

## **GENE-CV05**

Intel® Atom™ D2550/N2800/N2600

Processor

With LVDS

10/100/1000Base-TX Ethernet

1 Mini Card, LPC

6 USB2.0, 6 COM

2CH HD Audio + 2W Amplifier

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## Packing List

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

- GENE-CV05 CPU Card with Active Cooler (Intel® Atom™ D2550 version) or Passive Heatsink (Intel® Atom™ N2800/N2600 version)
- 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

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AAEON, a leading embedded boards manufacturer, is pleased to announce the debut of their new generation 3.5" SubCompact Board — GENE-CV05.

GENE-CV05 adopts Intel® Atom™ D2550/N2800/N2600 Processor. The system memory is deployed with 204-pin SODIMM DDR3 800/1066 up to 4 GB for Intel® Atom™ D2550 /N2800 processor and up to 2 GB for Intel® Atom™ N2600 Processor. In addition, Realtek RTL8111E supports two 10/100/1000Base-TX that allows a faster network connections.

The display of GENE-CV05 supports CRT/LCD, DVI/LCD simultaneous and dual view displays. This model applies one Mini Card and LPC bus for flexible expansions. Moreover, one SATA 3.0Gb/s and one CFast™ provide a better storage. Six USB2.0, six COM Ports (five RS-232, one RS-232/422/485) and 8-bit digital I/O are configured on the GENE-CV05 as well. Full functions make GENE-CV05 user friendly. 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

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- Onboard Intel® Atom™ D2550/N2800/N2600 Processor
- Intel® NM10
- DDR3 800/1066 SODIMM , Max. 4 GB for Intel® Atom™ D2550/N2800 Processor, and Max. 2 GB for Intel® Atom™ N2600 Processor
- Gigabit Ethernet x 2
- CRT, 24-bit Single Channel LVDS LCD +18/24-bit Dual Channel LVDS LCD for Intel® Atom™ D2550 Processor; 18-bit Single Channel LVDS LCD+ 18/24-bit Dual Channel LVDS LCD for Intel® Atom™ N2800/N2600 Processor
- 2CH HD Audio + 2W Amplifier
- SATA 3.0Gb/s x 1, CFAST™ x 1
- USB2.0 x 6, COM x 6 , 8-bit Digital I/O, Parallel x 1 (Optional)
- Onboard 4/5/8-wire Resistive Touch Screen Controller
- Mini Card x 1
- +12V Only Operation
- Onboard Trusted Platform Module (Optional)
- mSATA x 1 (Optional, if you choose mSATA, the functions of Mini Card & CFAST™ will be disabled.)

## 1.3 Specifications

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### System

- Processor Intel® Atom™  
D2550/N2800/N2600 Processor
- System Memory 204-pin DDR3 SODIMM x 1,  
Max. 4 GB (DDR3 800/1066) for  
Intel® Atom™D2550/N2800;  
Max. 2 GB (DDR3 800/1066) for  
Intel® Atom™N2600
- Chipset Intel® NM10
- I/O Chipset ITE 8783
- Ethernet Realtek RTL8111E,  
10/100/1000Base-TX, RJ-45 x 2
- BIOS AMI BIOS SPI type, 4MB ROM
- Wake On LAN Yes
- Watchdog Timer Generates a time-out system  
reset
- H/W Status Monitoring Supports power supply  
voltages and temperature  
monitoring
- Expansion Interface Mini Card x 1, LPC bus
- Power Requirement +12V, AT/ATX
- Trusted Platform Infineon SLB 9635 TT 1.2  
Module (TPM) (Optional)

- Battery Lithium battery
- Board Size 5.75"(L) x 4"(W) (146mm x 101.6mm)
- Gross Weight 0.88 lb (0.4 Kg)
- Operating Temperature 32°F~140°F (0°C ~ 60°C)  
WiTAS2: -40°F~185°F (-40°C ~ 85°C) (GENE-CV05W2-A10-13)
- Storage Temperature -40°F~ 176°F (-40°C ~ 80°C)
- Operating Humidity 0%~90% relative humidity, non-condensing

***Display: Supports CRT/LCD, DVI/LCD, simultaneous and dual view displays***

- Chipset Intel® Atom™D2550/ N2800/ N2600 integrated
- Memory Shared system memory up to 256 MB
- LCD Interface LCD Interface Dual LVDS  
LCDs: 24-bit Single Channel LVDS LCD + 18/24-bit Dual channel LVDS LCD for Intel® Atom™D2550; 18-bit Single Channel LVDS LCD + 18/24-bit Dual Channel LVDS LCD for Intel® Atom™N2800/N2600

- Resolution Up to 1920 x 1200 for CRT;  
Up to 1366 x 768 for LCD;  
Up to 1920 x 1200 for LCD  
(TF-GENE-CV05-A10-14 Only)

**I/O**

- Storage SATA 3.0Gb/s x 1, CFast™ x 1
- Serial Port RS-232 x 5, RS-232/422/485  
(auto flow) x 1 (the baud rate of  
the serial port should be 9600  
during high temperature  
operation)
- Parallel Port SPP/EPP/ECP x 1 (Optional)
- USB Port USB2.0 x 6
- PS/2 Port Keyboard x 1, Mouse x 1
- Digital I/O Supports 8-bit (Programmable)
- Audio MIC-in, Line-in, Line-out
- Touch Screen Supports 4/5/8-wire resistive  
touch screen

**Note:** (1) If you choose Parallel Port, the COM6 will be removed  
from the GENE-CV05.

(2) Dose not support RC-D (2Rx16 dual die), and  
RC-E(2Rx16) DDR3 SODIMM momery.

(3) Max memory size by sku: N2600 series 2GB; N2800,

D2550 series 4GB.

Chapter

2

**Quick  
Installation  
Guide**



## 2.1 Safety Precautions

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**Warning!**

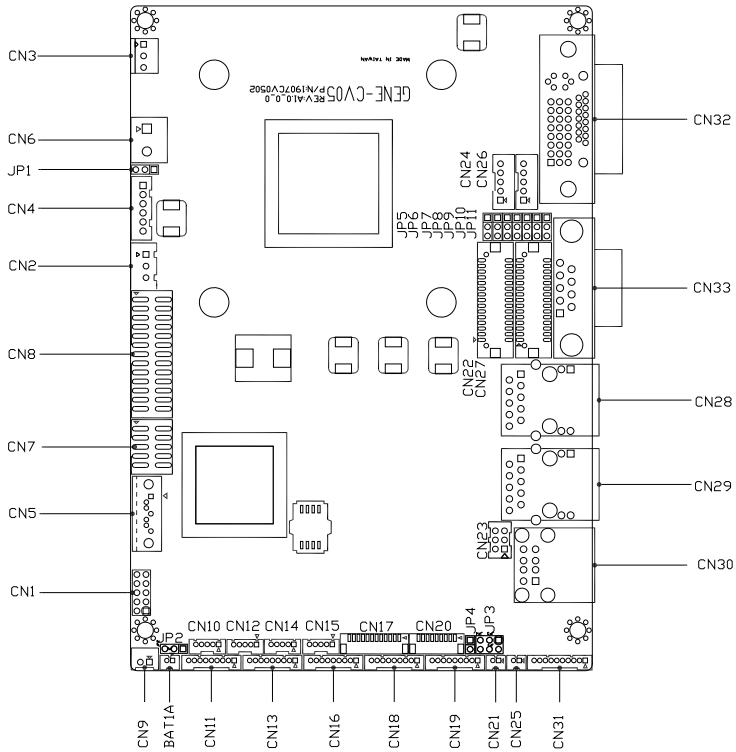
*Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.*

**Caution!**

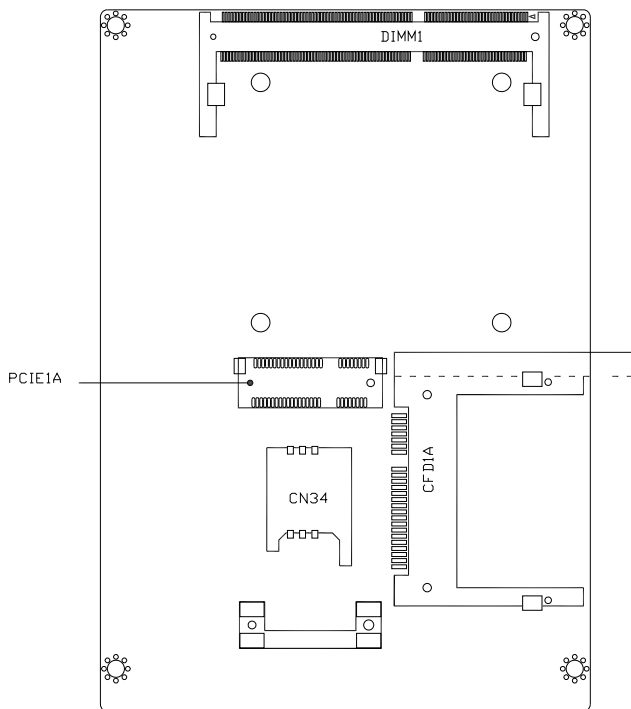
*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

