AMDY-7002

Mini-ITX Board

User's Manual

Version 1.0

Table of Contents

How to Use This Manual

The manual describes how to configure your WADE-8656 system board to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of Single Host Board.

Chapter 1 : System Overview. Presents what you have in the box and give you an overview of the product specifications and basic system architecture for this series model of single host board.

Chapter 2 : Hardware Configuration. Shows the definitions and locations of Jumpers and Connectors that you can easily configure your system.

Chapter 3 : System Installation. Describes how to properly mount the CPU, main memory and Compact Flash to get a safe installation and provides a programming guide of Watch Dog Timer function.

Chapter 4 : BIOS Setup Information. Specifies the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

Chapter 5 : Troubleshooting. Provides various useful tips to quickly get WADE-8656 running with success. As basic hardware installation has been addressed in Chapter 3, this chapter will basically focus on system integration issues, in terms of backplane setup, BIOS setting, and OS diagnostics.

The content of this manual is subject to change without prior notice. These changes will be incorporated in new editions of the document. **Portwell** may make supplement or change in the products described in this document at any time.

Updates to this manual, technical clarification, and answers to frequently asked questions will be shown on the following web site : http://www.portwell.com.tw/.

Chapter 1
System Overview

1.1 Introduction

AMDY-7002 series, the embedded motherboard of Mini-ITX form factor. Combine with either the AMD®Fusion G series-T56N FT1 processor. The AMD Fusion G series processor is the world's first integrated circuit to combine a low-power CPU and a discrete-level GPU into a single die. This graphics integration provides high graphic & multi-media performance in a small form factor and power efficient platform. CPU configurations are available with single or dual X86 cores, at 18W TDP (Thermal Design Power). That makes the system more powerful and reliable with smaller and quieter cooling fan.

AMD®HD6320, the discrete GPU of T56N FT1 processor is a leading Embedded Integrated Graphics Processors supports DirectX® 11, OpenGL 4.0 and OpenCL 1.1. Wide multi-media capability with H/W decode of H.264, VC-1, MPEG2, WMV, DivX and Adobe Flash delivers greater performance per watt of previous AMD platform. The graphic memory is shared from system memory (UMA).Offering a stable and reliable embedded computing platform to users who needs smooth HD& 3D visual effects experiences.

The AMD Fusion controlling hub A55E not only has rich I/O support of USB& COM, but also adds new features such as SATA 3.0, RAID (0/1/5/10), Generation 2 PCI Express, PCI local bus, Gigabit Ethernet MAC, and HD audio. All these features make AMDY-7002 a value-oriented solution for applications requiring a balance of CPU& multi-media performance.

To meet expansion cards requirement, the AMDY-7002 series was designed one PCI Express x1 slot and one PCI slot. By these two slots, AMDY-7002 can support PCI Express x1 or PCI add-on cards such as ATI graphic card to meet multi-display function. There is also a Mini-PCI Express (half sized) socket on board to support special function such as SSD card or wireless module.

AMDY-7002 series features:

- Support AMD®Fusion G series-T56N FT1 processors in BGA package.
- Deliver up to 4GB maximum DDR3 1333/1066 on one SO-DIMM socket.
- Discrete graphic processor of ATI HD6320 supports DirectX® 11
- Support dual display which is chosen from LVDS, VGA and DVI interfaces (depends on model type).
- Support High Definition Audio codec.

- High speed Gigabit Ethernet based on PCI Express x1, high bandwidth I/O interface.
- Five onboard SATA 3.0 ports support IDE/AHCI mode and RAID function(RAID0,1,5& 10)
- Rich I/O connections which included total 14*USB ports and 8*COM ports.
- Expansion slot such as PCI-Express x1 slot, PCI slot and half sized Mini PCI-Express socket.
- Adopt CF and CFast sockets as extra storage devices.

AMDY-7002 series Mini-ITX embedded motherboards provide powerful graphic performance and low power consumption and I/O connections. Makes AMDY-7002 series the best solution for media, digital signage, gaming and POS applications.

1.2 Check List

AMDY-7002 series package should contain the following basic items:

- One AMDY-7002 series Mini-ITX embedded motherboard
- One Installation Resources& User Manual CD
- One Rear I/O bracket
- SATA signal cable

Optional:

- Serial ports cable kit
- SATA power cable
- PCI Express x1& PCI riser card

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

1.3 Products Specification

- **Main Processor**

- AMD®Fusion G series-T56N FT1 processor

- **BIOS**

-Phoenix system BIOS with SPI Serial CMOS EEPROM

- **Main Memory**

-Support dual channel DDR3 memory interface
-Non-ECC only
-One SO-DIMM sockets support 1333/1066 DDR3 SDRAM up to 4GB system memory.

- **L2 Cache Memory**

-Built-in processor

- **Chipset**

-AMD®A55E FCH

- **Display**

- AMD HD-6320 discrete GPU from G-series T56N processor@500MHz Core Freq.
-Up to 2 display choose form VGA, DVI or LVDS interfaces (depends on model type)

- **Extension**

-PCI-Express x1 slot
-PCI slot
-Half Sized PCIE Mini-Card *1

- **Storage**

-SATA ports* 5 onboard
-Compact Flash Socket * 1
-CFAST Socket *1

- **Ethernet**

-Realtek RTL8111DL *2
-Support Boot from LAN (PXE)
-Support Wake on LAN

- **Serial Port**

-Support 8 UART in total
-COM1,2 support RS232 only.
-COM3,4,5,6 support RS232/422/485 with jumper selection and power .
-COM7,8 support RS232 with power

- **USB Interface**

- Support 14*USB ports in total
-6*USB on rear panel connectors.
-6*USB on board Pin Header, 2.54mm Pitch
-1 is for internal vertical USB connector
-1 is for internal half size PCIE mini card

- **Auxiliary I/O Interface**

-System reset switch, external speaker and HDD active LED, etc

- **Real Time Clock**

-Support Y2K Real Time Clock/Calendar with battery back for 7-years data retention

- **Watchdog Timer**

-Support WDT function through software programming for enable/disable and interval setting
-Generate system reset

- **Auxiliary I/O Interface**

-System reset switch, external speaker and HDD active LED, etc

- **High Driving GPIO**

-Support 8 programmable high driving GPIO

- **Cooling Fan**

-System FAN controlled by A55E

- **System Monitoring Feature**

-Monitor CPU temperature, system temperature and major power sources, etc

- **Outline Dimension**

-170 mm (L) x 170(W) mm

- **Power Requirement**

-ATX 20Pin Connector
-ATX 4Pin Connector for 12V input

- **Testing Configuration**

CPU Type	AMD G-series T56N Processor 1.6GHz L2:1024K
SBC BIOS	R.1.00.W4 01/11/2011
Memory	Transcend DDR3 1066 2GB*1 (SEC K4B1G0846F)
VGA Card	Onboard AMD Radeon HD 6250 Graphics
VGA Driver	AMD Embedded GPU and Chipset Vista/Win7 Driver version 8.88
LAN Card	Onboard Realtek RTL8111DL PCle GBE Family Controller
LAN Driver	Realtek RTL8111DL Ethernet Controller Driver Ver: 5.754.0308.2010
Audio Card	Onboard Realtek ALC886 High Definition Audio
Audio Driver	Realtek ALC-886 High Definition Audio System Software Ver: R2.49
CHIP Driver	N/A
SATA HDD	Seagate ST3500411SV 500GB
SATA CDROM	LITE-ON LH-20A1S DVD-ROM
Power Supply	FSP350-60GLC

- **Operating Temperature**

-0 ~ 60℃

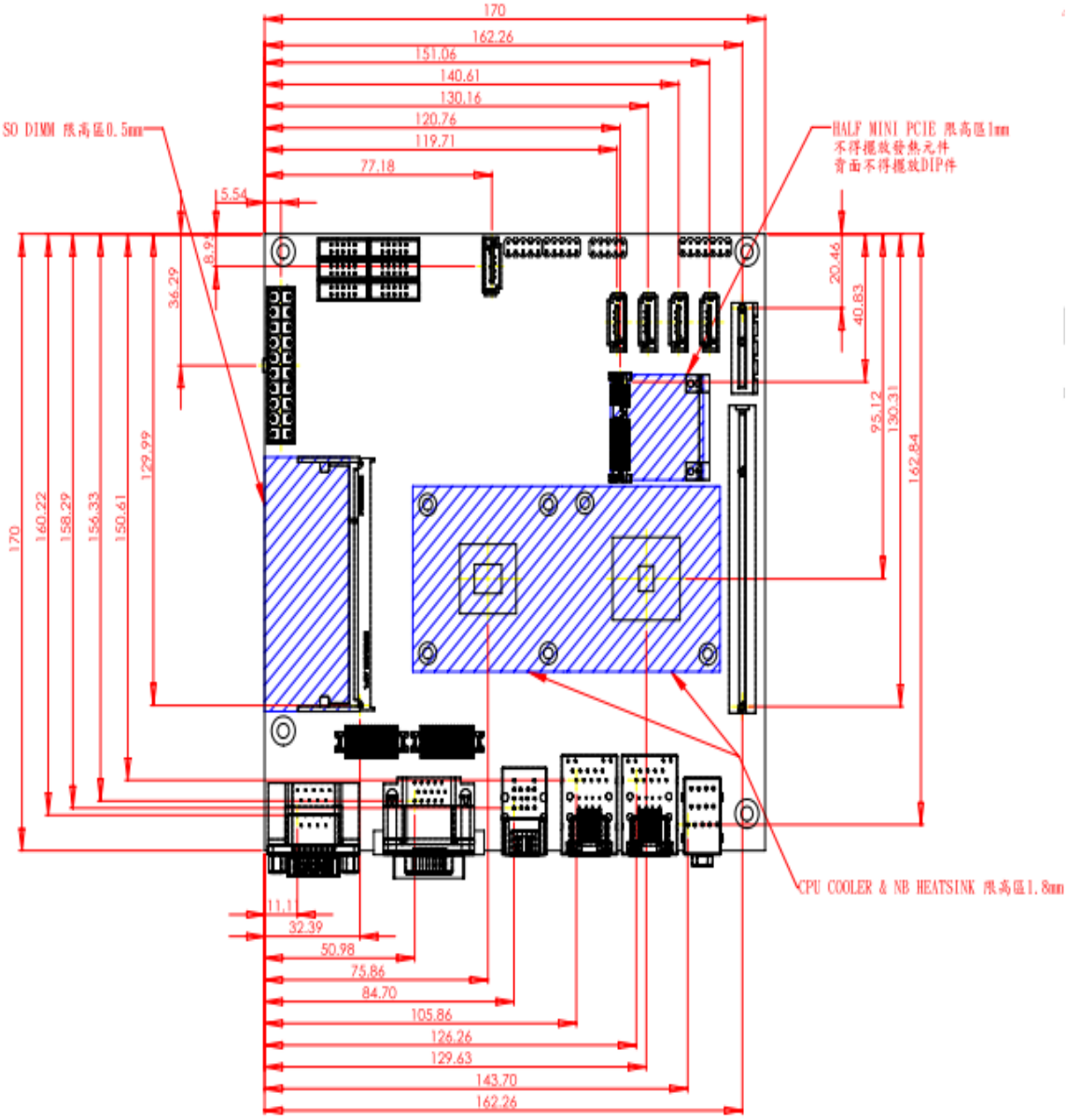
- **Storage Temperature**

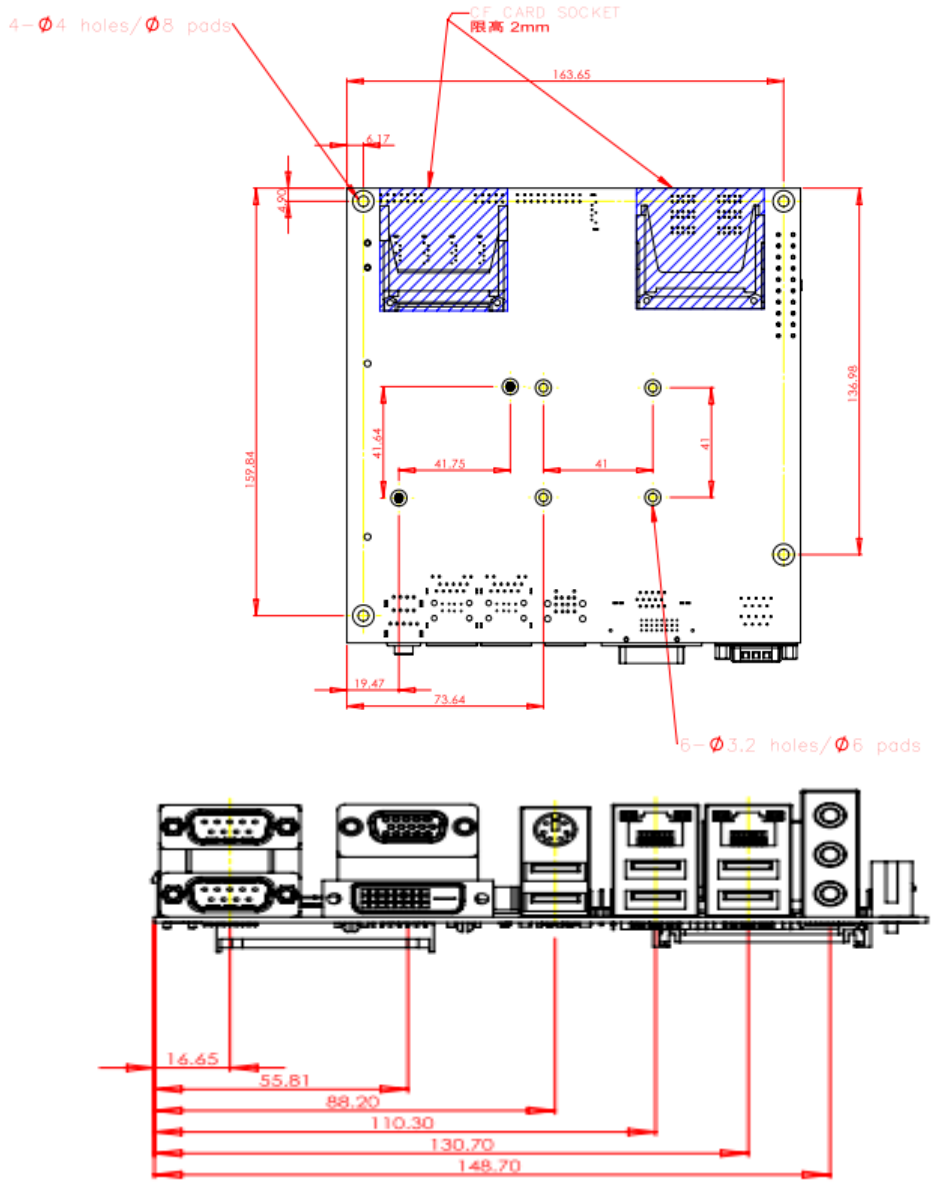
-20 ~ 80℃

- **Operating Humidity**

-Operation Humidity: 5% ~ 95%, non-condensing

1.3.1 Mechanical Drawing

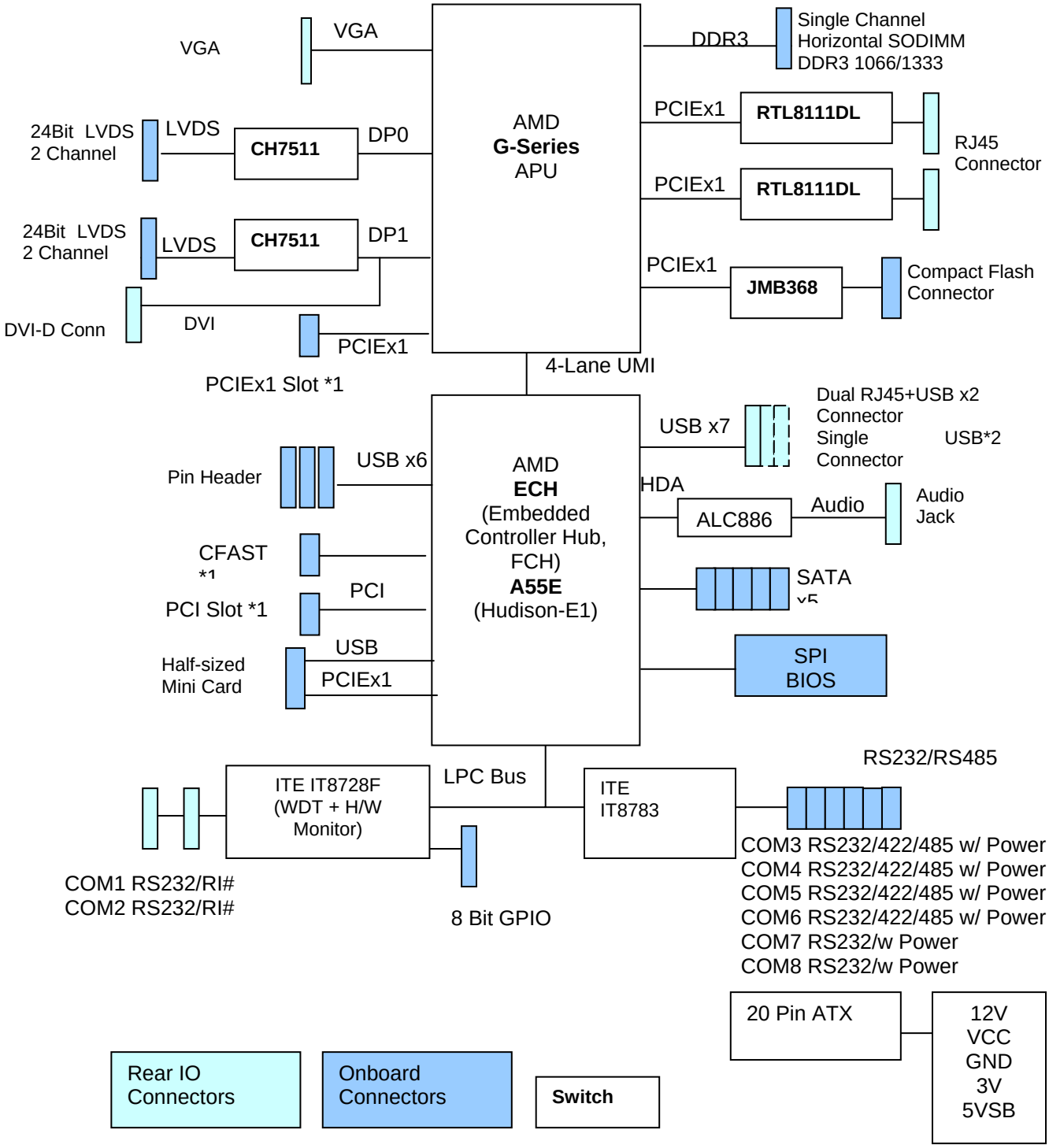



4-Ø4 holes/Ø8 pads
CF CARD SOCKET
限高 2mm
163.65
6.17
4.93
136.98
159.84
41.64
41.75
41
41
19.47
73.64
6-Ø3.2 holes/Ø6 pads

16.65
55.81
88.20
110.30
130.70
148.70

1.4 System Architecture

All of details operating relations are shown in WADE-8656 series System Block Diagram.



