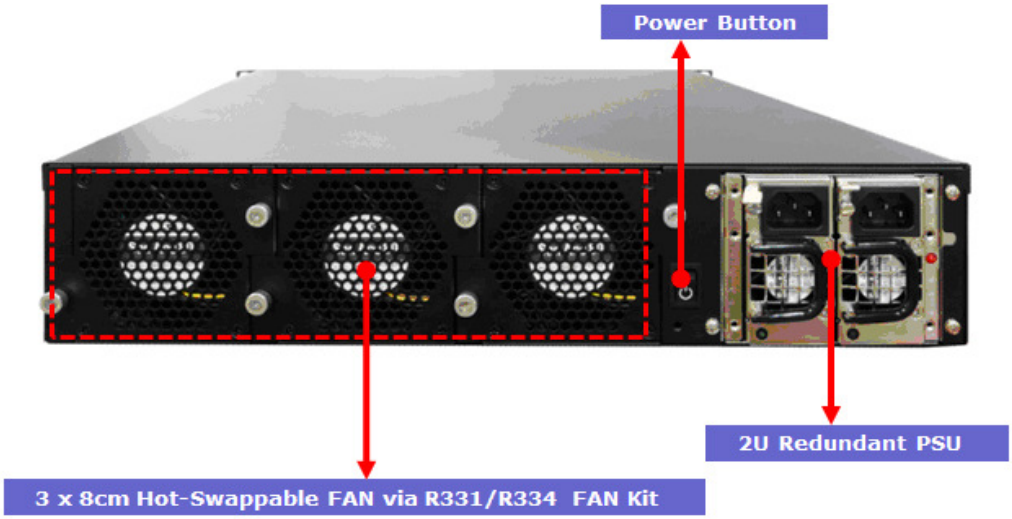
Handle the PL-10590 appliance by its edges and avoid touching its components.

1.6 System Layout

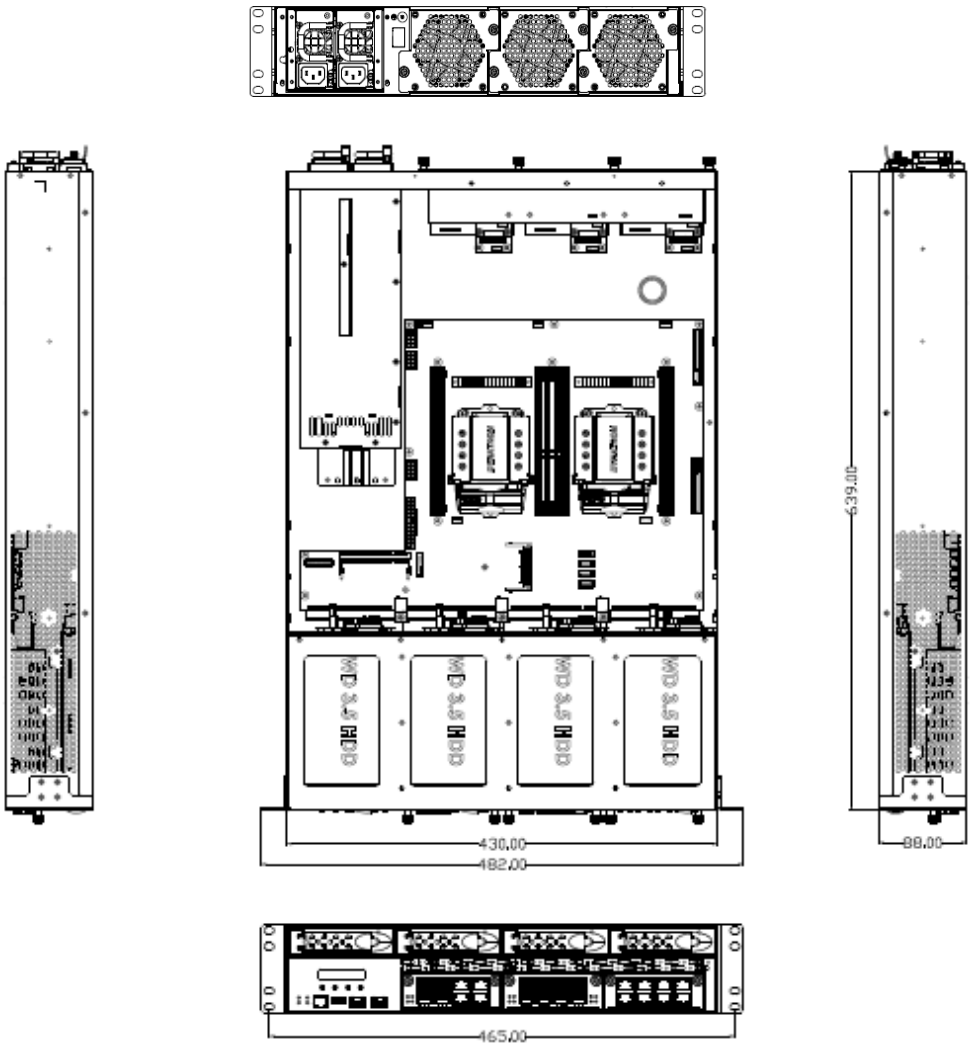
<Front panel features>



<Rear panel features>



1.7 Dimensions



1.8 PCIe configuration for LAN module by CPU0/CPU1

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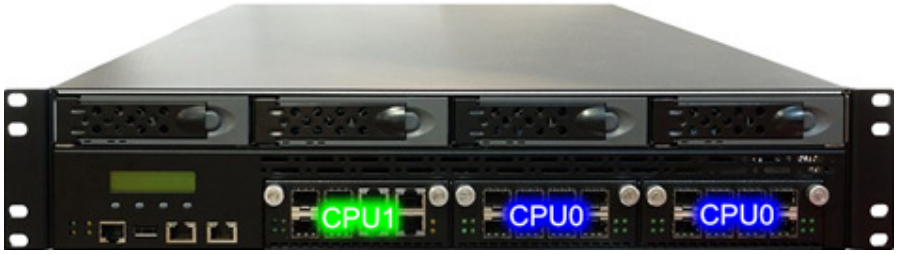
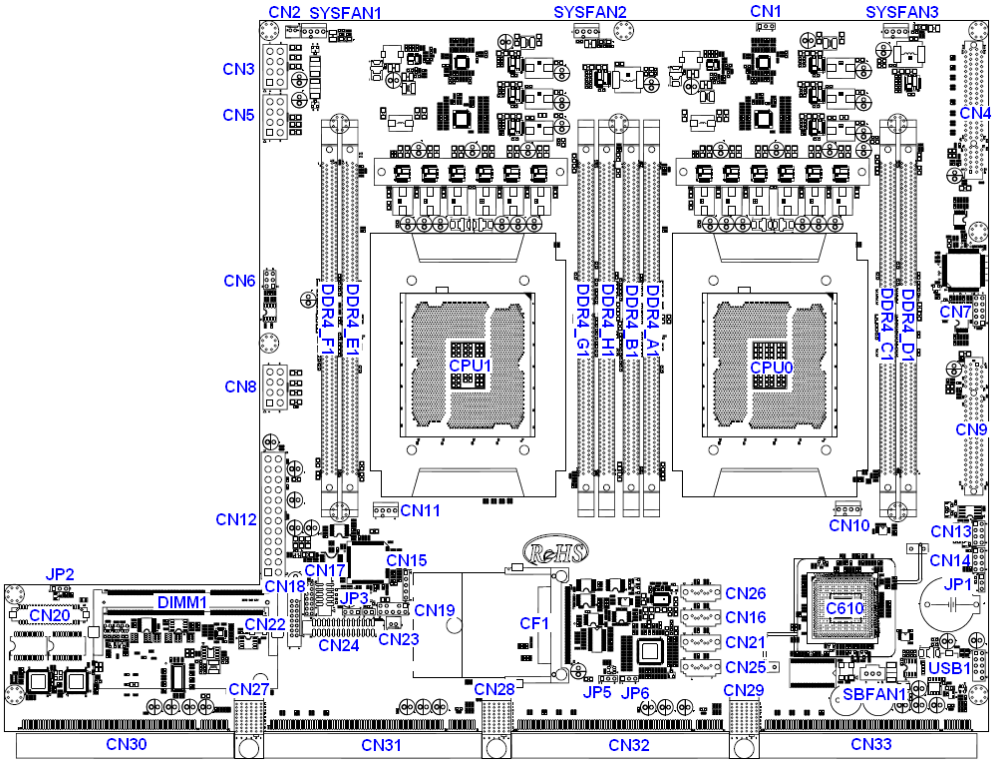


Chapter 2. Connector/Jumper Configuration

MB-1059A Rev.A1 Connector Pin Defined and Jumper Settings



Connector List	
Connector	**Description**
CN1	VR12.5 SMBus Header
CN2	POWER Button Connector
CN3	2X4 +12V POWER Connector
CN4	PCIE X8 SLOT

CN5	2X4 +12V POWER Connector
CN6	Re-Driver Programming Header
CN7	CPLD Programming Header
CN8	2X4 +12V POWER Connector
CN9	PCIE X8 SLOT
CN10	CPU0 FAN Connector
CN11	CPU1 FAN Connector
CN12	2X12 ATX POWER Connector
CN13	SPI FLASH Programming Header
CN14	FRONT PANEL Connector
CN15	GPI Pin Header
CN16	SATA3.0 Connector
CN17	COM Port 2
CN18	LPC Port
CN19	PS/2 KB/MS Connector
CN20	IO Connector (To R319)
CN21	SATA3.0 Connector
CN22	VGA Connector
CN23	LCM Backlight Connector
CN24	LPT Port
CN25	SATA3.0 Connector
CN26	SATA3.0 Connector
CN27	IO Connector (To R322)
CN28	IO Connector (To R322)
CN29	IO Connector (To R322)
CN30	PCIE X16 夾板式 Connector
CN31	PCIE X16 夾板式 Connector
CN32	PCIE X16 夾板式 Connector
CN33	PCIE X16 夾板式 Connector
SBFAN1	PCH FAN Connector
SYSFAN1	SYSTEM FAN Connector
SYSFAN2	SYSTEM FAN Connector
SYSFAN3	SYSTEM FAN Connector
USB1	USB Connector
CF1	Compact Flash Connector

DIMM1	IPMI Connector

CN1 : VR12.5 SMBus Header

PIN	Description
1	GND
2	SM_DATA
3	SM_CLK

CN2 : Power Button Connector

PIN	Description
1	GND
2	POWER BUTTON

CN3,CN5,CN8 : 2x4 +12V Power Connector

PIN	Description	PIN	Description
1	GND	2	GND
3	GND	4	GND
5	+12V	6	+12V
7	+12V	8	+12V

CN7 : CPLD Programming Header

PIN	Description	PIN	Description
1	TCK	2	GND
3	TDO	4	+3.3V_AUX
5	TMS	6	NC
7	NC	8	NC
9	TDI	10	GND

CN13: SPI FLASH PROGRAMMER CONNECTOR

PIN	Description	PIN	Description
1	SPI POWER	2	GND
3	SPI CS0#	4	SPI CLK
5	SPI MISO	6	SPI MOSI
7	NC	8	FLASH_IO

CN14 : Front Panel Connector

PIN	Description	PIN	Description
1	POWER LED+	2	POWER LED-
3	HDD LED+	4	HDD LED-
5	RESET	6	GND
7	GND	8	POWER BUTTON

CN15 : GPI Connector

PIN	Description
1	GPI4
2	GPI5
3	GPI6
4	GPI7
5	GND

CN17 : COM2 RS-232 Connector

PIN	Description	PIN	Description
1	DCD#2	2	DSR#2
3	RXD#2	4	RTS#2
5	TXD#2	6	CTS#2
7	DTR#2	8	RI#2
9	GND	10	NC

CN18 : LPC Connector

PIN	Description	PIN	Description
1	+3.3V	2	AD0
3	AD1	4	AD2
5	AD3	6	FRAME#
7	RESET#	8	+5V
9	CLK_33MHz	10	PME#
11	GND	12	NA
13	SERIRQ	14	DRQ1#

CN19 : PS2 KB/MS Connector

PIN	Description	PIN	Description
1	KB CLK	2	MOUSE CLK
3	KB DATA	4	MOUSE DATA

5	NA	6	NC
7	GND	8	GND
9	KB POWER	10	MOUSE POWER

CN20 : IO Connector (To R319A)

PIN	Description	PIN	Description
1	LAN1_100#	2	LAN1_CON_A+
3	LAN1_1000#	4	LAN1_CON_A-
5	LAN1_ACT#	6	LAN1_CON_B+
7	LAN2_100#	8	LAN1_CON_B-
9	LAN2_1000#	10	LAN1_CON_C+
11	LAN2_ACT#	12	LAN1_CON_C-
13	+3.3V	14	LAN1_CON_D+
15	RTS#1/CTS#1	16	LAN1_CON_D-
17	DTR#1	18	GND
19	TXD#1	20	LAN2_CON_A+
21	RXD#1	22	LAN2_CON_A-
23	DSR#1	24	LAN2_CON_B+
25	GPO70	26	LAN2_CON_B-
27	GPO71	28	LAN2_CON_C+
29	GPO72	30	LAN2_CON_C-
31	GPO73	32	LAN2_CON_D+
33	HDD_LED_N	34	LAN2_CON_D-
35	USB_PP_2	36	+3.3V_AUX
37	USB_PN_2	38	P80_CTRL
39	GND	40	+5V

CN22 : VGA Connector

PIN	Description	PIN	Description
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VGA_5V	10	GND
11	NC	12	DDC_DATA
13	H_SYNC	14	V_SYNC

15	DDC_CLK	16	NC

CN23 : LCM Backlight Connector

PIN	Description
1	GND
2	+5V

CN24 : LPT Connector

PIN	Description	PIN	Description
1	STB#	14	AFD#
2	PDR0	15	ERR#
3	PDR1	16	PAR_INIT#
4	PDR2	17	SLIN#
5	PDR3	18	GND
6	PDR4	19	GND
7	PDR5	20	GND
8	PDR6	21	GND
9	PDR7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	GND

USB1 : USB Connector

PIN	Description	PIN	Description
1	USB POWER	2	USB POWER
3	USB 0-	4	USB 1-
5	USB 0+	6	USB 1+
7	GND	8	GND
9	NC	10	GND

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Jumper List	
JP1	Clear CMOS
	1-2: Normal
	2-3: Clear CMOS

