# GENE-A55E

AMD G-Series T16R Processor

10/100/1000Mb Ethernet

1 Mini-Card

4 USB2.0, 4 COM

2CH HD Audio

GENE-A55E Manual 1st Ed.
September 16, 2014

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# Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- GENE-A55E CPU Card
- DVD-ROM for manual (in PDF format) and drivers

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

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Chapter

1

# General Information

## 1.1 Introduction

AAEON, a leading embedded boards manufacturer, is pleased to announce the debut of their new generation 3.5" SubCompact Board — GENE-A55E.

GENE-A55E adopts AMD G-Series T16R single core processor. The system memory is deployed with 204-pin SODIMM DDR3L 1066MHz up to 4 GB. In addition, Realtek® RTL8111E supports 10/100/1000Mb LAN that allows faster network connections.

The display of GENE-A55E supports VGA/LCD, simultaneous and dual view displays. This model applies Mini Card slots and 1x optional mSATA for flexible expansions. USB2.0 x 4, COM ports x 4 (RS-232 x 2, RS-232/422/485 x 2) are configured on the GENE-A55E as well. Full functions make GENE-A55E a flexible and user friendly solution. This brand new SubCompact board is developed to cater to the requirements of Automation, Medical, ticket machine, transportation, gaming, KIOSK, and POS/POI applications.

## 1.2 Features

- AMD G-Series Single Core 615MHz Processor
- AMD A55E Chipset
- DDR3L SODIMM, 1066MHz Memory Up to 4 GB
- VGA, 18/24-bit Dual Channel LVDS LCD
- 2CH HD Audio
- SATA 2 & CFD x 1
- PC/104 Interface Support
- Gigabit Ethernet x 2
- Supports Digital I/O 8-bit, USB 2.0 x 4, COM x 4, LPT x 1
- Mini-Card slot x 1
- +5V DC Input, AT/ATX

## 1.3 Specifications

### *System*

| | |
|---|---|
| ● Processor | AMD G-series T16R single core 615 MHz |
| ● System Memory | 204-pin DDR3L 1066MHz SODIMM x 1, Max. 4GB |
| ● Chipset | AMD A55E |
| ● I/O Chipset | Fintek 81866D-I |
| ● Ethernet | Realtek RTL8111E 10/100/1000Base-TX, RJ-45 x 2 |
| ● BIOS | AMI BIOS |
| ● Wake on LAN | Yes |
| ● Watchdog Timer | Fintek 81866D-I |
| ● H/W Status Monitoring | Supports power supply voltages and temperature monitoring |
| ● Expansion Interface | Mini-Card slot or mSATA(Optional) x 1<br>LPC Bus x1 |
| ● Power Requirement | +5V(Default), AT or ATX |
| ● Power Consumption (Typical) | AMD T16R, DDR3 1333 4GB, 2.2A@+5V |

| | |
|---|---|
| ● Board Size | 5.75" x 4" (146mm x 101.6mm) |
| ● Gross Weight | 0.88 lb (0.4 kg) |
| ● Operating Temperature | 32°F ~ 140°F (0°C ~ 60°C) |
| ● Storage Temperature | -40°F ~ 176°F (-40°C ~ 80°C) |
| ● Operating Humidity | 0% ~ 90% R/H, non-condensing |

***Display***

| | |
|---|---|
| ● Chipset | AMD G-series T16R processor integrated Graphics Engine |
| ● Memory | Shared memory: 512MB/ DVMT 5.0 |
| ● Resolutions | VGA up 1920 x 1200, LCD up to 1920 x 1200 (By Chrontel CH7511) |
| ● LCD Interface | 18/24 bit Dual Channel LVDS LCD |

***I/O***

| | |
|---|---|
| ● Storage | SATA 2 x 1 |
| ● Serial Port | RS-232 x 2, RS-232/422/485 (auto flow) x 2 |
| ● Parallel Port | SPP/ECP/EPP mode x1 |
| ● USB | USB 2.0 x 4 |

| | |
|---|---|
| ● PS/2 Port | Keyboard x 1, Mouse x 1 |
| ● Audio | Line-in, Line-out, Mic-in |
| ● GPIO | Up to 4 in and 4 out |

Chapter

2

# Quick Installation Guide

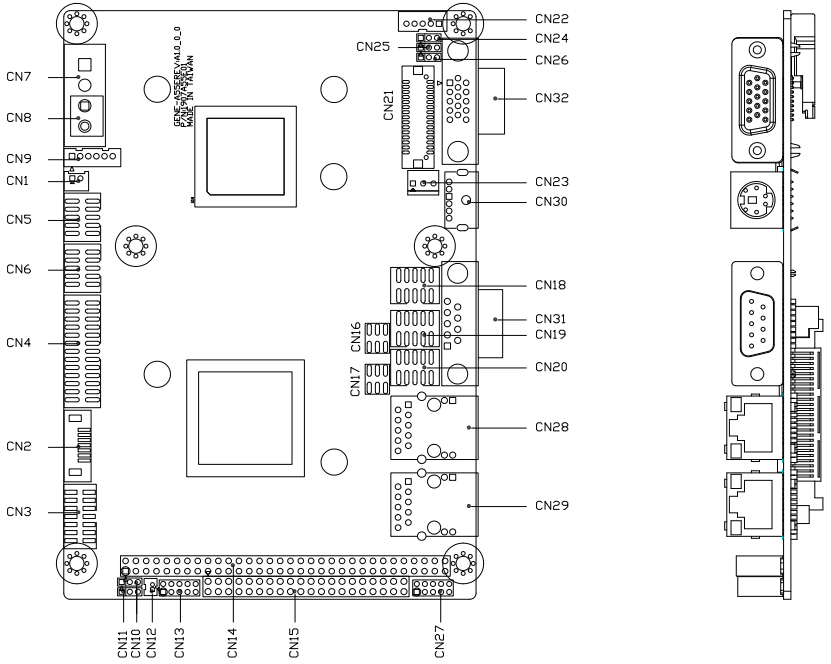
## 2.1 Safety Precautions


*Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.*

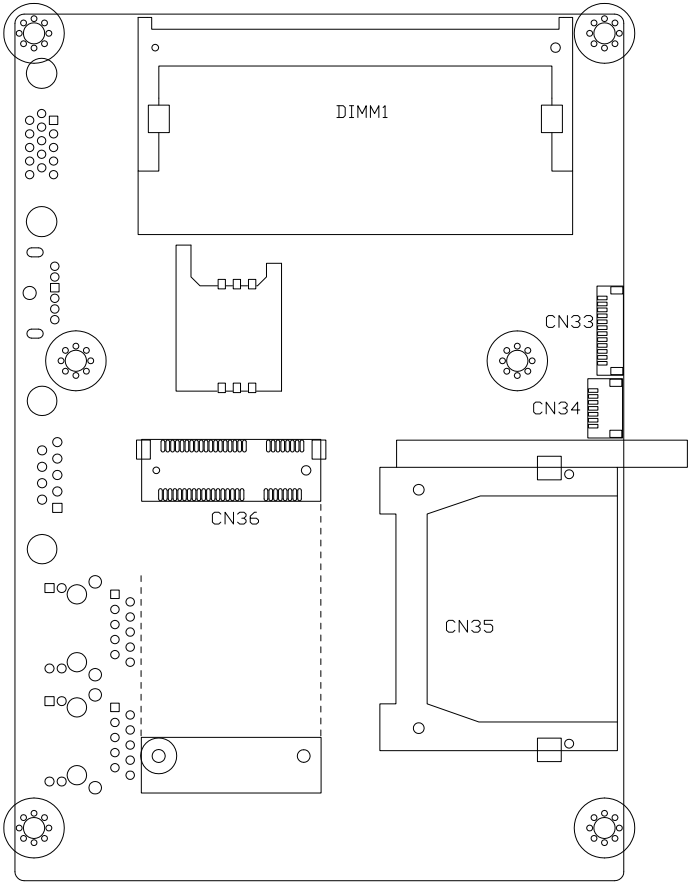

*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis*

## 2.2 Location of Connectors and Jumpers

### Component Side

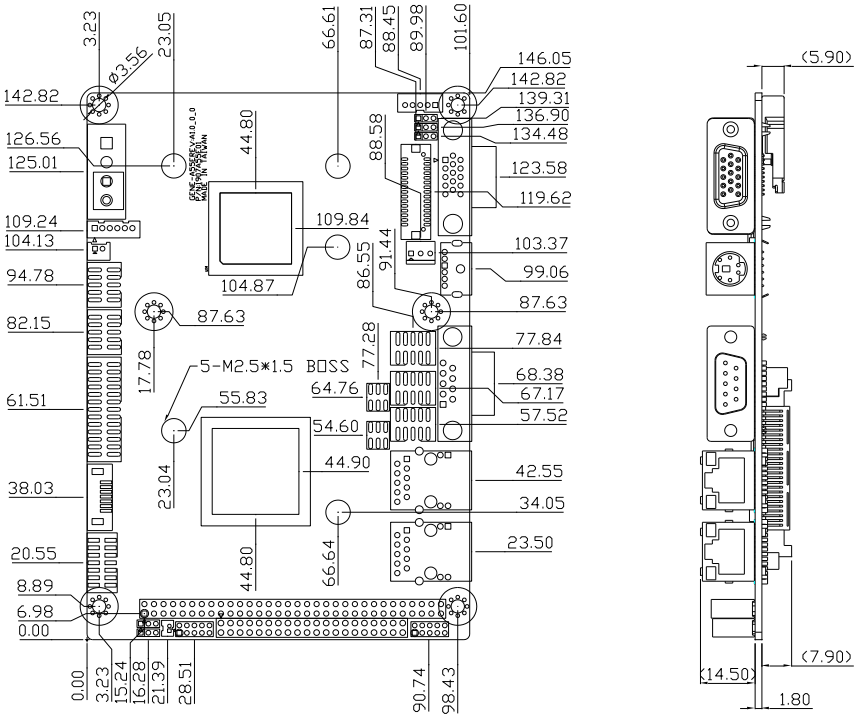


## Solder Side

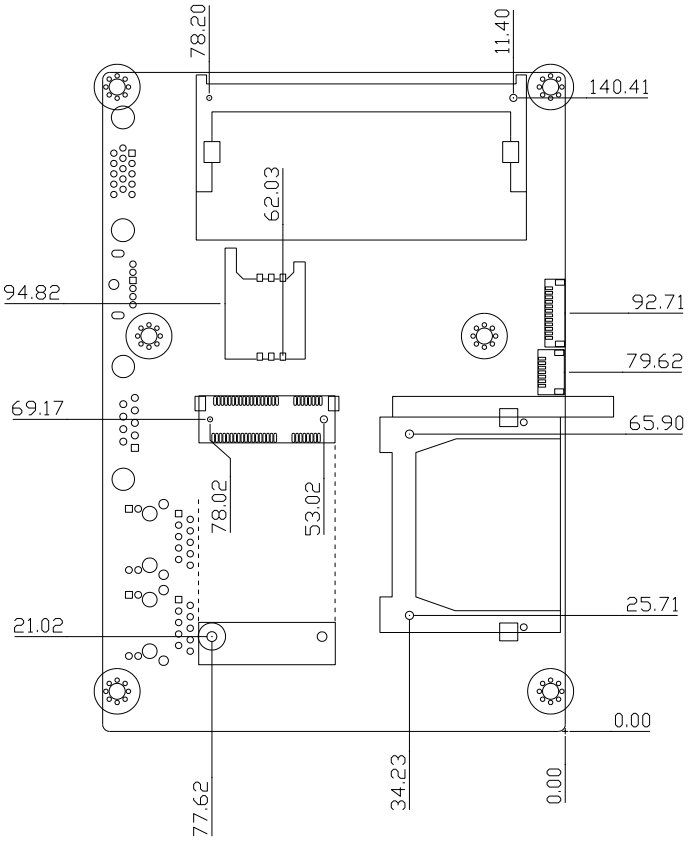


## 2.3 Mechanical Drawing

### Component Side



## Solder Side


78.20
11.40
140.41
62.03
94.82
92.71
79.62
69.17
65.90
78.02
53.02
25.71
21.02
0.00
77.62
34.23
0.00

## 2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

| Label | Function |
|---|---|
| CN10 | AT/ATX Power Supply Mode Selection |
| CN11 | Clear CMOS Jumper |
| CN16 | COM3 Pin9 Function Selection |
| CN17 | COM2 Pin9 Function Selection |
| CN24 | LVDS Backlight Inverter VCC Selection |
| CN25 | LVDS Backlight Lightness Control Mode Selection |
| CN26 | LVDS Operating VDD Selection |

## 2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

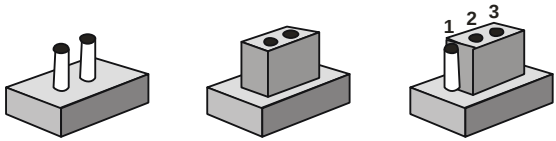
| Label | Function |
|---|---|
| CN1 | +5V Output for SATA HDD |
| CN2 | SATA Port Connector |
| CN3 | Audio I/O Port |
| CN4 | LPT Port |
| CN5 | USB 2.0 Ports 3 and Ports 4 |
| CN6 | USB 2.0 Ports 1 and Ports 2 |
| CN7 | 4P Power Connector Input |
| CN9 | External +5VSB Input |
| CN13 | Digital IO Port |
| CN14+CN15 | PC/104 Slot |
| CN18 | COM Port 4 |
| CN19 | COM Port 3 |
| CN20 | COM Port 2 |
| CN21 | LVDS Port |
| CN22 | LVDS Inverter / Backlight Connector |
| CN23 | System FAN |
| CN27 | Front Panel Connector |
| CN28 | Realtek LAN (RJ-45) Port 2 |

| | |
|---|---|
| CN29 | Realtek LAN (RJ-45) Port 1 |
| CN30 | Mini-Din PS/2 Connector |
| CN31 | COM Port 1 (D-SUB 9) |
| CN32 | VGA Port |
| CN33 | LPC Port |
| CN34 | SPI Flash JTAG |
| CN35 | CFD Slot |
| CN36 | Mini-Card Slot |
| CN37 | UIM Card Module |
| DIMM1 | DDR3L SO-DIMM Slot |

## 2.6 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



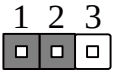

**Open** **Closed** **Closed 2-3**

A pair of needle-nose pliers may be helpful when working with jumpers.