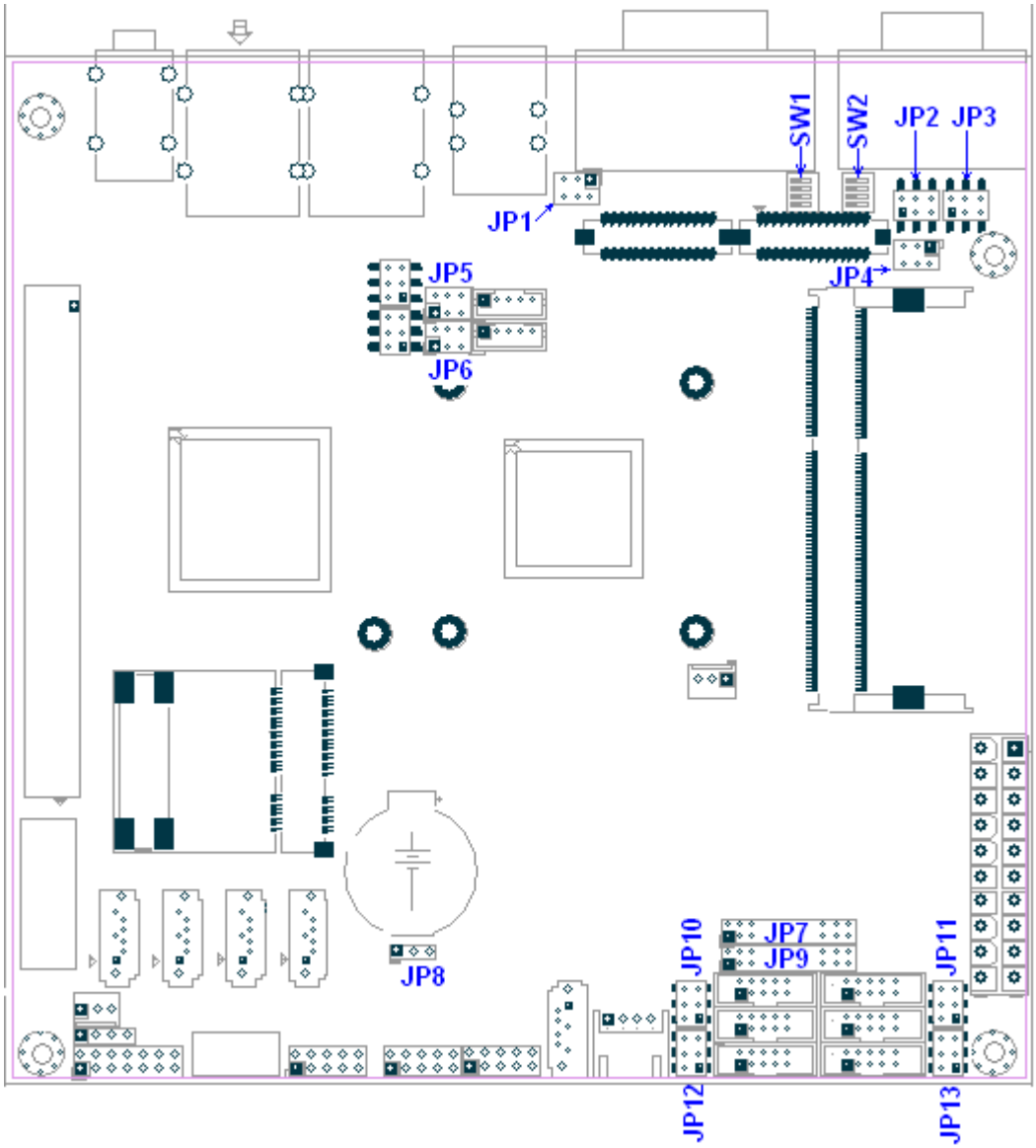
AMDY-7002 System Block Diagram

Chapter 2
Hardware Configuration

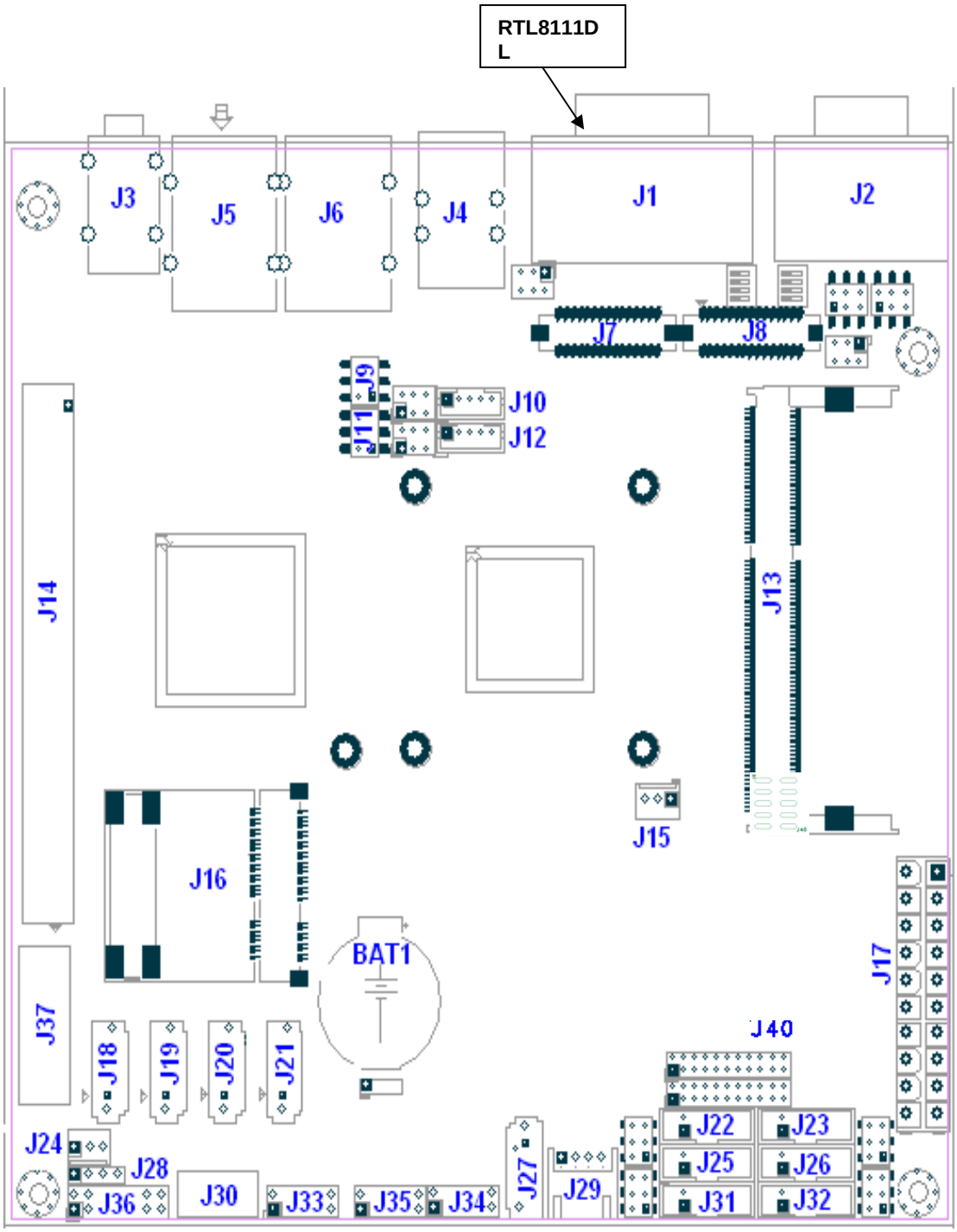
This chapter indicates jumpers' headers' and connectors' locations. User may find useful information related to hardware settings in this chapter. The default settings are indicated with a star sign (★)

2.1 Jumper Setting

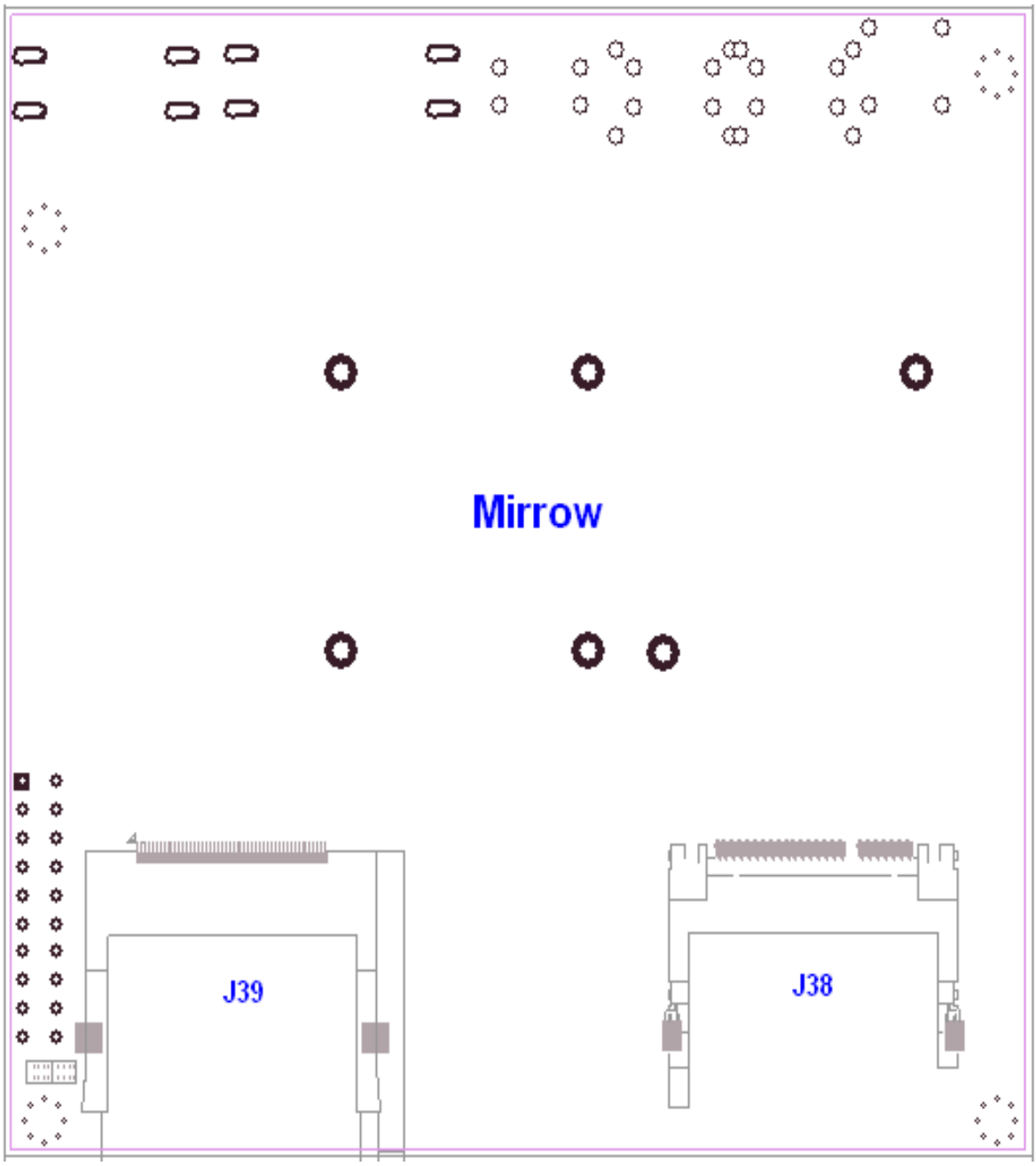
For users customize AMDY-7002's features. In the following sections, **Short** means covering a jumper cap over jumper pins; **Open** or **N/C** (Not Connected) means removing a jumper cap from jumper pins. Users can refer to Figure 1 and Figure 2 for the Jumper allocations.



Jumper map



Connector location on top layer

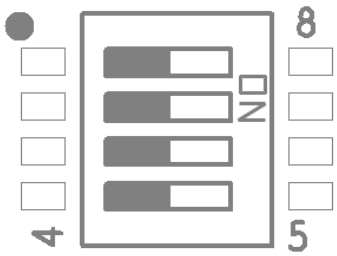


Connector location on bottom layer

Jumper setting

Reference	Description
JP1	LVDS0 panel VDD level selector 1-2: +3.3V 5-6: +5V(default)
JP2	COM1 (J2 lower) connector pin 9 function selector 1-2: +5V power 3-4: +12V

	5-6: Ring in (default)
JP3	COM2 (J2 upper) connector pin 9 function selector 1-2: +5V power 3-4: +12V 5-6: Ring in (default)
JP4	LVDS1 (J8) panel VDD level selector 1-2: +3.3V 5-6: +5V(default) * Note 1
JP5	LVDS0 (J7) panel back light inverter level and polarity selector: 1-3, 2-4 5V, Active High (default) 1-3, 4-6 12V, Active High 3-5,2-4 5V, Active Low 3-5,4-6 12V, Active Low
JP6	LVDS1 (J8) panel back light inverter level and polarity selector: 1-3, 2-4 5V, Active High (default) 1-3, 4-6 12V, Active High 3-5,2-4 5V, Active Low 3-5,4-6 12V, Active Low Note 1
JP7	COM6 protocol jumper setting: RS-232: 5-6,9-11,10-12,15-17,16-18 (default) RS-422: 3-4,7-9,8-10,13-15,14-16,21-22 RS-485: 1-2,7-9,8-10,19-20
JP8	CMOS battery charge / discharge selector: 1-2: charge (default) 2-3: discharge
JP9	COM5 (J25) protocol jumper setting: RS-232: 5-6,9-11,10-12,15-17,16-18 (default) RS-422: 3-4,7-9,8-10,13-15,14-16,21-22 RS-485: 1-2,7-9,8-10,19-20
JP10	COM5 connector (J25) pin 8 function selector 1-2: +5V power 3-4: +12V 5-6: Ring in (default)
JP11	COM6 connector (J26) pin 8 function selector 1-2: +5V power 3-4: +12V 5-6: Ring in (default)
JP12	COM3 connector (J31) pin 8 function selector 1-2: +5V power 3-4: +12V 5-6: Ring in (default)

<table>
<tr><td>JP13</td><td>COM4 connector (J32) pin 8 function selector
1-2: +5V power
3-4: +12V
5-6: Ring in (default)</td></tr>
<tr><td>SW1
 
圖示標示爲 0000
Default Setting 0011
應爲下圖
  </td><td>LVDS0 (J7) panel type selector. 0=Switch ON; 1= Switch OFF
<table>
<tr><td>SW1[3..0]</td><td>Panel model name</td><td>Resolution</td></tr>
<tr><td>0000</td><td>AUO G150XG01</td><td>1024x768x18bit, single channel</td></tr>
<tr><td>0001</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>0010</td><td>G121SN01 V3</td><td>800x600x24bit, single channel</td></tr>
<tr><td>0011(default)</td><td>G170EG01</td><td>1280x1024x24bit, dual channel</td></tr>
<tr><td>0100</td><td>M240HW01</td><td>1920x1080x24bit, dual channel</td></tr>
<tr><td>0101~1111</td><td>Reserved</td><td>Reserved</td></tr>
</table>
Note: SW1: 0001 panels has not been validate yet.</td></tr>
<tr><td>SW2
 
圖示標示爲 0000
Default Setting 0011
應爲下圖
  </td><td>LVDS1 (J8) panel type selector. 0=Switch ON; 1= Switch OFF
<table>
<tr><td>SW1[3..0]</td><td>Panel model name</td><td>Resolution</td></tr>
<tr><td>0000</td><td>AUO G150XG01</td><td>1024x768x18bit, Single channel</td></tr>
<tr><td>0001</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>0010</td><td>G121SN01 V3</td><td>800x600x24bit, single channel</td></tr>
<tr><td>0011(default)</td><td>G170EG01</td><td>1280x1024x24bit, dual channel</td></tr>
<tr><td>0100</td><td>M240HW01</td><td>1920x1080x24bit, dual channel</td></tr>
<tr><td>0101~1111</td><td>Reserved</td><td>Reserved</td></tr>
</table>
Note: SW1: 0001 panels has not been validate yet.</td></tr>
</table>

* **Note** 1: LVDS1 is an optional function.