JP2	
	1-2: PCI-e
	2-3: NCSI

JP3	AT /ATX Select
	1-2: ATX
	2-3: AT

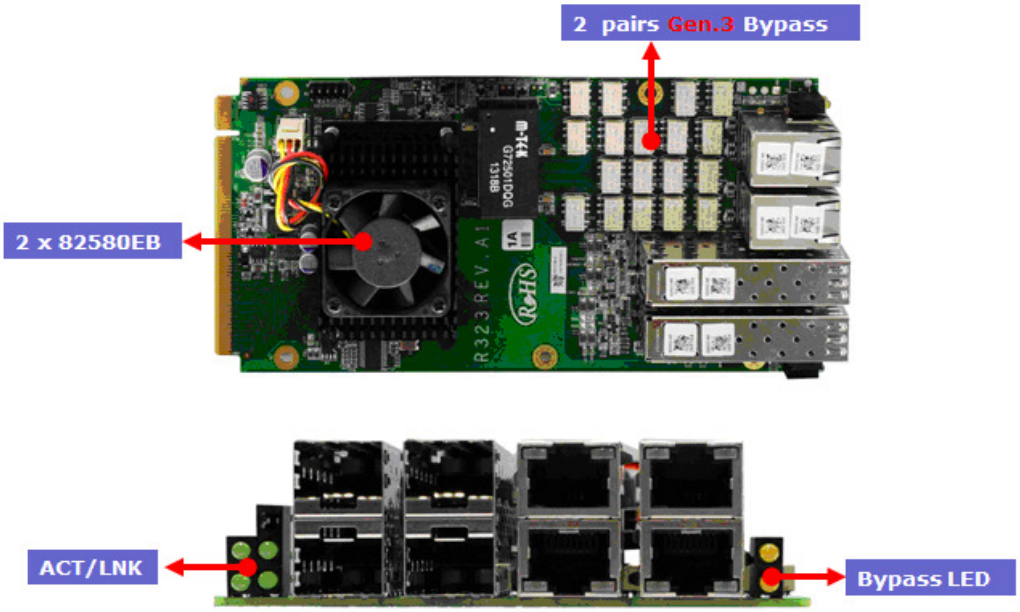
JP4	GPIO For Debug

JP5	WDT FOR LAN BY-PASS OR RESET
	1-2: RESET
	2-3: BYPASS

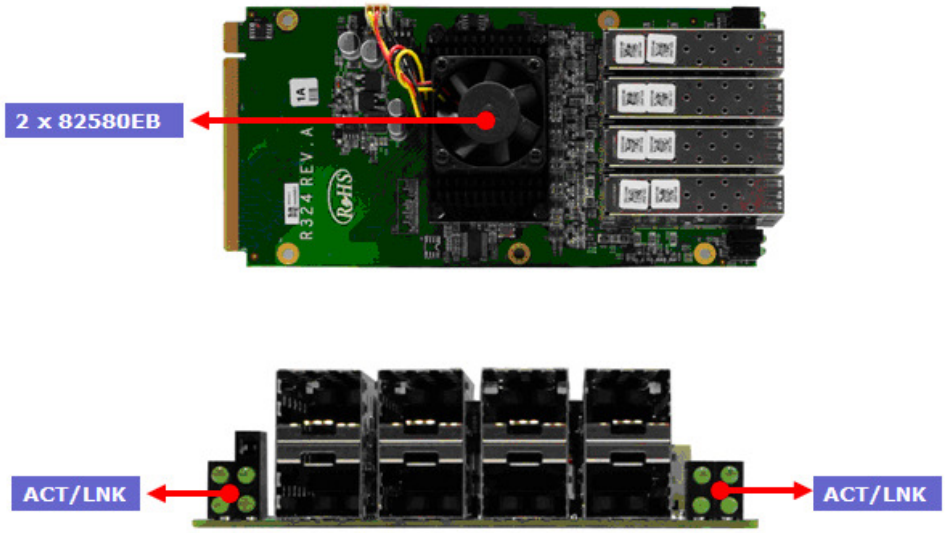
JP6	RESET to GPIO or PCH
	1-2: GPIO
	2-3: PCH

Chapter 3. Optional LAN Module & Add-on Card Setting

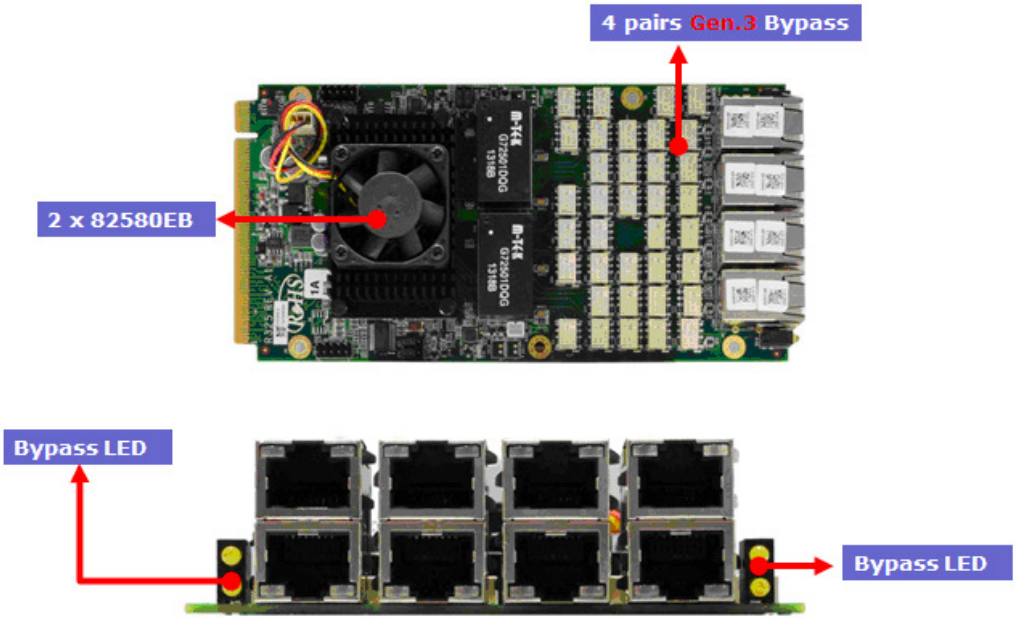
3.1 R323: Ethernet module with four GbE copper and four GbE fiber



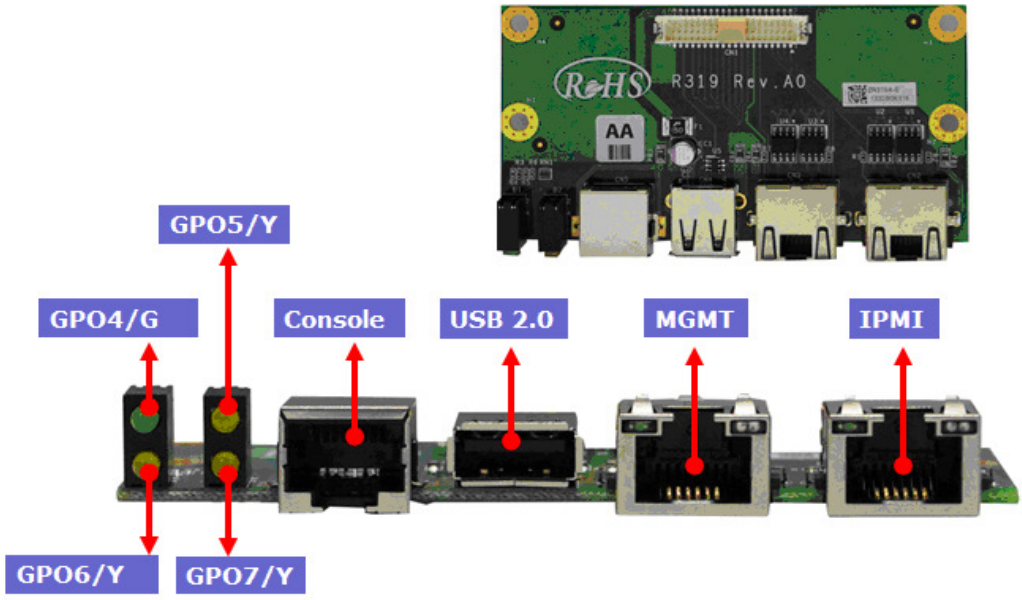
3.2 R324: Ethernet module with eight GbE fiber



3.3 R325: Ethernet module with eight GbE copper



3.4 R319: Front I/O module

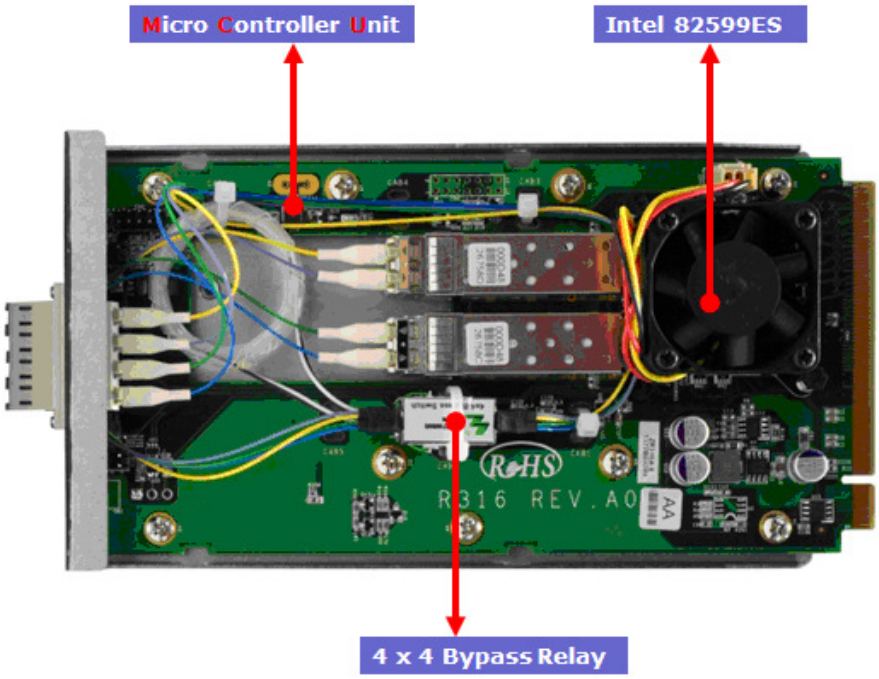


R319A is a front I/O module with GPO LEDs, one USB 2.0 port, one RJ45 console port(COM1, RS-232) , two GbE port, The CN1 must be connected to MB-10590.

3.5 R316: Expansion module with 2 SFP+ 10GbE ports with Bypass

R316A :

Expansion module with 2 SFP+ 10GbE ports, Intel82599ES with non-latching bypass



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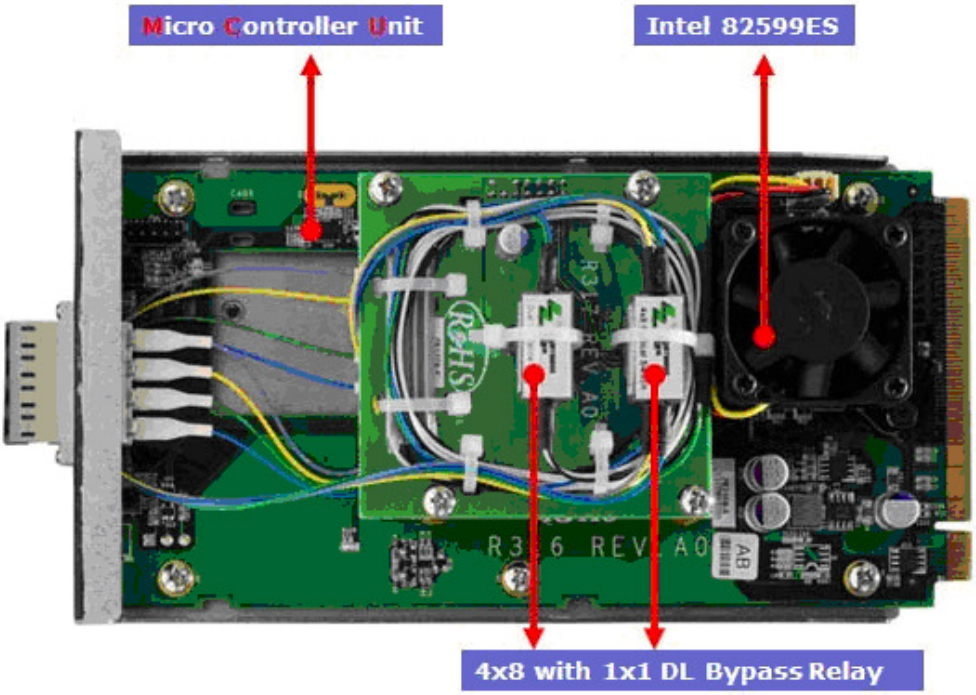
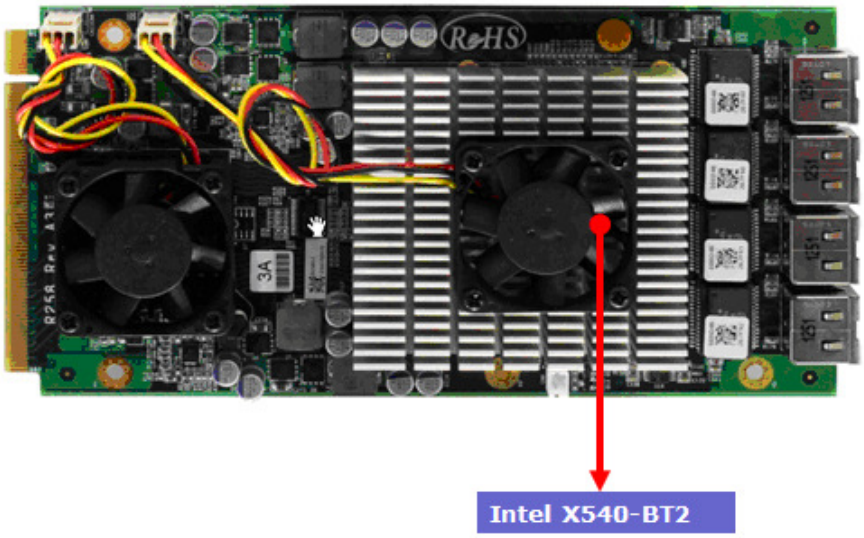
R316B :

Expansion module with 2 SFP+ 10GbE ports, Intel82599ES with latching bypass



3.6 R258B：Expansion module with 4 RJ45 10G ports, Intel X540-BT2



3.7 R333A：Expansion module with 2QSFP+ ports. Intel® XL710

3.8 R303C : IPMI card with VGA support for PL-10590

COMING SOON

Chapter 4. BIOS Setup

The ROM chip of your MB-10590 board is configured with a customized Basic Input/Output System (BIOS) from AMI BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes BIOS setup program, so no disk-based setup program is required CMOS RAM stores information for:

- Date and time
- Memory capacity of the appliance
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery installed on the SCB-8970 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery of the battery power lose.

4.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "Exit" ➔ "Load Optimal Defaults" from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose "Main" & "Advanced" from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
3. In the main menu, press F4 ("Save and Exit") to save your changes and reboot the system.

4.2 Entering the BIOS Setup Utility

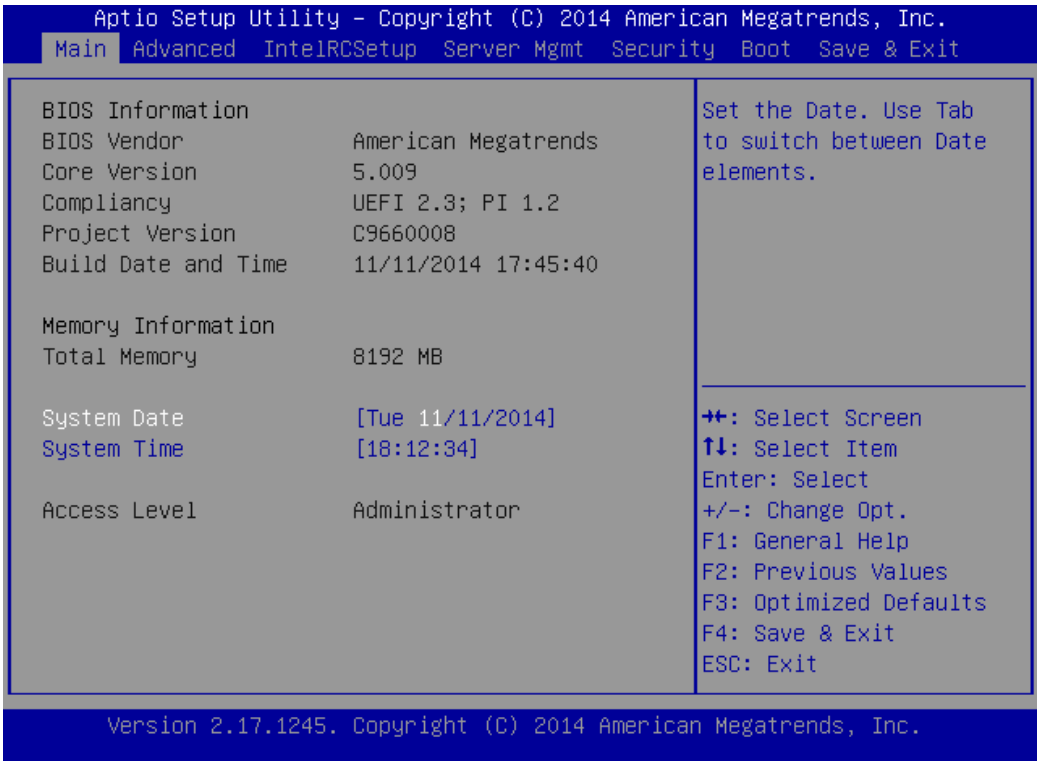
Use the BIOS setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the AMI Flash program to update the system BIOS

Run the BIOS setup program after you turn on the system. On-screen instructions explain how to use the program.

⇩ **Enter the BIOS setup program's main menu as follows:**

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter BIOS setup utility. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

BIOS Information: Displays the BIOS related information.

Memory Information: Displays the total memory size.

System Language: Change the language display in BIOS setup utility.

System Date [Day mm/dd/yyyy]:
This item allows you to set the system date.