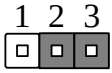
If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

## 2.7 AT/ATX Power Supply Mode Selection (CN10)



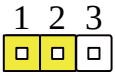

**AT Mode (Default)**



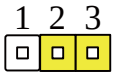

**ATX Mode**

| CN10 | Function |
|---|---|
| 1-2 | AT Mode (Default) |
| 2-3 | ATX Mode |

## 2.8 Clear CMOS Jumper (CN11)



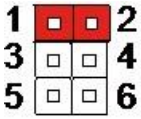

**Normal (Default)**



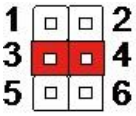

**Clear CMOS**

| CN11 | Function |
|---|---|
| 1-2 | Normal (Default) |
| 2-3 | Clear CMOS |

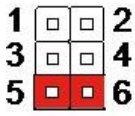
## 2.9 COM3 Pin9 Function Selection (CN16)




**+12V**



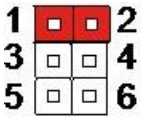

**Ring (Default)**



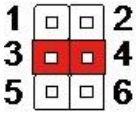

**+5V**

| CN16 | Function |
|---|---|
| 1-2 | +12V |
| 3-4 | Ring (Default) |
| 5-6 | +5V |

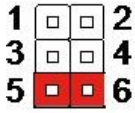
## 2.10 COM2 Pin9 Function Selection (CN17)




**+12V**



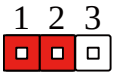

**Ring (Default)**



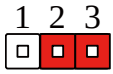

**+5V**

| CN17 | Function |
|---|---|
| 1-2 | +12V |
| 3-4 | Ring (Default) |
| 5-6 | +5V |

## 2.11 LVDS Backlight Inverter VCC Selection (CN24)



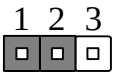

**+12V**



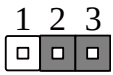

**+5V (Default)**

| CN24 | Function |
|---|---|
| 1-2 | +12V |
| 2-3 | +5V (Default) |

## 2.12 LVDS Backlight Lightness Control Mode Selection (CN25)



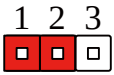

**VR Mode (Default)**



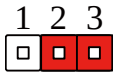

**PWM Mode**

| CN25 | Function |
|---|---|
| 1-2 | +VR Mode (Default) |
| 2-3 | PWM Mode |

## 2.13 LVDS Operating VDD Selection (CN26)



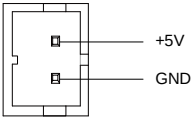

**+5V**




**+3.3V (Default)**

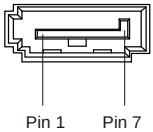
| CN26 | Function |
|---|---|
| 1-2 | +5V |
| 2-3 | +3.3V (Default) |

## 2.14 +5V Output for SATA HDD (CN1)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | +5V | PWR | +5V |
| **2** | GND | GND | |

## 2.15 SATA Port (CN2)

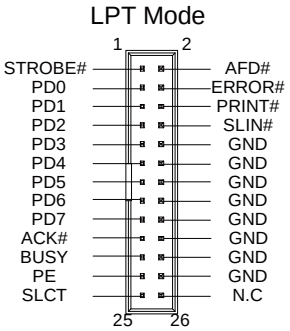



| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | GND | GND | |
| **2** | SATA_TX+ | DIFF | |
| **3** | SATA_TX- | DIFF | |
| **4** | GND | GND | |
| **5** | SATA_RX- | DIFF | |
| **6** | SATA_RX+ | DIFF | |
| 7 | GND | GND | |

## 2.16 Audio I/O Port (CN3)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | MIC | IN | |
| **2** | MIC_Vcc | PWR | |
| **3** | GND_AUDIO | GND | |
| **4** | CD_GND | GND | |
| **5** | LINE_L_IN | IN | |
| **6** | CD_L | OUT | |
| **7** | LINE_R_IN | IN | |
| **8** | CD_GND | GND | |
| **9** | GND_AUDIO | GND | |
| **10** | CD_R | OUT | |
| **11** | LEFT_OUT | OUT | |
| **12** | RIGHT_OUT | OUT | |
| **13** | GND_AUDIO | GND | |
| **14** | GND_AUDIO | GND | |

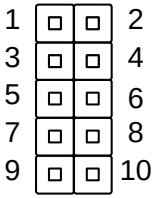
## 2.17 LPT Port (CN4)




| LPT Mode | | | |
|---|---|---|---|
| **Pin** | **Pin Name** | **Signal Type** | **Signal level** |
| **1** | STROBE# | IN | |
| **2** | AFD# | I/O | |
| **3** | PD0 | I/O | |
| **4** | ERROR# | IN | |
| **5** | PD1 | I/O | |
| **6** | PRINT# | I/O | |
| **7** | PD2 | I/O | |
| **8** | SLIN# | I/O | |
| **9** | PD3 | I/O | |
| **10** | GND | GND | |
| **11** | PD4 | I/O | |
| **12** | GND | GND | |
| **13** | PD5 | I/O | |
| **14** | GND | GND | |

| LPT Mode | | | |
|---|---|---|---|
| **Pin** | **Pin Name** | **Signal Type** | **Signal level** |
| **15** | PD6 | I/O | |
| **16** | GND | GND | |
| **17** | PD7 | I/O | |
| **18** | GND | GND | |
| **19** | ACK# | IN | |
| **20** | GND | GND | |
| **21** | BUSY | IN | |
| **22** | GND | GND | |
| **23** | PE | IN | |
| **24** | GND | GND | |
| **25** | SLCT | IN | |
| **26** | NC | | |

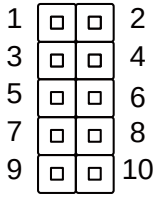
## 2.18 USB 2.0 Port 3 and Port 4 (CN5)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | +5VSB | PWR | +5V |
| **2** | GND | GND | |
| **3** | USB2_D- | DIFF | |
| **4** | GND | GND | |

| | | | |
|---|---|---|---|
| **5** | USB2_D+ | DIFF | |
| **6** | USB3_D+ | DIFF | |
| **7** | GND | GND | |
| **8** | USB3_D- | DIFF | |
| **9** | GND | GND | |
| **10** | +5VSB | PWR | +5V |

## 2.19 USB 2.0 Port 1 and Port 2 (CN6)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | +5VSB | PWR | +5V |
| **2** | GND | GND | |
| **3** | USB0_D- | DIFF | |
| **4** | GND | GND | |
| **5** | USB0_D+ | DIFF | |
| **6** | USB1_D+ | DIFF | |
| **7** | GND | GND | |
| **8** | USB1_D- | DIFF | |
| **9** | GND | GND | |
| **10** | +5VSB | PWR | +5V |

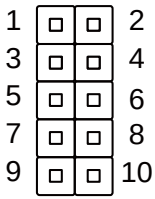
## 2.20 4P Power Connector Input (CN7)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | +12V | PWR | +12V |
| **2** | GND | GND | |
| **3** | GND | GND | |
| **4** | +5V | PWR | +5V |

## 2.21 External +5VSB Input (CN9)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | N/A | | |
| **2** | GND | GND | |
| **3** | N/A | | |
| **4** | GND | GND | |
| **5** | PS_ON# | OUT | +5V |
| **6** | +5VSB | PWR | +5V |

## 2.22 Digital I/O Port (CN13)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | DIO0 | I/O | +3.3V |
| **2** | DIO1 | I/O | +3.3V |

| | | | |
|---|---|---|---|
| **3** | DIO2 | I/O | +3.3V |
| **4** | DIO3 | I/O | +3.3V |
| **5** | DIO4 | I/O | +3.3V |
| **6** | DIO5 | I/O | +3.3V |
| **7** | DIO6 | I/O | +3.3V |
| **8** | DIO7 | I/O | +3.3V |
| **9** | +3.3V | PWR | +3.3V |
| **10** | GND | GND | |

## 2.23 PC/104 Slot (CN14+CN15)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **A1** | IOCHCK# | | |
| **A2** | D7 | IN/OUT | |
| **A3** | D6 | IN/OUT | |
| **A4** | D5 | IN/OUT | |
| **A5** | D4 | IN/OUT | |
| **A6** | D3 | IN/OUT | |
| **A7** | D2 | IN/OUT | |
| **A8** | D1 | IN/OUT | |
| **A9** | D0 | IN/OUT | |
| **A10** | IOCHRDY | | |
| **A11** | AEN | | |
| **A12** | A19 | OUT | |
| **A13** | A18 | OUT | |
| **A14** | A17 | OUT | |

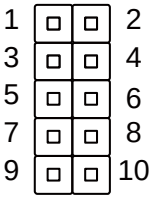
| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **A15** | A16 | OUT | |
| **A16** | A15 | OUT | |
| **A17** | A14 | OUT | |
| **A18** | A13 | OUT | |
| **A19** | A12 | OUT | |
| **A20** | A11 | OUT | |
| **A21** | A10 | OUT | |
| **A22** | A9 | OUT | |
| **A23** | A8 | OUT | |
| **A24** | A7 | OUT | |
| **A25** | A6 | OUT | |
| **A26** | A5 | OUT | |
| **A27** | A4 | OUT | |
| **A28** | A3 | OUT | |
| **A29** | A2 | OUT | |
| **A30** | A1 | OUT | |
| **A31** | A0 | OUT | |
| **A32** | GND | GND | |
| **B1** | GND | GND | |
| **B2** | RSTDRV | | |
| **B3** | +5V | PWR | +5V |
| **B4** | IRQ9 | | |
| **B5** | NC | | |
| **B6** | DRQ2 | | |

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **B7** | NC | | |
| **B8** | ENDXFR# | | |
| **B9** | +12V | PWR | +12V |
| **B10** | GND | GND | |
| **B11** | SMEMW# | | |
| **B12** | SMEMR# | | |
| **B13** | IOW# | | |
| **B14** | IOR# | | |
| **B15** | DACK3# | | |
| **B16** | DRQ3 | | |
| **B17** | DACK1# | | |
| **B18** | DRQ1 | | |
| **B19** | REFRESH# | | |
| **B20** | SYSCLK | | |
| **B21** | IRQ7 | | |
| **B22** | IRQ6 | | |
| **B23** | IRQ5 | | |
| **B24** | IRQ4 | | |
| **B25** | IRQ3 | | |
| **B26** | DACK2# | | |
| **B27** | TC | | |
| **B28** | BALE | | |
| **B29** | +5V | PWR | +5V |
| **B30** | OSC | | |

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **B31** | GND | GND | |
| **B32** | GND | GND | |
| **C1** | GND | GND | |
| **C2** | SBHE# | | |
| **C3** | A23 | OUT | |
| **C4** | A22 | OUT | |
| **C5** | A21 | OUT | |
| **C6** | A20 | OUT | |
| **C7** | A19 | OUT | |
| **C8** | A18 | OUT | |
| **C9** | A17 | OUT | |
| **C10** | MEMR# | | |
| **C11** | MEMW# | | |
| **C12** | D8 | IN/OUT | |
| **C13** | D9 | IN/OUT | |
| **C14** | 10 | IN/OUT | |
| **C15** | D11 | IN/OUT | |
| **C16** | D12 | IN/OUT | |
| **C17** | D13 | IN/OUT | |
| **C18** | D14 | IN/OUT | |
| **C19** | D15 | IN/OUT | |
| **C20** | GND | GND | |
| **D1** | GND | GND | |
| **D2** | MEMCS16# | | |

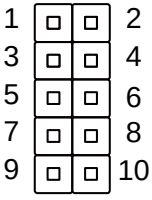
| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **D3** | IOCS16# | | |
| **D4** | IRQ10 | | |
| **D5** | IRQ11 | | |
| **D6** | IRQ12 | | |
| **D7** | IRQ15 | | |
| **D8** | IRQ14 | | |
| **D9** | DACK0# | | |
| **D10** | DRQ0 | | |
| **D11** | DACK5# | | |
| **D12** | DRQ5 | | |
| **D13** | DACK6# | | |
| **D14** | DRQ6 | | |
| **D15** | DACK7# | | |
| **D16** | DRQ7 | | |
| **D17** | +5V | PWR | +5V |
| **D18** | MASTER# | | |
| **D19** | GND | GND | |
| **D20** | GND | GND | |

## 2.24 COM Port 4(CN18)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | DCD | IN | |
| **2** | RX | IN | |
| **3** | TX | OUT | ±9V |
| **4** | DTR | OUT | ±9V |
| **5** | GND | GND | |
| **6** | DSR | IN | |
| **7** | RTS | OUT | ±9V |
| **8** | CTS | IN | |
| **9** | RI | IN | |
| **10** | NC | | |

## 2.25 COM Port 3(CN19)



**RS-232**

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | DCD | IN | |
| 2 | RX | IN | |
| 3 | TX | OUT | ±9V |
| 4 | DTR | OUT | ±9V |
| 5 | GND | GND | |
| 6 | DSR | IN | |
| 7 | RTS | OUT | ±9V |
| 8 | CTS | IN | |
| 9 | RI/+5V/+12V | IN/ PWR | +5V/+12V |
| 10 | NC | | |

**RS-422**

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | RS422_TX- | OUT | ±5V |
| 2 | RS422_TX+ | OUT | ±5V |
| 3 | RS422_RX+ | IN | |
| 4 | RS422_RX- | IN | |
| 5 | GND | GND | |
| 6 | NC | | |
| 7 | NC | | |
| 8 | NC | | |
| 9 | NC/+5V/+12V | PWR | +5V/+12V |
| 10 | NC | | |

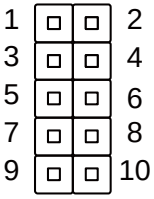
**RS-485**

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | RS485_D- | I/O | ±5V |
| **2** | RS485_D+ | I/O | ±5V |
| **3** | NC | | |
| **4** | NC | | |
| **5** | GND | GND | |
| **6** | NC | | |
| **7** | NC | | |
| **8** | NC | | |
| **9** | NC/+5V/+12V | PWR | +5V/+12V |
| **10** | NC | | |