Connector function description:

Reference	Function description
J1	DVI-D connector
J2	COM1 (lower) + COM2 (upper) connector
J3	Audio connector. MIC (pink), line out(lime), line in(light blue)
J4	PS2 connector + USB port 0, 1 connector
J5	LAN2 + USB port 2, USB port 3 connector
J6	LAN1 + USB port 4, USB port 5 connector
J7	LVDS0 connector
J8	LVDS1 connector. Note 1
J9	LVDS0 back light adjustment connector.
J10	LVDS0 back light inverter module connector
J11	LVDS1 back light adjustment connector
J12	LVDS1 back light inverter module connector
J13	DDR3 SO-DIMM
J14	Standard PCI slot
J15	CPU fan connector
J16	Mini PCI-Express connector
J17	ATX power connector
J18	SATA 0
J19	SATA 1
J20	SATA 2
J21	SATA 3
J22	COM7
J23	COM8
J24	System fan connector
J25	COM5
J26	COM6
J27	SATA5
J28	PC Speaker connector
J29	SATA device power (for J27)
J30	USB port 10
J31	COM3
J32	COM4
J33	USB port 6, 7
J34	USB port 12, 13
J35	USB port 8, 9
J36	Front panel connector
J37	PCI-E slot
J38	CFAST socket
J39	CF socket
J40	GPIO Header
J41	VGA Connector

Pin Assignments of Connectors

J1: VGA Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DVI D2-	9	DVI D1-	17	DVI D0-
2	DVI D2+	10	DVI D1+	18	DVI D0+
3	GND	11	GND	19	GND
4	NC	12	NC	20	NC
5	NC	13	NC	21	NC
6	DVI DDC CLK	14	+5V (350mA)	22	GND
7	DVI DDC DATA	15	GND	23	CLK+
8	NC	16	Hot plug	24	CLK-

J2: COM1, COM2 connector

PIN No.	Signal Description	PIN No.	Signal Description
1	DCD#	6	DSR#
2	RXD	7	RTS#
3	TXD	8	CTS#
4	DTR#	9	RI
5	GND	10	

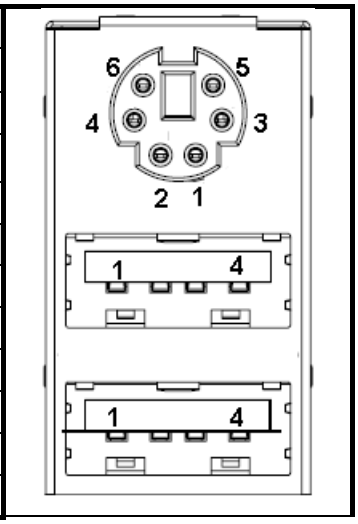
***Note:** Upper connector is COM2; lower connector is COM1

J3: Audio Connector

PIN No.	Description
1 (Blue)	Line In
2 (Lime)	Line Out
3 (Pink)	Micro phone

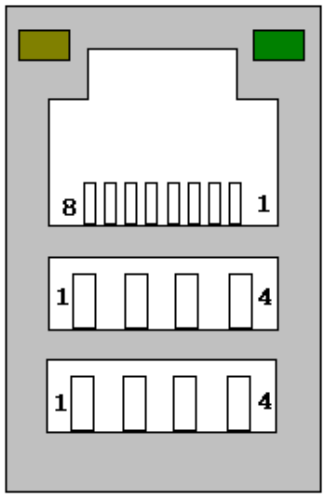
J4: PS2 + dual USB port Connector

USB PIN No.	Signal Description
1	USB Power(5V)
2	USB DATA-
3	USB DATA+
4	USB GND
PS2 PIN No.	**Signal Description**
1	MDAT
2	KDAT
3	GND
4	Power
5	MCLK
6	KCLK



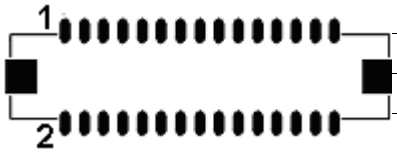
J5.J6 USB port 1,2,3,4 and LAN1, LAN2 RJ-45 Connector

USB PIN No.	Signal Description
1	USB Power(5V)
2	USB DATA-
3	USB DATA+
4	USB GND
RJ-45 PIN No.	**Signal Description**
1	MDIA+
2	MDIA-
3	MDIB+
4	MDIC+
5	MDIC-
6	MDIB-
7	MDID+
8	MDID-



***Note:** For J5, upper USB port is port 3, lower port is port 4. For J6, upper USB port is port 1 and lower USB port is port 2.

J7 :LVDS(LVDS0) and J8(LVDS1) Connector



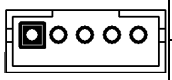
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
2	Panel VDD	1	Panel VDD
4	CHA TX0-	3	CHA TX0+
6	CHA TX1-	4	CHA TX1+
8	CHA TX2-	5	CHA TX2+
10	CHA TX3-	7	CHA TX3+
12	CHA CLK-	11	CHA CLK+
14	DDC DATA	13	DDC CLK
16	GND	15	GND
18	CHB TX0-	17	CHB TX0+
20	CHB TX1-	19	CHB TX1+
22	CHB TX2-	21	CHB TX2+
24	CHB TX3-	23	CHB TX3+
26	CHB CLK-	25	CHB CLK+
28	NC	27	NC
30	GND	29	GND

J9, J11 : LVDS panel back light dimmer Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	Back Light Up
3	NC	4	NC
5	GND	6	Back Light Down

***Note:** J9 is dedicate to LVDS0; J11 is dedicate to LVDS1

J10, J12: LVDS back light inverter Connector

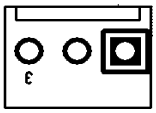
	PIN NO.	DESCRIPTION
	1	Enable
	2	GND
	3	+12V
	4	GND
	5	+5V

J14: PCI Slot

PIN No.	Function	PIN No.	Function
B1	-12V	A1	TRST#
B2	TCK	A2	+12V
B3	GND	A3	PTMS
B4	NC	A4	PTDI
B5	+5V	A5	+5V
B6	+5V	A6	PIRQA#
B7	PIRQB#	A7	PIRQC#
B8	PIRQD#	A8	+5V
B9	NC	A9	NC
B10	NC	A10	+5V
B11	NC	A11	NC
B12	GND	A12	GND
B13	GND	A13	GND
B14	NC	A14	+3.3VSB
B15	GND	A15	RESET#
B16	PCI 33MHz CLK	A16	+5V
B17	GND	A17	PGNT#
B18	PCI REQ#	A18	GND
B19	+5V	A19	PCI PME#
B20	AD31	A20	AD30
B21	AD29	A21	+3.3V
B22	GND	A22	AD28
B23	AD27	A23	AD26
B24	AD25	A24	GND
B25	+3.3V	A25	AD24
B26	C/BE3#	A26	IDSEL (AD21)

B27	AD23	A27	+3.3V
B28	GND	A28	AD22
B29	AD21	A29	AD20
B30	AD19	A30	GND
B31	+3.3V	A31	AD18
B32	AD17	A32	AD16
B33	C/BE2#	A33	+3.3V
B34	GND	A34	FRAME#
B35	IRDY#	A35	GND
B36	+3.3V	A36	TRDY#
B37	DEVSEL#	A37	GND
B38	GND	A38	STOP#
B39	PLOCK#	A39	+3.3V
B40	PERR#	A40	SMB CLK
B41	+3.3V	A41	SMB DATA
B42	SERR#	A42	GND
B43	+3.3V	A43	PAR
B44	C/BE1#	A44	AD15
B45	AD14	A45	+3.3V
B46	GND	A46	AD13
B47	AD12	A47	AD11
B48	AD10	A48	GND
B49	GND	A49	AD9
B50	KEY	A50	KEY
B51	KEY	A51	KEY
B52	AD8	A52	C/BE0#
B53	AD7	A53	+3.3V
B54	+3.3V	A54	AD6
B55	AD5	A55	AD4
B56	AD3	A56	GND
B57	GND	A57	AD2
B58	AD1	A58	AD0
B59	+5V	A59	+5V
B60	ACK64#	A60	REQ64#
B61	+5V	A61	+5V
B62	+5V	A62	+5V

J15: CPU Fan, J24: System Fan

	PIN NO.	DESCRIPTION
	1	GND
	2	Power Input
	3	Pulse

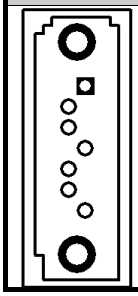
J16: Mini PCI-E Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	WAKE#	2	+3.3VSB
3	NC	4	GND
5	NC	6	+1.5V
7	CLKREQ#	8	NC
9	GND	10	NC
11	CLOCK-	12	NC
13	CLOCK+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	PU to +3.3VSB
21	GND	22	RESET#
23	PCI-E RX-	24	+3.3VSB
25	PCI-E RX+	26	GND
27	GND	28	+1.5V
29	GND	30	SMB CLK
31	PCI-E TX-	32	SMB DATA
33	PCI-E TX+	34	GND
35	GND	36	USBD-
37	GND	38	USBD+
39	+3.3VSB	40	GND
41	+3.3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	+3.3VSB

J17: ATX Power Connector

PIN No.	Function	PIN No.	Function
11	+3.3V	1	+3.3V
12	-12V	2	+3.3V
13	GND	3	GND
14	PSON#	4	+5V
15	GND	5	GND
16	GND	6	+5V
17	GND	7	GND
18	NC	8	POWER OK
19	+5V	9	+5VSB
20	+5V	10	+12V

J18.J19, J20 ,J21,J27: SATA Connector

	PIN NO.	DESCRIPTION
	1	GND
	2	TX+
	3	TX-
	4	GND
	5	RX-
	6	RX+
	7	GND

J22 (COM7), J23(COM8), J25(COM5), J26(COM6),J31(COM3),J32(COM4)

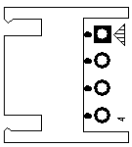
PIN No.	Function	PIN No.	Function
1	DCD#	2	RXD
3	TXD	4	DTR#
5	GND	6	DSR#
7	RTS#	8	CTS#
9	Power / RI#	10	NC

Note: Function of pin 9 Power / RI# can be define as +5V output, +12V output and Modem Ring In, depend on jumper setting of JP10, JP11, JP12, JP13.

J28: PC Speaker Connector

PIN No.	Signal Description
1	PC Speaker
2	NC
3	GND
4	+5V

J29: SATA power Connector

	PIN NO.	DESCRIPTION
	1	+12V
	2	GND
	3	GND
	4	+5V

J30: USB Port 10 Connector

PIN No.	Signal Description
1	USBV
2	USBD-
3	USBD+
4	USBG

J33: (USB Port 6.7),J34(USB Port 12.13,J35(USB Port 8.9)

PIN No.	Function	PIN No.	Function
1	+5V	2	+5V
3	USBDA-	4	USBDB-
5	USBDA+	6	USBDB+
7	GND	8	GND
		10	Case GND

J36: Front Panel Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDD LED+	2	Power LED+
3	HDD LED-	4	Power LED-
5	GND	6	Power button#
7	SYSRST#	8	GND
9	NC	10	NC
11	GND	12	GND
13	Reserved	14	NC

J37: PCI-Ex1 Connector

PIN NO.	Single Description	PIN NO.	Single Description
B1	+12V	A1	NC
B2	+12V	A2	+12V
B3	+12V	A3	+12V
B4	GND	A4	GND
B5	SMBUS CLK	A5	NC
B6	SMBUS DATA	A6	NC
B7	GND	A7	NC
B8	3.3V	A8	NC
B9	NC	A9	+3.3V
B10	3.3V standby	A10	+3.3V
B11	WAKE UP#	A11	PCIE_RST#
B12	NC	A12	GND
B13	GND	A13	PCIE_CLOCK+
B14	PCIE_TX0+	A14	PCIE_CLOCK-
B15	PCIE_TX0-	A15	GND
B16	GND	A16	PCIE_RX0+
B17	PRESENT#	A17	PCIE_RX0-
B18	GND	A18	GND

J38: CFAST connector

PIN NO.	Single Description	PIN NO.	Single Description
S1	GND	PC1	NC
S2	SATA TX+	PC2	GND
S3	SATA TX-	PC3	NC
S4	GDN	PC4	NC
S5	SATA RX-	PC5	NC
S6	SATA RX+	PC6	NC
S7	GND	PC7	GND
		PC8	Link to LED D45
		PC9	Link to LED D45
		PC10	NC
		PC11	NC
		PC12	NC
		PC13	+3.3V
		PC14	+3.3V
		PC15	GND
		PC16	GND
		PC17	NC

J39: CF card socket

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	26	Pull down
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CS#0	32	CS#1
8	GND	33	Pull down
9	GND	34	IOR#
10	GND	35	IOW#
11	GND	36	Pull up
12	GND	37	IRQ
13	+3.3V	38	+3.3V
14	GND	39	Pull up
15	GND	40	NC
16	GND	41	RESET#
17	GND	42	IORDY
18	A2	43	DREQ
19	A1	44	DACK
20	A0	45	ACT#
21	DATA0	46	Pull down
22	DATA1	47	DATA8

23	DATA2	48	DATA9
24	NC	49	DATA10
25	Pull down	50	GND

J40: GPIO header

PIN No.	Signal Description	PIN No.	Signal Description
1	GP0	2	GP4
3	GP1	4	GP5
5	GP2	6	GP6
7	GP3	8	GP7
9	GND	10	VCC

***Note:**
This GPIO uses TTL level.
GPIO base address is 4EE, default direction is output.

J41: VGA connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	6	Reserved	11	NC
2	GREEN	7	GND	12	DDC DATA
3	BLUE	8	GND	13	HSYNC
4	NC	9	NC	14	VSYNC
5	GND	10	GND	15	DDC CLK

Chapter 3
System Installation

This chapter provides you with instructions to set up your system. The additional information is enclosed to help you set up onboard PCI device and handle Watch Dog Timer (WDT) and operation of GPIO in software programming.

3.1 AMD G-Series FT1 Processors

The AMDY-7002 supports AMD G-Series FT1 (FCBGA-413) CPU. It provides very low TDP for different applications that need fan-less. It is using latest AMD G-Series Processor. Please see attached table for more detail.
The core logic chipset is AMD A55E ECH. From 2011, this 2-chips new platform will be main-stream for next generation AMD platform architecture.
All the AMD FT1 CPU and ECH chipset are in AMD embedded roadmap that has longevity support at least 2016.

AMDY-7002-T56N	• 1.6GHz, Dual Core, Dual LAN with CFAST and Express mini-card socket, 8 COM, single DP to LVDS (DP0), with DVI
AMDY-7002-T56N-D	• 1.6GHz, Dual Core, Dual LAN with CFAST and Express mini-card socket, 8 COM , with dual DP to LVDS, NO DVI

3.2 Main Memory

AMDY-7002 provide 1 x 204-pin SO-DIMM sockets which supports 1066/1333 DDR3-SDRAM as main memory, Non-ECC (Error Checking and Correcting), non-register functions. The maximum memory size can be up to 4GB capacity. Memory clock and related settings can be detected by BIOS via SPD interface.

For system compatibility and stability, do not use memory module without brand. Memory configuration can be either one double-sided DIMM in either one DIMM socket or two single-sided SO-DIMM in both sockets.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install memory module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

3.3 Installing the Single Board Computer

To install your AMDY-7002 into standard chassis or proprietary environment, please perform the following:

Step 1 : Check all jumpers setting on proper position
Step 2 : Install and configure CPU and memory module on right position
Step 3 : Place AMDY-7002 into the dedicated position in the system
Step 4 : Attach cables to existing peripheral devices and secure it

WARNING

Please ensure that SBC is properly inserted and fixed by mechanism.

Note:
Please refer to section 3.3.1 to 3.3.4 to install INF/VGA/LAN/Audio drivers.

3.3.1 Chipset Component Driver

The chipset on AMDY-7002 is a new chipset that a few old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows XP /WIN7, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in AMDY-7002 CD-title.

3.3.2 Integrated Graphics

AMDY-7002 has APU integrated next generation HD6320 DX11 discrete GPU. The graphic memory is shared from system memory (UMA), max is TBD.

Drivers Support

Please find driver in the AMDY-7002 CD-title. Drivers support Windows XP, Windows 7.

3.3.3 Realtek Gigabit Ethernet Controller

Drivers Support

Two Gigabit Ethernet controllers are supported on AMDY-7002 Series. Both Ethernet need to be PCIEx1 interface and support above functionality:

- PXE, Boot from LAN, can be disabled by BIOS individually.
- WOL, Wake on LAN, can be disabled by BIOS individually.
- Support 10/100/1000 access.
- Link / Access LED (Green), Speed LED (Black-10, Green-100, Orange-1000). If LAN cable not installed, all LED need to be turn off.

Please find Realtek RTL8111DL LAN driver in /Ethernet directory of AMDY-7002 CD-title. The drivers support Windows XP /7.

LED Indicator (for LAN status)

AMDY-7002 provides two LED indicators to report Realtek RTL8111DL Gigabit Ethernet interface status. Please refer to the table below as a quick reference guide.

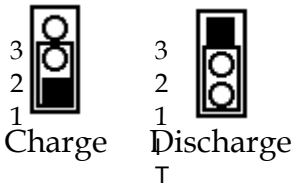
8111C	Color	Name of LED	Operation of Ethernet Port		
			Linked	Active	
Status LED	Orange	LAN Linked & Active LED	On	Blinking	
Speed LED	Orange	LAN speed LED	Giga Mbps	100 Mbps	10 Mbps
	Green		Orange	Green	Off

3.3.4 Audio Controller

Please find Realtek ALC886 Audio driver form AMDY-7002 CD-title. The drivers support Windows XP /7.

3.4 Clear CMOS Operation

The following table indicates how to enable/disable Clear CMOS Function hardware circuit by putting jumpers at proper position.



Charge Discharge

3.5 WDT Function

The working algorithm of the WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval settings by software or hardware varies from Boards to boards.