SystemTime: [hour:min:sec]:
This item allows you to set the system time.

In the main menu, press F4 ("Save and Exit") to save your changes and reboot the system. Press F3("Optimized Defaults") to load the Optimal default configuration values of the menu. Pressing <ESC> anywhere in the program returns you to the main menu.

4.3 Menu Options

The main menu options of the BIOS setup program are described in the following and the following sections of this chapter.

Main: For changing the basic system configurations.

Advanced: For changing the advanced system settings.

IntelRCSetup: For customize the Intel chipset function

Server Mgmt: For changing the Server Mgmt settings

Security: For setting User and Supervisor Passwords.

Boot: For changing the system boot configurations.

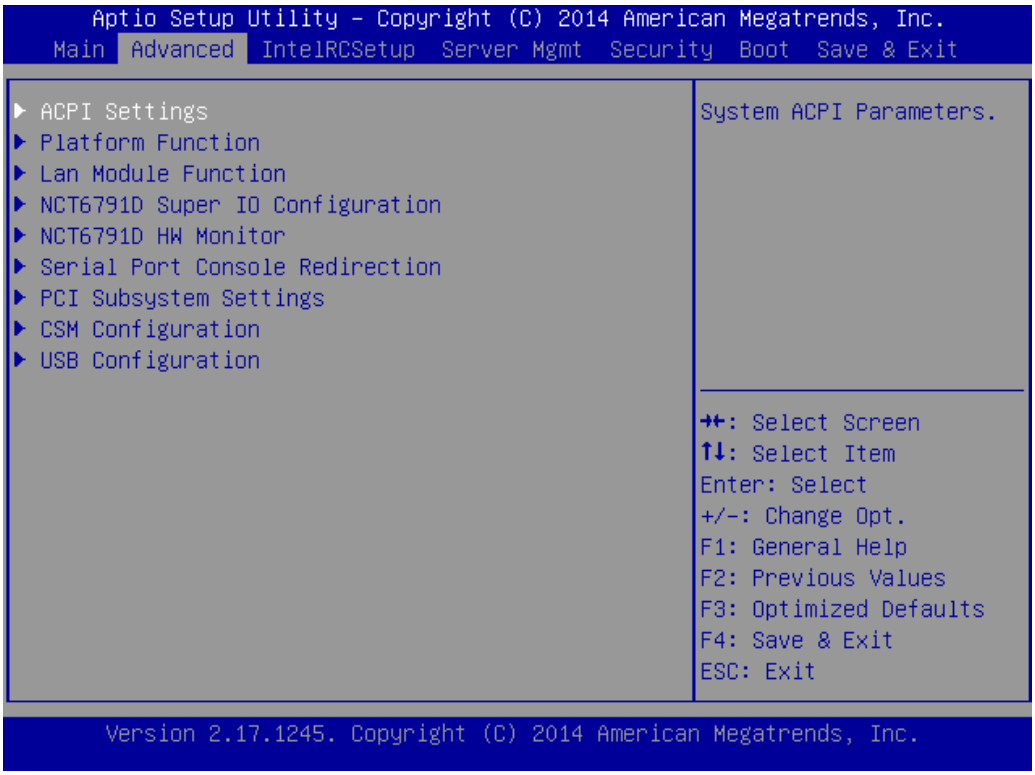
Save & Exit: For selecting the exit options and loading default settings.

4.4 Advanced Menu

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

⇩Use the Advanced Setup option as follows:

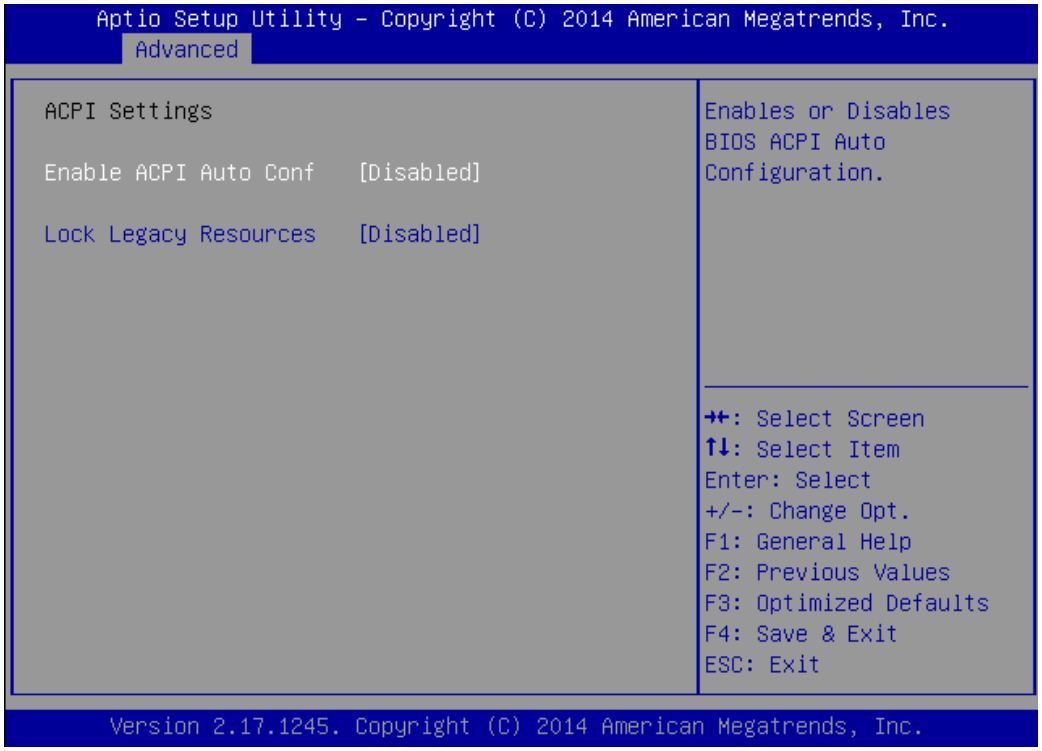
1. Choose "Advanced" from the main menu. The following screen appears:



2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.

3. After you have finished with the Advanced setup, press the <←> or <→> key to switch to other setup menu or press <F4> key to save setting.

ACPI Settings



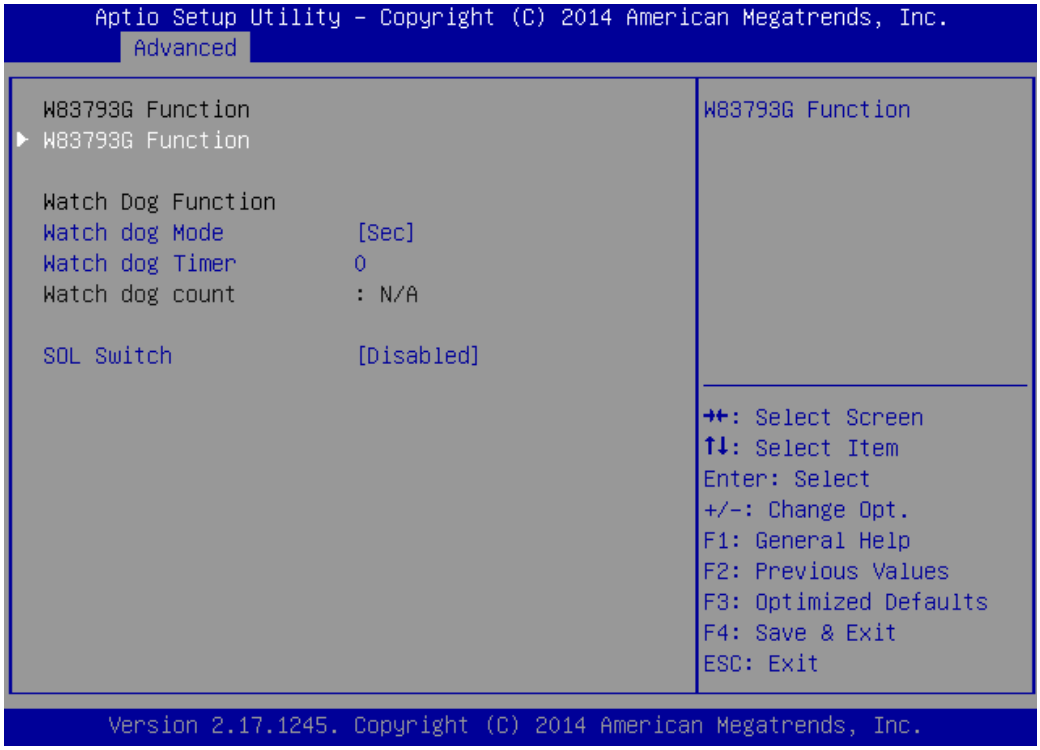
Enable ACPI Auto Configuration

Enables or Disables BIOS ACPI Auto Configuration.

Lock Legacy Resources

Enables or Disables Lock of Legacy Resources

Platform Function



Watch dog Mode

Watch dog Mode（Sec/Min）.

Watch dog Timer

Watch dog Mode（Sec/Min）.

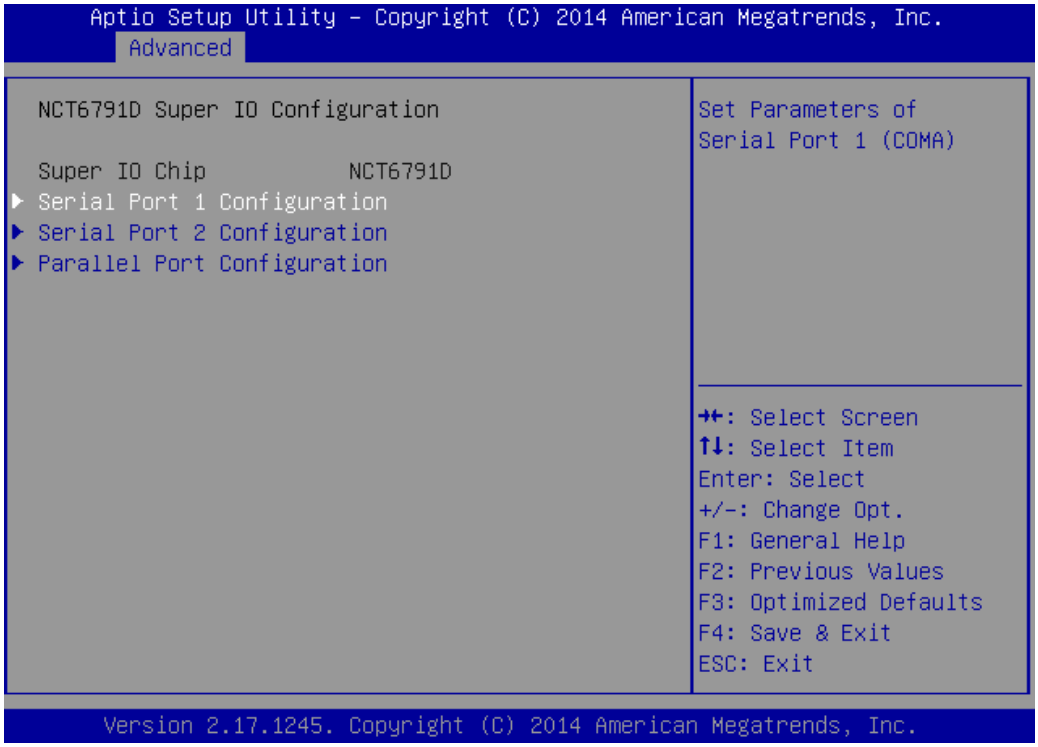
SOL Switch

Switch console for COM2 or SOL.

W83793 Mode

If Switch this function, need save and reboot.

