AMB-A55EG1 Board

User Manual

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www.acrosser.com

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Manual's first edition:

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Table of Contents

Chapter 1 Introduction

AMB-A55EG1 is an all-in-one gaming system based on AMD most advanced Fusion platform. AMD Fusion APU integrates AMD Radeon HD 6310 graphic controller which provide powerful 2D/3D performance for various gaming S/W. Besides powerful graphic controller, AMB-A55EG1 also integrates gaming control features to satisfy gaming applications, e.g. slot machine and AWP machine.

1.1 Specifications

Description	**AMD Fusion Gaming board**
Dimension	187 x 268mm
CPU	AMD Fusion T56N 1.6GHz processor
Chipset	A55E
CPU Thermal	FAN with heat sink
System Memory	Two SO-DIMM, DDR3 up to 8GB.
Video	1. VGA1: DB-15 connector for VGA output 2. HDMI connectors for Video output
Storage	1. Two SATA connectors 2. Two SATA power connector
mSATA	One mSATA slot
Audio	1. 5.1 channel unamplified to box header 2. 6 Watts amplifier for front right, and front left 3. Amplified outputs are connected to 72 pin golden finger
LAN	1 x 10/100/1000Mbps LAN with RJ45 connector
Serial Ports	1. COM 1 is RS-232C 2. COM2 is RS422/485/232C 3. COM3 is 4-pin ccTalk 4. COM4 is 10-pin ccTalk
USB	1 4 x external USB 2.0 ports 2 2 x internal USB 2.0 ports
Digital I/O	1 16 x protected digital inputs. (high above 3V, low is 0V) 2 14 x max 500mA MOSFET outputs 3 2 x max 1000mA output for tower lamps

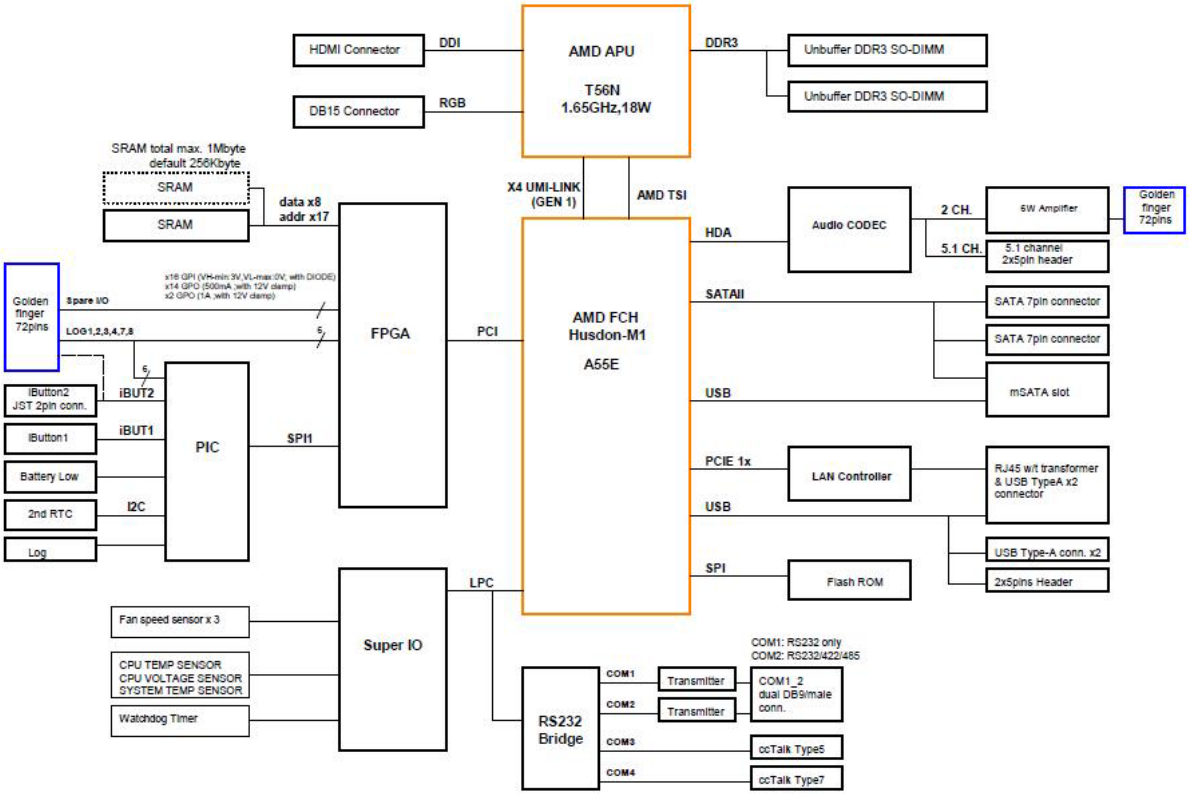
SRAM	1. Battery back up SRAM 2. Dual Bank SRAM (max 1MB, default 256KB) 3. Each SRAM has a clear jumper
Keyboard & Mouse	Support USB keyboard mouse.
Watch dog timer	1 to 255 seconds / minutes programmable
Board edge I/O	1. One RJ45 for LAN 2. 4 x USB 2.0 ports 3. 1x DB15 for VGA1 4. 1x HDMI 5. LED for power and HDD 6. 2 x male DB9 for COM1 & COM2 (RS422/485/232) 7. 4 / 10 pin connector for ccTalk from COM 3 & COM4
External I/O	36P (72) pin golden finger
Operation System	Windows XP (32 bit), Fedora 14 (32 bit), Ubuntu 10.04 (32 bit)
Power input	1. DC 12V, 5V +/- 5% for system power from golden fingers 2. AT power mode
Operation temperature	0 to 60 Degree Celsius

1.2 Package Contents

Check if the following items are included in the package.

- Quick Manual
- AMB-A55EG1 board (with AMD T56N CPU; but, w/o memory)
- 1 x manual & Software Utility CD

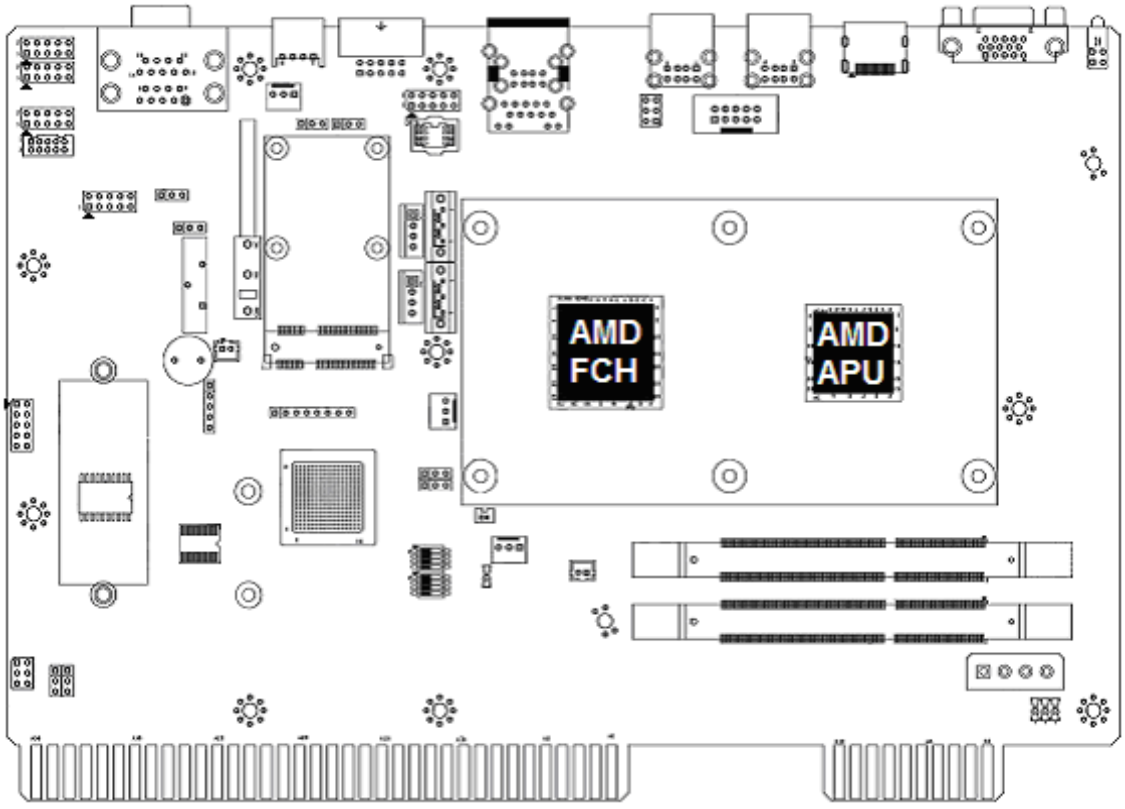
1.3 Block Diagram



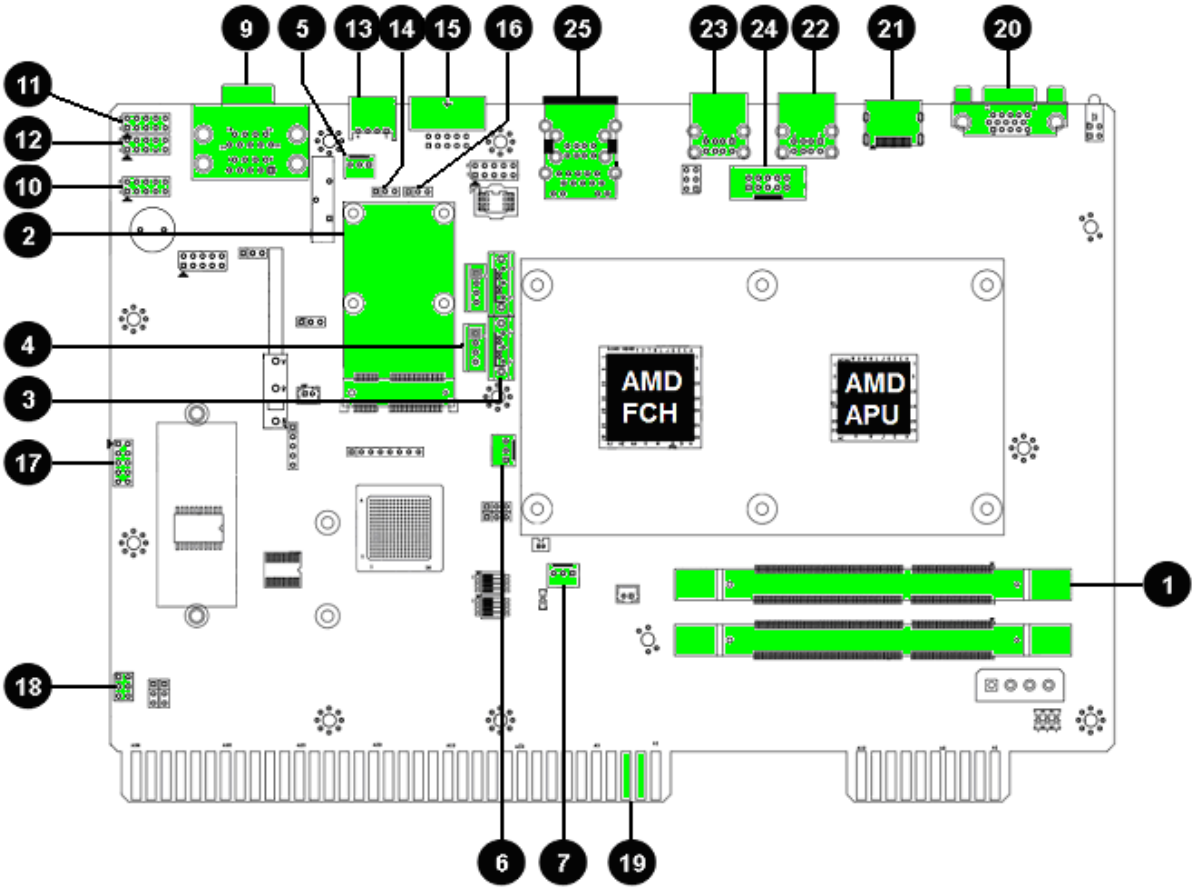
Chapter 2 H/W Information

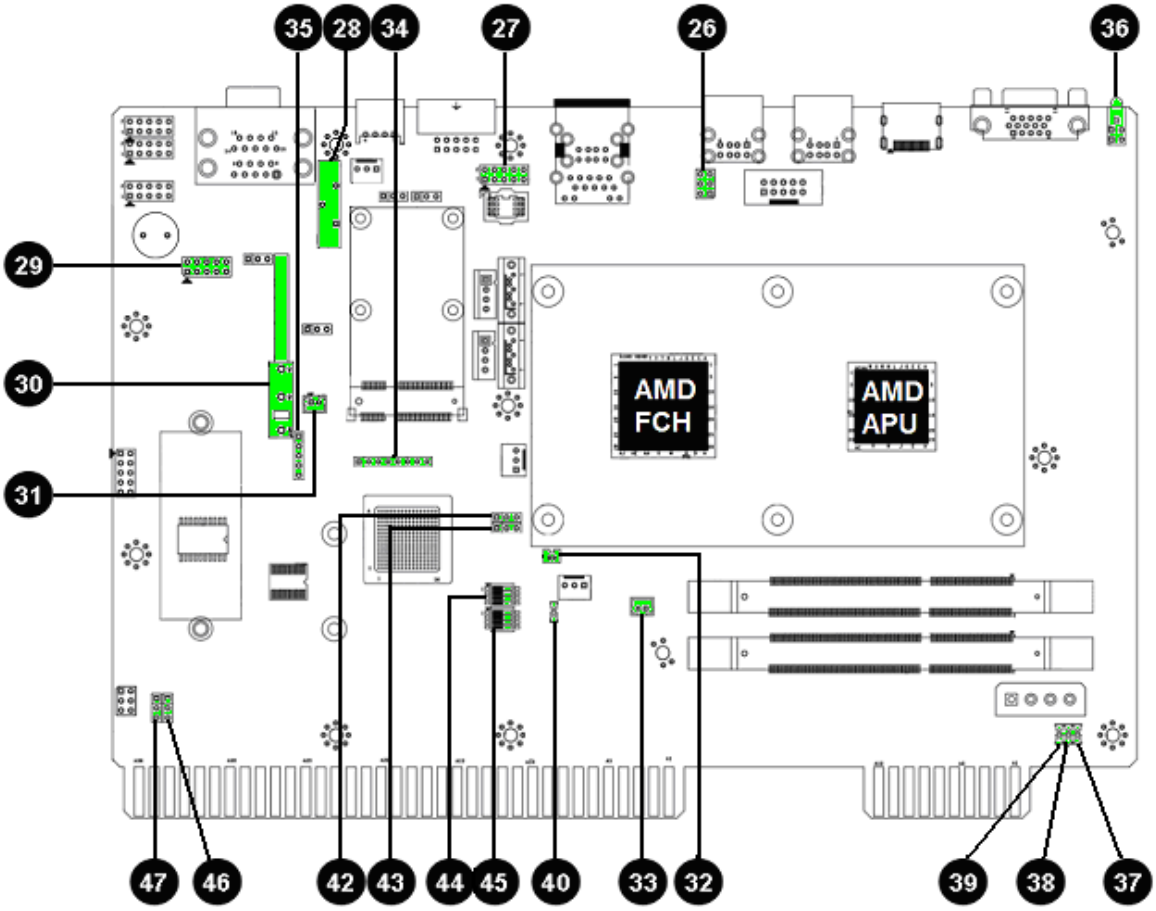
This chapter describes the installation of AMB-A55EG1. At first, it shows the Function diagram and the layout of AMB-A55EG1. It then describes the unpacking information which you should read carefully, as well as the jumper/switch settings for the AMB-A55EG1 configuration.

2.1 Mainboard illustration



2.2 Locations of IO ports & Jumper settings definition

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AMD
FCH
AMD
APU
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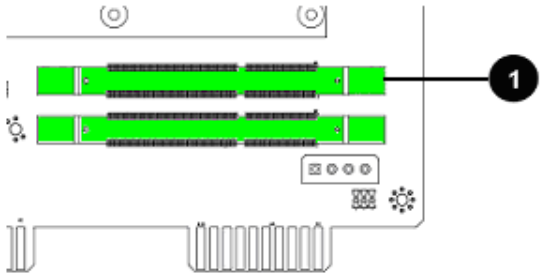
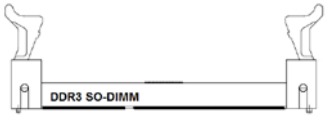
2.3 Connectors and Jumper Settings

2.3.1 DDR3 SO-DIMM Connector

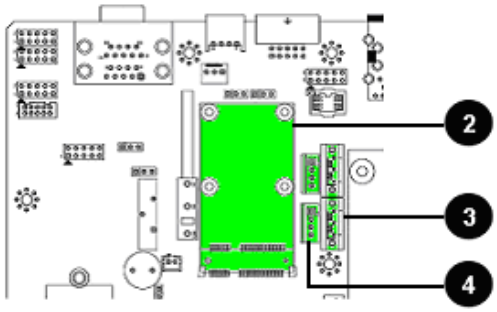


1 CN_DIMM1, CN_DIMM2

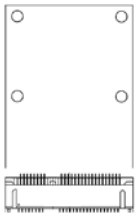


Standard DDR3 SO-DIMM connector

2.3.2 SATA & mSATA connector



2 CN_MPCIE1 (mSATA)



Standard mini-SATA module connector

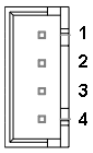
Note:
Do NOT insert the mini-PCIE module

3 SATA1, SATA2

Standard SATA connector

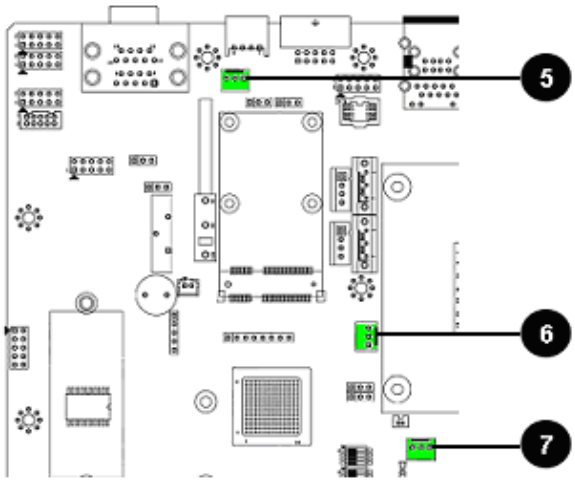
4 SATA_PWR1
SATA_PWR2

Power connector for SATA storage



PIN	Signal
1	+12V
2	GND
3	+3.3V
4	+5V

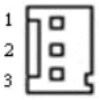
2.3.3 FAN Connector



5 CN_FANSYS1

6 CN_FANCPU1

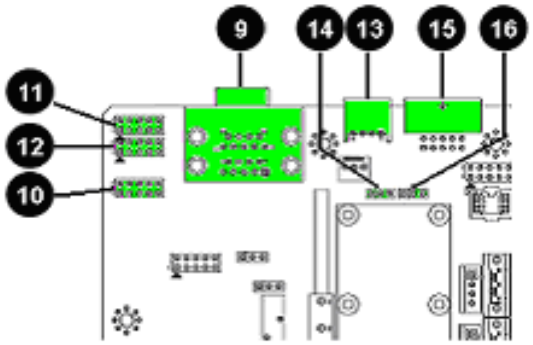
7 CN_FANSYS2



PIN	Signal
1	GND
2	+12V
3	NA

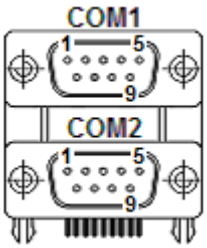
3 Pin, Pitch:2.54mm

2.3.4 CN_COM1_2 (RS-232 ,RS-232/422/485) & ccTalk



9 CN_COM1_2

RS-232, RS-422/485 connector



D-Sub 9pin Male connector
for Standard RS232, RS422/RS485

Up is **COM1** (RS232 only)
Below is **COM2** (RS232/422/485)

D-Sub9 for RS232:

PIN	Signal	PIN	Signal
6	DCR	1	DCD
7	RTS	2	RX
8	CTS	3	TX
9	RI	4	DTR
		5	GND

D-Sub9 for RS422/485:

PIN	Signal	PIN	Signal
6		1	485 RX+/TX+ 422 TX+
7		2	485 RX-/TX- 422 TX-
8	422 RX-	3	
9	422 RX+	4	
		5	

Note:

Mode setting by JP_COM2S1, JP_RS232S1 & JP_422_485S1

10 JP_COM2S1

COM2 connector mode setting

Mode selection:

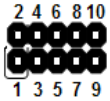
Short	Function
1-2	RS-232 **(Default)**
3-4	RS-485
5-6	RS-422

Terminal resistor selection:

Short	Function
7-8	RS485 TX with 120ohm terminal **(Default)**
9-10	RS422 RX with 120ohm terminal

