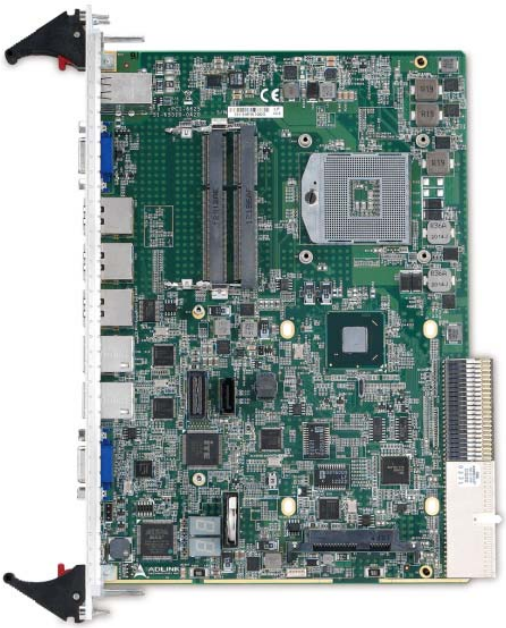
cPCI-6625 Series

6U CompactPCI Processor Blade
with 2nd Generation Intel® Core™ i7/i3

User's Manual



Manual Rev.	2.01
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Revision History

Revision	Release Date	Description of Change(s)
2.00	04/03/2014	Initial release
2.01	28/03/2014	Correct J2 pin definitions

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Preface

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Using this Manual

Audience and Scope

The cPCI-6625 User's Manual is intended for hardware technicians and systems operators with knowledge of installing, configuring and operating industrial grade CompactPCI modules.

Manual Organization

This manual is organized as follows:

Chapter 1, Overview: Introduces the cPCI-6625, its features, block diagrams, and package contents.

Chapter 2, Specifications: Presents detailed specification information, and power consumption.

Chapter 3, Functional Description: Describes the cPCI-6625's main functions.

Chapter 4, Board Interfaces: Describes the cPCI-6625 board interfaces, pin definitions, and jumper settings.

Chapter 5, Getting Started: Describes the installation instructions of the cPCI-6625.

Chapter 6, Drivers & Utilities: Describes the driver installation procedures.

Chapter 7, BIOS Setup Utility: Describes the AMI EFI BIOS setup utility.

Important Safety Instructions: Presents safety instructions all users must follow for the proper setup, installation and usage of equipment and/or software.

Getting Service: Contact information for ADLINK's worldwide offices.

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Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.


NOTE:

Additional information, aids, and tips that help users perform tasks.


CAUTION:

Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.


WARNING:

Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

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1 Overview

1.1 Introduction

This manual provides information on the ADLINK cPCI-6625 Series blades. The cPCI-6625 is a 6U CompactPCI blade in dual slot width (8HP) form factor compliant with the PICMG 2.30 CompactPCI PlusIO standard with an ultra hard metric (UHM) J2 connector. The cPCI-6626 is a 6U CompactPCI blade in dual slot width (8HP) form factor compliant with the CompactPCI 2.0 CompactPCI R3.0 standard with hard metric J2 connector. The design of both blades is based on the 2nd Generation Intel® Core™ i7-2710QE and Core™ i3-2330E with Mobile Intel® HM65 Express Chipset. The cPCI-6625 and the cPCI-6626 are value 6U CompactPCI blades that offer high speed data transfer rate and reliability.

The cPCI-6625 Series supports dual-channel un-buffered DDR3-1066/1333 memory up to a maximum capacity of 16GB. Graphics is integrated in the processor and output is provided through two VGA ports on the front panel.

The cPCI-6625 Series feature four PCI-Express Intel® 82583V Gigabit Ethernet controllers. The Ethernet connections can be accessed through two Ethernet ports on the front panel and two routed to J2 connector. The cPCI-6625 and cPCI-6626 also offer six RS-232 serial ports via three RJ-45 connectors (2 serial ports per connector), and four Type-A USB 2.0 ports on the front panel. Storage features of the cPCI-6625 and cPCI-6626 include a SATA 6 Gb/s direct connector interface with mounting space for a 2.5" HDD/SSD, a SATA 6Gb/s 7-pin on board and four SATA 3Gb/s ports signals routed to J2 connector.

The cPCI-6625 Series additionally reserves one PCI-Express x4 onboard for a layer 2 expansion card that can provide maximum of four PCI-Express x1 via Molex 74960-3018 on the front panel. The cPCI-6625 and the cPCI-6626 also provide four PCI-Express x1 to the J2 connector.

The cPCI-6625 Series supports the 32-bit/33MHz CompactPCI interface and operates in a system slot only.

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1.2 Features

- Supports quad-core Intel® Core™ i7-2710QE or dual core Core™ i3-2330E processor
- Up to 16GB DDR3-1333 memory in two SODIMMs
- PICMG® 2.30 CompactPCI PlusIO compliant
- PCIe x4 onboard for expansion

1.3 Block Diagram

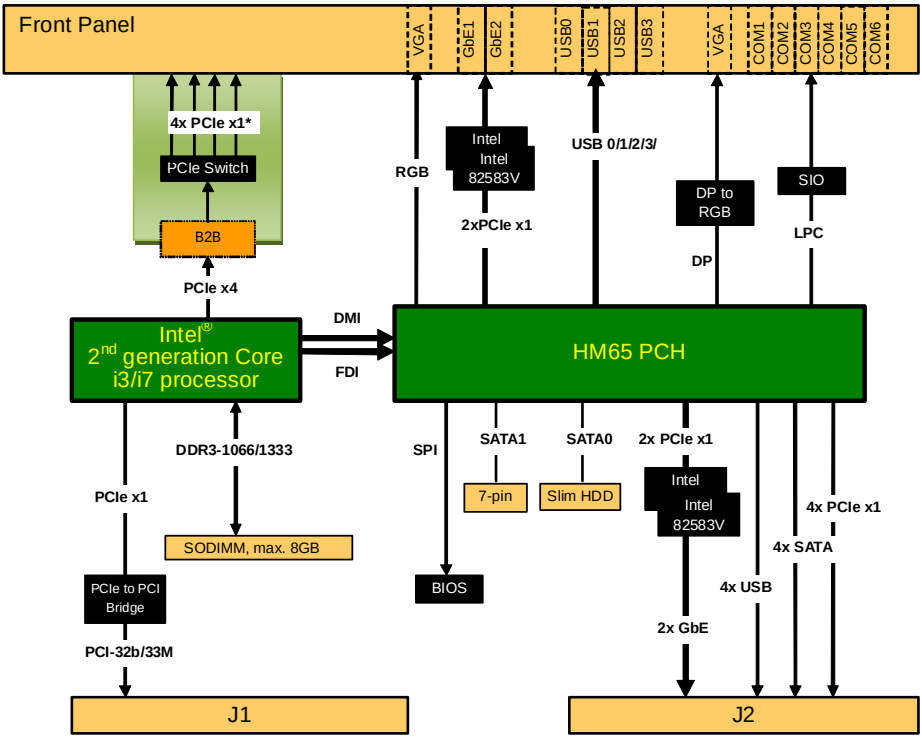


Figure 1-1: cPCI-6625 Series Block Diagram

NOTE: Board-to-board connector reserved for 4x PCI x1 expansion to Front Panel via daughter board. See your ADLINK representative for more information.

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1.4 Product List

Products in the cPCI-6625 Series include:

Processor Blade

- **cPCI-6625/2710/M4G:** 8HP dual slot 6U cPCI PlusIO blade featuring Intel Core i7-2710QE processor with one 4GB DDR3 SODIMM; GbE x2, COM x6, VGA x2, USB x4, onboard SATA 6Gb/s connector for 2.5" drive
- **cPCI-6626/2330/M4G:** 8HP dual slot 6U cPCI blade featuring Intel Core i3-2330E processor with one 4GB DDR3 SODIMM; GbE x2, COM x6, VGA x2, USB x4, onboard SATA 6Gb/s connector for 2.5" drive

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1.5 Package Contents

The cPCI-6625 is packaged with the components listed below. If any of the items in the contents list are missing or damaged, retain the shipping carton and packing material and contact the dealer for inspection. Please obtain authorization before returning any product to ADLINK. The packing contents of non-standard configurations may vary depending on customer requests.

Processor Blade

- The cPCI-6625 Series Processor Blade
  - CPU and memory specifications will differ depending on options selected
  - Thermal module is assembled onboard
- 2.5" SATA drive accessory pack
- One RJ-45 to DB-9 COM port converter cable
- ADLINK All-in-One DVD
- User's manual



The contents of non-standard cPCI-6625 Series configurations may vary depending on customer requests.



This product must be protected from static discharge and physical shock. Never remove any of the components except at a static-free workstation. Use the anti-static bag shipped with the product when putting the board on a surface. Wear an anti-static wrist strap properly grounded on one of the system's ESD ground jacks when installing or servicing system components.

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2 Specifications

2.1 cPCI-6625 Specifications

CompactPCI Standard	PICMG® 2.0 CompactPCI® Rev. 3.0 PICMG® 2.30 CompactPCI PlusIO
Mechanical	Standard 6U CompactPCI® Board size: 233.23 mm x 160 mm Dual slot width (8HP, 40.64 mm) CompactPCI® HM J1, UHM J2 connectors (for cPCI-6625) CompactPCI® HM J1, J2 connectors (for cPCI-6626)
Processor	2nd Generation Intel® Core™ processor in PGA package with passive heatsink • Intel® Core™ i7-2710QE, 2.1GHz,6MB LLC, 45W • Intel® Core™ i3-2330E, 2.2GHz, 3MB LLC, 35W
Chipset	Intel® HM65 Express Chipset
Memory	Dual channel unbuffered DDR3-1066/1333 memory Two 204-pin SODIMM sockets Up to 16GB
CompactPCI Bus	PCI 32-bit/33MHz; 3.3V, 5V universal V(I/O) Supports operation in system slot only
Ethernet	Four PCI-Express x1 Intel® 82583V Gigabit Ethernet controllers Two10/100/1000 BASE-T RJ-45 LAN ports on front panel Two routed to J2 connector
Graphics	Integrated in processor with 3D engine 2x DB-15 VGA port on front panel Supports DirectX 10.1, OpenGL 3.0
Serial Ports	Six RS-232 serial ports from Super I/O ITE IT8783 via three RJ-45 connectors on front panel (two RS-232 ports on each connector by adapter cable)
Storage	One 2.5" SATA 6 Gb/s direct connector onboard One 7-pin SATA 6 Gb/s port onboard Four SATA 3 Gb/s ports to J2
USB	Four USB 2.0 ports on front panel Four USB 2.0 signals routes to J2
PCI Express	One PCI-Express x4 port reserved for layer 2 daughter board Four PCI-Express x1 ports can be converted from daughter board Four PCI-Express ports routed to J2

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Hardware Monitor	Integrated in Super I/O ITE IT8783 Monitors CPU and system temperature, DC voltages Built-in watchdog timer
Watchdog Timer	System reset and NMI, with programmable interval, 1-65535 sec/min
BIOS	AMI® EFI BIOS 64Mbit SPI flash memory
Faceplate I/O	4x USB 2.0 ports (Type-A) 2x RJ-45 LAN ports 2x VGA port 3x RS-232 COM ports in RJ-45 connectors Storage device status LED (yellow) Power Status LED (green) WDT (red) Reset button
Battery	Coin cell lithium BR2032 in battery socket
OS Support	Windows XP Windows XP embedded Windows 7
Environmental	Operating Temperature: 0°C to 70°C Storage Temperature: -40°C to 85°C Operating Humidity: 95% non-condensing Non-Operating Humidity: 95% non-condensing
Shock	15G peak-to-peak, 11ms duration, non-operating
Vibration	Operating: 2Grms. 5 to 500Hz, each axis (with SSD)
Compliance	CE, FCC Class A

Table 2-1: cPCI-6625 Specifications

NOTE: Specifications are subject to change without prior notice.

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2.2 I/O Connectivity

cPCI-6625 Processor Blade

Function	Faceplate	Board	Rear J2
COM (RS-232)	Y[1] x6	—	—
LAN	Y x2	—	Y x2
USB 2.0	Y x4	—	Y x4
VGA	Y x2	—	—
SATA	—	Y[2] x2	Y[3] x4
PCI Express	—	Y[4]	Y x4
LEDs	Y[5] x3	—	—
Reset Button	Y	—	—
Clear CMOS Button	—	Y	—

Table 2-2: cPCI-6625 I/O Connectivity

Notes:

1. Six RS-232 ports via three RJ-45 connectors (two RS-232 ports on each connector by adapter cable)
2. One SATA 6 Gb/s direct connector for 2.5" onboard SATA drive and one SATA 6 Gb/s 7-pin port onboard
3. Four SATA 3 Gb/s ports
4. One PCIe x4 ports reserved for L2 daughter board
5. Power (green), storage device (yellow), WDT (red)

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2.3 Power Requirements

In order to guarantee a stable functionality of the system, it is recommended to provide more power than the system requires. **An industrial power supply unit should be able to provide at least twice as much power as the entire system requires of each voltage**. An ATX power supply unit should be able to provide at least three times as much power as the entire system requires.