## 2.2 Location of Connectors and Jumpers

### Component Side

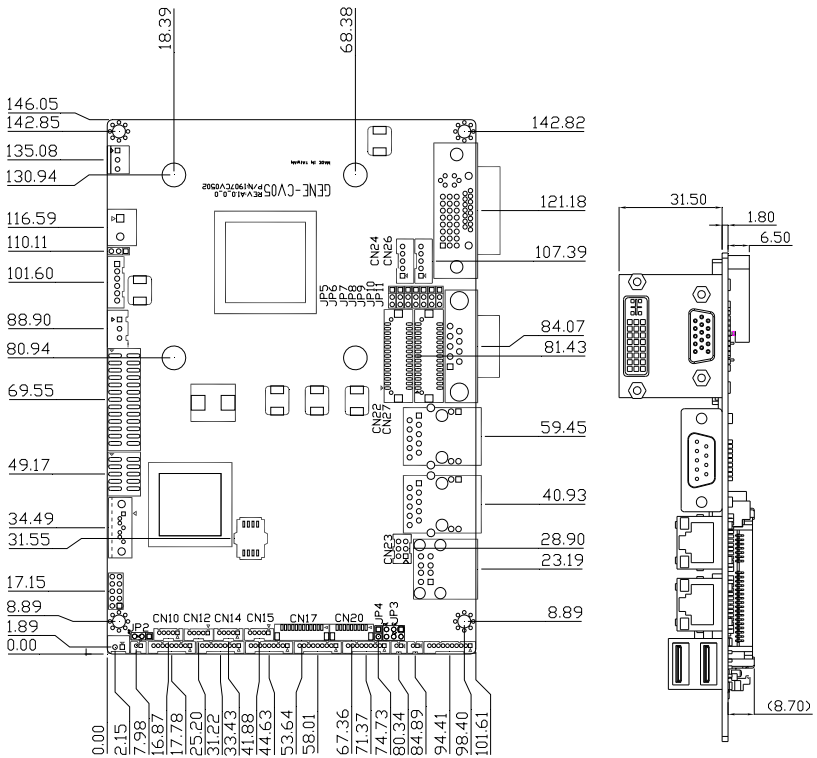


Solder Side

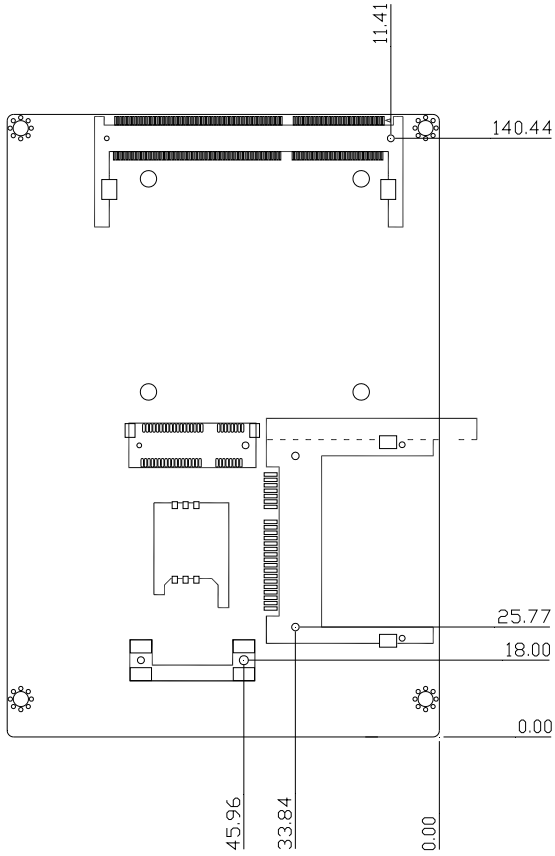


## 2.3 Mechanical Drawing

### Component Side



Solder Side



## 2.4 List of Jumpers

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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:

<b>Label</b>	<b>Function</b>
JP1	Auto Power Button Selection
JP2	Clear CMOS
JP3	COM2 RI/+5/+12V Selection
JP4	Touch Screen 4/5/8-wires Mode Selection
JP5	Brightness Control for 2 <sup>nd</sup> LVDS
JP6	2 <sup>nd</sup> LVDS Backlight Bias/PWM Mode Selection
JP7	2 <sup>nd</sup> LVDS Operating Voltage Selection
JP8	2 <sup>nd</sup> LVDS Inverter Voltage Selection
JP9	1 <sup>st</sup> LVDS Inverter Voltage Selection
JP10	1 <sup>st</sup> LVDS Backlight Bias/PWM Mode Selection
JP11	1 <sup>st</sup> LVDS Operating Voltage 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:

<b>Label</b>	<b>Function</b>
CN1	Front Panel
CN2	External +5VSB Input
CN3	CPU FAN
CN4	+5VSB Output w/ SMBus
CN5	SATA Port
CN6	External 12V Input
CN7	Digital I/O
CN8	Parallel Port
CN9	+5V Output for SATA HDD using
CN10	USB Port #6
CN11	COM Port #6
CN12	USB Port #5
CN13	COM Port #5
CN14	USB Port #4
CN15	USB Port #3
CN16	COM Port #4
CN17	LPC Expansion I/F
CN18	COM Port #3

CN19	COM Port #2
CN20	Touch Screen
CN21	Stereo-R Channel
CN22	2 <sup>nd</sup> LVDS (Dual channel 18/24bit)
CN23	PS/2 Keyboard & Mouse
CN24	2 <sup>nd</sup> LVDS Inverter
CN25	Stereo-L Channel
CN26	1 <sup>st</sup> LVDS Inverter
CN27	1 <sup>st</sup> LVDS (Single channel 18/24bit)
CN28	2 <sup>nd</sup> RJ-45 Ethernet
CN29	1 <sup>st</sup> RJ-45 Ethernet
CN30	USB Port #1 and #2
CN31	Audio Line In/Out and MIC
CN32	CRT/DVI (Configured by manufacturing)
CN33	COM Port #1
CN34	SIM Card Socket
CFD1	CFAST™
PCIE1	Mini Card/mSATA (Configured by manufacturing)
DIMM1	DDR3 SODIMM Slot

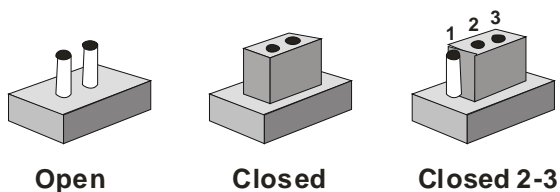


## 2.6 Setting Jumpers

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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.



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 Auto Power Button Selection (JP1)

---

JP1	Function
1-2	Enable(Default)
2-3	Disable

## 2.8 Clear CMOS (JP2)

---

JP2	Function
1-2	Normal (Default)
2-3	Clear CMOS

## 2.9 COM2 RI/+5V/+12V Selection (JP3)

---

JP3	Function
1-2	+12V
3-4	RI (Default)
5-6	+5V

**Note:** Max. Current rating is 0.5A.

## 2.10 Touch Screen 4/5/8-wire Mode Selection (JP4)

---

JP4	Function
1-2	4/8-wire (Default)
Open	5-wire

## 2.11 Brightness Control for 2<sup>nd</sup> LVDS (JP5)

---

JP5	Function
1-2	Brightness Up
2-3	Brightness Down

**Note:** Controlled by triggering UP or DOWN.

### 2.12 2<sup>nd</sup> LVDS Backlight Bias/PWM Mode Selection (JP6)

---

JP6	Function
1-2	Bias (Default)
2-3	PWM Control

### 2.13 2<sup>nd</sup> LVDS Operating Voltage Selection (JP7)

---

JP7	Function
1-2	+5V
2-3	+3.3V (Default)

**Note:** Max. Current rating is 2A.

### 2.14 2<sup>nd</sup> LVDS Inverter Voltage Selection (JP8)

---

JP8	Function
1-2	+12V
2-3	+5V (Default)

**Note:** Max. Current rating is 1A.

### 2.15 1<sup>st</sup> LVDS Inverter Voltage Selection (JP9)

---

JP9	Function
1-2	+12V
2-3	+5V (Default)

**Note:** Max. Current rating is 1A.

### 2.16 1<sup>st</sup> LVDS Backlight Bias/PWM Mode Selection (JP10)

---

JP10	Function
1-2	Bias (Default)
2-3	PWM Control

## 2.17 1<sup>st</sup> LVDS Operating Voltage Selection (JP11)

---

JP11	Function
1-2	+5V
2-3	+3.3V (Default)

**Note:** Max. Current rating is 2A.

## 2.18 Front Panel (CN1)

---

Pin	Signal
(-) 1-2 (+)	ATX Power-on Button
(-) 3-4 (+)	HDD Active LED
(-) 5-6 (+)	External Speaker
(-) 7-8 (+)	Power LED
(-) 9-10 (+)	System Reset Button

## 2.19 External +5VSB Input (CN2)

---

Pin	Signal
1	PSON#
2	Ground
3	+5 Volt. Standby

**Note:** Max. Current rating is 2A.

## 2.20 CPU Fan Connector (CN3)

---

Pin	Signal
1	Ground
2	+12 Volt.
3	FAN Sense

## 2.21 +5VSB Output w/SMBUS (CN4)

---

Pin	Signal
1	SMBDATA
2	Ground
3	SMBCLK
4	Ground
5	PSON#
6	+5 Volt. Standby

## 2.22 SATA Port (CN5)

---

Pin	Signal
1	Ground
2	TX0+
3	TX0-
4	Ground
5	RX0-
6	RX0+
7	Ground

## 2.23 External 12V Input (CN6)

---

DC terminal

Pin	Signal
1	+12 Volt.
2	Ground

**Note:** Max. Current rating is 4A.

## 2.24 Digital I/O Connector (CN7)

I2C Address: 0x6Eh

Pin	Signal	Pin	Signal
1	Port 1	2	Port 2
3	Port 3	4	Port 4
5	Port 5	6	Port 6
7	Port 7	8	Port 8
9	+3.3 Volt.	10	Ground