11 JP_RS232S1

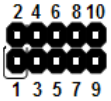
COM2 be RS-232 selection



Short	Function
1-2	COM2 be RS-232 **(Default)**
3-4	
5-6	
7-8	
9-10	

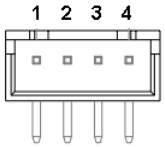
12 JP_422_485S1

COM2 be RS-422/485 selection



Short	Function
1-2	COM2 be RS-422/485
3-4	
5-6	
7-8	
9-10	

13 CN_CCTALK1 ccTalk Type-5 connector



PIN	Signal
1	+Vs
2	-
3	0V
4	/DATA

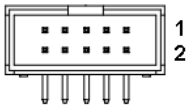
Note:
Vs setting by JP_VCCTALK1

Please reference to ccTalk-Generic-Specification-v4.6

14 JP_VCCTALK1 CN_CCTALK1 Vs setting

Short	Function
1-2	+12V **(Default)**
2-3	+24V

15 CN_CCTALK2 ccTalk Type-7 connector



PIN	Signal	PIN	Signal
1	/DATA	2	GND
3	NC	4	NC
5	NC	6	NC
7	+Vs	8	0V
9	NC	10	NC

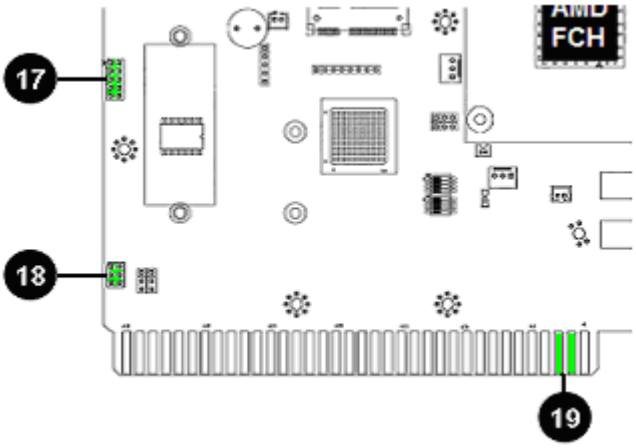
Note:
Vs setting by JP_VCCTALK2

Please reference to ccTalk-Generic-Specification-v4.6

16 JP_VCCTALK2 CN_CCTALK2 Vs setting

Short	Function
1-2	+12V **(Default)**
2-3	+24V

2.3.5 Audio 5.1CH out & 2CH Speaker Out



17 CN_AUDIO1 5.1CH Audio out connector (Without Amplifier)

PIN	Signal	PIN	Signal
1	Front Out L	**2**	Front Out R
3	GND	**4**	GND
5	Surround L	**6**	Surround R
7	GND	**8**	GND
9	Center	**10**	Subwoofer

2x5Pin, Pitch:2.54mm

18 JP_AMP1 Speaker with 6W Amplifier selection

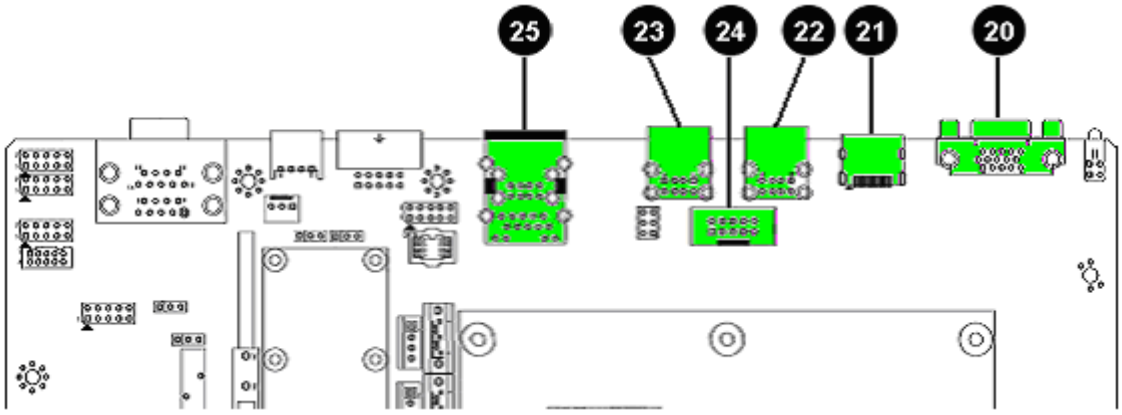
Short	Function
1-3 2-4	With Amplifier **(Default)**
3-5 4-6	Without Amplifier

19 JAMMA1 2CH Speaker output on edge connector

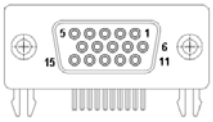
PIN	Signal	PIN	Signal
A2	Speaker L	**B2**	GND
A3	Speaker R	**B3**	GND

Note: Through amplifier or w/o Amplifier depend on **JP_AMP1** setting.

2.3.6 VGA, HDMI, USB & LAN connector

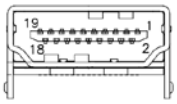


20 CN_VGA1



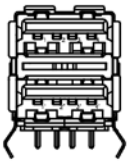
Standard VGA connector
(D-Sub 15pin connector)

21 CN_HDMI1



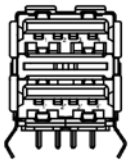
Standard HDMI connector

22 CN_USB1



Standard USB 2.0
Type-A connector

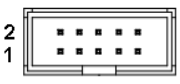
23 *CN_USB2* *(Optional)*



Standard USB 2.0
Type-A connector

24 CN_USB3

Onboard USB 2.0 connector

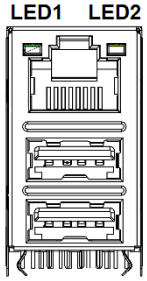


PIN	Signal	PIN	Signal
1	+5V	2	+5V
3	DATA1 -	4	DATA2 -
5	DATA 1+	6	DATA2 +
7	GND	8	GND
9	NC	10	NC

Header 2X5pin, Pitch: 2.54mm

25 CN_USBLAN1

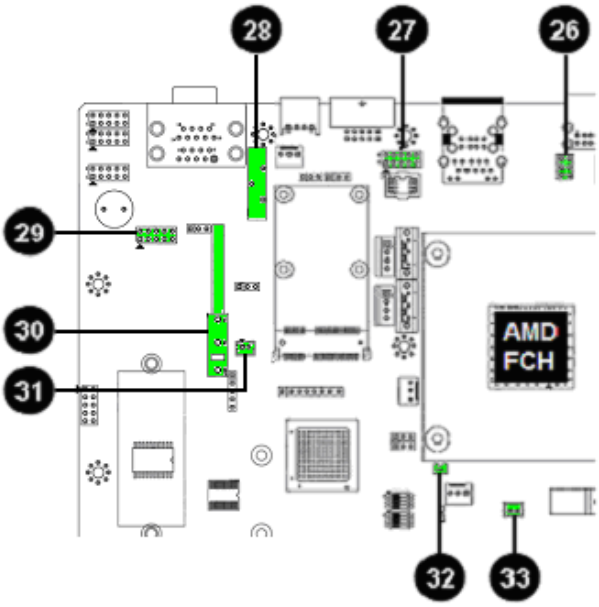
RJ45 LAN & USB 2.0 connector



LAN LED table:

LED	ON/OFF	Status
LED1	OFF	10Mbps
	Green	100Mbps
	Orange	1000Mbps
LED2	Yellow	Link/Active
	OFF	LAN OFF

2.3.7 Other Connector



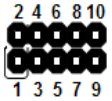
26 JP_FPIO1

Reset Button connector

PIN	Function
1-2	*(Reserved)*
3,4	*(Reserved)*
5,6	Reset button connector

27 SPI_CN1 (Optional)

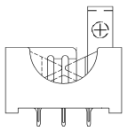
SPI Interface connector



PIN	Signal	PIN	Signal
1	CS#	2	+3.3V
3	MISO	4	HOLD#
5	WP#	6	CLK
7	GND	8	MOSI
9	NC	10	NC

28 CN_BAT1

CR2032 Battery socket

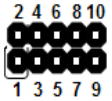


CR2032 3V battery socket

for system RTC

29 CN_LPC1 (Optional)

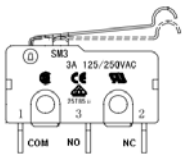
LPC Interface connector



PIN	Signal	PIN	Signal
1	CLK	2	AD1
3	RST#	4	AD0
5	FRAME#	6	+3.3V
7	AD3	8	GND
9	AD2	10	GND

30 DOOR_SW_1

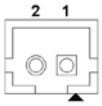
Case open Log switch



SW	Event
Push	Non-case open
Release	Case opening

31 DOOR_SW_2

External Log input connector



1-2	Signal
Open	No event
Short	Event input

32 CN_BAT_A1

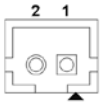
3.7V 500mAh Re-chargeable battery connector

for SRAM & Security.

PIN	Signal
1	3.7~4.2V
2	GND

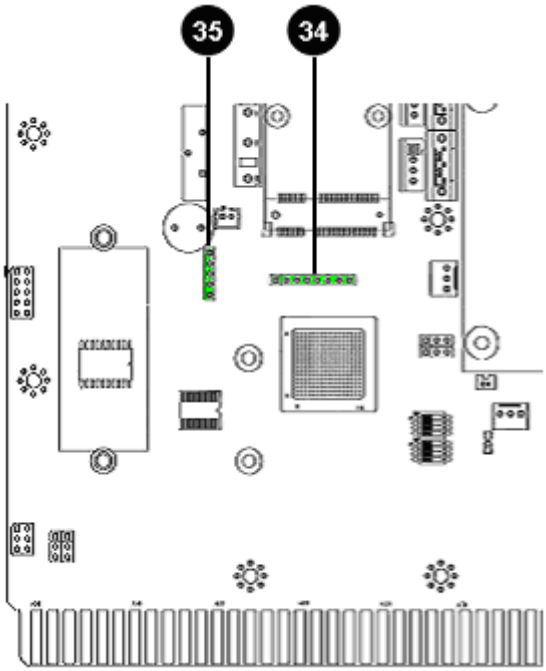
33 CN_IBUTTONB1

iButton signal connector

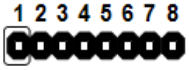


PIN	Signal
1	I/O Data
2	GND

2.3.8 FPGA & PIC firmware Connector

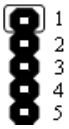


34 ***CN_FPGA1*** *(Reserved)* — *FPGA firmware recoded Header*



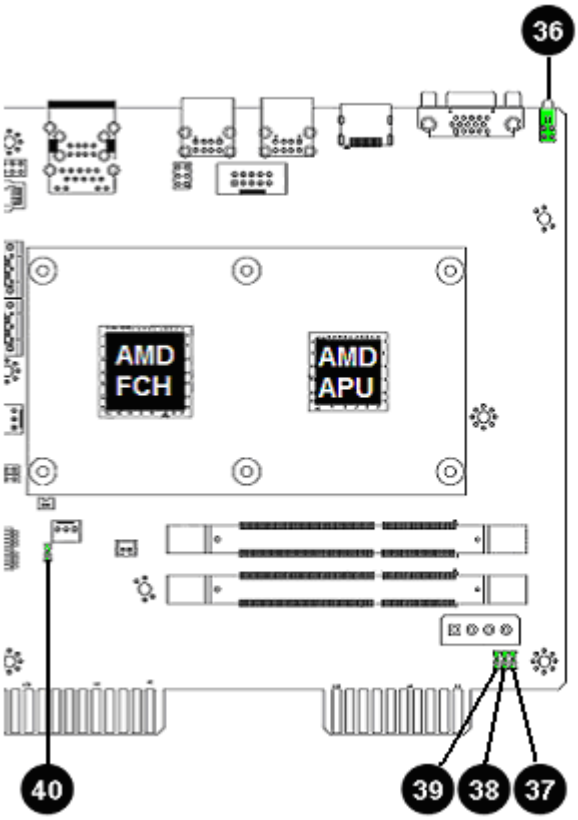
PIN	Signal
1	3.3V VCC
2	TDO
3	TDI
4	*(NC)*
5	*(NC)*
6	TMS
7	GND
8	TCK

35 ***CN_PIC1*** *(Reserved)* — *PIC firmware recoded Header*



PIN	Signal
1	3V VCC
2	ISPDATA
3	ISPCLK
4	ISPVPP
5	GND

2.3.9 Indicated LED



36 **LED_GY1** — System status indicated

Green: Power ON

Yellow: HDD active

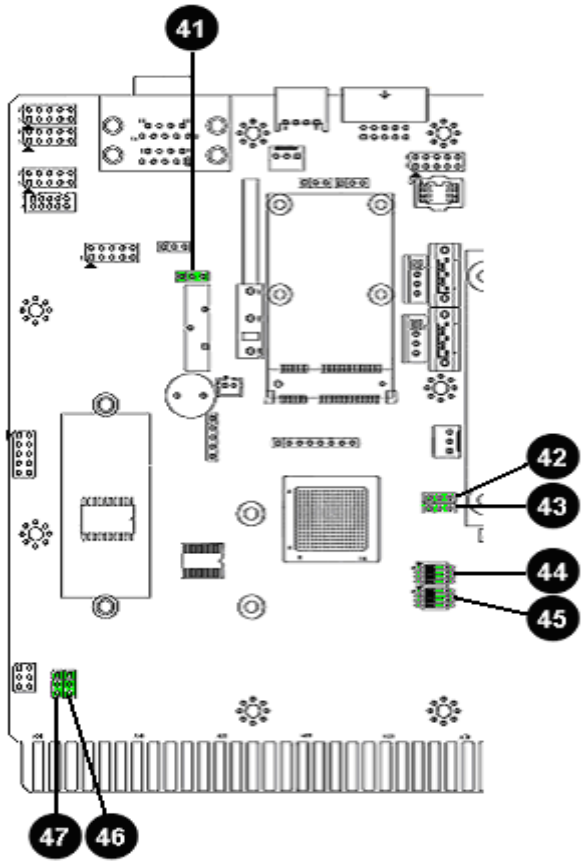
37 **LED_5V1** — 5V Power IN LED

38 **LED_24V1** — 24V Power IN LED

39 **LED_12V1** — 12V Power IN LED

40 **LED_CHG1** — Battery charging LED
ON: Battery charging

2.3.10 The Jumper & Switch setting



41 JP_CCMOS1 Clear CMOS

Short	Function
1-2	Normal **(Default)**
2-3	Clear CMOS

42 JP_SRAM1 SRAM1 data clear

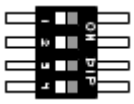
Short	Function
1-2	Not clear **(Default)**
2-3	SRAM Clear

43 *JP_SRAM2* *SRAM1 data clear*

(Reserved)

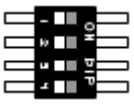
Short	Function
1-2	Not clear **(Default)**
2-3	SRAM Clear

44 SW-FPGA1 METER OUT setting 1



No	OFF/ON	Mode
1	OFF	KEYIN_METER MOSFET OFF **(Default)**
	ON	KEYIN_METER MOSFET ON
2	OFF	KEYOUT_METER MOSFET OFF **(Default)**
	ON	KEYOUT_METER MOSFET ON
3	OFF	COININ_METER MOSFET OFF **(Default)**
	ON	COININ_METER MOSFET ON
4	OFF	BILLIN_METER MOSFET OFF **(Default)**
	ON	BILLIN_METER MOSFET ON

45 SW-FPGA2 METER OUT setting 2 & HOPPER SSR setting



No	OFF/ON	Mode
1	OFF	PAYOUT_METER MOSFET OFF **(Default)**
	ON	PAYOUT_METER MOSFET ON
2	OFF	HOPPER_SSR MOSFET OFF **(Default)**
	ON	HOPPER_SSR MOSFET ON
3	OFF	**(Default)**
	ON	(Reserved)
4	OFF	**(Default)**
	ON	(Reserved)

46 *JP_METER1* *(Reserved)*

Short	Function
1-2	HOPPER_SSR Pull down **(Default)**
2-3	HOPPER_SSR Pull up

47 JP_CLAMP1 Edge connector GPO pins Clamping voltage setting

Short	Function
1-2	+12V **(Default)**
2-3	+24V

2.4 Edge Connector Pin Definition

IPH: Input (with Internal Pull High & without isolated) (only support GND & Open signal)

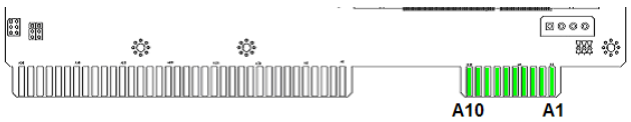
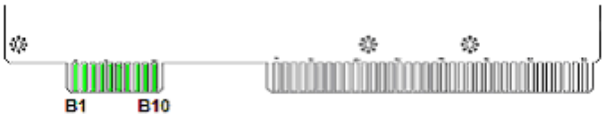
OD: Open Drain Output (Maximum external voltage: 24V DC)

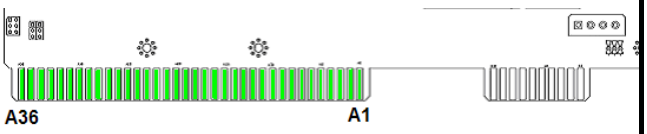
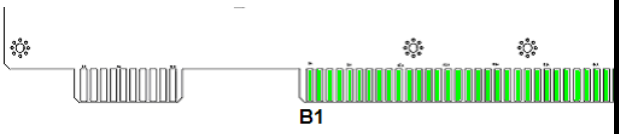
AO: Analog Output

I/O: Spare Input/Output (5V tolerance)

P: Power

Empty: Reserved

Component Side (A)			Solder Side (B)		
					
Function	**I/O Type**	**Pin**	**Pin**	**I/O Type**	**Function**
GND	P	A1	B1	P	GND
GND	P	A2	B2	P	GND
Power +5V	P	A3	B3	P	Power +5V
Power +5V	P	A4	B4	P	Power +5V
Power +12V	P	A5	B5	P	Power +12V
Power +12V	P	A6	B6	P	Power +12V
Power +24V	P	A7	B7	P	Power +24V
		A8	B8		
GND	P	A9	B9	P	GND
GND	P	A10	B10	P	GND

Component Side (A)			Solder Side (B)		
					
Function	**I/O Type**	**Pin**	**Pin**	**I/O Type**	**Function**
		A1	B1		
Left Speaker	AO	A2	B2	AO	Audio Ground
Right Speaker	AO	A3	B3	AO	Audio Ground
Button 1	IPH	A4	B4		
Button 2	IPH	A5	B5		
Button 3	IPH	A6	B6		
Button 4	IPH	A7	B7		
Button 5	IPH	A8	B8		
Button 6	IPH	A9	B9		
Button 7	IPH	A10	B10		
Button 8	IPH	A11	B11		
Button 9	IPH	A12	B12		
		A13	B13		
		A14	B14		
		A15	B15		
		A16	B16		
		A17	B17		
Coin-IN Signal A	IPH	A18	B18		
Coin-IN Signal B	IPH	A19	B19		
Button 10	IPH	A20	B20	IPH	Button 13
Button 11	IPH	A21	B21	IPH	Button 14
GND	P	A22	B22	IPH	Hopper Sensor
Key-IN Meter (500mA max)	OD	A23	B23		
Bill-IN Meter (500mA max)	OD	A24	B24		
Coin-IN Meter (500mA max)	OD	A25	B25		
Pay-OUT Meter (500mA max)	OD	A26	B26		
Key-OUT Meter (500mA max)	OD	A27	B27		
		A28	B28		
Lamp1 (500mA max)	OD	A29	B29	OD	Lamp7 **(1A max)**
Lamp2 (500mA max)	OD	A30	B30	OD	Lamp8 (500mA max)
Lamp3 (500mA max)	OD	A31	B31	OD	Lamp9 (500mA max)
Lamp4 (500mA max)	OD	A32	B32	OD	Lamp10 (500mA max)
Lamp5 (500mA max)	OD	A33	B33	OD	Hopper SSR (500mA max)
Tower Lamp6 **(1A max)**	OD	A34	B34		
Button 12	IPH	A35	B35		
GND	P	A36	B36	P	GND

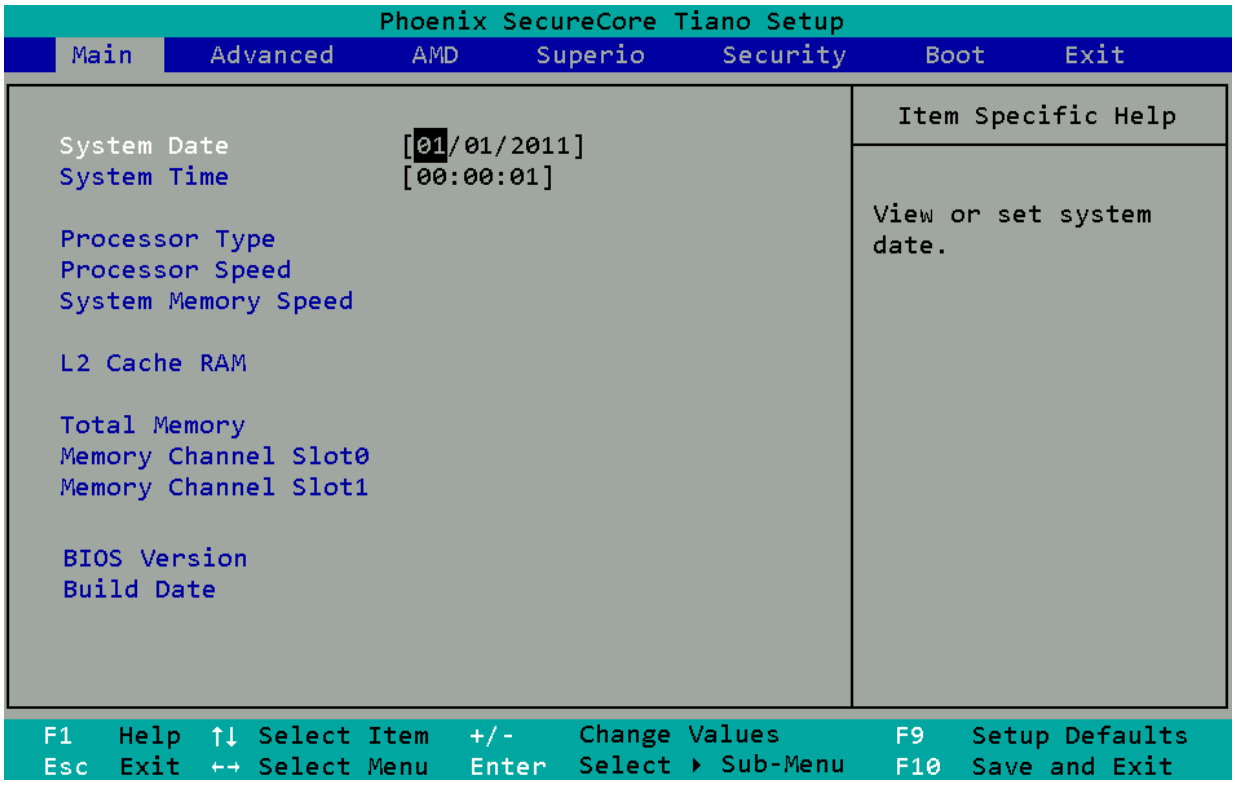
Chapter 3 BIOS Settings

This chapter describes the BIOS menu displays and explains how to perform common tasks needed to get the system up and running. It also gives detailed explanation of the elements found in each of the BIOS menus. The following topics are covered:

- Main Setup
- Advanced Chipset Setup
- AMD Setup
- Super IO Setup
- Security Setup
- Boot Setup
- Exit Setup

3.1. Main Setup

Once you enter the Phoenix BOS™ CMOS Setup Utility, the Main Menu will appear on the screen. Use the arrow keys to highlight the item and then use the < + > < - > keys to select the value you want in each item.