NCT6791D Super IO Configuration



Serial Port 1 Configuration

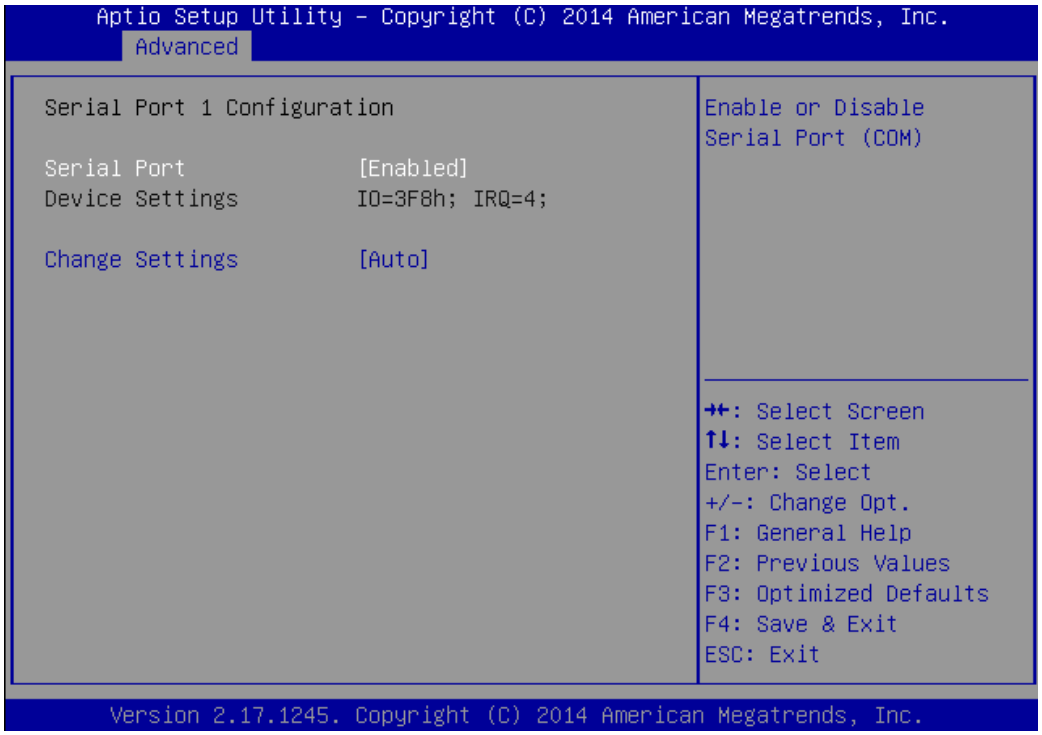
Set Parameters of Serial Port 1

Serial Port 2 Configuration

Set Parameters of Serial Port 2

Parallel Port Configuration

Set Parameters of Parallel Port



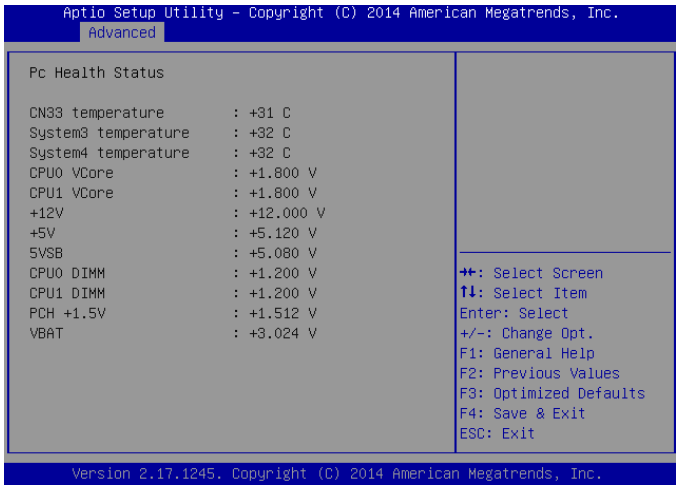
Serial Port

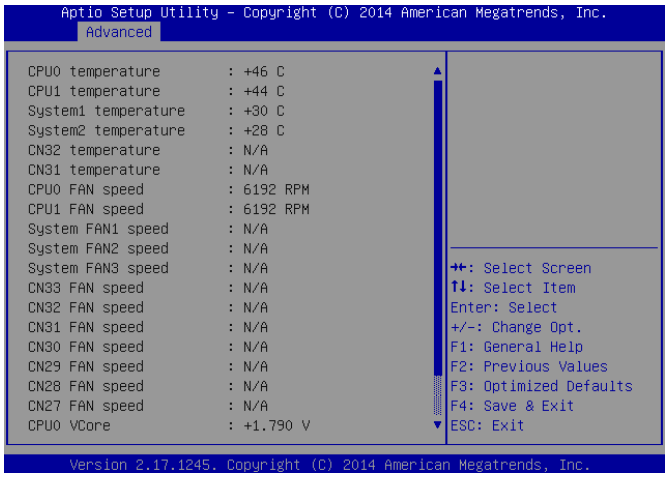
Enables or Disables Serial Port

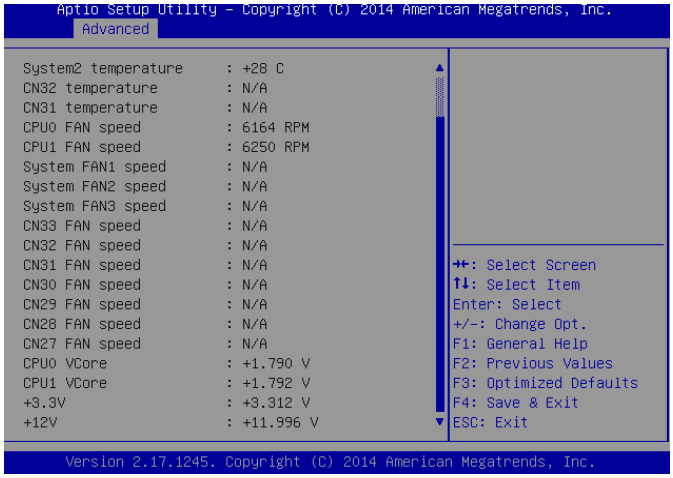
Change Setting

Device Settings

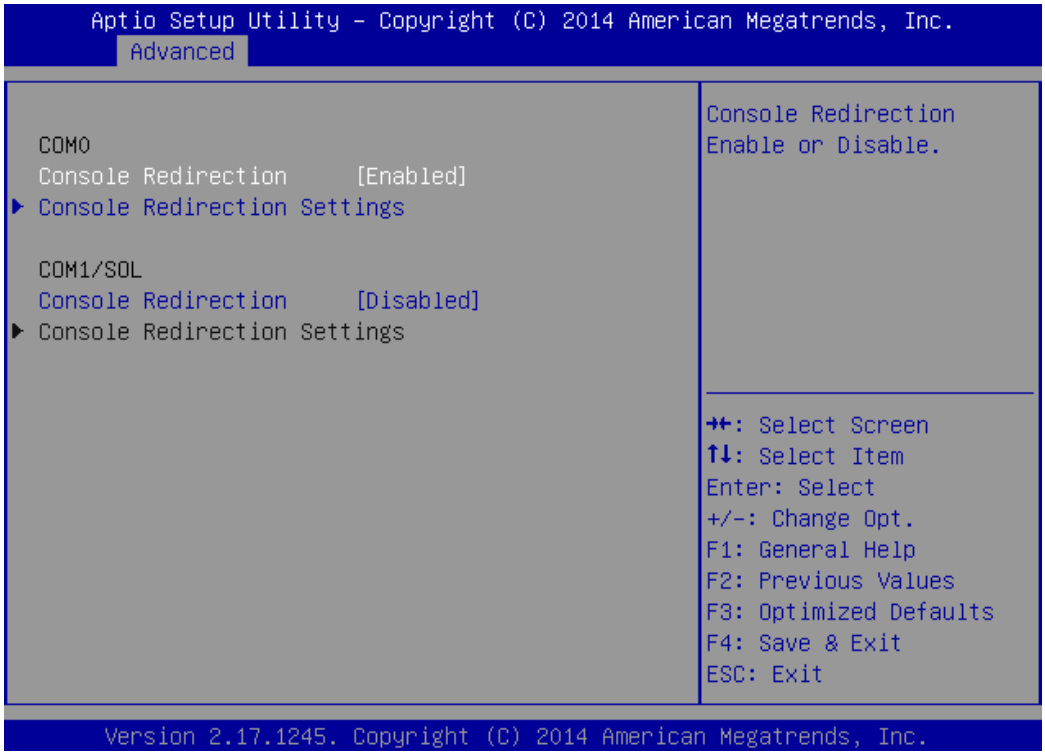
NCT6791D Hardware Monitor





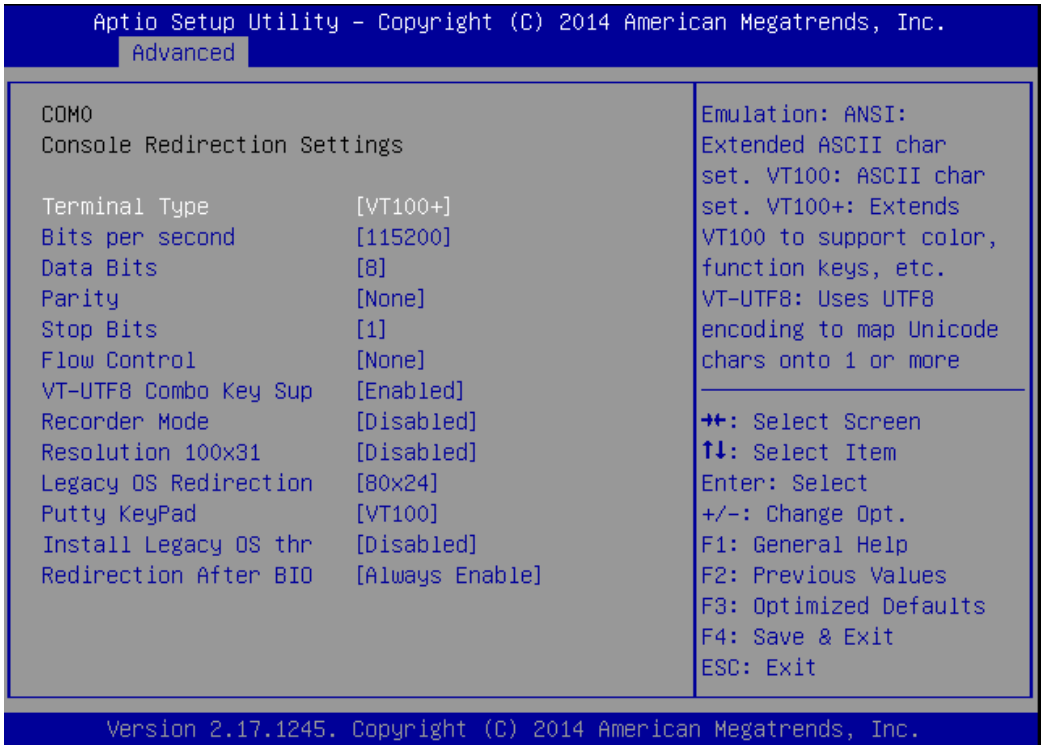


Serial Port Console Redirection



COM0/COM1 Console Redirection

Console Redirection Enable or Disable.



Terminal Type

Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

Bits per second

Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

Data Bits

Data Bits.

Parity

A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. They can be used as an additional data bit.

Stop Bits

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.

Flow Control

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.

VT-UTF8 Combo Key Support

Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

Recorder Mode

With this mode enabled only text will be sent. This is to capture Terminal data.

Resolution 100x31

Enables or disables extended terminal resolution.

Legacy OS Redirection Resolution

On Legacy OS, the Number of Rows and Columns supported redirection.

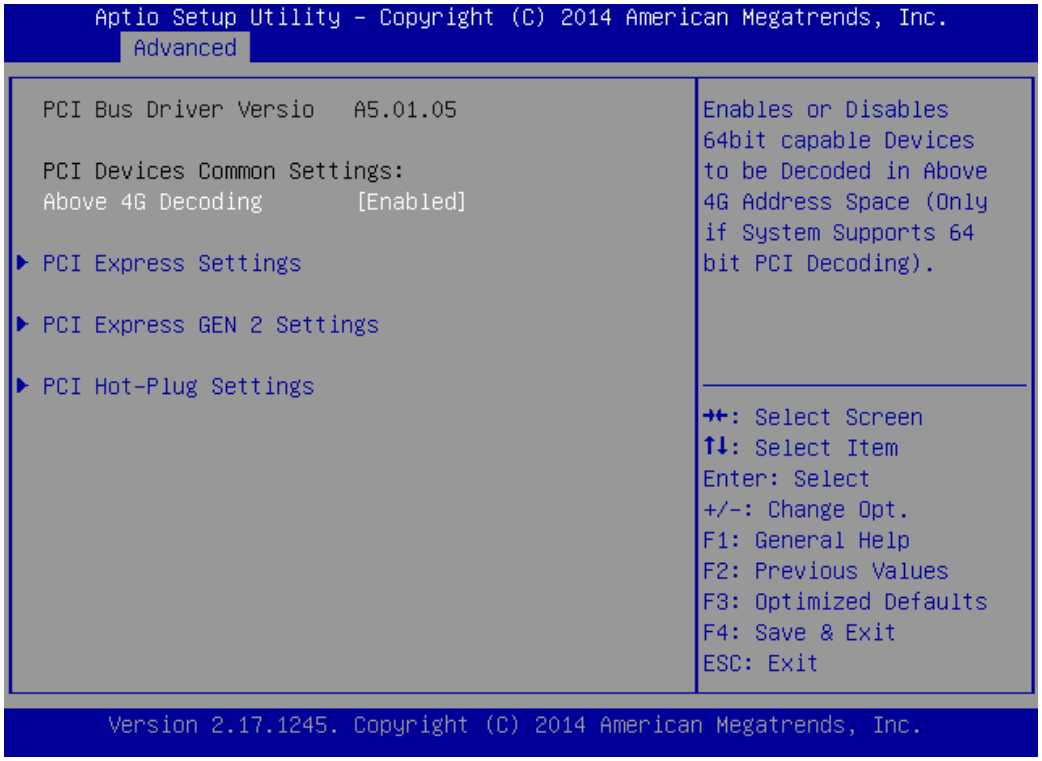
Putty KeyPad

Select FunctionKey and KeyPad on Putty.

Redirection After BIOS POST

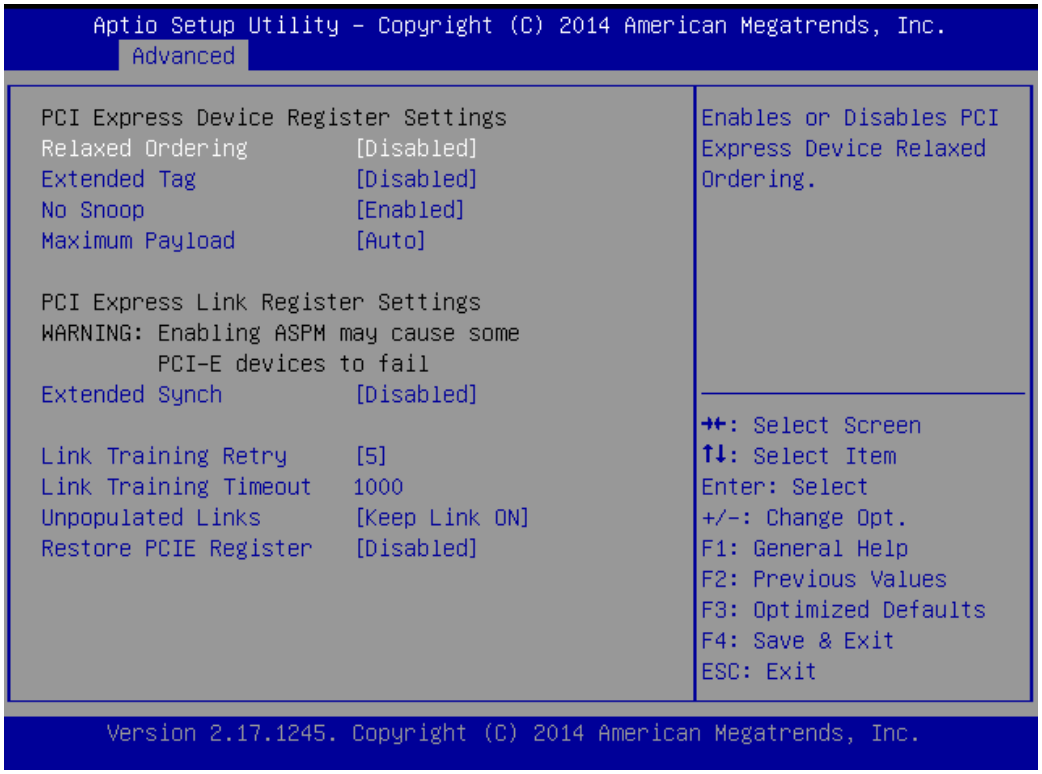
The Settings specify if BootLoader is selected than Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy console Redirection is enabled for Legacy OS.

PCI Subsystem Settings



Above 4G Decoding

Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).



Relaxed Ordering

Enables or Disables PCI Express Device Relaxed Ordering.

Extended Tag

If ENABLED allows Device to use 8-bit Tag field as a requester.

No Snoop

No Snoop Enable/Disable for each CB device

Maximum Payload

Set Maximum Payload of PCI Express Device or allow System BIOS to select the value.

Extended Synch

If ENABLED allows generation of Extended Synchronization patterns.

Link Training Retry

Defines number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful.

Link Training Timeout

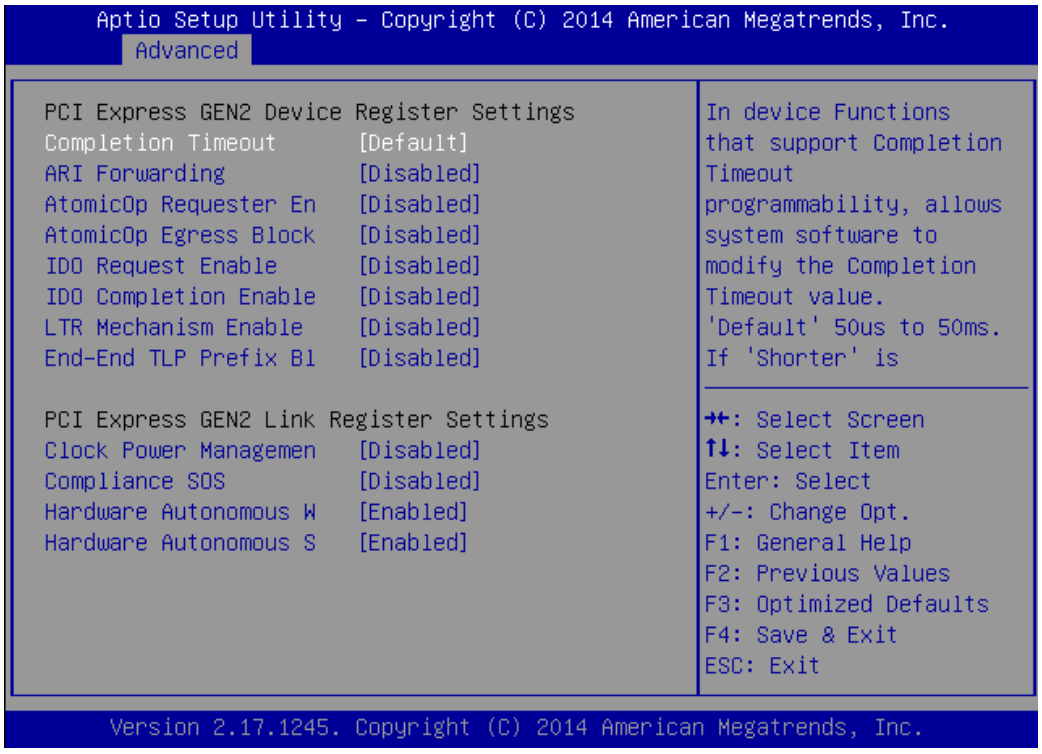
Defines number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Value range from 10 to 10000 uS.

Unpopulated Links

In order to save power, software will disable unpopulated PCI Express links, if this option set to 'Disable Link'.

Restore PCIE Registers

On non-PCI Express aware OS's (Pre Windows Vista) some devices may not be correctly reinitialized after S3. Enabling this restores PCI Express device configurations on S3 resume. Warning: Enabling this may cause issues with other hardware after S3 resume.



Completion Timeout

In device Functions that support Completion Timeout programmability, allows system software 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 selected, software will use longer timeout ranges.

ARI Forwarding

If supported by hardware and set to 'Enabled', the Downstream Port disables its traditional Device Number field being 0 enforcement when turning a Type1 Configuration Request into a Type0 Configuration Request, permitting access to Extended Functions in an ARI Device immediately below the Port. Default value: Disabled

AtomicOp Requester Enable

If supported by hardware and set to 'Enabled', this function initiates AtomicOp Requests only if Bus Master Enable bit is in the Command Register Set.

AtomicOp Egress Blocking

If supported by hardware and set to 'Enabled', outbound AtomicOp Requests via Egress Ports will be blocked.