BIOS Setting (I2C address)	Connector Definition	Address(Register)		F75111 GPIO Setting
		Output	Input	
Port 1 @6Eh	Pin 1	21h/Bit 0	22h/Bit 0	U44 Pin 6 (GPIO 20)
Port 2 @6Eh	Pin 2	21h/Bit 1	22h/Bit 1	U44 Pin 7 (GPIO 21)
Port 3 @6Eh	Pin 3	21h/Bit 2	22h/Bit 2	U44 Pin 8 (GPIO 22)
Port 4 @6Eh	Pin 4	21h/Bit 3	22h/Bit 3	U44 Pin 24(GPIO 23)
Port 5 @6Eh	Pin 5	21h/Bit 4	22h/Bit 4	U44 Pin 23(GPIO 24)
Port 6 @6Eh	Pin 6	21h/Bit 5	22h/Bit 5	U44 Pin 22(GPIO 25)
Port 7 @6Eh	Pin 7	21h/Bit 6	22h/Bit 6	U44 Pin 21(GPIO 26)
Port 8 @6Eh	Pin 8	21h/Bit 7	22h/Bit 7	U44 Pin 20(GPIO 27)

## 2.25 Parallel Port Connector (CN8) (Optional)

Pin	Signal	Pin	Signal
1	STB	2	AFD#
3	D0	4	ERROR#
5	D1	6	PINIT#
7	D2	8	SLIN#

9	D3	10	Ground
11	D4	12	Ground
13	D5	14	Ground
15	D6	16	Ground
17	D7	18	Ground
19	ACK#	20	Ground
21	BUSY	22	Ground
23	PE	24	Ground
25	SLCT	26	N/C

## 2.26 +5V Output for SATA HDD Usage (CN9)

Pin	Signal
1	+5 Volt.
2	Ground

**Note:** Max. Current rating is 1A.

## 2.27 USB Port #6 (CN10)

Pin	Signal
1	+5 Volt. Standby
2	Data5-
3	Data5+
4	Ground
5	Ground

## 2.28 COM Port #6 (CN11)

Pin	Signal	Pin	Signal
1	DCDF	2	DSRF
3	RXF	4	RTSF

5	TXF	6	CTSF
7	DTRF	8	RIF
9	Ground	10	N/C

### 2.29 USB Port #5 (CN12)

Pin	Signal
1	+5 Volt. Standby
2	Data4-
3	Data4+
4	Ground
5	Ground

### 2.30 COM Port #5 (CN13)

Pin	Signal	Pin	Signal
1	DCDE	2	DSRE
3	RXE	4	RTSE
5	TXE	6	CTSE
7	DTRE	8	RIE
9	Ground	10	N/C

### 2.31 USB Port #4 (CN14)

Pin	Signal
1	+5 Volt. Standby
2	Data3-
3	Data3+
4	Ground
5	Ground



**2.32 USB Port #3 (CN15)**


---

Pin	Signal
1	+5 Volt. Standby
2	Data2-
3	Data2+
4	Ground
5	Ground

**2.33 COM Port #4 (CN16)**


---

Pin	Signal	Pin	Signal
1	DCDD	2	DSRD
3	RXD	4	RTSD
5	TXD	6	CTSD
7	DTRD	8	RID
9	Ground	10	N/C

**2.34 LPC Expansion I/F (CN17)**


---

Pin	Signal
1	LAD0
2	LAD1
3	LAD2
4	LAD3
5	+3.3 Volt.
6	LFRAME#
7	LRESET#
8	Ground
9	LPC_CLK

10	LDRQ#0
11	LDRQ#1
12	SERIRQ

### 2.35 COM Port #3 (CN18)

Pin	Signal	Pin	Signal
1	DCDC	2	DSRC
3	RXC	4	RTSC
5	TXC	6	CTSC
7	DTRC	8	RIC
9	Ground	10	N/C

### 2.36 COM Port #2 (CN19)

#### RS-232 Mode

Pin	Signal	Pin	Signal
1	DCDB	2	DSRB
3	RXB	4	RTSB
5	TXB	6	CTSB
7	DTRB	8	RIB / +5 Volt. / (+12 Volt.)
9	Ground	10	N/C

#### RS-422 Mode

Pin	Signal	Pin	Signal
1	TXD-	2	N/C
3	RXD+	4	N/C
5	TXD+	6	N/C
7	RXD-	8	N/C / +5 Volt. / (+12 Volt.)
9	Ground	10	N/C

**RS-485 Mode**

Pin	Signal	Pin	Signal
1	TXD-	2	N/C
3	N/C	4	N/C
5	TXD+	6	N/C
7	N/C	8	N/C / +5 Volt. / (+12 Volt.)
9	Ground	10	N/C

**2.37 Touch Screen (CN20)**

Pin	8-wire Signal	4-wire Signal	5-wire Signal
1	Ground	Ground	Ground
2	Top Excite	Top	UL(Y)
3	Bottom Excite	Bottom	UR(H)
4	Left Excite	Left	LL(L)
5	Right Excite	Right	LR(X)
6	Top Sense	N/C	SENSE
7	Bottom Sense	N/C	N/C
8	Left Sense	N/C	N/C
9	Right Sense	N/C	N/C

**2.38 Stereo-R Channel (CN21)**

Pin	Signal
1	R+
2	R-

**2.39 2<sup>nd</sup> LVDS Output Dual Channel 18/24-bit (CN22)**

Pin	Signal	Pin	Signal
1	2 <sup>nd</sup> Back-Light Enable	2	2 <sup>nd</sup> Back-Light Control

3	2 <sup>nd</sup> LCD Volt.	4	Ground
5	LB_CLK#	6	LB_CLK
7	2 <sup>nd</sup> LCD Volt.	8	Ground
9	LB_DATA#_0	10	LB_DATA_0
11	LB_DATA#_1	12	LB_DATA_1
13	LB_DATA#_2	14	LB_DATA_2
15	LB_DATA#_3	16	LB_DATA_3
17	2 <sup>nd</sup> LVD_DDCDAT	18	2 <sup>nd</sup> LVD_DDCCLK
19	LC_DATA#_0	20	LC_DATA_0
21	LC_DATA#_1	22	LC_DATA_1
23	LC_DATA#_2	24	LC_DATA_2
25	LC_DATA#_3	26	LC_DATA_3
27	2 <sup>nd</sup> LCD Volt.	28	Ground
29	LC_CLK#	30	LC_CLK

#### 2.40 PS/2 Keyboard and Mouse Connector (CN23)

Pin	Signal	Pin	Signal
1	Keyboard Data	2	Keyboard Clock
3	Ground	4	+5 Volt.
5	Mouse Data	6	Mouse Clock

#### 2.41 2<sup>nd</sup> LVDS Inverter (CN24)

Pin	Signal
1	+5 Volt. / +12 Volt.
2	2 <sup>nd</sup> Brightness Control (Controlled by CH7511B)
3	Ground
4	Ground
5	2 <sup>nd</sup> Backlight Enable (Controlled by CH7511B)

**Note:** Max. Current rating is 1A.

## 2.42 Stereo-L Channel Inverter (CN25)

Pin	Signal
1	L+
2	L-

## 2.43 1<sup>st</sup> LVDS Inverter (CN26)

Pin	Signal
1	+5 Volt. / +12 Volt.
2	1 <sup>st</sup> Brightness Control (Controlled by Cedarview)
3	Ground
4	Ground
5	1 <sup>st</sup> Backlight Enable (Controlled by Cedarview)

**Note:** Max. Current rating is 1A.

## 2.44 1<sup>st</sup> LVDS Output-Single Channel 18/24-bit (CN27)

Pin	Signal	Pin	Signal
1	1 <sup>st</sup> Back-Light Enable	2	1 <sup>st</sup> Back-Light Control
3	1 <sup>st</sup> LCD Volt.	4	Ground
5	LA_CLK#	6	LA_CLK
7	1 <sup>st</sup> LCD Volt.	8	Ground
9	LA_DATA#_0	10	LA_DATA_0
11	LA_DATA#_1	12	LA_DATA_1
13	LA_DATA#_2	14	LA_DATA_2
15	LA_DATA#_3	16	LA_DATA_3
17	1 <sup>st</sup> LVD_DDCDAT	18	1 <sup>st</sup> LVD_DDCCLK
19	N/C	20	N/C
21	N/C	22	N/C
23	N/C	24	N/C

25	N/C	26	N/C
27	1 <sup>st</sup> LCD Volt.	28	Ground
29	N/C	30	N/C

### 2.45 2<sup>nd</sup> RJ-45 Ethernet Connector (CN28)

Pin	Signal	Pin	Signal
R1	LAN2_MDIO0+	R2	LAN2_MDIO0-
R3	LAN2_MDIO1+	R4	LAN2_MDIO1-
R5	LAN2_TCD0	R6	LAN2_TCD1
R7	LAN2_MDIO2+	R8	LAN2_MDIO2-
R9	LAN2_MDIO3+	R10	LAN2_MDIO3-
L1	LAN2_SPD100_LED	L2	LAN2_SPD1K_LED
L3	LAN2_ACT_LED	L4	+3.3 Volt.

### 2.46 1<sup>st</sup> RJ-45 Ethernet Connector (CN29)

Pin	Signal	Pin	Signal
R1	LAN1_MDIO0+	R2	LAN1_MDIO0-
R3	LAN1_MDIO1+	R4	LAN1_MDIO1-
R5	LAN1_TCD0	R6	LAN1_TCD1
R7	LAN1_MDIO2+	R8	LAN1_MDIO2-
R9	LAN1_MDIO3+	R10	LAN1_MDIO3-
L1	LAN1_SPD100_LED	L2	LAN1_SPD1K_LED
L3	LAN1_ACT_LED	L4	+3.3 Volt.