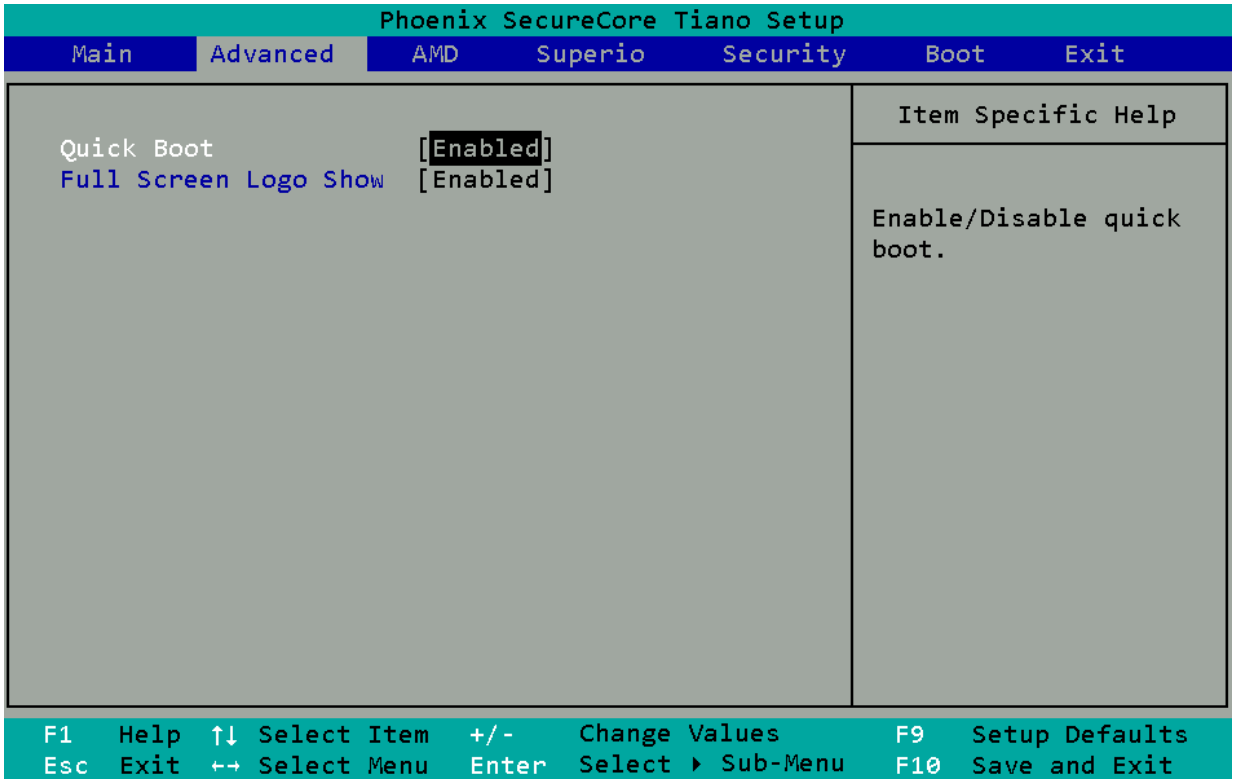


Note: Listed at the bottom of the menu are the control keys. If you need any help with the item fields, you can press the <F1> key, and it will display the relevant information.

Option	Choice	Description
System Date	N/A	Set the system date. Noted that the “Day” automatically changes when you set the date.
System TIme	N/A	Set the system time.
Processor Type	N/A	This item displays the CPU type.
Processor Speed	N/A	This item displays the CPU speed

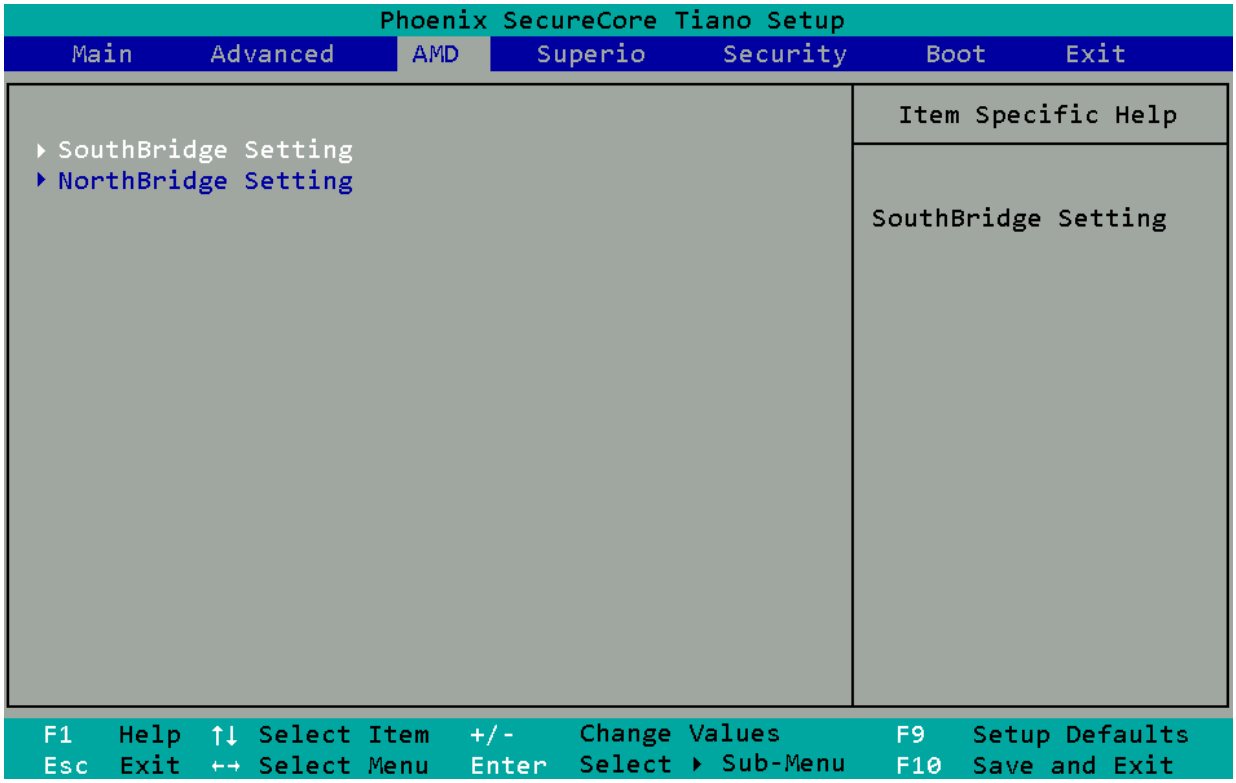
System Memory Speed	N/A	This item displays the memory speed.
L2 Cache RAM	N/A	This item displays the L2 cache memory size.
Total memory	N/A	This item displays the memory size that used.
Memory Channel Slot0	N/A	This item displays the memory size that used on slot 0.
Memory Channel Slot1	N/A	This item displays the memory size that used on slot 1.
BIOS version	N/A	This item displays the system BIOS version.
Build Date	N/A	This item displays the BIOS build date.

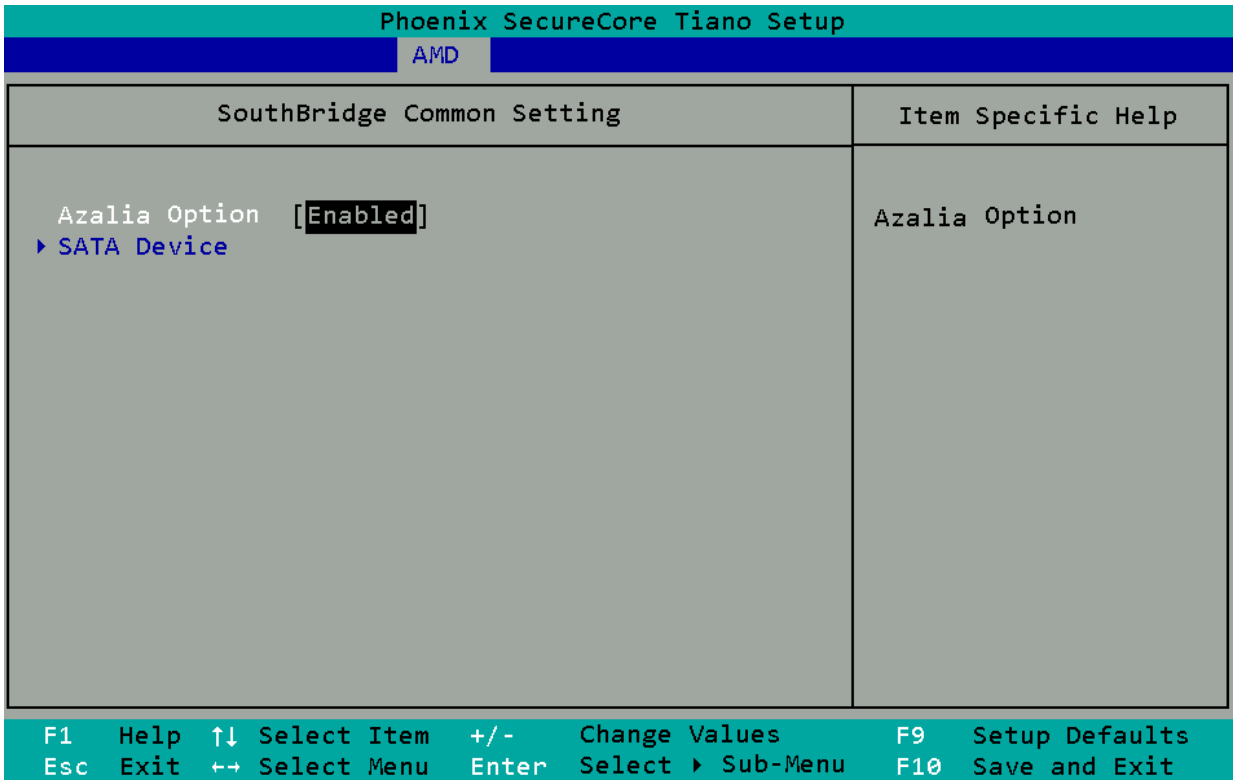
3.2. Advanced Chipset Setup

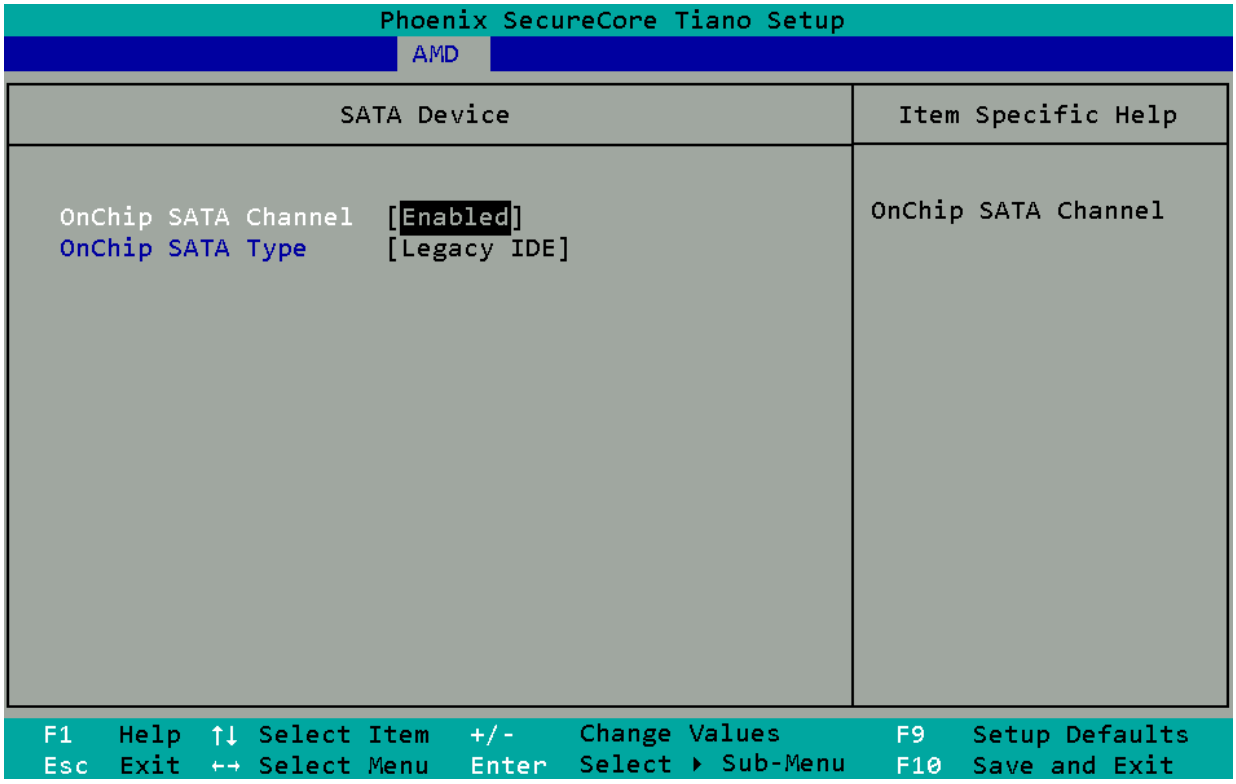


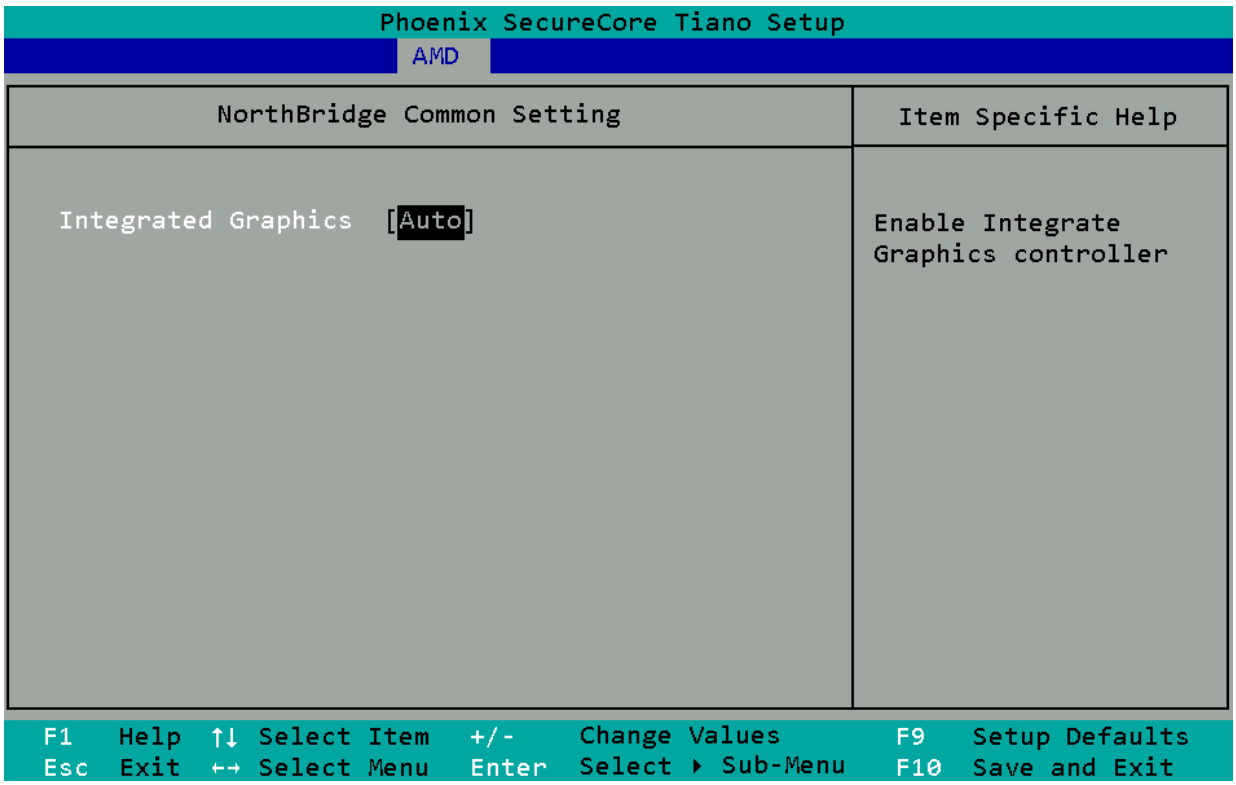
Option	Choice	Description
Quick Boot	Enabled Disabled	Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system.
Full Screen Logo Show	Enabled Disabled	Displays the full screen logo upon BIOS booting.

3.3. AMD Setup


Phoenix SecureCore Tiano Setup
Main Advanced AMD Superio Security Boot Exit
SouthBridge Setting
NorthBridge Setting
Item Specific Help
SouthBridge Setting
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ←→ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

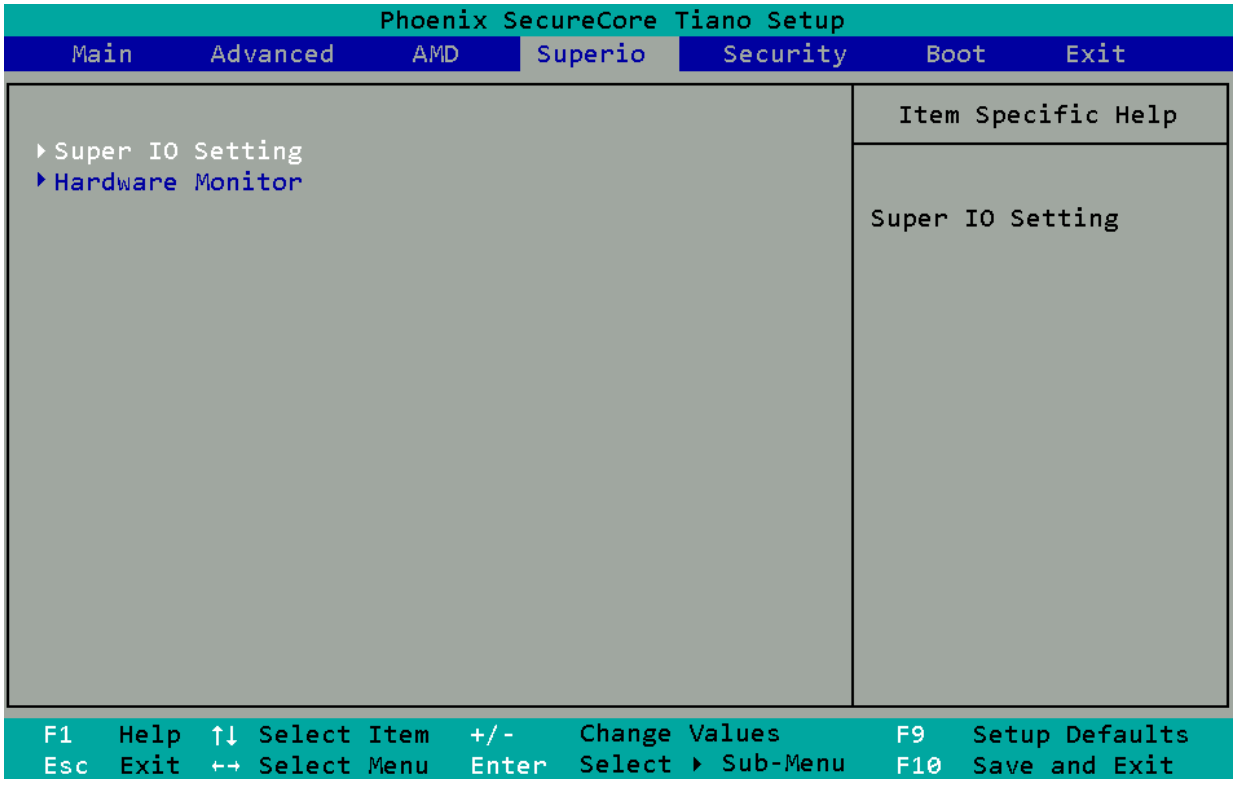

Phoenix SecureCore Tiano Setup
AMD
SouthBridge Common Setting
Item Specific Help
Azalia Option [Enabled]
SATA Device
Azalia Option
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ←→ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

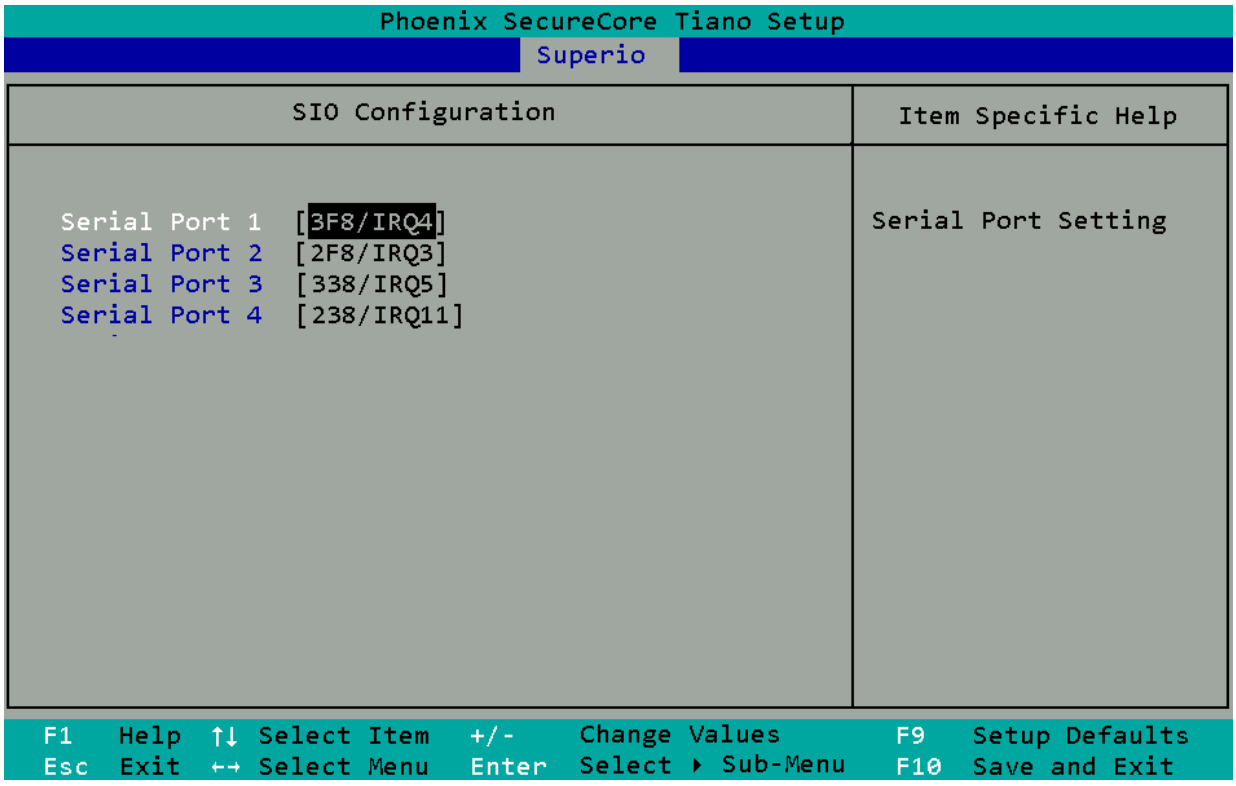

Phoenix SecureCore Tiano Setup
AMD
SATA Device
Item Specific Help
OnChip SATA Channel [Enabled]
OnChip SATA Type [Legacy IDE]
OnChip SATA Channel
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