WDT Control Command Example

```
#include <stdio.h>
#include <conio.h>
#include <dos.h>
#define SIO_Port 0x2E
#define SIO_Port2 0x4E
#define GPIO_LDN 0x07
void Enter_IT872x_SIO() {
outportb(SIO_Port, 0x87);
outportb(SIO_Port, 0x01);
outportb(SIO_Port, 0x55);
outportb(SIO_Port, 0x55);
}
void Set_LDN(unsigned char LDN) {
outportb(SIO_Port, 0x07);
outportb(SIO_Port+1, LDN);
printf("LDN=%x\n", LDN);
}
void Set_Register(unsigned char offset, unsigned char value) {
outportb(SIO_Port, offset);
outportb(SIO_Port+1, value);
printf("Write offset:%x = %x\n", offset, value);
}
int main(void) {
printf("test string\n");
Enter_IT872x_SIO();
Set_LDN(GPIO_LDN);
Set_Register(0x72, 0xC0);
Set_Register(0x73, 0x05);
printf("System will reset in 5 seconds\n");
return 0;
}
```

3.6 GPIO

The AMDY-7002 provides 8 programmable input or output ports that can be individually configured to perform a simple basic I/O function. Users can configure each individual port to become an input or output port by programming register bit of I/O Selection. To invert port value, the setting of Inversion Register has to be made.
Port values can be set to read or write through Data Register.

3.6.1 Pin assignment

JP11	Function
Pin 1	GP 0
Pin 2	GP 4
Pin 3	GP 1
Pin 4	GP 5
Pin 5	GP 2
Pin 6	GP 6
Pin 7	GP 3
Pin 8	GP 7
Pin 9	GND
Pin 10	VCC

***Note:**
a. This GPIO uses TTL level.
b. GPIO base address is 4EE, default direction is output.

3.6.2 Demo Program

The following is demo program source code by C language.

```
#include <stdio.h>
#include <conio.h>
#include <stdlib.h>
#define SIO_Port 0x2E
#define SIO_Port2 0x4E
#define GPIO_LDN 0x07
#define GPIO_Base 0x0A00
//Enter SIO
void Enter_IT872x_SIO() {
outp(SIO_Port, 0x87);
outp(SIO_Port, 0x01);
outp(SIO_Port, 0x55);
outp(SIO_Port, 0x55);
}
//Select LDN
```

```
void Set_LDN(unsigned char LDN) {
outp(SIO_Port, 0x07);
outp(SIO_Port+1, LDN);
//printf("LDN=%x\n", LDN);
}
//Set register offset to Value
void Set_Register(unsigned char offset, unsigned char value) {
outp(SIO_Port, offset);
outp(SIO_Port+1, value);
//printf("Write offset:%x = %x\n", offset, value);
}
//Or register
void Or_Register(unsigned char offset, unsigned char value) {
outp(SIO_Port, offset);
outp(SIO_Port+1, inp(SIO_Port+1) | value);
//printf("Write offset:%x = %x\n", offset, value);
}
//And register
void And_Register(unsigned char offset, unsigned char value) {
outp(SIO_Port, offset);
outp(SIO_Port+1, inp(SIO_Port+1) & value);
//printf("Write offset:%x = %x\n", offset, value);
}
int main(void) {
int result;
printf("RUBY-D712 GPIO Test:\n");
//pin1 =11
//pin3 =12
//pin5 =47
//pin7 =50
//pin9 =74
//pin11=75
//pin13=76
//pin15=77
//pin2 =14
//pin4 =35
//pin6 =36
//pin8 =37
//pin10=70
//pin12=71
//pin14=72
//pin16=73
Enter_IT872x_SIO();
Set_LDN(GPIO_LDN);
//Enable GPIO
//Or_Register(0xC0,0x46) //11,12,14
```

```
//Or_Register(0xC2,0xE0) //35,36,37
//Or_Register(0xC3,0x80) //47
//Or_Register(0xC4,0x01) //50
//Set Output
Or_Register(0xC8,0x06); //11,12
Or_Register(0xCB,0x80); //47
Or_Register(0xCC,0x01); //50
Or_Register(0xCE,0xF0); //74,75,76,77
//Set Input
And_Register(0xC8,0xEF); //14
And_Register(0xCA,0x1F); //35,36,37
And_Register(0xCE,0xF0); //70,71,72,73
//output high
outp(GPIO_Base+0,0x06); //11,12
outp(GPIO_Base+3,0x80); //47
outp(GPIO_Base+4,0x01); //50
outp(GPIO_Base+6,0xF0); //74,75,76,77
result=1;
if ((inp(GPIO_Base+0)&0x10)!=0x10) result=0;
if ((inp(GPIO_Base+2)&0xE0)!=0xE0) result=0;
if ((inp(GPIO_Base+6)&0x0F)!=0x0F) result=0;
if (result==0){
printf("Test fail!!\n");
return 1;
}
//output low
outp(GPIO_Base+0,inp(GPIO_Base+0)&0xF9); //11,12
outp(GPIO_Base+3,inp(GPIO_Base+3)&0x7F); //47
outp(GPIO_Base+4,inp(GPIO_Base+4)&0xFE); //50
outp(GPIO_Base+6,inp(GPIO_Base+6)&0x0F); //74,75,76,77
result=1;
if ((inp(GPIO_Base+0)&0x10)!=0x00) result=0;
if ((inp(GPIO_Base+2)&0xE0)!=0x00) result=0;
if ((inp(GPIO_Base+6)&0x0F)!=0x00) result=0;
if (result==0){
printf("Test fail!!\n");
return 1;
}
////////////////////////////////////////////////
//Set Input
And_Register(0xC8,0xF9); //11,12
And_Register(0xCB,0x7F); //47
And_Register(0xCC,0xFE); //50
And_Register(0xCE,0x0F); //74,75,76,77
//Set output
Or_Register(0xC8,0x10); //14
```

```
Or_Register(0xCA,0xE0); //35,36,37
Or_Register(0xCE,0x0F); //70,71,72,73
//output high
outp(GPIO_Base+0,0x10); //14
outp(GPIO_Base+2,0xE0); //35,36,37
outp(GPIO_Base+6,0x0F); //70,71,72,73
result=1;
if ((inp(GPIO_Base+0)&0x06)!=0x06) result=0; //11,12
if ((inp(GPIO_Base+3)&0x80)!=0x80) result=0; //47
if ((inp(GPIO_Base+4)&0x01)!=0x01) result=0; //50
if ((inp(GPIO_Base+6)&0xF0)!=0xF0) result=0; //74,75,76,77
if (result==0){
printf("Test fail!!\n");
BIOS Setup Information
WADE-8011/WADE-8012 User's Manual 3-13
return 1;
}
//output low
outp(GPIO_Base+0,inp(GPIO_Base+0)&0xEF); //14
outp(GPIO_Base+2,inp(GPIO_Base+2)&0x1F); //35,36,37
outp(GPIO_Base+6,inp(GPIO_Base+6)&0xF0); //70,71,72,73
result=1;
if ((inp(GPIO_Base+0)&0x06)!=0x00) result=0; //11,12
if ((inp(GPIO_Base+3)&0x80)!=0x00) result=0; //47
if ((inp(GPIO_Base+4)&0x01)!=0x00) result=0; //50
if ((inp(GPIO_Base+6)&0xF0)!=0x00) result=0; //74,75,76,77
if (result==0){
printf("Test fail!!\n");
return 1;
}
//getchar ();
printf("Test Pass!!\n");
return 1;
```

Chapter 4
BIOS Setup Information

AMDY-7002 is equipped with the Phoenix BIOS stored in Flash ROM. These BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it is retained during power-off periods. When system is turned on, AMDY-7002 communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start up.

4.1 Entering Setup -- Launch System Setup

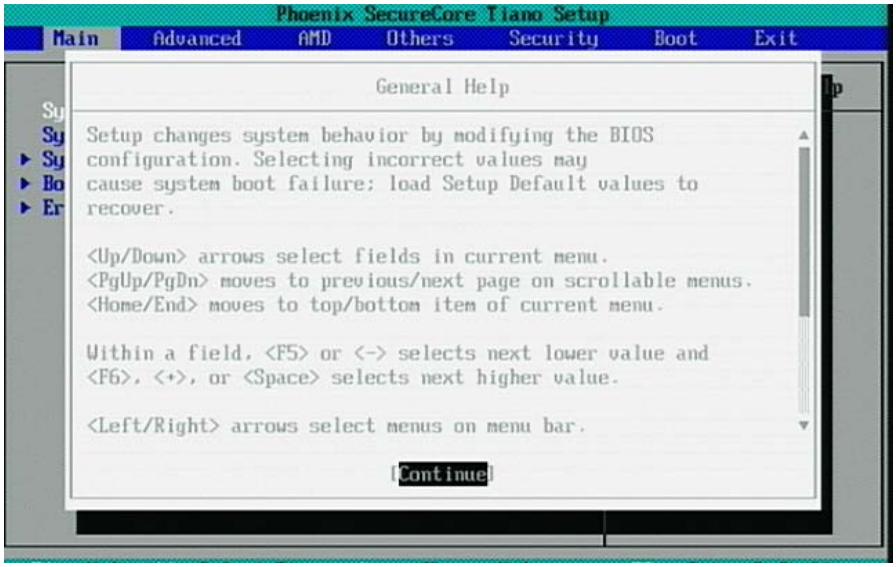
Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <F2> key to enter Setup.

Press <F2> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

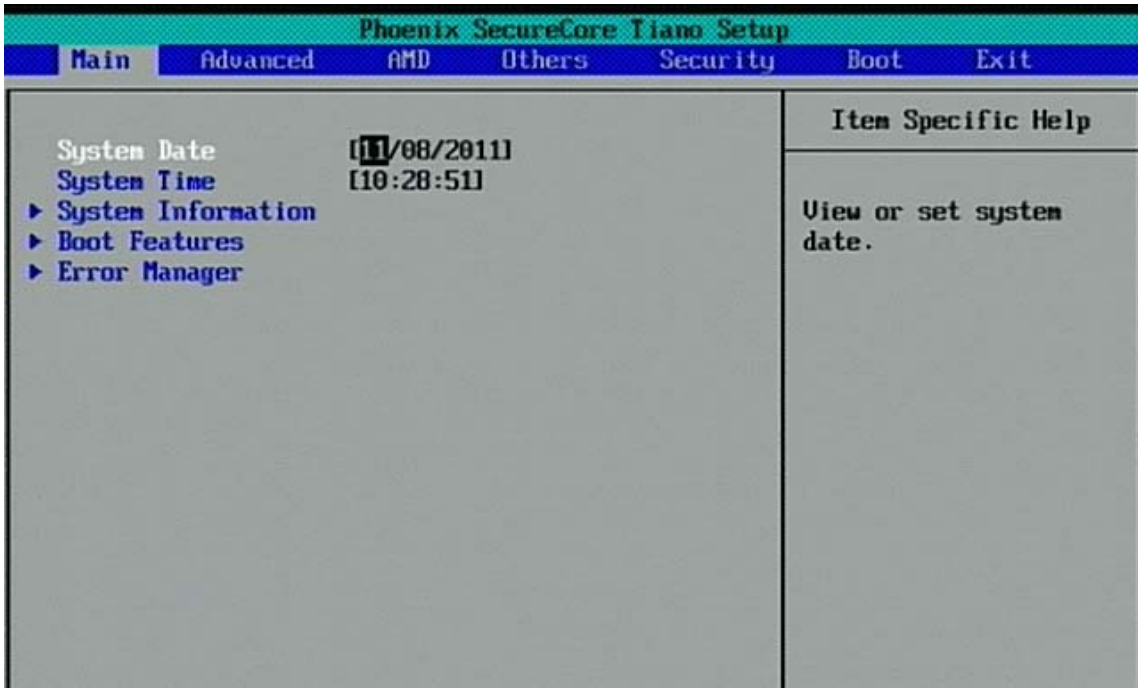
Press <F2> to Run SETUP or Press <F1> to Comtinue

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.



4.2 Main Menu

Use this menu for basic system configurations, such as time, date etc.

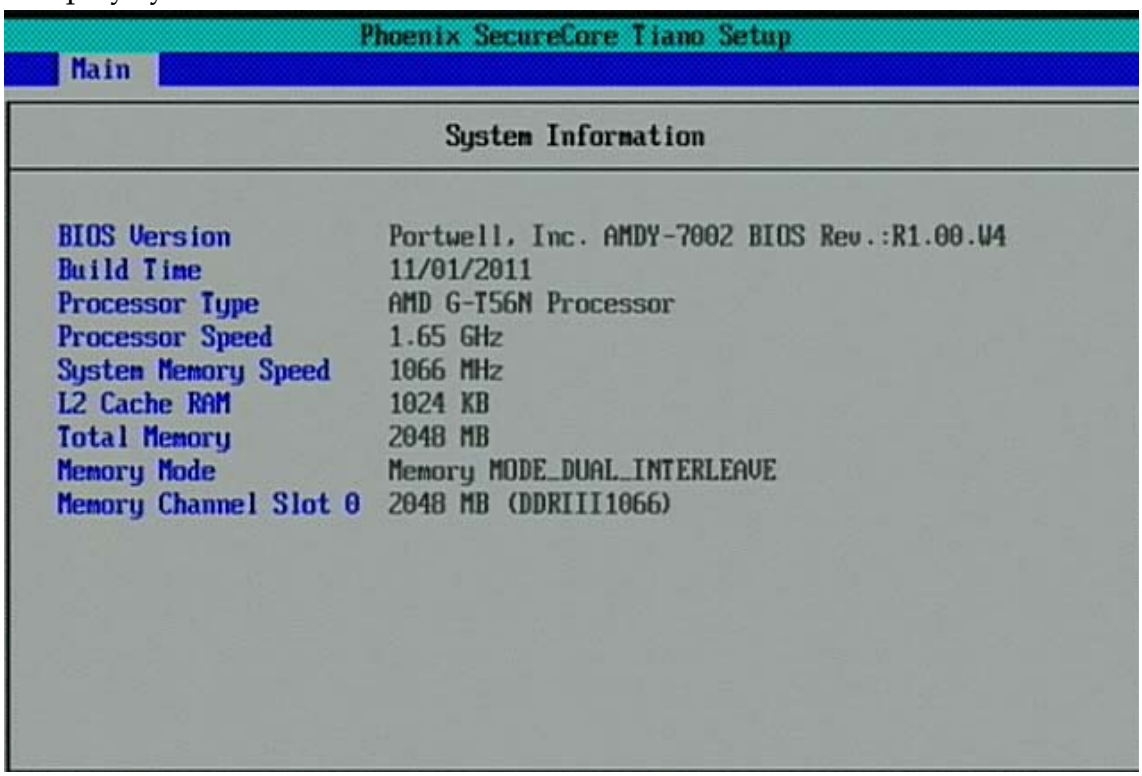


System Date
The date format is <Day>, <Month> <Date> <Year>. Use [+] or [−] to configure system Date.

System Time
The time format is <Hour> <Minute> <Second>. Use [+] or [−] to configure system Time.

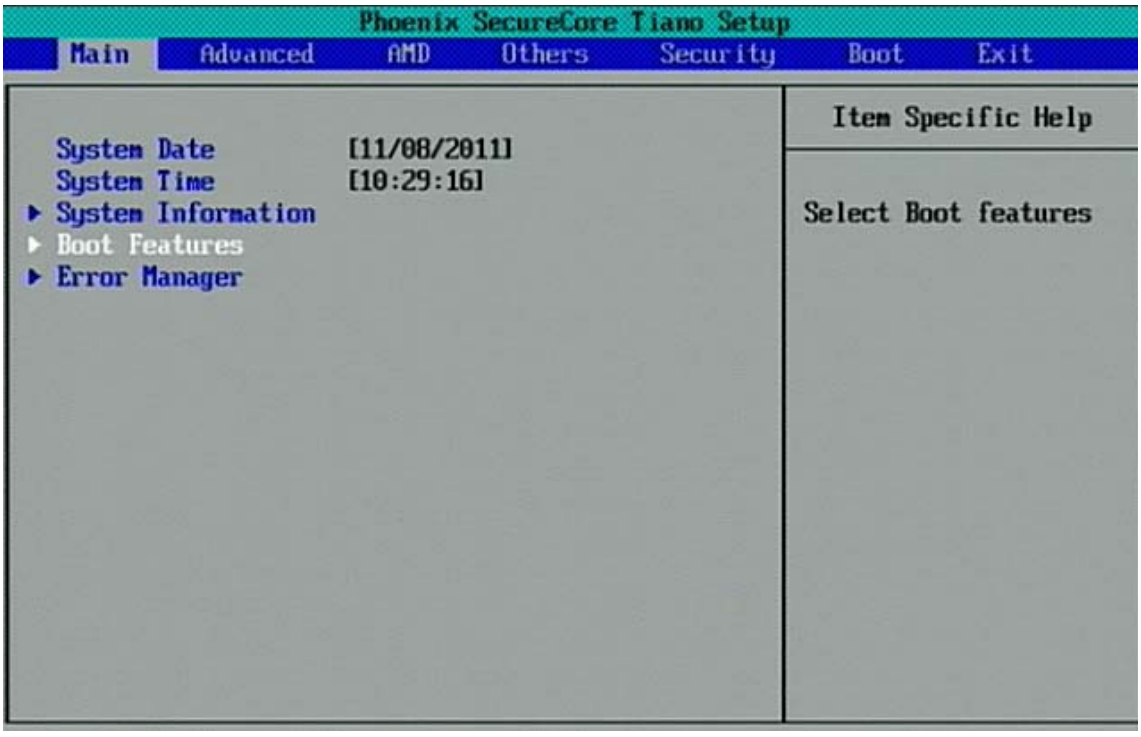
System information

Display system information.