### 2.47 USB Port #1 and #2 (CN30)

Pin	Signal	Pin	Signal
1	+5 Volt. Standby	5	+5 Volt. Standby
2	Data0-	6	Data1-

3	Data0+	7	Data1+
4	Ground	8	Ground

## 2.48 Audio Line In/Out and MIC (CN31)

Pin	Signal
1	MIC_L
2	MIC_R
3	Ground
4	Line IN_L
5	Line IN_R
6	Ground
7	Line OUT_L
8	Ground
9	Line OUT_R
10	+5 Volt.

## 2.49 DVI/CRT Display Connector (CN32) Configured by manufacturing

### DVI

Pin	Signal	Pin	Signal
C1	RED	C2	GREEN
C3	BLUE	C4	HSYNC
C5	Ground	C6	N/C
1	DVI_TDC2#	2	DVI_TDC2
3	Ground	4	DDCCLK
5	DDCDATA	6	DVI_CLK
7	DVI_DATA	8	VSYNC
9	DVI_TDC1#	10	DVI_TDC1

11	Ground	12	N/C
13	N/C	14	+5 Volt.
15	Ground	16	DVI_DET
17	DVI_TDC0#	18	DVI_TDC0
19	Ground	20	N/C
21	N/C	22	Ground
23	DVI_TLC	24	DVI_TLC#
25	Ground	26	Ground
27	N/C	28	N/C

**CRT Display**

Pin	Signal	Pin	Signal
29	DDCCLK	30	N/C
31	+5 Volt.	32	HSYNC
33	GREEN	34	Ground
35	N/C	36	Ground
37	Ground	38	VSYNC
39	BLUE	40	Ground
41	DDCDATA	42	RED
43	CRT_PLUG#		

**2.50 COM Port #1 (CN33)**

Pin	Signal	Pin	Signal
1	DCDA	2	RXA
3	TXA	4	DTRA
5	Ground	6	DSRA
7	RTSA	8	CTSA
9	RIA		



## 2.51 SIM Card Socket (CN34)

Pin	Signal	Pin	Signal
1	UIM_PWR	2	UIM_RST
3	UIM_CLK	4	Ground
5	UIM_VPP	6	UIM_DATA

## 2.52 CFast™ Disk (CFD1)

Pin	Signal
S1	Ground
S2	SATA_TX+
S3	SATA_TX-
S4	Ground
S5	SATA_RX-
S6	SATA_RX+
S7	Ground
P1	N/C
P2	Ground
P3	N/C
P4	N/C
P5	N/C
P6	N/C
P7	Ground
P8	CFD_LED#
P9	N/C
P10	N/C
P11	N/C
P12	N/C

P13	+3.3 Volt.
P14	+3.3 Volt.
P15	Ground
P16	Ground
P17	N/C

### 2.53 Mini Card/ mSATA (PCIe1)

Pin	Signal	Pin	Signal
1	PCI_E_WAKE#	2	+3.3 Volt. Standby/+3.3 Volt.
3	N/C	4	Ground
5	N/C	6	+1.5 Volt.
7	CLKREQ#	8	UIM_PWR
9	Ground	10	UIM_DATA
11	MCARD_CLK#	12	UIM_CLK
13	MCARD_CLK	14	UIM_RESET
15	Ground	16	UIM_VPP
17	N/C	18	Ground
19	N/C	20	W_DISABLE#
21	Ground	22	PCI_E_RST#
23	PCI_E_RXN/mSATA_RX+	24	+3.3 Volt. Standby/+3.3 Volt.
25	PCI_E_RXP/mSATA_RX-	26	Ground
27	Ground	28	+1.5 Volt.
29	Ground	30	SMBCLK
31	PCI_E_TXN/mSATA_TX-	32	SMBDATA
33	PCI_E_TXP/mSATA_TX+	34	Ground
35	Ground	36	USB_Data7-
37	Ground	38	USB_Data7+

---

39	+3.3 Volt. Standby/+3.3 Volt.	40	Ground
41	+3.3 Volt. Standby/+3.3 Volt.	42	N/C
43	Ground	44	N/C
45	N/C	46	N/C
47	N/C	48	+1.5 Volt.
49	N/C	50	Ground
51	N/C	52	+3.3 Volt. Standby/+3.3 Volt.

---

## 2.54 DDR3 SODIMM Slot (DIMM1)

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Standard Specification

## Below Table for China RoHS Requirements

产品中有害有毒物质或元素名称及含量

## AAEON Main Board/ Daughter Board/ Backplane

部件名称	有害有毒物质或元素					
	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	×	○	○	○	○	○
<p><b>O:</b> 表示该有害有毒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。</p> <p><b>X:</b> 表示该有害有毒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。</p> <p>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。</p>						

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 against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

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

The GENE-CV05 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it runs down.

## 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 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

Advanced BIOS Features Setup including TPM, ACPI, etc.

### Chipset

Host bridge parameters.

### Boot

Enables/disable quiet boot option.

### Security

Set setup administrator password.

### Save&Exit

Exit system setup after saving the changes.

### Note:

1. If the "**Control LVDS2 (CH7511)**" has been set "**Disable**," and then, the screen cannot be switched to LVDS2 under the OS.

2. If the "**Control LVDS2 (CH7511)**" has been set "**Enable**," and then, the screen can be switched to LVDS2 under the OS.
3. This model does not support LVDS2 output under DOS mode. So if it is a dual LVDS application, users have to enable "**Onboard LVDS 2**" on the LVDS1 panel under BIOS interface, and then, enter to the OS.
4. For LVDS1 + LVDS2 application, this model does not support scaling after entering the OS, users have to set the fixed resolution on their LCD Panel under BIOS interface, and then, enter to the OS.



## Setup Menu

### Setup submenu: Main

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Main Advanced Chipset Boot Security Save & Exit

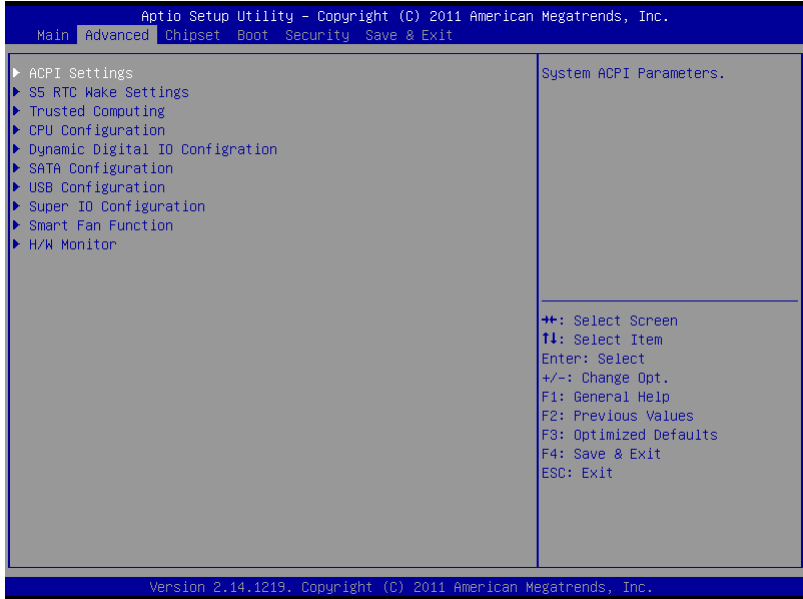
BIOS Information GENE-CV05 R1.4(GCV5AM14) (12/19/2012)	Set the Date. Use Tab to switch between Data elements.
BIOS Vendor: American Megatrends Core Version: 4.6.5.1 Compliancy: UEFI 2.3; PI 1.2	
System Date: [Thu 01/01/2009] System Time: [22:10:43]	
Access Level: Administrator	
	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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#### 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		
S5 RTC Wake Settings		
Support S5 RTC Wake Function		
Trusted Computing		
TPM Function		
CPU Configuration		
CPU Configuration Parameters		

Dynamic Digital IO Configuration		
Digital IO Configuration		
SATA Configuration		
SATA Device Options Settings		
USB Configuration		
USB Configuration Parameters		
Super IO Configuration		
IT8783 Super IO Configuration Parameters		
H/W Monitor		
Monitor hardware status		

## ACPI Settings

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Advanced

ACPI Settings		Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
ACPI Sleep State	[S3 (Suspend to RAM)]	
		++: Select Screen ↑: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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Options summary: (*default setting*)

ACPI Sleep State	Suspend Disabled	
	<b>S3 (Suspend to RAM)</b>	
Select the ACPI state used for System Suspend		

## S5 RTC Wake Settings

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Advanced		
Wake system with Fixed Time	[Disabled]	Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified
Wake system with Dynamic Time	[Disabled]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.		

