Custom Embedded Solutions

PL-10510

Networking Appliance

User's Manual

Version 1.3

1U Rack-mount Intel® Celeron™ (codename Bay Trail) Network System, Six Copper GbE, CF, SATA, PCIe and Bypass

© Copyright 2016. All Rights Reserved

This document contains proprietary information protected by copyright. All rights are reserved; no part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without prior written permission of the manufacturer.

The content of this document is intended to be accurate and reliable. The original manufacturer assumes no responsibility for any inaccuracies that may be contained in this manual. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without prior notice.

Trademarks

IBM, EGA, VGA, XT/AT, OS/2 and PS/2 are registered trademarks of International business Machine Corporation

Award is a trademark of Award Software International, Inc

Intel is a trademark of Intel

RTL is a trademark of Realtek

VIA is a trademark of VIA Technologies, Inc

Microsoft, Windows, Windows NT and MS-DOS are either trademarks or registered trademarks of Microsoft Corporation

All other product names mentioned herein are used for identification purpose only and may be trademarks and/or registered trademarks of their respective companies.

Limitation of Liability

While reasonable efforts have been made to ensure the accuracy of this document, the manufacturer and distributor assume no liability resulting from errors or omissions in this document or from the use of the information contained herein.

For more information on PL-10510 or other WIN products, please visit our website.

www.win-ent.com.

For technical supports or free catalog, please send your inquiry to

sales@win-ent.com.

Table of Contents

Chapter 1. General Information 4
1.1 Introduction 4
1.2 Specifications 5
1.3 Order Information 6
1.4 Packaging 6
1.5 Precautions 7
1.6 System Layout 8
1.7 Board Dimensions 9
Chapter 2. Connector/Jumper Configuration 10
2.1 Connector/Jumper Location and Definition 10
2.2 Connector Define and Jumper Setting 12
2.3 CompactFlash™ Card Socket Pin Define 20
Chapter 3. BIOS Setup 21
3.1 Quick Setup 21
3.2 Entering the BIOS Setup Utility 21
3.3 Menu Options 23
3.4 Advanced Menu 23
3.5 Chipset Menu 41
3.6 Security Menu 43
3.7 Boot Menu 44
3.8 Exit Menu 47
Chapter 4. Utility & Driver Installation 48
4.1 Operation System Supporting 48
4.2 System Driver Installation 48
4.3 LAN Driver Installation 49
Appendix A: Programming the Watchdog Timer 50
Appendix B: LAN Bypass Function (Optional) 51
Controlling LAN 1&2 (LAN 3&4) bypass function by watchdog timer 51
Controlling LAN 1&2 (LAN 3&4) bypass function by GPIO 51
Appendix C : Cable Development Kit 52

Chapter 1. General Information

1.1 Introduction

The PL-10510 is a 1U Rack-mounted hardware platform designed for network service applications. Built with Intel® embedded IA components for warranted longevity; it supports the Intel® Bay Trail low-voltage processor.

The platform supports high bandwidth DDR3L SODIMM slot with memory up to 8 GB. In order to provide the best network performance and utilization, the expansive storage interfaces include 2.5" SATA HDD and CompactFlash™.
To enhance the network security performance, the PL-10510 is equipped with 6 GbE Copper ports, bypass function, USB2.0 ports, RJ-45 console port, mini-card socket and LED indicators that monitor power, storage device activities for local system management, maintenance and diagnostics. In addition, the PL-10510 supports one mini-PCIe card socket and is RoHS, FCC and CE compliant.

1.2 Specifications

Processor System	CPU	Intel® Celeron™ processorJ1900 (Bay Trail-D), E3800 (Bay Trail-I) Processors
	BIOS	AMI UEFI BIOS
Memory	Technology	Un-buffered and Non-ECC DDR3L 1333MHz memory.
	Capacity	Up to 8GB with one SO-DIMM socket
Ethernet	GbE Ethernet	Six Copper GbE ports, Intel I211, PCI-E x1
	LAN bypass	Two pairs bypass between LAN1, LAN2 and LAN3, LAN4
Storage	SATA HDD	One internal 2.5″ or one internal 3.5″ SATA HDD bay
	CompactFlash™ Socket	one CompactFlash™ Type II
I/O	USB	Rear: Two external USB2.0 Two internal 5x2 pin header
	Serial	One RJ45 Console port (COM1)
Expansion	PCIe Slot	One Standard PCI-E x1 connector (Optional)
Power Supply	Watt	60W power supply
Mechanical & Environmental	Form Factor	1U Rack-mount
	LED	1 x Status LED (Green), 1 x HDD LED (Red), 1 x Power LED (Green), 1 x Bypass LED (Yellow)
	Dimensions （W x D x H）	432mm (W) x 270mm (D) x 44mm (H) (17″ W x 8″ D x 1.7″ 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
	Certification	CE/FCC

1.3 Ordering Information

We offer some accessories for PL-10510 appliance for customer needs.

PL-1051A	1U Rack-mount Intel® Celeron® J1900 Network System, DDR3L, 6 Copper GbE, SATA, CF, Bypass
PL-1051B	1U Rack-mount Intel® Celeron® J1900 Network System, DDR3L, 5 Copper GbE, SATA, CF, Bypass, PCI-E
Optional	
DK001	Cable development kit CB -CO5204-01 Cross over cable CB -EC5200-01 Ethernet cable CB -RJDB91-01 RJ45 Console cable CB -DB9200-01 Null modem cable CB -IVGA01-01 VGA cable CB -IPS200-00 KB/MS cable CB -IUSB01-00 USB cable

1.4 Packaging

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

1. PL-10510 Appliance
2. Quick Installation Guide (Optional)
3. Cables (Optional)
4. CD-ROM that contains the following folders:

(1) Manual
(2) System Driver
(3) Ethernet Driver
(4) Utility Tools

If any item of above is missing or damaged, please contact your dealer or retailer from whom you purchased the PL-10510 . Keep the box and carton if you anticipate shipment or storage of the PL-10510 in near future. After you unpack the goods,

inspect and make sure the packaging is intact. Do not plug the power adapter to the appliance of PL-10510 if it is perceived to be damaged.

Note: *Keep the* PL-10510 *in the original packaging until you start installation.*

1.5 Precautions

Please make sure you properly ground yourself before handling the PL-10510 appliance or other system components. Electrostatic discharge can be easily damage the PL-10510 appliance .

Do not remove the anti-static packing until you are ready to install the PL-10510 appliance.

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

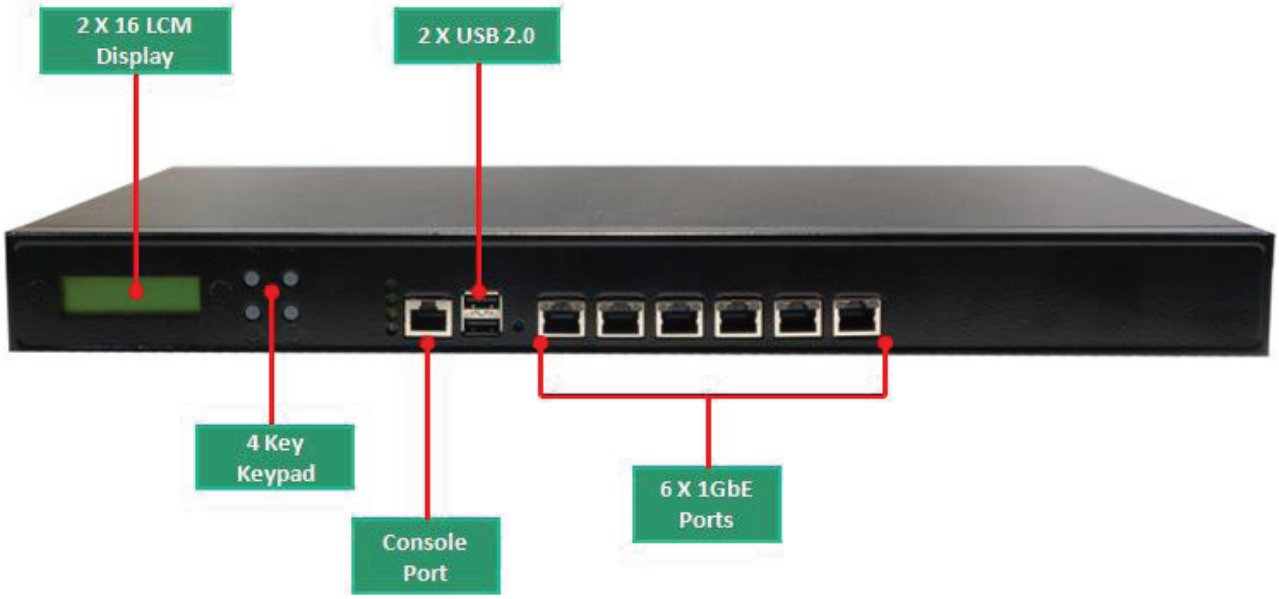
Handle the PL-10510 appliance by its edges and avoid touching the components on it.

CAUTION

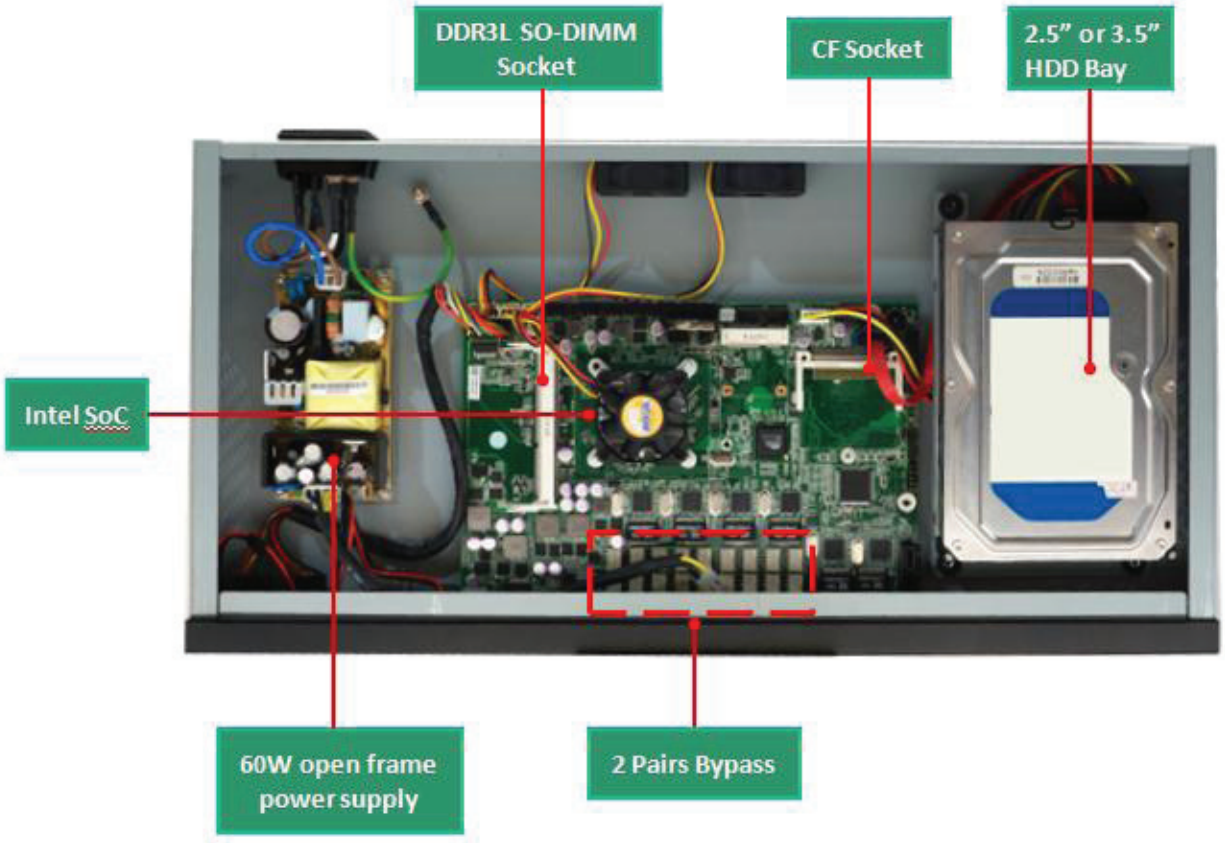
Risk of explosion if battery is replaces by an incorrect type
Dispose of used batteries according to instructions.