IDO Request Enable

If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated.

IDO Completion Enable

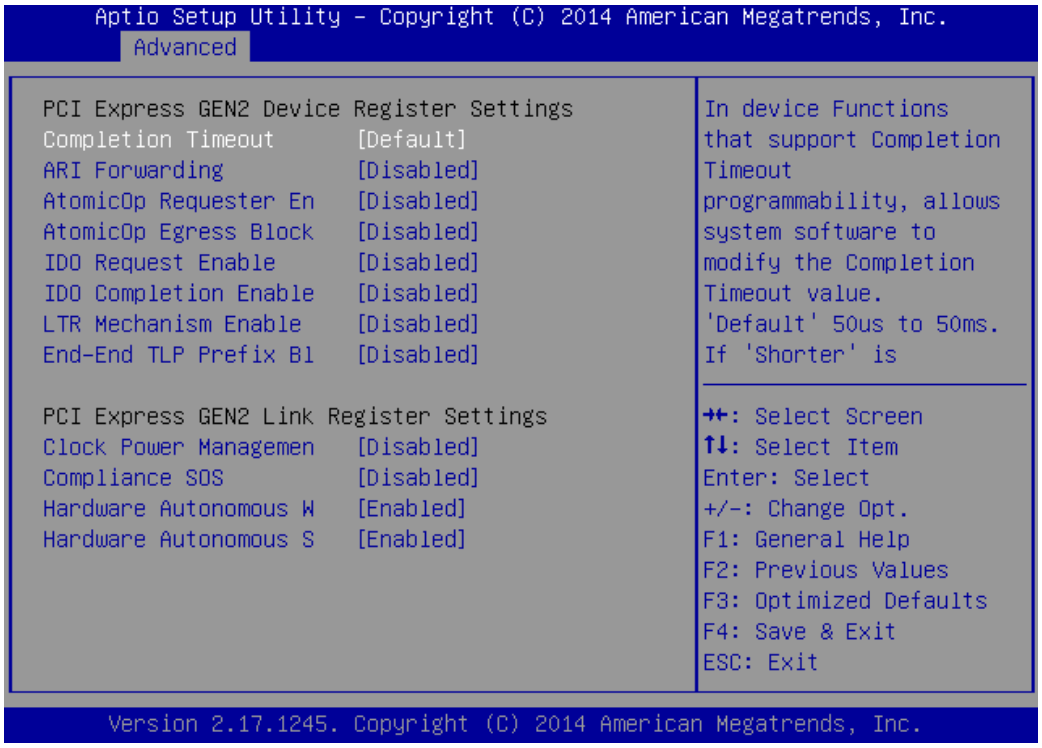
If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated.

LTR Mechanism Enable

If supported by hardware and set to 'Enabled', this enables the Latency Tolerance Reporting (LTR) Mechanism.

End-End TLP Prefix Blocking

If supported by hardware and set to 'Enabled', this function will block forwarding of TLPs containing End-End TLP Prefixes.



Clock Power Management

If supported by hardware and set to 'Enabled', the device is permitted to use CLKREQ# signal for power management of Link clock in accordance to protocol defined in appropriate form factor specification.

Compliance SOS

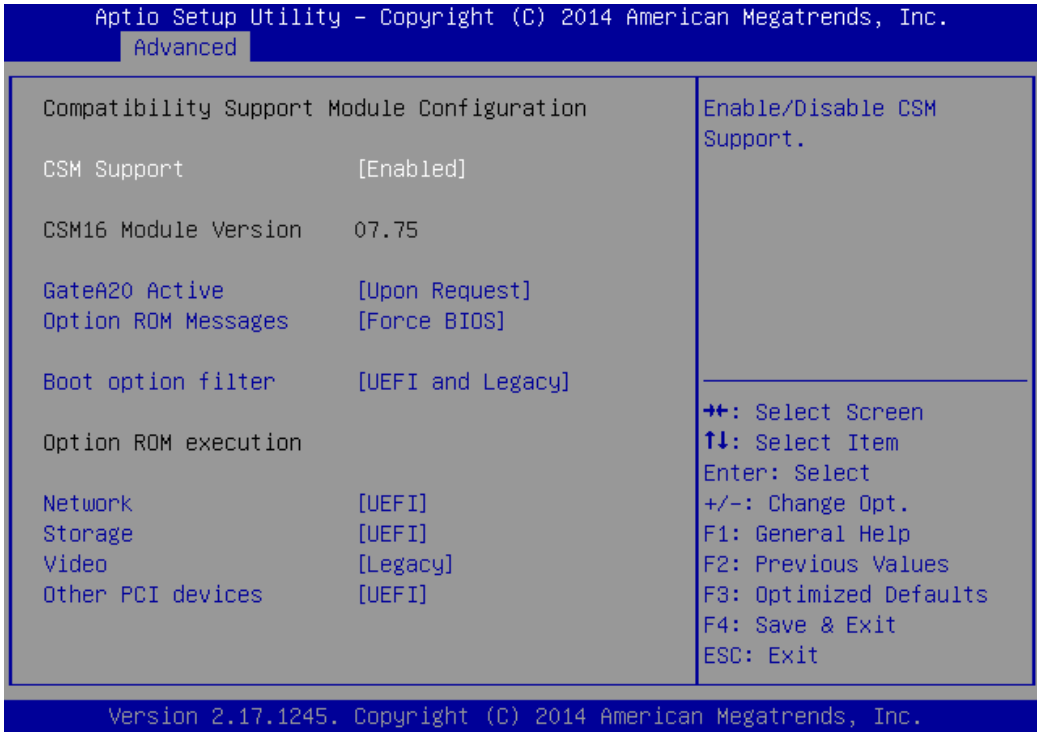
If supported by hardware and set to 'Enabled', this will force LTSSM to send SKP Ordered Sets between sequences when sending Compliance Pattern or Modified Compliance Pattern.

Hardware Autonomous Width

If supported by hardware and set to 'Disabled', this will disable the hardware's ability to change link width except width size reduction for the purpose of correcting unstable link operation.

Hardware Autonomous Speed

If supported by hardware and set to 'Disabled', this will disable the hardware's ability to change link speed except speed rate reduction for the purpose of correcting unstable link operation.



CSM Support

Enable/Disable CSM Support.

GateA20 Active

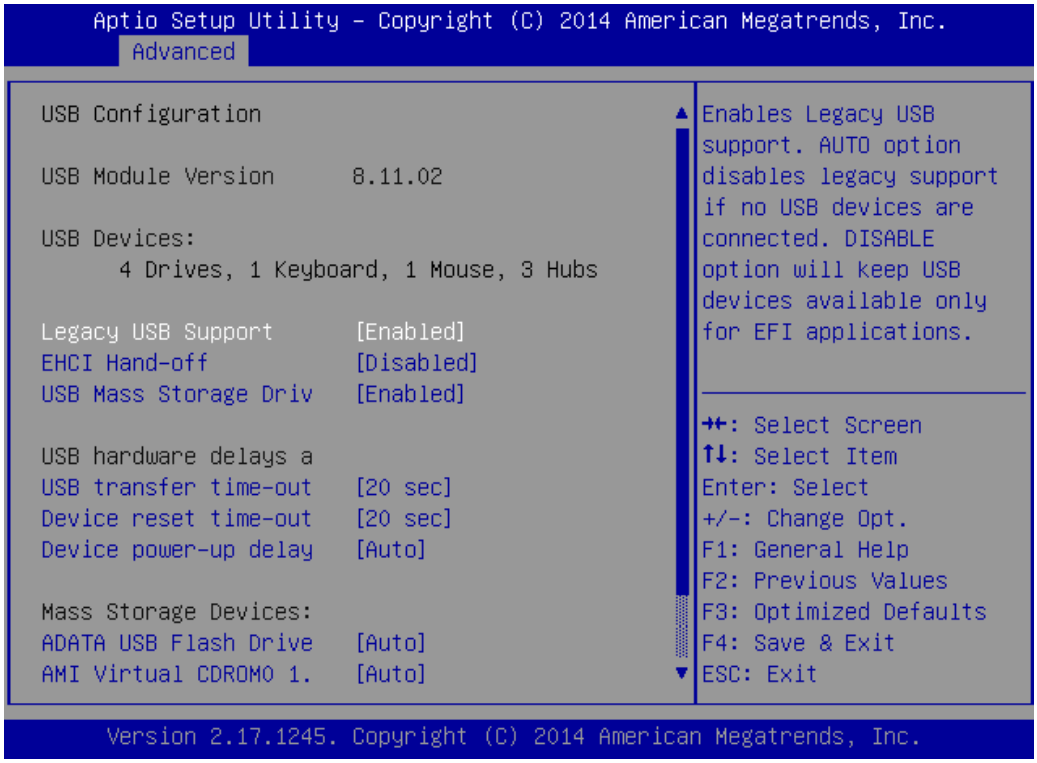
UPON REQUEST - GA20 can be disabled using BIOS services. ALWAYS - do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages

Set display mode for Option ROM.

Boot option filter

This option controls Legacy/UEFI ROMs priority



Legacy USB Support

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.

EHCI Hand-off

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

Mass Storage Driver Support

Enable/Disable USB Mass Storage Driver Support.

Port 60/64 Emulation

Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

USB transfer time-out

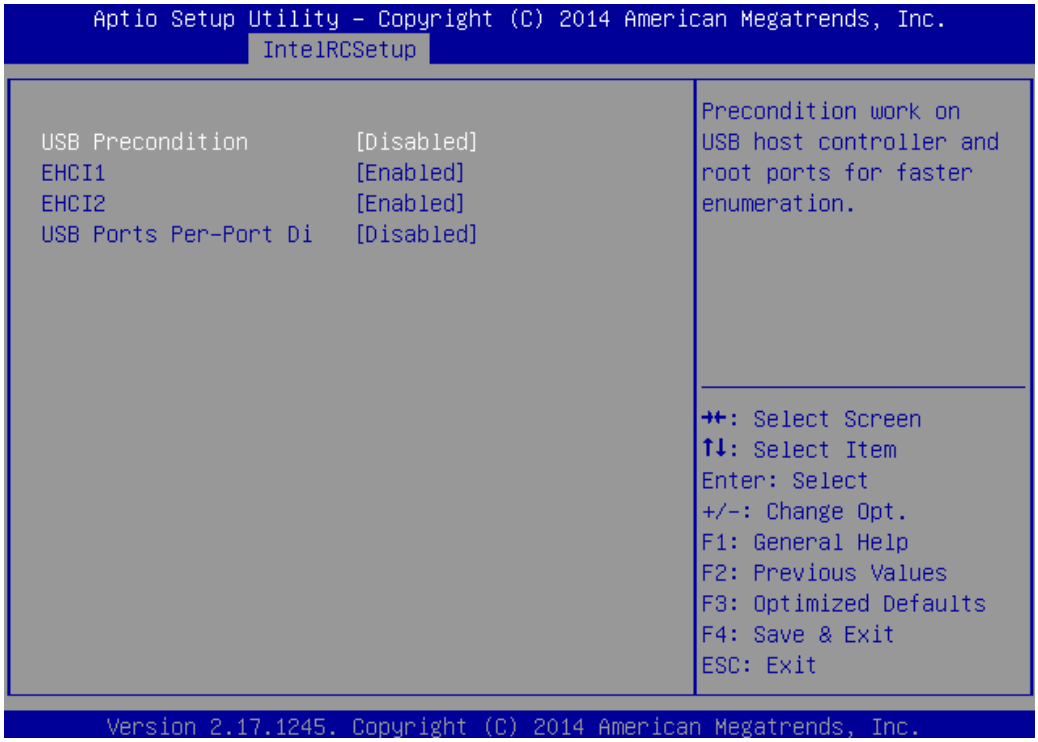
The time-out value for Control, Bulk, and Interrupt transfers.

Device reset time-out

USB mass storage device Start Unit command time-out.

Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.



USB Precondition

Precondition work on USB host controller and root ports for faster enumeration.

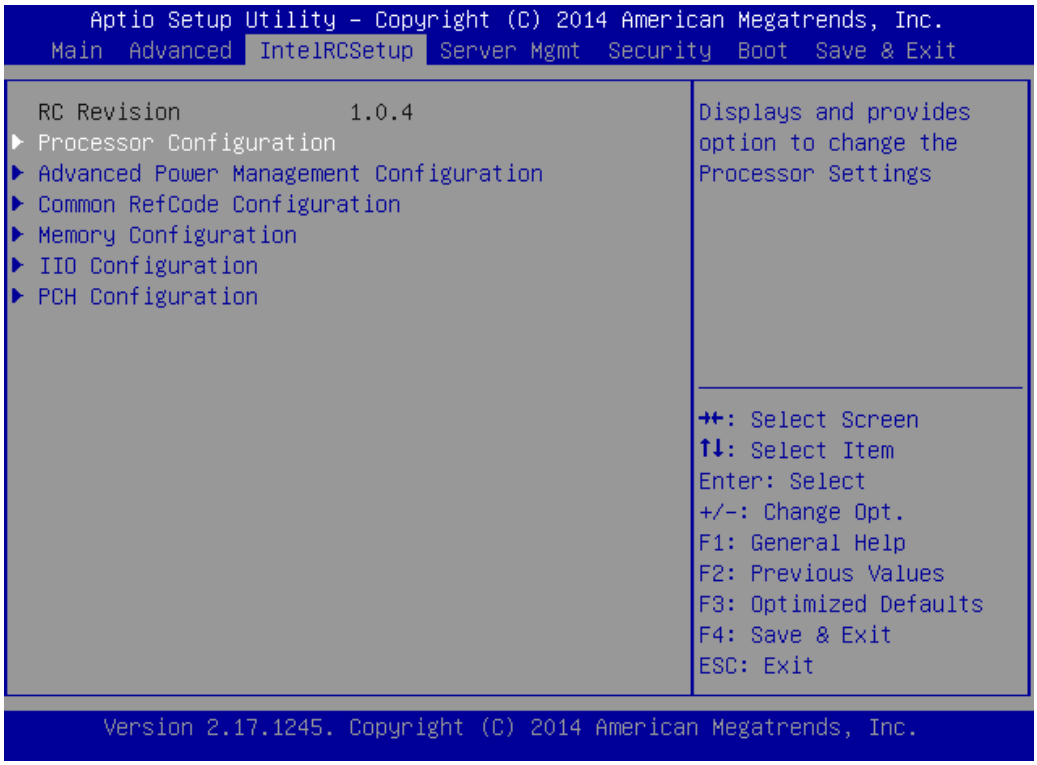
EHCI 1/2

Control the USB EHCI (USB 2.0) functions.

USB Ports Per-Port Disable Control

Control each of the USB ports (0~13) disabling.

4.5 IntelRCSetup



Processor Configuration

Displays and provides option to change the Processor Settings

Advanced Power Management Configuration

(1066) Displays and provides option to change the Power Management Settings

Common RefCode Configuration

Displays and provides option to change the Common RefCode Settings

Memory Configuration

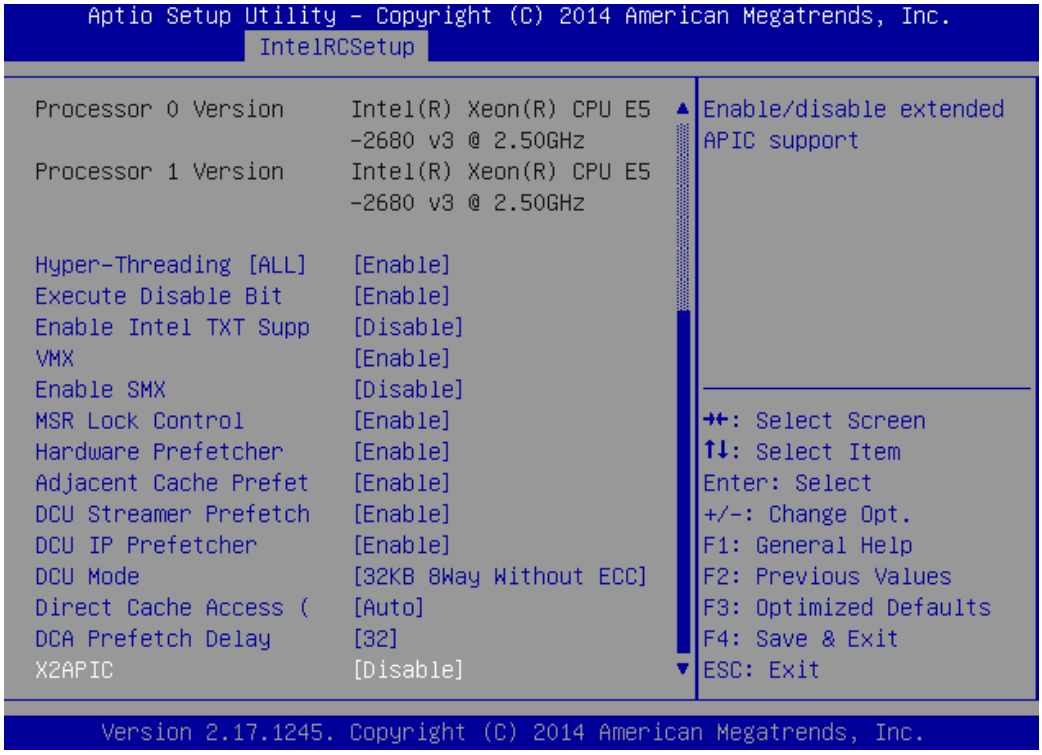
Displays and provides option to change the Memory Settings

IIO Configuration

Displays and provides option to change the IIO Settings

PCH Configuration

Displays and provides option to change the PCH Settings



Hyper-threading

Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.