※ COM3 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

※ Pin 9 function can be set by CN16

## 2.26 COM Port 2 (CN20)




**RS-232**

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | DCD | IN | |
| **2** | RX | IN | |
| **3** | TX | OUT | ±9V |
| **4** | DTR | OUT | ±9V |
| **5** | GND | GND | |
| **6** | DSR | IN | |
| **7** | RTS | OUT | ±9V |
| **8** | CTS | IN | |
| **9** | RI/+5V/+12V | IN/ PWR | |
| **10** | NC | | |

**RS-422**

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | RS422_TX- | OUT | ±5V |
| **2** | RS422_TX+ | OUT | ±5V |
| **3** | RS422_RX+ | IN | |
| **4** | RS422_RX- | IN | |
| **5** | GND | GND | |
| **6** | NC | | |
| **7** | NC | | |
| **8** | NC | | |
| **9** | NC/+5V/+12V | PWR | +5V/+12V |
| **10** | NC | | |

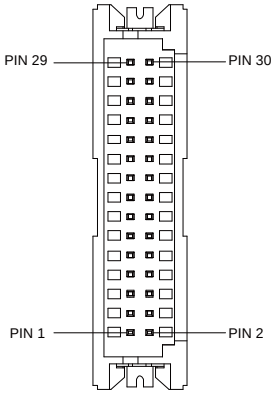
**RS-485**

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | RS485_D- | I/O | ±5V |
| **2** | RS485_D+ | I/O | ±5V |
| **3** | NC | | |
| **4** | NC | | |
| **5** | GND | GND | |
| **6** | NC | | |
| **7** | NC | | |
| **8** | NC | | |
| **9** | NC/+5V/+12V | PWR | +5V/+12V |
| **10** | NC | | |

※ COM2 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

※ Pin 9 function can be set by CN17

## 2.27 LVDS Port (CN21)

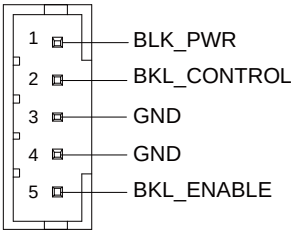



※ LVDS LCD_PWR can be set to +3.3V or +5V by CN26

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | BKL_ENABLE | OUT | |
| 2 | BKL_CONTROL | OUT | |
| 3 | LCD_PWR | PWR | +3.3V/+5V |
| 4 | GND | GND | |
| 5 | LVDS_A_CLK- | DIFF | |
| 6 | LVDS_A_CLK+ | DIFF | |
| 7 | LCD_PWR | PWR | +3.3V/+5V |
| 8 | GND | GND | |

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 9 | LVDS_DA0- | DIFF | |
| 10 | LVDS_DA0+ | DIFF | |
| 11 | LVDS_DA1- | DIFF | |
| 12 | LVDS_DA1+ | DIFF | |
| 13 | LVDS_DA2- | DIFF | |
| 14 | LVDS_DA2+ | DIFF | |
| 15 | LVDS_DA3- | DIFF | |
| 16 | LVDS_DA3+ | DIFF | |
| 17 | DDC_DATA | I/O | +3.3V |
| 18 | DDC_CLK | I/O | +3.3V |
| 19 | LVDS_DB0- | DIFF | |
| 20 | LVDS_DB0+ | DIFF | |
| 21 | LVDS_DB1- | DIFF | |
| 22 | LVDS_DB1+ | DIFF | |
| 23 | LVDS_DB2- | DIFF | |
| 24 | LVDS_DB2+ | DIFF | |
| 25 | LVDS_DB3- | DIFF | |
| 26 | LVDS_DB3+ | DIFF | |
| 27 | LCD_PWR | PWR | +3.3V/+5V |
| 28 | GND | GND | |
| 29 | LVDS_B_CLK- | DIFF | |
| 30 | LVDS_B_CLK+ | DIFF | |

## 2.28 LVDS Inverter/ Backlight Connector (CN22)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | BKL_PWR | PWR | +5V / +12V |
| **2** | BKL_CONTROL | OUT | |
| **3** | GND | GND | |
| **4** | GND | GND | |
| **5** | BKL_ENABLE | OUT | +5V |

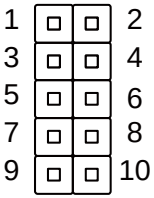
※ LVDS BKL_PWR can be set to +5V or +12V by CN24

※ LVDS BKL_CONTROL can be set by CN25

## 2.29 System FAN (CN23)

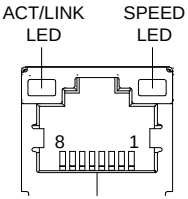
| Pin | Pin Na me | Signal Type | Signal level |
|---|---|---|---|
| **1** | FAN_TAC | IN | |
| **2** | FAN_POWER | PWR | +5V |
| **3** | GND | GND | |

## 2.30 Front Panel Connector (CN27)



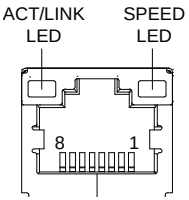

| | | | |
|---|---|---|---|
| **Pin 1** | PWR_BTN- | **Pin 2** | PWR_BTN+ |
| **Pin 3** | HDD_LED- | **Pin 4** | HDD_LED+ |
| **Pin 5** | SPEAKER- | **Pin 6** | SPEAKER+ |
| **Pin 7** | PWR_LED- | **Pin 8** | PWR_LED+ |
| **Pin 9** | H/W RESET- | **Pin 10** | H/W RESET+ |

## 2.31 Realtek LAN (RJ-45) Port 2 (CN28)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | MDI0+ | DIFF | |
| **2** | MDI0- | DIFF | |
| **3** | MDI1+ | DIFF | |
| **4** | MDI2+ | DIFF | |
| **5** | MDI2- | DIFF | |
| **6** | MDI1- | DIFF | |
| **7** | MDI3+ | DIFF | |
| **8** | MDI3- | DIFF | |

## 2.32 Realtek LAN (RJ-45) Port 1 (CN29)



| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | MDI0+ | DIFF | |
| 2 | MDI0- | DIFF | |
| 3 | MDI1+ | DIFF | |
| 4 | MDI2+ | DIFF | |
| 5 | MDI2- | DIFF | |
| 6 | MDI1- | DIFF | |
| 7 | MDI3+ | DIFF | |
| 8 | MDI3- | DIFF | |

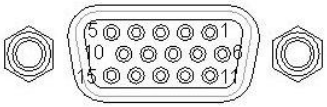
## 2.33 Mini-DIN PS/2 Keyboard/ Mouse Connector (CN30)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | KB_ DATA | I/O | +5V |
| 2 | MS_DATA | I/O | +5V |
| 3 | GND | GND | |
| 4 | Shield | | |
| 5 | +5VSB | PWR | +5V |
| 6 | KB_CLK | I/O | +5V |
| 7 | Shield | | |
| 8 | MS_CLK | I/O | +5V |

## 2.34 COM Port 1 (CN31)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | DCD | IN | |
| 2 | RX | IN | |
| 3 | TX | OUT | ±9V |
| 4 | DTR | OUT | ±9V |
| 5 | GND | GND | |
| 6 | DSR | IN | |
| 7 | RTS | OUT | ±9V |
| 8 | CTS | IN | |
| 9 | RI | IN | |

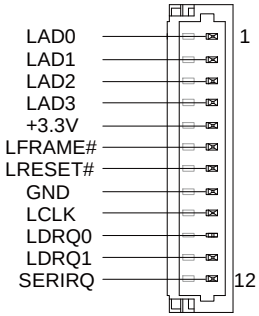
## 2.35 VGA Port (CN32)




| VGA | | | |
|---|---|---|---|
| Pin | Pin Name | Signal Type | Signal level |
| 1 | RED | OUT | |
| 2 | GREEN | OUT | |
| 3 | BLUE | OUT | |
| 4 | NC | | |
| 5 | GND | GND | |

| VGA | | | |
|---|---|---|---|
| **Pin** | **Pin Name** | **Signal Type** | **Signal level** |
| **6** | RED_GND_RTN | GND | |
| **7** | GREEN_GND_RTN | GND | |
| **8** | BLUE_GND_RTN | GND | |
| **9** | +5V | PWR | +5V |
| **10** | GND | GND | |
| **11** | NC | | |
| **12** | DDC_DATA | I/O | +5V |
| **13** | HSYNC | OUT | |
| **14** | VSYNC | OUT | |
| **15** | DDC_CLK | I/O | +5V |

## 2.36 LPC Port (CN33)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **1** | LAD0 | I/O | +3.3V |
| **2** | LAD1 | I/O | +3.3V |
| **3** | LAD2 | I/O | +3.3V |
| **4** | LAD3 | I/O | +3.3V |
| **5** | +3.3V | PWR | +3.3V |
| **6** | LFRAME# | IN | |
| **7** | LRESET# | OUT | +3.3V |
| **8** | GND | GND | |
| **9** | LCLK | OUT | |
| **10** | LDRQ0 | IN | |
| **11** | LDRQ1 | IN | |
| **12** | SERIRQ | I/O | +3.3V |

## 2.37 CFD Slot (CN35)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | GND | GND | |
| 2 | D3 | IN/OUT | |
| 3 | D4 | IN/OUT | |
| 4 | D5 | IN/OUT | |
| 5 | D6 | IN/OUT | |
| 6 | D7 | IN/OUT | |
| 7 | CS#0 | | |
| 8 | GND | GND | |
| 9 | GND | GND | |
| 10 | GND | GND | |
| 11 | GND | GND | |
| 12 | GND | GND | |
| 13 | +3.3V | PWR | +3.3V |
| 14 | GND | GND | |
| 15 | GND | GND | |
| 16 | GND | GND | |
| 17 | GND | GND | |
| 18 | A2 | OUT | |
| 19 | A1 | OUT | |
| 20 | A0 | OUT | |
| 21 | D0 | IN/OUT | |
| 22 | D1 | IN/OUT | |

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 23 | D2 | IN/OUT | |
| 24 | NC | | |
| 25 | GND | GND | |
| 26 | CD1# | IN | |
| 27 | D11 | IN/OUT | |
| 28 | D12 | IN/OUT | |
| 29 | D13 | IN/OUT | |
| 30 | D14 | IN/OUT | |
| 31 | D15 | IN/OUT | |
| 32 | CS#1 | | |
| 33 | GND | GND | |
| 34 | CF_IOR# | OUT | |
| 35 | CF_IOW# | OUT | |
| 36 | +3.3V | | +3.3V |
| 37 | INTR | | |
| 38 | +3.3V | PWR | +3.3V |
| 39 | CSEL# | IN | |
| 40 | NC | | |
| 41 | RESET# | OUT | |
| 42 | IORDY | | |
| 43 | IDE_REQ# | | |
| 44 | IDE_DACK# | | |
| 45 | DASP# | | |
| 46 | +3.3V | | +3.3V |

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 47 | D8 | IN/OUT | |
| 48 | D9 | IN/OUT | |
| 49 | D10 | IN/OUT | |
| 50 | GND | GND | |

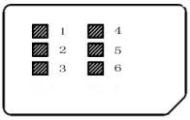
## 2.38 Mini-Card Slot (CN36)

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | PCIE_WAKE# | IN | |
| 2 | +3.3VSB | PWR | +3.3V |
| 3 | NC | | |
| 4 | GND | GND | |
| 5 | NC | | |
| 6 | +1.5V | PWR | +1.5V |
| 7 | PCIE_CLK_REQ# | IN | |
| 8 | UIM_PWR | PWR | |
| 9 | GND | GND | |
| 10 | UIM_DATA | I/O | |
| 11 | PCIE_REF_CLK- | DIFF | |
| 12 | UIM_CLK | IN | |
| 13 | PCIE_REF_CLK+ | DIFF | |
| 14 | UIM_RST | IN | |
| 15 | GND | GND | |
| 16 | UIM_VPP | PWR | |

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 17 | NC | | |
| 18 | GND | GND | |
| 19 | NC | | |
| 20 | W_DISABLE# | OUT | +3.3V |
| 21 | GND | GND | |
| 22 | PCIE_RST# | OUT | +3.3V |
| 23 | PCIE_RX- | DIFF | |
| 24 | +3.3VSB | PWR | +3.3V |
| 25 | PCIE_RX+ | DIFF | |
| 26 | GND | GND | |
| 27 | GND | GND | |
| 28 | +1.5V | PWR | +1.5V |
| 29 | GND | GND | |
| 30 | SMB_CLK | I/O | +3.3V |
| 31 | PCIE_TX- | DIFF | |
| 32 | SMB_DATA | I/O | +3.3V |
| 33 | PCIE_TX+ | DIFF | |
| 34 | GND | GND | |
| 35 | GND | GND | |
| 36 | USB_D- | DIFF | |
| 37 | GND | GND | |
| 38 | USB_D+ | DIFF | |
| 39 | +3.3VSB | PWR | +3.3V |
| 40 | GND | GND | |

| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| **41** | +3.3VSB | PWR | +3.3V |
| **42** | NC | | |
| **43** | GND | GND | |
| **44** | NC | | |
| **45** | NC | | |
| **46** | NC | | |
| **47** | NC | | |
| **48** | +1.5V | PWR | +1.5V |
| **49** | NC | | |
| **50** | GND | GND | |
| **51** | NC | | |
| **52** | +3.3VSB | PWR | +3.3V |

## 2.39 UIM Card Module (CN37)




| Pin | Pin Name | Signal Type | Signal level |
|---|---|---|---|
| 1 | UIM_PWR | PWR | |
| 2 | UIM_RST | IN | |
| 3 | UIM_CLK | IN | |
| 4 | GND | GND | |
| 5 | UIM_VPP | PWR | |
| 6 | UIM_DATA | I/O | |

## 2.40 DDR3L SODIMM Slot (DIMM1)

Standard Specification

**China RoHS Requirements**
**产品中有毒有害物质或元素名称及含量**

**AAEON Main Board/ Daughter Board/ Backplane**

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr(VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 印刷电路板及其电子组件 | × | ○ | ○ | ○ | ○ | ○ |
| 外部信号连接器及线材 | × | ○ | ○ | ○ | ○ | ○ |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

**O**：表示该有毒有害物质在该部件所有均质材料中的含量均在 **SJ/T 11363-2006** 标准规定的限量要求以下。

**X**：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 **SJ/T 11363-2006** 标准规定的限量要求。

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。

Chapter

3

# AMI BIOS Setup

## 3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

### System configuration verification

These routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The system configuration is reset by Clear-CMOS jumper
4. The CMOS memory has lost power and the configuration information has been erased.