1.6 System Layout

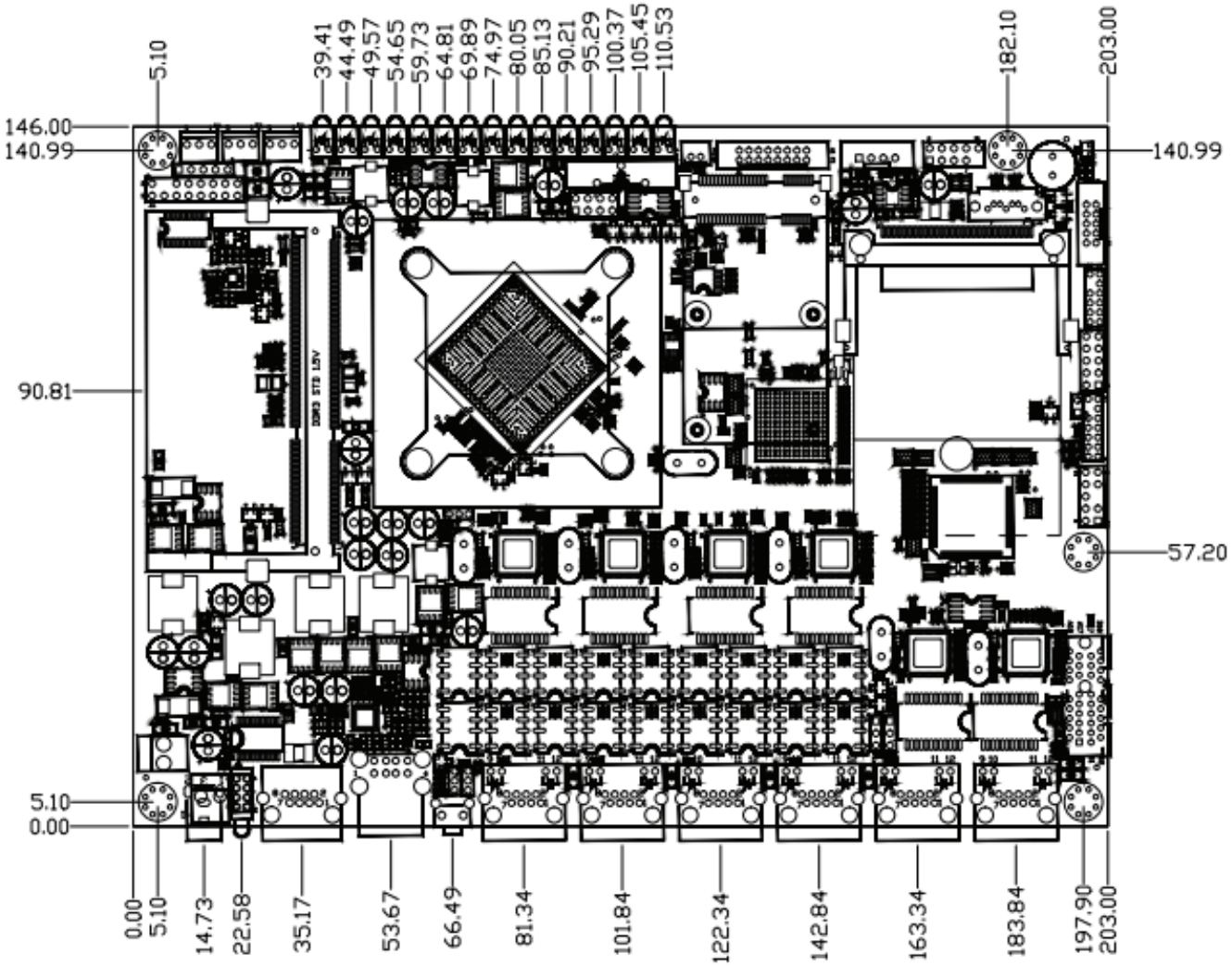
PL-10510, Front Side



PL-10510, System Layout

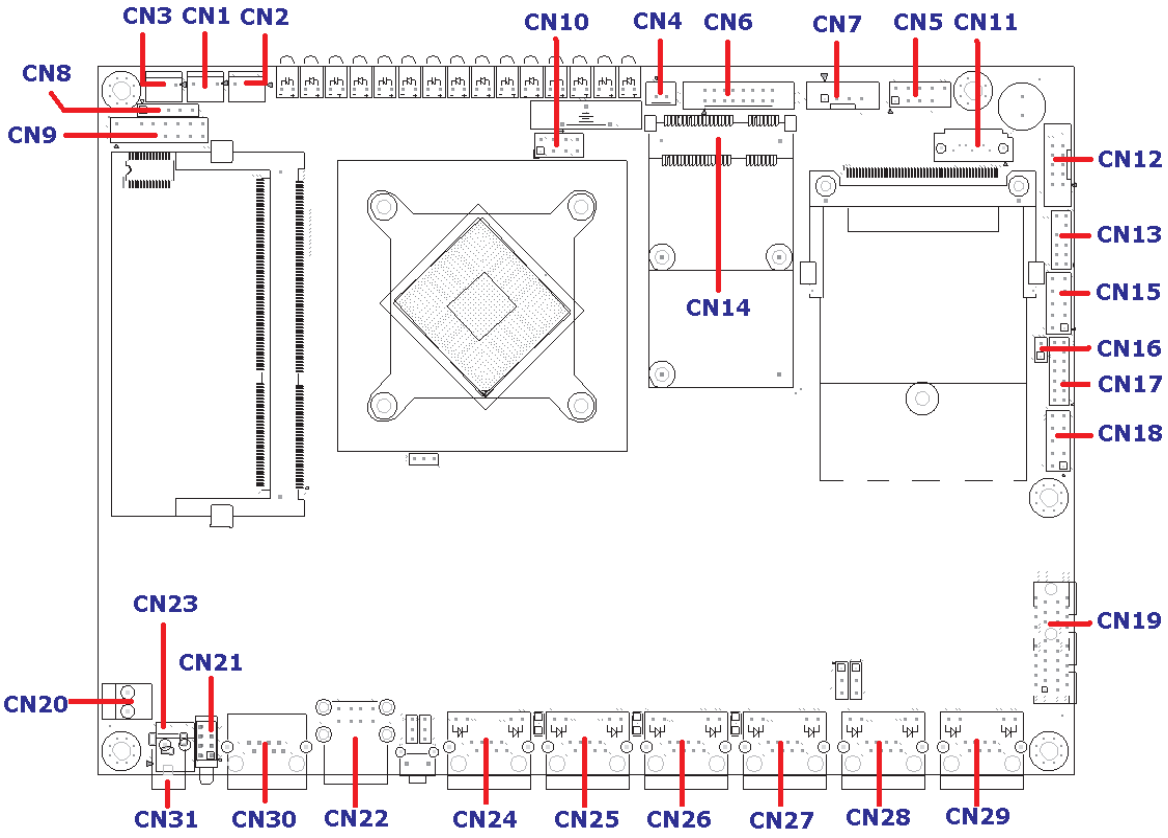


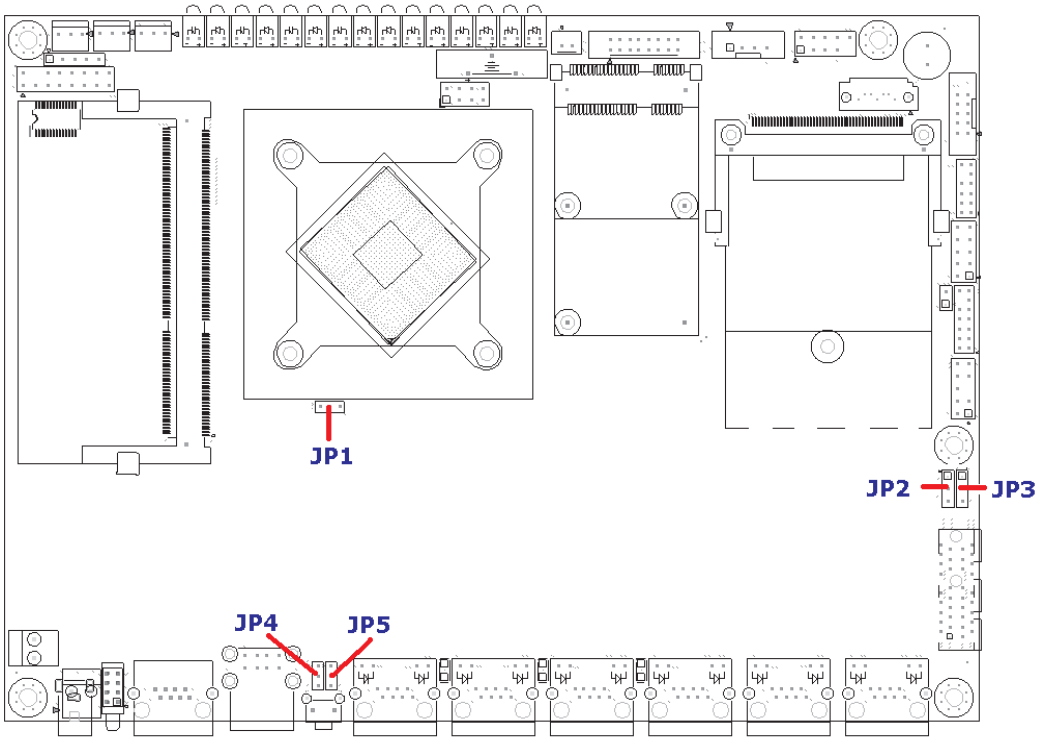
1.7 Board Dimensions



Chapter 2. Connector/Jumper Configuration

2.1 Connector/Jumper Locations and Definitions





MB-10510* Connector list

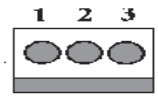
Connector	Define	Connector	Define
CN1	SYSTEM FAN	CN18	PS2 KB/MS (Pin Header)
CN2	CPU FAN	CN19	PCIe X1 Slot (Option)
CN3	SYSTEM FAN	CN20	Power Switch
CN4	Wireless LAN LED (option)	CN21	Status LED (Pin Header) (Co-Layout with LED16)
CN5	USB Port 2 & 3 (Pin Header)	CN22	USB Port 0 & 1
CN6	VGA (Pin Header)	CN23	DC-IN (Pin Header) (Co-Layout with CN31)
CN7	SATA Power Connector	CN24	LAN1
CN8	KEY PAD (Pin Header)	CN25	LAN2
CN9	LCM (Pin Header)	CN26	LAN3
CN10	SPI (Pin Header)	CN27	LAN4
CN11	SATA Connector	CN28	LAN5
CN12	COM2 (Pin Header)	CN29	LAN6
CN13	GPIO (Pin Header)	CN30	COM1(Console Port)
CN14	MINI-PCIe (Option)	CN31	DC-IN (Power Jack) (Co-Layout with CN23)
CN17	LPC (Pin Header)		

* Motherboard

2.2 Connectors Defined and Jumper Settings

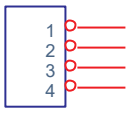
Connector Location & Defined

CN1/CN2/CN3 : System/CPU FAN



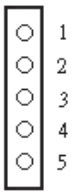
Pin	Define
1	Ground
2	+12V
3	Speed Detect

CN7 : SATA PWR



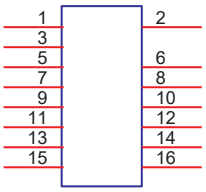
Pin	Define
1	+12V
2	GND
3	GND
4	+5V

CN8 : Keypad header



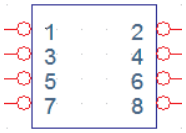
Pin	Define
1	ACK#
2	BUSY
3	PE
4	SLCT
5	GND

CN9：LCM Pin Header



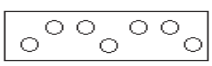
Pin	Define	Pin	Define
1	+5V	2	GND
3	P_AFD#	4	NC
5	P_INIT#	6	P_SLIN#
7	LCM_PD1	8	LCM_PD0
9	LCM_PD3	10	LCM_PD2
11	LCM_PD5	12	LCM_PD4
13	LCM_PD7	14	LCM_PD6
15	LCM_BK_CTRL	16	BK_CTRLP

CN10：SPI Pin Header



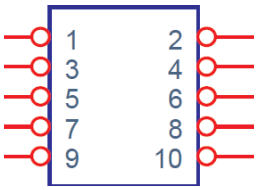
Pin	Define	Pin	Define
1	+1.8V	2	GND
3	CS#	4	SCLK
5	MISO	6	MOSI
7	N/A	8	IO

CN11：SATA Connector



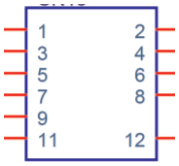
Pin	Signal
1	GND
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	GND

CN12 : COM2 pin header



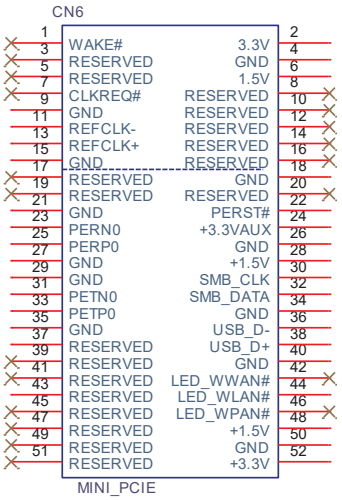
Pin	Define	Pin	Define
1	DCD#	2	DSR#
3	SIN#	4	RTS#
5	SOUT#	6	CTS#
7	DTR#	8	RI#
9	Ground	10	N/A

CN13 : GPIO



Pin	Define	Pin	Define
1	+3.3V	2	SIO_GP50
3	SIO_GP51	4	SIO_GP52
5	SIO_GP53	6	SIO_GP54
7	SIO_GP55	8	SIO_GP56
9	SIO_GP57	10	
11	+5V	12	GND

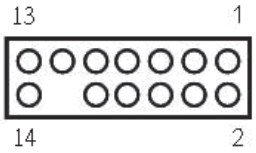
CN14 : MINI-PCIE



Pin	Define	Pin	Define
1	WAKE#	2	3.3V
3	Reserved	4	GND
5	Reserved	6	1.5V
7	CLKREQ#	8	Reserved
9	GND	10	Reserved
11	REFCLK-	12	Reserved
13	REFCLK+	14	Reserved
15	GND	16	Reserved
17	Reserved	18	GND
19	Reserved	20	Reserved
21	GND	22	PERST#
23	PERN0	24	+3.3VAUX
25	PERP0	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PETN0	32	SMB_DATA
33	PETP0	34	GND
35	GND	36	USB_D-
37	Reserved	38	USB_D+
39	Reserved	40	GND
41	Reserved	42	LED_WWAN#
43	Reserved	44	LED_WLAN#
45	Reserved	46	LED_WPAN#
47	Reserved	48	+1.5V
49	Reserved	50	GND

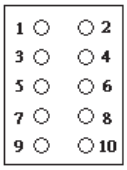
51	Reserved	52	+3.3V

CN17：LPC Pin Header



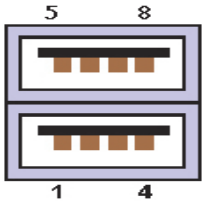
Pin	Define	Pin	Define
1	+3.3V	2	AD 0
3	AD1	4	AD 2
5	AD 3	6	Frame#
7	PCIERST#	8	+5V
9	CLOCK	10	PME#
11	GND	12	
13	SERIRQ	14	DRQ#

CN18：PS2 KB/MS Pin Header



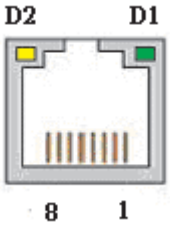
Pin	Define	Pin	Define
1	KCLK	2	MCLK
3	KDAT	4	MDAT
5	N/A	6	N/A
7	PS2_GND	8	PS2_GND
9	PS2_VCC	10	PS2_VCC

CN22：USB Connector



Pin	Define	Pin	Define
1	+5V	2	DATA0-
3	DATA0+	4	GND
5	+5V	6	DATA1-
7	DATA1+	8	GND

CN24~29：LAN RJ-45 Connector



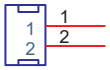
Pin	Define
1	TX+
2	TX-
3	RX+
4	Chassis Ground
5	Chassis Ground
6	RX-
7	Chassis Ground
8	Chassis Ground

D1: Speed indicated LED	
1 Gbps	GREEN
100 Mbps	YELLOW
D2 :Link/Activity LED	
Link	GREEN
Activity	BLINKING

CN30 : COM1 (Console) Connector

RJ45	
Pin	**Define**
1	CTS#
2	DTR#
3	TXD#
4	GND
5	GND
6	RXD#
7	DSR#
8	RTS#

CN31 : DC +12V Power Jack (2Pin)



Pin	Define	Pin	Define
1	+12V	2	GND

Jumper Settings

JP1 : Clear CMOS

Pin		Setting
	1-2	Normal Operation
	2-3	Clear CMOS

JP2 : LAN1 & LAN2 bypass select

Pin		Setting
	1-2	By-pass mode
	2-3	Normal operation

JP3 : LAN3 & LAN4 bypass select

Pin		Setting
	1-2	By-pass mode
	2-3	Normal operation

JP4 : Reset Button Function Select

Pin		Setting
	1-2	For GPI Input
	2-3	For Reset

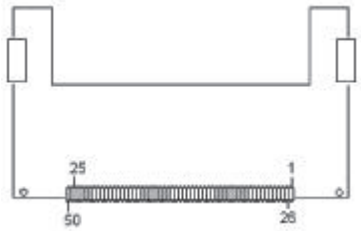
JP5：Watching Dog Function Select

Pin		Setting
	1-2	For Reset
	2-3	For LAN Bypass

2.3 CompactFlash™ Card Socket Pin Defined

CompactFlash™ card is a small removable mass storage device. It can provide complete PCMCIA-ATA functionality and compatibility plus True IDE functionality compatible with ATA/ATAPI-4.
CompactFlash™ storage products are solid state form factor, it means they contain no moving parts. Thus, it provides users with much greater protection of the data than conventional magnetic disk device.

Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment
1	Ground	11	Ground	21	D00	31	D15	41	RESET
2	D03	12	Ground	22	D01	32	CS	42	ORDY
3	D04	13	VCC	23	D02	33	NC	43	DREG
4	D05	14	Ground	24	WP	34	IOR	44	DACK
5	D06	15	Ground	25	NC	35	IOW	45	LED
6	D07	16	Ground	26	NC	36	WE	46	BVD
7	CS	17	Ground	27	D11	37	RDY/BSY	47	D08
8	Ground	18	A02	28	D12	38	VCC	48	D09
9	Ground	19	A01	29	D13	39	SCSE	49	D10
10	Ground	20	A00	30	D14	40	NC	50	Ground



Chapter 3 . BIOS Setup

The ROM chip of your PL-10510 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 checks the system when you turn it on. The BIOS also includes CMOS 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 a battery installed on the PL-10510 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.

3.1 Quick Setup

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

1. Choose "Exit" ? "Load Optim al 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 Changes and Exit") to save your changes and reboot the system.

3.2 Entering the BIOS Setup Utility

Use the BIOS Setup program to modify the system parameters to reflect the

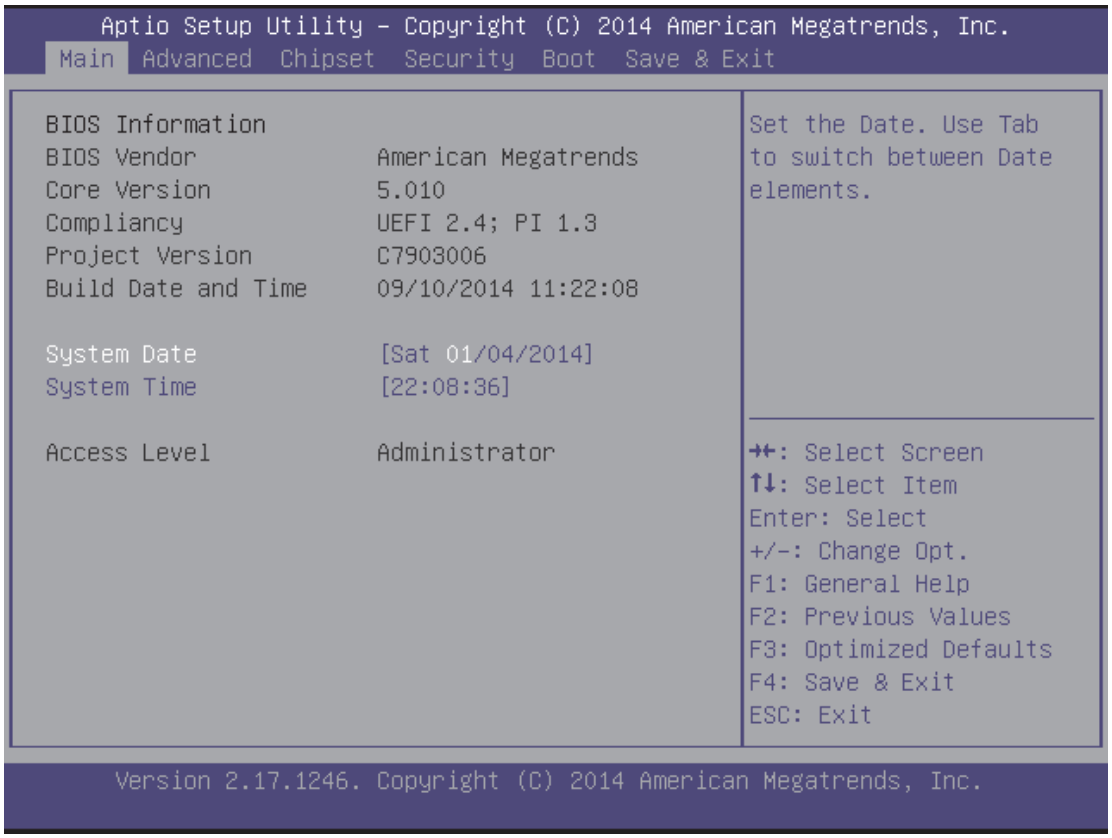
options installed in your system and to customize your system. For example, you should run the Setup program after you:

- 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 program. 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.

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 Changes 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.

3.3 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.

Chipset: For changing the chipset settings.

Security: Use this menu to set User and Supervisor Passwords.

Boot: For changing the system boot configurations.

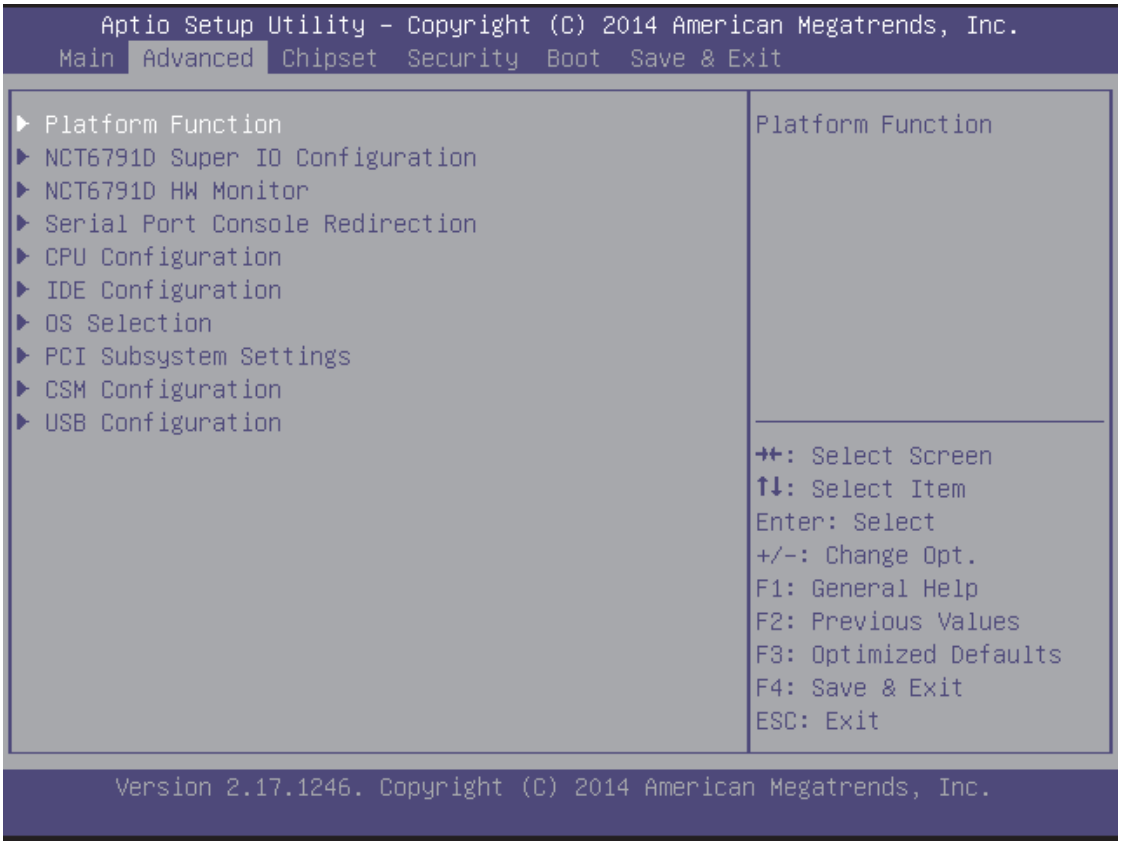
Save & Exit: For selecting the exit options and loading default settings.

3.4 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:**

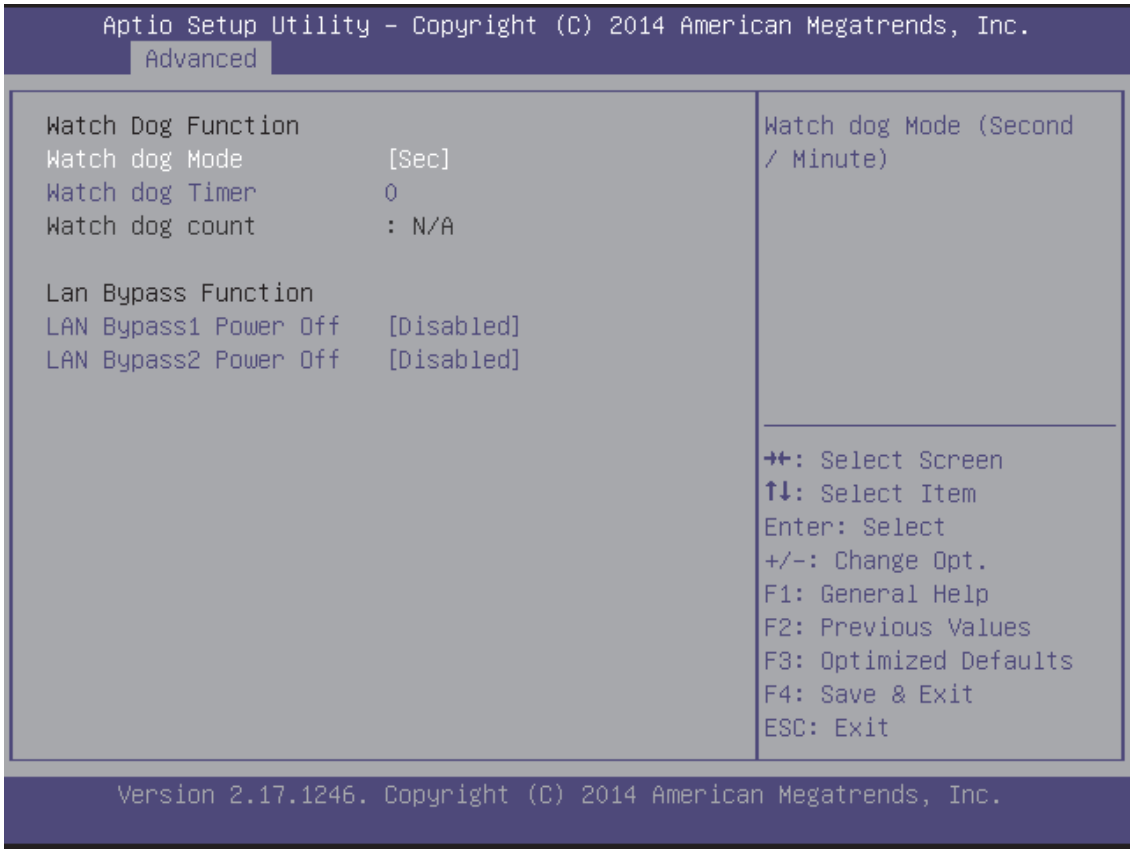
1. Choose " Advanced" from the main menu. The following screen appears:



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, the <? > or <? > key to switch to other setup menu or press <F4> key to save setting.

3.4.1 Platform Functions



Watch dog Mode

Watch dog Mode（Sec/Min）.

Watch dog Timer

Set up Watch dog Timer.

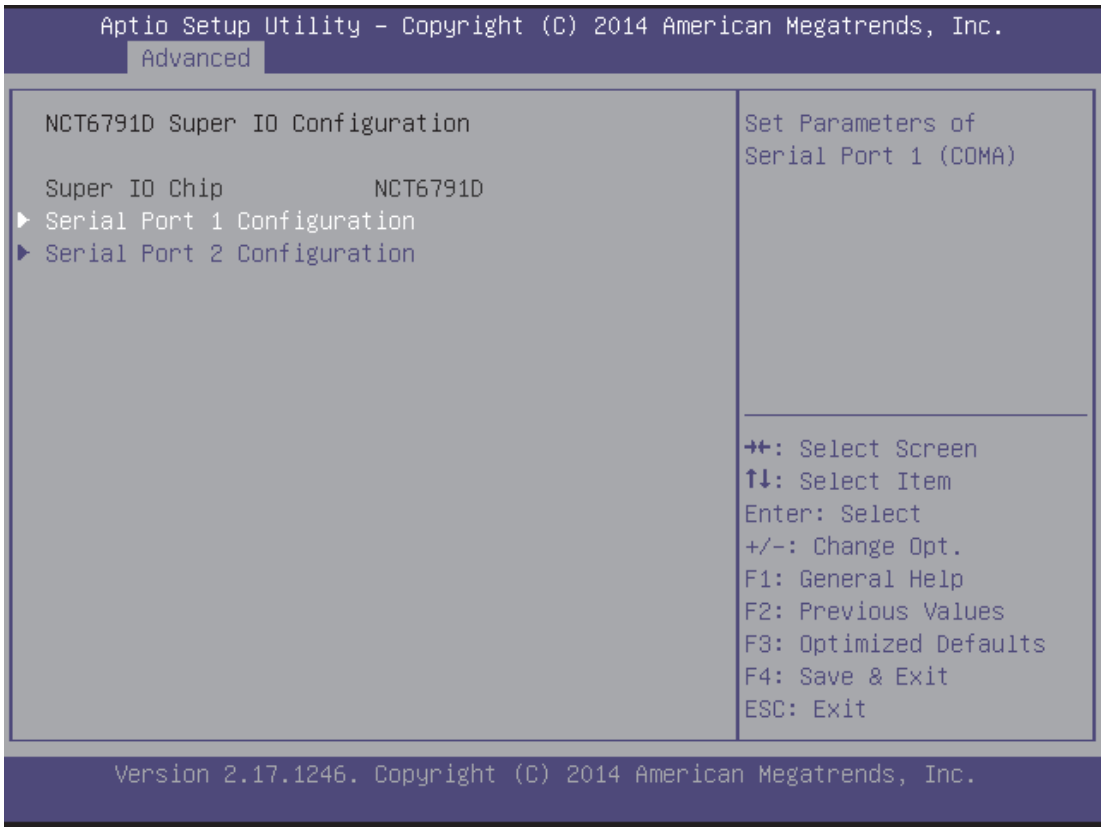
LAN Bypass1 Power off

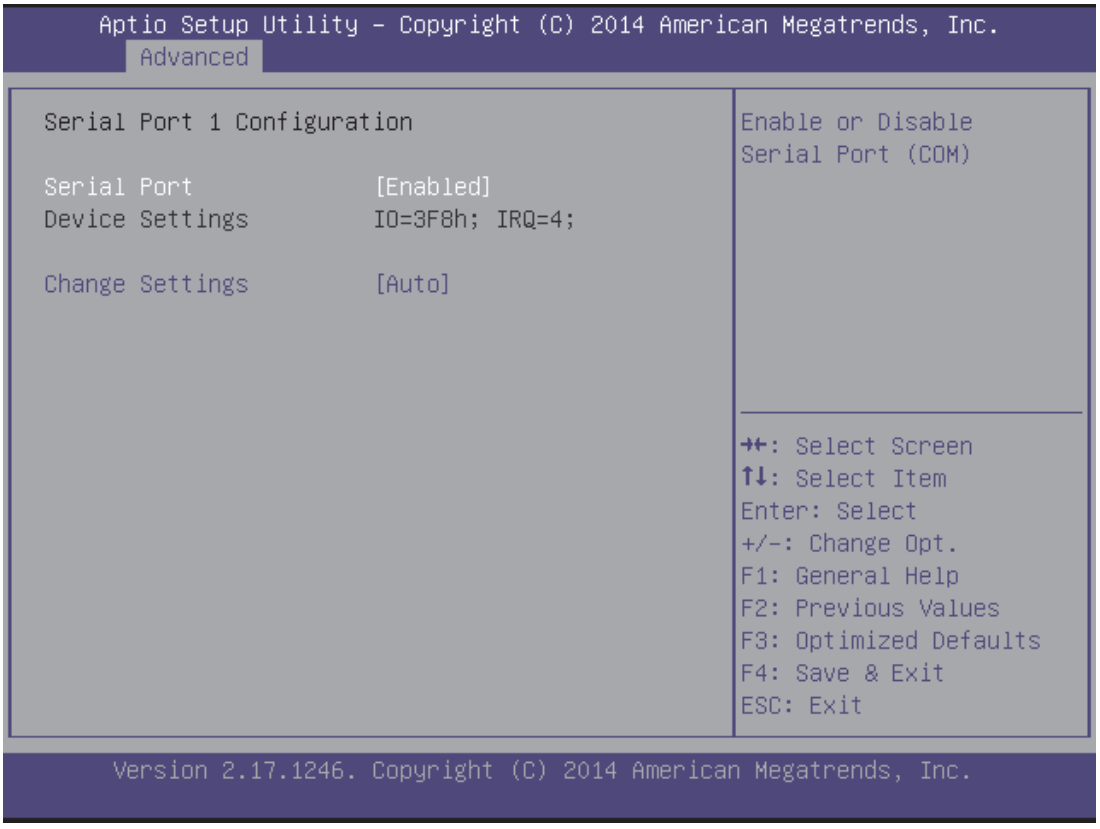
Enabled or Disabled Bypass mode when System Power off.