The tolerance of the voltage lines described in the CompactPCI specification (PICMG 2.0 R3.0) is +5%/ -3% for 5, 3.3 V and ±5% for ±12V. This specification is for power delivered to each slot and it includes both the power supply and the backplane tolerance.

Voltage	Nominal Value	Tolerance	Max. Ripple (P - P)
5V	+5.0 VDC	+5% / -3%	50 mV
3.3V	+3.3 VDC	+5% / -3%	50 mV
+12V	+12 VDC	+5% / -5%	240 mV
-12V	-12 VDC	+5% / -5%	240 mV
V I/O (PCI I/O Buffer Voltage)	+3.3 VDC or +5 VDC	+5% / -3%	50 mV
GND			

Table 2-3: CompactPCI Input Voltage Characteristics

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Power Consumption

This section provides information on the power consumption of the cPCI-6625 when using Intel® 2nd generation Core processors with 8GB DDR3-1333 socket memory and ADLINK ASD26-MLC32G-CT SSD. Power consumption at 100% CPU usage was measured by running Intel® Thermal analysis Tool 4.3..

Quad Core Intel® Core i7-2710QE, 2.1 GHz, TDP 45W			
OS/Mode	**Current 5V**	**Current 3.3V**	**Total Power**
DOS/Idle mode	3.65 A	1.02 A	21.62 W
Windows XP/Idle mode	2.31 A	1.00 A	14.85 W
WinXP /100% CPU/Memory/Graphics stress	13.35 A	1.18 A	70.64 W
WinXP / 100% CPU/Memory/Graphics stress + Windows total system stress by BurnIn Test	14.55 A	1.18 A	76.64 W

Dual Core Intel® Core i3-2330E, 2.2 GHz, TDP 35W			
OS/Mode	**Current 5V**	**Current 3.3V**	**Total Power**
DOS/Idle mode	4.03 A	1.00 A	23.45 W
Windows XP/Idle mode	2.23 A	0.98 A	14.38 W
WinXP /100% CPU/Memory/Graphics stress	10.30 A	1.14 A	55.26 W
WinXP / 100% CPU/Memory/Graphics stress + Windows total system stress by BurnIn Test	11.44 A	1.18 A	61.09 W

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3 Functional Description

The following sections describe the cPCI-6625 Series features and functions.

3.1 Processors

The 2nd Generation Intel® Core™ processor family mobile are 64-bit, multi-core mobile processors built on 32- nanometer process technology. Based on a new micro-architecture, the processor is designed for a two-chip platform. The two-chip platform consists of a processor and Platform Controller Hub (PCH). The platform enables higher performance, lower cost, easier validation, and improved x-y footprint. The processor includes Integrated Display Engine, Processor Graphics and Integrated Memory Controller.

The table below lists the general specifications and power ratings of the CPUs supported by the cPCI-6625 Series.

Features	Core™ i7-2710QE	Core™ i3-2330E
No. of Cores/Threads	4/8	2/4
Clock	2.1 GHz	2.2 GHz
Max. Single Core Turbo Freq.	3 GHz	NA
Intel Smart Cache	6 MB	3 MB
DMI	5 GT/s	5 GT/s
Max. Power (TDP[1])	45 W	35 W
$T_{junction, MAX}$[2]	100ºC	100ºC

1. The highest expected sustainable power while running known power intensive applications. TDP is not the maximum power that the processor can dissipate.
2. Maximum junction temperature (T_j, Max). The maximum supported operating temperature.

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Supported Technologies

Features	Core™ i7-2710QE	Core™ i3-2330E
Intel® Turbo Boost Technology	2.0	No
Intel® Hyper-Threading Technology	Yes	Yes
Intel® vPro Technology	Yes	No
Intel® Virtualization Technology (VT-x)	Yes	Yes
Intel® Virtualization Technology for Directed I/O (Intel® VT-d)	Yes	No
Intel® Trusted Execution Technology	Yes	No
Intel® 64 Architecture	Yes	Yes
Thermal Monitoring Technologies	Yes	Yes

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Interfaces

- Two channels of DDR3 memory with a maximum of one SO-DIMM per channel
- Memory DDR3 data transfer rates of 1066 MT/s and 1333 MT/s
- 64-bit wide channels
- DDR3 I/O Voltage of 1.5 V
- 1Gb, 2Gb, and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices
- Using 4Gb device technologies, the largest memory capacity possible is 16 GB, assuming dual-channel mode with two x8, dual-ranked, un-buffered, non-ECC,
- SO-DIMM memory configuration
- The PCI Express port(s) are fully-compliant with the PCI-Express Base Specification, Revision 2.0
- 5 GT/s point-to-point DMI interface to PCH is supported
- The Processor Graphics contains a refresh of the sixth generation graphics core enabling substantial gains in performance and lower power consumption.
- DX10.1, DX10, DX9 support
- OGL 3.0 support
- FDI carries display traffic from the Processor Graphics in the processor to the legacy display connectors in the PCH

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3.2 Platform Controller Hub

The HM65 PCH provides extensive I/O support. Functions and capabilities include:

- PCI Express Base Specification, Revision 2.0 support for up to eight ports with transfers up to 5 GT/s
- ACPI Power Management Logic Support, Revision 4.0a
- Enhanced DMA controller, interrupt controller, and timer functions
- Integrated Serial ATA host controllers with independent DMA operation on up to six ports
- USB host interface with two EHCI high-speed USB 2.0 Host controllers and two rate matching hubs provide support for up to fourteen USB 2.0 ports
- Integrated 10/100/1000 Gigabit Ethernet MAC with System Defense
- System Management Bus (SMBus) Specification, Version 2.0 with additional support for I2C devices
- Supports Intel® High Definition Audio (Intel® HD Audio)
- Supports Intel® Rapid Storage Technology (Intel® RST)
- Supports Intel® Virtualization Technology for Directed I/O (Intel® VT-d)
- Integrated Clock Controller
- Analog and Digital Display ports
- Low Pin Count (LPC) interface
- Firmware Hub (FWH) interface support
- Serial Peripheral Interface (SPI) support

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3.3 Intel® Turbo Boost Technology

(Core™ i7-2710QE only)

Intel Turbo Boost Technology is a feature that allows the processor to opportunistically and automatically run faster than its rated operating core and/or render clock frequency when there is sufficient power headroom, and the product is within specified temperature and current limits. The Intel Turbo Boost Technology feature is designed to increase performance of both multi-threaded and single-threaded workloads. The processor supports a Turbo mode where the processor can use the thermal capacity associated with package and **run at power levels higher than TDP power for short durations**. This improves the system responsiveness for short, bursty usage conditions.

Turbo Mode availability is independent of the number of active cores; however, the Turbo Mode frequency is dynamic and dependent on the instantaneous application power load, the number of active cores, user configurable settings, operating environment, and system design. If the power, current, or thermal limit is reached, the processor will automatically reduce the frequency to stay with its TDP limit.

3.4 Intel® Hyper-Threading Technology

Intel® Hyper-Threading Technology allows an execution core to function as two logical processors. While some execution resources (such as caches, execution units, and buses) are shared, each logical processor has its own architectural state with its own set of general-purpose registers and control registers. This feature must be enabled using the BIOS and requires operating system support. Intel recommends enabling Hyper-Threading Technology with Microsoft Windows 7, Vista, and XP, and disabling Hyper-Threading Technology using the BIOS for all previous versions of Windows operating systems.

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3.5 Battery

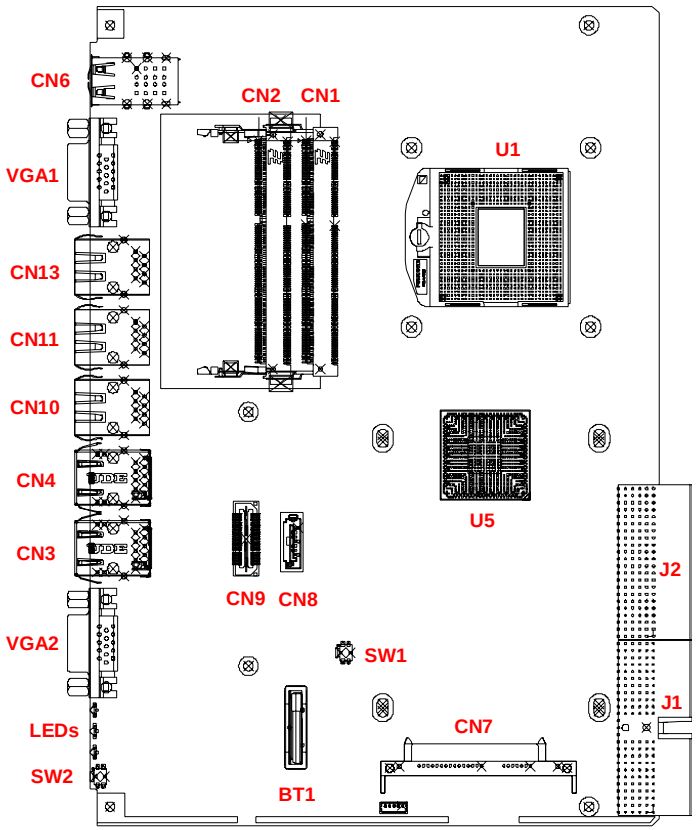
The cPCI-6625 is equipped with a 3.0V "coin cell" lithium battery for the Real Time Clock (RTC). The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer. A Rayovac BR2032 is equipped on board by default.

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4 Board Interfaces

This chapter describes the board layout, connector pin assignments, and jumper settings of the cPCI-6625 Series.

4.1 cPCI-6625 Series Board Layout



U1/U5	CPU/PCH	**CN1/2**	SODIMM sockets
J1/J2	CompactPCI connectors	**CN3/4**	RJ-45 LAN ports
SW1	Clear CMOS button	**CN6**	USB 2.0 ports
SW2	Reset button	**CN7**	SATA direct connector
LEDs	HDD/Power Status	**CN8**	SATA 7-pin connector
BT1	Battery socket	**CN9**	Board to board connector
VGA1/2	VGA ports	**CN10/11/13**	RJ-45 serial ports

Figure 4-1: cPCI-6625 Series Board Layout

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4.2 cPCI-6625 Assembly Layout

This section illustrates the final assembly layout of the single slot cPCI-6625 blade.

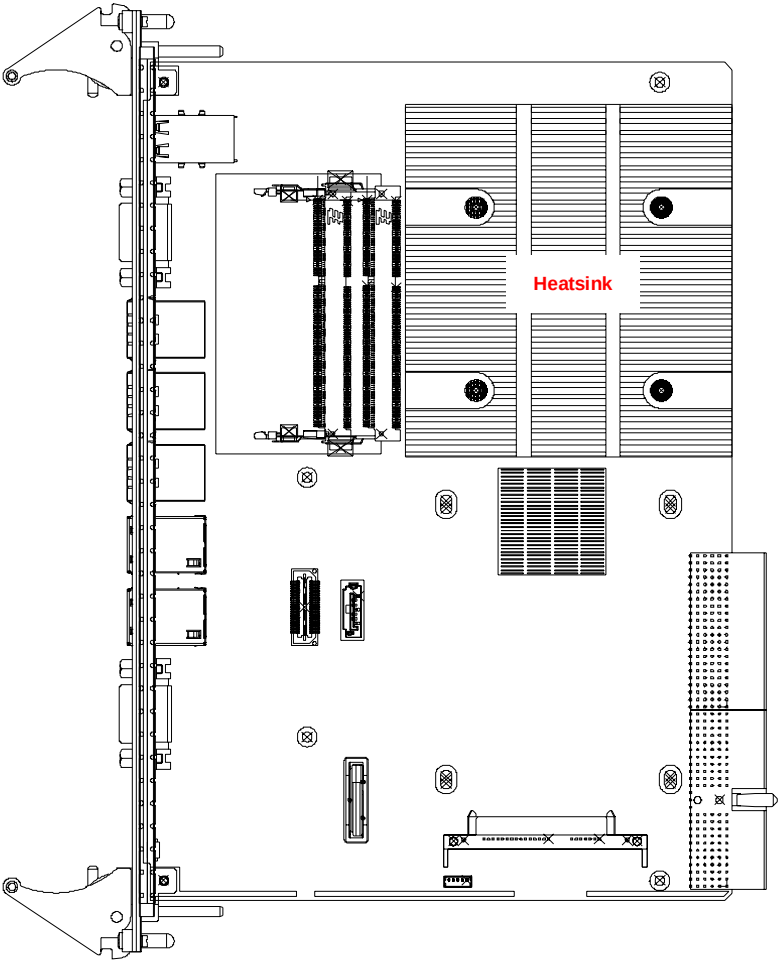


Figure 4-2: cPCI-6625 Assembly Layout

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4.3 cPCI-6625 Front Panel

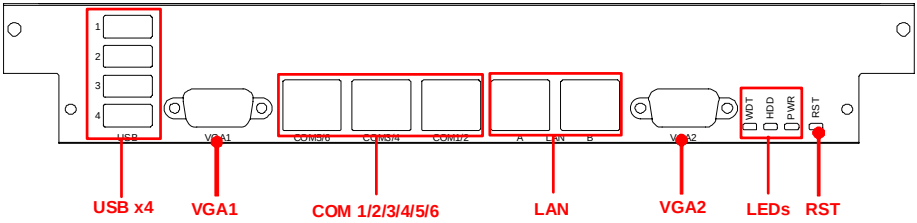


Figure 4-3: cPCI-6625 Front Panel Layout

USB x4	USB ports	**LAN**	RJ-45 LAN ports
COM	RS-232 ports 1/2/3/4/5/6	**VGA**	VGA connector
LEDs	Power status (green) HDD status (yellow) Watch Dog Timer (WDT)	**RST**	Reset button