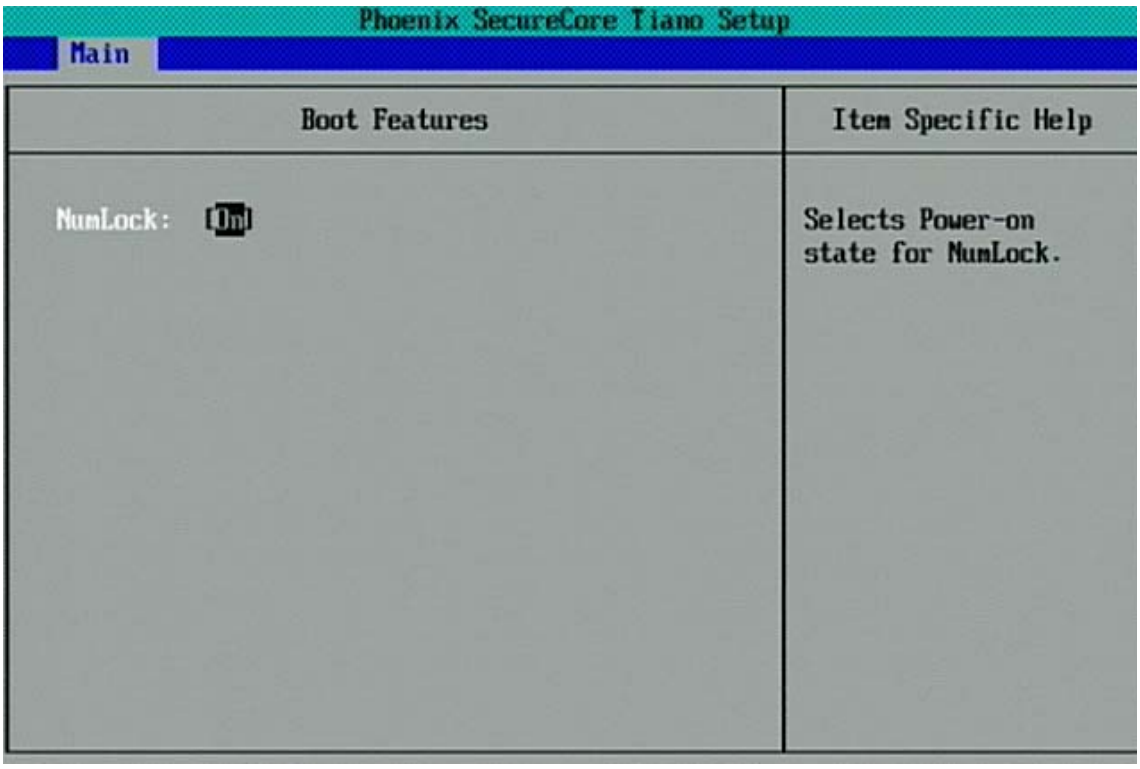


Boot Feature

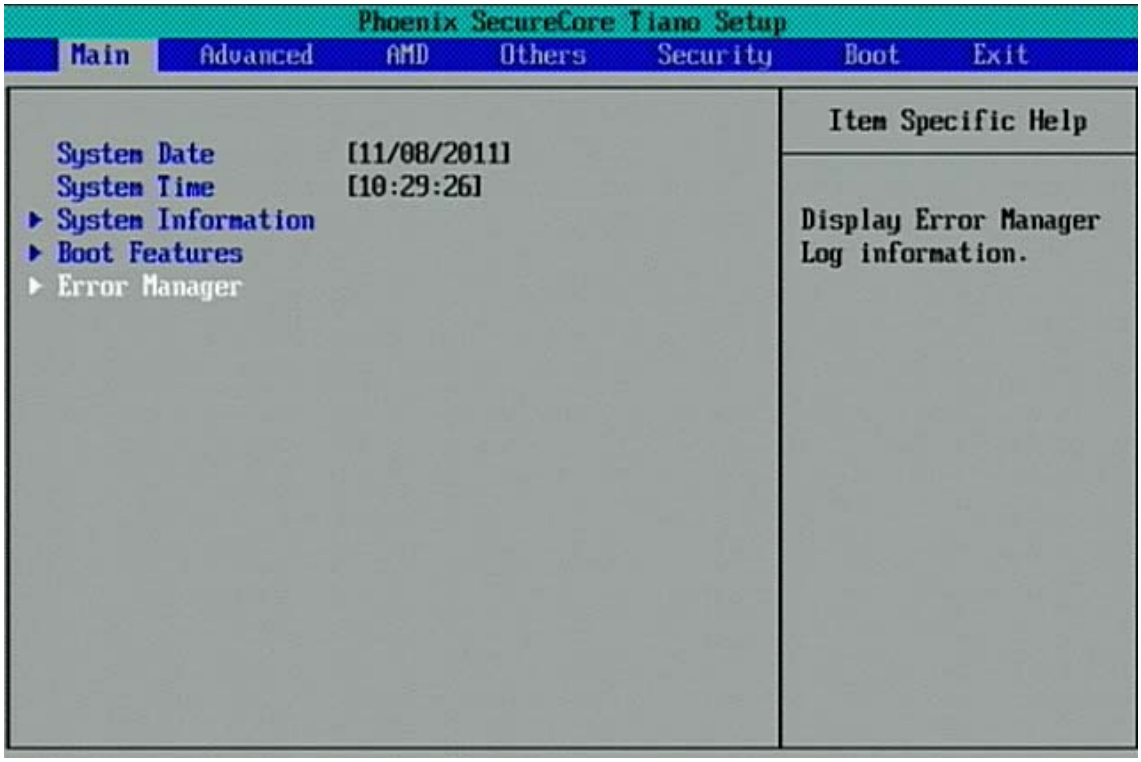
Select Boot features



NumLock
Select Power-on state for NumLock

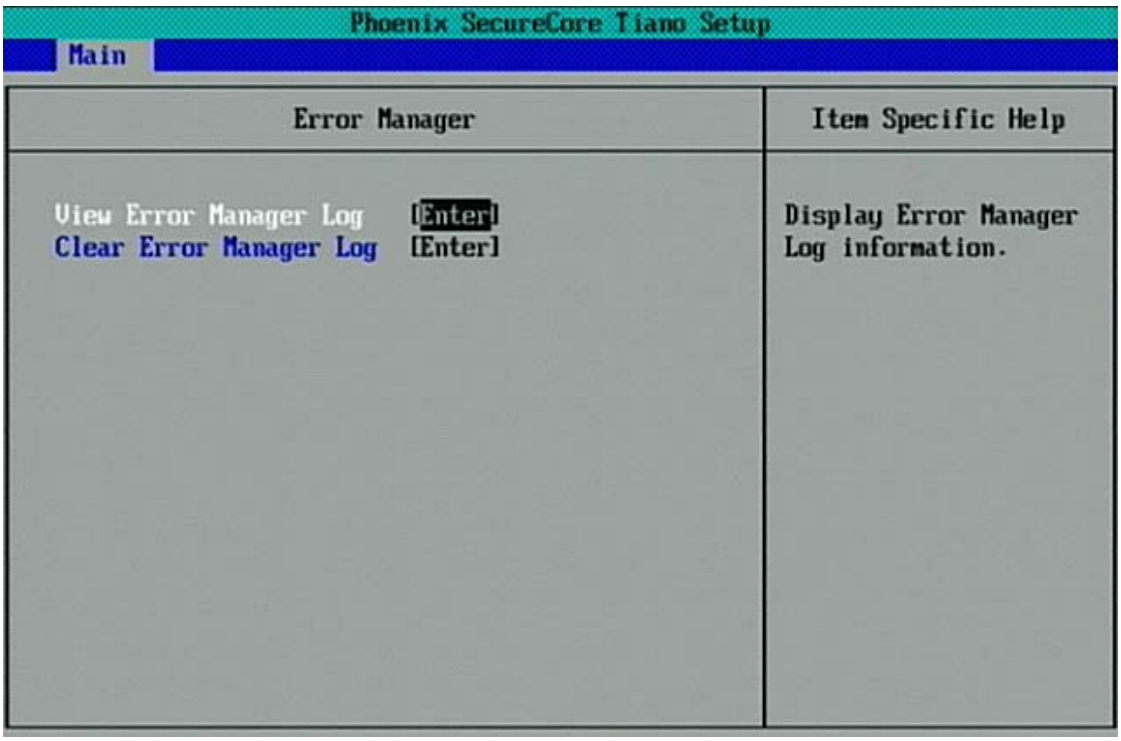


Error Manager
Display Error Manager Log information.



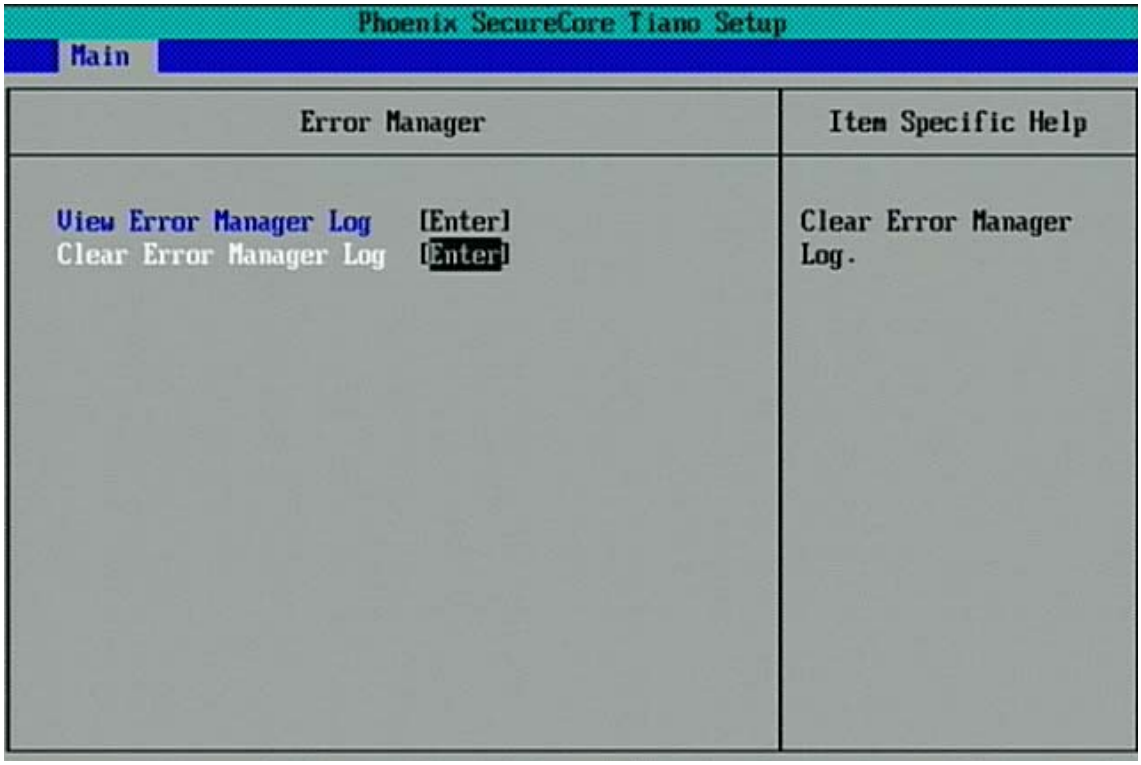
View Error Manager Log

Display Error Manager Log information.



Clear Error Manager Log

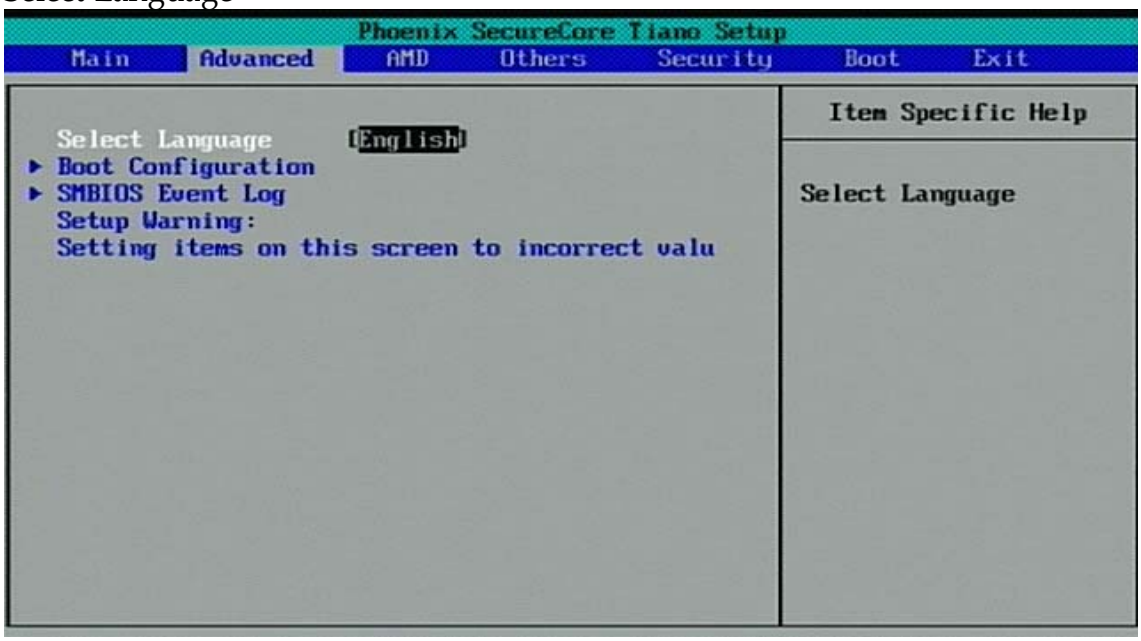
Clear Error Manager Log.



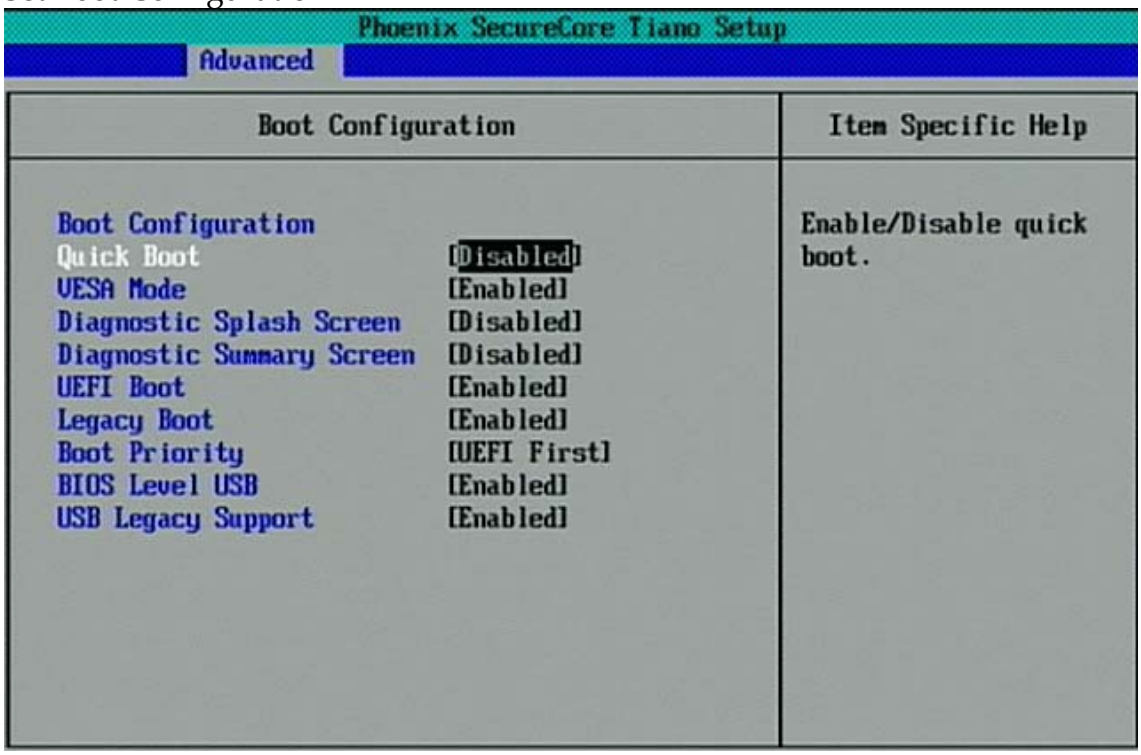
4.3 Advanced

Use this menu to set up the items of special enhanced features.

Select Language
Select Language



Boot Configuration
Set Boot Configuration



Quick Boot
Enable/Disable quick boot.

VESA Mode
Enable/Disable VESA mode.

Diagnostic Splash Screen
If you select "Enabled" the diagnostic splash screen always displays during boot.
If you select "Disabled" the diagnostic splash screen does not display unless you press HOTKEY during boot.

Diagnostic Summary Screen
Display the Diagnostic summary screen during boot.

UEFI Boot
Enable the UEFI boot.