Execute Disable Bit

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

Enable Intel TXT Support

Enables Intel Trusted Execution Technology Configuration. Please disable "EV DFX Features" when TXT is enabled.

VMX

Enables the Vanderpool Technology, takes effect after reboot.

Enable SMX

Enables Safer Mode Extensions.

MSR Lock Control

Enable - MSR 3Ah, MSR 0E2h and CSR 80h will locked. Power Good reset is needed to remove lock bits.

Hardware Prefetcher

Enable the Mid Level Cache (L2) streamer prefetcher.

Adjacent Cache Line Prefetch

Enable the Mid Level Cache (L2) prefetching of adjacent cache lines.

DCU Streamer Prefetcher

Enable prefetch of next L1 Data line based upon multiple loads in same cache line.

DCU IP Prefetcher

Enable prefetch of next L1 line based upon sequential load history.

DCU Mode

MSR 31h Bit[0] - A write of 1 selects the DCU mode as 16KB 4-way with ECC.

Direct Cache Access (DCA)

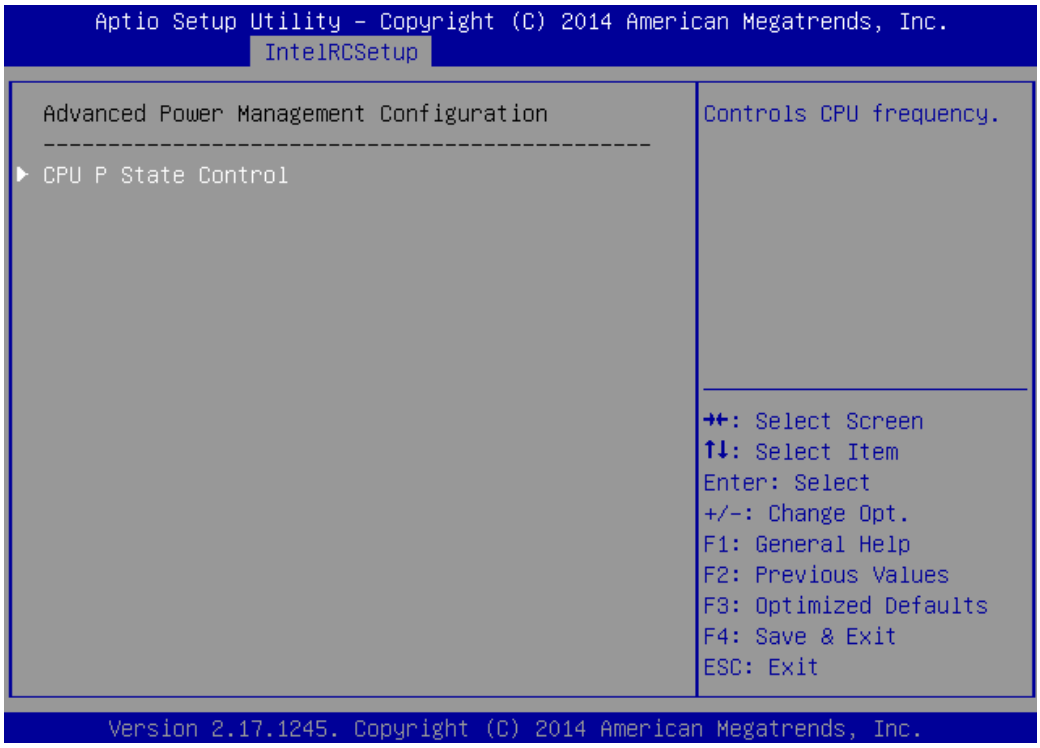
Enables Direct Cache Access

DCA Prefetch Delay

Enables Direct Cache Delay

X2APIC

Enable/disable extended APIC support



CPU P State Control

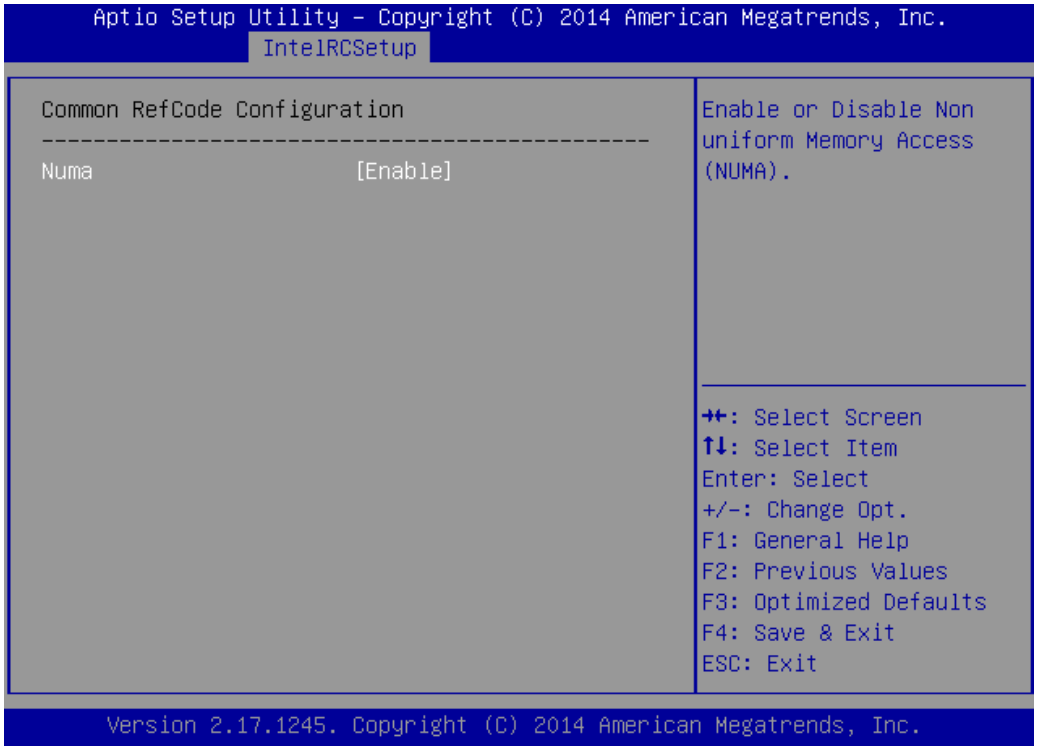
Controls CPU frequency.

EIST (P-states)

When enabled, OS sets CPU frequency according load. When disabled, CPU frequency is set at max non-turbo.

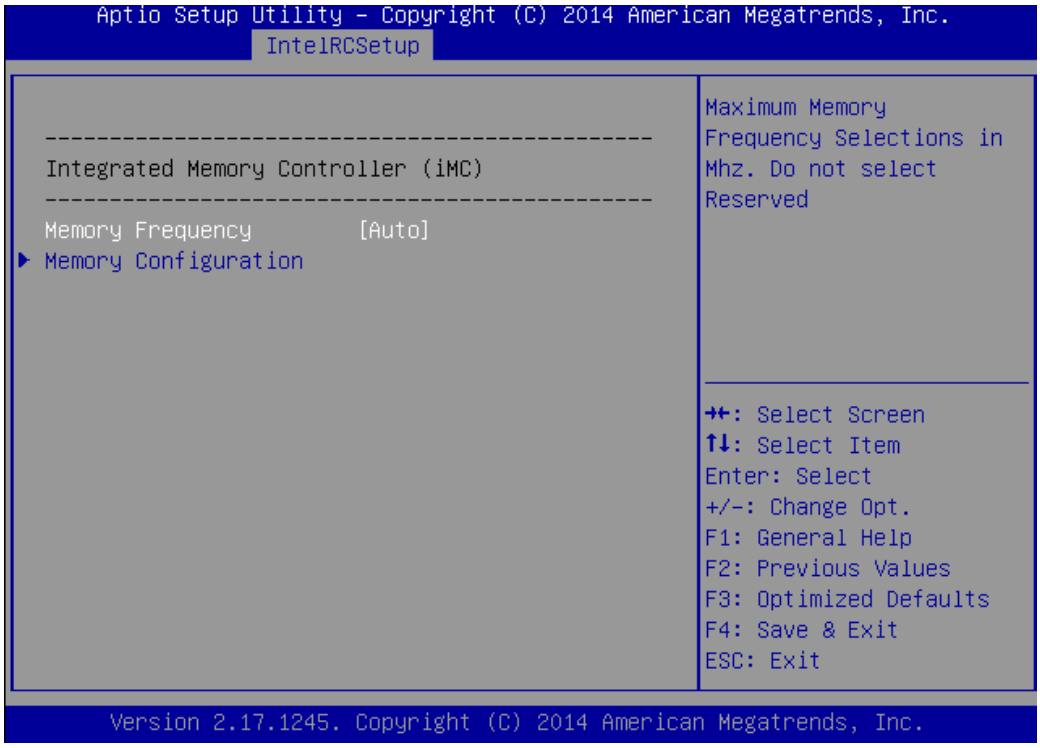
Turbo Mode

Turbo mode allows a CPU logical processor to execute a higher frequency when enough power is available not exceed CPU defined limits.



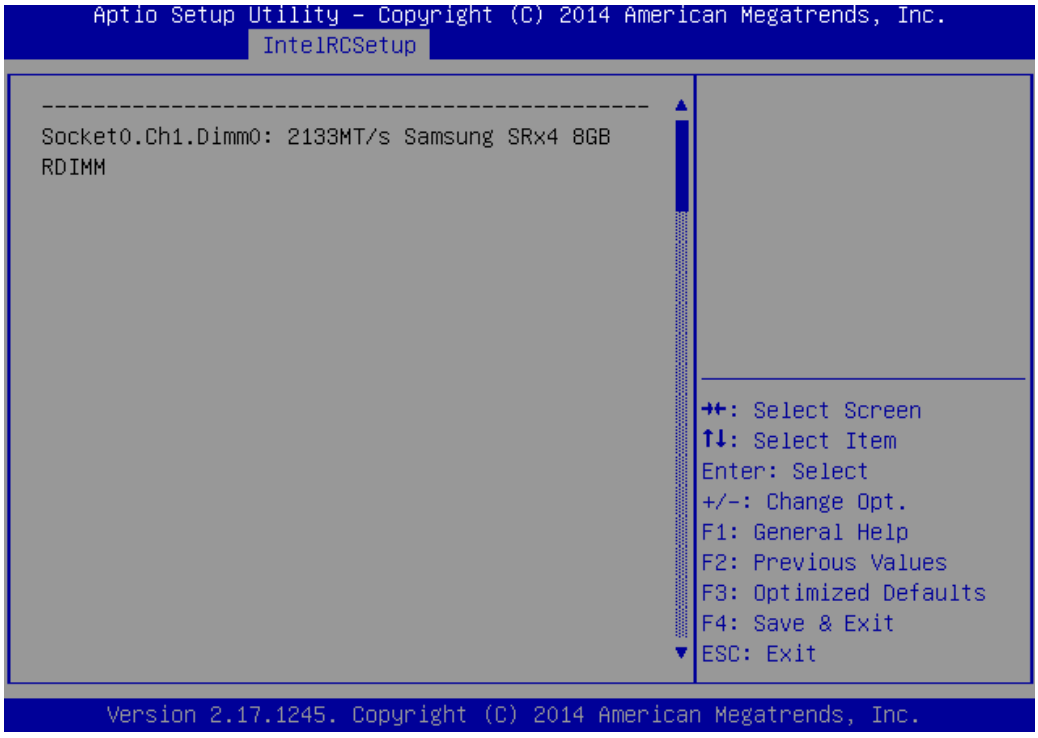
Numa

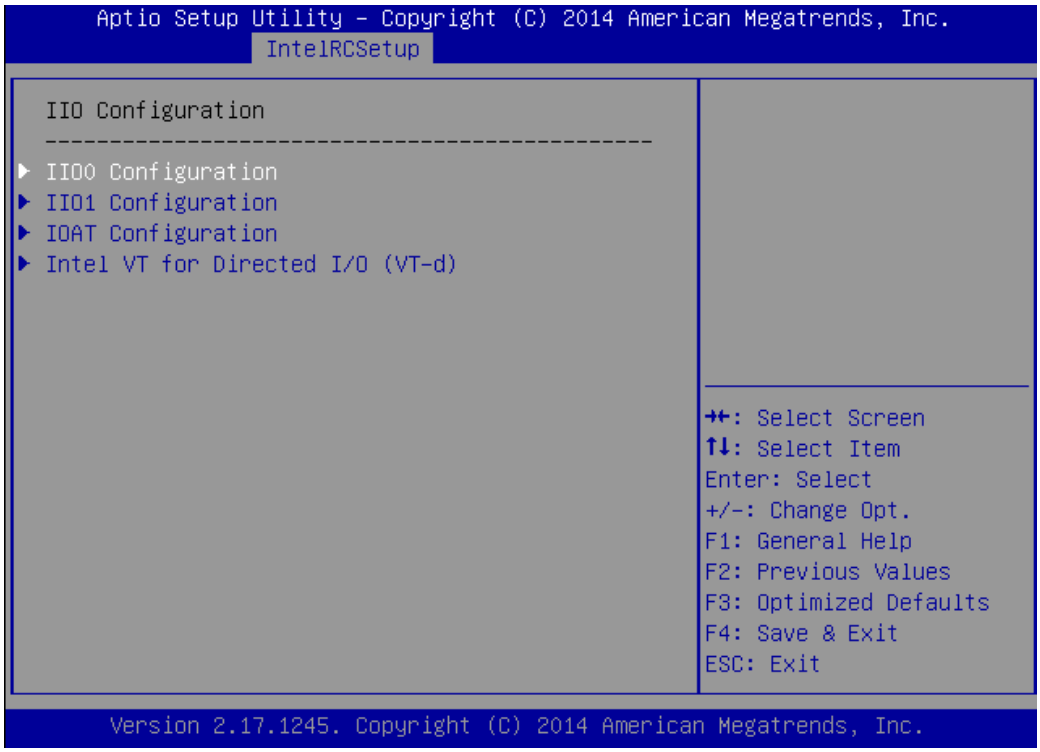
Enable or Disable Non uniform Memory Access (NUMA).