4.4 Connector Pin Assignments

Refer to "cPCI-6625 Series Board Layout" on page 17 and "cPCI-6625 Front Panel Layout" on page 19 for connector locations

USB Connectors

Pin #	Signal Name
1	Vcc
2	UV0-
3	UV0+
4	GND



Table 4-1: USB Connector Pin Definition

COM Connectors

Pin #	RS-232
1	DCD#, Data carrier detect
2	RTS#, Request to send
3	DSR#, Dataset ready
4	TXD, Transmit Data
5	RXD, Receive Data
6	GND, Ground
7	CTS#, Clear to send
8	DTR#, Data Terminal Ready

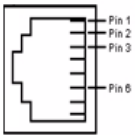


Table 4-2: RJ-45 Serial Port Connector Pin Definitions

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RJ-45 Gigabit Ethernet Connectors

Pin #	10BASE-T/ 100BASE-TX	1000BASE-T
1	TX+	LAN1/2_TX0+
2	TX-	LAN1/2_TX0-
3	RX+	LAN1/2_TX1+
4	--	LAN1/2_TX2+
5	--	LAN1/2_TX2-
6	RX-	LAN1/2_TX1-
7	--	LAN1/2_TX3+
8	--	LAN1/2_TX3+

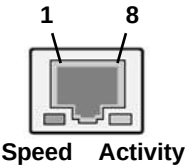


Table 4-3: GbE Connector Pin Definitions

Status		Speed LED (Green/Amber)	Activity LED (Amber)
Network link is not established or system powered off		OFF	OFF
10 Mbps	Link	OFF	ON
	Active	OFF	Blinking
100 Mbps	Link	Green	ON
	Active	Green	Blinking
1000 Mbps	Link	Amber	ON
	Active	Amber	Blinking

VGA Connector (CN6)

Signal Name	Pin #	Pin #	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
+5V.	9	10	GND
N.C.	11	12	CRTDATA
HSYNC	13	14	VSYNC
CRTCLK	15		

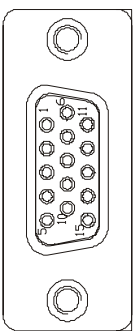


Table 4-4: VGA Connector Pin Definition

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SATA Direct Connector (CN7)

Pin #	Signal
S1	GND
S2	TX+
S3	TX-
S4	GND
S5	RX-
S6	RX+
S7	GND
P1	NC
P2	NC
P3	NC
P4	GND
P5	GND
P6	GND
P7	5V
P8	5V
P9	5V
P10	GND
P11	NC
P12	GND
P13~P15	NC

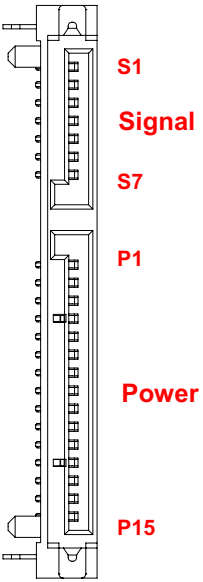


Table 4-5: SATA Direct Connector Pin Definition

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CompactPCI J1 Connector Pin Assignment

Pin	Z	A	B	C	D	E	F
25	GND	+5V	REQ64#	ENUM#	+3.3V	+5V	GND
24	GND	AD1	+5V	V(I/O)	AD0	ACK64#	GND
23	GND	+3.3V	AD4	AD3	+5V	AD2	GND
22	GND	AD7	GND	+3.3V	AD6	AD5	GND
21	GND	+3.3V	AD9	AD8	M66EN	CBE0#	GND
20	GND	AD12	GND	V(I/O)	AD11	AD10	GND
19	GND	+3.3V	AD15	AD14	GND	AD13	GND
18	GND	SERR#	GND	+3.3V	PAR	CBE1#	GND
17	GND	GND	IPMB_CLK	IPMB_DAT	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	+3.3V	FRAME#	IRDY#	GND	TRDY#	GND
12-14	GND	Key Area					Key
11	GND	AD18	AD17	AD16	GND	CBE2#	GND
10	GND	AD21	GND	+3.3V	AD20	AD19	GND
9	GND	CBE3#	GND	AD23	GND	AD22	GND
8	GND	AD26	GND	V(I/O)	AD25	AD24	GND
7	GND	AD30	AD29	AD28	GND	AD27	GND
6	GND	REQ0#	GND	+3.3V	CLK0	AD31	GND
5	GND	NC	NC	RESET#	GND	GNT0#	GND
4	GND	+5V_IPMB	HEALTHY#	V(I/O)	NC	NC	GND
3	GND	IRQA#	IRQB#	IRQC#	+5V	IRQD#	GND
2	GND	TCK#	+5V	TMS#	NC	TDI#	GND
1	GND	+5V	NC	TRST#	NC	+5V	GND

Table 4-6: CompactPCI J1 Connector Pin Definition

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CompactPCI J2 Connector Pin Assignment

Pin	Z	A	B	C	D	E	F
22	GND	GA4	GA3	GA2	GA1	GA0	GND
21	GND	CLK6	GND	LAN3_TXDP1	LAN2_TXDP3	LAN2_TXDP1	GND
20	GND	CLK5	GND	LAN3_TXDN1	LAN2_TXDN3	LAN2_TXDN1	GND
19	GND	GND	GND	LAN3_TXDP0	LAN2_TXDP2	LAN2_TXDP0	GND
18	GND	LAN3_TXDP3	LAN3_TXDP2	LAN3_TXDN0	LAN2_TXDN2	LAN2_TXDN0	GND
17	GND	LAN3_TXDN3	LAN3_TXDN2	PRST#	REQ6#	GNT6#	GND
16	GND	CLK_PCIE4_N	CLK_PCIE2_P	DEG#	GND	RESERVED	GND
15	GND	CLK_PCIE4_P	CLK_PCIE2_N	FAL#	REQ5#	GNT5#	GND
14	GND	CLK_PCIE3_N	CLK_PCIE1_P	PCIE4_CKE	SATA_CLK	RESERVED	GND
13	GND	CLK_PCIE3_P	CLK_PCIE1_N	PCIE3_CKE	SATA_DATAOUT	SATA_LOAD	GND
12	GND	PCIE4_RXP	PCIE1_CKE	PCIE2_CKE	SATA_SDI	SATA_RXP5	GND
11	GND	PCIE4_RXN	PCIE4_TXP	USB7-P	SATA_TXP5	SATA_RXN5	GND
10	GND	PCIE3_RXP	PCIE4_TXN	USB7-N	SATA_TXN5	SATA_RXP4	GND
9	GND	PCIE3_RXN	PCIE3_TXP	USB6-P	SATA_TXP4	SATA_RXN4	GND
8	GND	PCIE2_RXP	PCIE3_TXN	USB6-N	SATA_TXN4	SATA_RXP3	GND
7	GND	PCIE2_RXN	PCIE2_TXP	USB5-P	SATA_TXP3	SATA_RXN3	GND
6	GND	PCIE1_RXP	PCIE2_TXN	USB5-N	SATA_TXN3	SATA_RXP2	GND
5	GND	PCIE1_RXN	PCIE1_TXP	USB4-P	SATA_TXP2	SATA_RXN2	GND
4	GND	V(I/O)	PCIE1_TXN	USB4-N	SATA_TXN2	RESERVED	GND
3	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND

Table 4-7: CompactPCI J2 Connector Pin Definition

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4.5 Switches

Refer to “cPCI-6625 Series Board Layout” on page 17 for switch locations.

Reset Button (SW2)

Press Reset Button to reset the system.



Clear CMOS Switch (SW1)

Press switch SW1 to clear CMOS and reset the BIOS values to default.



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5 Getting Started

This chapter describes the installation of the following components to the cPCI-6625 and rear transition modules:

- Memory modules
- 2.5" SATA storage drive

5.1 Heatsink

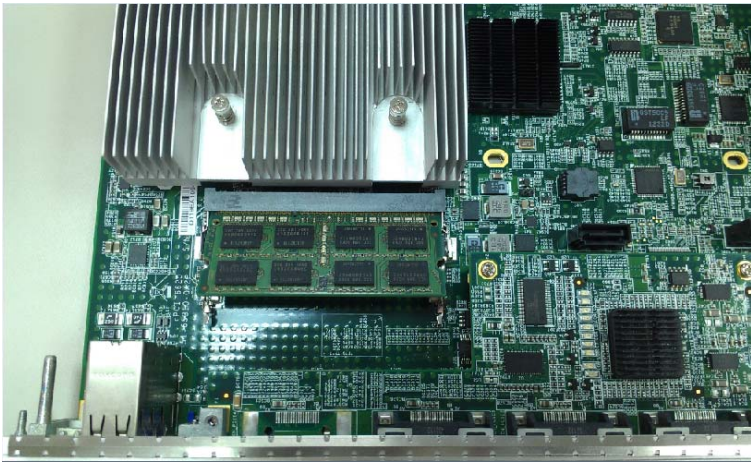
The cPCI-6625 Series comes with heatsink pre-installed. Removal of the heatsink by users is not recommended. Please contact your ADLINK service representative for assistance.

5.2 Memory Module Installation

The cPCI-6625 provides two SODIMM sockets for DDR3-1333 memory modules. Memory modules should be pre-installed on cPCI-6625 Series blades. Follow the steps below if it is necessary to change the memory modules

Installing a memory module

1. Insert the memory module until it properly seated shown as below.



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2. Press down on the memory module until it is locked by the latches on both sides..

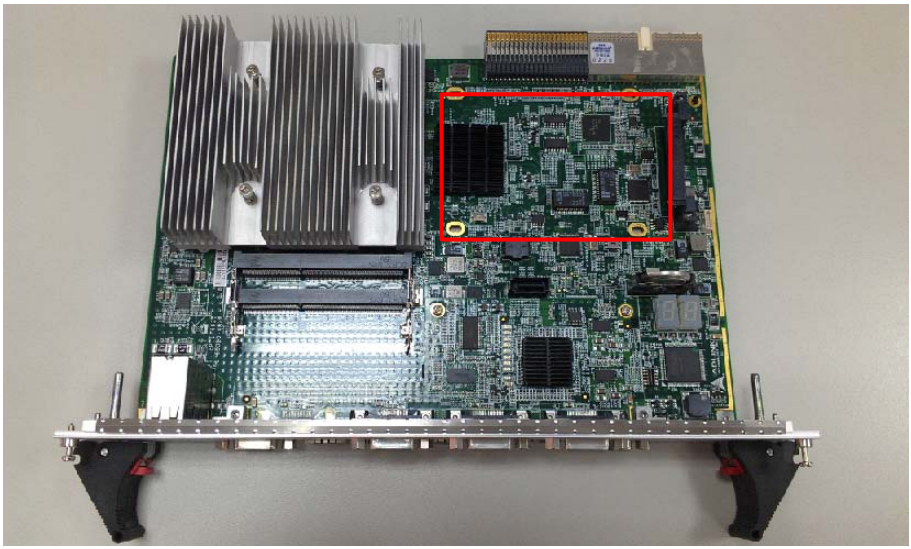


5.3 SATA Drive Installation

The cPCI-6625 provides space to install a slim type 2.5" SATA storage drive. Storage drive standoffs and mounting screws are provided in the accessory kit.

Installing a SATA Drive

1. A 2.5" SATA drive can be installed in the location indicated below.



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2. Prepare a 2.5" SATA drive. Turn the SATA drive bottom side up and secure the four standoffs provided to the four corners of the drive.

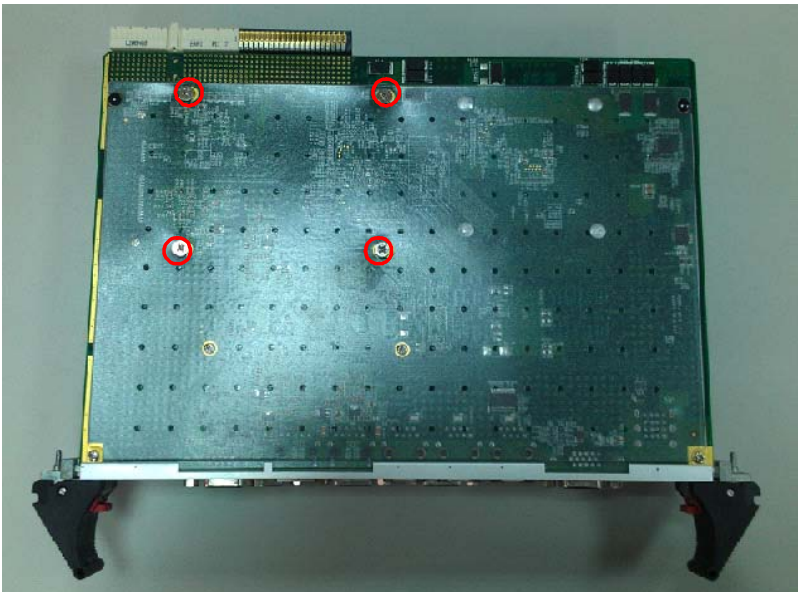


3. Turn the drive top side up and align the drive with the onboard SATA connector as shown. Insert the drive until it is properly seated in the connector.