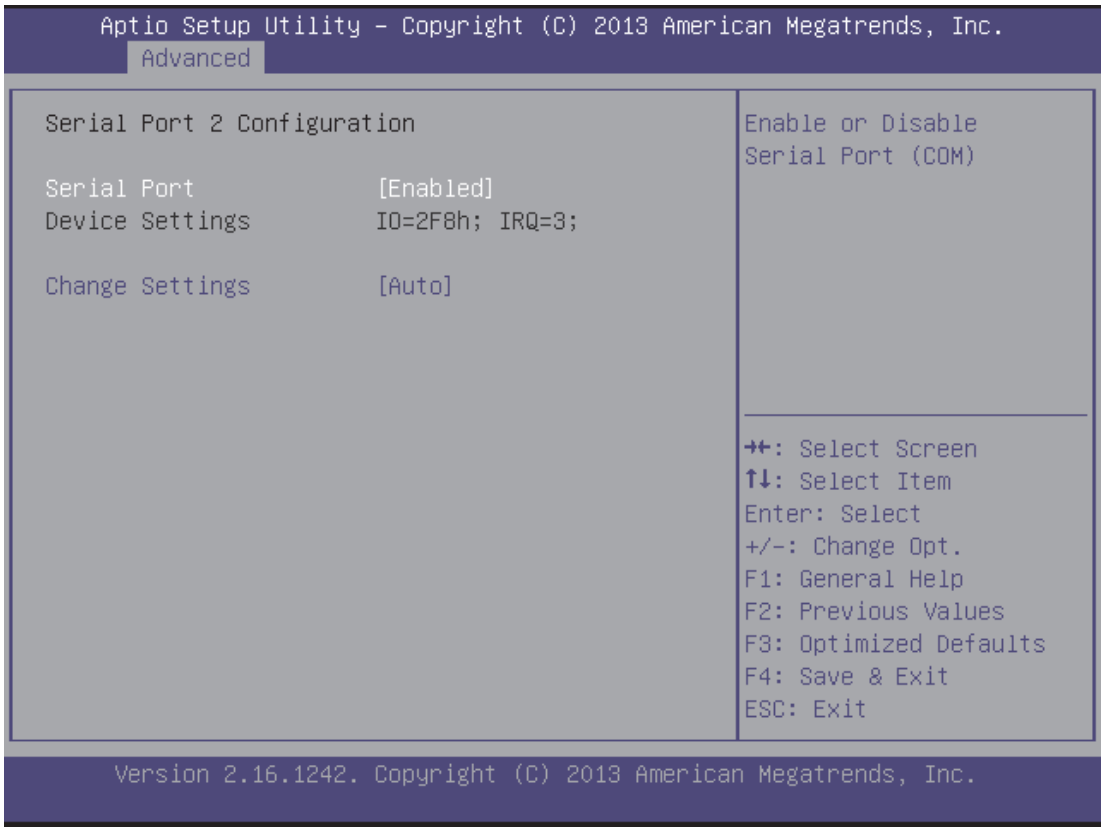
LAN Bypass2 Power off

Enabled or Disabled Bypass mode when System Power off.

3.4.2 NCT6791D Super IO Configuration


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Advanced
NCT6791D Super IO Configuration
Super IO Chip NCT6791D
Serial Port 1 Configuration
Serial Port 2 Configuration
Set Parameters of
Serial Port 1 (COMA)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1246. Copyright (C) 2014 American Megatrends, Inc.


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Advanced
Serial Port 1 Configuration
Serial Port [Enabled]
Device Settings IO=3F8h; IRQ=4;
Change Settings [Auto]
Enable or Disable
Serial Port (COM)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1246. Copyright (C) 2014 American Megatrends, Inc.



Serial Port 1/2 Configuration

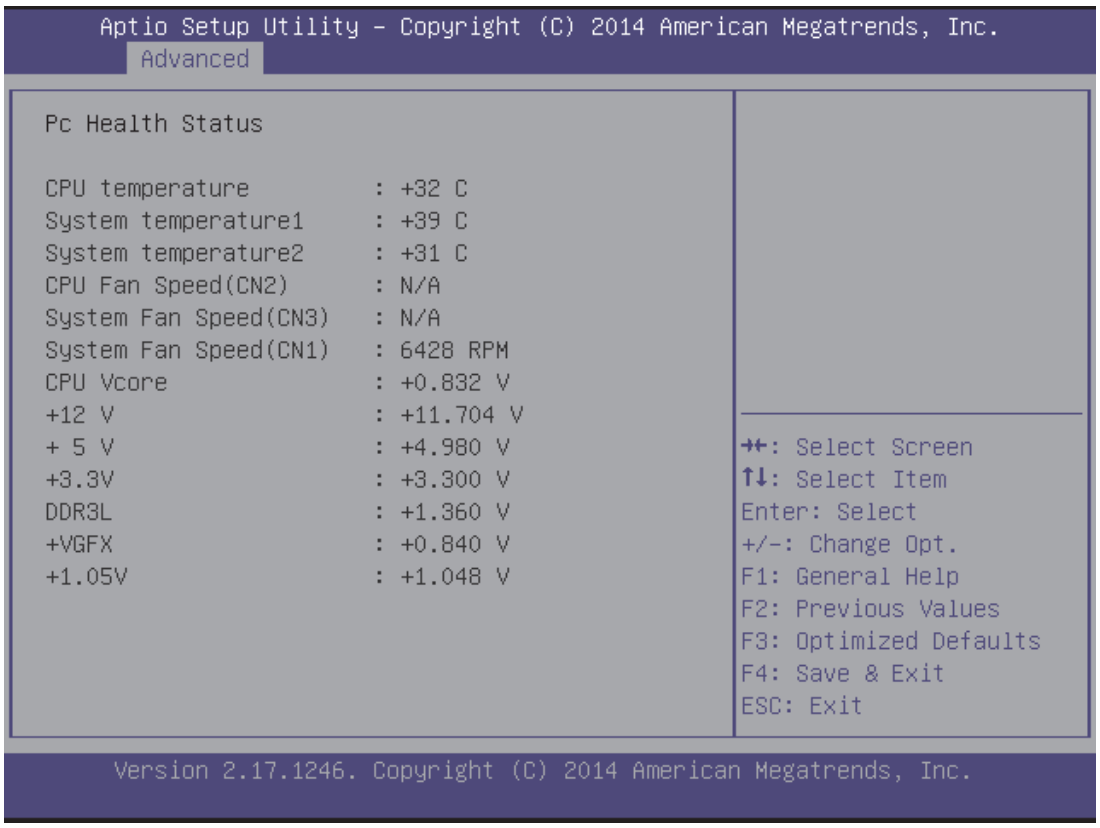
Serial Port

Enable or Disable Serial Port (COM)

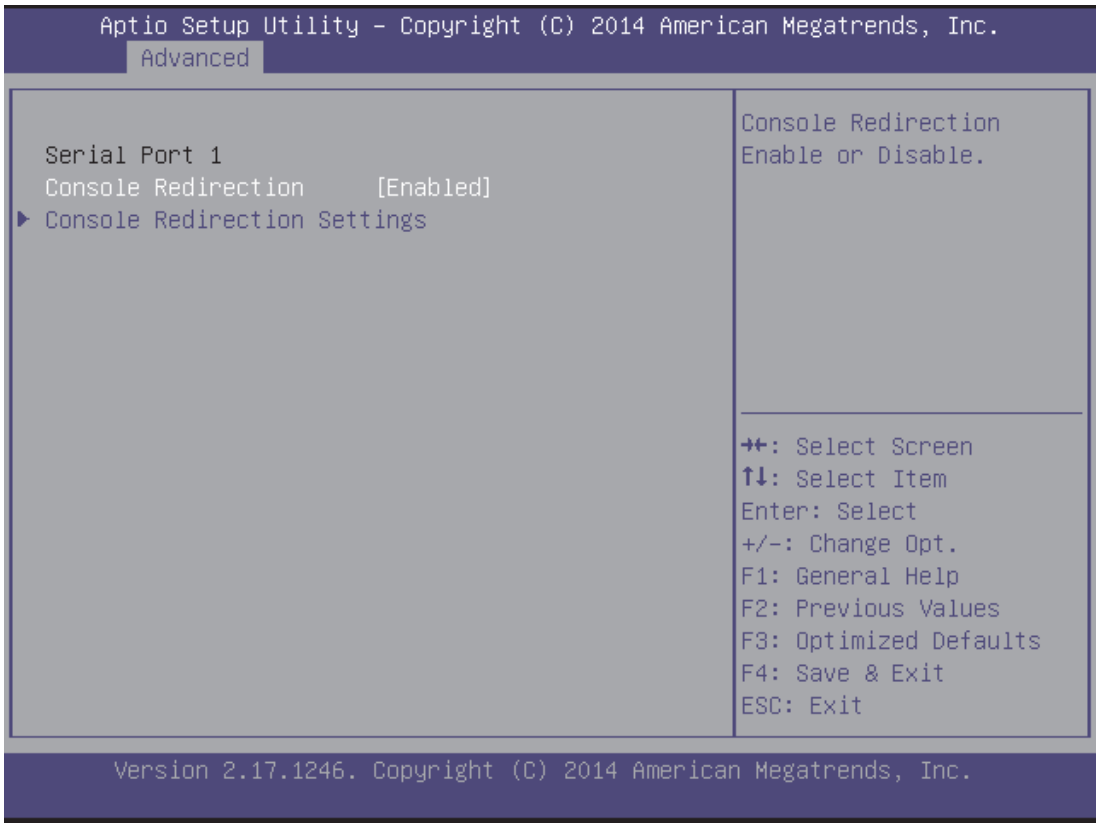
Change Settings

Select an optimal setting for Super IO device.

3.4.3 NCT6791D HW Monitor



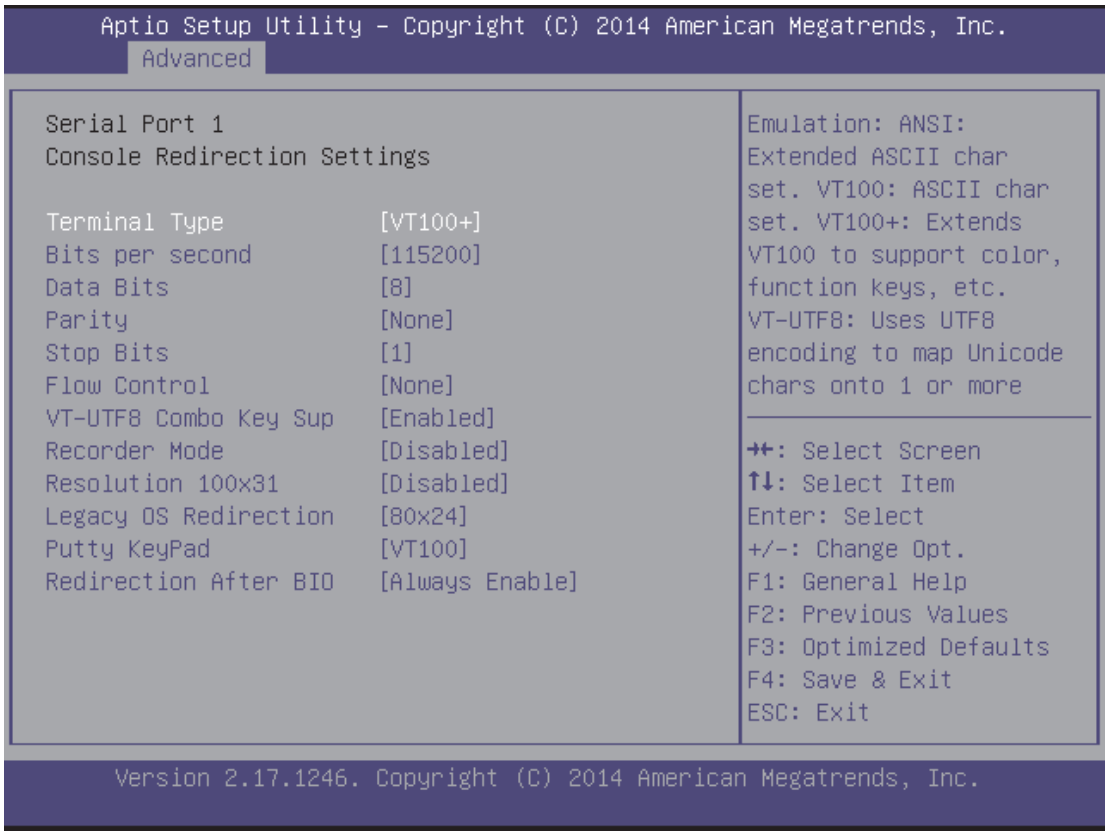
3.4.4 Serial port Console Redirection



Console Redirection

Console Redirection Enabled or Disabled.

3.4.4.1 Console Redirection Settings



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

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

Data Bits

Set your 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.