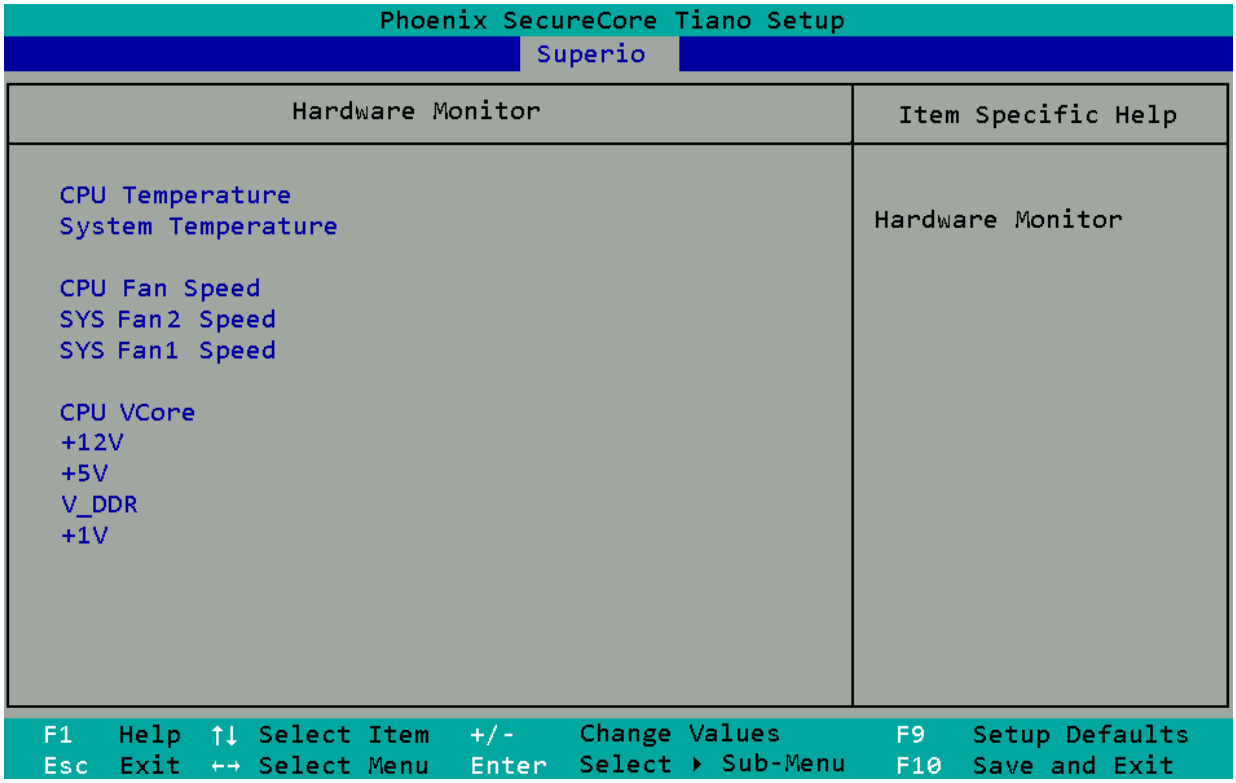

Phoenix SecureCore Tiano Setup
AMD
NorthBridge Common Setting
Item Specific Help
Integrated Graphics [Auto]
Enable Integrate Graphics controller
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

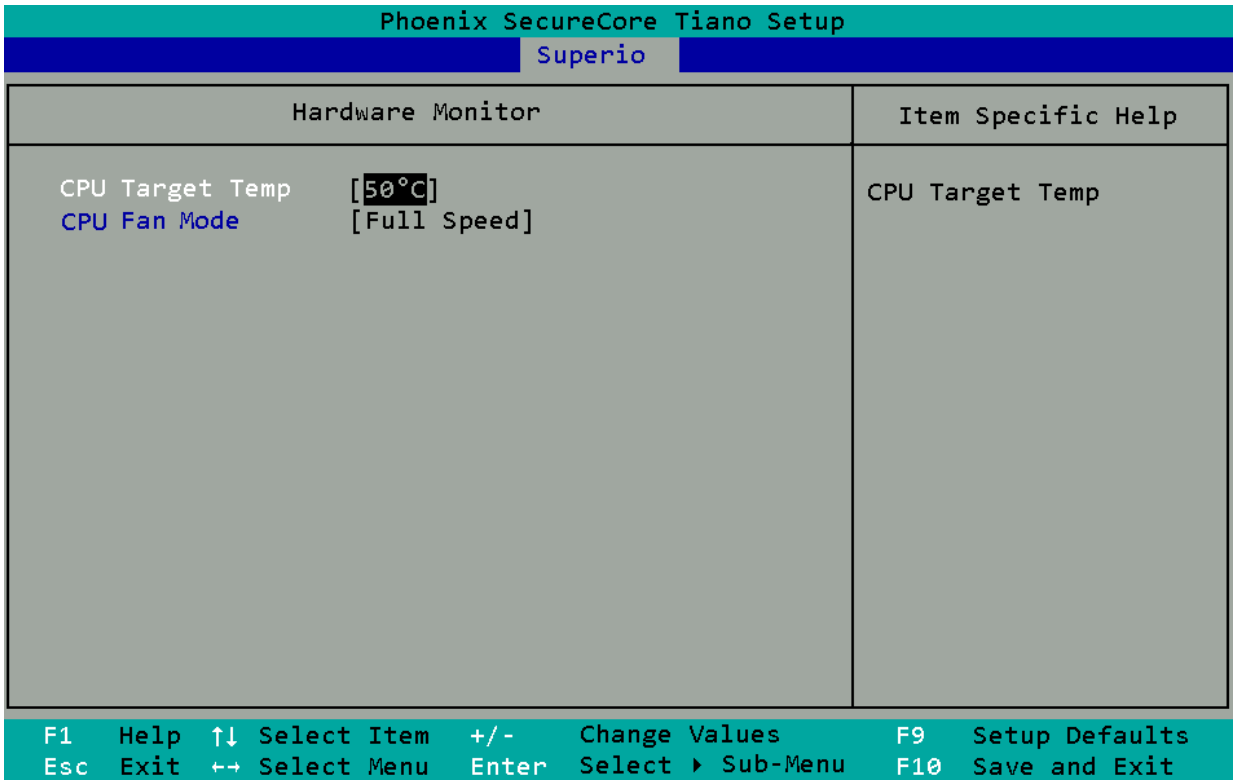
Option	Choice	Description
Azalia Option	Enabled Disabled	Enabled --- Enables onboard controller if audio device is detected Disabled --- Turn off onboard controller to allow external controller
OnChip SATA Channel	Enabled Disabled	Enabled --- Enable onboard SATA controller Disabled --- Turn off onboard SATA controller
OnChip SATA Type	AHCI Legacy IDE AHCI ID4394	N/A
Integrated Graphics	Auto Force	Auto --- Onboard VGA Frame Buffer Size by the Main memory size Force --- set fixed Onboard VGA Frame Buffer Size
UMA Fram Buffer Size	Auto 32M 64M 128M 256M 384M 512M 1G 2G	Select Onboard VGA Frame Buffer Size

3.4. Super IO Setup



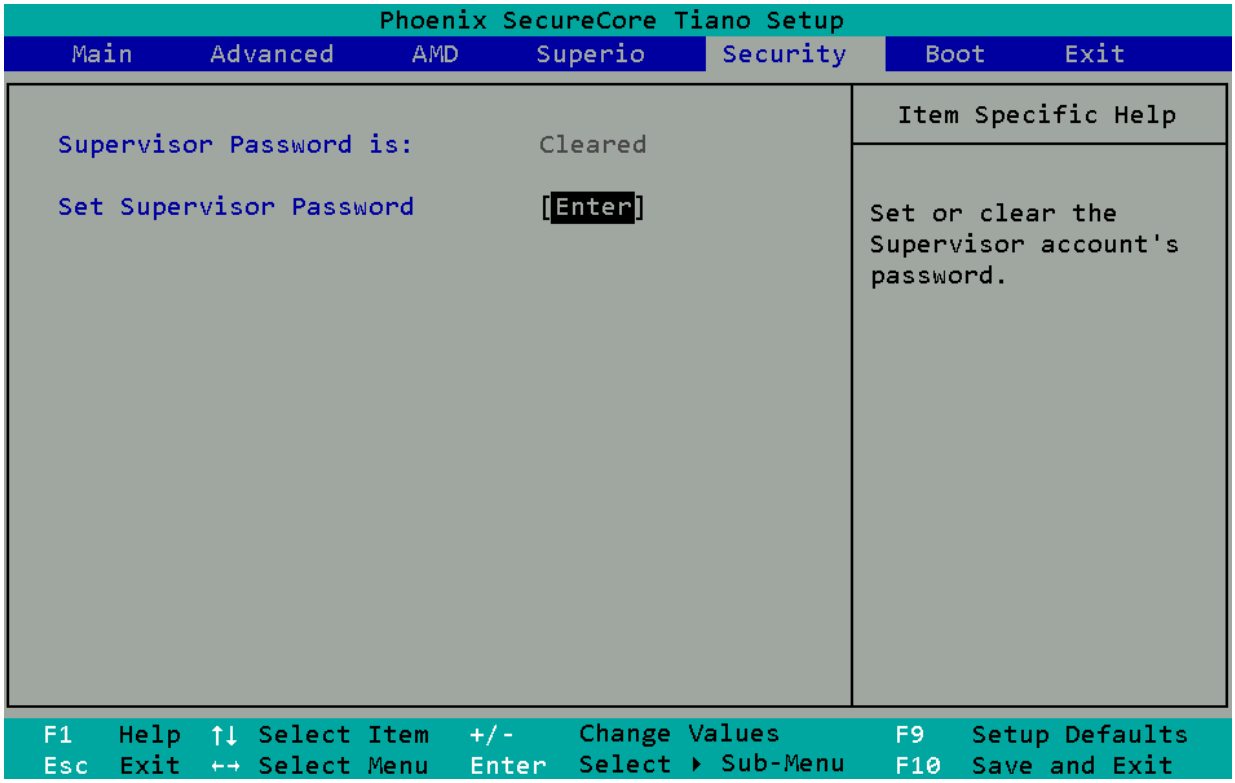



Phoenix SecureCore Tiano Setup
Superio
Hardware Monitor
Item Specific Help
CPU Temperature
System Temperature
CPU Fan Speed
SYS Fan2 Speed
SYS Fan1 Speed
CPU VCore
+12V
+5V
V_DDR
+1V
Hardware Monitor
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit


Phoenix SecureCore Tiano Setup
Superio
Hardware Monitor
Item Specific Help
CPU Target Temp [50°C]
CPU Fan Mode [Full Speed]
CPU Target Temp
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

Option	Choice	Description
Serial Port 1/2/3/4	Disabled 3F8/IRQ4 2F8/IRQ3 338/IRQ5 238/IRQ11	Sets the base I/O port address and IRQ for the onboard device
CPU Temperature	N/A	These read-only fields show the functions of the hardware thermal sensor by CPU thermal diode that monitors the chip blocks to ensure a stable system.
System Temperature	N/A	Show you the current system temperature.
CPU Fan Speed	N/A	Show you the CPU Fan Speed.
SYS Fan 1/2 Speed	N/A	Show you the System Fan1/2 Speed.
CPU VCore	N/A	Show you the voltage of Vcore
CPU Target Temp	40 50 60	N/A
CPU Fan Mode	Full Speed	Full: Fan Speed full on

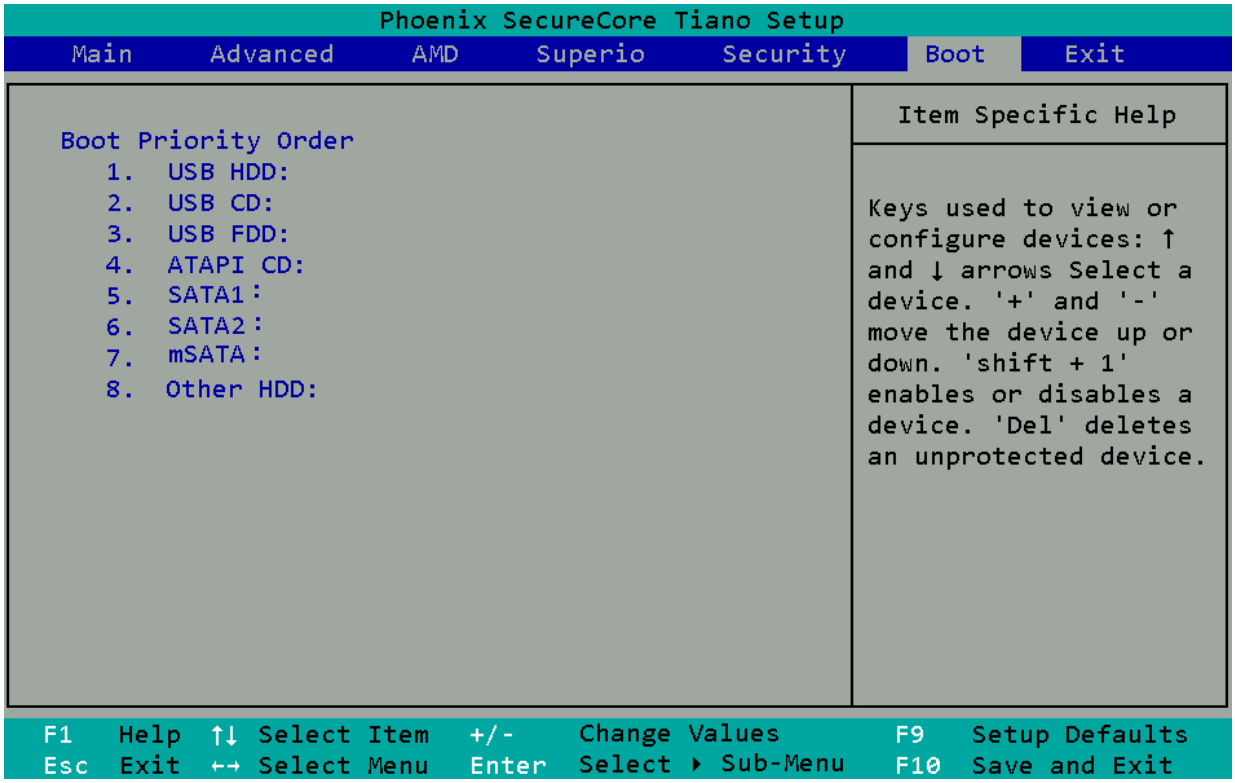
3.5. Security Setup



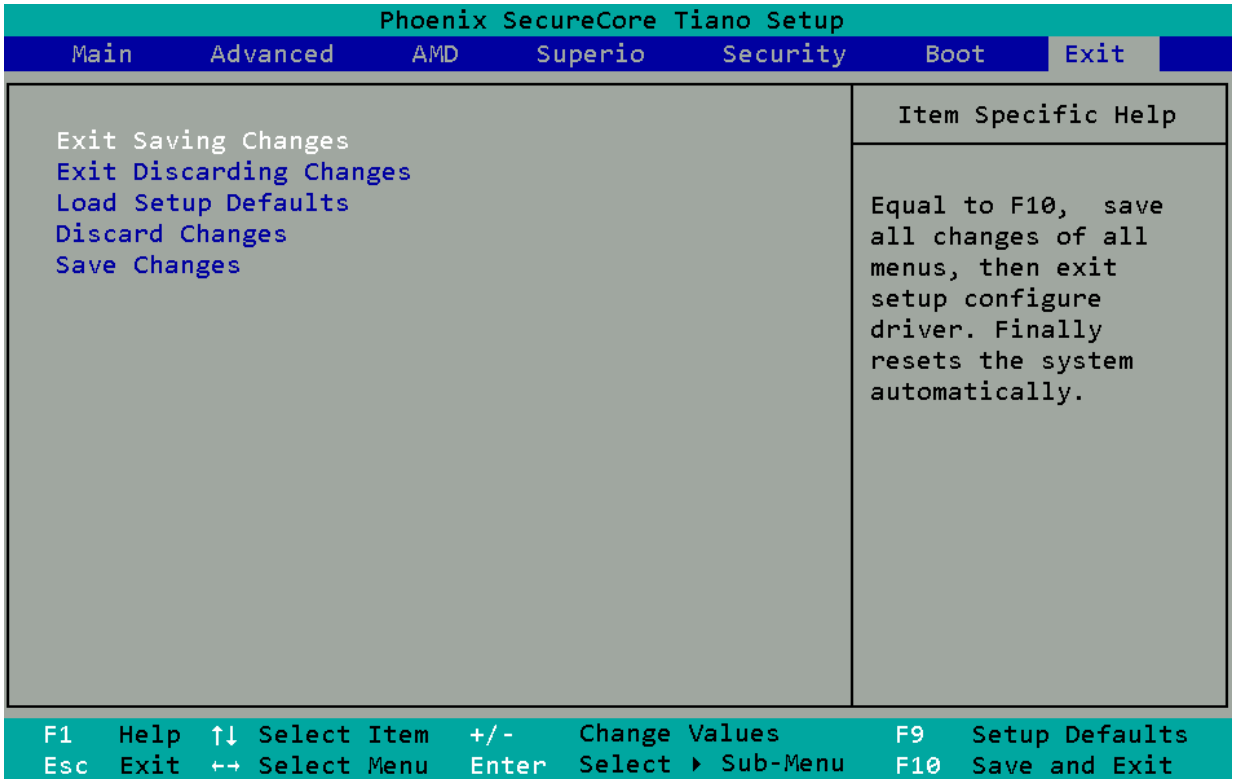
Option	Choice	Description
Supervisor Password is	N/A	The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
Set Supervisor Password	Pressing <Enter> on this item for confirmation: **ENTER PASSWORD:**	When a password has been enabled, you will be prompted to enter your password every time you try to enter Setup. This prevents unauthorized persons from changing any part of your system configuration. Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previous password from the CMOS memory. You will be asked to confirm the password. Type the password again and

		press <Enter>. You may also press <Esc> to abort the selection and not enter a password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

3.6. Boot Setup



3.7. Exit Setup



option	Choice	Description
Exit Saving Changes	Pressing <Enter> on this item for confirmation:	Exit BIOS Setup and Save Changes BIOS Setting.
Exit Discarding Changes	Pressing <Enter> on this item for confirmation:	Exit BIOS Setup and Without Save Changes BIOS Setting.
Load Setup Defaults	Pressing <Enter> on this item for confirmation:	Restore/Load Default values for all the setup options.
Discard Changes	Pressing <Enter> on this item for confirmation:	System will not save any BIOS changes.

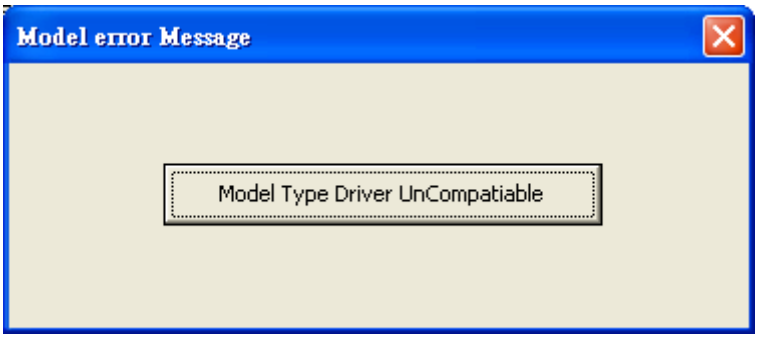
Save Changes	Pressing <Enter> on this item for confirmation:	Save Changes BIOS Setting but without exit BIOS Setup.

Chapter 4 Driver And Utility Installation

4.1. Driver CD Interface Introduction

Acrosser provides the a driver CD, which includes the drivers, utilities, applications and documents. For Windows environment, it can be guided by the following setup program; for Linux environment, the related files can be found at folder “AMB-A55EG1\Linux”.