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4. Turn the cPCI-6625 solder side up, being careful to support the SATA drive. Secure the drive with four screws as shown below.



CAUTION:

Support the hard drive assembly to avoid damaging the SATA connectors when turning the board over to proceed with Step 4.

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6 Drivers & Utilities

The cPCI-6625 Series drivers can be found on the ADLINK All-In-One DVD at **X:\cPCI\cPCI-6625** or from the ADLINK website (**http://www.adlinktech.com**). ADLINK provides validated drivers for Windows XP Professional and Windows 7. We recommend using these drivers to ensure compatibility.

6.1 Driver Installation Procedure

The following describes the driver installation procedures for Windows XP.

1. Install the Windows operating system before installing any driver. Most standard I/O device drivers are installed during Windows installation.



In order to enable AHCI mode, you must pre-install the Intel® Rapid Storage Technology driver using the F6 installation method described in the file **F6Readme.txt**, located here: **…\AHCI\Intel RST Driver Files_F6 Install_ 32bit_11.2.0.1006.zip** (not required for Windows 7).

2. Install the **chipset driver** by extracting and running the program in **...\Chipset\Intel_Chipset_Device_Software _AllOS_9.2.0.1030.zip**.
3. Install the Microsoft .NET Framework utilities (required for the graphics utility) by extracting and running the program in **...\Chipset\Microsoft_Net_Framework_v3.5_SP1.zip.**
4. Install the **graphics driver** and utilities by extracting and running the program in **...\Graphics\Intel_HD_Graphics _Family_WinXP_6.14.10.5337.zip**.
5. Install the **LAN drivers** by extracting and running the program in **…\LAN\Intel_82583V_Gigabit_Network_WINXP _32_11.17.27.0.zip**.
6. Install the Rapid Storage Technology Interface by extracting and running the program in **…\AHCI\Intel _Rapid_Storage_Technology_32bit_10.1.0.1008.zip**.

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6.2 Watchdog Timer

The sample program written in C shown below offers an interactive way to test the Watchdog Timer under DOS.

```
#include<stdio.h>
#include<dos.h>

static unsigned int IT8783_ioPort = 0x2e;

void Enter_IT8783_Config(unsigned int flag)
{
        if(flag) IT8783_ioPort = 0x4e;

        switch(IT8783_ioPort)
        {
               case 0x2E:  //Address port = 0x2E,
     enter keys = 0x87, 0x01, 0x55, 0x55
                        outportb(0x2E, 0x87);
                        outportb(0x2E, 0x01);
                        outportb(0x2E, 0x55);
                        outportb(0x2E, 0x55);
                        break;
               case 0x4E:  //Address port = 0x4E,
     enter keys = 0x87, 0x01, 0x55, 0xAA
                        outportb(0x4E, 0x87);
                        outportb(0x4E, 0x01);
                        outportb(0x4E, 0x55);
                        outportb(0x4E, 0xAA);
                        break;
                default:
                        break;
           }
}

void Exit_IT8783_Config(unsigned int flag)
{
        if(flag) IT8783_ioPort = 0x4e;

        outportb(IT8783_ioPort, 0x02);
        outportb(IT8783_ioPort+1, 0x02);
}
```

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```
void Get_IT8783_ID(unsigned int &ID1, unsigned
     int &ID2)
{
        outportb(IT8783_ioPort, 0x20);
        ID1 = inportb(IT8783_ioPort+1);
        outportb(IT8783_ioPort, 0x21);
        ID2 = inportb(IT8783_ioPort+1);
}

void IT8783_1_WDTRun(unsigned int count_value,
     unsigned int PLEDflag)           //for
     cPCI-6625
{
        unsigned long tempCount;
        unsigned int registerValue;


        outportb(IT8783_ioPort, 0x07);
       outportb(IT8783_ioPort+1, 0x07);       //
     Device 7

        outportb(IT8783_ioPort, 0xf8);
       outportb(IT8783_ioPort+1, 0x00);       //
     PLED mapping to nothing, disable PLED
     function

        if(PLEDflag == 1)
        {
                outportb(IT8783_ioPort, 0x28);
                registerValue =
     inportb(IT8783_ioPort + 1);
               registerValue |= 0x04;         //
     set Pin76 is GPIO function GP42
                outportb(IT8783_ioPort+1,
     registerValue);

                outportb(IT8783_ioPort, 0xc3);
                registerValue =
     inportb(IT8783_ioPort + 1);
               registerValue &= 0xfb;         //
     set GP42 is alternate function
                outportb(IT8783_ioPort+1,
     registerValue);
```

```
            outportb(IT8783_ioPort, 0xcb);
            registerValue =
inportb(IT8783_ioPort + 1);
          registerValue |= 0x04;          //
set GP42 is output
            outportb(IT8783_ioPort+1,
registerValue);

            outportb(IT8783_ioPort, 0xf8);
      outportb(IT8783_ioPort+1, 0x22);
// PLED mapping to GP42

            outportb(IT8783_ioPort, 0xf9);
            registerValue =
inportb(IT8783_ioPort + 1);
            registerValue |= 0x02;
            registerValue &= 0xfb;
            outportb(IT8783_ioPort+1,
registerValue);
   }
   outportb(IT8783_ioPort, 0x71);
   registerValue = inportb(IT8783_ioPort +
1);
  registerValue |= 0xD0;                  //
set Mouse & Keyboard interrupt Enable
   outportb(IT8783_ioPort+1, registerValue);

   outportb(IT8783_ioPort, 0x73);
   outportb(IT8783_ioPort+1, count_value);
// set WDT count LSB
   tempCount = tempCount >> 8;
   outportb(IT8783_ioPort, 0x74);
   outportb(IT8783_ioPort+1, count_value);
// set WDT count MSB

   if(count_value >= 60)
   {
            outportb(IT8783_ioPort, 0x72);
            registerValue =
inportb(IT8783_ioPort+1);
            registerValue &= 0x8f;
```

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```
                registerValue |= 0x10; //enable
        WDT output through PowerOK(Pin78)
                outportb(IT8783_ioPort+1,
        registerValue); // set WDT count is minute

                tempCount = count_value / 60;
                if((count_value%60) > 30)
                        tempCount++;
                if(tempCount > 65535)
                        tempCount = 65535;
                printf("WDT timeout in %d
        minutes.\n", tempCount);
           }
           else
           {
                outportb(IT8783_ioPort, 0x72);
                registerValue =
        inportb(IT8783_ioPort+1);
                registerValue |= 0x80;

                tempCount = count_value;
                if(tempCount != 0)
                {
                       printf("WDT timeout in %d
        seconds.\n", tempCount);
                        registerValue |= 0x40;
        //Enable WDT output through KBRST
                }
                else
                {
                        printf("WDT is
        Disabled.\n");
                        registerValue &= 0xbf;
        //Disable WDT output through KBRST
                }

                outportb(IT8783_ioPort+1,
        registerValue); // set WDT count is second
           }

}
```

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7 BIOS Setup Utility

The following chapter describes basic navigation for the AMI EFI BIOS setup utility.

7.1 Starting the BIOS

To enter the setup screen, follow these steps:

1. Power on the motherboard
2. Press the < Delete > key on your keyboard when you see the following text prompt:
   < Press DEL to run Setup >
3. After you press the < Delete > key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu.



Note: In most cases, the < Delete > key is used to invoke the setup screen. There are several cases that use other keys, such as < F1 >, < F2 >, and so on.

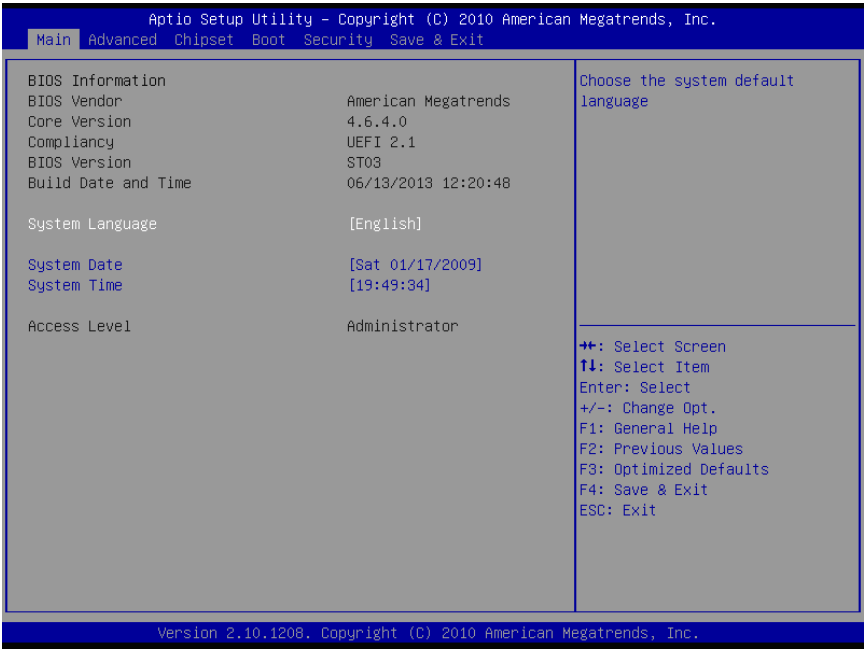
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Setup Menu

The main BIOS setup menu is the first screen that you can navigate. Each main BIOS setup menu option is described in this user's guide.

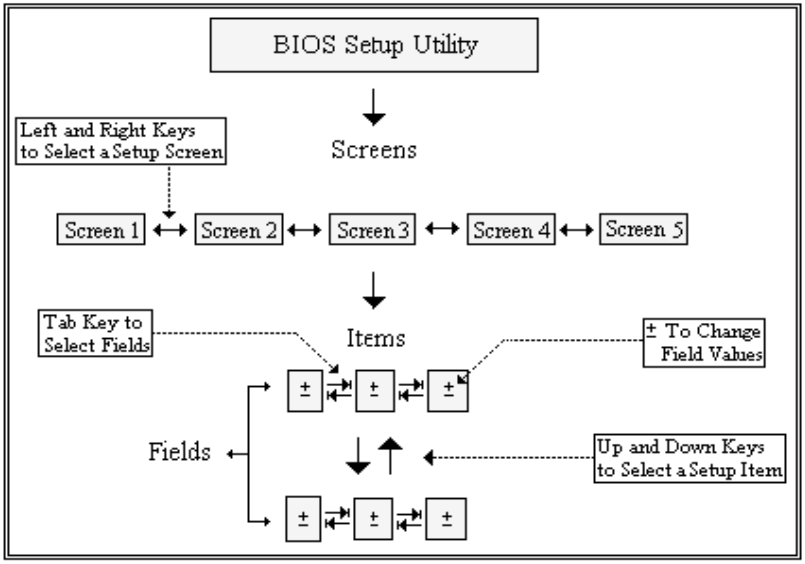
The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. "Grayed" options cannot be configured, "Blue" options can be.

The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.



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Navigation



NOTE: There is a hot key legend located in the right frame on most setup screens.

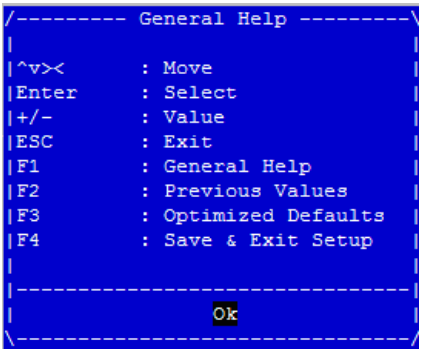
The < F8 > key on your keyboard is the Fail-Safe key. It is not displayed on the key legend by default. To set the Fail-Safe settings of the BIOS, press the < F8 > key on your keyboard. It is located on the upper row of a standard 101 keyboard. The Fail-Safe settings allow the motherboard to boot up with the least amount of options set. This can lessen the probability of conflicting settings.

Hotkey Descriptions

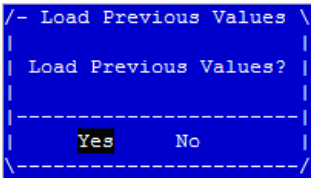
Enter The < Enter > key allows you to display or change the setup option listed for a particular setup item. The < Enter > key can also allow you to display the setup sub-screens.

F1 The < F1 > key allows you to display the General Help screen. Press the < F1 > key to open the General Help screen.

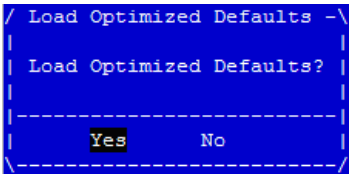
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F2 The < F2 > key on your keyboard is the previous values key. It is not displayed on the key legend by default. To set the previous values settings of the BIOS, press the < F2 > key on your keyboard. It is located on the upper row of a standard 101 keyboard. The previous values settings allow the motherboard to boot up with the least amount of options set. This can lessen the probability of conflicting settings.