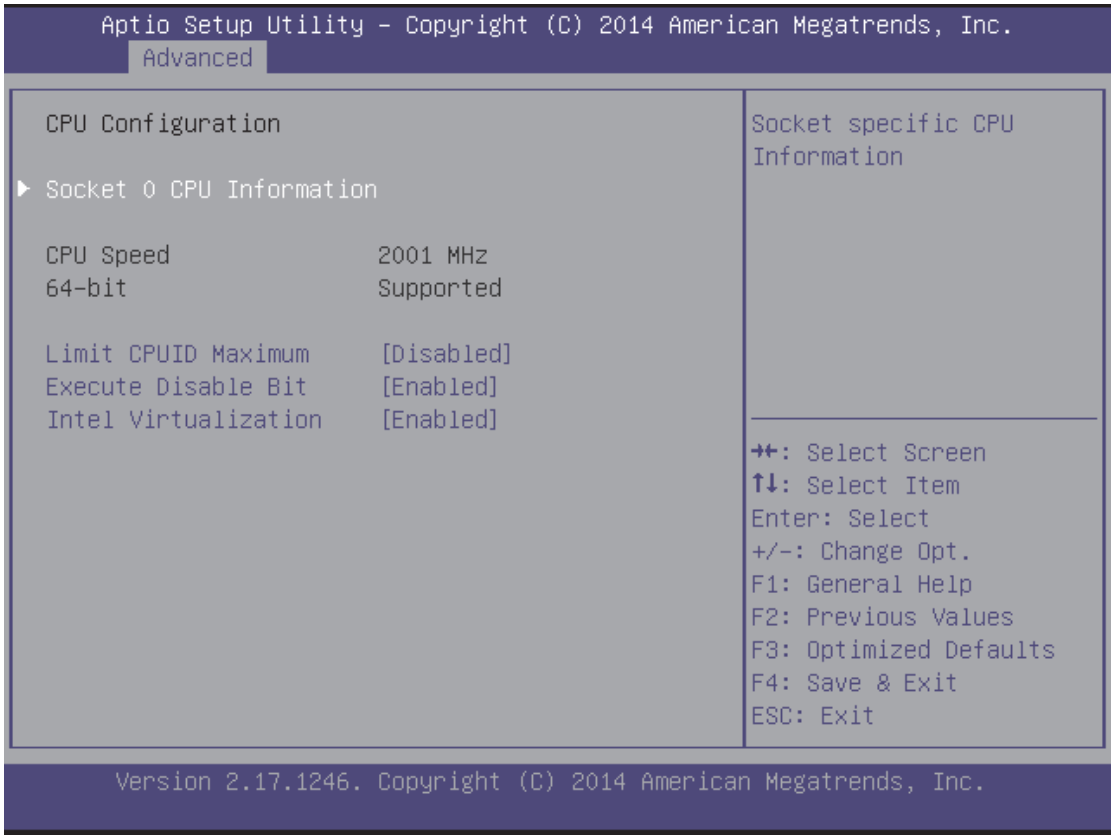
Resolution 100x31
Enabled or disabled extended terminal resolution.

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

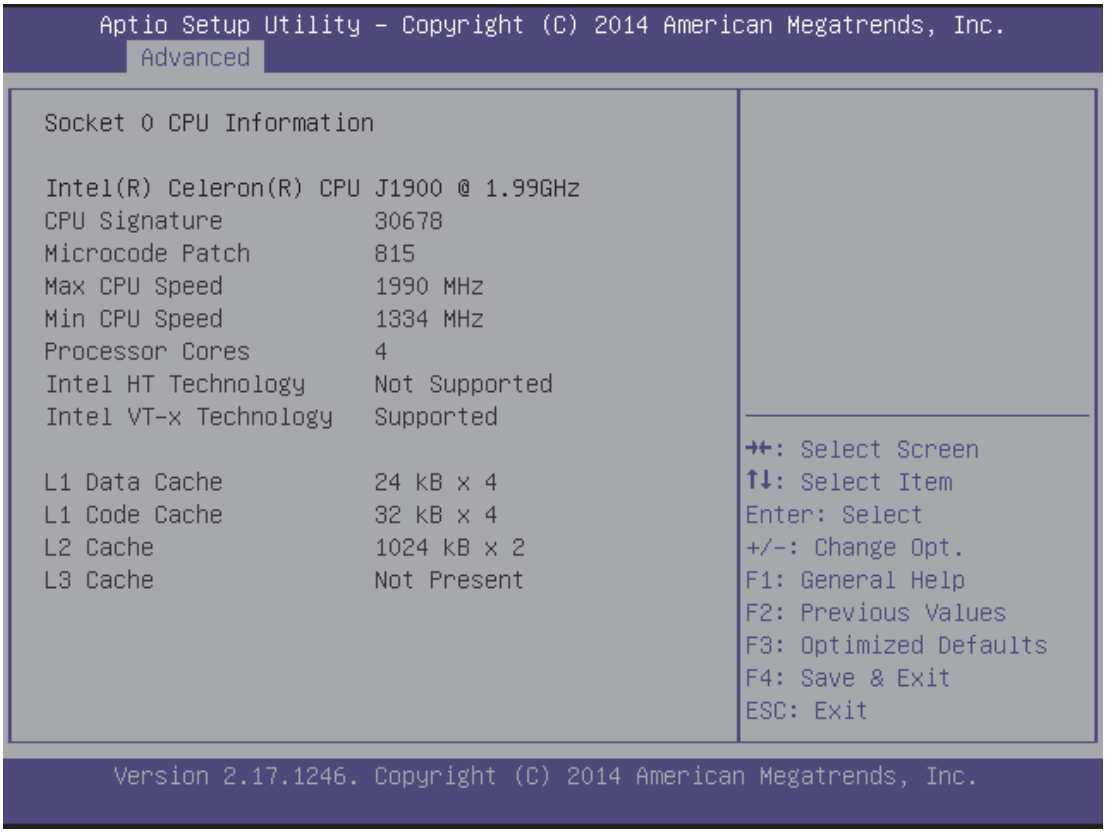
Putty KeyPad
Select Function Key and KeyPad on Putty.

Redirection After BIOS POST
The Settings specify if BIOS 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.

3.4.5 CPU Configuration
This sub menu shows the CPU-related information which is automatically detected by BIOS.



Socket 0 CPU Information



Active Processor Cores

Number of cores to enable in each processor package.

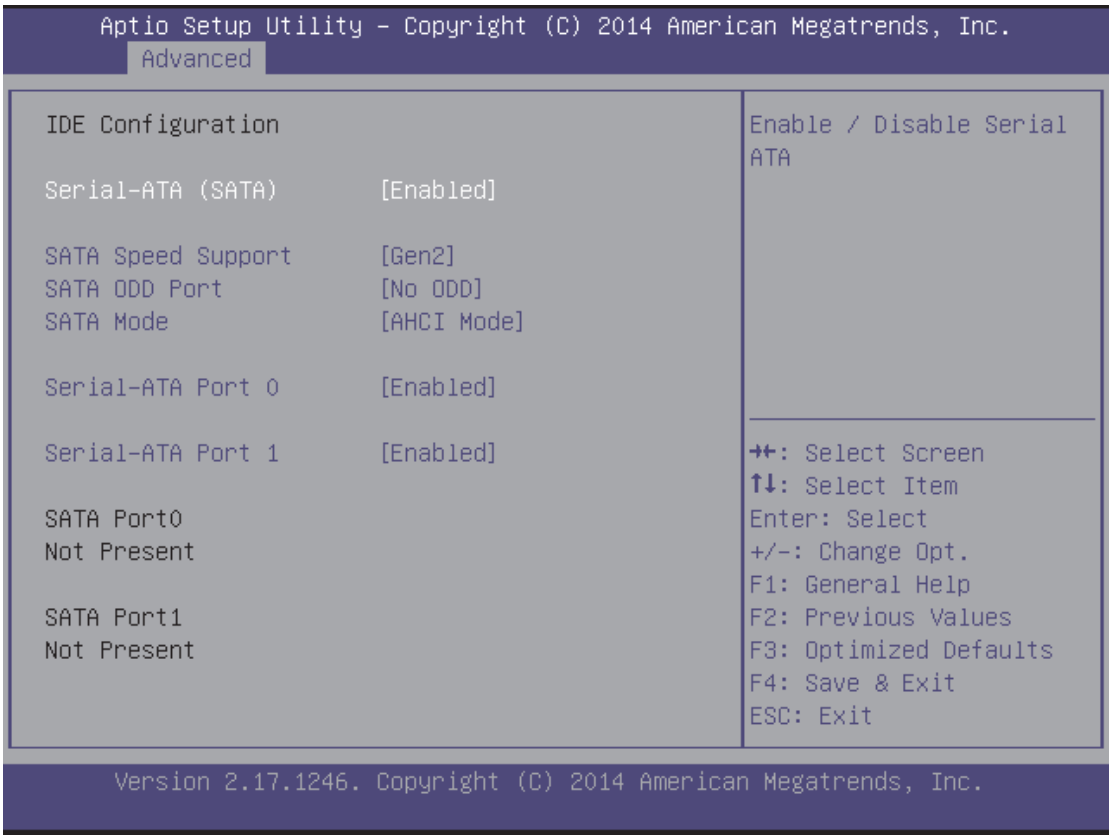
Limit CPUID Maximum
Disabled for Windows XP.

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.)

Intel Virtualization Technology
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology**.**

3.4.6 IDE Configuration

This sub menu allows you to set or change the configurations for the IDE devices installed in the system.



Serial-ATA (SATA)
Enabled or Disabled Serial-ATA.

SATA Speed Support

Select SATA Speed by Gen1 or Gen2.

SATA ODD Port

No ODD mode: HDD or SSD. ODD mode: ODD

SATA Mode

(1) IDE Mode.

(2) AHCI Mode.

(3) RAID Mode.

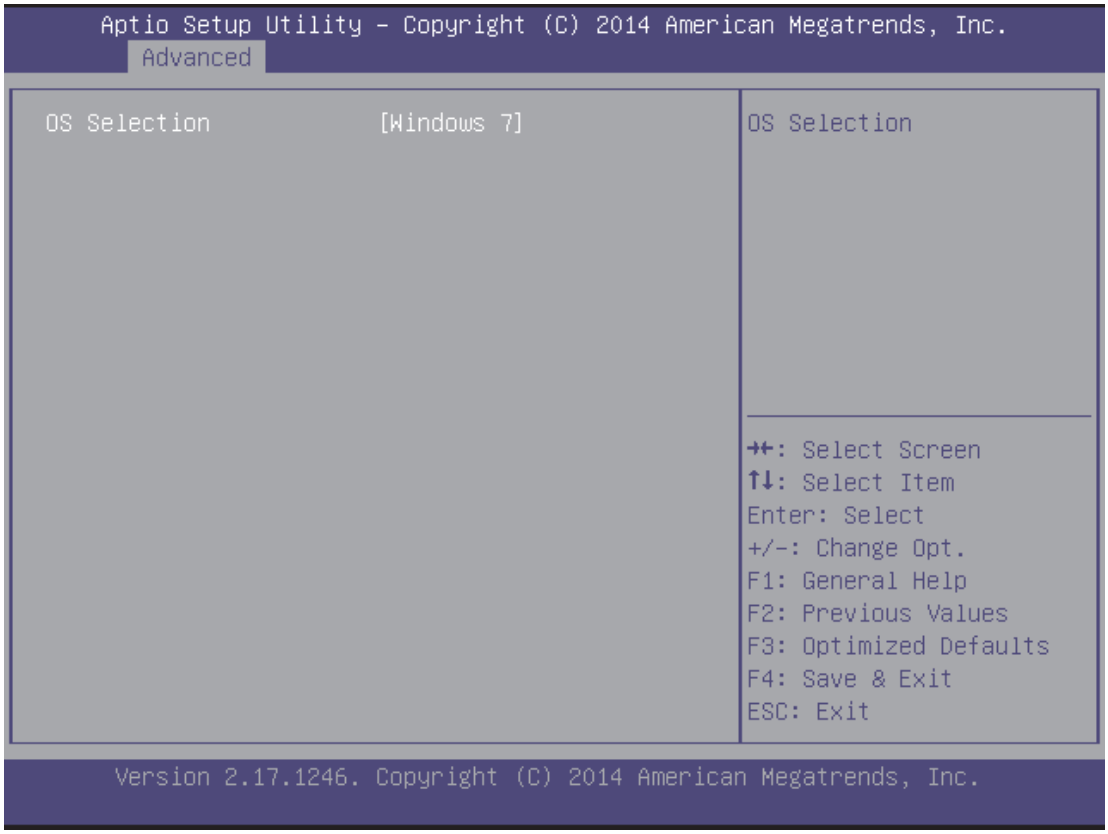
Serial-ATA port 0

Enabled or Disabled Serial-ATA port 0.

Serial-ATA port 1

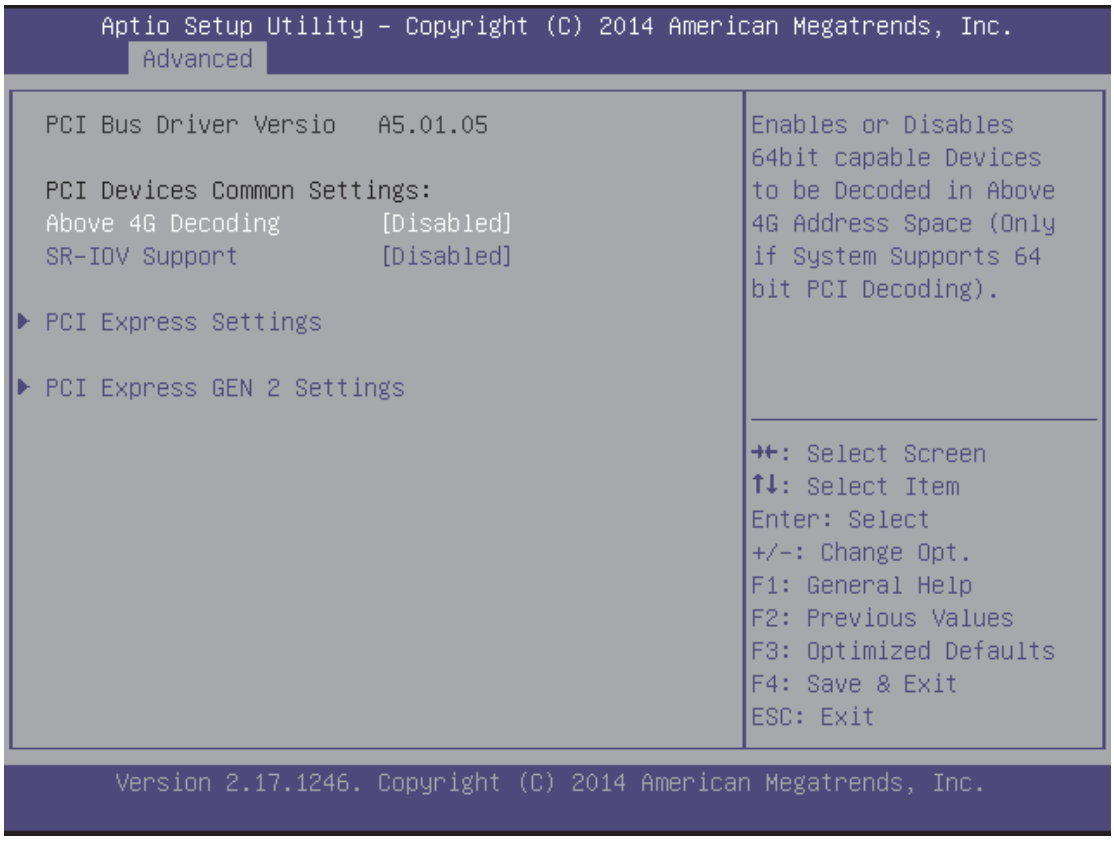
Enabled or Disabled Serial-ATA port 1.