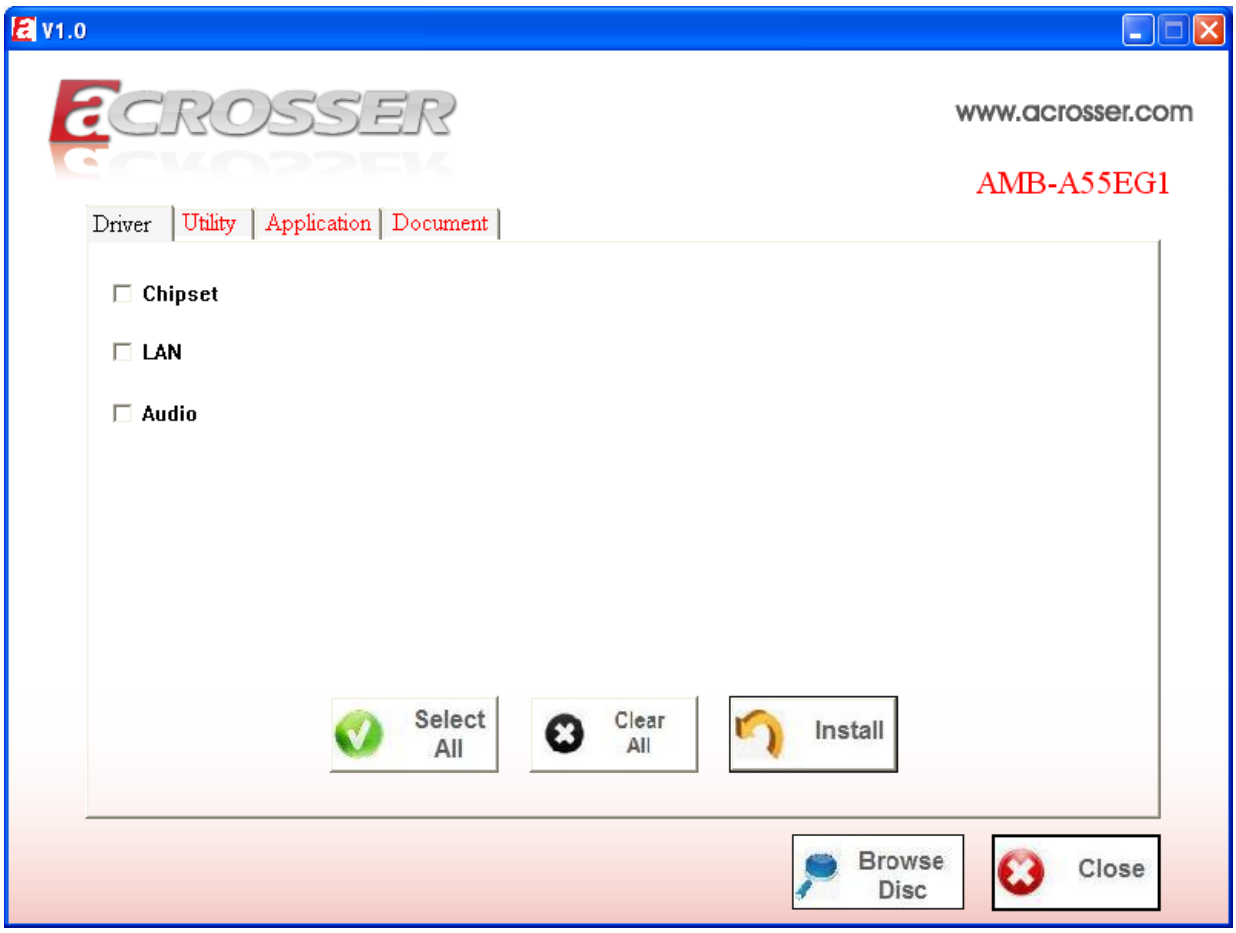
Once putting the CD into the optical disk drive, it will run automatically. The driver CD will also detect the MB information to see if they are matched. The following error messages appear if you get an incorrect driver CD.



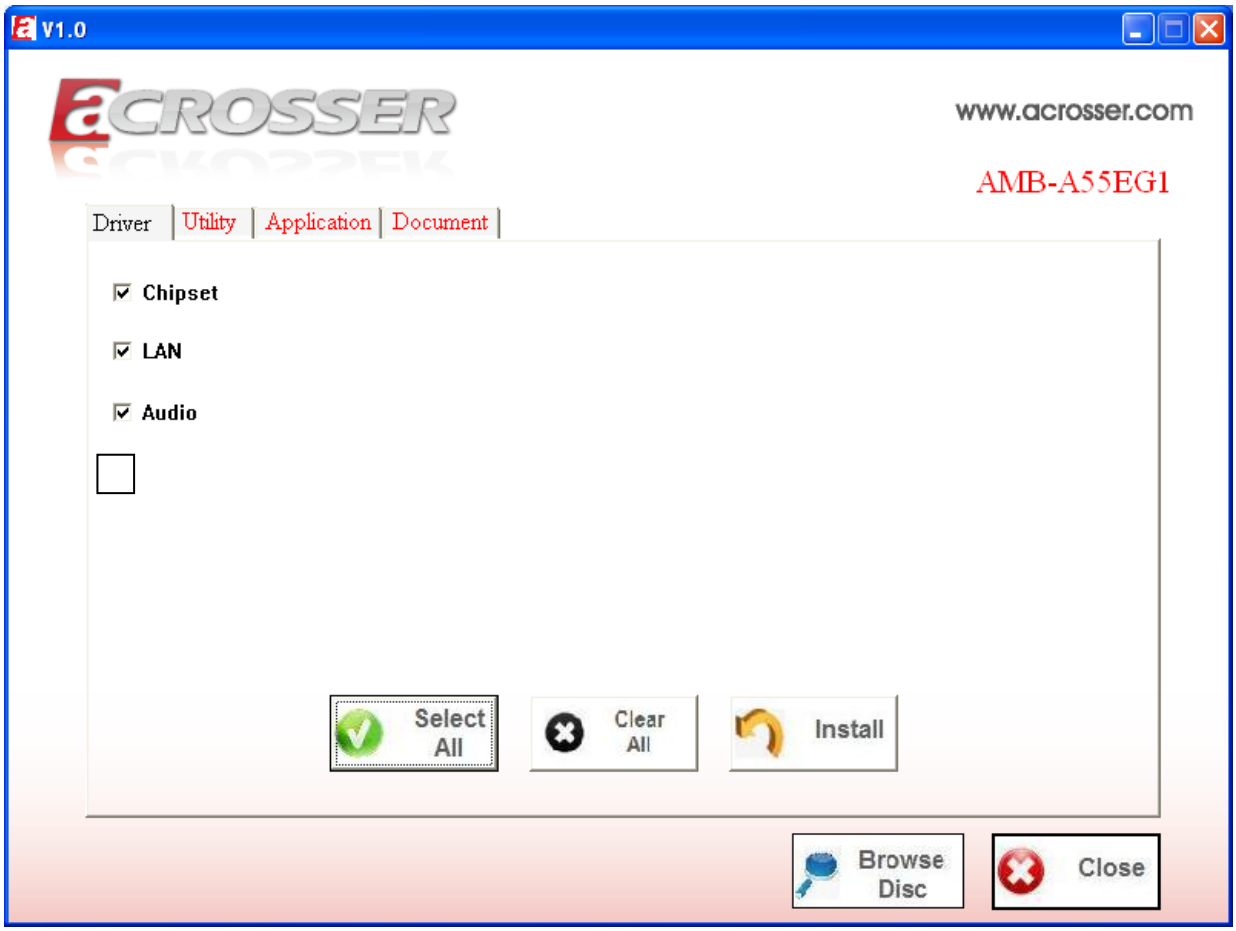
It indicates that the board information is not available.

4.1.1 Driver Page

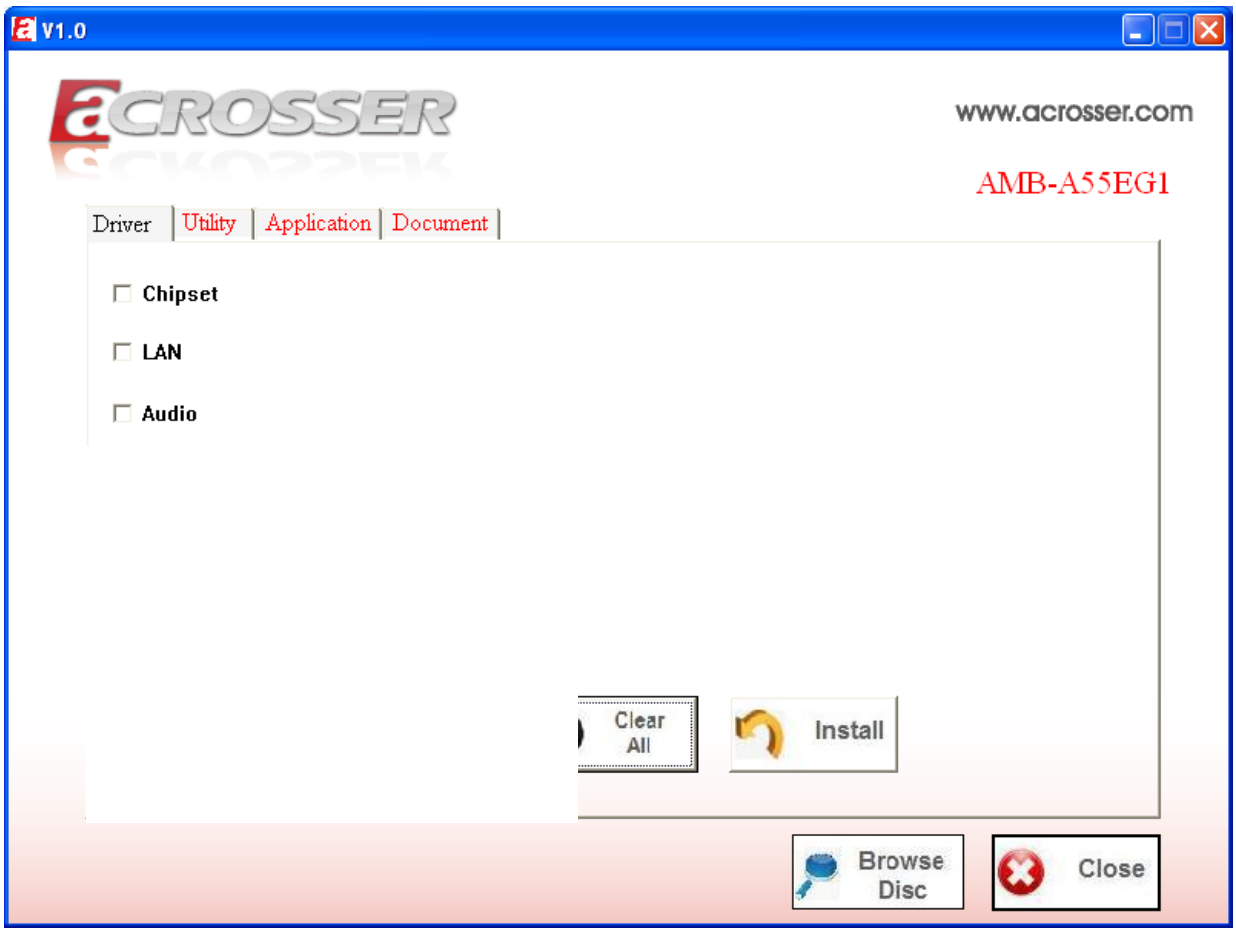
This is the Driver Installation Page.



Click the icon, all the drivers will be selected.

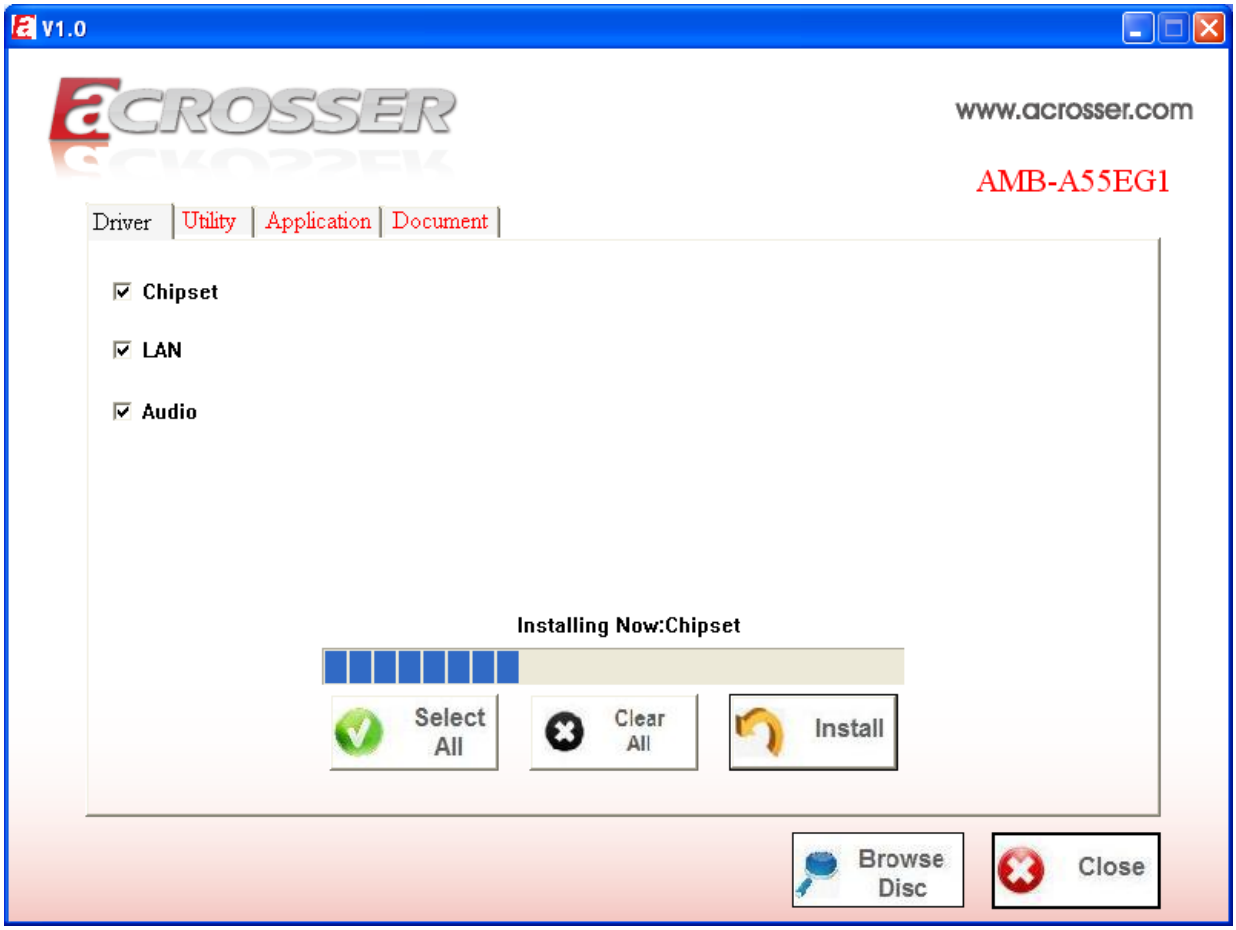


Click the icon, all selected items will be cleared.

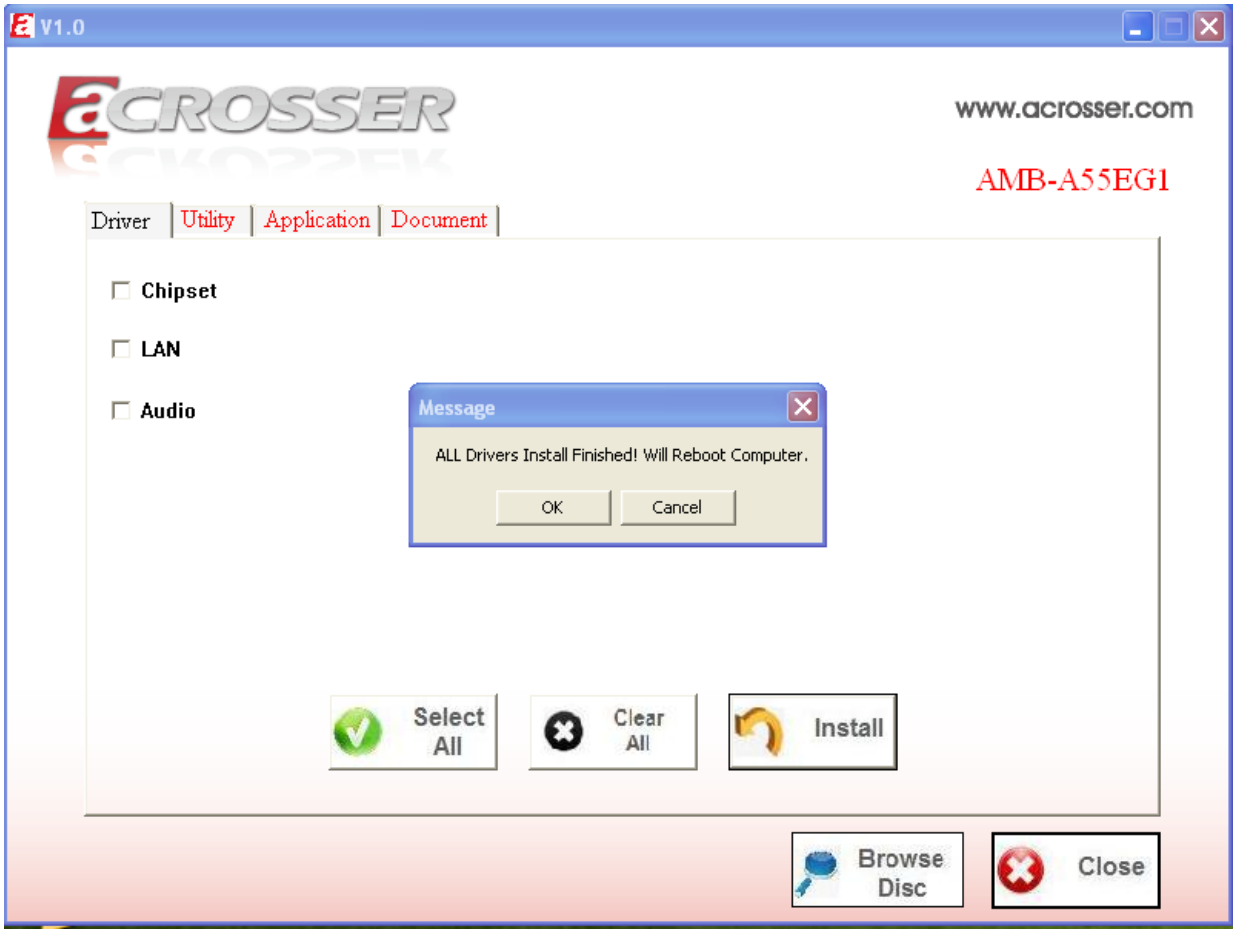


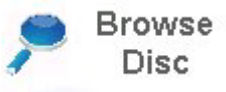
Click the icon to install the selected drivers.

The progress bar shows up. When installation finished, the main window will temporarily disappear.