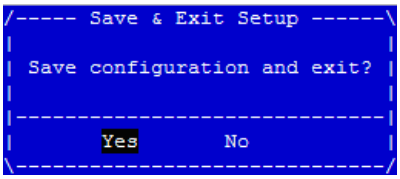


F3 The < F3 > key on your keyboard is the optimized defaults key. To set the optimized defaults settings of the BIOS, press the < F3 > key on your keyboard. It is located on the upper row of a standard 101 keyboard. The optimized defaults settings allow the motherboard to boot up with the optimized defaults of options set. This can lessen the probability of conflicting settings.



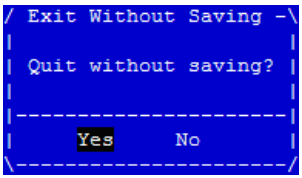
F4 The < F4 > key allows you to save any changes you have made and exit Setup. Press the < F10 > key to save your changes. The following screen will appear:

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Press the < Enter > key to save the configuration and exit. You can also use the < Arrow > key to select Cancel and then press the < Enter > key to abort this function and return to the previous screen.

ESC The < Esc > key allows you to discard any changes you have made and exit the Setup. Press the < Esc > key to exit the setup without saving your changes. The following screen will appear:



Press the < Enter > key to discard changes and exit. You can also use the < Arrow > key to select Cancel and then press the < Enter > key to abort this function and return to the previous screen.

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7.2 Main Setup

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



System Date/Time

Use this option to change the system time and date. Highlight System Time or System Date using the < Arrow > keys. Enter new values using the keyboard. Press the < Tab > key or the < Arrow > keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

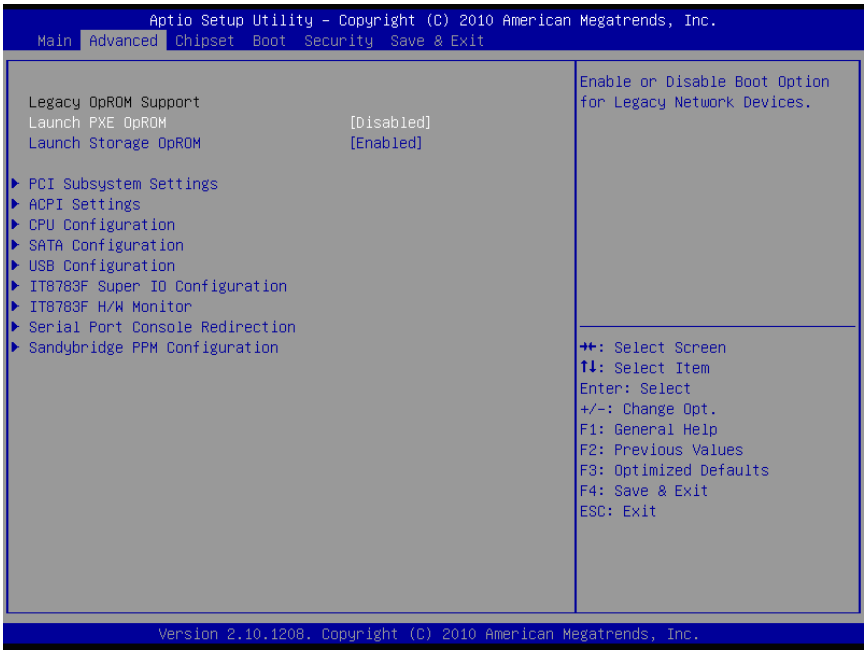
Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

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7.3 Advanced BIOS Setup

Select the Advanced tab from the setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the < Arrow > keys. The Advanced BIOS Setup screen is shown below.

The sub menus are described on the following pages.



Launch PXE OpROM

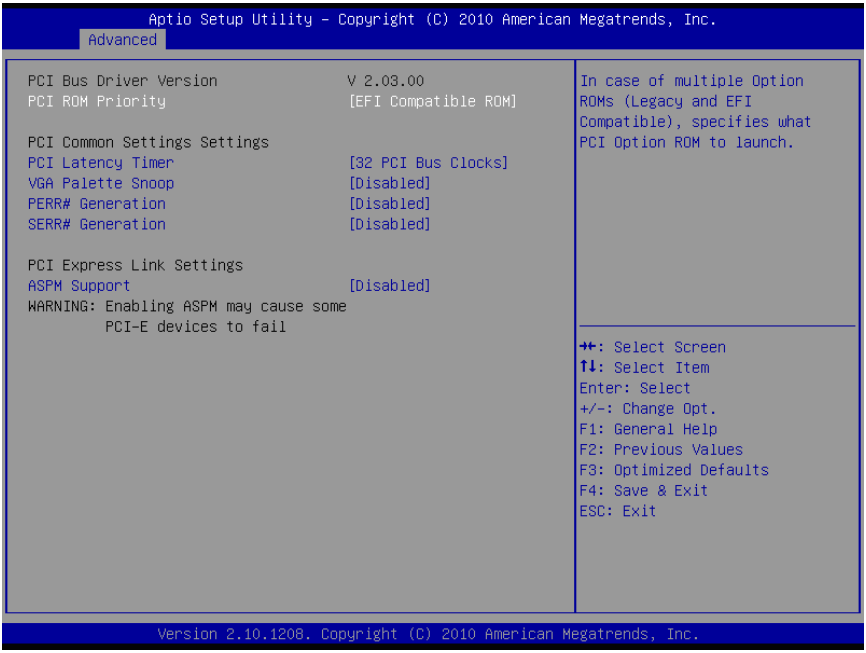
Boot option for legacy network devices. Options: Enabled, Disabled.

Launch Storage OpROM

Boot option for legacy mass storage devices with Option ROM. Options: Enabled/Disabled.

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7.3.1 PCI Subsystem Settings



PCI ROM Priority

In case of multiple Option ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch. Set this value to Legacy ROM/ EFI Compatible ROM.

PCI Latency Timer

Value to be programmed into PCI Latency Timer Register. 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

Enables or Disables VGA Palette Registers Snooping. Set this value to Disable/Enable.

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PERR# Generation

Enables or Disables PCI Device to Generate PERR#. Set this value to Disable/Enable.

SERR# Generation

Enables or Disables PCI Device to Generate SERR#. Set this value to Disable/Enable.

ASPM Support

Set the ASPM (Active State Power Management) level. Options:

- **Disabled:** Disable ASPM
- **Auto:** BIOS auto configure
- **Force L0:** Force all links to L0 State

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7.3.2 ACPI Settings



ACPI OS Shutdown Mode

ATX: OS will turn off system power when shut down. AT: OS shows "*It is now safe to turn off your computer*." Note: AT mode does not support S3 & S4. Set this value to ATX/ AT.

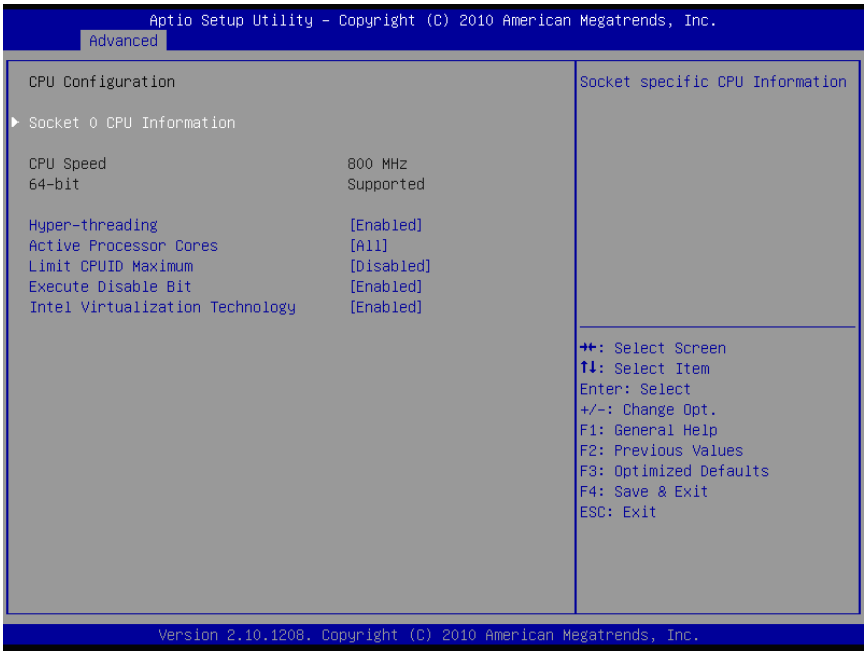
ACPI Sleep State

Select the highest ACPI sleep state the system will enter, when the Suspend button is pressed. Options: S1(CPU Stop Clock), Suspend Disable.

- **S1(CPU Stop Clock):** Power On Suspend - Under this setting the CPU is not executing instructions, all power resources that supply system level reference of S0 are off, system memory context is maintained, devices that reference power resources that are on, and devices that can wake-up the system can cause the CPU to continue to execute from where it left off.

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7.3.3 CPU Configuration



Hyper-Threading

Enables/disables Hyper-Threading Technology. Enable for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and disable for other OS (OS not optimized for Hyper-Threading Technology.

Active Processor Cores

Number of cores to enable in each processor package. Options: All, 1.

Limit CPUID Maximum

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

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older operating systems. When Enabled, the processor will limit the maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value. When Disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

Execute Disable Bit

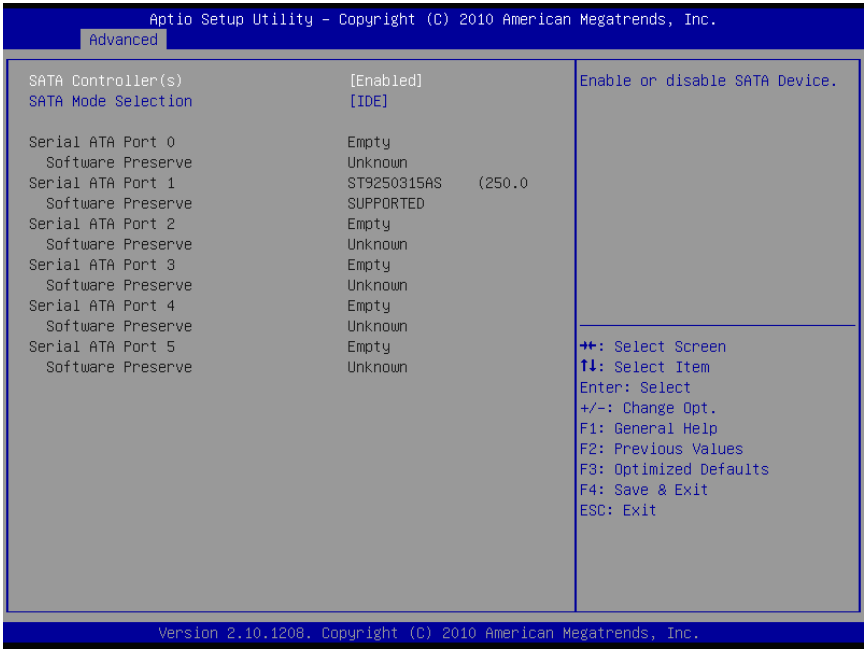
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS.(Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2 Red Hat Enterprise 3 Update 3.)

Intel Virtualization

Enables/disables Intel Virtualization Technology.

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7.3.4 SATA Configuration



SATA Controller(s)

This item enables/disables the SATA Controllers.

SATA Mode Selection

The SATA interface can be configured as legacy IDE or AHCI mode.

SATA Port 0~5

Display SATA device name string.

Staggered Spin-up

Appears when SATA mode is set to AHCI. AHCI Support Staggered Spin-up. Set this value to Enable/Disable.

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External SATA Port

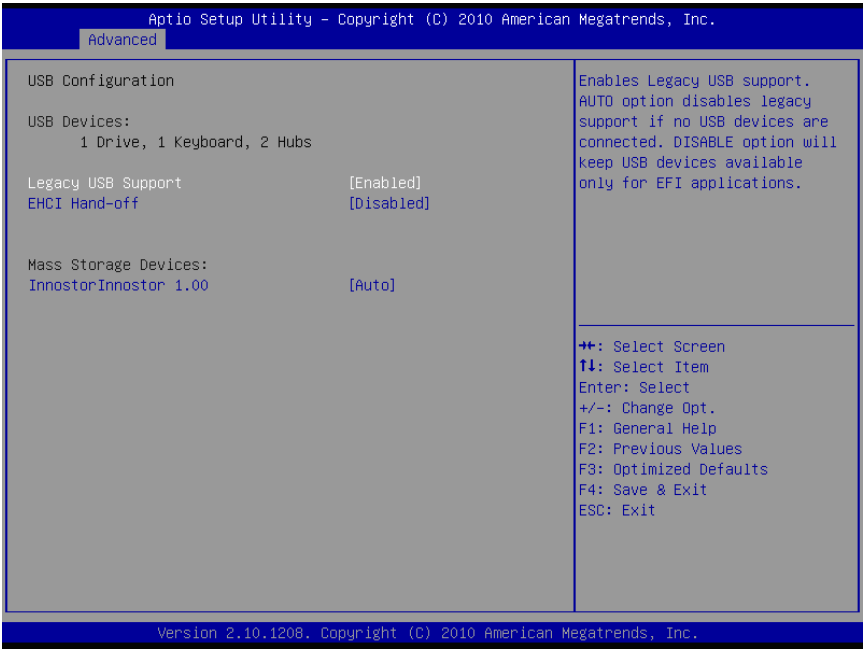
Appears when SATA mode is set to AHCI. eSATA Ports Support. Set this value to Enable/Disable.