3.4.7 OS Selection



Select your OS in this device.

3.4.8 PCI Subsystem Settings



Above 4G Decoding

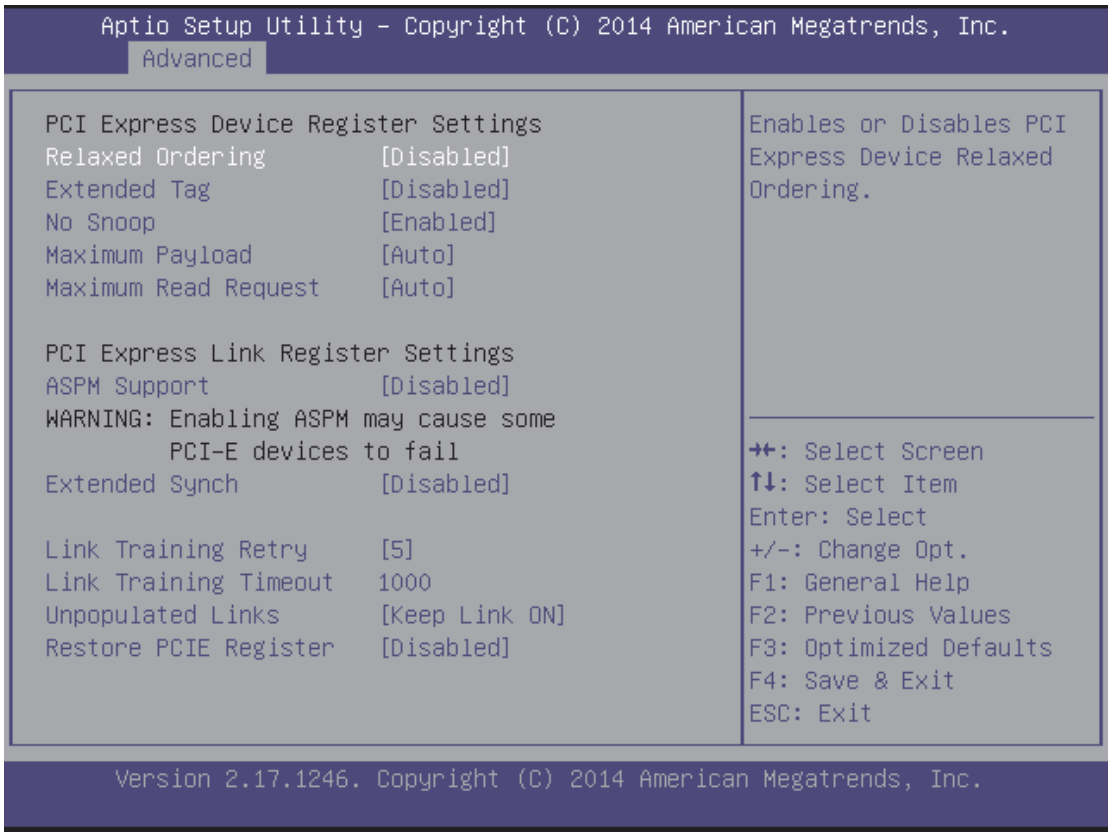
Enabled or Disabled 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).

SR-IOV Support

Enabled or Disabled SR-IOV mode.

3.4.8.1 PCI Express Settings

This sub menu is used to change the settings for the PCI Express.



Relaxed Ordering

Enabled or Disabled Relaxed Ordering function.

Extended Tag

Enabled or Disabled Extended Tag function.

No Snoop

Enabled or Disabled PCI Express Device No Snoop option.

Maximum Payload

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

Maximum Read Request

Set Maximum Read Request Size of PCI Express Device or allow System BIOS to select the value.

PCI Express Link Register Settings

ASPM Support

Enabled or Disabled ASPM support.

Extended Synch

Enabled or Disabled Extended Synch.

Link Training Retry

Use this item to define number of retry attempts software will take to retrain the link if previous training attempt was unsuccessful.

Link Training Timeout

Use this item to define number of microseconds software will wait before polling 'Link Training' bit in link status register. Value range from 10 to 1000uS.

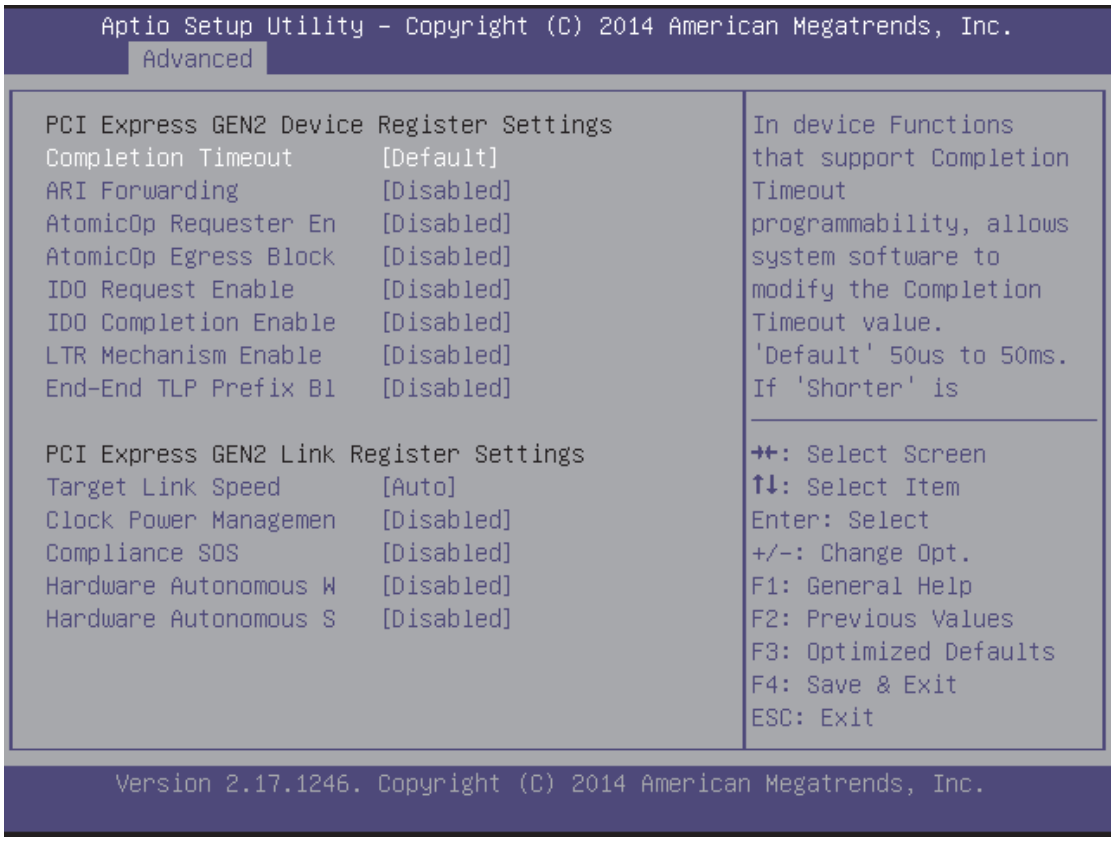
Unpopulated Links

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

Restore PCIE Register

Enabled or Disabled PCIE Register restored.

3.4.8.2 PCI Express GEN 2 Settings



PCI Express GEN 2 Device Register Settings

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 support 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.

PCI Express GEN 2 Link Register Settings

Target Link Speed

If supported by hardware and set 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 HW initialized data will be used.

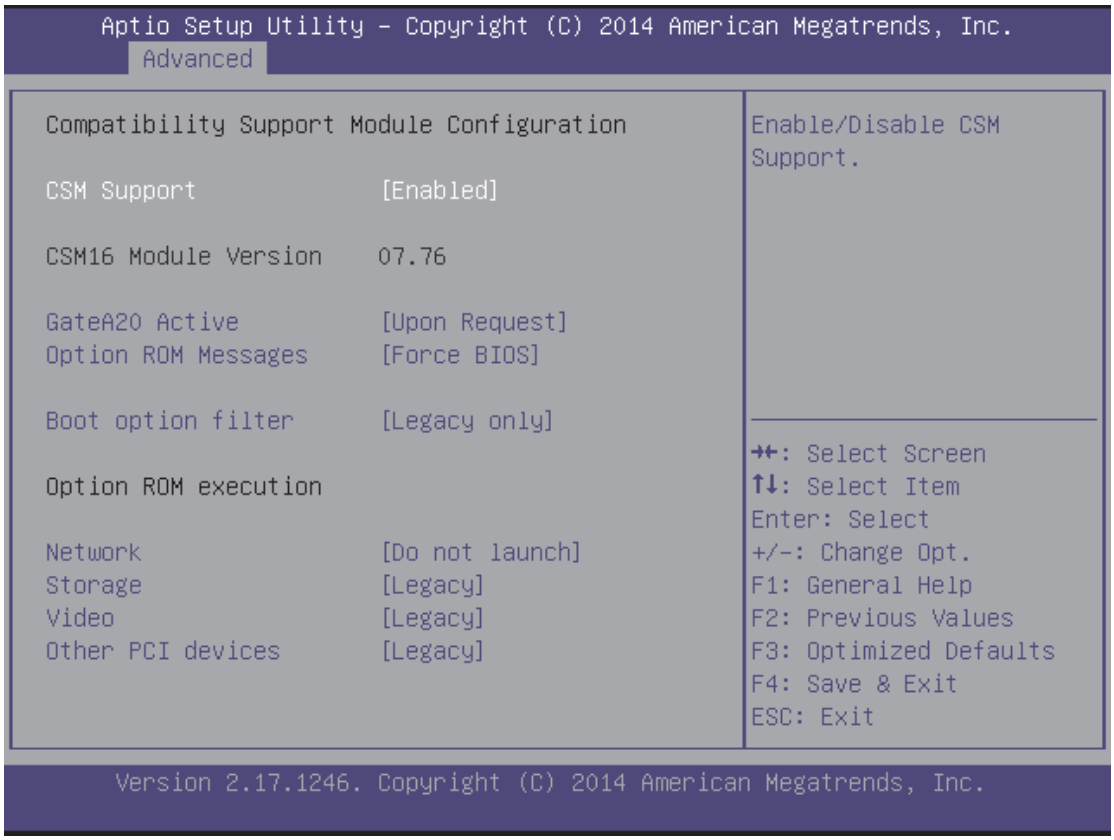
Clock Power Management
If supported by hardware and set to ‘Enabled’, the device is permitted to use CLKREQ# signal for power management of Link clock in accordance to protocol defined in appropriate form factor specification.

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.

3.4.9 CSM Configuration



CSM Support

Enabled or Disabled 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

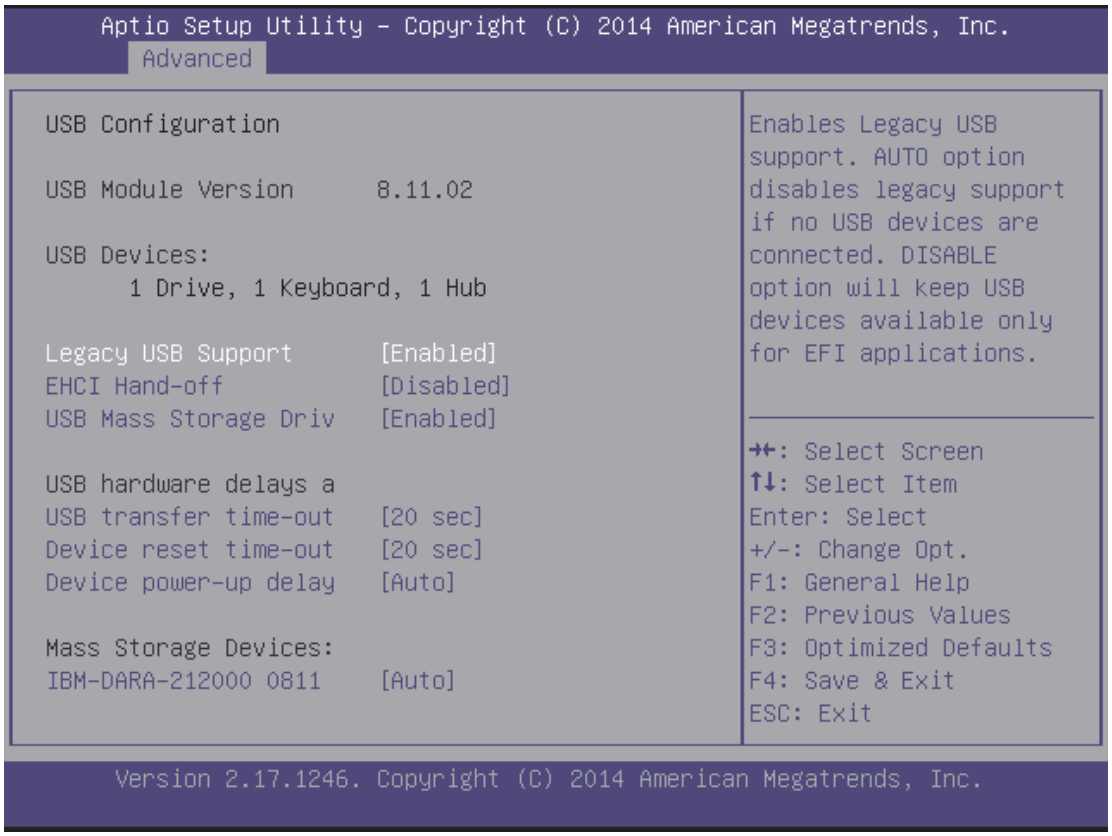
Set display mode for Option ROM.

Boot option filter

This option controls what devices system can boot to.

3.4.10 USB Configuration

This sub menu allows you to change the USB-related features.



Legacy USB Support

Enabled 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.

USB Mass Storage Device Configuration

Configure the USB Mass Storage Devices.