## 3.2 AMI BIOS Setup

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM and BIOS NVRAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> or <F2> immediately. This will allow you to enter Setup.

**Main**

Set the date, use tab to switch between date elements.

**Advanced**

Enable disable boot option for legacy network devices

**Chipset**

Host bridge parameters.

**Boot**

Enables/disable quiet boot option.

**Security**

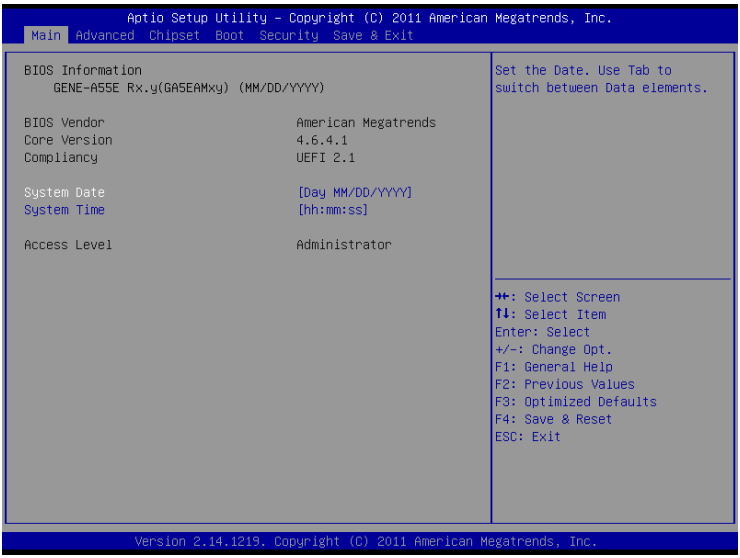
Set setup administrator password.

**Save&Exit**

Exit system setup after saving the changes.

## Setup Menu

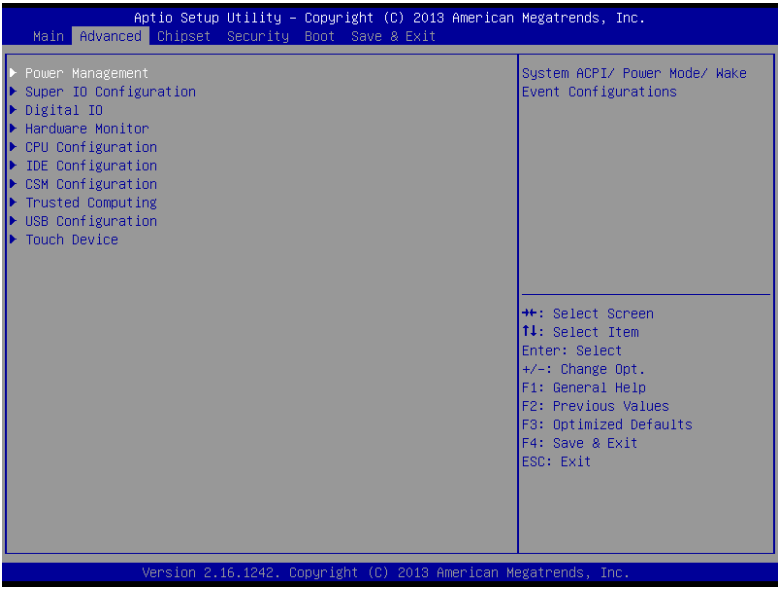
### Setup submenu: Main




Options summary: (***default setting***)

| | | |
|---|---|---|
| System Date | Day MM:DD:YYYY | |
| Change the month, year and century. The 'Day' is changed automatically. | | |
| System Time | hh : mm : ss | |
| Change the clock of the system. | | |

## Setup submenu: Advanced

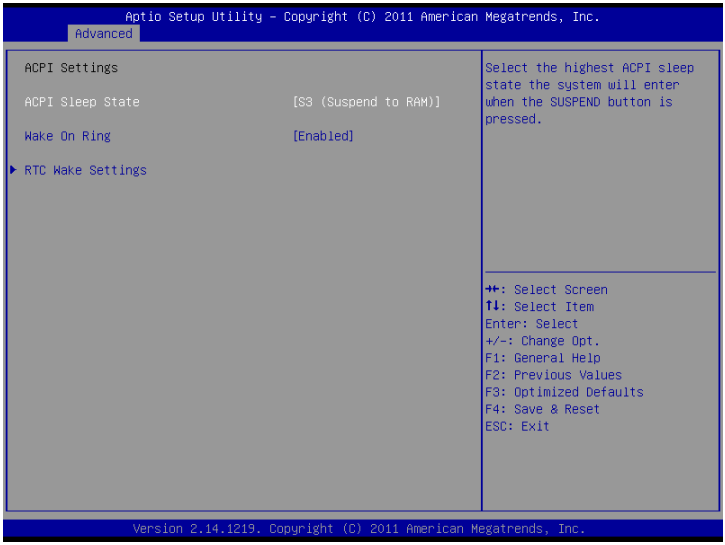



Options summary: (***default setting***)

| | | |
|---|---|---|
| ACPI Settings | | |
| System ACPI Parameters | | |
| CPU Configuration | | |
| CPU Configuration Parameters | | |
| SATA Configuration | | |
| SATA Device Options Settings | | |
| USB Configuration | | |
| USB Configuration Parameters | | |

| | | |
|---|---|---|
| F81866 Super IO Configuration | | |
| System Super IO Chip Parameters. | | |
| F81866 H/W Monitor | | |
| Monitor hardware status | | |
| ISA Configuration | | |
| Configure IO or Memory address which will be decoded to ISA BUS | | |
| IRQ Configuration | | |
| Configure IRQs for ISA or PCI devices. | | |
| Digital IO Port Configuration | | |
| Set Input/Output of Digital IO Port Configuration | | |

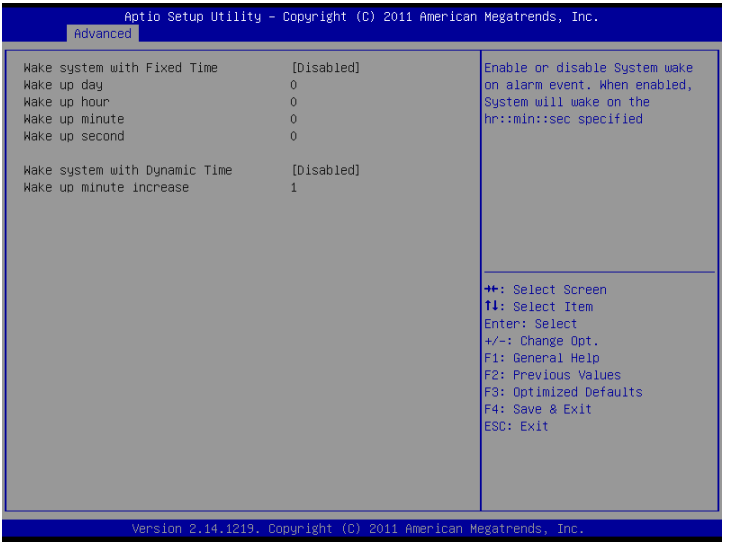
## ACPI Settings



Options summary: (***default setting***)

| | | |
|---|---|---|
| ACPI Sleep State | ***S3 only(Suspend to RAM)*** | |
| Select the ACPI state used for System Suspend | | |
| Wake on Ring | ***Enabled*** | |
| | Disabled | |
| Enabled or disabled wake on ring function. | | |
| RTC Wake Settings | | |
| Enable system to wake from S5 using RTC alarm. | | |

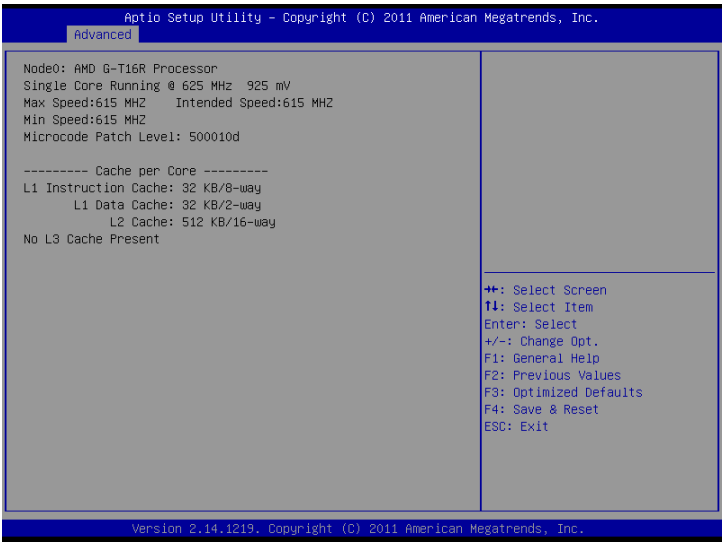
## RTC Wake Settings



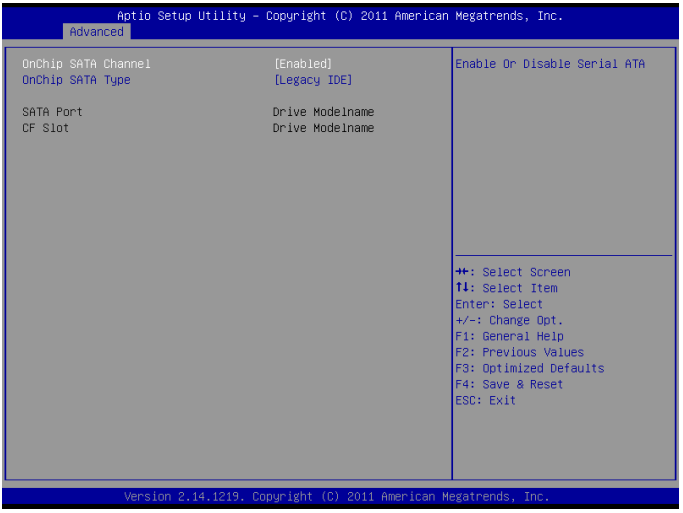
Options summary: (***default setting***)

| | | |
|---|---|---|
| Wake system with Fixed Time | ***Disabled*** | |
| | Enabled | |
| Enable or disable System wake on alarm event. Wake up time is setting by following settings. | | |
| Wake up day | 0-31 | |
| Select 0 for daily system wake up, 1-31 for which day of the month that you would like the system to wake up | | |
| Wake up hour | 0-23 | |
| | | |
| Wake up minute | 0-59 | |
| | | |
| Wake up second | 0-59 | |
| | | |
| Wake system with Dynamic Time | ***Disabled*** | |
| | Enabled | |
| Enable or disable System wake on alarm event. Wake up time is current time + Increase minutes. | | |
| Wake up minute increase | 1-5 | |
| | | |

## CPU Configuration



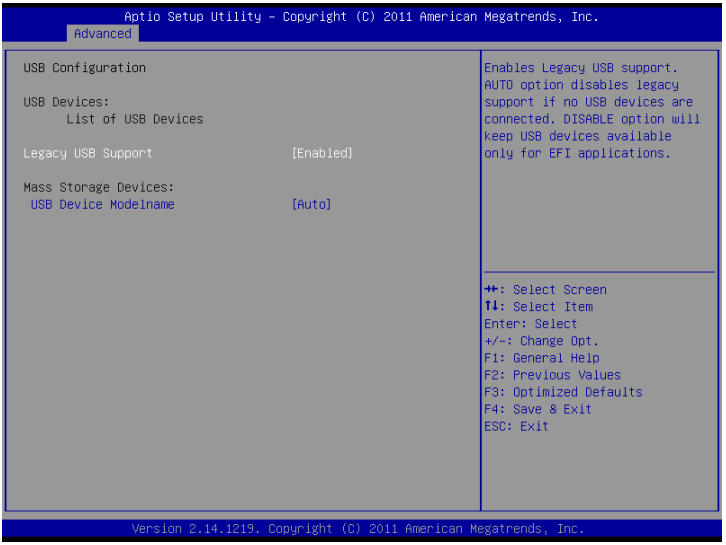

## SATA Configuration



Options summary: (***default setting***)

| | | |
|---|---|---|
| OnChip SATA Channel | Disabled | |
| | ***Enabled*** | |
| Enable or Disable Serial ATA | | |
| OnChip SATA Type | ***Legacy IDE*** | |
| | AHCI | |
| Configure SATA controller operating as IDE/AHCI mode. | | |

## USB Configuration

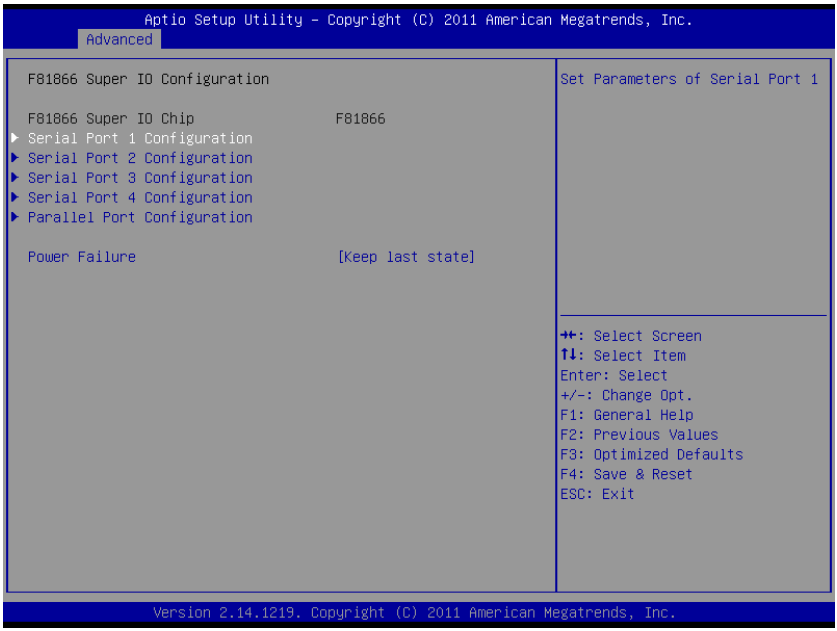



Options summary: (***default setting***)

| | | |
|---|---|---|
| Legacy USB Support | ***Enabled*** | |
| | Disabled | |

| | | |
|---|---|---|
| | Auto | |
| Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI application | | |
| Device Name (Emulation Type) | **Auto** | |
| | Floppy | |
| | Forced FDD | |
| | Hard Disk | |
| | CD-ROM | |
| If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD(Ex. ZIP drive) | | |