Memory Frequency

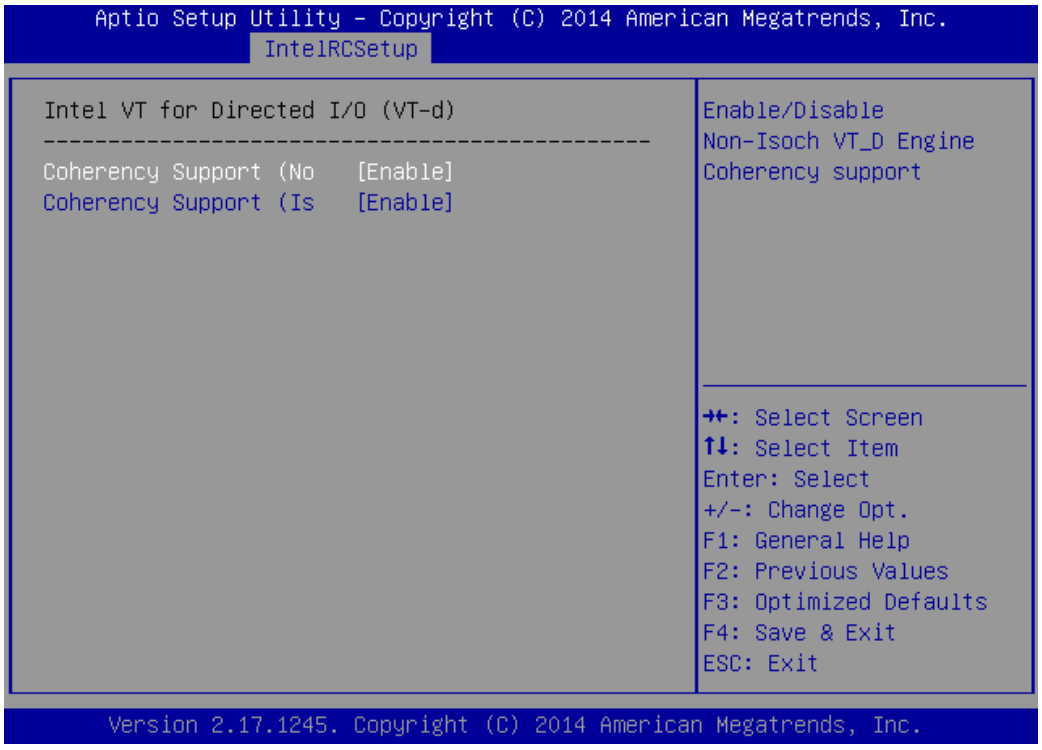
Maximum Memory Frequency Selections in Mhz. Do not select Reserved





IIO 0/1 Configuration

Displays and provides the option to change the IIO Settings

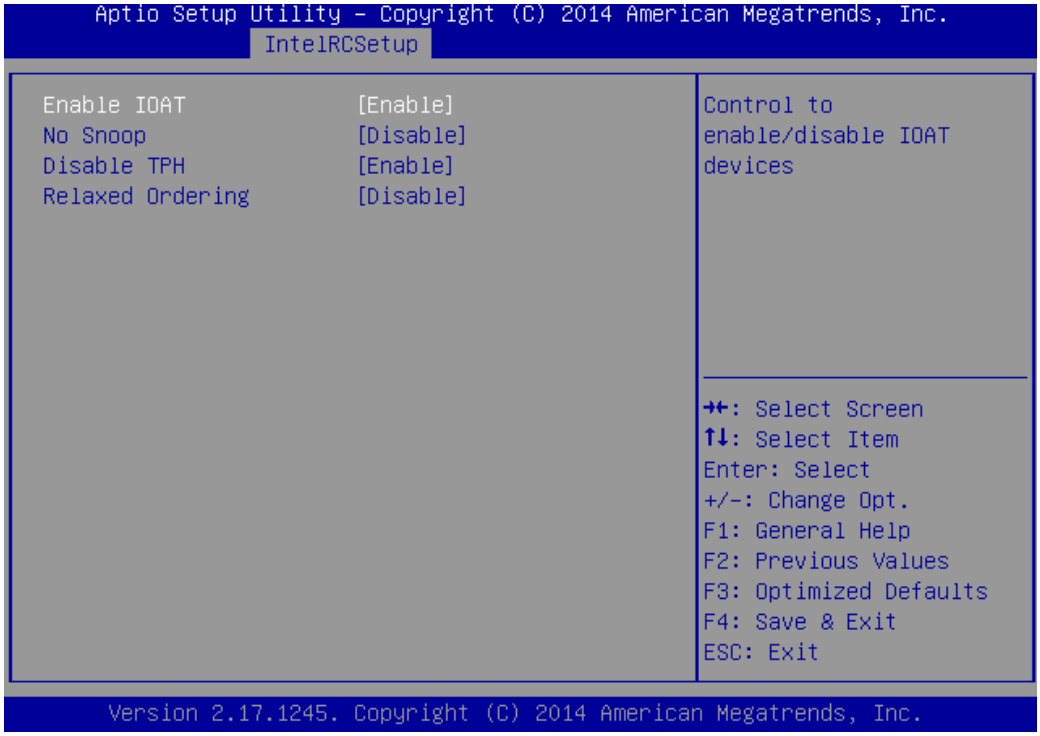


Coherency Support (Non-Isoch)

Enable/Disable Non-Isoch VT_D Engine Coherency support

Coherency Support (Isoch)

Enable/Disable Isoch VT_D Engine Coherency support



Enable IOAT

Control to enable/disable IOAT devices

No Snoop

No Snoop Enable/Disable for each CB device

Disable TPH

TLP Processing Hint disable

Relaxed Ordering

Relaxed Ordering Enable/Disable

PCH Devices

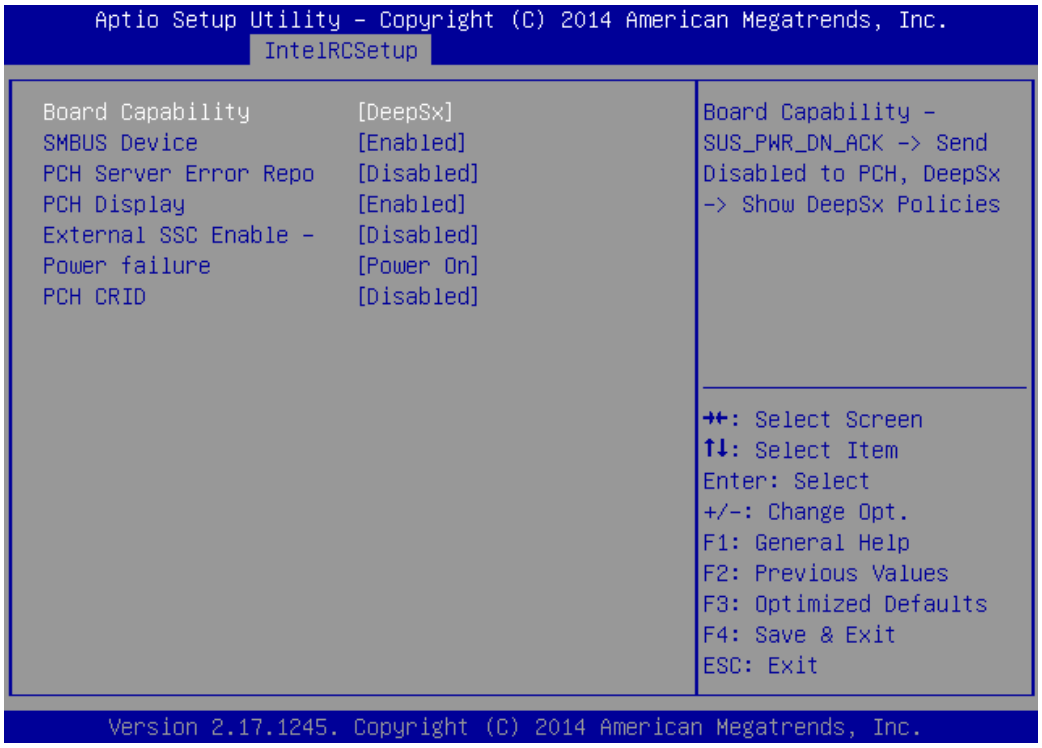
Enable/Disable Intel(R) IO Controller Hub devices

PCH SATA Configuration

SATA devices and settings

USB Configuration

USB Configuration Settings



Board Capability

Board Capability - SUS_PWR_DN_ACK -> Send Disabled to PCH, DeepSx -> Show DeepSx Policies

SMBUS Device

Enable/Disable SMBUS Device.

PCH Server Error Reporting Mode (SERM)

When enabled MCH is the final target of all errors otherwise SPCH is the final target to all errors

PCH Display

Enables/Disables PCH Display

External SSC Enable - CK420

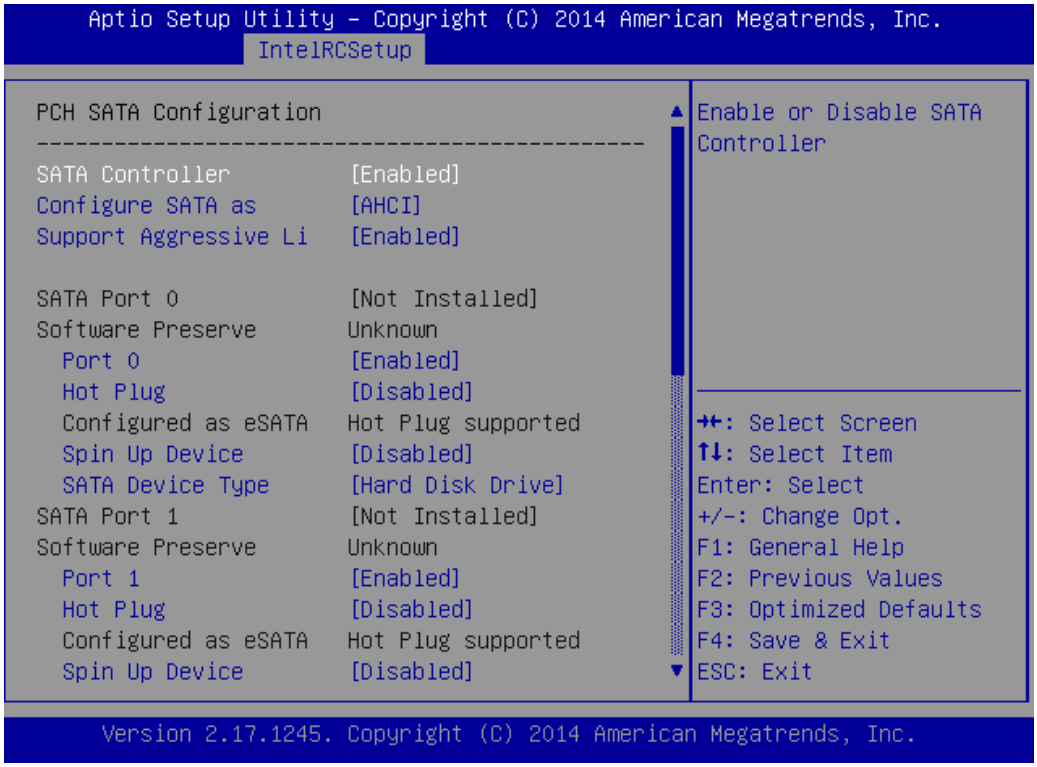
Enable Spread Spectrum - only affects external clock generator

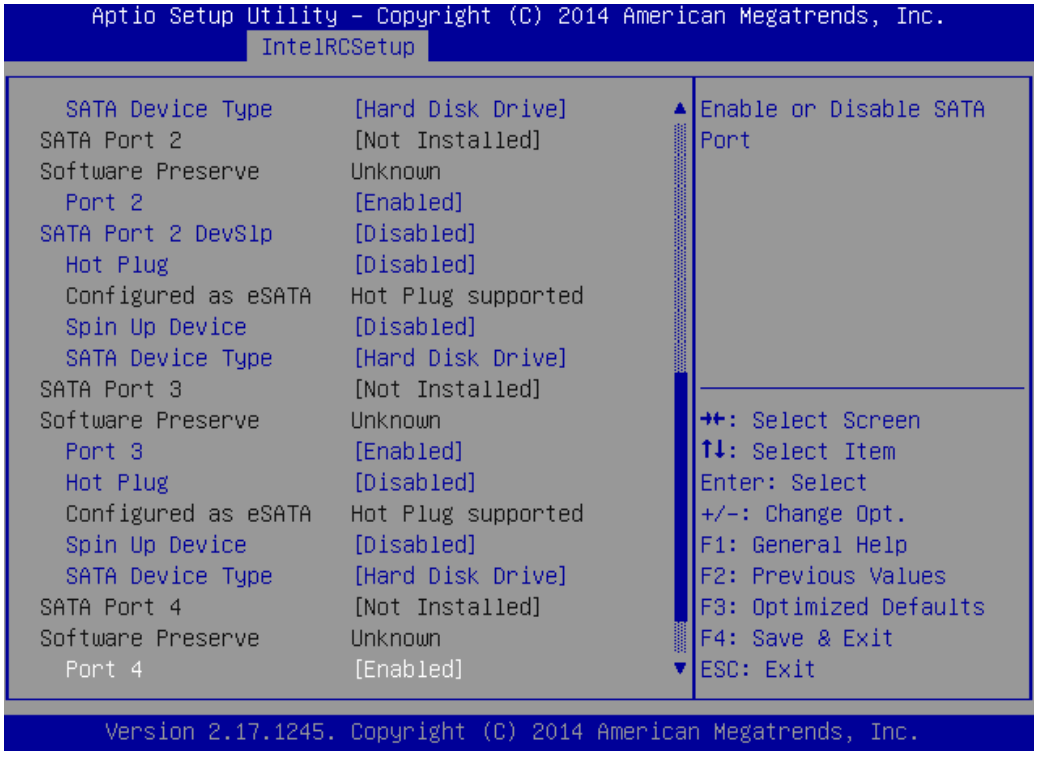
Power failure

Select S0/S5 for ACPI state after a G3

PCH CRID

Enable/Disable PCH's CRID





SATA Controller

Enable or Disable SATA Controller

Configure SATA as

Identify the SATA port is connected to Solid State Drive or Hard Disk Drive

Support Aggressive Link Power Management

Enables/Disables SALP

SATA Port DevSlp

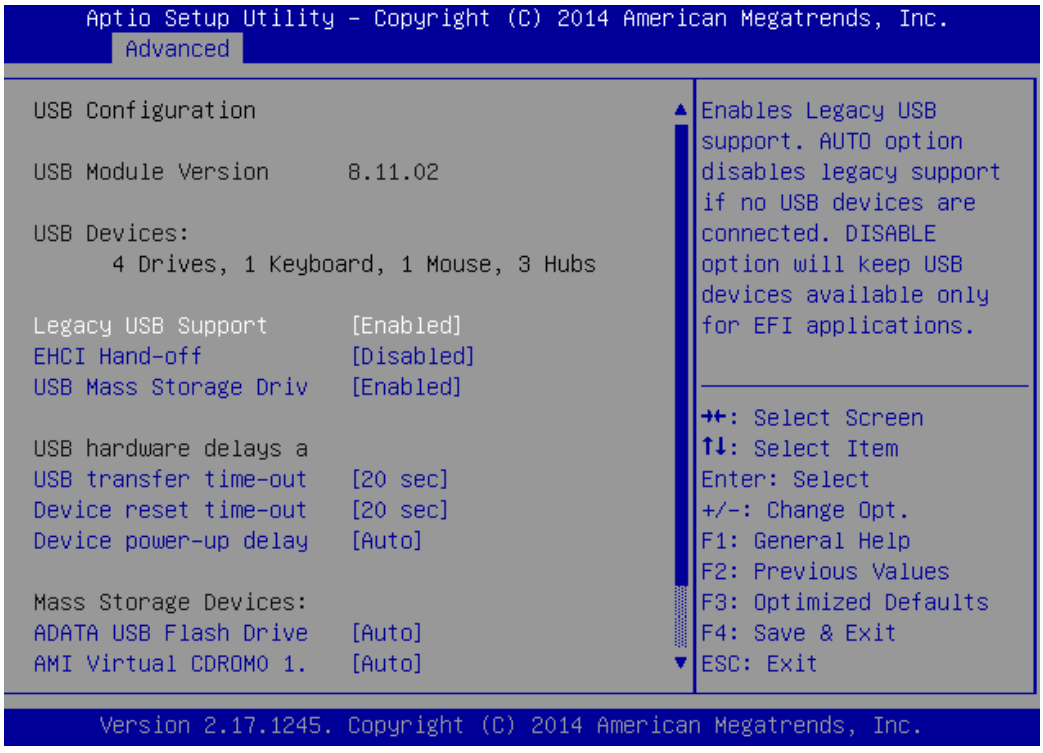
Enable/Disable SATA Port 2 DevSlp. Board rework for LP needed before enable.

Spin Up Device

If enabled for any of ports Staggered Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.

Hot Plug

Hot Plug supported



Legacy USB Support

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.

XHCI Hand-off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

Port 60/64 Emulation

Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

USB transfer time-out

The time-out value for Control, Bulk, and Interrupt transfers.