Options summary: (**default setting**)

Wake system with Fixed Time	<b>Disabled</b>	
	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	<b>Disabled</b>	
Dynamic Time	Enabled	
Enable or disable System wake on alarm event. Wake up time is current time + Increase minutes.		
Wake up minute increase	1-5	

## Trusted Computing

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Advanced

<p>Configuration Security Device Support                    [Disable]</p> <p>Current Status Information NO Security Device Found</p>	<p>Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.</p> <hr/> <p>                     ++: Select Screen                      ↑↓: Select Item                      Enter: Select                      +/-: Change Opt.                      F1: General Help                      F2: Previous Values                      F3: Optimized Defaults                      F4: Save &amp; Exit                      ESC: Exit                 </p>
--	--

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Security Device Support	<b>Disabled</b>	
	Enabled	
Enable or disable TPM		

## CPU Configuration

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Advanced

CPU Configuration		Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).
Processor Type	Intel(R) Atom(TM) CPU Supported	+-: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
EMT64	Supported	
Processor Speed	1865 MHz	
System Bus Speed	533 MHz	
Ratio Status	14	
Actual Ratio	14	
System Bus Speed	533 MHz	
Processor Stepping	30661	
Microcode Revision	269	
L1 Cache RAM	2x56 k	
L2 Cache RAM	2x512 k	
Processor Core	Dual	
Hyper-Threading	Supported	
Hyper-Threading	[Enabled]	

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Options summary: (**default setting**)

Hyper-Threading	Disabled	
	<b>Enabled</b>	
CPU Hyper-Threading Technology support or not		



## Dynamic Digital IO Configuration

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Advanced

Base Address:F000h Slave address:6Eh		Set digital IO port as Input or Output
Digital Port 1(GP20) Direction	[Input]	
Digital Port 2(GP21) Direction	[Input]	
Digital Port 3(GP22) Direction	[Input]	
Digital Port 4(GP23) Direction	[Input]	
Digital Port 5(GP24) Direction	[Output]	
Digital Port 5(GP24) Level	[Hi]	
Digital Port 6(GP25) Direction	[Output]	
Digital Port 6(GP25) Level	[Hi]	→+: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Digital Port 7(GP26) Direction	[Output]	
Digital Port 7(GP26) Level	[Hi]	
Digital Port 8(GP27) Direction	[Output]	
Digital Port 8(GP27) Level	[Hi]	

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Digital Port x(GP2x)	Input	
Direction	<b>Output</b>	
Digital Port Direction		
Digital Port x(GP2x) Level	<b>Hi</b>	
	Low	
Digital Port Level		

## SATA Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Advanced		
SATA Port0	Not Present	SATA Ports (0-3) Device Names if Present and Enabled.
SATA Port1	Not Present	
SATA Controller(s)	[Enabled]	
Configure SATA as	[IDE]	
Misc Configuration for hard disk		
++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit		
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.		

Options summary: (**default setting**)

SATA Controller(s)	<b>Enabled</b>	
	Disabled	
SATA Controller Enable/Disable		
SATA Mode	<b>IDE</b>	
	AHCI	
Configure SATA controller operating as IDE/AHCI mode.		
SATA PORTx	<b>Enabled</b>	
	Disabled	
Enable / Disable SATA Portx		

SATA Portx Hot Plug	<b>Enabled</b>	
	Disabled	
Enable / Disable SATA Portx Hot Plug function		

## USB Configuration

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Advanced

USB Configuration  USB Devices: 1 Drive, 1 Keyboard  Legacy USB Support                   [Enabled]  Mass Storage Devices: JetFlashTranscend 4GB 1100        [Auto]	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.          ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
---	--

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

Legacy USB Support	<b>Enabled</b>	
	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)

## Super IO Configuration

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Advanced

<p>Super IO Configuration</p> <p>Super IO Chip IT8783F</p> <ul style="list-style-type: none"> <li>▶ Serial Port 1 Configuration</li> <li>▶ Serial Port 2 Configuration</li> <li>▶ Serial Port 3 Configuration</li> <li>▶ Serial Port 4 Configuration</li> <li>▶ Serial Port 5 Configuration</li> <li>▶ Serial Port 6 Configuration</li> <li>▶ Parallel Port Configuration</li> </ul> <p>Restore AC Power Loss [Power Off]</p>	<p>Set Parameters of Serial Port 1 (COMA)</p> <hr/> <p>           ++: Select Screen            ↑↓: Select Item            Enter: Select            +/-: Change Opt.            F1: General Help            F2: Previous Values            F3: Optimized Defaults            F4: Save &amp; Exit            ESC: Exit         </p>
---	---

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Options summary: (*default setting*)

Serial Port x Configuration		
Set Parameters of Serial Port x		
Parallel Port Configuration		
Set Parallel Port Configuration		
Restore AC Power Loss	<b>Power off</b>	
	Power on	
	Last State	
Set Power on after power fail function		

## Serial Port 2 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Advanced	
Serial Port 2 Configuration	Enable or Disable Serial Port (COM)
Serial Port [Enabled]	
Device Settings IO=2F8h; IRQ=3;	
Change Settings [Auto]	
COM2 Type Select [RS232]	
	⇧+: Select Screen ⇧↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.	

Options summary: (*default setting*)

Serial Port	Disabled	
	<b>Enabled</b>	
En/Disable specified serial port.		
Change Settings	<b>Auto</b>	
	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.		
COM2 Type Option	<b>RS232</b>	
	RS422	
	RS485	
Configure COM2 operated as RS232, RS422 or RS485.		

### Parallel Port Configuration

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Advanced

Parallel Port Configuration  Parallel Port [Enabled] Device Settings IO=378h; IRQ=7;  Change Settings [Auto] Device Mode [Standard Parallel ...]	Enable or Disable Parallel Port (LPT/LPTE)         ⇧+: Select Screen ⇧1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
--	--

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Parallel Port	Disabled	
	<b>Enabled</b>	
En/Disable specified Parallel port.		
Change Settings	<b>Auto</b>	
	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;;	
	IO=378h;	
	IO=278h;	

	IO=3BCh;	
Select a resource setting for Super IO device.		
Device Mode	<b>Standard Parallel Port Mode</b>	
	EPP Mode	
	ECP Mode	
	EPP Mode & ECP Mode	
Change the Printer Port mode.		

## Smart Fan Function

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Advanced

Pc Health Status	Smart Fan 1 Mode Select
Smart Fan 1 Mode [Full on Mode]	
	⇧+: Select Screen ⇧↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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Smart Fan 1 Mode	<b>Full on mode</b>	
	Automatic Mode	



Manual Mode

Smart Fan 1 Mode Select

## H/W Monitor

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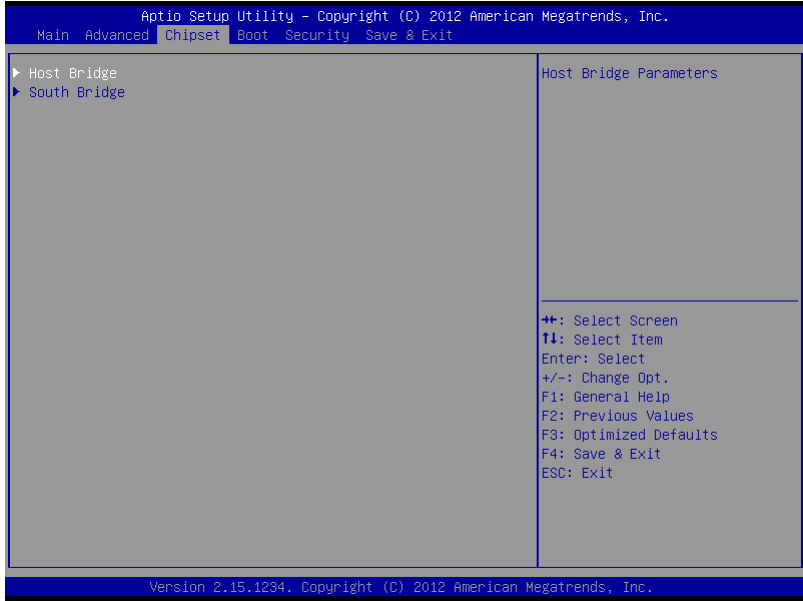
Advanced

Pc Health Status	
CPU temperature	: +51 C
SB temperature	: +48 C
System temperature	: +49 C
Fan1 Speed	: N/A
Vcore	: +1.081 V
Vcc 1.5V	: +1.524 V
Vcc 3.3V	: +3.363 V
Vcc 5V	: +5.186 V
Vcc 12V	: +12.097 V
5V Dual	: +5.140 V
VBAT	: +3.238 V

++: Select Screen  
 ↑↓: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

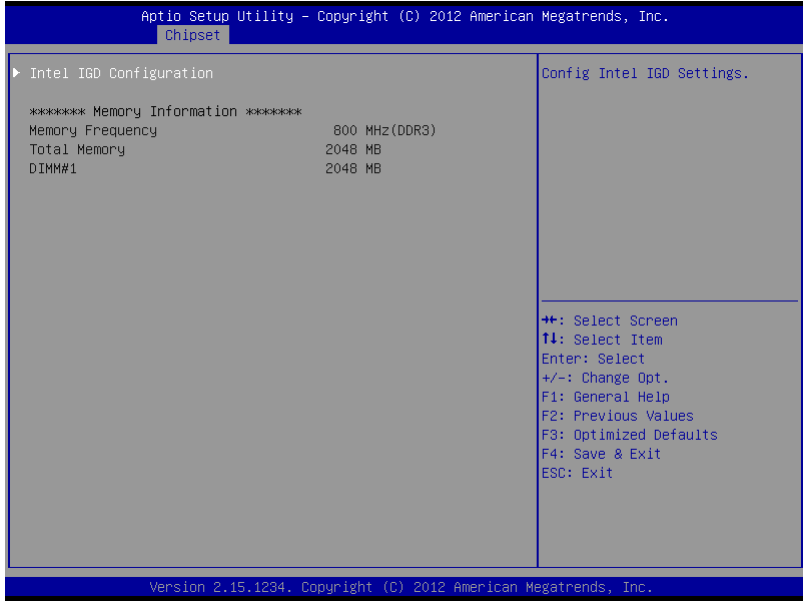
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## Setup submenu: Chipset

Options summary: (**default setting**)