## F8 1866 Super IO Configuration

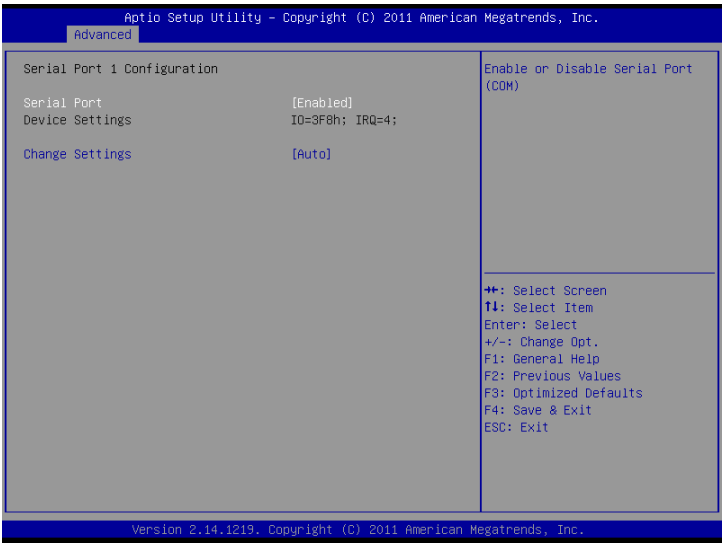



Options summary: (***default setting***)

| | | |
|---|---|---|
| Serial Port 1/2/3/4 Configuration | | |
| Set Parameters of Serial Port 1/2/3/4 | | |
| Parallel Port Configuration | | |
| Set Parameters of Parallel Port | | |
| Power Failure | ***Always OFF*** | |
| | Always ON | |
| | Keep last state | |

| |
|---|
| Select AC power state when power is re-applied after a power failure. |

## Serial Port 1 Configuration

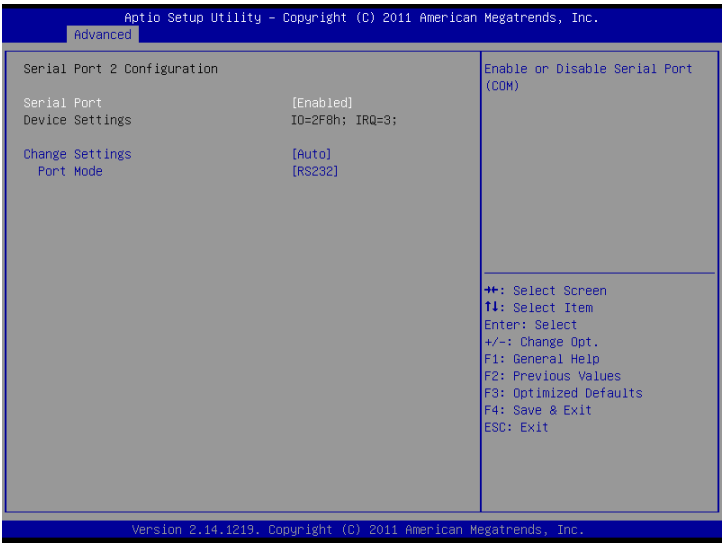



Options summary: (***default setting***)

| | | |
|---|---|---|
| Serial Port | Disabled | |
| | ***Enabled*** | |
| En/Disable specified serial port. | | |
| Change Settings | ***Auto*** | |
| | IO=3F8h; IRQ=4; | |
| | IO=3F8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=2F8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=3E8h; IRQ=3,4,5,7,10,11,12; | |

| | | |
|---|---|---|
| | IO=2E8h; IRQ=3,4,5,7,10,11,12; | |
| Select a resource setting for Super IO device. | | |

## Serial Port 2 Configuration

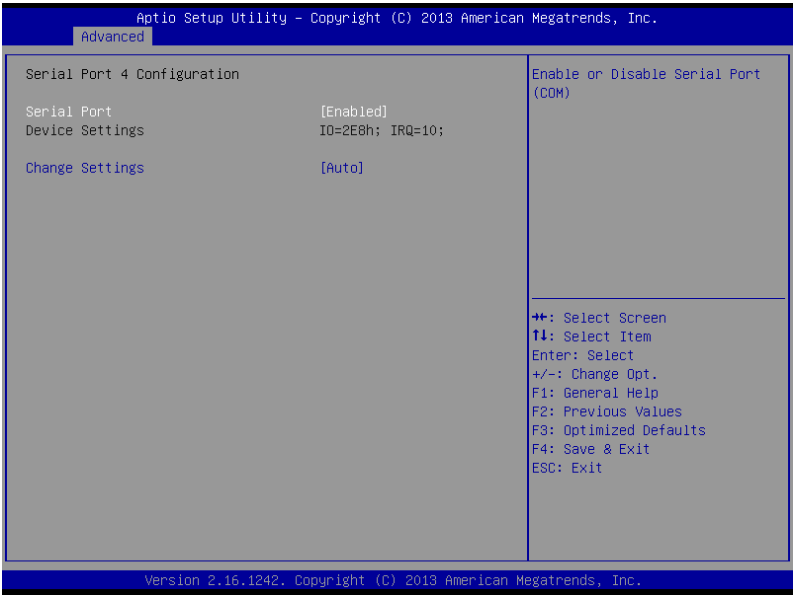



Options summary: (***default setting***)

| | | |
|---|---|---|
| Serial Port | Disabled | |
| | ***Enabled*** | |
| En/Disable specified serial port. | | |
| Change Settings | ***Auto*** | |
| | IO=2F8h; IRQ=3; | |
| | IO=3F8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=2F8h; IRQ=3,4,5,7,10,11,12; | |

| | | |
|---|---|---|
| | IO=3E8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=2E8h; IRQ=3,4,5,7,10,11,12; | |
| Select a resource setting for Super IO device. | | |
| Port Mode | ***RS232*** | |
| | RS422 | |
| | RS485 | |
| RS232/422,485 port mode switch | | |

## Serial Port 3 Configuration

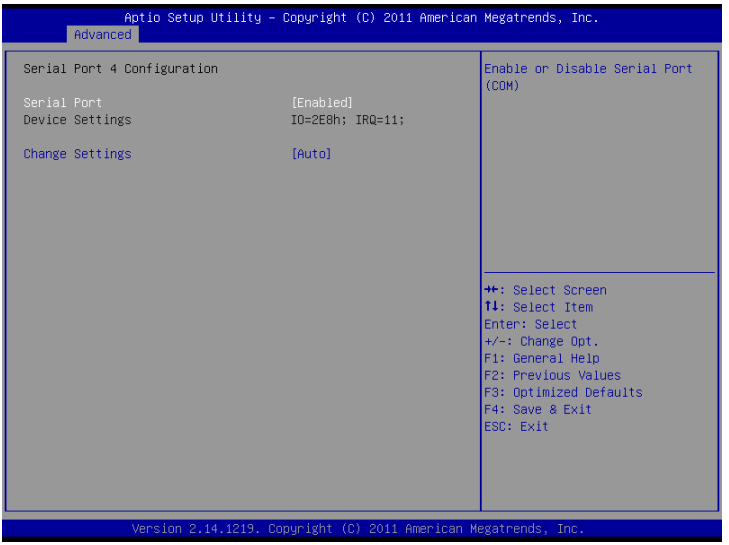



Options summary: (***default setting***)

| | | |
|---|---|---|
| Serial Port | Disabled | |

| | | |
|---|---|---|
| | ***Enabled*** | |
| En/Disable specified serial port. | | |
| Change Settings | ***Auto*** | |
| | IO=3E8h; IRQ=11; | |
| | IO=3E8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=2E8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=228h; IRQ=3,4,5,7,10,11,12; | |
| | IO=220h; IRQ=3,4,5,7,10,11,12; | |
| Select a resource setting for Super IO device. | | |
| Port Mode | ***RS232*** | |
| | RS422 | |
| | RS485 | |
| RS232/422,485 port mode switch | | |

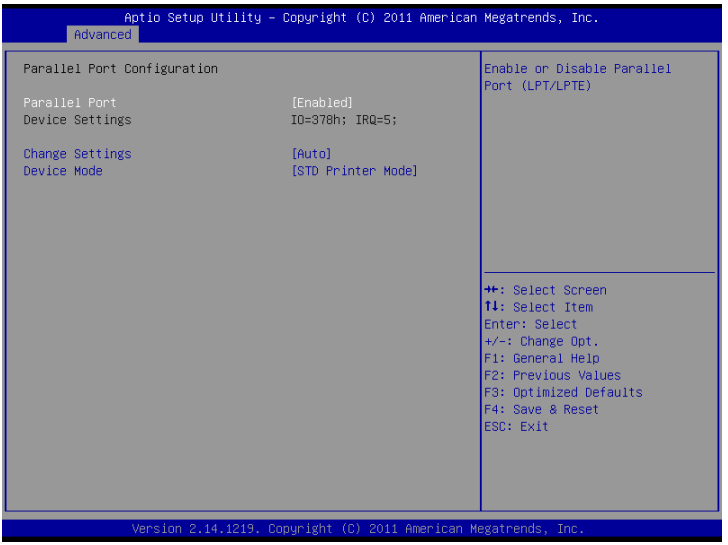
## Serial Port 4 Configuration




Options summary: (***default setting***)

| | | |
|---|---|---|
| Serial Port | Disabled | |
| | ***Enabled*** | |
| En/Disable specified serial port. | | |
| Change Settings | ***Auto*** | |
| | IO=2E8h; IRQ=11; | |
| | IO=3E8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=2E8h; IRQ=3,4,5,7,10,11,12; | |
| | IO=228h; IRQ=3,4,5,7,10,11,12; | |
| | IO=220h; IRQ=3,4,5,7,10,11,12; | |
| Select a resource setting for Super IO device. | | |

## Parallel Port Configuration

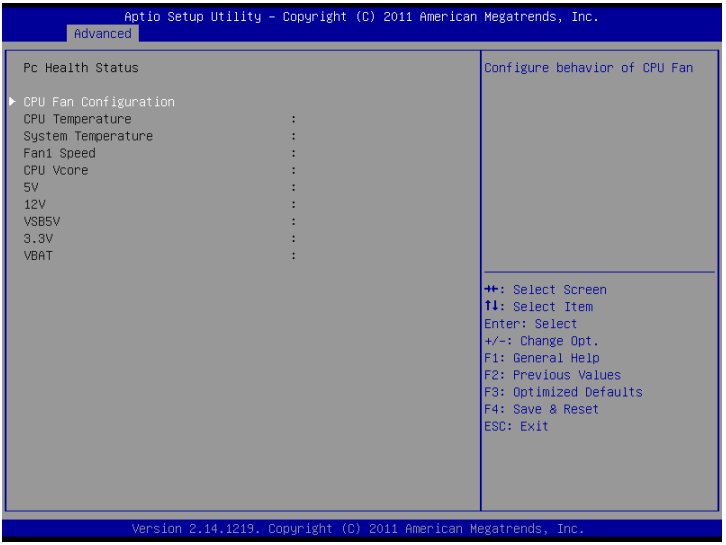



Options summary: (***default setting***)

| | | |
|---|---|---|
| Parallel Port | Disabled | |
| | ***Enabled*** | |
| En/Disable specified parallel port. | | |
| Change Settings | ***Auto*** | |
| | IO=378h; IRQ=5; | |
| | IO=378h; IRQ=5,6,7,10,11,12; | |
| | IO=278h; IRQ=5,6,7,10,11,12; | |
| | IO=3BCh; IRQ=5,6,7,10,11,12; | |
| Select an optimal setting for LPT device. | | |
| Device Mode | ***STD Printer Mode*** | |

| | | |
|---|---|---|
| | SPP Mode | |
| | EPP-1.9 and SPP Mode | |
| | EPP-1.7 and SPP Mode | |
| | ECP Mode | |
| | ECP and EPP 1.9 Mode | |
| | ECP and EPP 1.7 Mode | |
| Change the Printer Port mode | | |

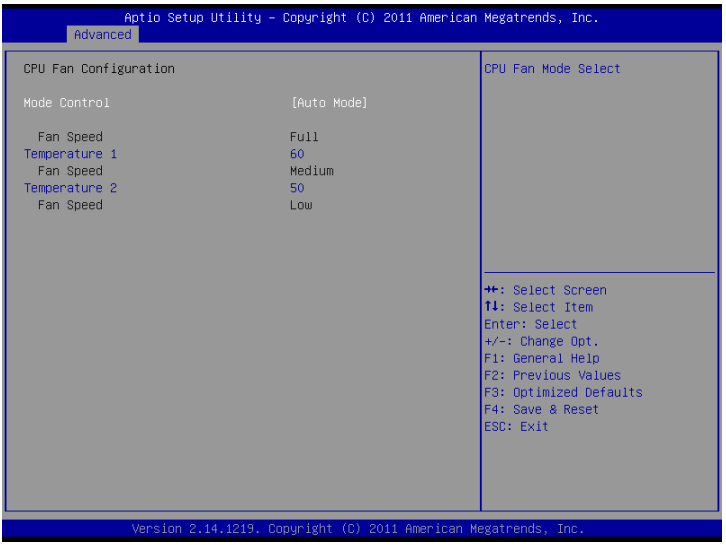
## F81866 H/W Monitor




Options summary: (***default setting***)

| CPU Fan Configuration | | |
|---|---|---|
| Configure behavior of CPU fan. | | |