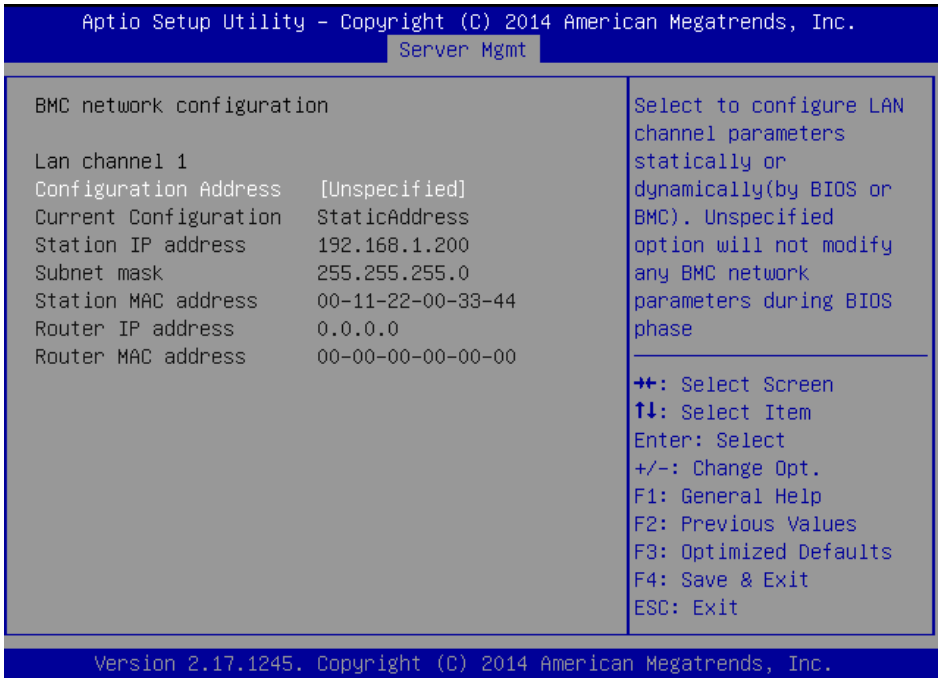
Device reset time-out

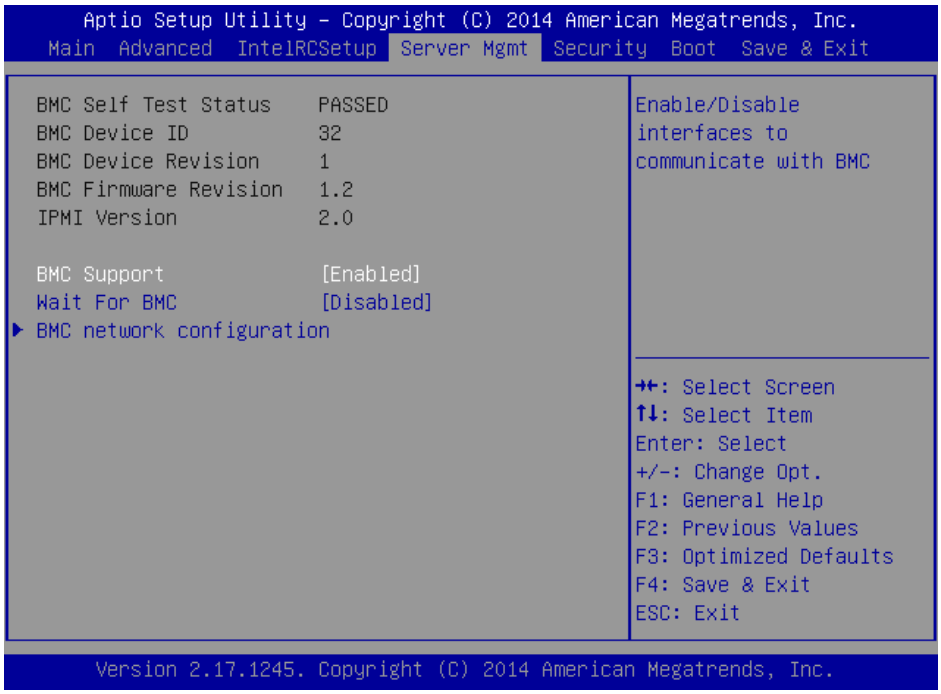
USB mass storage device Start Unit command time-out.

Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

4.6 Server Management





BMC Support

Enable/Disable interfaces to communicate with BMC

Wait For BMC

Wait For BMC response for specified time out. In PILOTII, BMC starts at the same

time when BIOS starts during AC power ON. It takes around 30 seconds to initialize Host to BMC interfaces.

BMC Network Config

BMC Network Config

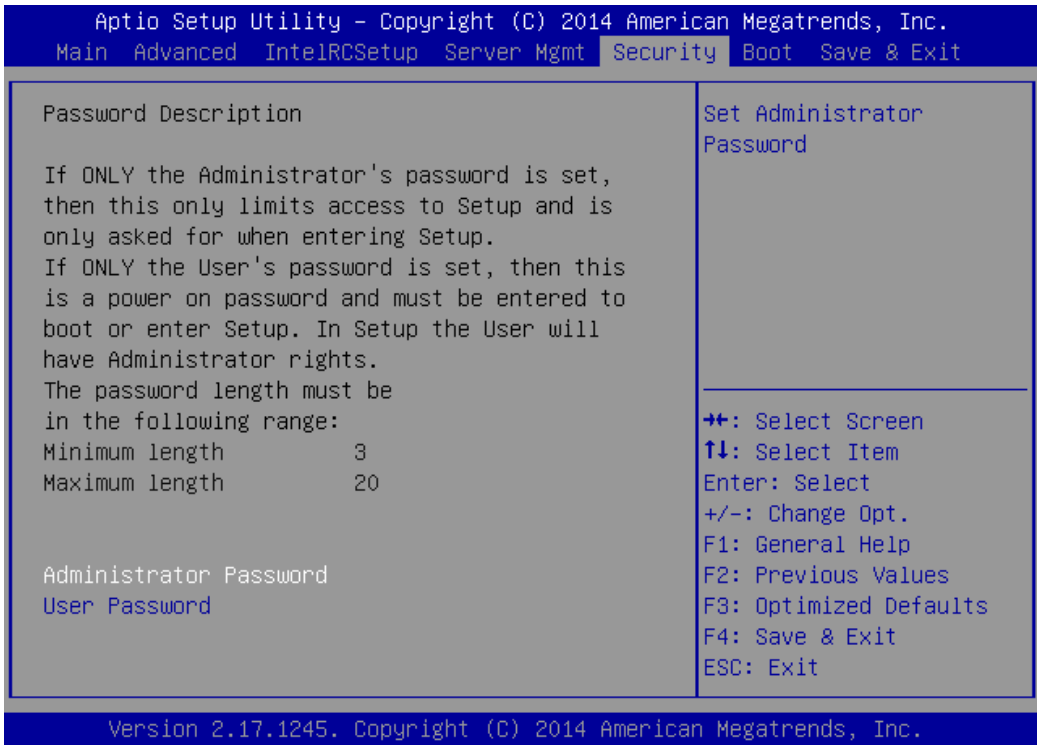
4.7 Security Menu

⇩**Use the Security Setup option as follows:**

1. Choose "Security" from the main menu. The following screen appears:

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

3. After you have finished with the Security setup, press the <←> or <→> key to switch to other setup menu or press <F4> key to save setting.



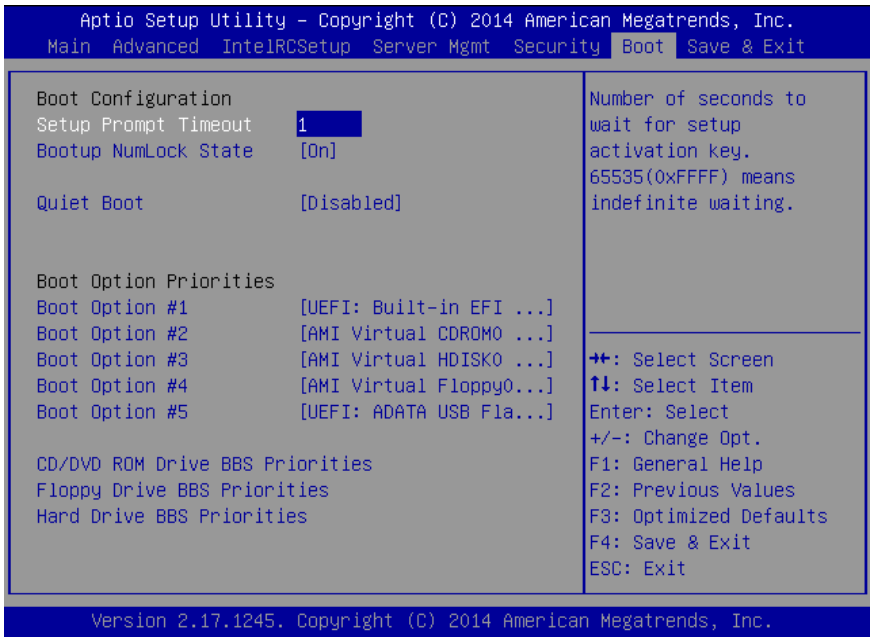
Administrator Password:

This item allows you to set or change the administrator password. The Administrator Password item on top of the screen shows the default Not Installed. After you have set a password, this item shows Installed.

User Password:

Set User Password

4.8 Boot Menu



Setup Prompt Timeout

Use the <+> and <-> keys to adjust the number of seconds to wait for setup activation key.

Bootup NumLock State

This item allows you to select "On" or "Off" power-on state for the NumLock.

Quiet Boot

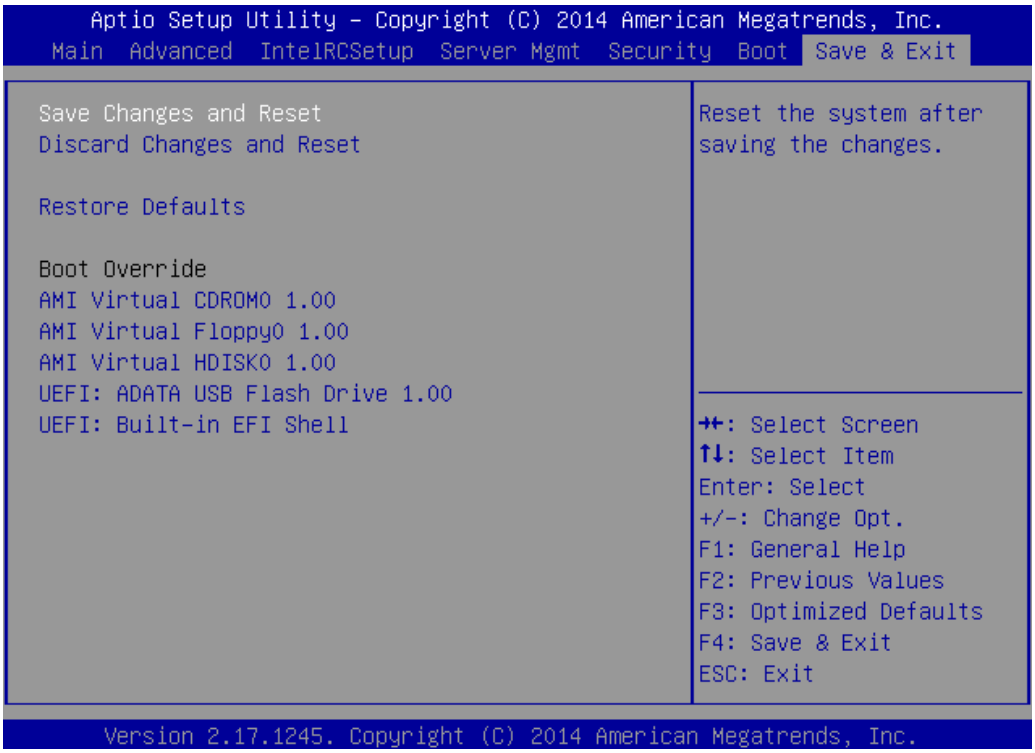
If this option is set to Disabled, the BIOS displays normal POST messages. If Enabled, an OEM Logo is shown instead of POST messages.

4.9 Save & Exit

The item allows you to save or discard your changes to the BIOS items, and load the optimal defaults or user defaults for the BIOS items.

⇩Use the Exit option as follows:

1. Choose "Exit" from the main menu, the following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.

3. Press the <←> or <→> key to switch to other setup menu or press <F4> key to save setting.

Save Changes and Reset:

Store all changes you made into CMOS and reboot system. F4 key can be used for this operation.

Discard Changes and Reset:

Discard all changes you made and reboot system. ESC key can be

used for this operation.

Restore Defaults:

This item allows you to load optimal defaults for each setting on the Setup Utility menus, which will provide the best performance settings for system. F3 key can be used for this operation.

Chapter 5. Utility & Driver Installation

Please install the GbE modules properly before you install the OS, driver or other software.

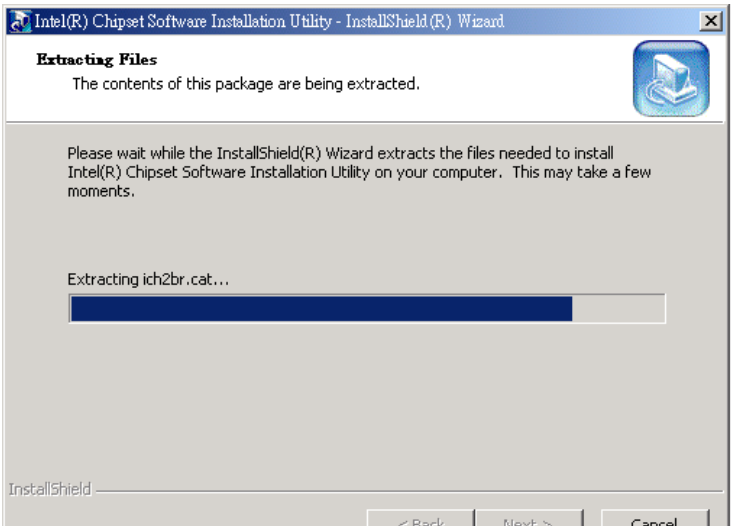
5.1 Operation System Supporting

PL-10590 can support Windows® and Linux® operation system as follows. Before installation, please check your OS version. If your OS is not in the following list, please upgrade your OS version.

OS	Version
DOS	DOS 6.22
Windows®	Microsoft Windows Server 2008 R2 (x64) Microsoft Windows 2012 (x64) Microsoft Windows 2012 R2 (x64)
Linux®	Red Hat Enterprise Linux Server* (x32 and x64) SUSE Linux Enterprise Server* (x86 and x64) Ubuntu Linux Server* (x86 and x64)

5.2 System Driver Installation

PL-10590 offers the system driver in the setup CD. Please install the driver following the procedures.



5.3 LAN Driver Installation

PL-10590 offers the LAN driver in the setup CD. Please click the Autorun file and install the driver following the procedures.

1. Insert the setup CD of PL-10590 into your CD-ROM drive.
2. Choose the Drivers file to click the Autorun icon.
3. Follow the procedures to finish the installation.

Appendix A: DOS / Linux Sample Code

We offer some sample code for PL-10590 appliance for customer need that sample code is putted into the Driver CD for software development use.

Appendix B: Cable Development Kit

The PL-10590 offers some cables for development use.

DK002

Item & Description	Part No.	Qty
Ethernet Cat.5 Cable 2M/ RoHS	CB-EC5200-00	1
Cross Over 2M Color/ RoHS	CB-CO5202/4-00	1
RJ45 to DB9 2M Cable/ RoHS	CB-RJDB91-00	1
2m null modem cable/ RoHS	CB-DB9200-01	1
VGA CABLE (2mm) 15CM/ RoHS	CB-IVGA01-00	1
KB/MS CABLE 15CM/ RoHS	CB-IPS200-00	1
USB CABLE/ RoHS	CB-IUSB01-00	1

Custom Embedded Solutions

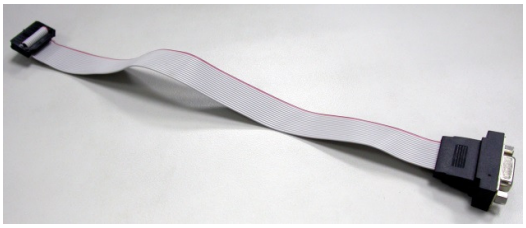
CB-EC5200-00

CB-CO5202/4-00

CB-RJDB91-00

CB-DB9200-00

CB-IVGA01-00



CB-IPS200-00

CB-IUSB01-00

Custom Embedded Solutions

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