Host Bridge		
Host Bridge Parameters		
South Bridge		
South Bridge Parameters		

## Host Bridge

Options summary: (**default setting**)

Intel IGD Configuration		
Enter to set Graphic Configuration		
Memory Information		
Show current memory information		

## Intel IGD Configuration

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Chipset

Intel IGD Configuration		Auto disable IGD upon external GFX detected.
Auto Disable IGD	[Enabled]	
IGFX - Boot Type	[VBIOS Default]	
LCD Panel Type	[1024x768 18Bit]	
LVDS1 Backlight Control	[PWM Normal]	
LVDS1 Backlight Controller	[50%]	
Control LVDS1	[Enable]	
Control LVDS2	[Disable]	
Fixed Graphics Memory Size	[256MB]	

++: Select Screen  
 ↑↓: Select Item  
 Enter: Select  
 +/-: Change Opt.  
 F1: General Help  
 F2: Previous Values  
 F3: Optimized Defaults  
 F4: Save & Exit  
 ESC: Exit

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Options summary: (**default setting**)

Auto Disable IGD	Disabled	
	<b>Enabled</b>	
IGFX – Boot Type	<b>VBIOS Default</b>	
	CRT	
	1 <sup>st</sup> LVDS	
	DVI	
	CRT + 1 <sup>st</sup> LVDS	
	2 <sup>nd</sup> LVDS	
Select the Video Device which will be activated during POST		

LCD Panel Type	640x480 18bit	
	800x600 18bit	
	<b>1024x768 1bit</b>	
	800x480 18bit	
	1366x768 18bit	
	1280x768 18bit	
	640x480 24bit	
	800x600 24bit	
	1024x768 24bit	
	1280x768 24bit	
	1366x768 24bit	
	Select 1 <sup>st</sup> panel native resolution.	
LCD2 Panel Type	640x480 18bit	
	800x600 18bit	
	<b>1024x768 1bit</b>	
	800x480 18bit	
	1280x768 18bit	
	640x480 24bit	
	800x600 24bit	
	1024x768 24bit	
	1280x1024 48bit	
	1280x768 24bit	
	1366x768 24bit	
	1440x900 48bit	

	1600x1200 48bit	
	1920x1080 48bit (D2550 CPU only)	
	1920x1200 48bit (D2550 CPU only)	
Select 2 <sup>nd</sup> panel native resolution.		
LVDS1 Backlight Control	PWM Inverted	
	<b>PWM Normal</b>	
Backlight control setting		
LVDSx Backlight Controller	100%	
	75%	
	<b>50%</b>	
	25%	
	0%	
Adjust backlight brightness		
Control LVDSx	Disabled	
	<b>Enabled</b>	
Dis/Enable LVDSx		
Fixed Graphics Memory Size	128MB	
	<b>256MB</b>	
Configure Fixed Graphics Memory Size		

## South Bridge

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Chipset

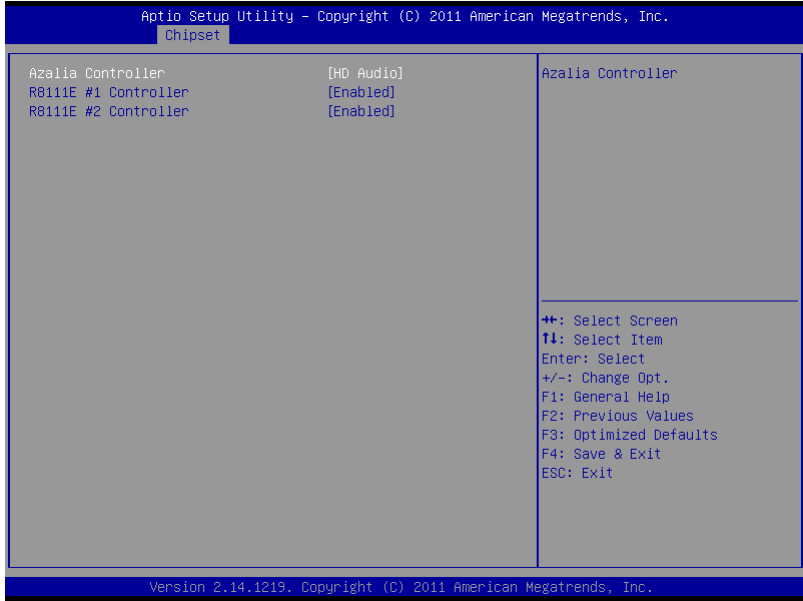
Power Mode	[ATX Type]	Enable or disable 'It is now safe to turn off your computer.' string
<ul style="list-style-type: none"> <li>▶ TPT Devices</li> <li>▶ PCI Express Root Port 0</li> <li>▶ PCI Express Root Port 1</li> <li>▶ PCI Express Root Port 2</li> <li>▶ PCI Express Root Port 3</li> </ul>		
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

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

Power Mode		
Select AT/ATX Power Mode		
TPT Devices		
Configure onboard TPT Devices		
PCI Express Port x	Disabled	
	<b>Enabled</b>	
Enable/Disable PCI Express Port 0 - 3		

## TPT Devices

Options summary: (**default setting**)

Azalia Controller	Disabled	
	<b>HD Audio</b>	
Azalia Controller Enable/Disable		
R8111E #x Controller	Disabled	
	<b>Enabl</b>	
R8111E Enable/Disable		



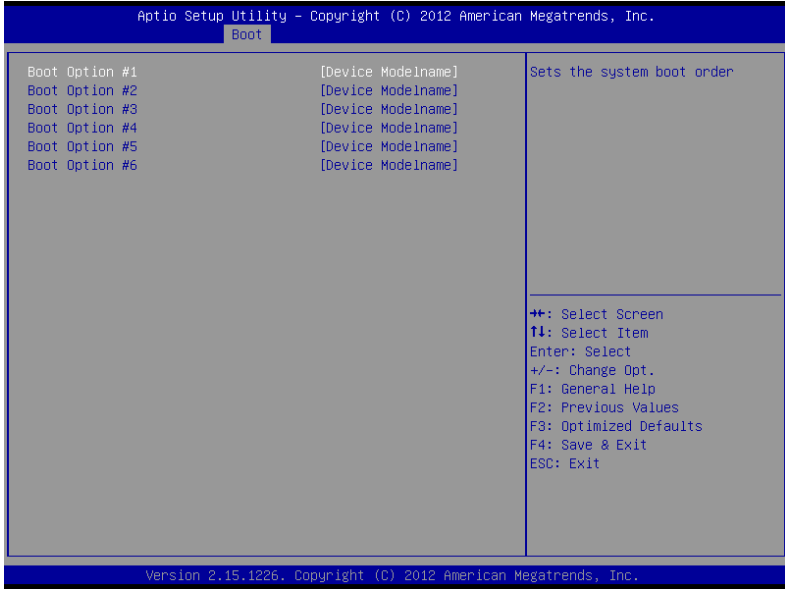
## Boot Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main	Advanced	Chipset
<div style="display: flex; justify-content: space-between;"> <span>Boot</span> <span>Security</span> <span>Save &amp; Exit</span> </div>		
Boot Configuration Quiet Boot [Enabled] Launch 8111E PXE OpROM [Disabled]		Enables or disables Quiet Boot option
Boot Option Priorities Boot Option #1 [UEFI: Generic STOR...] Boot Option #2 [Generic STORAGE DE...]		
Hard Drive BBS Priorities		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.		

Options summary: (**default setting**)

Quiet Boot	Disabled	
	<b>Enabled</b>	
Enables or disables Quiet Boot option		
Launch 8111E PXE OpROM	<b>Disabled</b>	
	Enabled	
En/Disable PXE boot for onboard 8111E 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

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Main Advanced Chipset Boot Security Save & Exit

<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.</p> <p>If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.</p> <p>The password length must be in the following range:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-right: 20px;">Minimum length</td> <td style="text-align: right;">3</td> </tr> <tr> <td>Maximum length</td> <td style="text-align: right;">20</td> </tr> </table> <p>Administrator Password User Password</p>	Minimum length	3	Maximum length	20	<p>Set Administrator Password</p> <hr/> <p>                     ++: Select Screen                      ↑↓: Select Item                      Enter: Select                      +/-: Change Opt.                      F1: General Help                      F2: Previous Values                      F3: Optimized Defaults                      F4: Save &amp; Exit                      ESC: Exit                 </p>
Minimum length	3				
Maximum length	20				

Version 2.15.1234. Copyright (C) 2012 American Megatrends, Inc.

Options summary: (**default setting**)

Administrator Password/	<b>Not set</b>	
User Password		

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:*

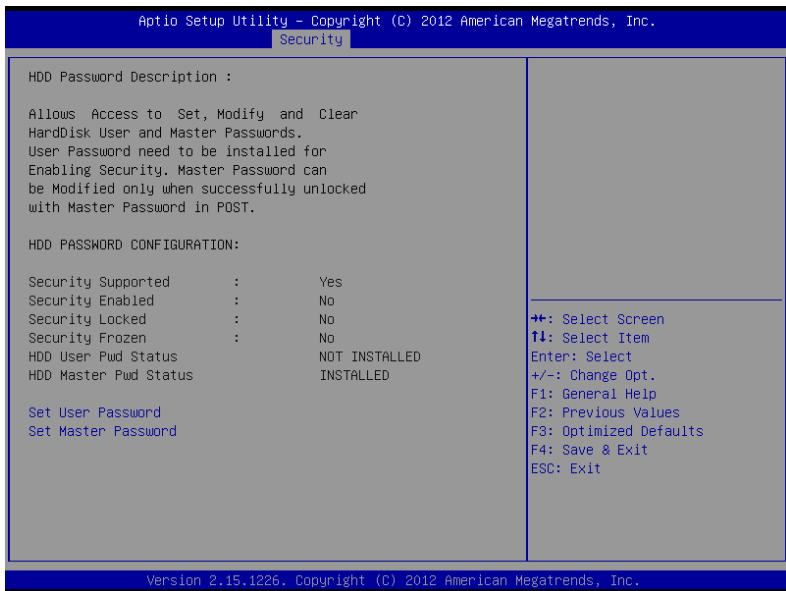
Press Enter on this item, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The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

## HDD Security



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

Set User Password/	<b>Not set</b>	
Set Master Password		

You can install a Master and User password. Before booting to OS, HDD will be set to frozen state. On S3 resume HDD will be unlocked using the HDD Password we

entered while system booting.