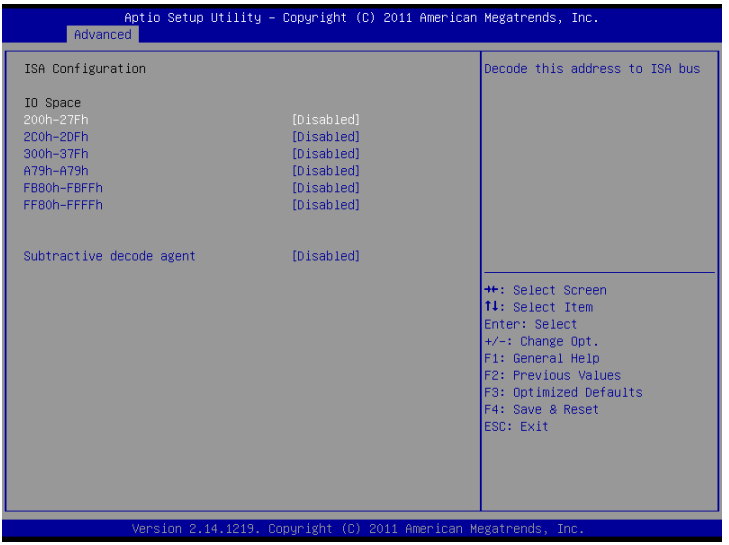
## CPU Fan Configuration




Options summary: (***default setting***)

| | | |
|---|---|---|
| Mode Control | ***Auto Mode*** | |
| | Full Speed | |
| CPU Fan mode select | | |
| Temperature 1/2 | 1-100 | |
| Temperature setting for the boundary of the different fan speed level. | | |

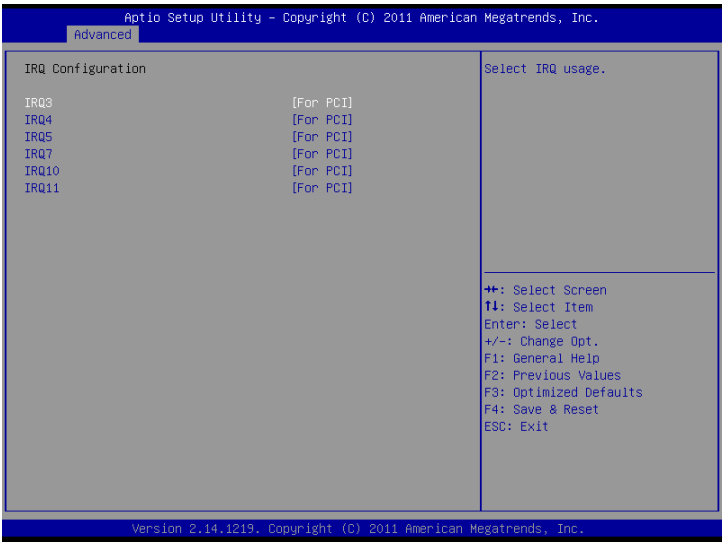
## ISA Configuration




Options summary: (***default setting***)

| | | |
|---|---|---|
| 200h-27Fh/2C0h-20Fh/<br>300h-37Fh/A79h-A79h/<br>FB80h-FBFFh/<br>FF80h-FFFFh | ***Disabled*** | |
| | Decoded to ISA | |
| Decode specified IO address to ISA BUS | | |
| Subtractive decode agent | ***Disabled*** | |
| | Enabled | |
| Configure PCI-to-ISA bridge works as a subtractive decode agent | | |

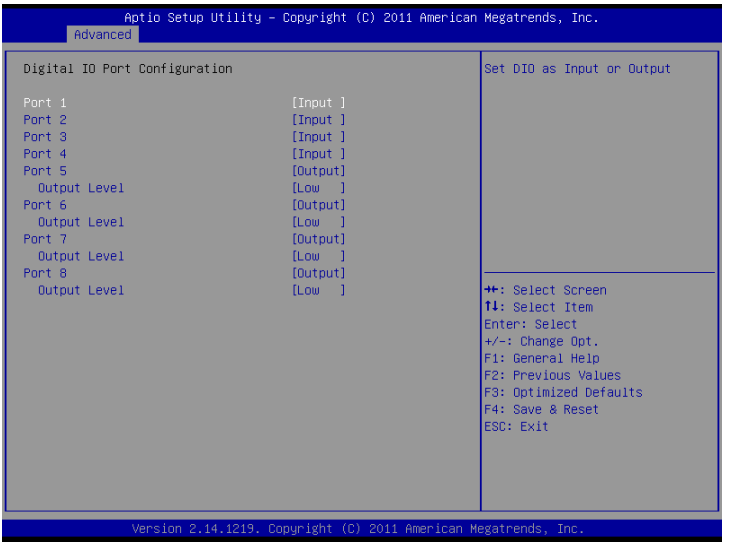
## IRQ Configuration




Options summary: (***default setting***)

| | | |
|---|---|---|
| IRQ3/IRQ4/IRQ5/ | Reserved | |
| IRQ7/IRQ10/IRQ11 | ***For PCI*** | |
| Select specified IRQ can be used by PCI device or reserved for ISA devices. | | |

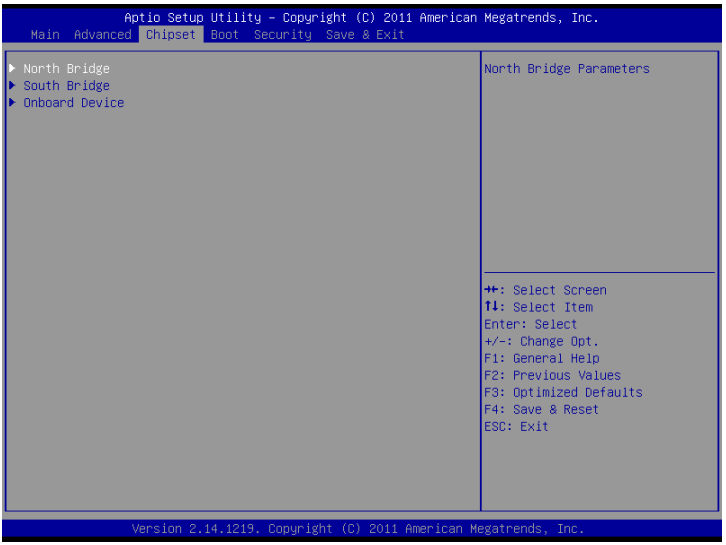
## Digital IO Port Configuration




Options summary: (***default setting***)

| | | |
|---|---|---|
| Port1/Port2/Port3/Port4 | Input | |
| | ***Output*** | |
| Set DIO Port x as Input or Output | | |
| Port5/Port6/Port7/Port8 | ***Input*** | |
| | Output | |
| Set DIO Port x as Input or Output | | |
| Output Level | Hi | |
| | ***Low*** | |
| Set DIO output level when used as output pin | | |

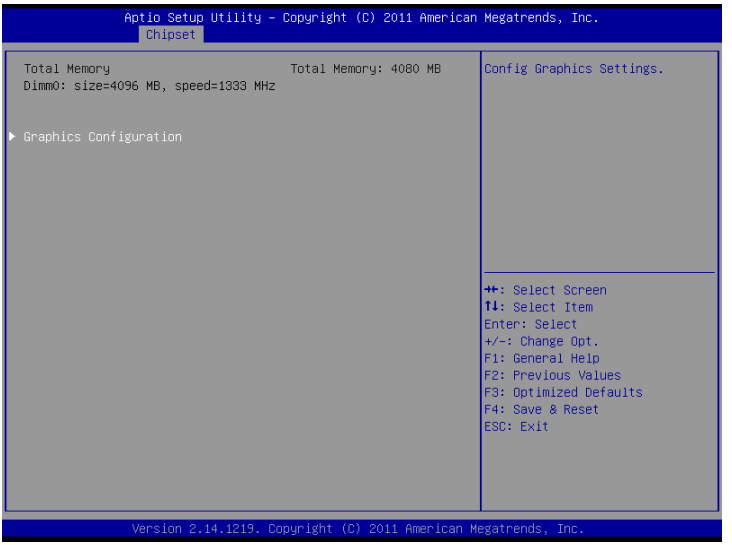
## Setup submenu: Chipset




Options summary: (***default setting***)

| | | |
|---|---|---|
| North Bridge | | |
| North Bridge Parameters | | |
| South Bridge | | |
| South Bridge Parameters | | |
| Onboard Device | | |
| Configure onboard devices | | |

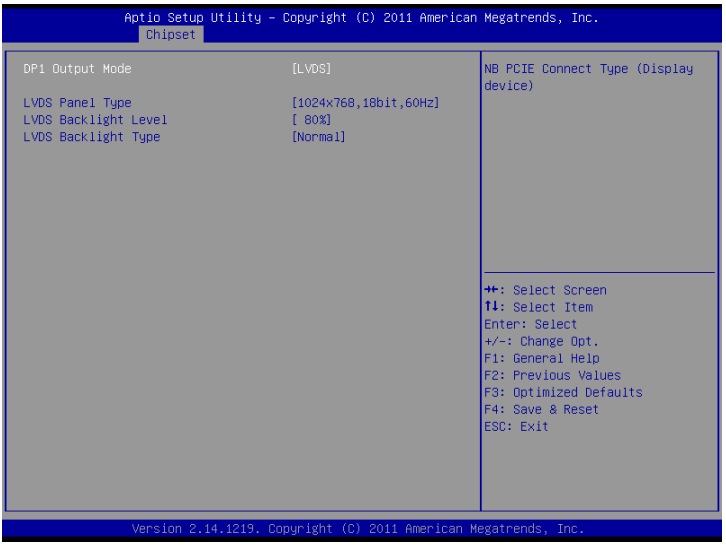
## North Bridge




Options summary: (***default setting***)

| | | |
|---|---|---|
| Graphics Configuration | | |
| Configure Graphics Setting | | |

## Graphics Configuration

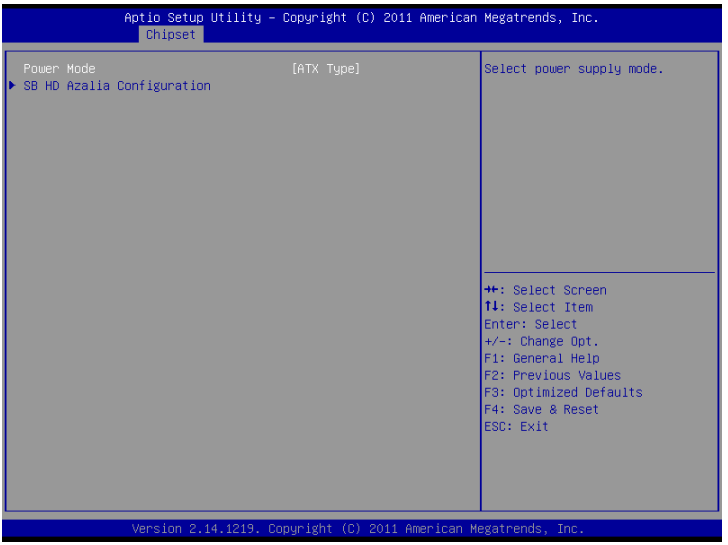



Options summary: (***default setting***)

| | | |
|---|---|---|
| DP1 Output Mode | ***LVDS*** | |
| | Disabled | |
| Enabled/Disabled LVDS | | |
| LVDS Panel | 640x480,18bit,60Hz | |
| | 800x480,18bit,60Hz | |
| | 800x600,18bit,60Hz | |
| | 1024x600,18bit,60Hz | |
| | ***1024x768,18bit,60Hz*** | |
| | 1024x768,24bit,60Hz | |
| | 1280x768,24bit,60Hz | |

| | | |
|---|---|---|
| | 1280x1024,48bit,60Hz | |
| | 1366x768,24bit,60Hz | |
| | 1440x900,48bit,60Hz | |
| | 1600x1200,48bit,60Hz | |
| | 1920x1080,48bit,60Hz | |
| | 1920x1200,48bit,60Hz | |
| Select the resolution for LVDS Panel | | |
| LVDS Backlight Level | 100% | |
| | 90% | |
| | ***80%*** | |
| | 70% | |
| | 60% | |
| | 50% | |
| | 40% | |
| | 30% | |
| | 20% | |
| | 10% | |
| | 0% | |
| Select the backlight level for LVDS Panel | | |
| LVDS Backlight Type | ***Normal*** | |
| | Inverted | |
| Select the signal type for backlight control. | | |

## South Bridge




Options summary: (***default setting***)

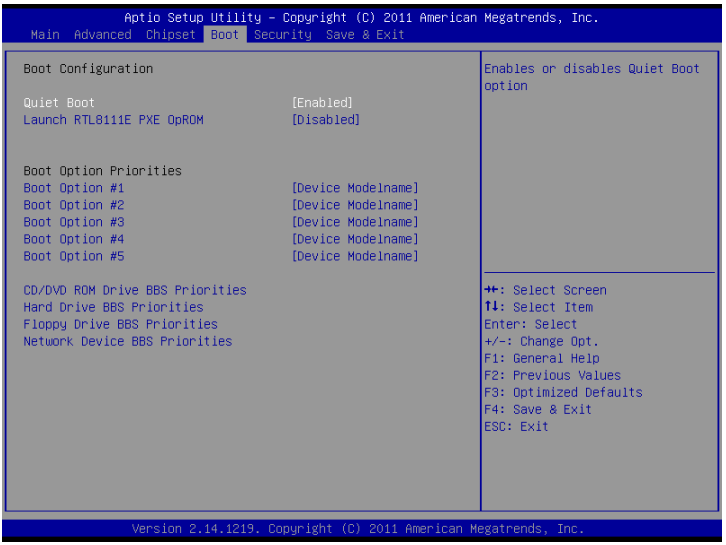
| | | |
|---|---|---|
| HD Audio Azalia Device | ***Enabled*** | |
| | Disabled | |
| Enable or Disable HD Audio Controller | | |
| Power Mode | ***ATX Type*** | |
| | AT Type | |
| Select the power type used on the system | | |

## Onboard Device


Options summary: (***default setting***)

| | | |
|---|---|---|
| Onboard Gigabit LAN 1/2 | Disabled | |
| | ***Enabled*** | |
| Enable or Disable Onboard Gigabit LAN 1/2 | | |
| Launch PXE OpROM | ***Disabled*** | |
| | Enabled | |
| Enable or Disable Boot Option for Legacy Network Devices. | | |