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

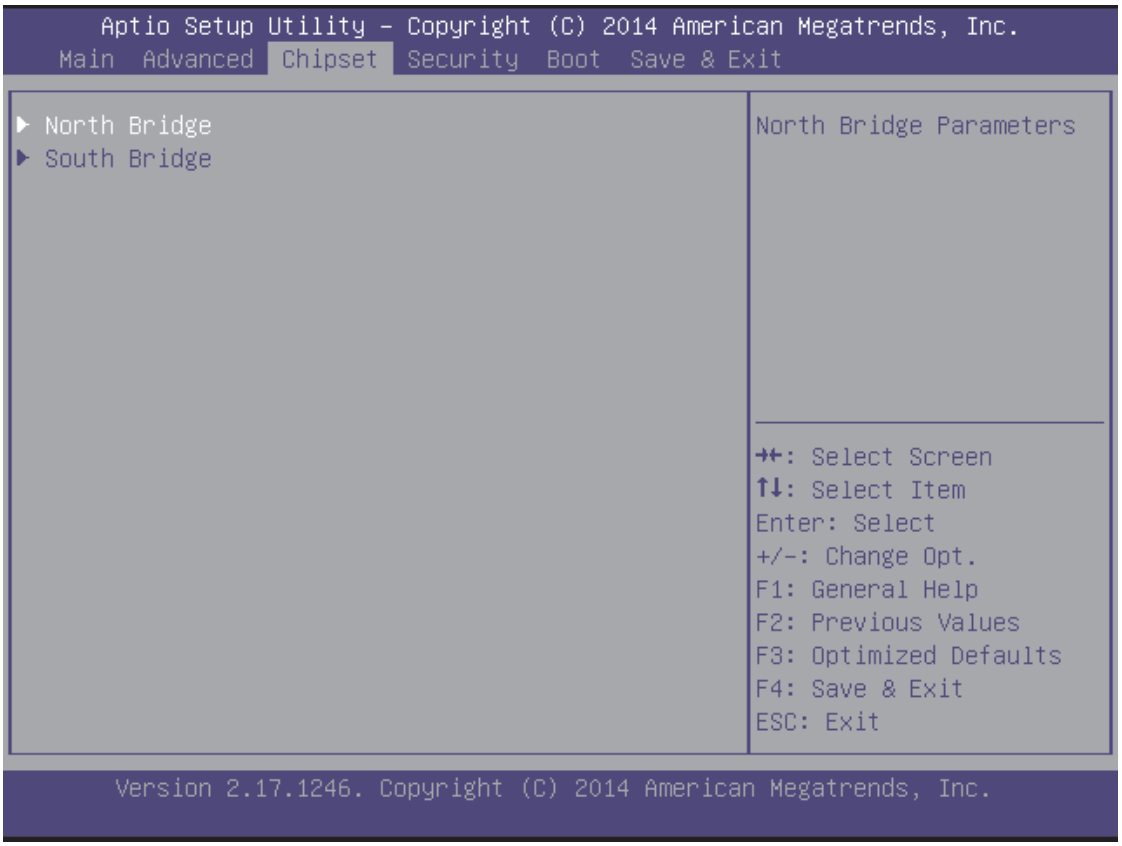
Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port

the delay is taken from Hub descriptor.

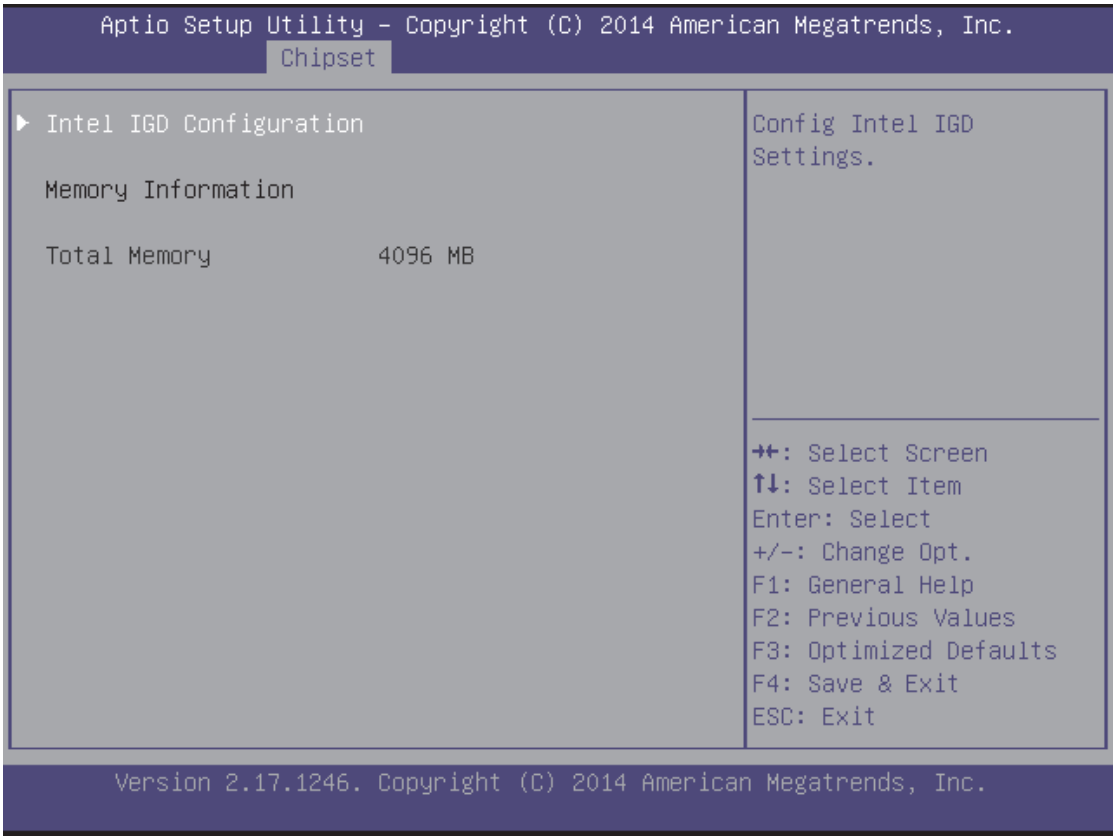
Mass storage devices

Scan your USB port device.

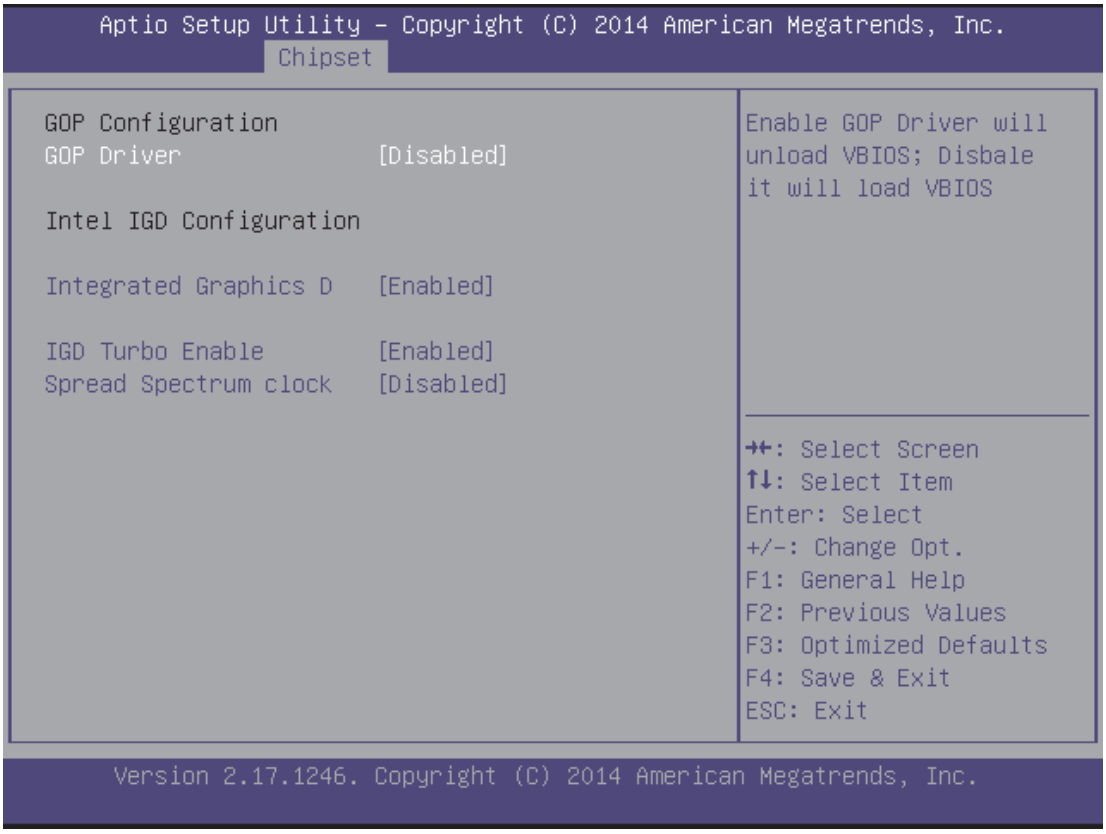
3.5 Chipset Menu



3.5.1 Chipset / North Bridge



3.5.1.1 Chipset / North Bridge/ Intel IGD Configuration



GOP Driver

Enabled or Disabled GOP Driver.

Integrated Graphics Device

Enabled or Disabled Integrated Graphics Device.

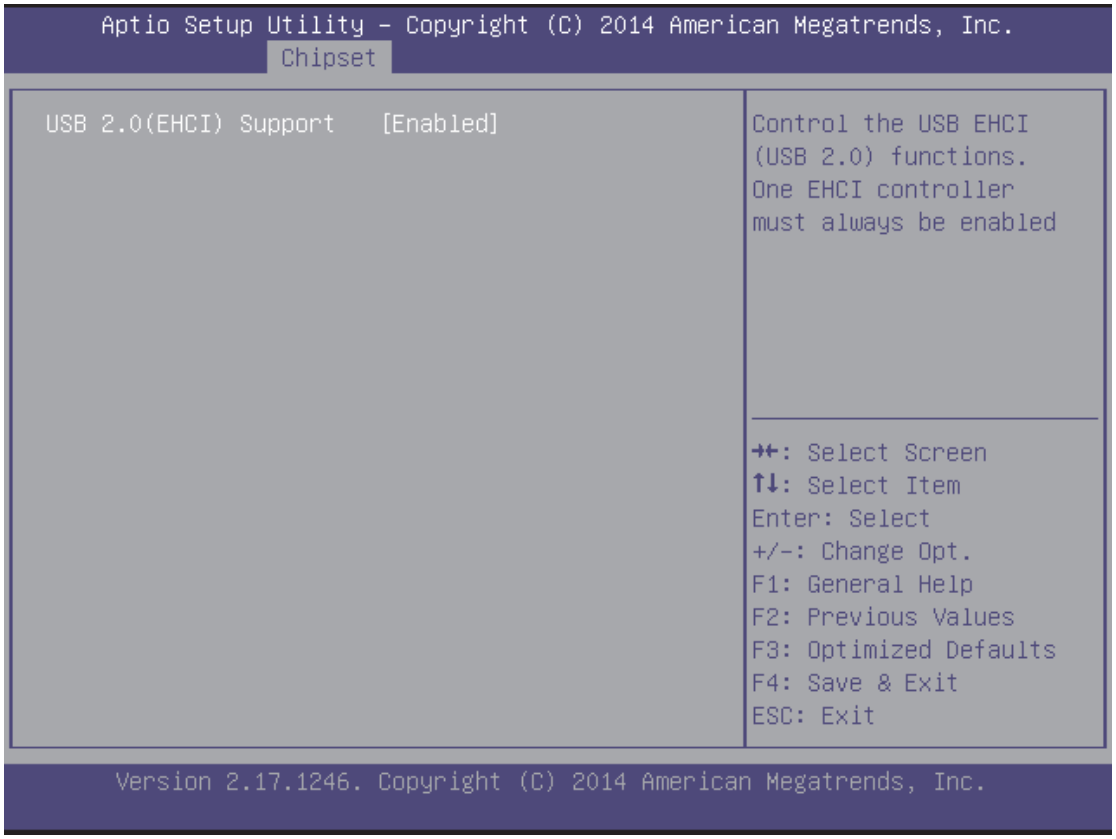
IGD Turbo Enable

Enabled or Disabled Integrated Graphics Device Turbo Mode.

Spread Spectrum clock

Enabled or Disabled Spread Spectrum clock.

3.5.2 Chipset / South Bridge



USB 2.0 (EHCI) Support

Enabled or Disabled USB2.0 (EHCI) Support.

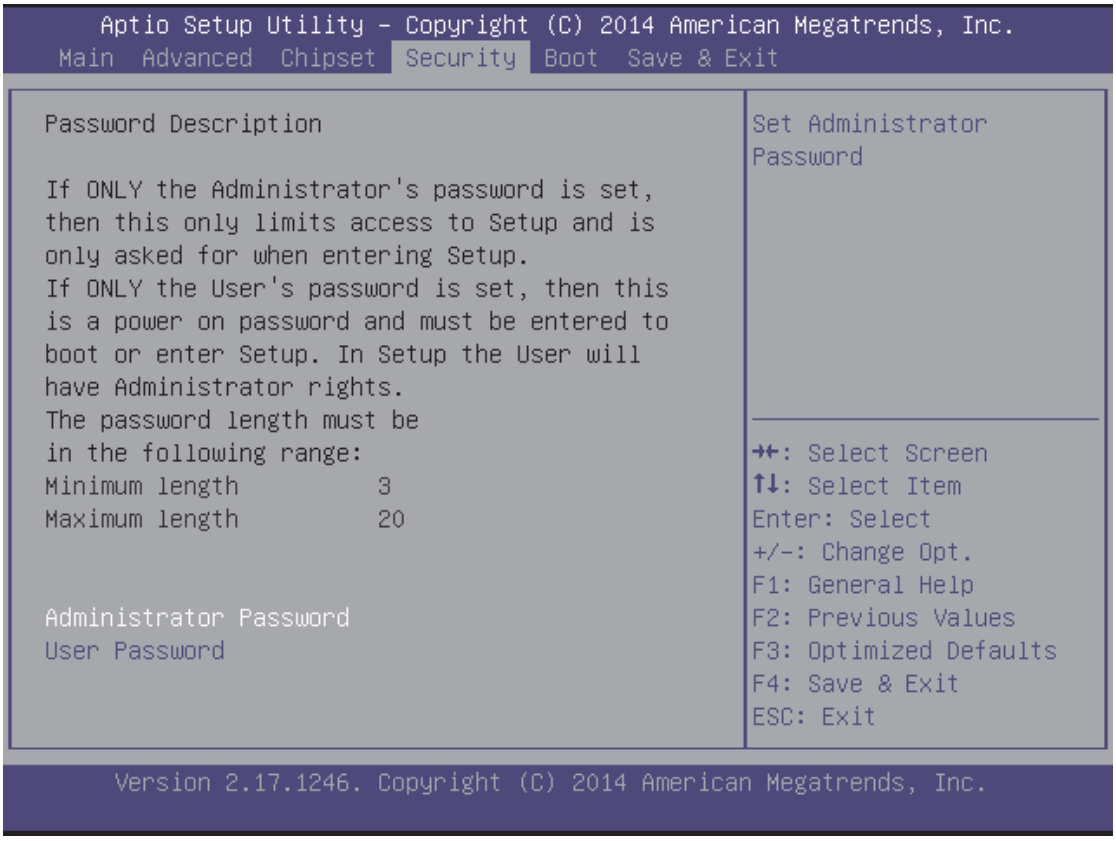
3.6 Security Menu

⇩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:

This item allows you to set or change the User password.