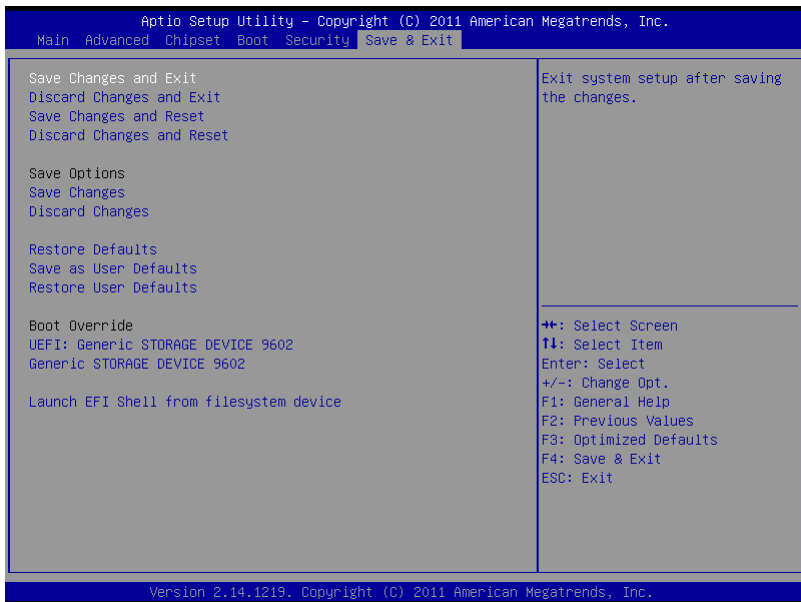
*Install the Password:*

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		

Chapter

4

**Driver  
Installation**

The GENE-CV05 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 VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Step 5 – Install AHCI Driver

Step 6 – Install TPM Driver

Step 7 – Install Touch Driver

Step 8 – Install Serial Port Driver (Optional)



## 4.1 Installation:

---

Insert the GENE-CV05 DVD-ROM into the DVD-ROM Drive. And install the drivers from Step 1 to Step 8 in order.

### Step 1 – Install Chipset Driver

1. Click on the **STEP1-CHIPSET** folder and double click on the **.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

### Step 2 – Install VGA Driver

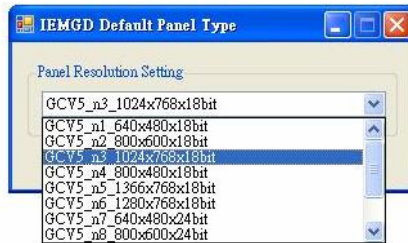
#### For Windows® 7

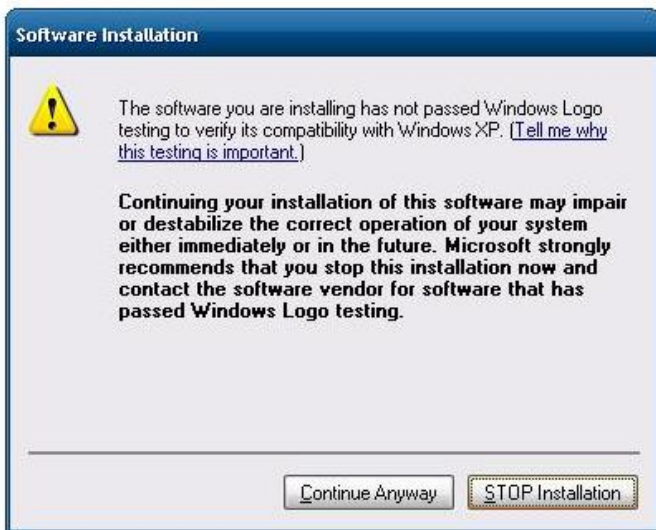
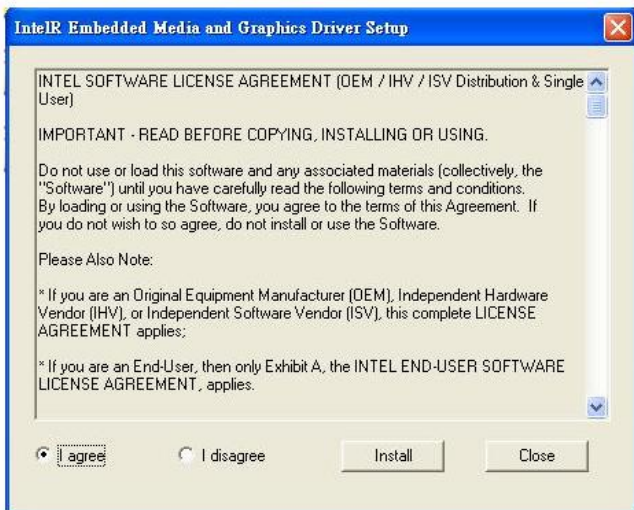
1. Click on the **STEP2-VGA** folder and select the folder of **WIN7\_32**
2. Double click on the **Setup.exe** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### For Windows® XP

1. Install Framework 3.5
  - Double click on the **dotnetfx35.exe**
  - Follow the instructions that the window shows
  - The system will help you install the driver automatically
2. Install IEMGD
  - Double click on the **IEMGDInstall.exe**
  - Select the configuration

- Follow the instructions that the window shows
- The system will help you install the driver automatically





If you want to update driver, please uninstall driver first.

### Uninstall IEMGD

1. Double click on the **IEMGDInstall.exe**
2. Follow the instructions that the window shows
3. The system will help you uninstall the driver automatically



### Step 3 – Install LAN Driver

1. Click on the **STEP3-LAN** folder and select the OS folder your system is
2. Double click on the **setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

### Step 4 – Install Audio Driver

1. Click on the **STEP4-AUDIO** folder and select the OS folder your system is

2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### Step 5 – Install AHCI Driver

Please refer to Appendix D AHCI Settings

#### Step 6 – Install TPM Driver

1. Click on the **STEP6-TPM** folder and select the OS folder your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### Step 7 – Install Touch Driver

1. Click on the **STEP7-Touch** folder and select the OS folder your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### Step 8 – Install Serial Port Driver (Optional)

1. Click on the **STEP8-Serial Port Driver (Optional)** folder and select the OS folder your system is

2. Double click on the **Serial Patch v1.0.1\_Eng.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

**Note:** If the OS is Chinese version, you may click on **Serial Patch v1.0.1. exe** file located in each OS folder.

Appendix

**A**

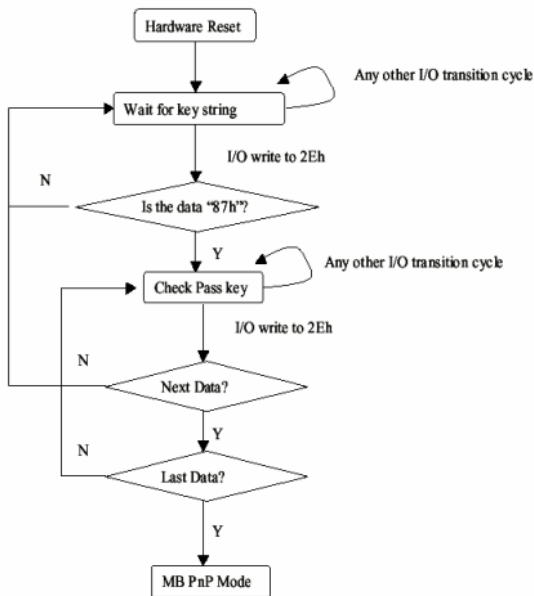
# Programming the Watchdog Timer

## A.1 Programming

GENE-CV05 utilizes ITE 8783 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 ITE 8783 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 operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

### (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

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

## WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02h	W	NA	Configure Control

07h	71h	R/W	00h	Watch Dog Timer Control Register
07h	72h	R/W	001s0000b	Watch Dog Timer Configuration Register
07h	73h	R/W	38h	Watch Dog Timer Time-out Value (LSB) Register
07h	74h	R/W	00h	Watch Dog Timer Time-out Value (MSB) Register

### Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	<b>Reserved</b>
1	Returns to the "Wait for Key" state. This bit is used when the configuration sequence is completed.
0	Resets all logical devices and restores configuration registers to their power-on states.

### Watch Dog Timer 1, 2, 3 Control Register (Index=71h,81h,91h Default=00h)

Bit	Description
7	<b>WDT Timeout Enable(WTE)</b> 1: Disable. 0: Enable.
6	<b>WDT Reset upon Mouse Interrupt(WRKMI)</b> 0: Disable. 1: Enable.
5	<b>WDT Reset upon Keyboard Interrupt(WRKBI)</b> 0: Disable. 1: Enable.
4	<b>Reserved</b>
3-2	<b>Reserved</b>
1	<b>Force Time-out(FTO)</b> This bit is self-clearing.
0	<b>WDT Status(WS)</b> 1: WDT value reaches 0. 0: WDT value is not 0.