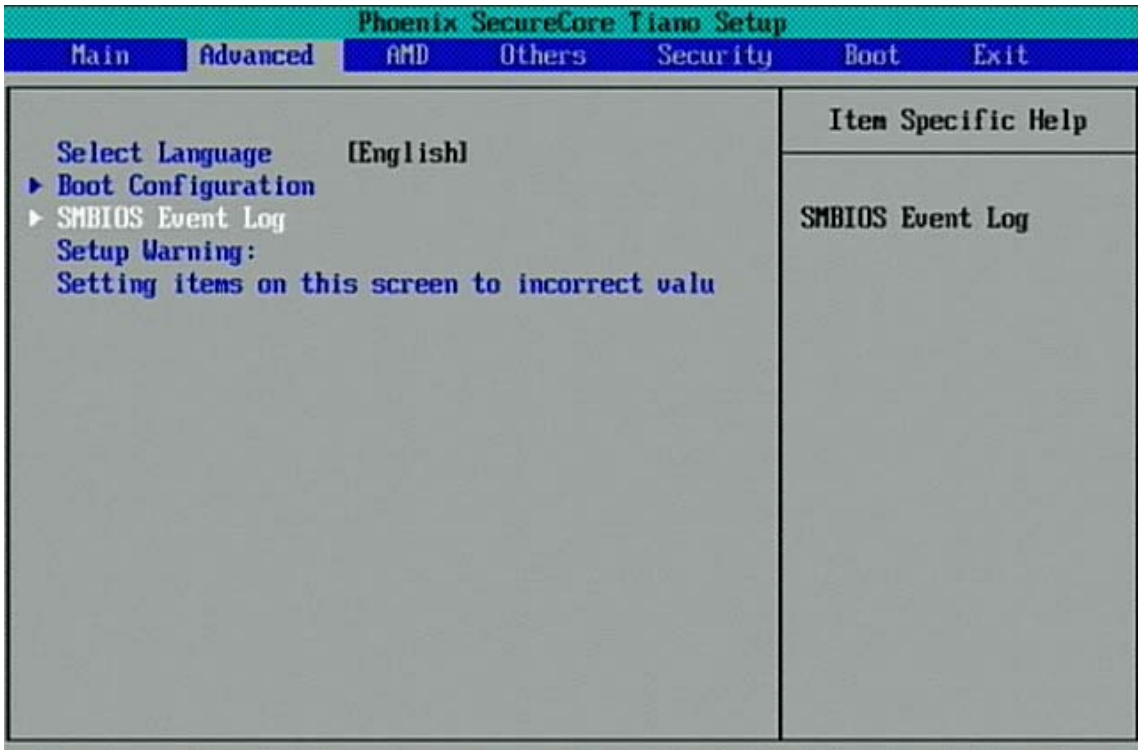
Legacy Boot
Enable the Legacy boot.

Boot Priority
Select priority of boot option between UEFI and Legacy.

BIOS Level USB
Enable/Disable all BIOS support for USB in order to reduce boot time.

USB Legacy Support
Enable/Disable USB BIOS SMM support for mouse, keyboard, mass storage, etc, in legacy operating systems such as DOS.

SMBIOS Event Log
SMBIOS Event Log.



Event Log
Enable/Disable Event Log.

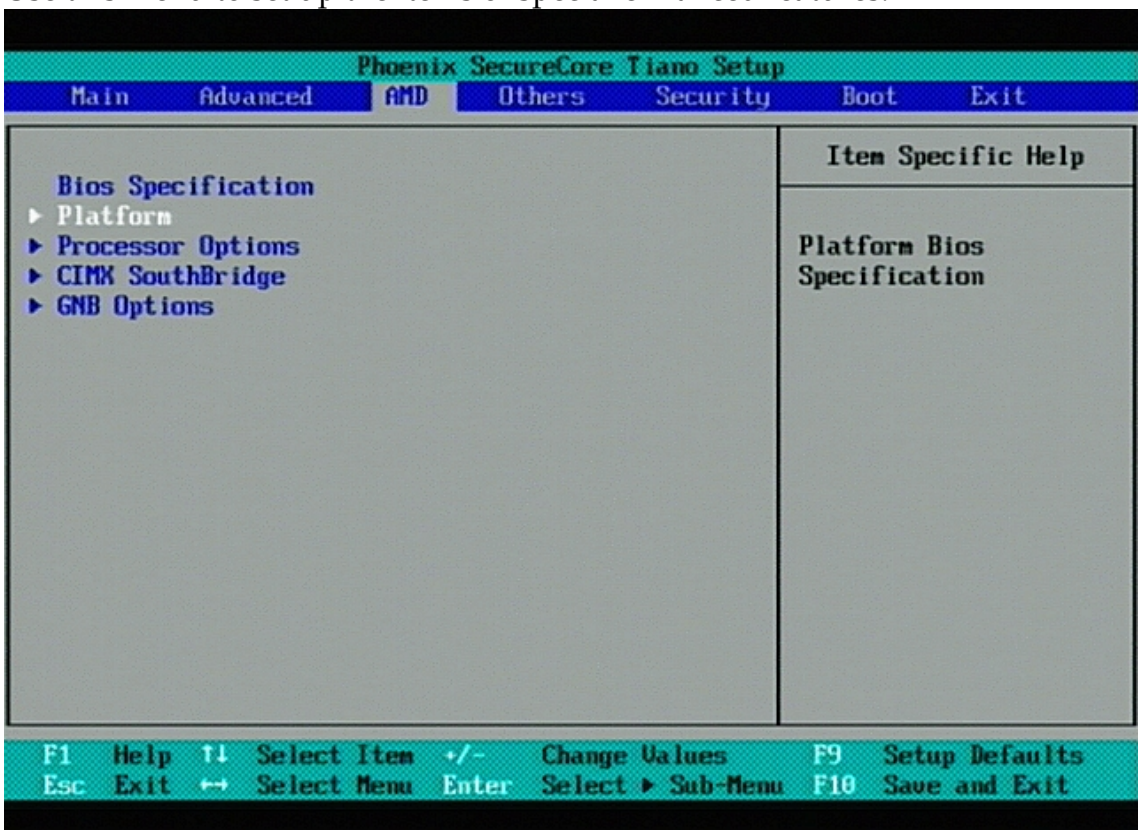
View SMBIOS event Log
View SMBIOS event Log.

Mark SMBIOS events as read
Yes or No

Clean SMBIOS events
Clean SMBIOS events.

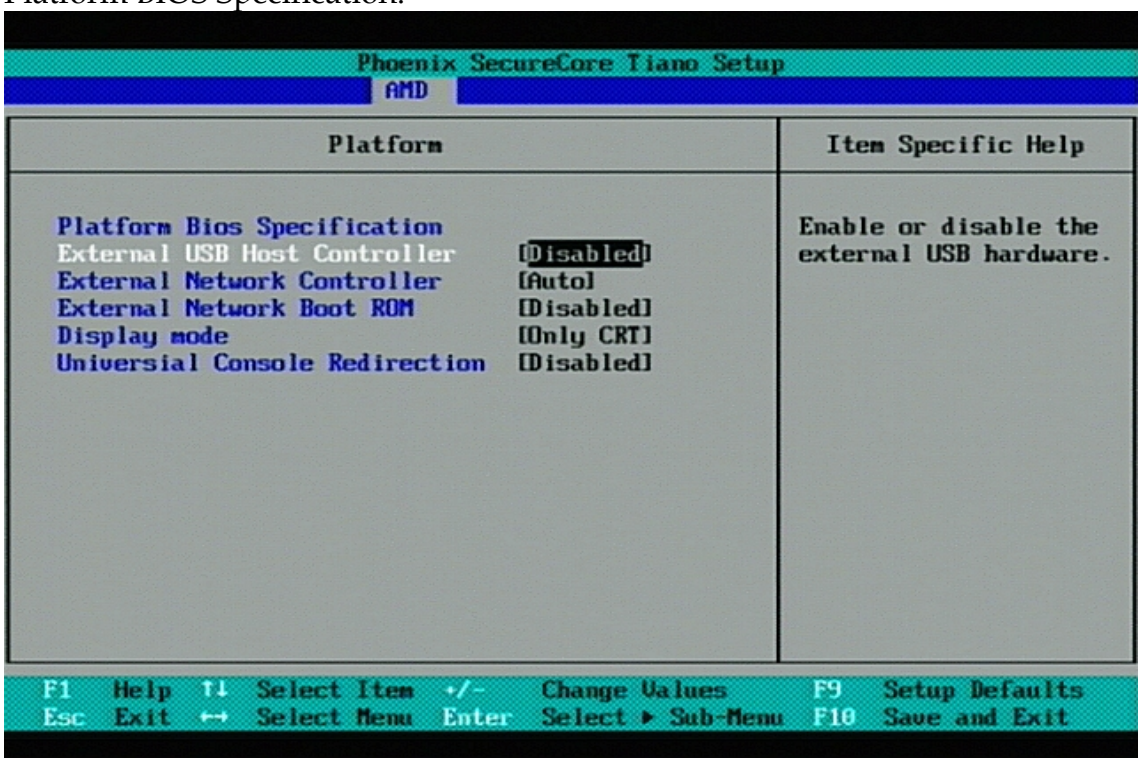
4.4 AMD

Use this menu to set up the items of special enhanced features.



Platform

Platform BIOS Specification.



External USB Host Controller
Enable or disable the external USB hardware.

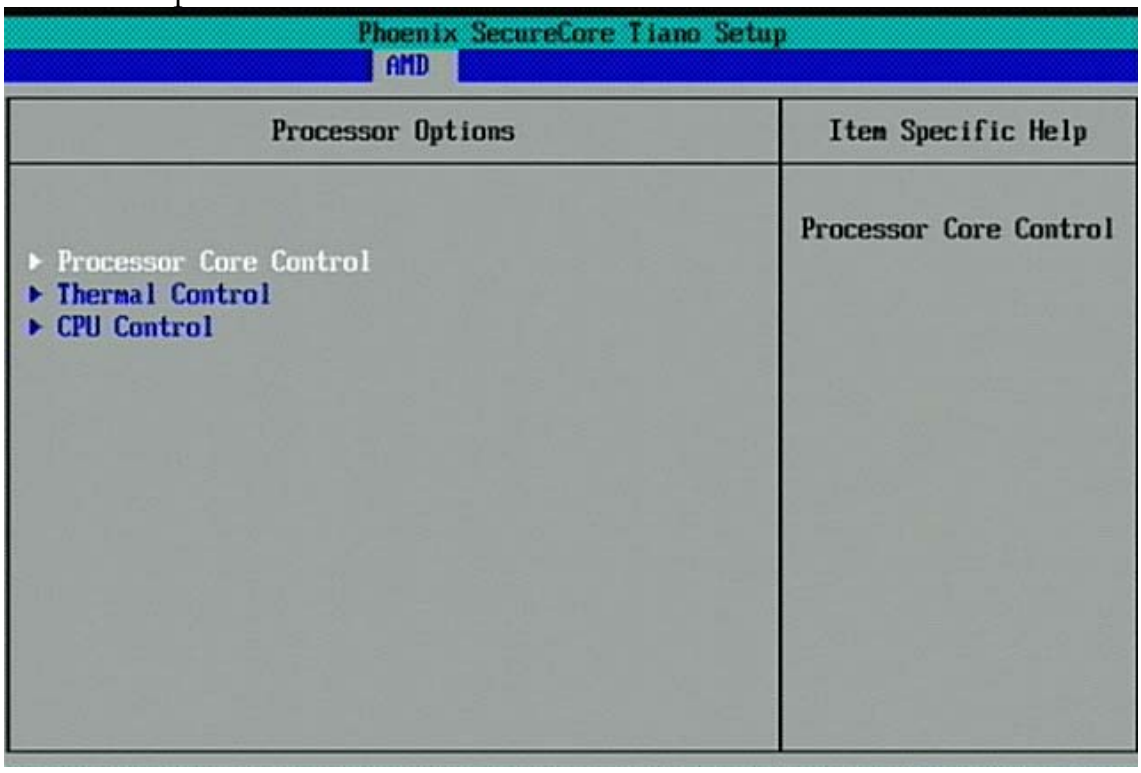
External Network Controller
Enable or disable the external Network Controller.

External Network Boot ROM
Enable or disable the external LAN Boot ROM.

Display mode
Display mode select.

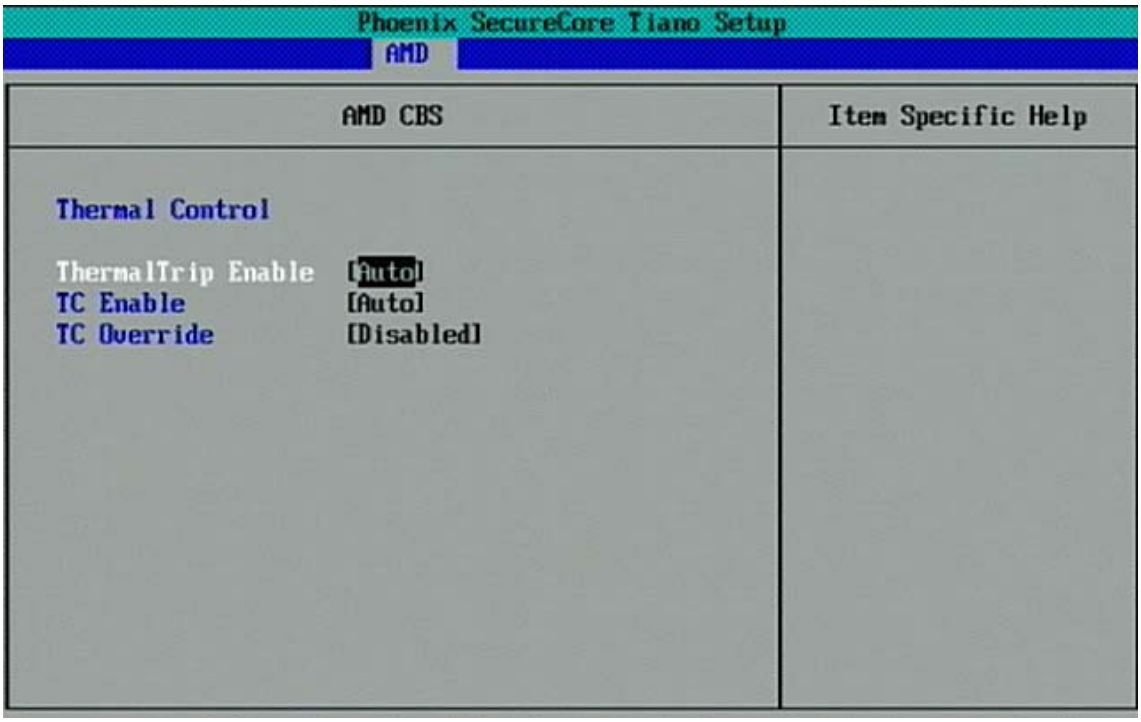
Universial Console Redirection
Universial Console Redirection.

Processor Options
Processor Options



Processor Core Control
Processor Core Control

Thermal Control
Thermal Control

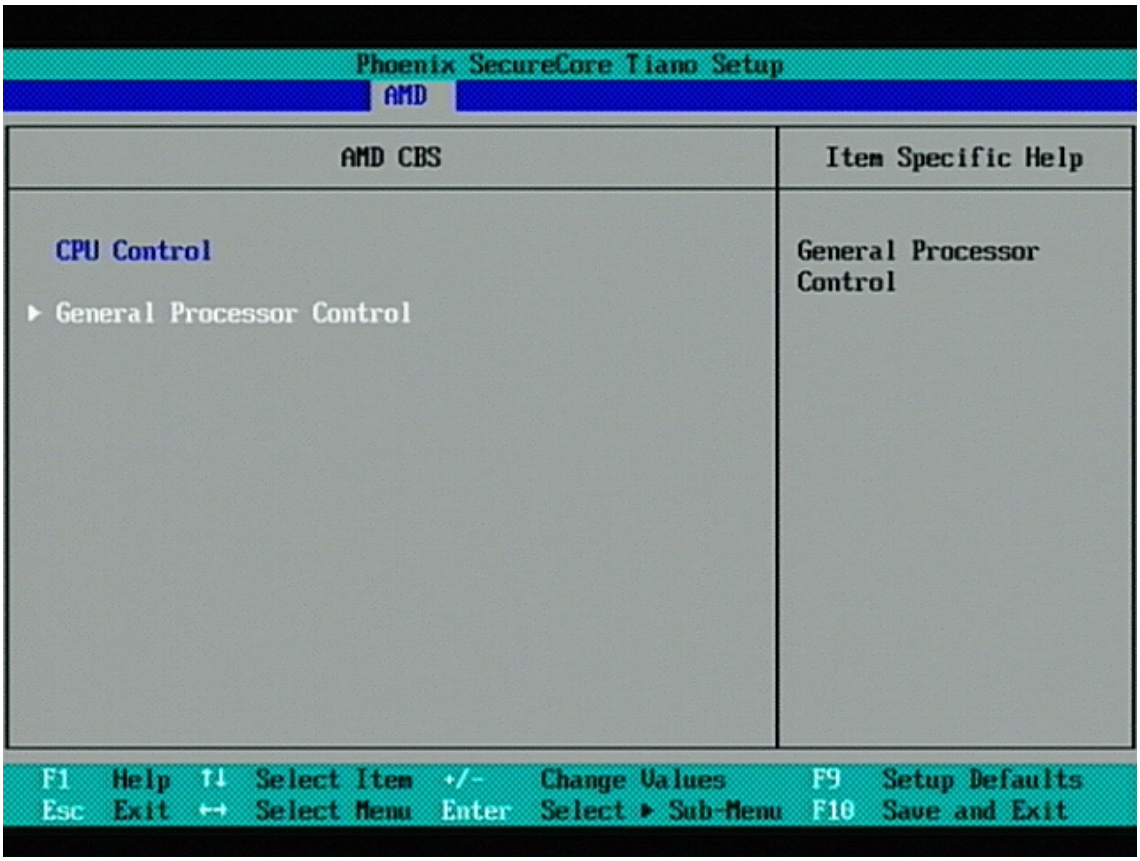


ThermalTrip Enable
ThermalTrip Enable.

TC Enable
In Auto mode, check F3x1F0[19] SerialNumRdDis, if SerialNumRdDis is set to 1, HTC use AGESA setting. Otherwise check serial number in register F3x1F4 and F3x1F8. If there is no Serial Number in [D18F3x1F4] & [D18F3x1F4], disable HTC. Otherwise, CBS does nothing, use AGESA setting.

TC Override
TC Override.