Hot Plug

Appears when SATA mode is set to AHCI. SATA Ports Hot Plug support. Set this value to Enable/Disable.

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7.3.5 USB Configuration



Legacy USB Support

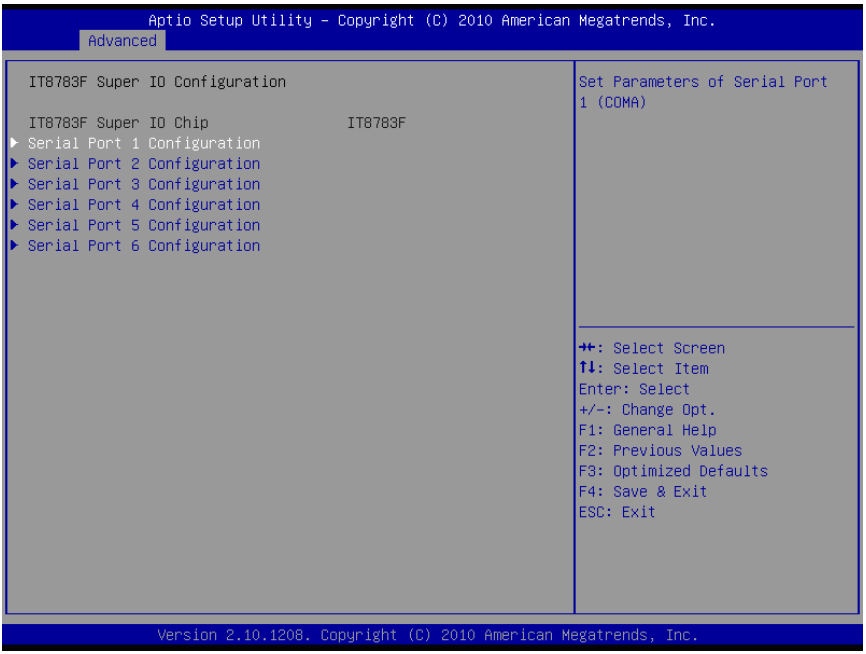
Enables legacy USB support. Auto option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications. Set this value to Enable/Disable/Auto.

EHCI Hand-off

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by the EHCI driver. Options: Enable, Disable.

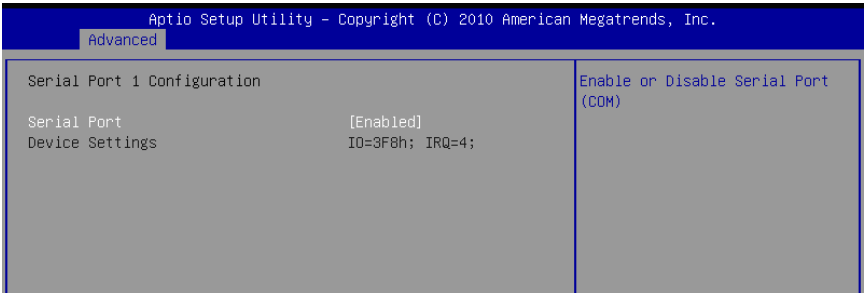
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7.3.6 Super IO Configuration



Serial Port 1~6 Configuration

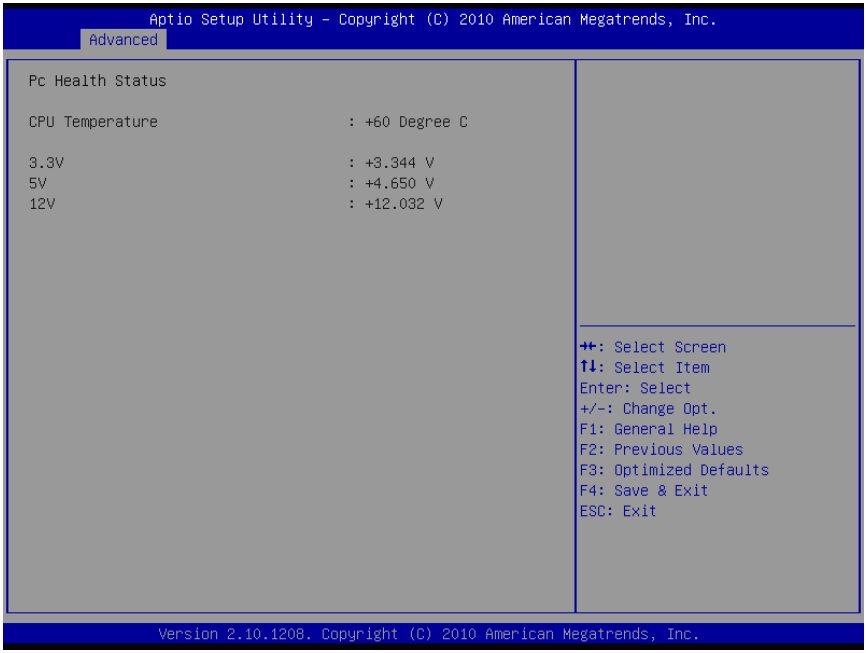
Each sub-menu allows you to enable/disable Serial Ports 1~6.



NOTE: Serial port address and IRQ are not configurable.

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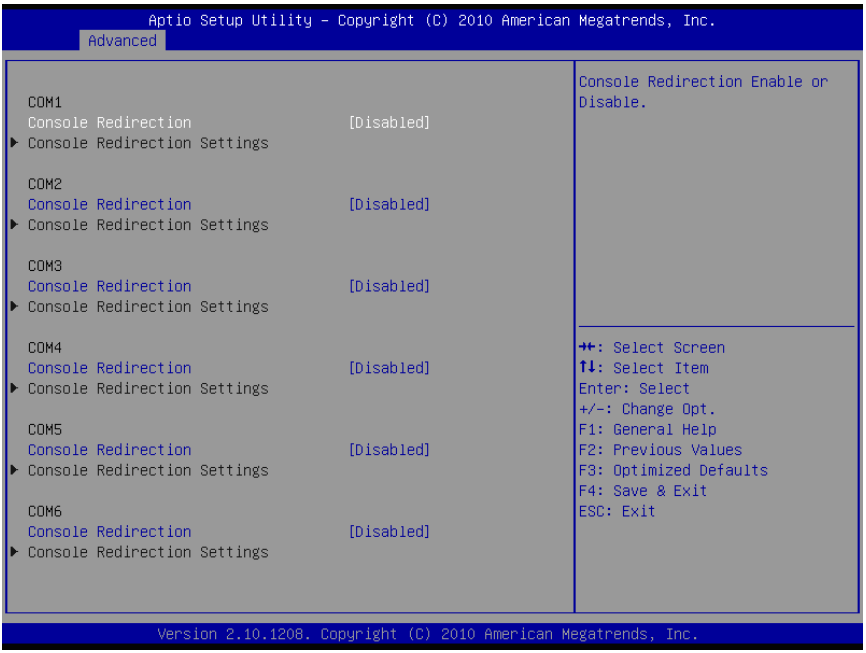
7.3.7 Hardware Monitor



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7.3.8 Serial Port Console Redirection

The settings specify how the host computer and the remote computer will exchange data. Both computers should have the same or compatible settings.



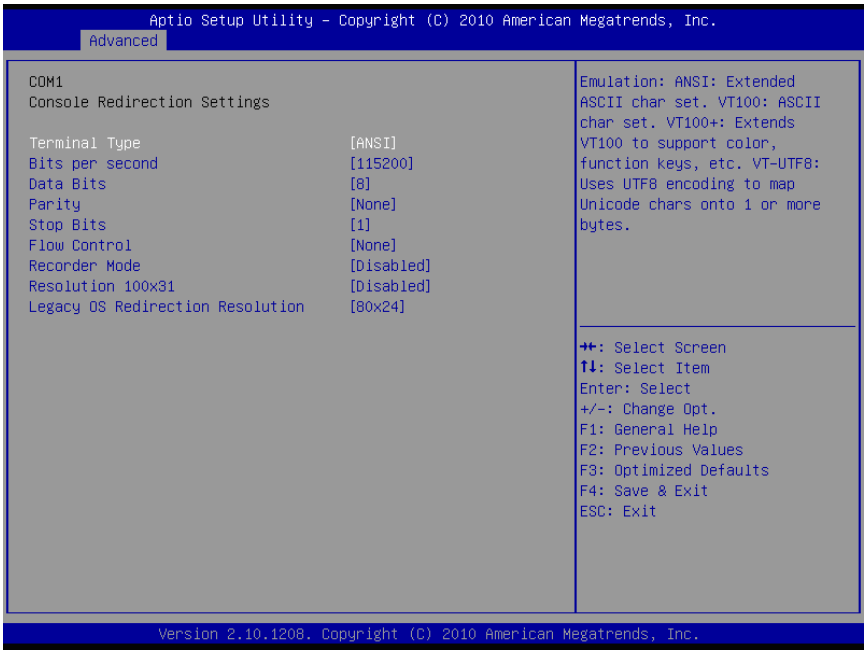
Console Redirection

Enable or disable Console Redirection.

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. The screen is shown below.

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Terminal Type

VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. Options: VT100, VT100+, VT-UTF8, ASNI.

Bits per Second

Select the bit rate (bits/second) you want the serial port to use for console redirection. Options: 115200, 57600, 19200, 9600.

Data Bits

Select the data bits you want the serial port to use for console redirection. Set this value to 7 or 8.

Parity

Set this option to select Parity for console redirection. The settings for this value are None, Even, Odd, Mark, Space.

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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. Set this value to 1 or 2.

Flow Control

Set this option to select Flow Control for console redirection. The settings for this value are Noneand 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. Software flow control uses start/stop ASCII chars, which slows down the data flow and can be problematic if binary data is being sent.

Recorder Mode

When enabled, only text will be sent. This is to capture terminal data.

Resolution 100x31

Enables or disables extended terminal resolution.

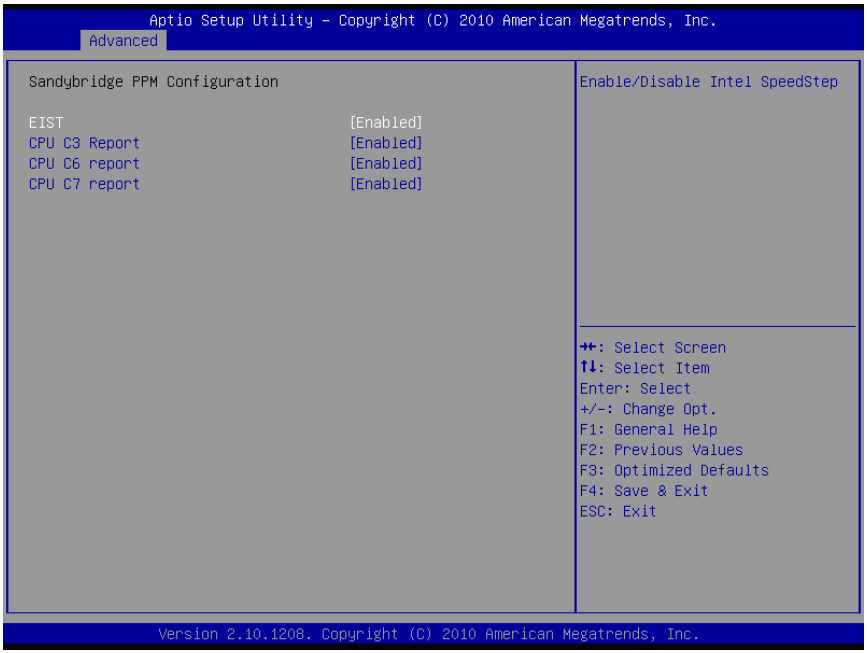
Legacy OS Redirection Resolution

In legacy OSes, the number of rows and columns supported by redirection. The settings for this value are: 80x24, 80x25.

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7.3.9 CPU PPM Configuration

(Processor Power Management)



EIST

Enables/disables Enhanced Intel SpeedStep® Technology (EIST)

CPU C3 Report

Enable or disable CPU C3 (ACPI C2) report to OS. Set this value to Enable/Disable.

CPU C6 Report

Enable or disable CPU C6 (ACPI C3) report to OS. Set this value to Enable/Disable.