3.7 Boot Menu

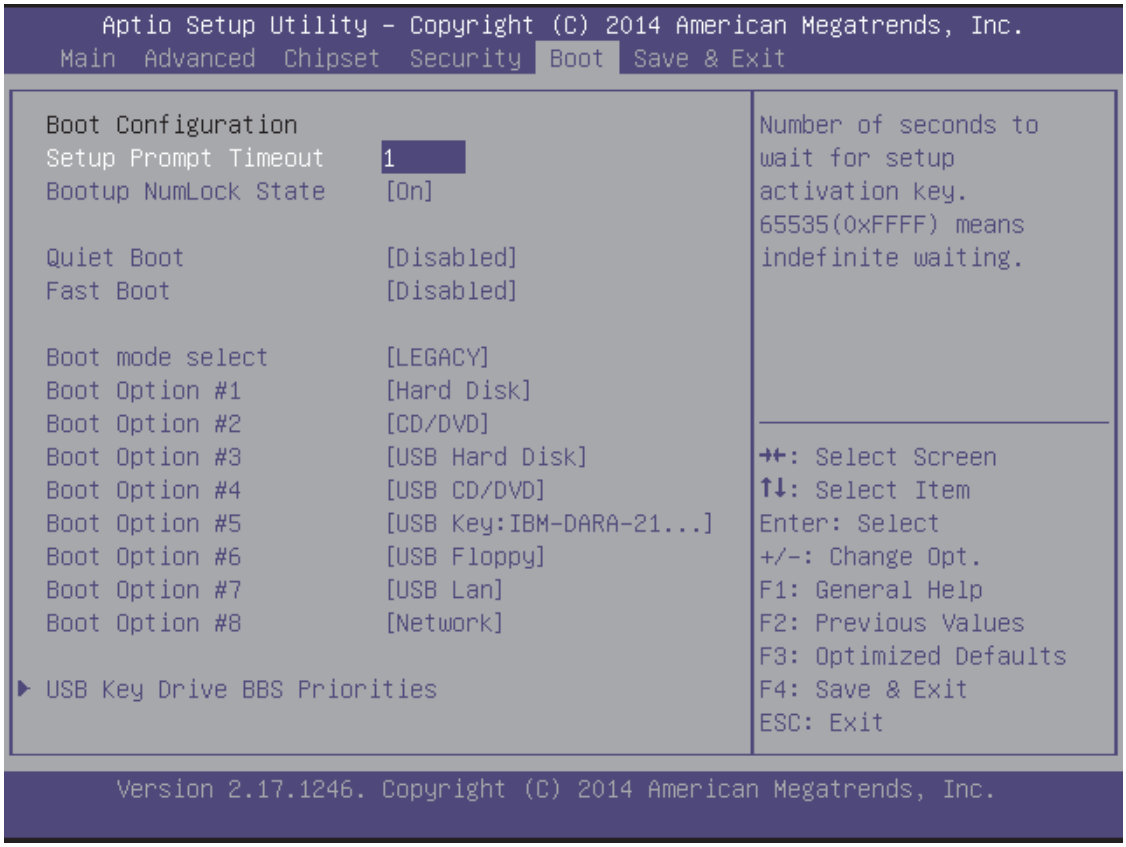
⇩ Use the Boot Setup option as follows:

1. Choose "Boot" 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 PnUP/PgDN Keys. For information on the various

options, press <F1> key .

3. After you have finished with the Boot setup, press the <ESC> key to return to the main menu.



Setup Prompt Timeout

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

Bootup NumLock Stat

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

Quiet Boot

Enabled or Disabled quiet boot option.

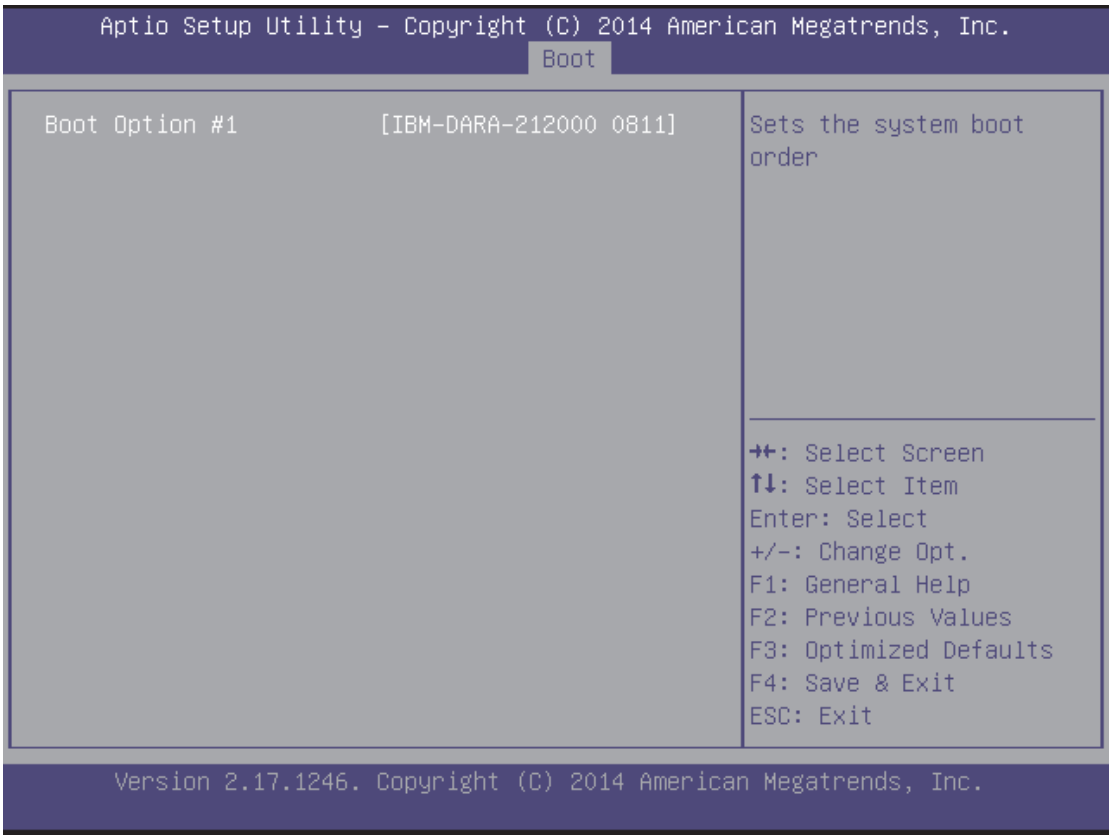
Boot mode select

Select Legacy BIOS or UEFI Boot Mode

Boot Option #1~#8

Set the system Boot Priority.

3.7.1 USB Key Drive BBS Priorities



Boot Option #1~8

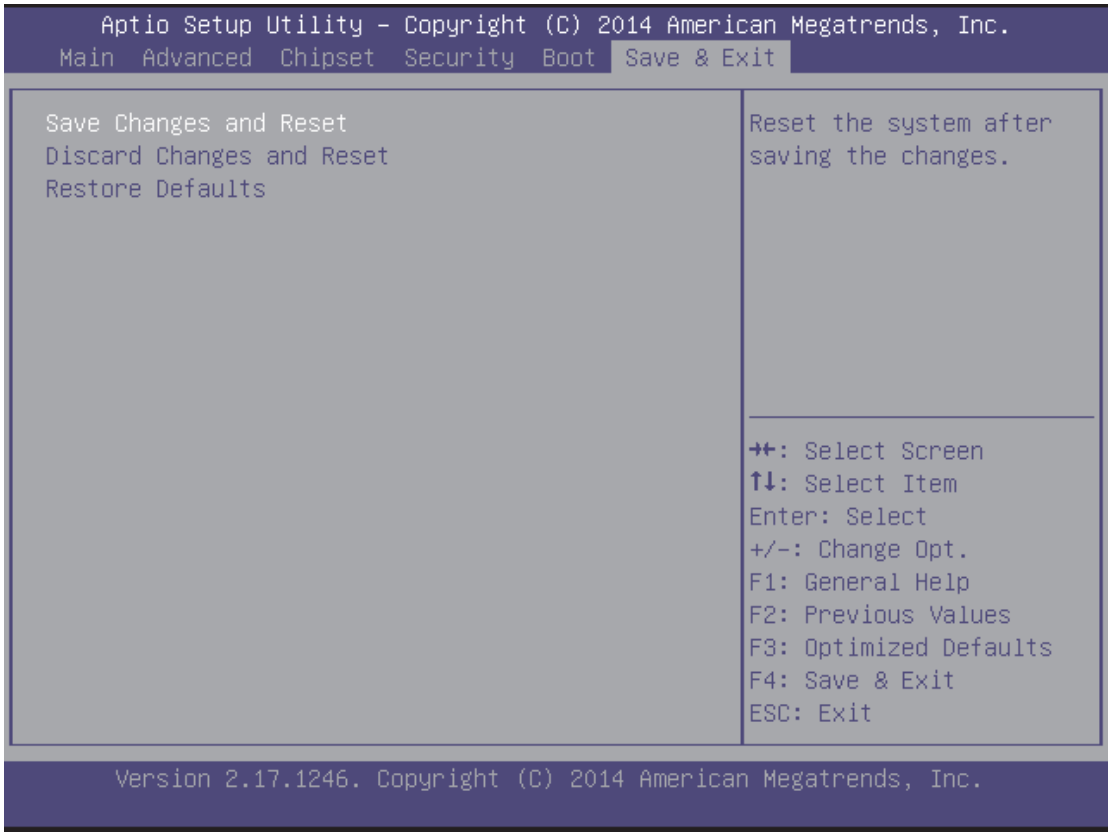
Set the USB boot priority order.

3.8 Exit Menu

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

⇩Use the Save & Exit option as follows:

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



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 default 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 4. Utility & Driver Installation

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

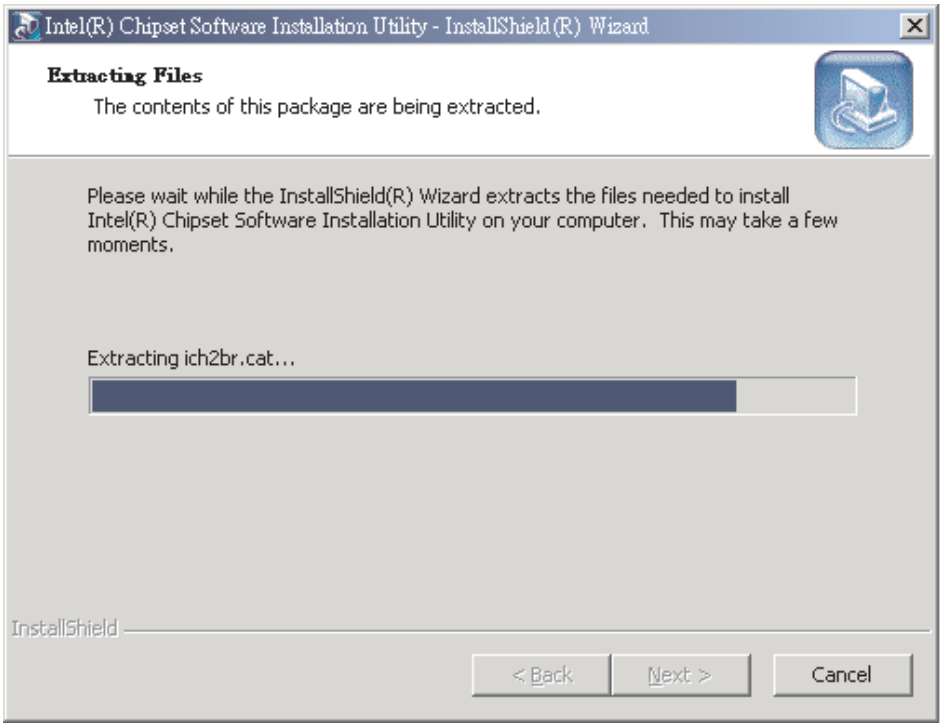
4.1 Operation System Supporting

PL-10510 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®	Windows® 7 Ultimate SP1x64
Linux®	Redhat Enterprose Linux 6.4 Fedora 20 Ubuntu 14.01 server

4.2 System Driver Installation

PL-10510 offers the system driver in the setup CD. Please install the driver following the procedures.



4.3 LAN Driver Installation

PL-10510 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-10510 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 : Programming the Watchdog Timer

The PL-10510 provides a watchdog timer that resets the CPU or enables LAN bypass mode. This function ensures greater system reliability in industrial stand-alone and unmanned environments.

In order to enable the watchdog timer, you have to output the value of the watchdog timer interval to the controller. The value range is from 01H to FFH, and the related time watchdog timer interval is 1 sec to 255 sec.

Data	Timer interval
00	Disabled
01	1 sec
02	2 sec
*	*
*	*
FF	255 sec

If you want to disable the watchdog timer, just set the timer interval value to 00H.

After setting the timer interval value, the watchdog timer begins to count down. You have to refresh the watchdog timer, so that the watchdog timer will return to its initial value; otherwise, your system will reset after a time-out. Please reference the sample code (includes in CD) that shows how to set the watchdog timer.

Appendix B : LAN Bypass Function (optional)

The power on default for CN24 & CN25 (CN26 & CN27) LAN ports is set to normal state.

How to control LAN 1&2 (LAN 3&4) bypass function by watchdog timer

Please follow below steps to set the LAN bypass function control by watchdog timer:

1. Setup jumper JP2 (JP3) to 1-2 shorted to enable bypass function.
2. Setup JP5 to 2-3 to enable bypass function by watchdog timer.
3. Refer to Appendix A to set timer interval value and enable watchdog timer.

After setting the timer interval value, the watchdog timer begins to count down. You have to refresh the watchdog timer, so that the watchdog timer will return to its initial value; otherwise, your system will set CN24 & CN25 (CN26 & CN27) LAN ports to bypass state after a time out.

Note: Once the watchdog timer time-out you need to restart the system to reset the timer.

How to control LAN 1&2 (LAN 3&4) bypass function by GPIO

Please follow below steps to set the LAN bypass function control by GPIO:

1. Setup jumper JP2 (JP3) to 1-2 shorted to enable bypass mode.
2. Please reference the sample code (includes in CD) and set CN24 & CN25 (CN26 & CN27) LAN ports to Bypass state or Normal state.

Appendix C: Cable Development Kit

The PL-10510 offers various cables for development use.

DK001

Item & Description	Part No.	Qty
Ethernet Cat.5 Cable 2M/ RoHS	CB-EC5200-01	1
Cross Over 2M Color/ RoHS	CB-CO5204-01	1
RJ45 to DB9 2M Cable/ RoHS	CB-RJDB91-01	1
VGA CABLE (2mm) 15CM/ RoHS	CB-IVGA01-00	1
2m null modem cable/ RoHS	CB-DB9200-01	1
KB/MS CABLE 15CM/ RoHS	CB-IPS200-00	1
USB CABLE/ RoHS	CB-IUSB01-00	1

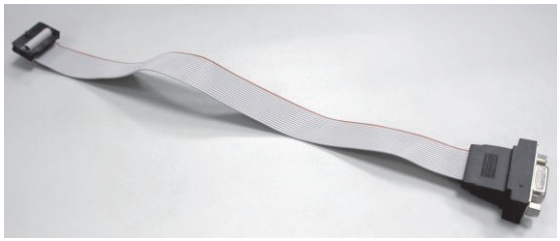
CB-EC5200-01

CB-CO5204-01

CB-RJDB91-01

CB-DB9200-01

CB-IVGA01-00



CB-IPS200-00

CB-IUSB01-00