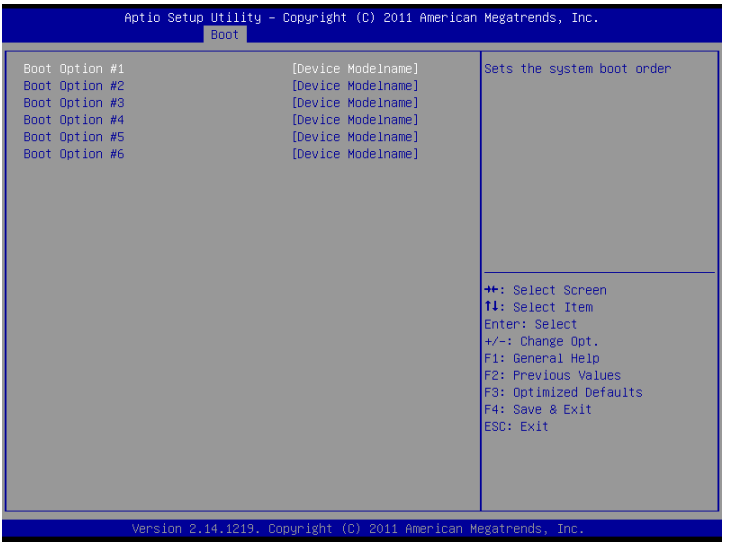
## Setup submenu: Boot




Options summary: (***default setting***)

| | | |
|---|---|---|
| Quiet Boot | Disabled | |
| | ***Enabled*** | |
| En/Disable showing boot logo. | | |
| Launch RTL8111E PXE OpROM | ***Disabled*** | |
| | Enabled | |
| En/Disable PXE boot for RTL8111E LAN | | |
| Boot Option #X/ XXXX Drive BBS Priorities | | |
| The order of boot priorities. | | |

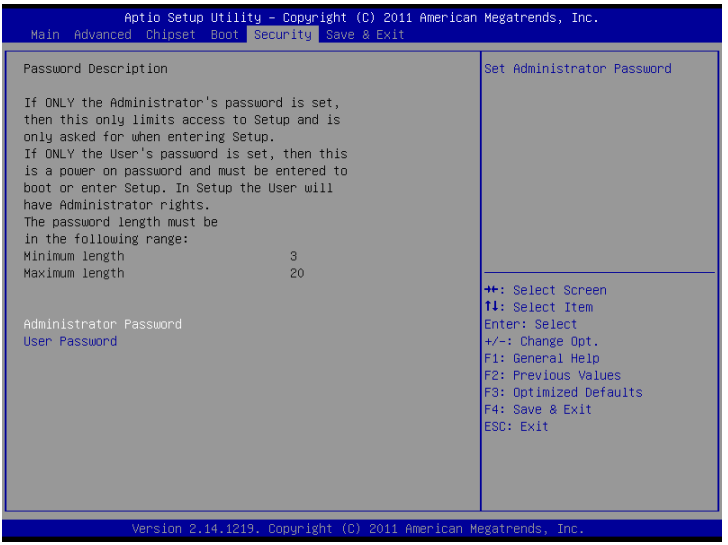
## BBS Priorities




Options summary: (***default setting***)

| | | |
|---|---|---|
| Boot Option #x | Disabled | |
| | Device name | |
| Sets the system boot order | | |

## Setup submenu: Security




Options summary: (***default setting***)

| | | |
|---|---|---|
| Administrator Password/ User Password | ***Not set*** | |

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

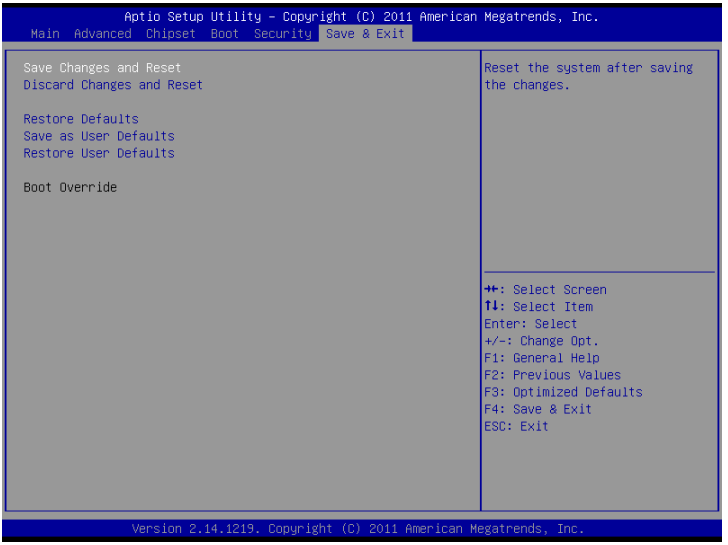
*Install the Password:*

Press Enter on this item, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

*Removing the Password:*

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

## Setup submenu: Exit




Options summary: (***default setting***)

| | | |
|---|---|---|
| Save Changes and Reset | | |
| Reset the system after saving the changes | | |
| Discard Changes and Reset | | |
| Reset system setup without saving any changes | | |
| Restore Defaults | | |
| Restore/Load Default values for all the setup options. | | |

| | | |
|---|---|---|
| Save as User Defaults | | |
| Save the changes done so far as User Defaults | | |
| Restore User Defaults | | |
| Restore the User Defaults to all the setup options | | |
| Boot Override | | |
| Boot to specified device. | | |

Chapter

4

# Driver Installation

The GENE-A55E comes with a DVD-ROM that contains all drivers and utilities that meet your needs.

***Follow the sequence below to install the drivers:***

Step 1 – Install Chipset Driver

Step 2 – Install LAN Driver

Step 3 – Install Audio Driver

Step 4 – Install AHCI Driver (Optional)

Step 5 – Install PCI to ISA Bridge Driver

Step 6 – Serial Port Driver (Optional)

## 4.1 Installation:

Insert the GENE-A55E DVD-ROM into the DVD-ROM Drive. And install the drivers from Step 1 to Step 6 in order.

Step 1 – Install Chipset Driver

1. Click on the ***STEP1 - CHIPSET*** folder and select the OS folder according to your operating system.
2. Double click on the ***Setup.exe*** file located in the folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install LAN Driver

1. Click on the ***STEP2 - LAN*** folder and select the OS folder according to your operating system.
2. Double click on the ***Setup.exe*** file located in the folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 3 – Install Audio Driver

1. Click on the ***STEP3 - AUDIO*** folder and select the OS folder according to your operating system.
2. Double click on the ***Setup.exe*** file located in the folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 4 – Install AHCI Driver (Optional)

This driver is needed when installing Windows XP with SATA in AHCI mode. Please refer to Appendix D AHCI Settings

Step 5 – Install PCI to ISA Bridge Driver

Click on **Start** button.

2. Click on **Settings** button
3. Click on **Control Panel** button
4. Click on **System** button
5. Select **Hardware** and click on **Device Manager**…
6. Double click on **Other PCI Bridge Device**
7. Click on **Update Driver**…
8. Click on **Next**
9. Select **Search for a suitable driver**…, then click on **Next**
10. Select **Specify a location**, then click on **Next**
11. Click on **Browse**
12. Select "**Ite**" file from DVD-ROM (**Driver/ STEP5 - PCI to ISA Bridge**) then click on **open**
13. Click on **OK**
14. Click on **Next**
15. Click on **Yes**
16. Click on **Finish**

Step 6 – Serial Port Driver (Optional)

Please refer to ***readme.txt*** in the ***STEP6- Serial Port Driver (Optional)*** folder.

Appendix

A

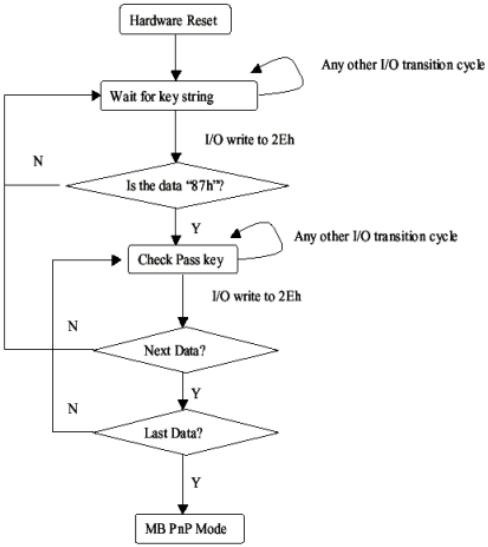
# Programming the Watchdog Timer

## A.1 Programming

GENE-A55E utilizes FINTEK 81866 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

### Configuring Sequence Description

After the hardware reset or power-on reset, the FINTEK 81866 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit ) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

**(1) Enter the MB PnP Mode**

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write opera-tions to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

```
-o 4e 87
-o 4e 87          ( enable configuration )
```

**(2) Modify the Data of the Registers**

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

**(3) Exit the MB PnP Mode**

Write exit key 0xAA to the index port.

```
-o 4e aa          ( disable configuration )
```

## Watch Dog Timer 1, 2, 3 Control Register (Index=F5h,F6h,FAh Default=00h)

### 7.8.4 Watchdog Control Configuration Register 1 — Index F5h

| Bit | Name | R/W | Reset | Default | Description |
|---|---|---|---|---|---|
| 7 | Reserved | R | - | 0 | Reserved |
| 6 | WDTMOUT_STS | R/W | 5VSB | 0 | If watchdog timeout event occurred, this bit will be set to 1. Write a 1 to this bit will clear it to 0. |
| 5 | WD_EN | R/W | 5VSB | 0 | If this bit is set to 1, the counting of watchdog time is enabled. |
| 4 | WD_PULSE | R/W | 5VSB | 0 | Select output mode (0: level, 1: pulse) of RSTOUT# by setting this bit. |
| 3 | WD_UNIT | R/W | 5VSB | 0 | Select time unit (0: 1sec, 1: 60 sec) of watchdog timer by setting this bit. |
| 2 | WD_HACTIVE | R/W | 5VSB | 0 | Select output polarity of RSTOUT# (1: high active, 0: low active) by setting this bit. |
| 1-0 | WD_PSWIDTH | R/W | 5VSB | 0 | Select output pulse width of RSTOUT#<br>0: 1 ms 1: 25 ms<br>2: 125 ms 3: 5 sec |

### 7.8.5 Watchdog Timer Configuration Register 2 — Index F6h

| Bit | Name | R/W | Reset | Default | Description |
|---|---|---|---|---|---|
| 7-0 | WD_TIME | R/W | 5VSB | 0 | Time of watchdog timer (0~255) |

### 7.8.6 Watchdog PME Enable Configuration Register 2 — Index FAh

| Bit | Name | R/W | Reset | Default | Description |
|---|---|---|---|---|---|
| 7 | WDT_PME | R | 5VSB | 0 | 0: No WDT PME occurred.<br>1: WDT PME occurred.<br>The WDT PME is occurred one unit before WDT timeout. |
| 6 | WDT_PME_EN | R/W | 5VSB | 0 | 0: Disable Watchdog PME.<br>1: enable Watchdog PME. |
| 5 | Reserved | R | - | 0 | Reserved |
| 4 | WDT_CLK_SEL | R/W | 5VSB | 1 | WDT Clock Source Select<br>0: Internal 1KHz clock.<br>1: 1KHZ clock driven by CLKIN. |
| 3-1 | Reserved | R | - | 0 | Reserved |
| 0 | WDOUT_EN | R/W | 5VSB | 0 | 0: disable Watchdog time out output via WDTRST#.<br>1: enable Watchdog time out output via WDTRST#. |

## A.2 F81866 Watchdog Timer Initial Program

```
Main(){
aaeonSuperIOOpen();
aaeonWdtSetCountMode(BOOL bMinute); // Set wdt count mode
aaeonWdtSetTimeoutCount(BYTE tTimeout); // Set wdt timer
aaeonWdtSetEnable(BOOL bEnable); // Enable wdt
aaeonSuperIOClose();
}

Void aaeonSuperIOOpen(){    // Config F81866 Entry key
        aaeonioWritePortByte(F81866_INDEX, 0x87);
        aaeonioWritePortByte(F81866_INDEX, 0x87);
}

Void aaeonWdtSetCountMode(BOOL bMinute){
   BYTE WDT_CONTROL = f81866ReadByte(F81866_WDT_CONTROL_REG);
   if(bMinute)
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL | 0x08);
   else
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL & 0xF7);
}
```

```
Void aaeonWdtSetTimeoutCount(BYTE tTimeout){
   f81866SetLdn(0x07);
   f81866WriteByte(F81866_WDT_TIME_REG, tTimeout);
}

Void aaeonWdtSetEnable(BOOL bEnable){
   f81866SetLdn(0x07);
   if(bEnable){
        f81866WriteByte(0x30, 0x01);
        WDT_BASE_ADDR =
        (f81866ReadByte(F81866_WDT_BASEADDR_REG_MSB) << 8)
        | f81866ReadByte(F81866_WDT_BASEADDR_REG_LSB);
        WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS | 0x20);
        WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);
        f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS | 0x01);
   }else{
        f81866WriteByte(0x30, 0x00);
        WDT_BASE_ADDR = 0;
        WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS & 0xDF);
        WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);
        f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS & 0xFE);
   }
}
```