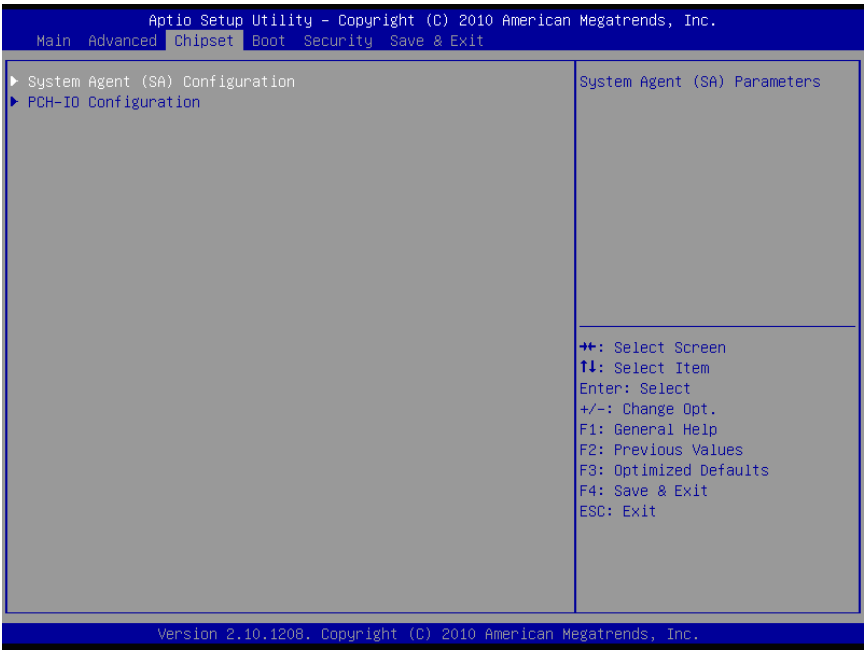
CPU C7 Report

Enable or disable CPU C7 (ACPI C3) report to OS. Set this value to Enable/Disable.

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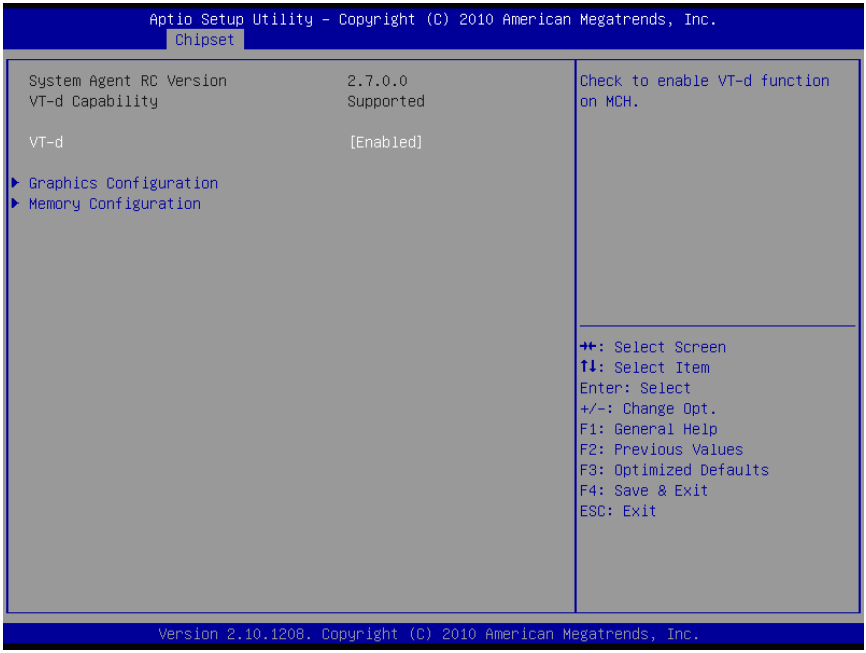
7.4 Chipset Configuration

Select the Chipset tab from the setup screen to enter the Chipset BIOS Setup screen. You can select any of Chipset BIOS Setup options by highlighting it using the < Arrow > keys. The Chipset BIOS Setup screen is shown below.



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7.4.1 System Agent (SA) Configuratio

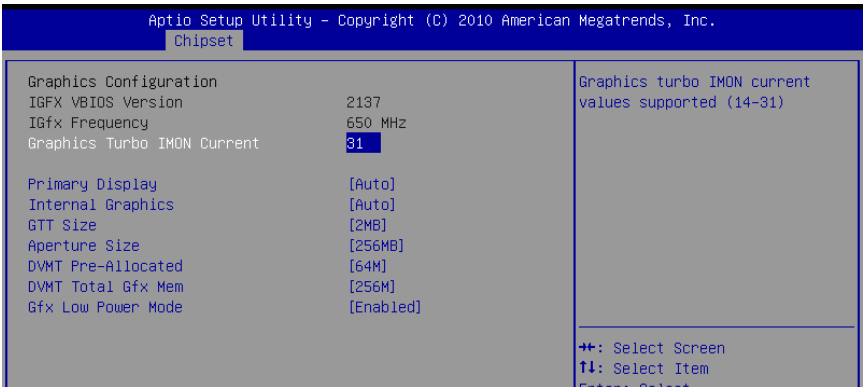


VT-d

Intel Virtualization Technology for Directed I/O. Set this value to Enable/Disable.

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Graphics Configuration



Graphics Turbo IMON Current

Set the value which graphics Turbo IMON supported (14~31).

Primary Display

Allows you to select which graphics controller to use as the primary boot device. Options: Auto, IGFX, PEG, PCI.

Internal Graphics

Allows you to select enable/disable.the internal graphics. Options: Auto, Enabled or Disabled

GTT Size

Select the GTT Size. Set this value to 1MB / 2MB.

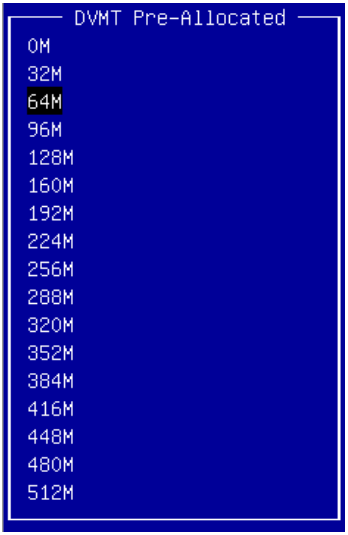
Aperture Size

Select the Aperture Size. Set this value to 128MB / 256MB / 512MB.

DVMT Pre-Allocated

Select DVMT 5.0 Pre-Allocated (fixed) graphics memory size used by the internal graphics device. Configuration options is as below screen:

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DVMT Total Gfx Memory

Select DVMT 5.0 total graphic memory size used by the internal graphics device. Configuration options is as below screen :

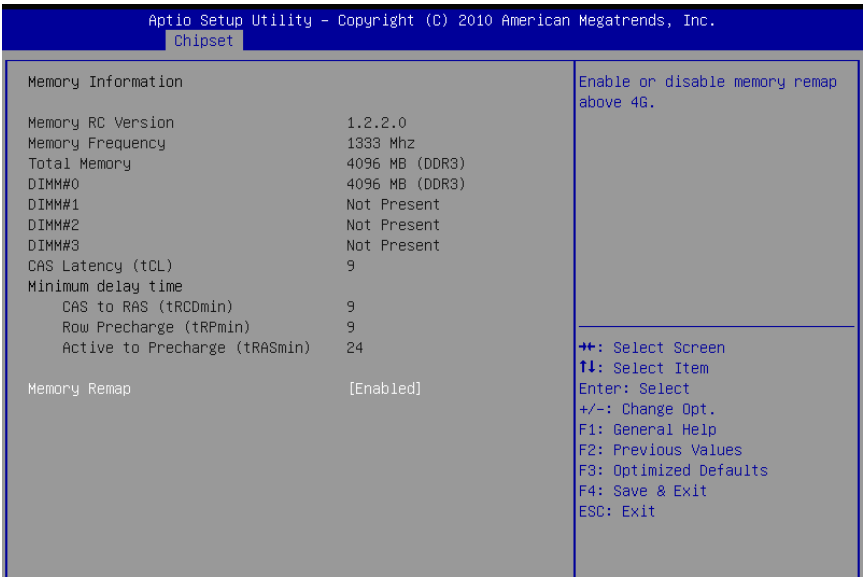


Gfx Low Power Mode

This option is applicable for SFF only. Set this value to **Enable/Disable**.

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Memory Information

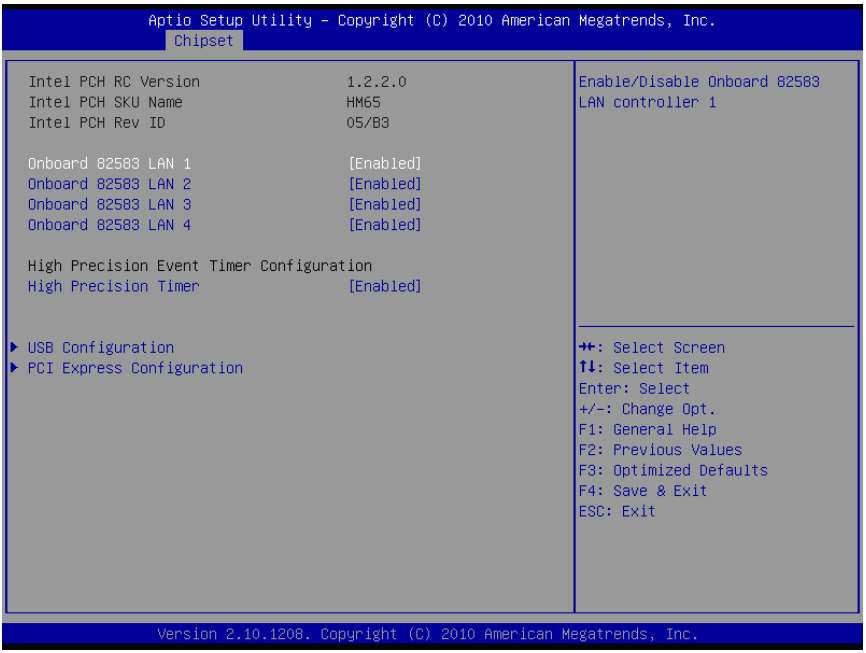


Memory Remap

Enable or disable memory remap above 4G. Set this value to Enable/Disable.

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7.4.2 PCH-IO Configuration



Onboard 82583 LAN Controller

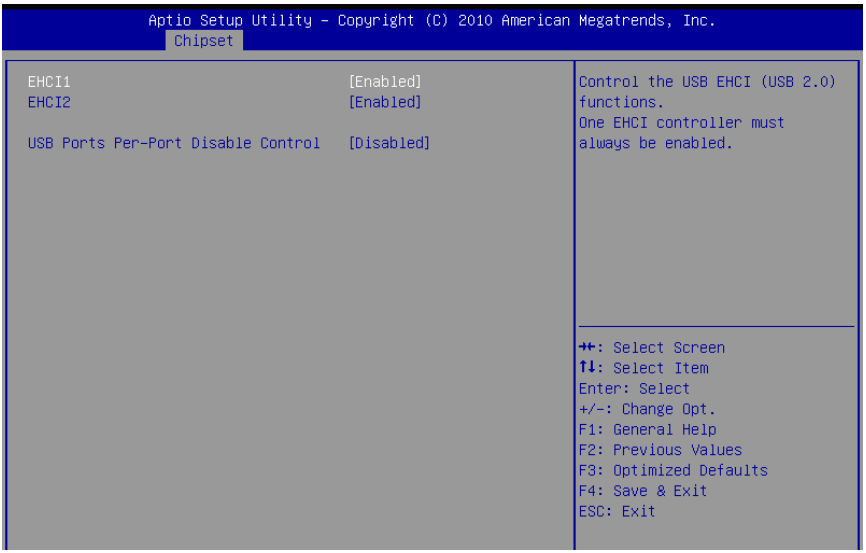
Enable or disable onboard 82583 Lan 1/2/3/4 Controller. Set this value to Enable/Disable

High Precision Timer

Enable or Disable the High Precision Event Timer. Set this value to Enable/Disable.

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USB Configuration



EHCI1 Controller 1

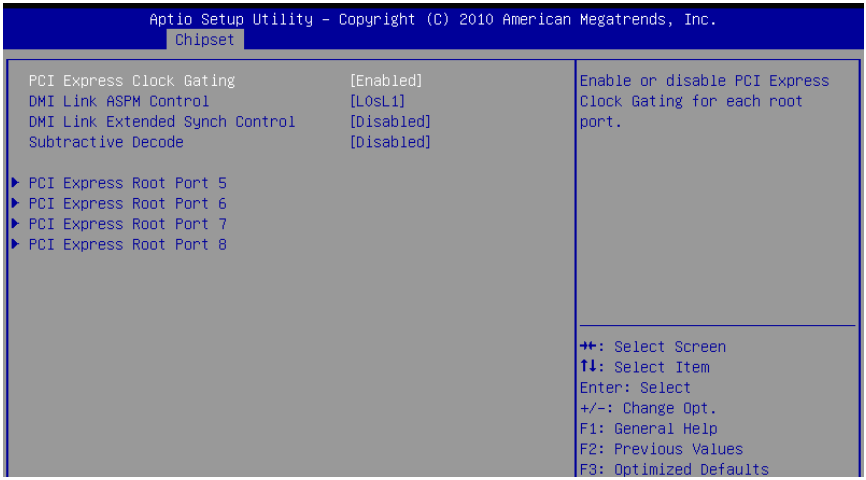
USB 2.0 (EHCI) support. Set this value to Enable/Disable.