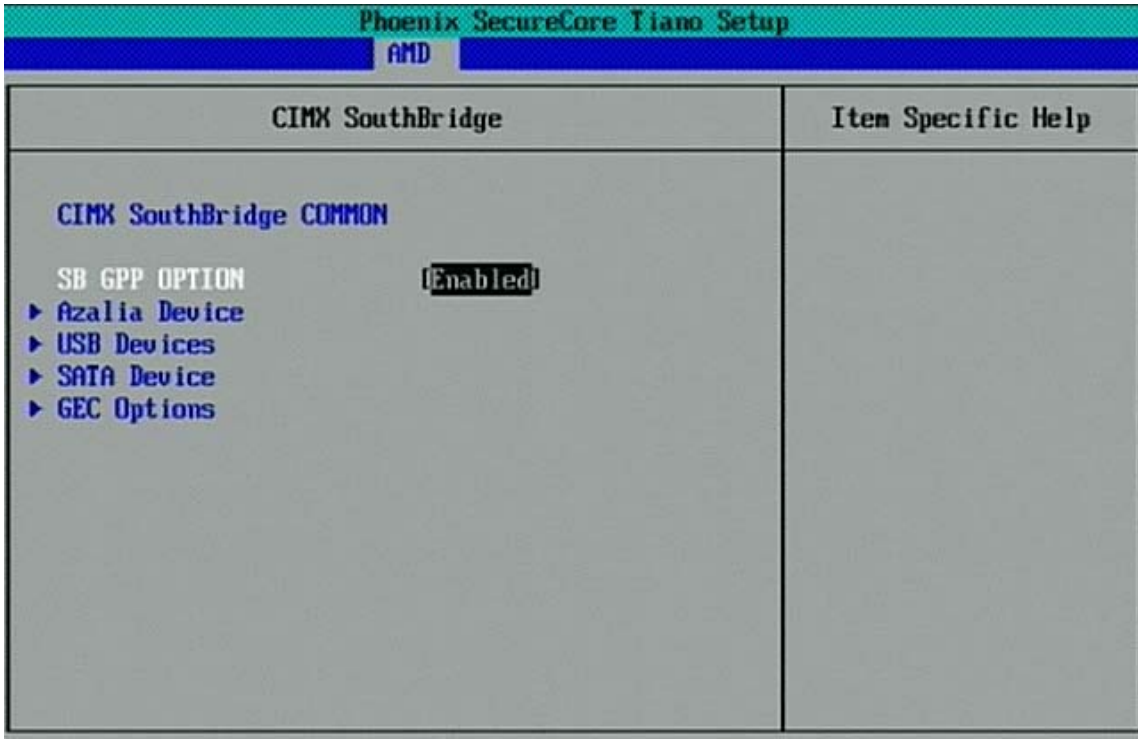
CPU Control
CPU Control



General Processor Control
General Processor Control

Target P-State
Target P-State
Auto、Highest、State 0 ~ State 7

CIMX SouthBridge
CIMX SouthBridge.



SB GPP OPTION
Enable/Disable

Azalia Device
Azalia Device

Audio OPTION
Azalia OPTION.

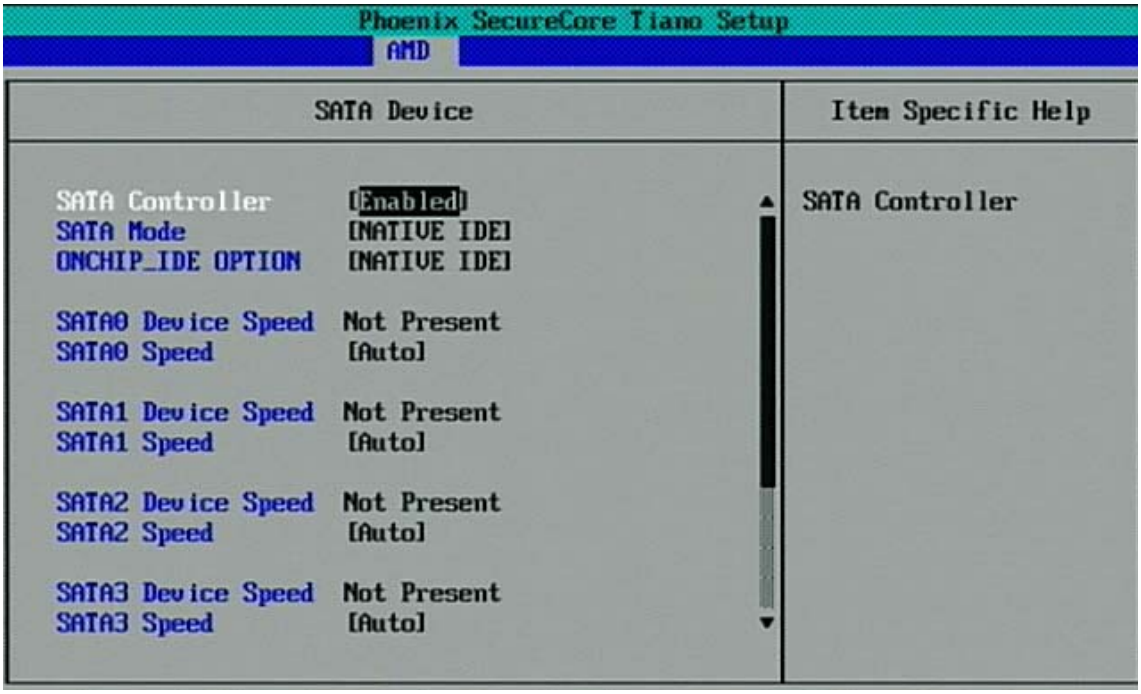
USB Devices
USB Devices.

USB Port 0 - 4
Select disable or enable USB1 HCs (Bus 0 Dev 18 Fn 0/2)

USB Port 5 - 9
Select disable or enable USB2 HCs (Bus 0 Dev 19 Fn 0/2)

USB Port 10 - 13
Select disable or enable USB3 HCs (Bus 0 Dev 22 Fn 0/2)

SATA Device
SATA Device.

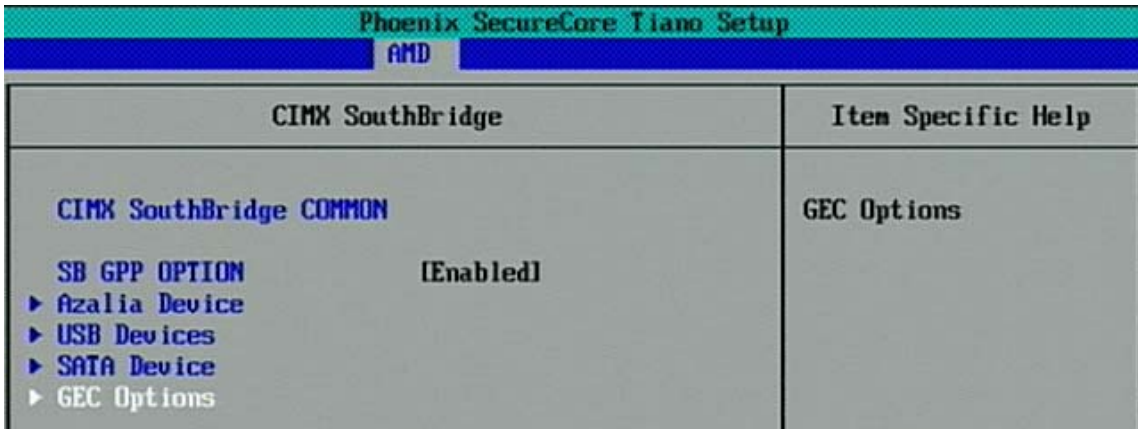


SATA Controller
SATA Controller.

SATA Mode
SATA Mode.
NATICE IDE、RAID、AHCI、LEGACY IDE

ONCHIP IDE OPTION
ONCHIP_IDE OPTION
LEGACY IDE、NATIVE IDE

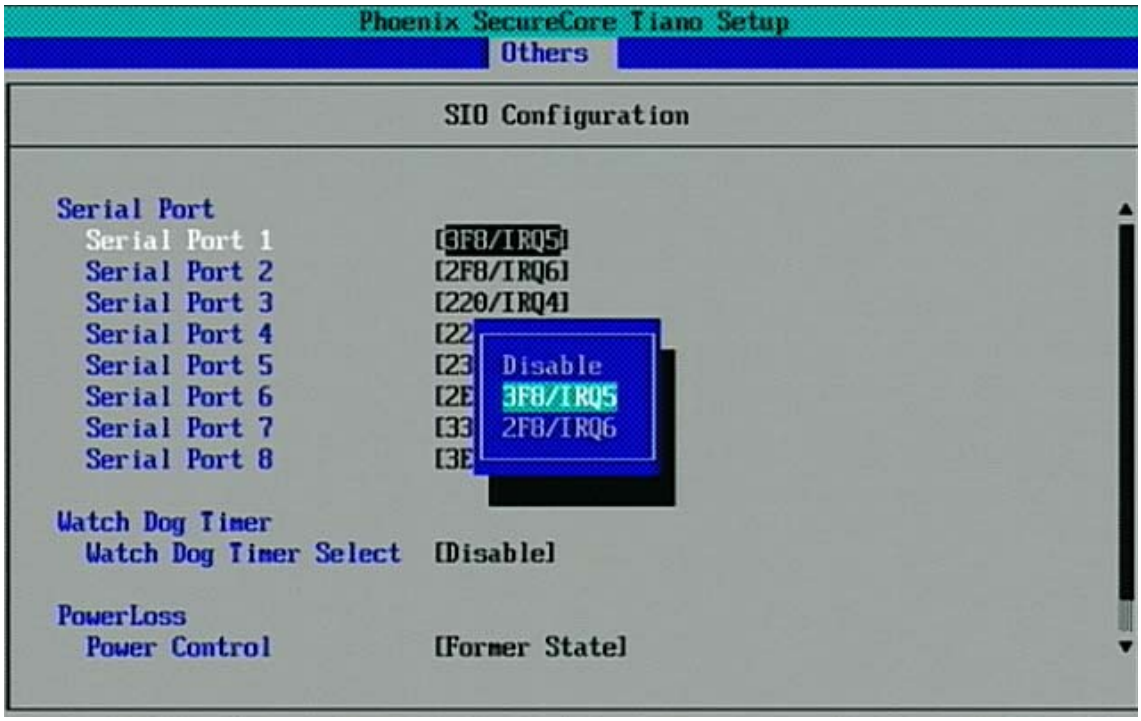
GEC OPTION
GEC OPTION



GEC CONFIG OPTION
GEC_CONFIG OPTION

4.5 Others

SIO Configuration
Sio Configuration



Serial Port 1
Disable、3F8/IRQ5、2F8/IRQ6

Serial Port 2
Disable、3F8/IRQ5、2F8/IRQ6

Serial Port 3
Disable、220/IRQ4、228/IRQ3、238/IRQ4、2E8/IRQ3、338/IRQ4、3E8/IRQ3

Serial Port 4
Disable、220/IRQ4、228/IRQ3、238/IRQ4、2E8/IRQ3、338/IRQ4、3E8/IRQ3

Serial Port 5
Disable、220/IRQ4、228/IRQ3、238/IRQ4、2E8/IRQ3、338/IRQ4、3E8/IRQ3

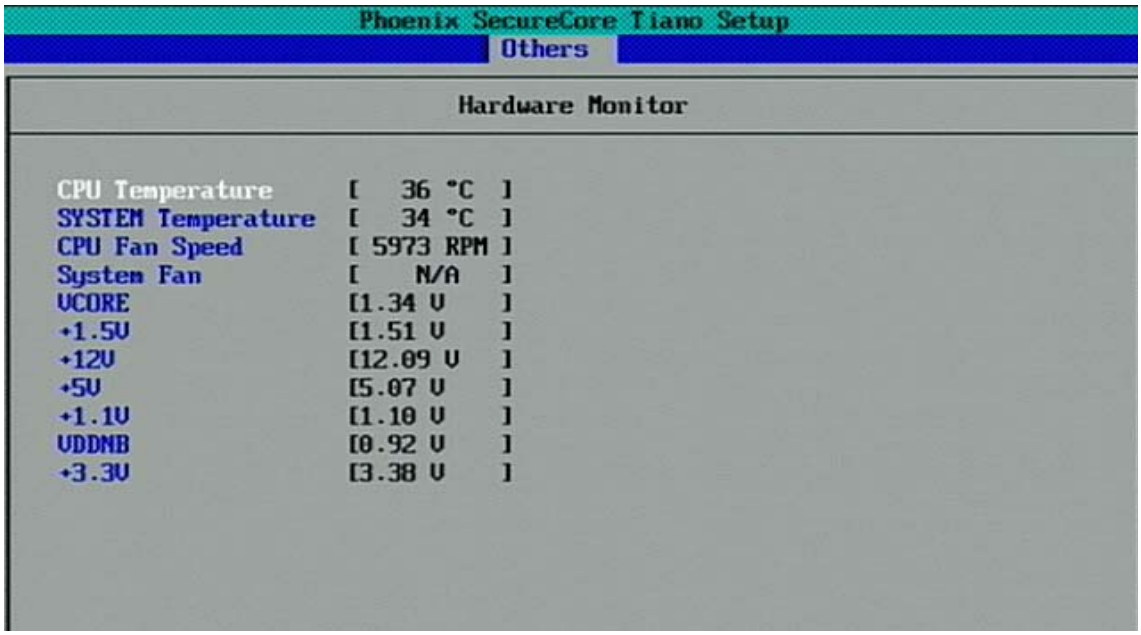
Serial Port 8

Disable、220/IRQ4、228/IRQ3、238/IRQ4、2E8/IRQ3、338/IRQ4、3E8/IRQ3

Watch Dog Timer Select
Disable、15 secs、30 secs、1 min、2 mins、3 mins

Power Control
Former State、Always On、Always Off

Hardware Monitor
Hardware Monitor

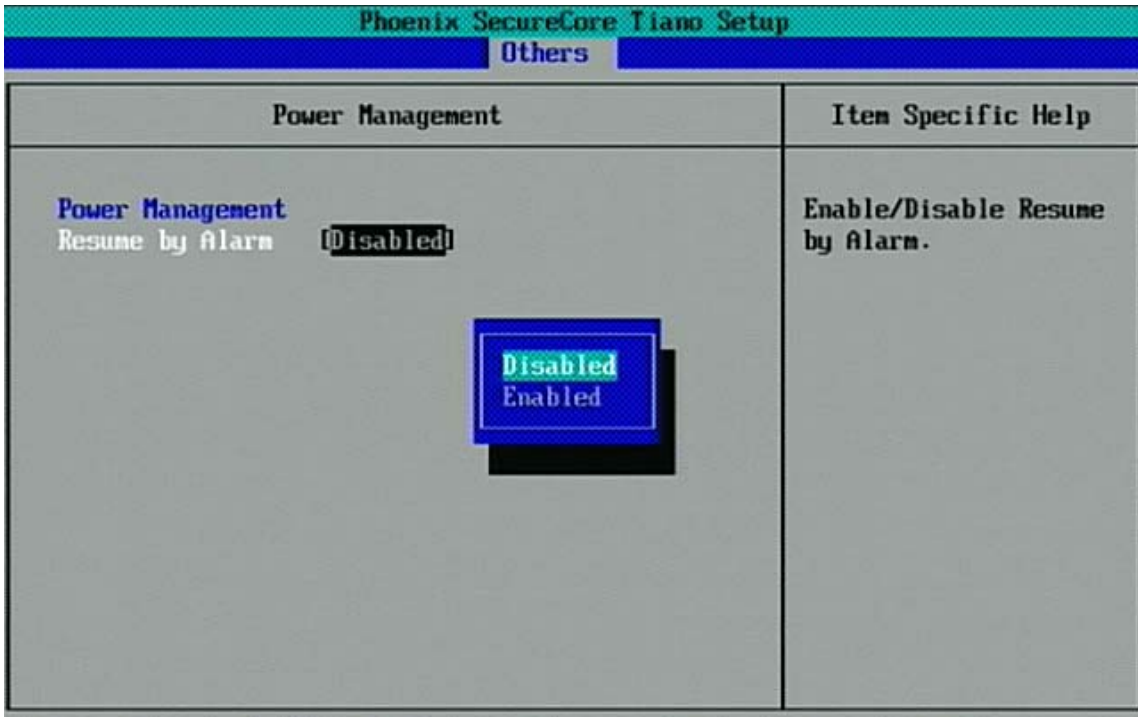


Wake on Lan and Ring
Wake on Lan and Ring

Option on Lan and ring
Disable、Enable

Wake PCIe
Disable、Enable

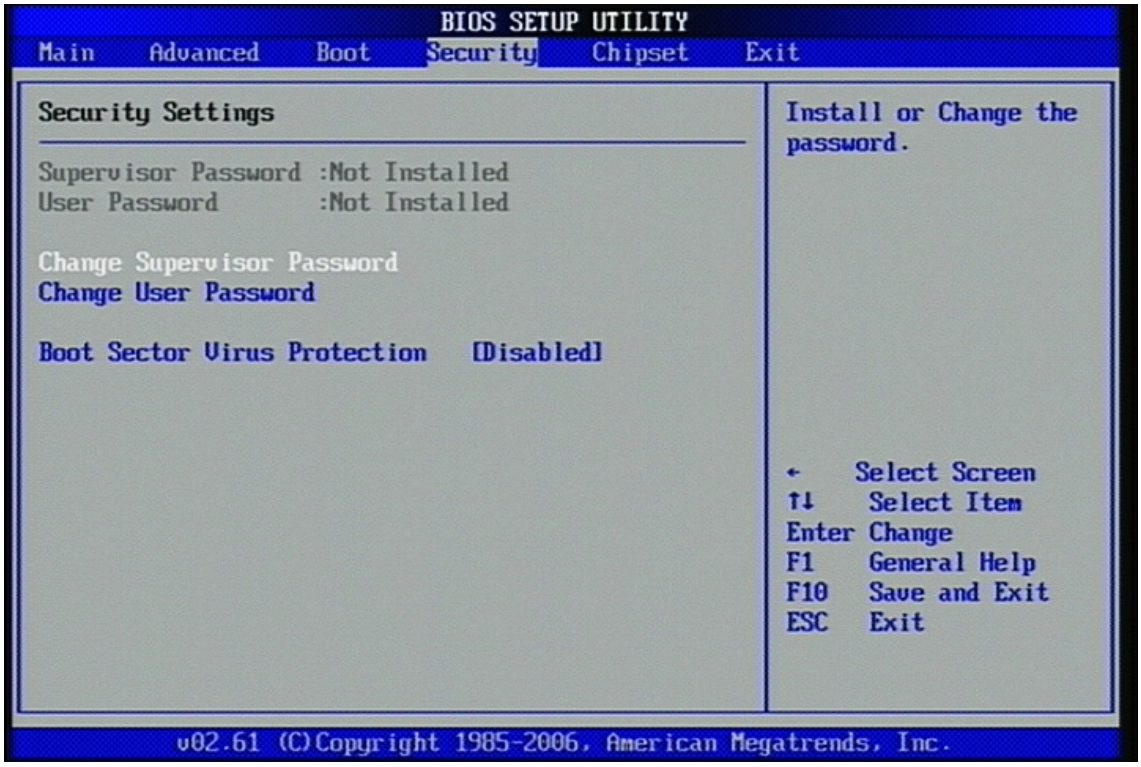
Power Management
Power Management Configuration



Resume by Alarm
Disable、Enable

4.6 Security

Use this menu to set supervisor and user passwords.