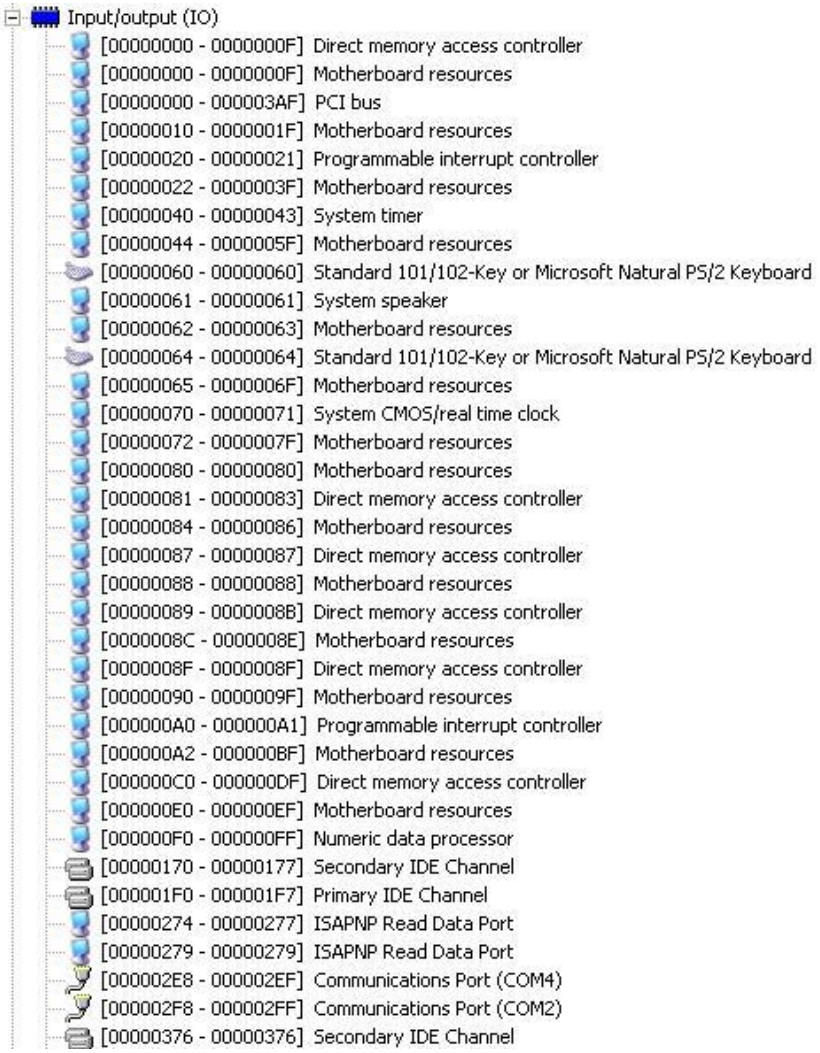
```
Void aaeonSuperIOClose(){
        aaeonioWritePortByte(F81866_INDEX, 0xaa);
}
```

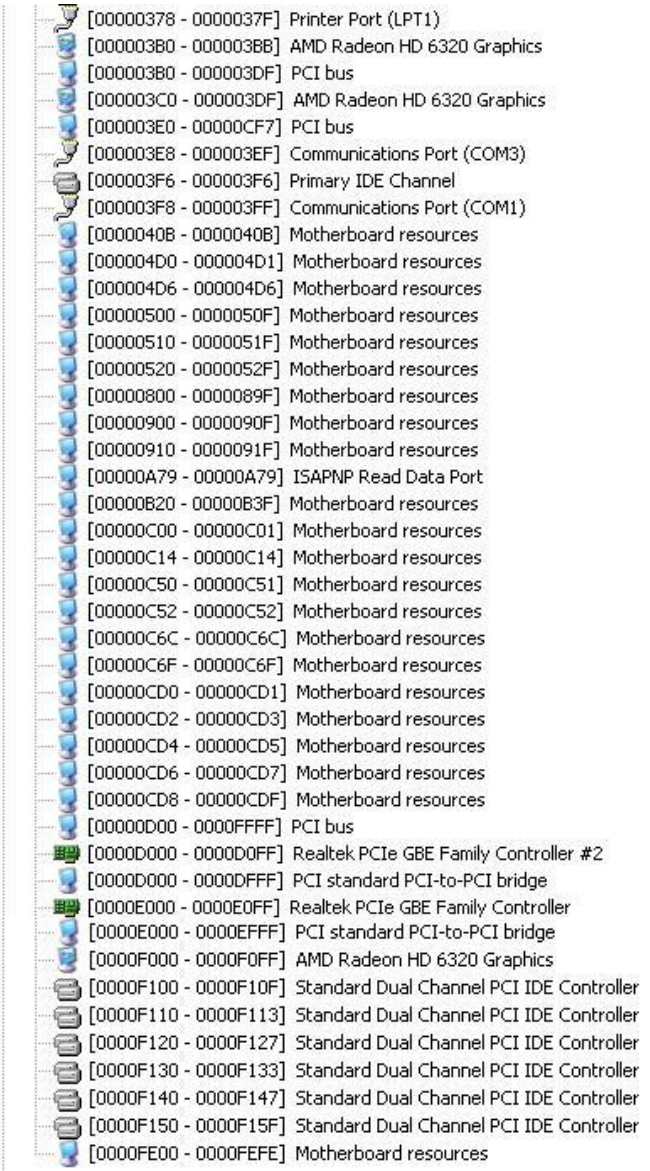
Appendix

B

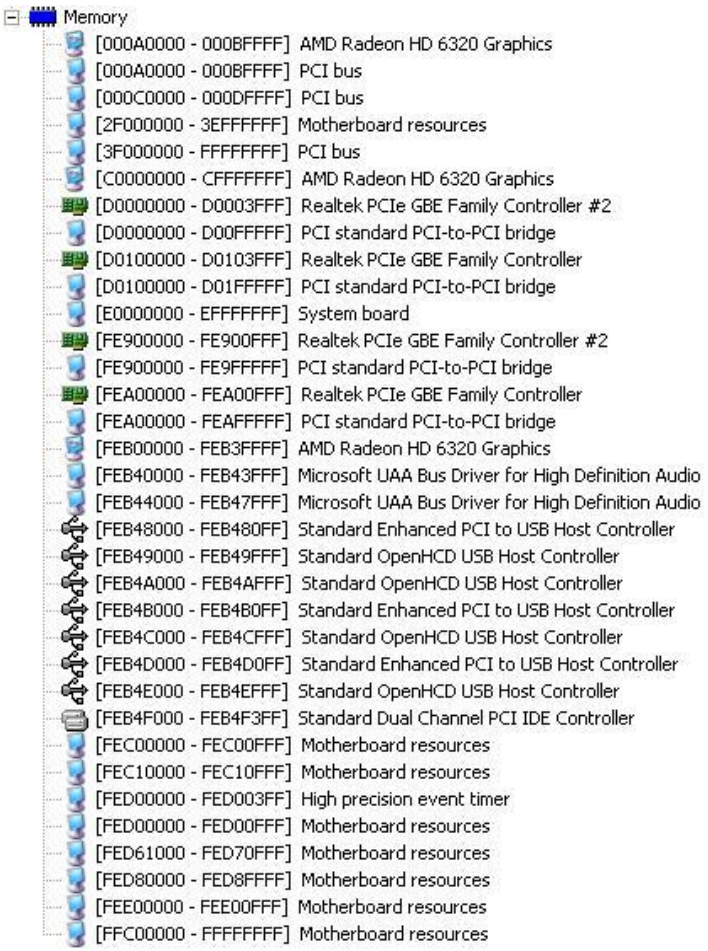
# I/O Information

## B.1 I/O Address Map



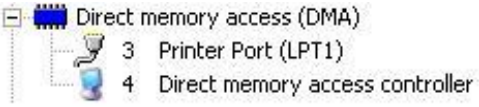

[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] AMD Radeon HD 6320 Graphics
[000003B0 - 000003DF] PCI bus
[000003C0 - 000003DF] AMD Radeon HD 6320 Graphics
[000003E0 - 00000CF7] PCI bus
[000003E8 - 000003EF] Communications Port (COM3)
[000003F6 - 000003F6] Primary IDE Channel
[000003F8 - 000003FF] Communications Port (COM1)
[0000040B - 0000040B] Motherboard resources
[000004D0 - 000004D1] Motherboard resources
[000004D6 - 000004D6] Motherboard resources
[00000500 - 0000050F] Motherboard resources
[00000510 - 0000051F] Motherboard resources
[00000520 - 0000052F] Motherboard resources
[00000800 - 0000089F] Motherboard resources
[00000900 - 0000090F] Motherboard resources
[00000910 - 0000091F] Motherboard resources
[00000A79 - 00000A79] ISAPNP Read Data Port
[00000B20 - 00000B3F] Motherboard resources
[00000C00 - 00000C01] Motherboard resources
[00000C14 - 00000C14] Motherboard resources
[00000C50 - 00000C51] Motherboard resources
[00000C52 - 00000C52] Motherboard resources
[00000C6C - 00000C6C] Motherboard resources
[00000C6F - 00000C6F] Motherboard resources
[00000CD0 - 00000CD1] Motherboard resources
[00000CD2 - 00000CD3] Motherboard resources
[00000CD4 - 00000CD5] Motherboard resources
[00000CD6 - 00000CD7] Motherboard resources
[00000CD8 - 00000CDF] Motherboard resources
[00000D00 - 0000FFFF] PCI bus
[0000D000 - 0000D0FF] Realtek PCIe GBE Family Controller #2
[0000D000 - 0000DFFF] PCI standard PCI-to-PCI bridge
[0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller
[0000E000 - 0000EFFF] PCI standard PCI-to-PCI bridge
[0000F000 - 0000F0FF] AMD Radeon HD 6320 Graphics
[0000F100 - 0000F10F] Standard Dual Channel PCI IDE Controller
[0000F110 - 0000F113] Standard Dual Channel PCI IDE Controller
[0000F120 - 0000F127] Standard Dual Channel PCI IDE Controller
[0000F130 - 0000F133] Standard Dual Channel PCI IDE Controller
[0000F140 - 0000F147] Standard Dual Channel PCI IDE Controller
[0000F150 - 0000F15F] Standard Dual Channel PCI IDE Controller
[0000FE00 - 0000FEFE] Motherboard resources

## B.2 1st MB Memory Address Map



## B.3 IRQ Mapping Chart


## B.4 DMA Channel Assignments



Appendix

C

# Mating Connector

## C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

| Connector Label | Function | Mating Connector | | Available Cable | Cable P/N |
|---|---|---|---|---|---|
| | | Vendor | Model no | | |
| CN23 | System Fan Connector | Molex | 22-01-2035 | N/A | N/A |
| CN9 | External +5VSB Power Input and PS_ON# | Catch Electronics | 2418HJ-06 | ATX Cable | 1702200205 |
| CN7 | 4P Power Connnector | Neltron | 8980-04 | Dual 4P Power Cable | 170204010A |
| CN13 | Digital I/O Connector | Neltron | 2026B-10 | N/A | N/A |
| CN4 | LPT Port | PINREX | 52A-90-26GB00 | LPT Cable | 1701260200 |
| CN20 | COM Port 2 Connector | PINREX | 52A-90-10GB00 | Serial Port Cable | 1701100206 |
| CN19 | COM Port 3 Connector | PINREX | 52A-90-10GB00 | Serial Port Cable | 1701100206 |
| CN18 | COM Port 4 Connector | PINREX | 52A-90-10GB00 | Serial Port Cable | 1701100206 |
| CN5 | USB Port | Neltron | 2026B-10 | USB Cable | 1709100201 |

| | | | | | |
|---|---|---|---|---|---|
| | Connector | | | | |
| CN6 | USB Port Connector | Neltron | 2026B-10 | USB Cable | 1709100201 |
| CN3 | Audio Connector | PINREX | 52A-90-14GB00 | Audio Cable | 1700140510 |
| CN1 | +5Vout Connector | PINREX | 721-81-02TW00 | 2 Pins For HDD Power | 1702150155 |
| CN22 | LVDS Inverter Connector | PINREX | 721-81-05TW00 | N/A | N/A |
| CN21 | LVDS Connector | HIROSE | DF13-30DS-1.25C | N/A | N/A |
| CN30 | Mini-Din PS/2 Connector | Catch Electronics | MD06F011 121 | Keyboard & Mouse Cable | 1700060192 |
| CN12 | External RTC Connector | Molex | 51021-0200 | Battery Cable | 175011901C |

Appendix

D

# AHCI Settings

## D.1 Setting AHCI

OS installation to SETUP AHCI Mode

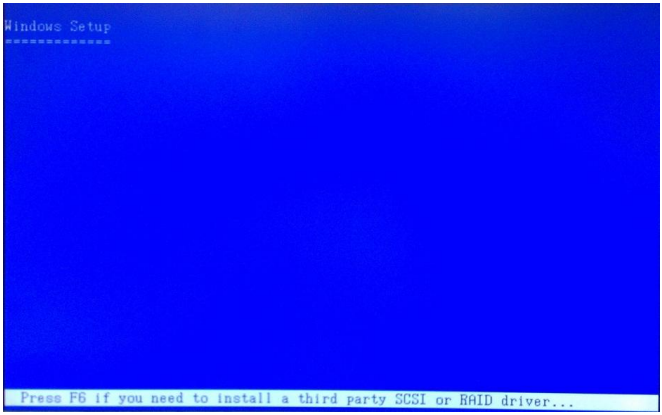
Step 1: Copy files from “Driver DVD -> Step4 – AHCI(Optional)\WinXP_32” to diskette.


Step 2: Connect the USB Floppy drive to the board and insert the diskette from previous step.

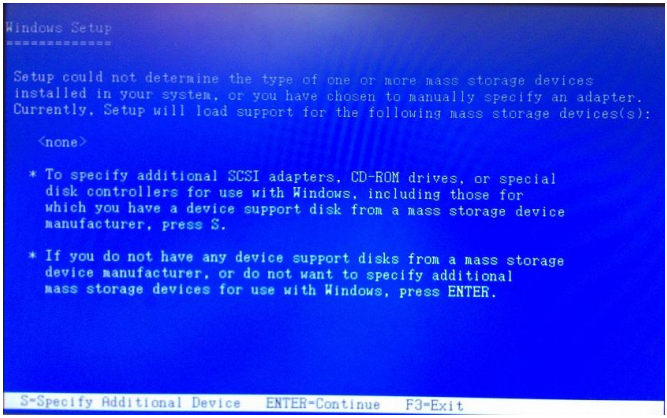
Step 3: Configure SATA Controller to AHCI mode in **BIOS SETUP**

Step 4: Boot to DVD/CD-ROM device to install OS

Step 5: Press **“F6”** to install AHCI driver




Step 6: Press **“S”** to install AHCI driver




Step 7: Choose **"AMD AHCI Compatible RAID Controller-x86 platform"** for Windows XP 32-bit system; **"AMD AHCI Compatible RAID Controller-x64 platform"** for Windows XP 64-bit system.

Step 8: Windows Setup will display the controller name you selected in previous step and continue to install OS when **"ENTER"** pressed.