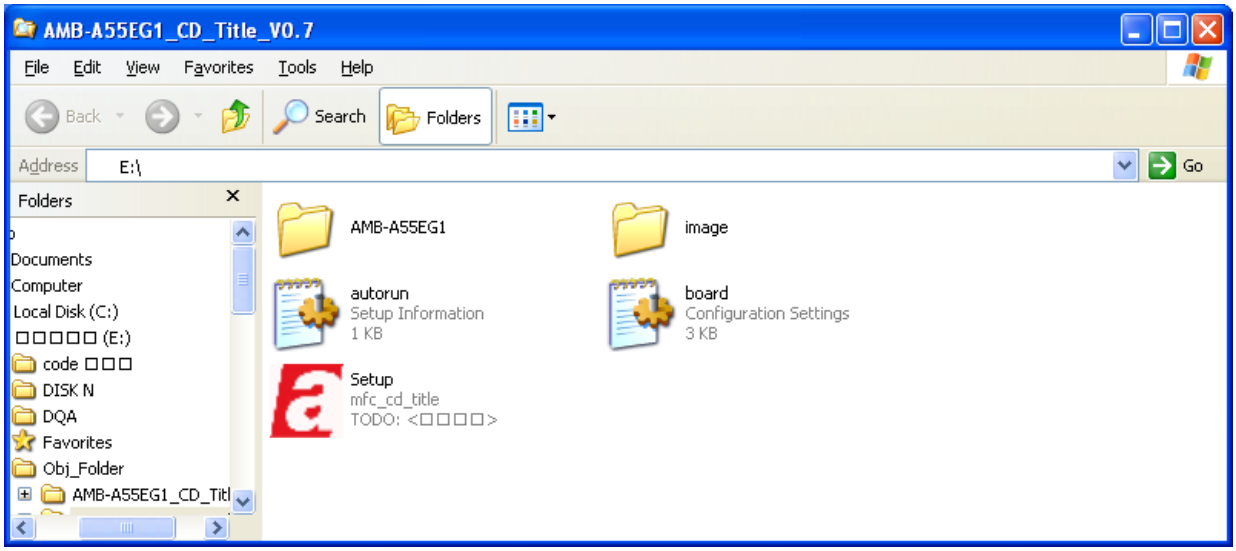


Please click ‘Yes’ to restart the system

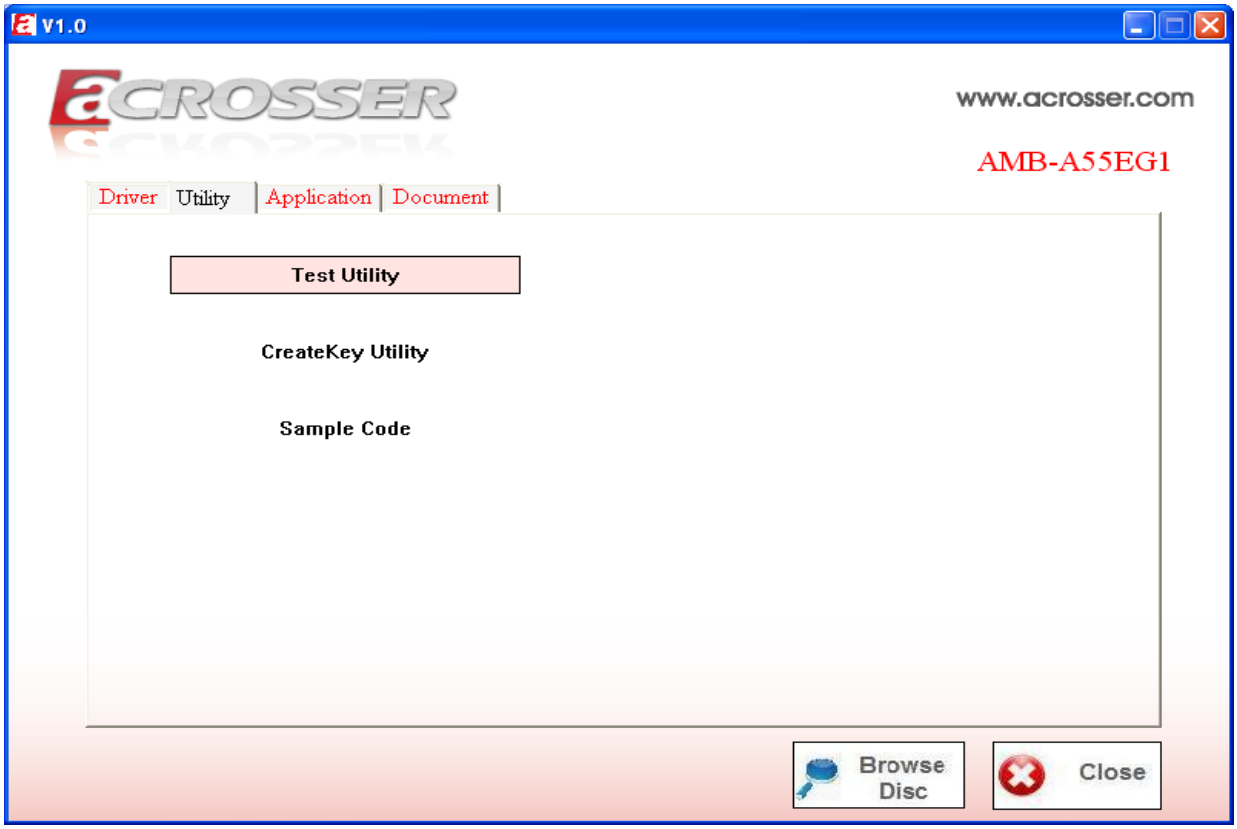


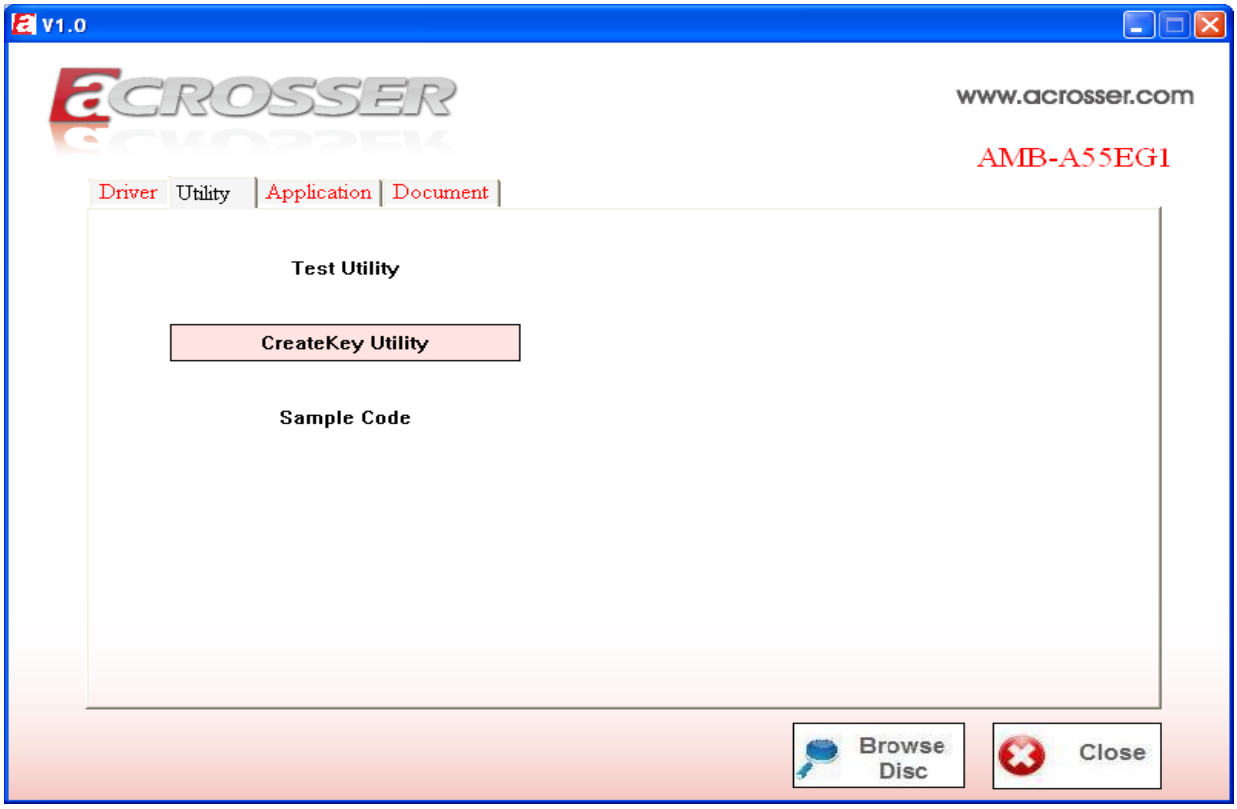


Click this icon to browse this CD content.



4.1.2 Utility Page

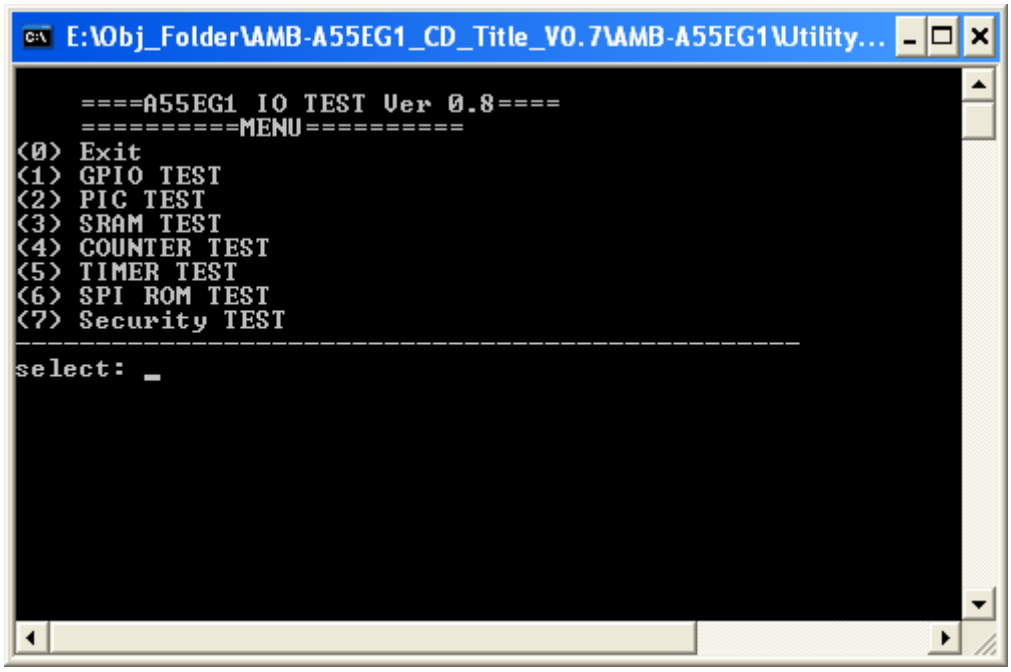




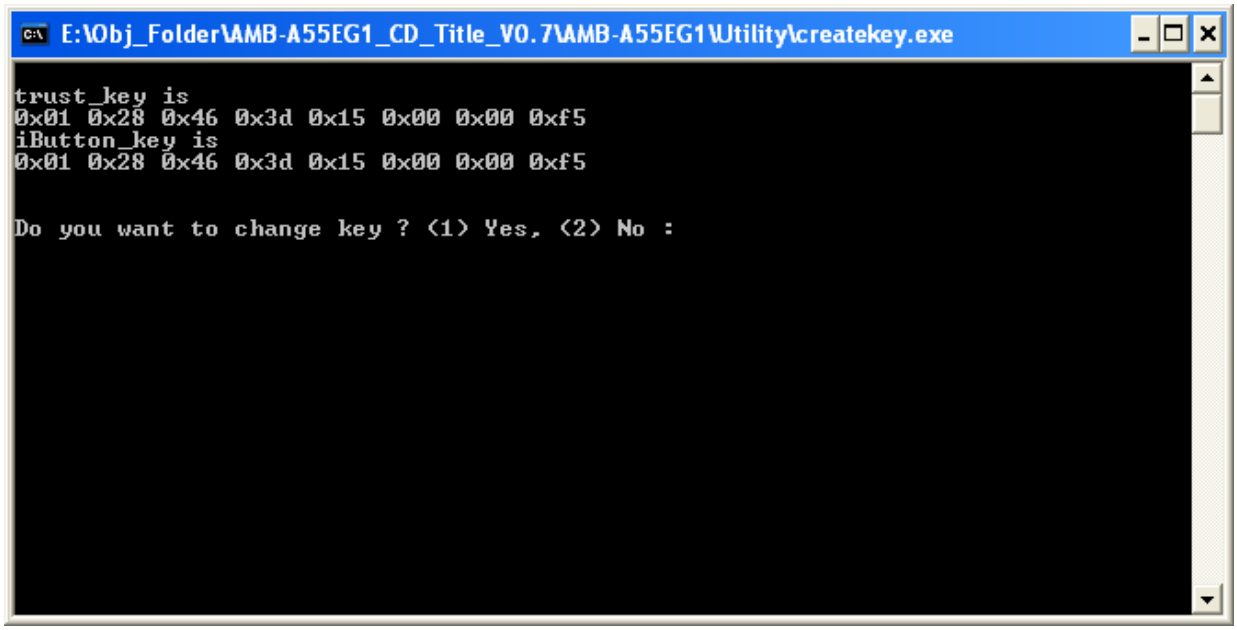
Before launching this utility, users have to install the ‘Acrosser Driver’ in advance. The system may ask for installing other libraries. You can find the libraries on the ‘Application’ page also.

Before you launch “test utility”, please execute “createkey utility”. Else, some tests could have incorrect results.

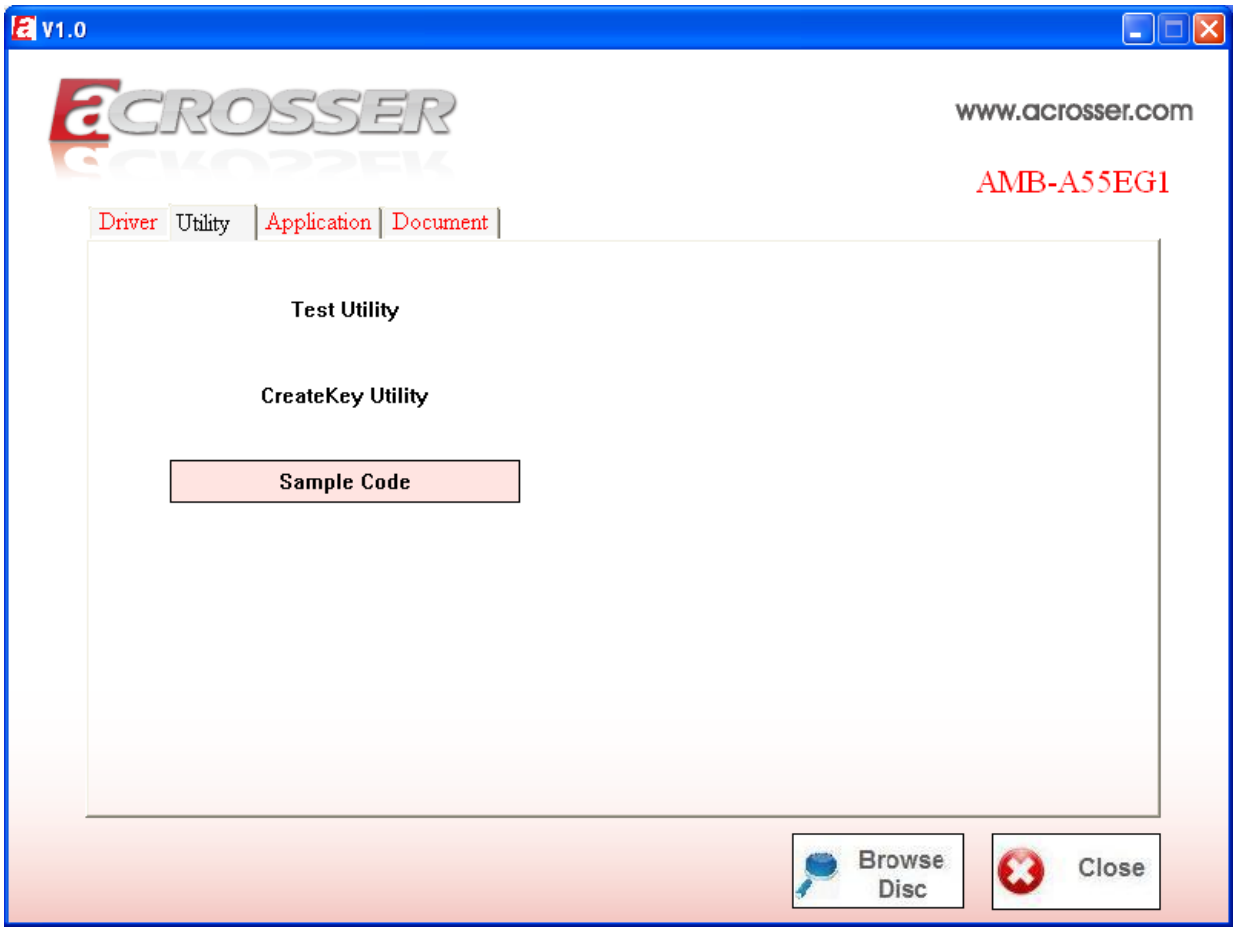
This is Test Utility.



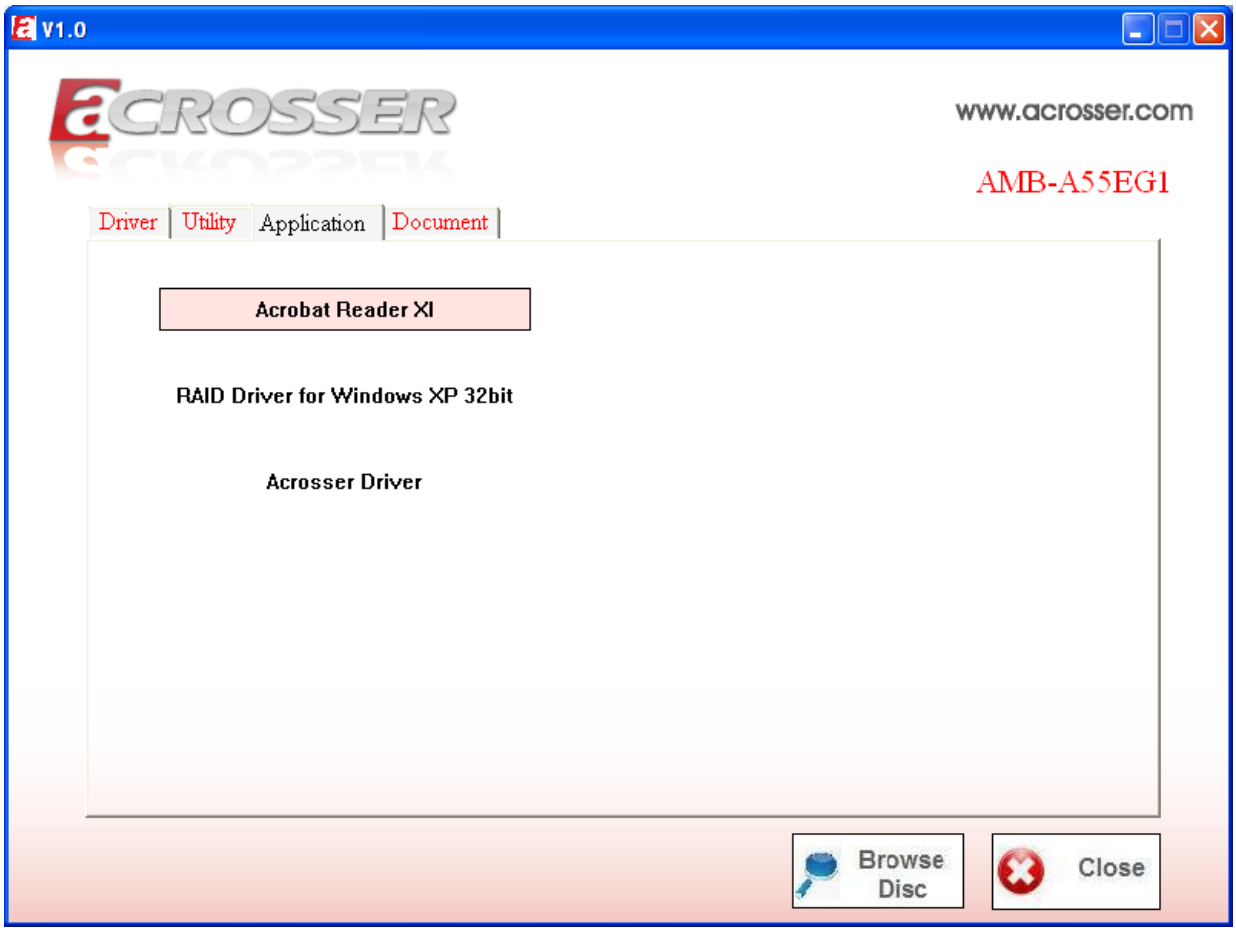
This is CerateKey Test Uility.



Users can double click the ‘Sample Code’ to open the sample code folder. The source code of the test utility is in this folder.

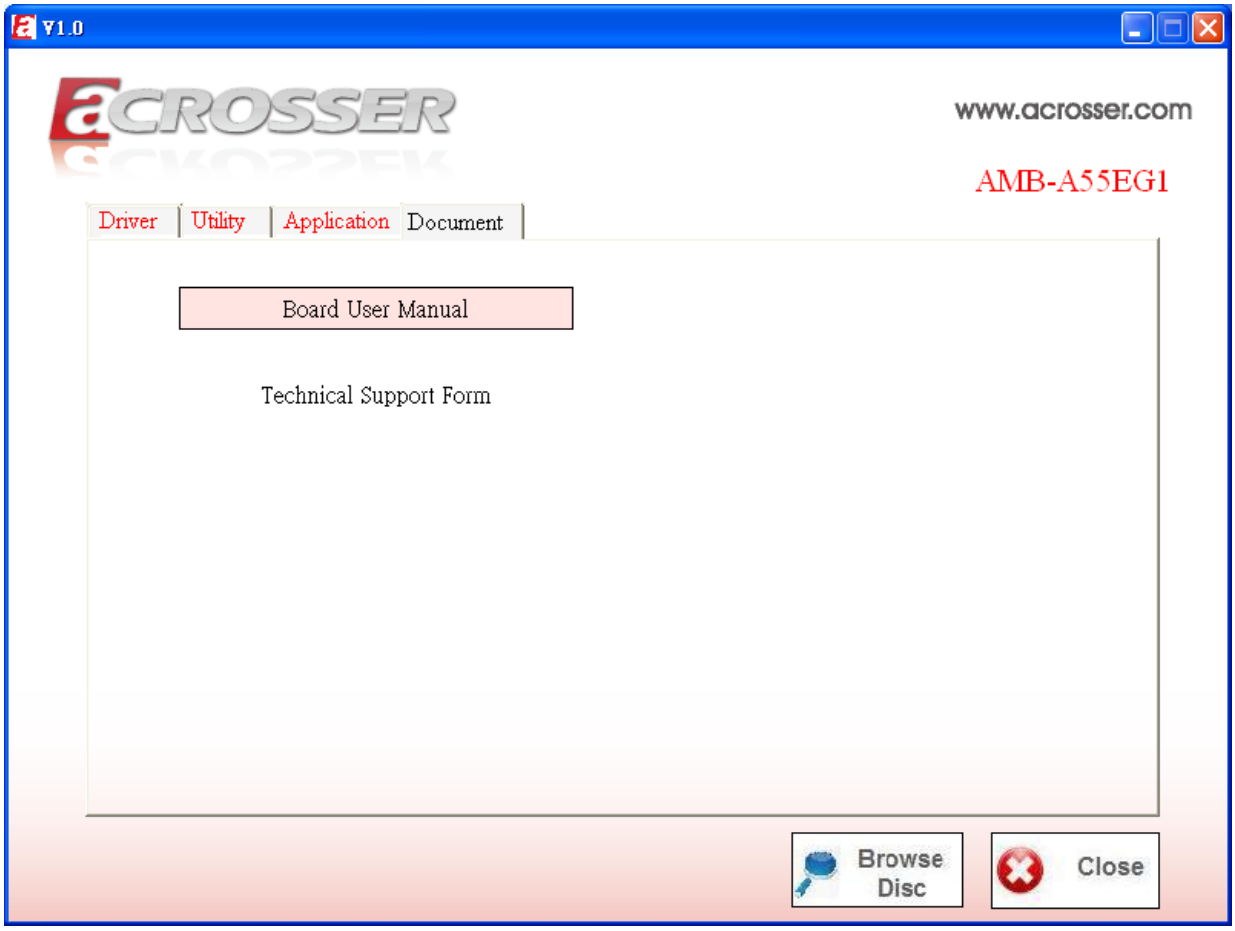


4.1.3 Application Page



4.1.4 Documents Page

Double click on one of the items to open the user manual or technical support form. The form is written by Microsoft Word format. If you have any questions, you can fill the form and send back Acrosser for help.



Chapter 5 Software Installation and Programming Guide

AMB-A55EG1 is an All-in-One gaming control box based on AMD Fusion (G series) T56N platform. In order to ease the customer's operation on A55EG1, Acrosser provides device driver, application interface (API), and source code of demo application. The provided software is available on both Windows and Linux. The detailed S/W SPEC are described in Chapter 1. All the provided software is located on the bundled disc.

5.1 API List and Descriptions

The following info describes the details of the provided API function.

5.1.1 General Usage

5.1.1.1 lib_init

- Description
  This function is used to register the FPGA related resource. FPGA has to be registered by this function before other functions are called.
- Syntax
  int lib_init (void)
- Argument
  - None
- Return
  - 0: Successful, -1: Fail, 1:Can't find key.