Set Supervisor Password
Set or clear the Supervisor account's password.

Supervisor Hint String
Press Enter to type Supervisor Hint String.

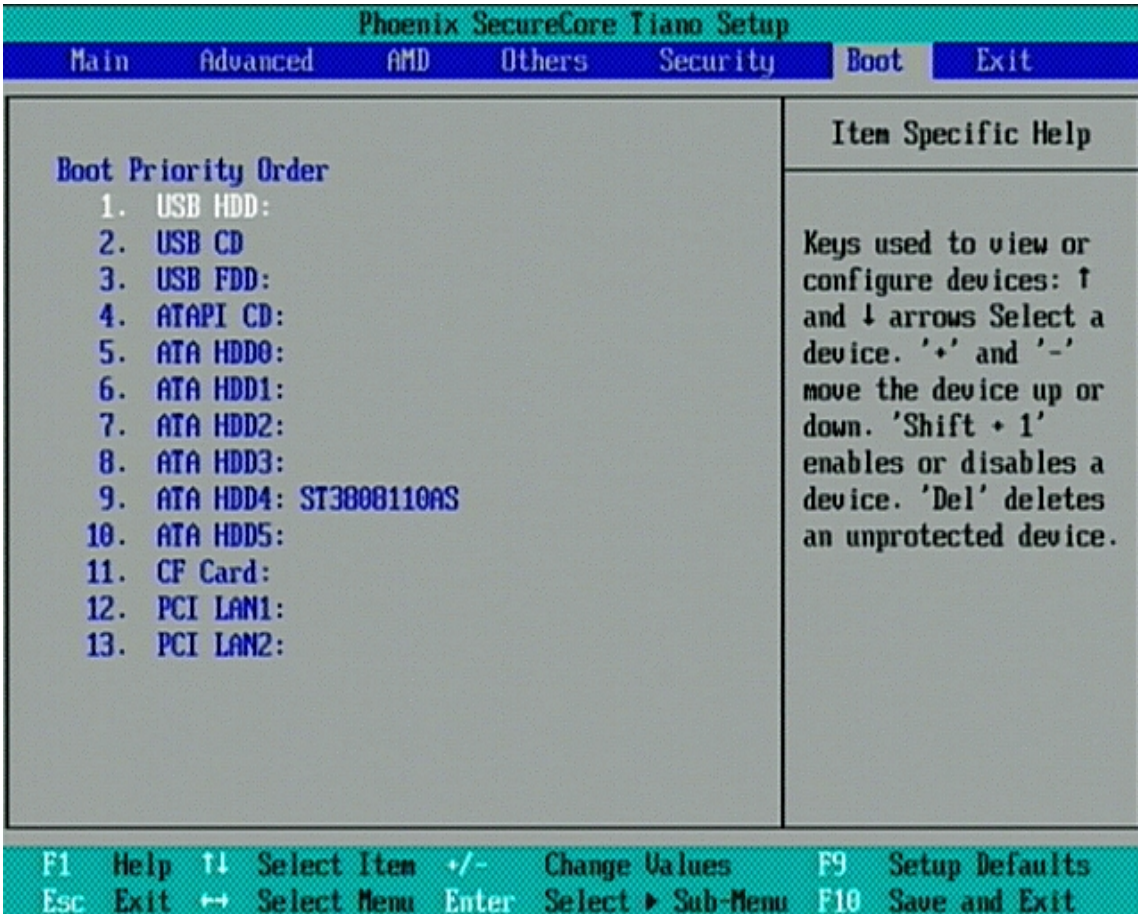
Min. password length
Set the minimum number of characters for password (1-20).

HDD Password Select
Supports user only or both user and master password.

Ser HDD04 User Password
Set HDD04 User Password.

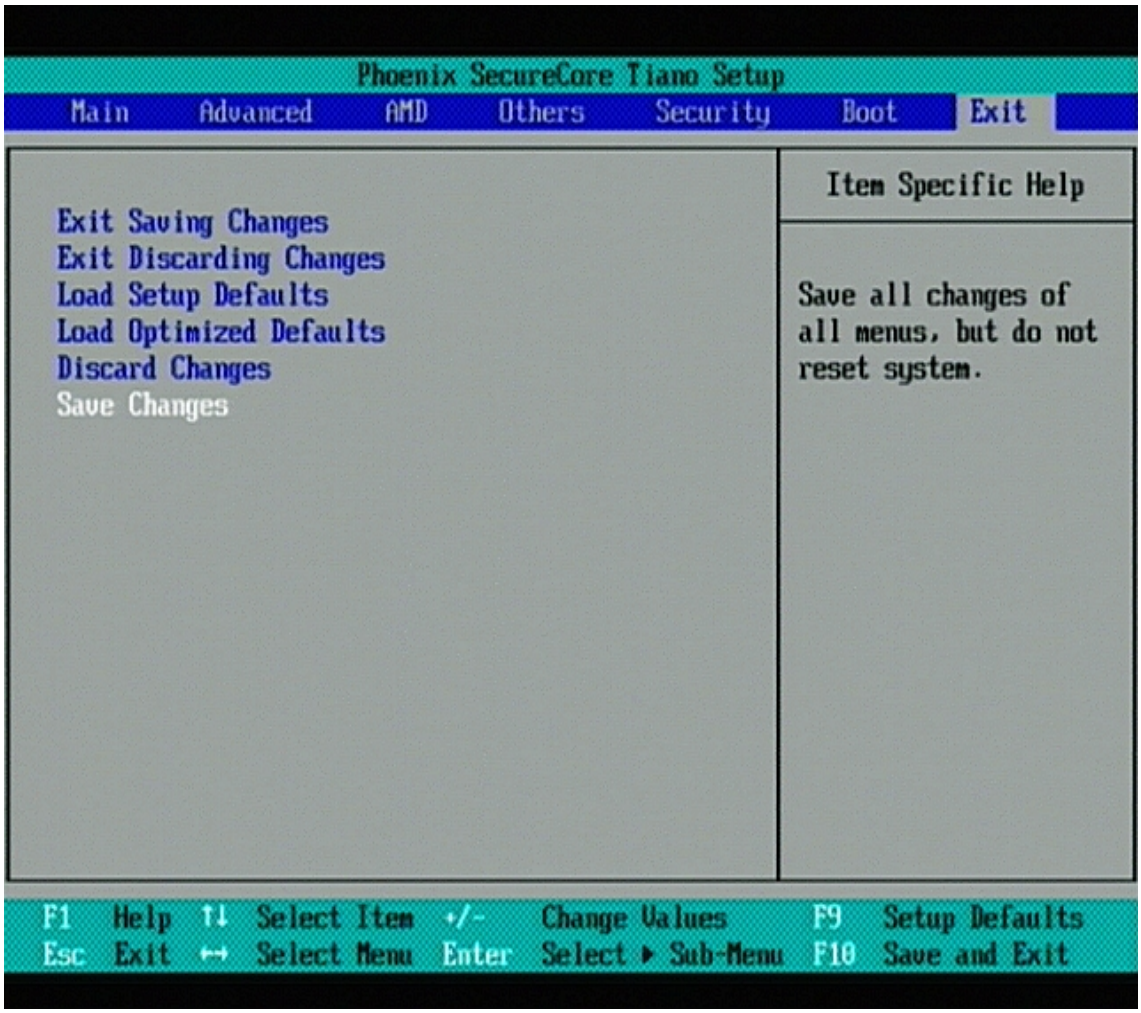
4.7 Boot

Boot Priority Order



4.8 Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.



Exit Saving Changes
Equal to F10, same all changes of all menus, then exit setup configure driver. Finally resets the system automatically.

Exit Discarding Changes
Equal to ESC, never save changes, then exit setup configure driver.

Load Setup Defaults
Equal to F9. Load standard default values.

Load Optimal Defaults
Load settings for optimized boot time and system performance.

Discard Changes
Load the original value of this boot time. Not the default Setup value.

Save Changes
Save all changes of all menus, but do not reset system

Chapter 5
Troubleshooting

This chapter provides a few useful tips to quickly get AMDY-7002 running with success. As basic hardware installation has been addressed in Chapter 2, this chapter will primarily focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

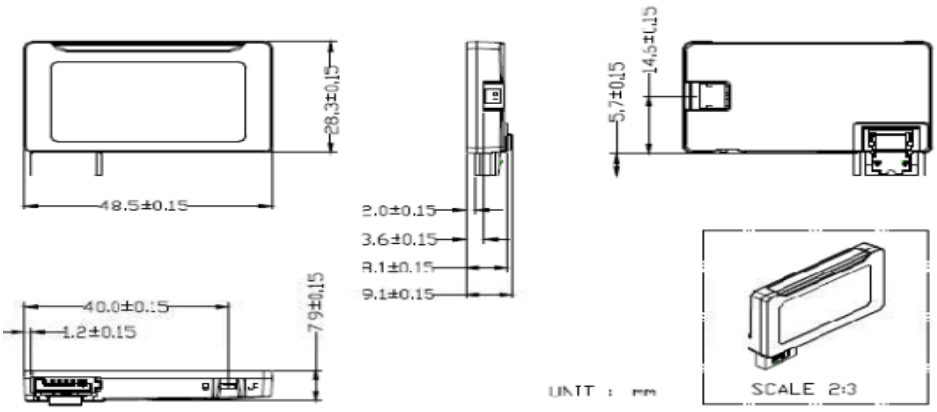
5.1 Hardware Quick Installation

ATX Power Setting

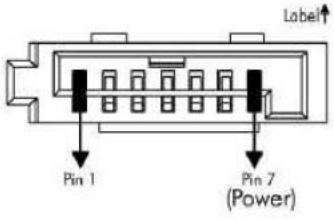
AMDY-7002 supports ATX only. Therefore, there is no other setting that really needs to be set up. However, there are only a connector that must be connected—J17 (20 pins Power Connector) .

Serial ATA and IDE Hard Disk Setting

The AMDY-7002 supports 5 standard vertical SATA connectors. Each connectors need to accept standard SATA Cable with lock for HDD/SSD connection. However SATA DOM is popular for embedded application and we need to reserve keep out zone for proper installation is required.



*Third-party brands and names are the property of their respective owners.

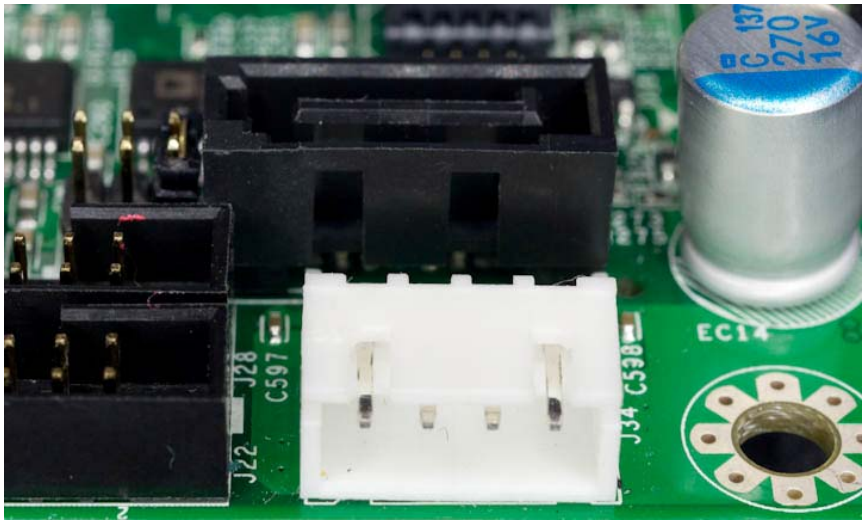


7Pin Header	Signal	Function
Pin 1	GND	Shielding
Pin 2	A+	Differential signal to A
Pin 3	A-	Differential signal to A-
Pin 4	GND	Shielding
Pin 5	B-	Differential signal to B
Pin 6	B+	Differential signal to B
Pin 7	GND/VCC(+5V)	Shielding/Power

For some special SATA DOM, the power source is embedded in SATA 7 pin connector. Pin 7 is been re-defined as 5V for this special SATA DOM. On this model, the 4 (Port [0, 1, 2, and 3]) Vertical SATA Ports for DOM need to have resistors close to SATA connector pin 7 as a selection of GND or 5V. However, prevent from wrong usage, the default of those resistors needs to be GND, and design a SMD RED LED to indicate the Pin7 status prevent from wrong setting. (RED = 5V, Black = GND)

Mechanical Reference PN: B4739800 (Innodisk), B4736620 (PQI)

Another Vertical SATA (Port [4]) connector is for dedicated SATA Device with Internal Power Source support, please reference to AMDY-7000 design. Those SATA Ports will support A55E ECH native Raid 0, 1,5,10 function on the 5 (Port [0:4]) ports.
For SATA 3 Connector, please reference:
B5048800
(GP).DIP Connector.SATA3-7 Red W/Lock Vertical.ABA-SAT-054-K07.LOTES
For the SATA Port that dedicate for internal powered SATA device, please reference attached photo from AMDY-7000.



The CFast is latest (Port [5]) portable storage interface as next generation of Compact Flash. With native SATA interface on it, it brings faster data transfer rate and easy installation benefit. So far the CFast is just new on market; a lot of company is ready for this product. Although the advantage of SATA interface and Read/Write speed, it still expansive so far. We will include CFAST in design.
For CFAST Connector and Ejector, please reference the 3M model:

B6220280 (GP).SMD Connector.CFast Socket 17+7Pin.N7G24-A0B2RA-10-0HT. 3M

5.2 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on DC 12V power. 204-pin DDR3 SDRAM, keyboard, mouse, SATA hard disk, VGA connector, device power cables, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with AMDY-7002, it is recommended, when going with the boot-up sequence, to hit "F2" key and enter the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

Loading the default optimal setting
When prompted with the main setup menu, please scroll down to "**Load Optimal Defaults**", press "Enter" and "Y" to load in default optimal BIOS setup. This will force your BIOS setting back to the initial factory configuration. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting any time when system appears to be unstable in boot up sequence.

Improper disable operation

There are too many occasions where users disable a certain device/feature in one application through BIOS setting. These variables may not be set back to the original values when needed. These devices/features will certainly fail to be detected.

When the above conditions happen, it is strongly recommended to check the BIOS settings. Make sure certain items are set as they should be. These include the COM1/ COM2 ports, USB ports, external cache, on-board VGA and Ethernet.

It is also very common that users would like to disable a certain device/port to release IRQ resource. A few good examples are

Disable COM1 serial port to release IRQ #4
Disable COM2 serial port to release IRQ #3
Etc…

Interrupt Request Lines (IRQ)

Peripheral devices can use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Interrupt Request Lines IRQ		
IRQ#	*Current Use*	*Default Use*
IRQ 0	System ROM	System Timer
IRQ 1	System ROM	Keyboard Event
IRQ 2	【Unassigned】	Usable IRQ
IRQ 3	System ROM	COM2
IRQ 4	System ROM	COM1
IRQ 5	【Unassigned】	Usable IRQ
IRQ 6	System ROM	Diskette Event
IRQ 7	Unused	Usable IRQ
IRQ 8	System ROM	Real-Time Clock
IRQ 9	【Unassigned】	Usable IRQ
IRQ 10	【Unassigned】	Usable IRQ
IRQ 11	【Unassigned】	Usable IRQ
IRQ 12	System ROM	IBM Mouse Event
IRQ 13	System ROM	Coprocessor Error
IRQ 14	System ROM	Hard Disk Event
IRQ 15	【Unassigned】	Usable IRQ

It is then very easy to find out which IRQ resource is ready for additional peripherals. If IRQ resource is not enough, please disable some devices listed above to release further IRQ numbers.

5.3 FAQ

Information & Support

Question:I forget my password of system BIOS, what am I supposed to do?

Answer: You can simply short 2-3 pins on JP4 to clean your password.

Note:

Please visit our technical web site at
http://www.portwell.com.tw
For additional technical information, which is not covered in this manual, you can mail to tsd@mail.portwell.com.tw or you can also send mail to our sales, they wull be very delighted to forward them to us.