USB Ports Per-Port Disable Control

Control each of the USB ports (0~13) disabling. Set this value to Enable / Disable.

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PCI Express Configuration



PCI Express Clock Gating

Enable or disable PCI Express Clock Gating for each root port. Set this value to Enable / Disable.

DMI Link ASPM Control

The control of Active State Power Management on both NB side and SB side of the DMI Link. Set this value to Disable/L0s/L0sL1.

DMI Link Extended Synch Control

The control of Extended Synch on SB side of the DMI Link.

Subtractive Decode

Enable or disable PCI Express Subtractive Decode. Set this value to Enable / Disable.

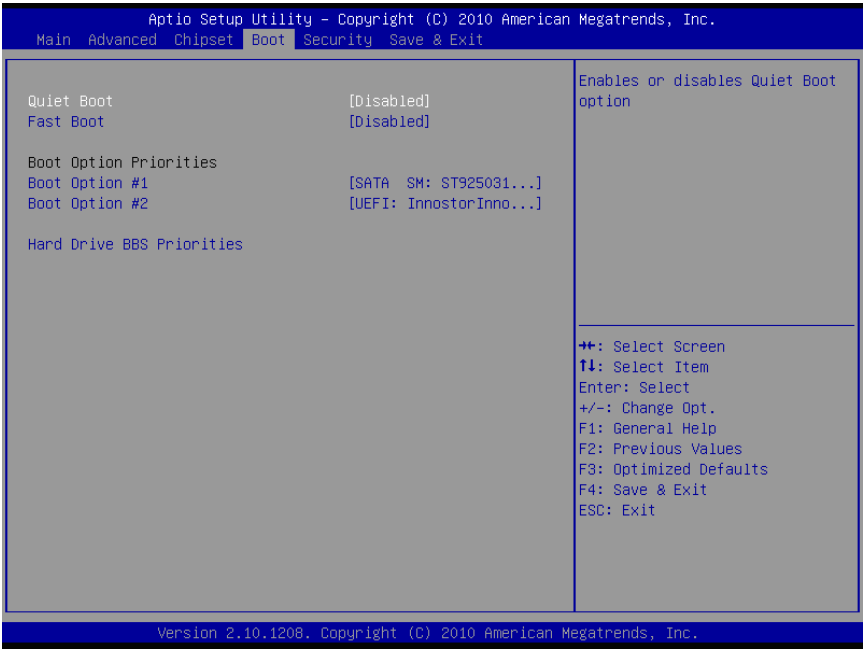
PCI Express Root Port 5~8

Control the PCI Express Root Port of 5~8

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7.5 Boot Configuration

Select the Boot tab from the setup screen to enter the Boot Configuration screen. You can select any of the items in the left frame of the screen to go to the sub menu for that item. You can display a Boot Configuration option by highlighting it using the < Arrow > keys. The Boot Configuration screen is shown below:



Quiet Boot

When this feature is **enabled**, the BIOS will hide normal POST messages during the boot-up sequence. When it is **disabled**, the BIOS will display the normal POST messages.

Fast Boot

Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options. Set this value to Enable / Disable.

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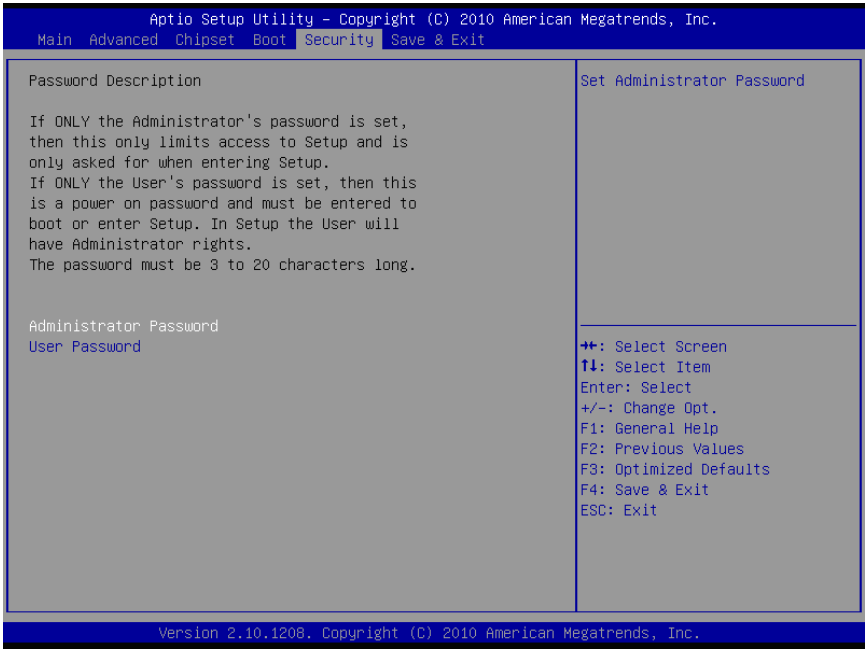
Set Boot Priority

Set Boot Option #1 ~2 boot priority.

Hard Disk Drive BBS Priorities

Specifies the boot device priority sequence from available hard drives.

7.6 Security Setup



Administrator Password

Use this option to set a password for administrators with full control of the BIOS setup utility.

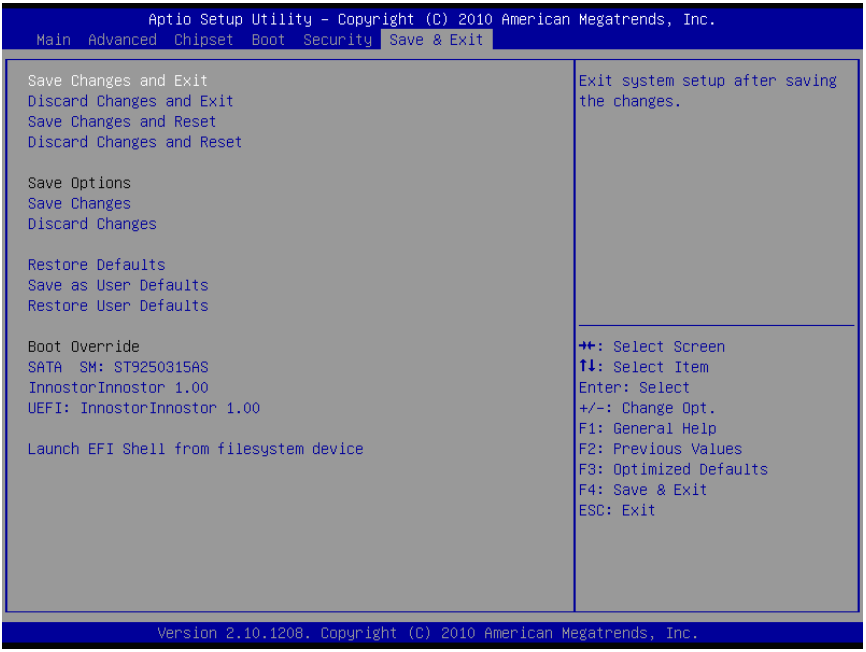
User Password

Use this option to set a password for users with limited access to the BIOS setup utility.

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7.7 Save & Exit

Select the Save & Exit tab from the setup screen to enter the Save & Exit setup screen. You can display a Save & Exit BIOS setup option by highlighting it using the < Arrow > keys. The Save & Exit BIOS setup screen is shown below.



Save Changes and Exit

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect.

Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration.

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Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset the system without saving any changes.

Save Changes

Save changes made so far to any of the setup options.

Discard Changes

Discard changes made so far to any of the setup options.

Restore Defaults

Restore/Load Defaults values for all the setup options.

Save as User Defaults

Save changes made so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all setup options

Boot Override

Use the up/down arrow keys to highlight a boot device to immediately exit the BIOS Setup and boot from the selected device.

Launch EFI Shell from file system device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available file system devices.

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Important Safety Instructions

For user safety, please read and follow all **instructions**, **WARNINGS**, **CAUTIONS,** and **NOTES** marked in this manual and on the associated equipment before handling/operating the equipment.

- Read these safety instructions carefully.
- Keep this user's manual for future reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- When installing/mounting or uninstalling/removing equipment:
  - Turn off power and unplug any power cords/cables.
- To avoid electrical shock and/or damage to equipment:
  - Keep equipment away from water or liquid sources;
  - Keep equipment away from high heat or high humidity;
  - Keep equipment properly ventilated (do not block or cover ventilation openings);
  - Make sure to use recommended voltage and power source settings;
  - Always install and operate equipment near an easily accessible electrical socket-outlet;
  - Secure the power cord (do not place any object on/over the power cord);
  - Only install/attach and operate equipment on stable surfaces and/or recommended mountings; and,
  - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.

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- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

A Lithium-type battery may be provided for uninterrupted, backup or emergency power.



Risk of explosion if battery is replaced with one of an incorrect type. Dispose of used batteries appropriately.

- Equipment must be serviced by authorized technicians when:
  - The power cord or plug is damaged;
  - Liquid has penetrated the equipment;
  - It has been exposed to high humidity/moisture;
  - It is not functioning or does not function according to the user's manual;
  - It has been dropped and/or damaged; and/or,
  - It has an obvious sign of breakage.

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Getting Service

Contact us should you require any service or assistance.

ADLINK Technology, Inc.
Address: 9F, No.166 Jian Yi Road, Zhonghe District
New Taipei City 235, Taiwan
新北市中和區建一路 166 號 9 樓
Tel: +886-2-8226-5877
Fax: +886-2-8226-5717
Email: service@adlinktech.com

Ampro ADLINK Technology, Inc.
Address: 5215 Hellyer Avenue, #110
San Jose, CA 95138, USA
Tel: +1-408-360-0200
Toll Free: +1-800-966-5200 (USA only)
Fax: +1-408-360-0222
Email: info@adlinktech.com

ADLINK Technology (China) Co., Ltd.
Address: 上海市浦东新区张江高科技园区芳春路 300 号 (201203)
300 Fang Chun Rd., Zhangjiang Hi-Tech Park
Pudong New Area, Shanghai, 201203 China
Tel: +86-21-5132-8988
Fax: +86-21-5132-3588
Email: market@adlinktech.com

ADLINK Technology Beijing
Address: 北京市海淀区上地东路 1 号盈创动力大厦 E 座 801 室(100085)
Rm. 801, Power Creative E, No. 1 Shang Di East Rd.
Beijing, 100085 China
Tel: +86-10-5885-8666
Fax: +86-10-5885-8626
Email: market@adlinktech.com

ADLINK Technology Shenzhen
Address: 深圳市南山区科技园南区高新南七道 数字技术园
A1 栋 2 楼 C 区 (518057)
2F, C Block, Bldg. A1, Cyber-Tech Zone, Gao Xin Ave. Sec. 7
High-Tech Industrial Park S., Shenzhen, 518054 China
Tel: +86-755-2643-4858
Fax: +86-755-2664-6353
Email: market@adlinktech.com

LiPPERT ADLINK Technology GmbH
Address: Hans-Thoma-Strasse 11, D-68163
Mannheim, Germany
Tel: +49-621-43214-0
Fax: +49-621 43214-30
Email: emea@adlinktech.com

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ADLINK Technology, Inc. (French Liaison Office)
Address: 6 allée de Londres, Immeuble Ceylan
91940 Les Ulis, France
Tel: +33 (0) 1 60 12 35 66
Fax: +33 (0) 1 60 12 35 66
Email: france@adlinktech.com

ADLINK Technology Japan Corporation
Address: 〒101-0045 東京都千代田区神田鍛冶町 3-7-4
神田 374 ビル 4F
KANDA374 Bldg. 4F, 3-7-4 Kanda Kajicho,
Chiyoda-ku, Tokyo 101-0045, Japan
Tel: +81-3-4455-3722
Fax: +81-3-5209-6013
Email: japan@adlinktech.com

ADLINK Technology, Inc. (Korean Liaison Office)
Address: 137-881 서울시 서초구 서초대로 326, 802 (서초동, 모인터빌딩)
802, Mointer B/D, 326 Seocho-daero, Seocho-Gu,
Seoul 137-881, Korea
Tel: +82-2-2057-0565
Fax: +82-2-2057-0563
Email: korea@adlinktech.com

ADLINK Technology Singapore Pte. Ltd.
Address: 84 Genting Lane #07-02A, Cityneon Design Centre
Singapore 349584
Tel: +65-6844-2261
Fax: +65-6844-2263
Email: singapore@adlinktech.com

ADLINK Technology Singapore Pte. Ltd. (Indian Liaison Office)
Address: #50-56, First Floor, Spearhead Towers
Margosa Main Road (between 16th/17th Cross)
Malleswaram, Bangalore - 560 055, India
Tel: +91-80-65605817, +91-80-42246107
Fax: +91-80-23464606
Email: india@adlinktech.com

ADLINK Technology, Inc. (Israeli Liaison Office)
Address: 27 Maskit St., Corex Building
PO Box 12777
Herzliya 4673300, Israel
Tel: +972-77-208-0230
Fax: +972-77-208-0230
Email: israel@adlinktech.com

ADLINK Technology, Inc. (UK Liaison Office)
Tel: +44 774 010 59 65
Email: UK@adlinktech.com

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