5.1.1.2 lib_close

- Description
  This function is used to release the resource of FPGA.
- Syntax
  void lib_close(void)
- Argument
  - None

- Return
  - None

5.1.1.3 get_fpga_Fd

- Description
  Get file descriptor number.
- Syntax
  int get_fpga_Fd (void)
- Argument
  - None
- Return
  - File descriptor number.

5.1.2 GPIO

5.1.2.1 get_gpo_lines

- Description
  Get how many gpo pins in this product.
- Syntax
  int get_gpo_lines(void)
- Argument
  - None
- Return
  - Total gpo pins number.

5.1.2.2 get_gpi_lines

- Description
  Get how many gpi pins in this product.
- Syntax
  int get_gpi_lines(void)
- Argument
  - None
- Return
  - Total gpi pins number.

5.1.2.3 get_gpo_status

- Description

  Get current gpo pin status.

- Syntax

  int get_gpo_status(int pin)

- Argument
  - pin: int type, the range is 0-31.
- Return
  - 1: ON
  - 0: OFF

5.1.2.4 get_gpi_status

- Description

  Get current gpi pin status.

- Syntax

  int get_gpi_status(int pin)

- Argument
  - pin: int type, the range is 0-31.
- Return
  - 1: ON
  - 0: OFF

5.1.2.5 set_gpo

- Description

  Set gpo pin status.

- Syntax

  void set_gpo(int pin, int value)

- Argument
  - pin: int type, the range is 0-31.
  - value: 1: ON , 0: OFF
- Return
  - None

5.1.2.6 set_gpi_debounce

- Description

  Set gpi pin debounce (default 16ms).

- Syntax

  int set_gpi_debounce(int pin, int debounce)

- Argument
  - pin: int type, the range is 0-31.
  - debounce: int type, the range is 1-255(ms).
- Return
  - 0: Success.
  - -1:Fail.

5.1.2.7 get_gpi_debounce

- Description

  Get gpi pin debounce.

- Syntax

  int get_gpi_debounce(int pin)

- Argument
  - pin: int type, the range is 0-31.
- Return
  - debounce time value.

5.1.2.8 set_gpi_interrupt

- Description

  Set gpi pin interrupt Enable or Disable.

- Syntax

  void set_gpi_interrupt(int pin, int value)

- Argument
  - pin: int type, the range is 0-31.
  - value: 0: Disable, 1:Enable
- Return
  - None

5.1.2.9 set_allgpi_interrupten

- Description

  Set gpi (0-31) pin interrupt Enable.

- Syntax

  void set_allgpi_interrupten(void)

- Argument
  - None

- Return
  - (Delay 16 sec) to return None

5.1.2.10 set_allgpi_interuptdn

- Description

  Set gpi (0-31) pin interrupt Disable.

- Syntax

  void set_allgpi_interruptdn(void)

- Argument
  - None

- Return
  - (Delay 16 sec) to return None

5.1.2.11 get_gpi_interrupt_status

- Description

  Get gpi pin interrupt status.

- Syntax

  int get_gpi_interrupt_status(int pin)

- Argument
  - pin: int type, the range is 0-31.

- Return
  - 0: Disable
  - 1: Enable

5.1.2.12 getSIGNAL_IN_status

- Description

  Get SIGNAL_IN status.

- Syntax

  int getSIGNAL_IN_status(int pin)

- Argument
  - pin: int type, the range is 0-7.
- Return
  - 0: Low
  - 1: High

5.1.2.13 getDIP_SW_status

- Description

  Get DIP Switch status.

- Syntax

  int getDIP_SW_status(int pin)

- Argument
  - pin: int type, the range is 0-7.
- Return
  - 0: Low
  - 1: High

5.1.3 PIC

5.1.3.1 get_rtc

- Description

  Get rtc time data structure.

- Syntax

  int get_rtc(struct tm *pTm)

- Argument
  - pTm: Time structure tm pointer to save rtc data.
- Return
  - 0:Successful

- -1: Fail

5.1.3.2 set_rtc

- Description

  Set rtc time.

- Syntax

  int set_rtc(unsigned char *pwd, struct tm *ptm)

- Argument
  - pwd: unsigned char pointer to transfer password. (00000000)
  - ptm: Time structure tm pointer to set rtc data.
- Return
  - 0:Successful
  - -1: Fail

5.1.3.3 get_DoorSWLog

- Description

  Get Door High -> Low and Low->High Switch Log.

  Please Note: event 3 and 4 not real hardware.

- Syntax

  int get_DoorSWLog(int event, struct tm *ptm, struct tm *ptm1)

- Argument
  - event: int type, which log the range is 1-8.
  - ptm: Time structure tm pointer to save High ->Low time data.
  - ptm1: Time structure tm pointer to save Low ->High time data.
- Return
  - 0:Successful
  - -1: Fail

5.1.3.4 clr_DoorSWLog

- Description

  Clean one Switch Log.

- Syntax

  int clr_DoorSWLog(unsigned char *pwd, int event)

  Please Note: event 3 and 4 not real hardware.

- Argument

- pwd: unsigned char pointer to transfer password. (00000000).
- event: int type, which log to clean the range is 1-8.

♦ Return

- 0:Successful
- -1: Fail

5.1.3.5 get_batlog

♦ Description

Get battery Low Log.

♦ Syntax

int get_batlog (struct tm *pTm)

♦ Argument

- pTm: Time structure tm pointer to save berry low time data.

♦ Return

- 0:Successful
- -1: Fail

5.1.3.6 clr_batlog

♦ Description

Clean battery Low Log.

♦ Syntax

int clr_batlog(unsigned char *pwd)

♦ Argument

- pwd: unsigned char pointer to transfer password. (00000000).

♦ Return

- 0:Successful
- -1: Fail

5.1.3.7 getDOOR_SW_status

♦ Description

Get DOOR_SW status.

♦ Syntax

int getDOOR_SW_status(int pin)

♦ Argument

- pin: int type, the range is 1-8.

- Return
  - 0:Low
  - 1: High

5.1.4 SRAM

5.1.4.1 getSramSize

- Description
  Get Sram Size.
- Syntax
  unsigned int getSramSize(void)
- Argument
  - None.
- Return
  - Unsigned int type, Sram Size / 1024 (Kbytes)

5.1.4.2 getSramByte

- Description
  Read Particular an address current byte data.
- Syntax
  unsigned char getSramByte(unsigned long addr)
- Argument
  - addr: unsigned long type, Particular an address.
- Return
  - Unsigned char type for particular address current data.

5.1.4.3 setSramByte

- Description
  Write Particular byte data on Particular an address.
- Syntax
  void setSramByte(unsigned long addr, unsigned char data)
- Argument
  - addr: unsigned long type, Particular an address.
  - data: unsigned char type, Particular an data.
- Return

- None.

5.1.4.4 getSramWord

- Description

  Read Particular an address current Word data.

- Syntax

  unsigned short getSramWord(unsigned long addr)

- Argument
  - addr: unsigned long type, Particular an address.

- Return
  - Unsigned short type for particular address current data.

5.1.4.5 setSramWord

- Description

  Write Particular Word data on Particular an address.

- Syntax

  void setSramWord(unsigned long addr, unsigned short data)

- Argument
  - addr: unsigned long type, Particular an address.
  - data: unsigned short type, Particular an data.

- Return
  - None.

5.1.4.6 getSramDword

- Description

  Read Particular an address current Double Word data.

- Syntax

  unsigned int getSramDword(unsigned long addr)

- Argument
  - addr: unsigned long type, Particular an address.

- Return
  - Unsigned int type for particular address current data.

5.1.4.7 setSramDword

- Description

  Write Particular Double Word data on Particular an address.

- Syntax

void setSramDword(unsigned long addr, unsigned int data)

- Argument
  - addr: unsigned long type, Particular an address.
  - data: unsigned int type, Particular an data.
- Return
  - None.

5.1.5 GPO Counter

5.1.5.1 startgpocounter

- Description

  Start an GPO Counter.
- Syntax

  int startgpocounter(int counter, unsigned short counter_value, int clk)
- Argument
  - counter: int type, Particular an counter (0-7).
  - counter_value: unsigned short type, Particular counter_value (1-65535).
  - clk: 0: 1K HZ, 1: 10 HZ.
- Return
  - 0:Successful.
  - -1: Fail.

5.1.5.2 reloadgpocounter

- Description

  Reset an pause GPO Counter to new Counter value and start Counter.
- Syntax

  int reloadgpocounter(int counter, unsigned short counter_value)
- Argument
  - counter: int type, Particular an counter (0-7).
  - counter_value: unsigned short type, Particular counter_value (1-65535).
- Return
  - None

5.1.5.3 getgpocountervalue

- Description

  Get an GPO Counter Current Counter value.

- Syntax

  unsigned short getgpocountervalue(int counter)

- Argument
  - counter: int type, Particular an counter (0-7).
- Return
  - unsigned short type, Current Counter value.

5.1.5.4 stopgpocounter

- Description

  Stop an GPO Counter.

- Syntax

  void stopgpocounter(int counter)

- Argument
  - counter: int type, Particular an counter (0-7).
- Return
  - None.

5.1.6 GPI Counter

5.1.6.1 startgpicounter

- Description

  Start an GPI Counter.

- Syntax

  int startgpicounter(int counter, unsigned short comp_value, int mode, int timeout, int timeclk)

- Argument
  - counter: int type, Particular an counter (1-4).
  - comp_value: unsigned short type, Particular an compare value (0-65535), 0:Doesn't compare.
  - mode: int type, set counter mode, 0: rise edge, 1: fall edge, 2:both.
  - timeout: int type, set time out value (1-31).
  - timeclk: int type, 0: 0.01Hz(100s), 1: 0.1Hz(10s), 2: 1Hz(1s),

3: 10Hz(0.1s), 4: 100Hz(0.01s), 5: 1KHz(1ms), 6: 10KHz(0.1ms),

7: 100KHz(0.01ms)

- Return
  - 0:Successful.
  - -1: Fail.

5.1.6.2 getgpicountervalue

- Description

  Get an GPI Counter Current Counter value.

- Syntax

  unsigned short getgpicountervalue(int counter, int mode)

- Argument
  - counter: int type, Particular an counter (1-4).
  - mode: unsigned short type, 0: Read Counter Value and Don't Clean

    1: Read Counter Value and Clean.

- Return
  - unsigned short type, Particular an counter value.

5.1.6.3 stopgpicounter

- Description

  Stop an GPI Counter.

- Syntax

  void stopgpicounter(int counter)

- Argument
  - counter: int type, Particular an counter (1-4).

- Return
  - None.

5.1.7 TIMER

5.1.7.1 startimer

- Description

  Start an Particular Timer.

- Syntax

  int startimer(int timer, unsigned short time_value, int mode, int clk)

- Argument
  - timer: int type, Particular an timer (0-3).
  - time_value: unsigned short type, Particular an time value (1-65535).
  - mode: int type, 0: Simple Timer, 1: Cycle Timer.
  - clk: int type, 0: 1us. 1: 1ms, 2: 1s.
- Return
  - 0:Successful.
  - -1: Fail.

5.1.7.2 getimervalue

- Description

  Read an Particular Timer Current timer value.
- Syntax

  unsigned short getimervalue(int timer)
- Argument
  - timer: int type, Particular an timer (0-3).
- Return
  - unsigned short type, an Particular Timer Current timer value.

5.1.7.3 stoptimer

- Description

  Stop an Particular Timer.
- Syntax

  void stoptimer(int timer)
- Argument
  - timer: int type, Particular an timer (0-3).
- Return
  - None.

5.1.8 Security

AMB-A55EG1 has the following security API which can be implemented into customer's S/W. If customers want to setup their own security certifications, please reconfirm with our engineers whether the system support it or not.

5.1.8.1 get_trusted_key

- Description

  Read Current Security Trust Key.

- Syntax

  int get_trusted_key(unsigned char *data)

- Argument
  - data: unsigned char pointer to save Security Trust key data.

- Return
  - 0:Successful.
  - -1: Fail.

5.1.8.2 read_iButton_key

- Description

  Read Current Security iButton Key.

- Syntax

  int read_iButton_key(int btn, unsigned char *data)

- Argument
  - btn: 1:first ibutton.
  - data: unsigned char pointer to save Security ibutton key data.

- Return
  - 0:Successful.
  - -1: Fail.

5.1.8.3 get_trusted_mode

- Description

  Read Current Security Lock mode.

- Syntax

  int get_trusted_mode(unsigned char *mode)

- Argument
  - mode: unsigned char pointer to save mode data.

  (0 : Trust Lock Test, 0xFF: Disable Trust Lock Test, 0xA5: Trust Lock True)

- Return
  - 0:Successful.
  - -1: Fail.

5.1.8.4 set_trusted_mode_disable

- Description

  Set Security Lock Test mode to disable.

- Syntax

  int set_trusted_mode_disable(void)

- Argument
  - None.
- Return
  - 0:Successful.
  - -1: Fail.

5.1.8.5 set_trusted_mode_locktest

- Description

  Set Security Lock Test mode, This mode just let you try lock mode.

  Under This mode, You will can't get any key information.

- Syntax

  int set_trusted_mode_locktest(void)

- Argument
  - None.
- Return
  - 0:Successful.
  - -1: Fail.

5.1.8.6 set_trusted_mode_lock

- Description

  Set Security Lock mode, This mode it's true lock.

  Under This mode, You will can't get any key information.

- Syntax

  int set_trusted_mode_lock(void)

- Argument
  - None.
- Return
  - 0:Successful.
  - -1: Fail.

5.1.8.7 check_trusted_key

- Description

  Check Security Trust key, It's True or Fail.

  Fail: System will Turn Off.

- Syntax

  void check_trusted_key(unsigned char *data)

- Argument
  - data: unsigned char pointer to transfer Security Trust key to Compare.
- Return
  - None.

5.1.8.8 set_trusted_key

- Description

  User define trusted key to Set, unsigned char arrary 8 bytes.

- Syntax

  int set_trusted_key(unsigned char *data)

- Argument
  - data: unsigned char pointer to transfer Security Trust key to Set.
- Return
  - 0:Successful.
  - -1: Fail.

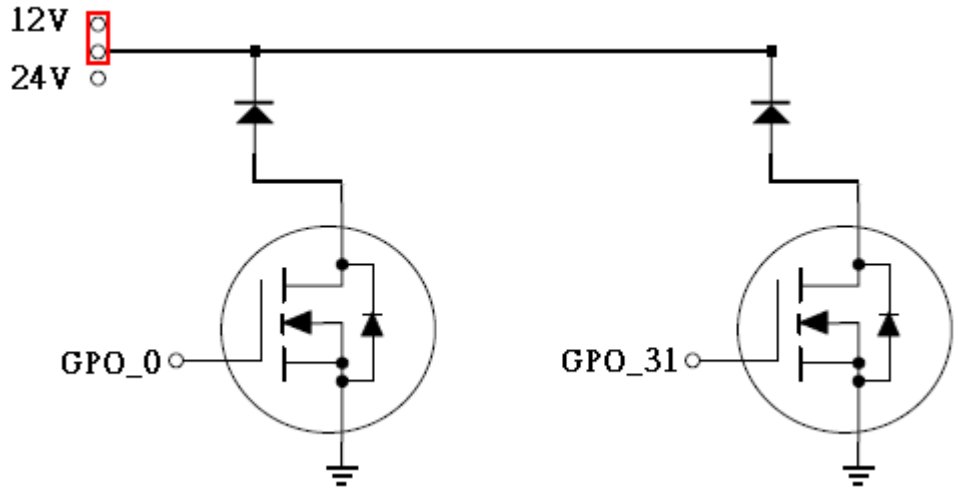
5.2 Reserved GPI and GPO Info

Channel	Gaming I/O	Remark
GPI 0	BUTTON 1	
GPI 1	BUTTON 2	
GPI 2	BUTTON 3	
GPI 3	BUTTON 4	
GPI 4	BUTTON 5	
GPI 5	BUTTON 6	
GPI 6	BUTTON 7	
GPI 7	BUTTON 8	
GPI 8	BUTTON 9	
GPI 9	BUTTON 10	
GPI 10	BUTTON 11	
GPI 11	BUTTON 12	
GPI 12	BUTTON 13	
GPI 13	BUTTON 14	
GPI 14	Reserve	
GPI 15	Reserve	
GPI 16	Coin_IN_Signal_A	
GPI 17	Coin_IN_Signal_B	
GPI 18	Reserve	Signal_IN_3 & GPI_18 COUNTER
GPI 19	Hopper_Sensor	
GPI 20	Reserve	Signal_IN_5
GPI 21	Reserve	Signal_IN_6
GPI 22	Reserve	Signal_IN_7
GPI 23	Reserve	Signal_IN_8
GPI 24	Reserve	Door_SW_A
GPI 25	Reserve	Door_SW_B
GPI 26	Reserve	Door_SW_C
GPI 27	Reserve	Door_SW_D
GPI 28	Reserve	
GPI 29	Reserve	
GPI 30	Reserve	Door_SW_3
GPI 31	Reserve	Door_SW_4
iButton2	Reserve	I_Button_2

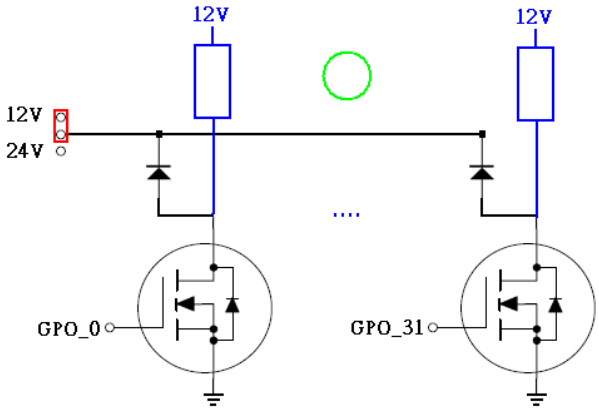
Channel	Gaming I/O	Remark
GPO 0	Lamp 1	
GPO 1	Lamp 2	
GPO 2	Lamp 3	
GPO 3	Lamp 4	
GPO 4	Lamp 5	
GPO 5	Lamp 6	
GPO 6	Lamp 7	
GPO 7	Lamp 8	
GPO 8	Lamp 9	
GPO 9	Lamp 10	
GPO 10	reserve	
GPO 11	reserve	
GPO 12	reserve	
GPO 13	reserve	
GPO 14	reserve	
GPO 15	reserve	
GPO 16	Key_IN_meter	General purpose GPO
GPO 17	Key_OUT_meter	General purpose GPO
GPO 18	Coin_IN_meter	General purpose GPO
GPO 19	Bill_IN_meter	General purpose GPO
GPO 20	Pay_OUT_meter	General purpose GPO
GPO 21	Hopper_SSR	General purpose GPO
GPO 22	Reserve	GPO_22 COUNTER & DIP_SW_6
GPO 23	reserve	GPO_23 COUNTER & DIP_SW_7
GPO 24	reserve	
GPO 25	reserve	
GPO 26	reserve	
GPO 27	reserve	
GPO 28	reserve	
GPO 29	reserve	
GPO 30	reserve	
GPO 31	reserve	

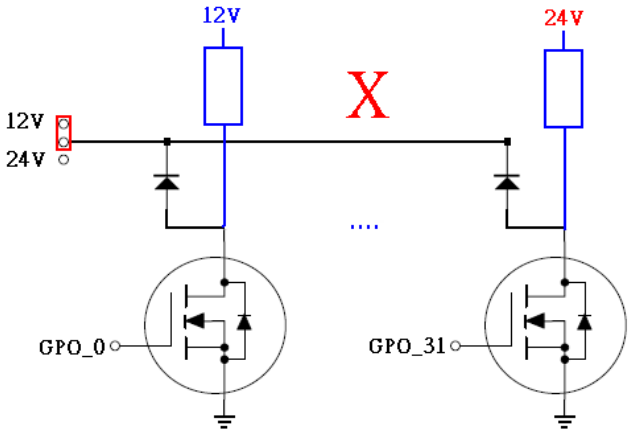
5.3 GPI and GPO Info and Explanations

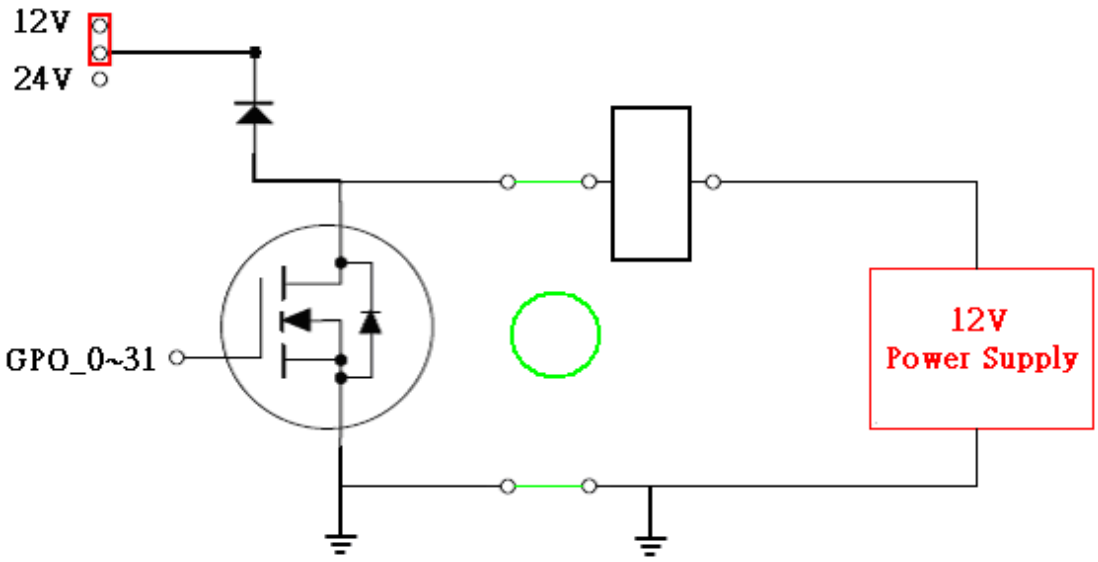
Output (GPO) clamp protection reference circuit (clamp voltage jumper can select 12V or 24V)

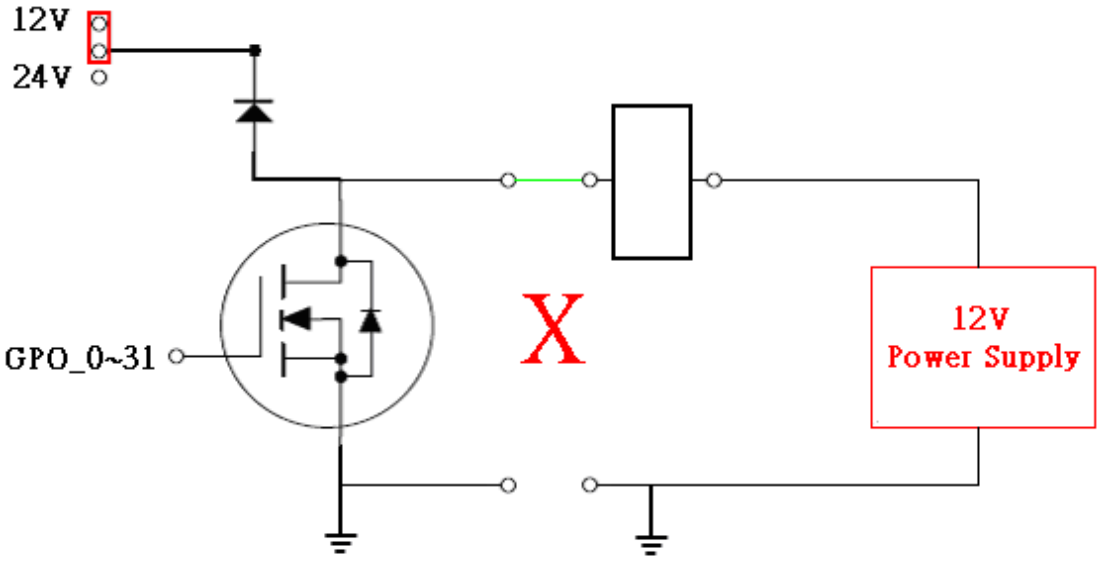


Example:

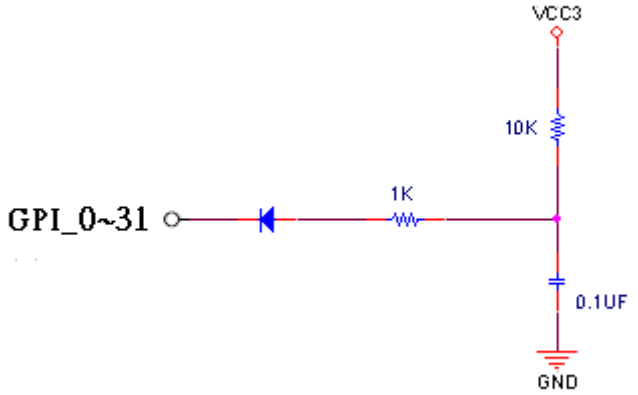




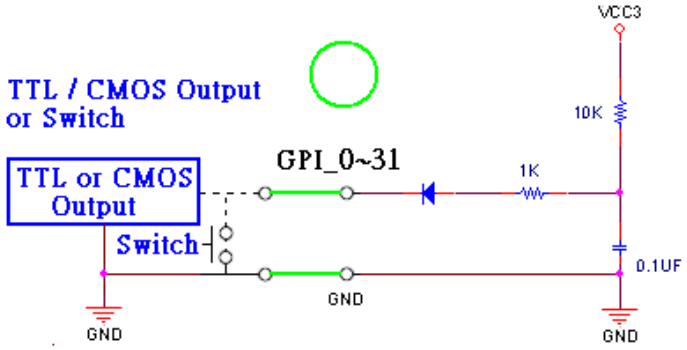

12V
24V
GPO_0~31
12V
Power Supply

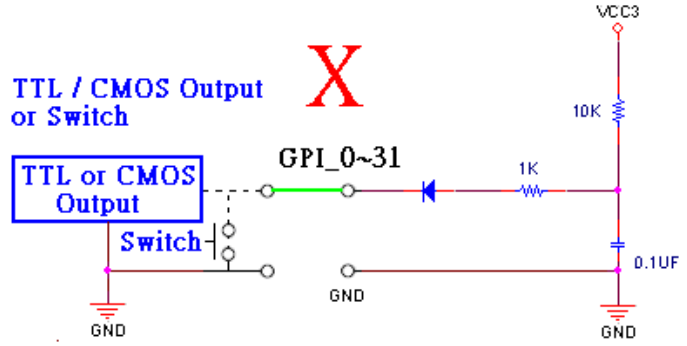

12V
24V
GPO_0~31
X
12V
Power Supply

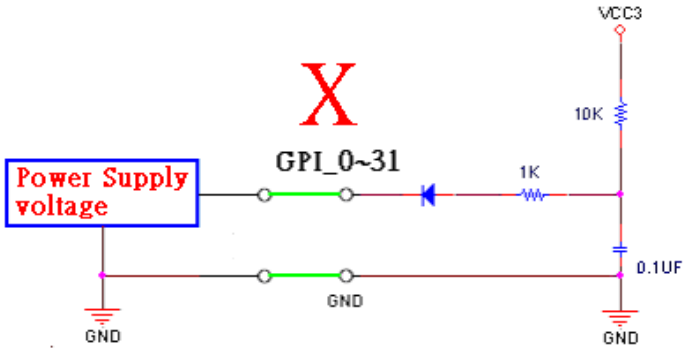
Input (GPI) reference circuit:



Example:







Chapter 6 FAQ

Do AMB-A55EG1 support mini-PCIe module?

Sorry, AMB-A55EG1 does not support mini-PCIe. The expansion slot is designed for m-SATA use only.

Does my system support Windows 7 or 8?

The system is designed and verified with Windows XP, Fedora 14 and Ubuntu 10. But, we did not verify this system with Windows 7 or 8. Please check with Acrosser local sales rep. or authorized channels who will help you to confirm whether we have provided new Windows 7 or 8 driver.

When AMB-A55EG1 has 2~3 HDDs, why Windows XP install to the wrong HDD?

AMB-A55EG1 can equip with 2~3 HDDs to install your Windows XP and applications. If your system has Windows XP installation questions, please refer to Microsoft technical support web site " http://support.microsoft.com/kb/313348/en-us". Or, please contact Acrosser FAE for help.

Why do we get error message when we execute AMB-A55EG1 utility program?

1. Make sure all the drivers have been installed correctly. (refer to Chapter 4.1.2)
2. Make sure the "createkey utility" has been installed correctly.
3. If the problem did not solve, please contact Acrosser FAE or authorized channels.

What can I do if my system does not power on?

If your system can not power on via adapter, below are a few steps you can follow to attempt to correct the issue.

- Ensure that the power cord and AC adapter are plugged solid and not loose fitting.
- Ensure the adapter output is DC 12V (min. 60W)
- Ensure the DC 12V output correctly connect to the system.
- Attempt to use a different electrical outlet or a different adapter.

If your system can not power on via ATX PSU, below are some steps you can fellow to attempt to correct this problem.

- ATX PSU has some protections. Ensure that PSU PS_ON# signal connect to GND and the PSU output DC 12V to the system.
- Because the system only use DC 12V, it will not consume 3.3V and 5V output. Some PUSs could mis-judge the situations and stop any voltage output.
- Ensure the DC 12V output correctly connect to the system.
- Attempt to use a different electrical outlet or a different PSU.

No display when power on?

1. Make sure all cables are connected well and the power is on:
2. Short clear CMOS jumper to reset CMOS, then reboot the system
3. If the problem did not solve, please Keep the necessary components (e.g. CPU, memory, keyboard and HDD) to test:

4.1 If the system could power on well with the above configuration, please plug the other components back one by one to find out which one may cause this problem.

4.2 If the system still could not power on, please check your memory.

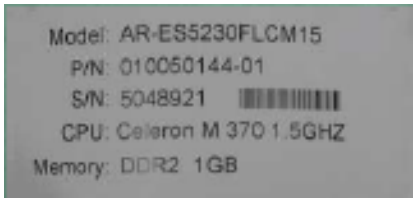
4.2.1 Memory issue:

A. Clean the Golden Finger of memory
B. Clean the memory slots
C. Leave only one memory stick to test
D. If convenient, please change different memory modules to test again

4.3 If the problem did not solve, please contact Acrosser FAE or authorized channels.

Where is the serial number located on my system?

The serial number (S/N) is an alpha-numeric character located on the bottom or side chassis.



(reference only)

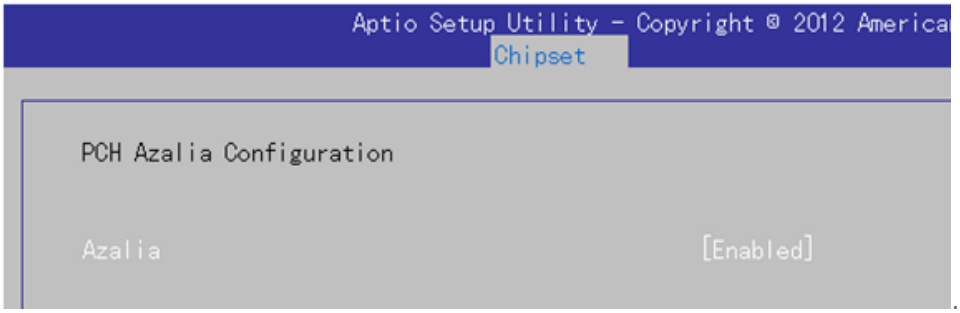
How do I connect the second monitors to my system?

1. Basically, there are “duplicate” and “extend” mode for the second monitor.
   A. duplicate mode –- you will see the same contents on both monitors.
   B. extend mode – your monitors display different contents, and you can drag your contents between the first and second monitor.
2. Ensure the display device setting is correct and monitor cables are connected well.
   A. For device setting, it could be different because of different operating systems and S/W version
   B. You can search from “Google” as reference setting.
3. If the problem did not solve, please contact Acrosser FAE or authorized channel.

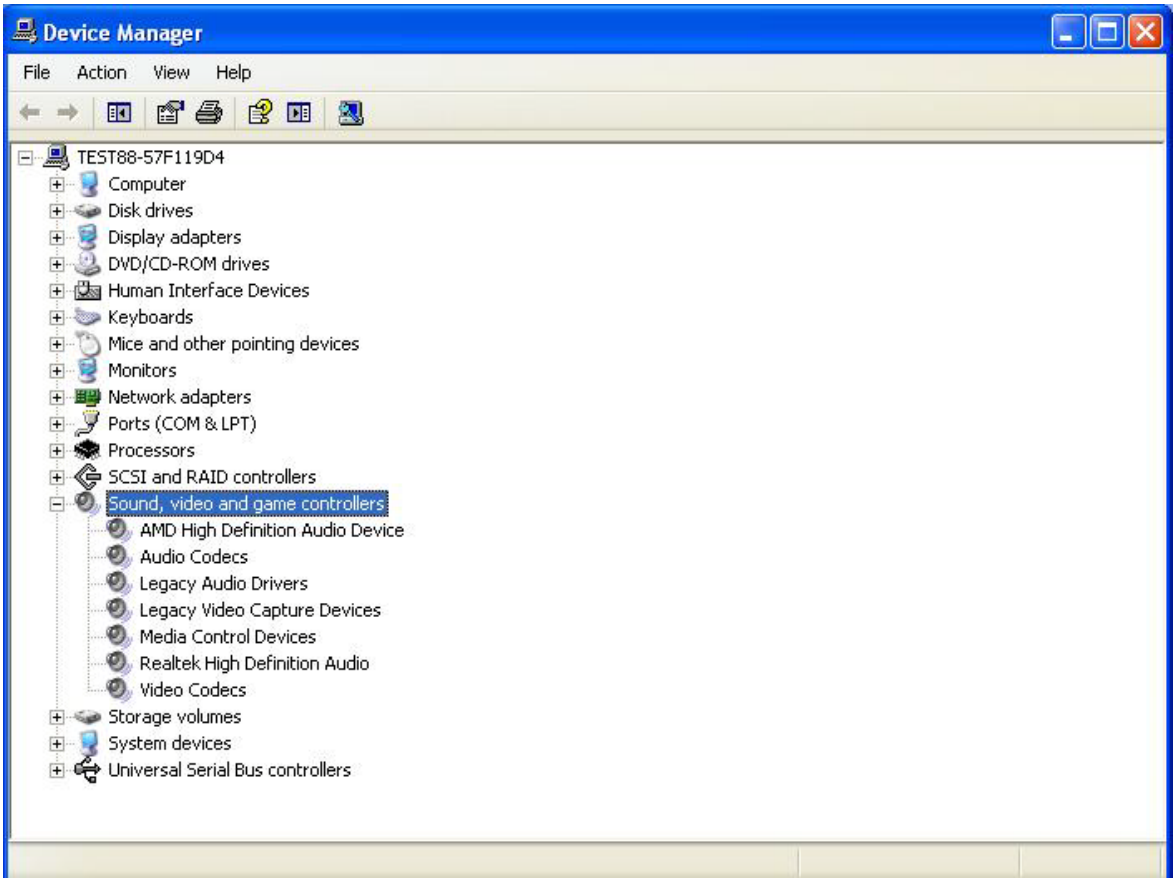
My system has audio problem?

If your system has audio problem, below are a few steps you can follow to attempt to correct the issue.

- Ensure that the BIOS enable on-board audio function (reference diagram)



- Ensure the audio driver and device has been installed successfully.



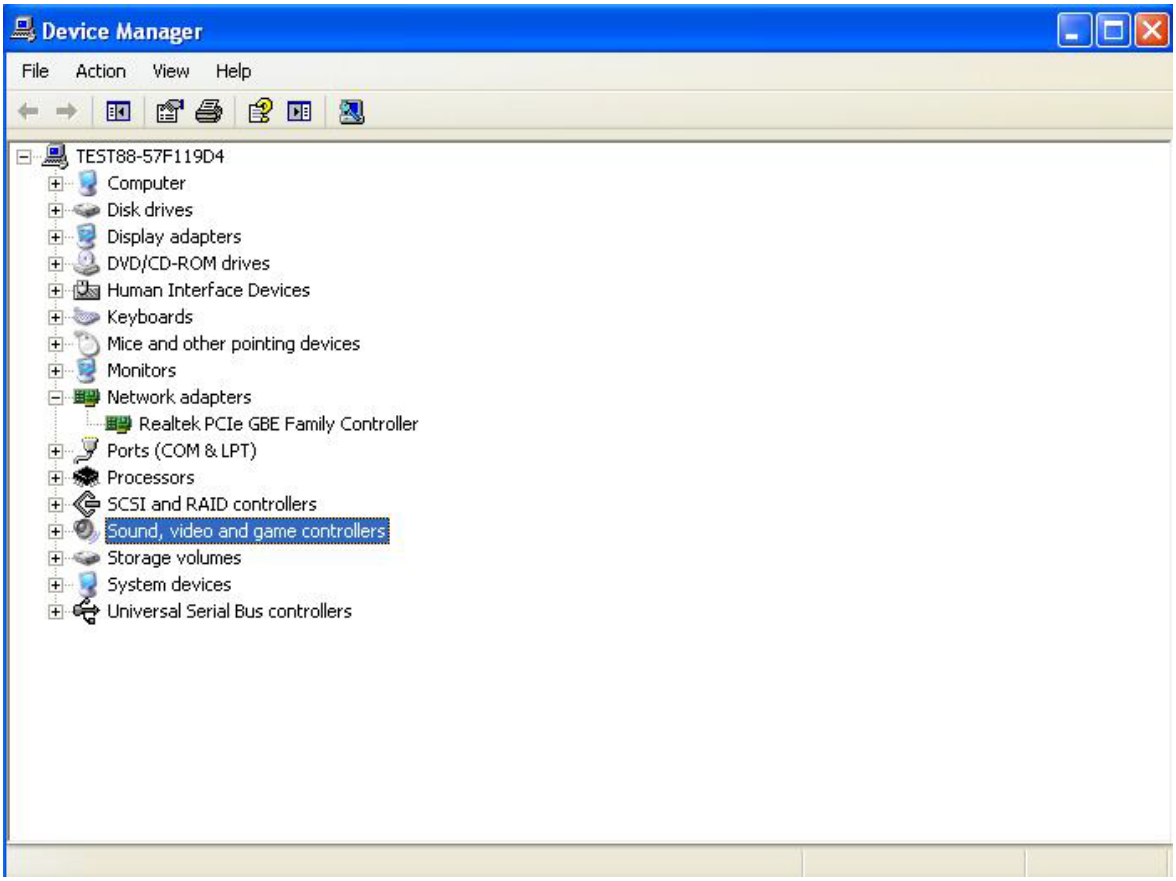
- Ensure speaker connect to the right connector.
- Sometimes, audio has been set "MUTE". Please adjust the audio volume louder.
- If the problem persists, please contact Acrosser FAE or local authorized channel.

My system can not connect to internet?

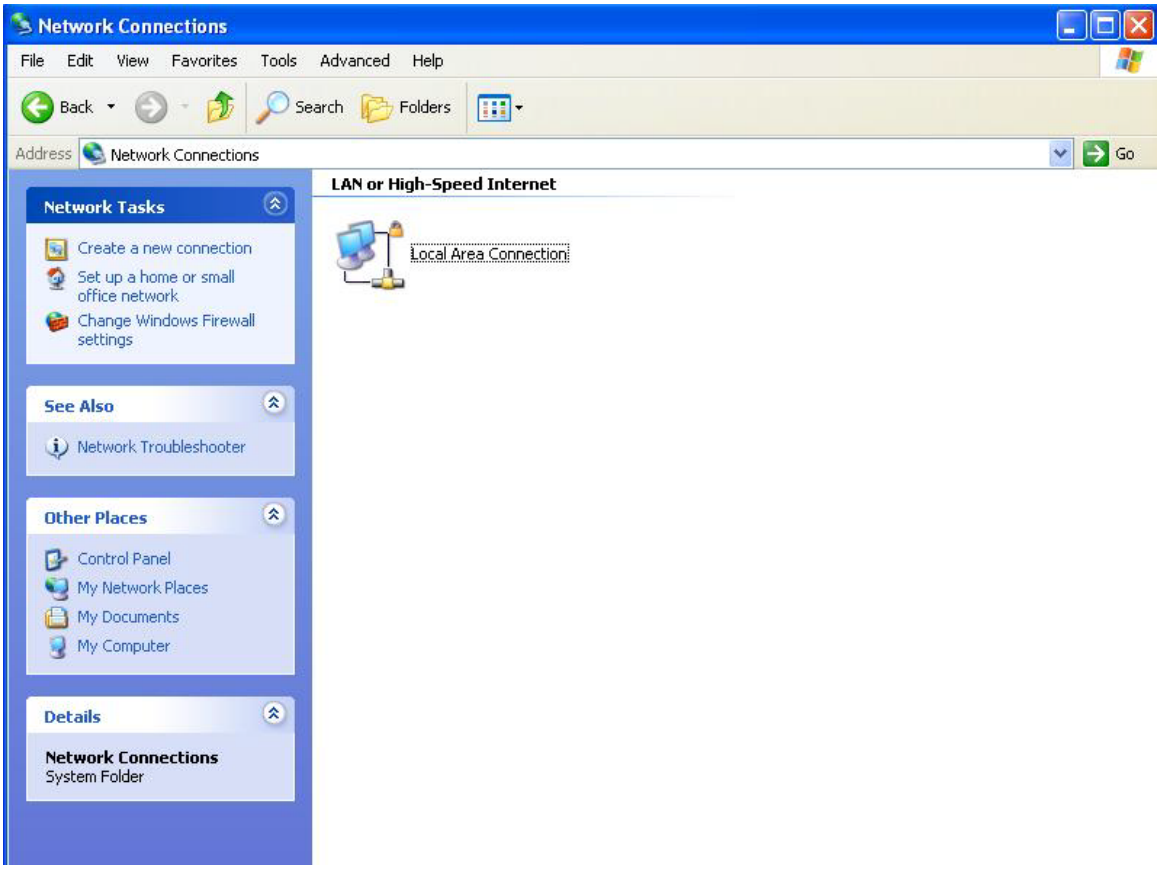
If your system can not connect to internet, below are a few steps you can follow to attempt to correct the issue.

- Ensure that network adapter can be recognized in Device Manager

- If there is question mark or exclamation mark in the network adapter, please re-install your OS and network driver. If the problem did not solve, please contact your local FAE or sales rep for tests.



- Ensure the Network Connections/Local Area Connection is enabled (right click and choose "Enable"). If the problem persists, please turn off firewall and anti-virus S/W. If the problem still exists, please contact local FAE or service center for tests.



- If the Network Connections/Local Area Connection is showed “limited connection” (yellow exclamation mark), please disable and enable your connection to fix this problem. Or, you can unplug and plug the LAN cable to fix the problem. If the problem still persists, please contact your MIS whether there are any DHCP or IP configuration or ISP/WAN setting limitation.

Appendix: Technical Support Form

We deeply appreciate you purchase Acrosser products. Please find “tech_form.doc” file in our utility CD. If you have any questions or problems about Acrosser products, please fill in the following information: We will answer your questions a.s.a.p.

1) Describe your info and system info
   A. Your company name: _____
   B. Your contact info: _____ & phone number: _____
   C. Your e-mail address: _____
   D. Your company address: _____
      _____
   E. Acrosser model name: _____
   F. Acrosser Serial Number: _____
2) Describe system configuration
   A. CPU _____
   B. Memory size _____
   C. Storage (e.g. HDD or CF or SSD) _____
   D. Extra peripherals (e.g. graphic card) _____
   E. Operating system & version (e.g. Windows 7 embedded) _____
   F. Special API or driver _____ (If yes, please provide it for debug,)
   G. Running applications _____
   H. Other _____
3) Describe your problems or questions:

4) Send the above info to one of the following Acrosser contact windows:
   A. Acrosser local Sales Rep
   B. Acrosser authorized channels
   C. Acrosser e-mail window --- http://www.acrosser.com/inquiry.html
      or acrosserinfo@acrosser.com
   D. Acrosser FAX number --- 886-2-29992887

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