### Watch Dog Timer 1, 2, 3 Configuration Register (Index=72h, 82h, 92h Default=001s0000b)

Bit	Description
7	<b>WDT Time-out Value Select 1 (WTVS)</b> 1: Second 0: Minute
6	<b>WDT Output through KRST (Pulse) Enable(WOKE)</b> 1: Enable 0: Disable
5	<b>WDT Time-out value Extra select(WTVES)</b> 1: 64ms x WDT Timer-out value (default = 4s) 0: Determined by WDT Time-out value select 1 (bit 7 of this register)
4	<b>WDT Output through PWROK (Pulse) Enable(WOPE)</b> 1: Enable 0: Disable During LRESET#, this bit is selected by JP7 power-on strapping option
3-0	<b>Select interrupt level<sup>Note1</sup> for WDT(SIL)</b>

### Watch Dog Timer 1,2,3 Time-Out Value (LSB) Register (Index=73h,83h,93h, Default=38h)

Bit	Description
7-0	<b>WDT Time-out Value 7-0(WTV)</b>

### Watch Dog Timer 1,2,3 Time-Out Value (MSB) Register (Index=74h,84h,94h Default=00h)

Bit	Description
7-0	<b>WDT Time-out Value 15-8(WTV)</b>

## A.2 ITE8783 Watchdog Timer Initial Program

---

```
.MODEL SMALL
.CODE
Main:
CALL Enter_Configuration_mode
CALL Check_Chip
mov cl, 7
call Set_Logic_Device
;time setting
mov cl, 10 ; 10 Sec
dec al
Watch_Dog_Setting:
;Timer setting
mov al, cl
mov cl, 73h
call Superio_Set_Reg
;Clear by keyboard or mouse interrupt
mov al, 0f0h
mov cl, 71h
call Superio_Set_Reg
;unit is second.
mov al, 0C0H
mov cl, 72h
```

```
call Superio_Set_Reg  
; game port enable  
mov cl, 9  
call Set_Logic_Device
```

```
Initial_OK:  
CALL Exit_Configuration_mode  
MOV AH,4Ch  
INT 21h
```

```
Enter_Configuration_Mode PROC NEAR  
MOV SI,WORD PTR CS:[Offset Cfg_Port]
```

```
MOV DX,02Eh  
MOV CX,04h  
Init_1:  
MOV AL,BYTE PTR CS:[SI]  
OUT DX,AL  
INC SI  
LOOP Init_1  
RET  
Enter_Configuration_Mode ENDP
```

```
Exit_Configuration_Mode PROC NEAR  
MOV AX,0202h
```

CALL Write\_Configuration\_Data

RET

Exit\_Configuration\_Mode ENDP

Check\_Chip PROC NEAR

MOV AL,20h

CALL Read\_Configuration\_Data

CMP AL,87h

JNE Not\_Initial

MOV AL,21h

CALL Read\_Configuration\_Data

CMP AL,81h

JNE Not\_Initial

Need\_Initial:

STC

RET

Not\_Initial:

CLC

RET

Check\_Chip ENDP

Read\_Configuration\_Data PROC NEAR

MOV DX,WORD PTR CS:[Cfg\_Port+04h]

```
OUT DX,AL
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP
```

```
Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP
```

```
Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
```

```
Set_Logic_Device    proc    near
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp
```

```
;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h
DW 02Eh,02Fh
```

## END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected



Appendix

**B**

## **I/O Information**

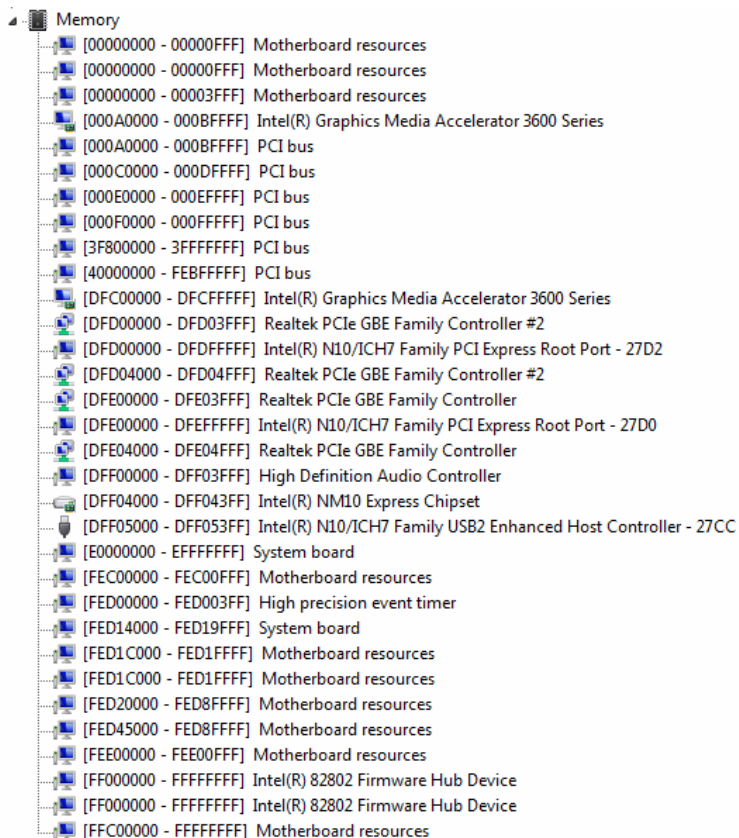
## B.1 I/O Address Map

Input/output (IO)	
[00000000 - 0000001F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000024 - 00000025]	Programmable interrupt controller
[00000028 - 00000029]	Programmable interrupt controller
[0000002C - 0000002D]	Programmable interrupt controller
[0000002E - 0000002F]	Motherboard resources
[00000030 - 00000031]	Programmable interrupt controller
[00000034 - 00000035]	Programmable interrupt controller
[00000038 - 00000039]	Programmable interrupt controller
[0000003C - 0000003D]	Programmable interrupt controller
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[0000004E - 0000004F]	Motherboard resources
[00000050 - 00000053]	System timer
[00000060 - 00000060]	Standard PS/2 Keyboard
[00000061 - 00000061]	Motherboard resources
[00000062 - 00000063]	Motherboard resources
[00000063 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard PS/2 Keyboard
[00000065 - 00000065]	Motherboard resources
[00000065 - 0000006F]	Motherboard resources
[00000067 - 00000067]	Motherboard resources
[00000070 - 00000070]	Motherboard resources
[00000070 - 00000077]	System CMOS/real time clock
[00000072 - 0000007F]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000081 - 00000091]	Direct memory access controller
[00000084 - 00000086]	Motherboard resources
[00000088 - 00000088]	Motherboard resources
[0000008C - 0000008E]	Motherboard resources
[00000090 - 0000009F]	Motherboard resources
[00000092 - 00000092]	Motherboard resources
[00000093 - 0000009F]	Direct memory access controller
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000A4 - 000000A5]	Programmable interrupt controller
[000000A8 - 000000A9]	Programmable interrupt controller
[000000AC - 000000AD]	Programmable interrupt controller
[000000B0 - 000000B1]	Programmable interrupt controller
[000000B2 - 000000B3]	Motherboard resources
[000000B4 - 000000B5]	Programmable interrupt controller
[000000B8 - 000000B9]	Programmable interrupt controller
[000000BC - 000000BD]	Programmable interrupt controller
[000000C0 - 000000DF]	Direct memory access controller

[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000F0]	Numeric data processor
[000002E0 - 000002E7]	Communications Port (COM6)
[000002E8 - 000002EF]	Communications Port (COM4)
[000002F0 - 000002F7]	Communications Port (COM5)
[000002F8 - 000002FF]	Communications Port (COM2)
[00000378 - 0000037F]	Printer Port (LPT1)
[000003B0 - 000003BB]	Intel(R) Graphics Media Accelerator 3600 Series
[000003C0 - 000003DF]	Intel(R) Graphics Media Accelerator 3600 Series
[000003E8 - 000003EF]	Communications Port (COM3)
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 0000047F]	Motherboard resources
[00000400 - 0000047F]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[000004D0 - 000004D1]	Programmable interrupt controller
[00000500 - 0000053F]	Motherboard resources
[00000500 - 0000057F]	Motherboard resources
[00000600 - 0000061F]	Motherboard resources
[00000680 - 0000069F]	Motherboard resources
[000006A0 - 000006AF]	Motherboard resources
[000006B0 - 000006EF]	Motherboard resources
[00000A00 - 00000A1F]	Motherboard resources
[00000A20 - 00000A2F]	Motherboard resources
[00000A30 - 00000A3F]	Motherboard resources
[00000D00 - 0000FFFF]	PCI bus
[00001000 - 0000100F]	Motherboard resources
[0000D000 - 0000D0FF]	Realtek PCIe GBE Family Controller #2
[0000D000 - 0000DFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[0000E000 - 0000E0FF]	Realtek PCIe GBE Family Controller
[0000E000 - 0000EFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
[0000F000 - 0000F01F]	Intel(R) N10/ICH7 Family SMBus Controller - 27DA
[0000F020 - 0000F02F]	Intel(R) NM10 Express Chipset
[0000F040 - 0000F05F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
[0000F060 - 0000F07F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
[0000F080 - 0000F09F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
[0000F0A0 - 0000F0BF]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
[0000F0C0 - 0000F0C3]	Intel(R) NM10 Express Chipset
[0000F0D0 - 0000F0D7]	Intel(R) NM10 Express Chipset
[0000F0E0 - 0000F0E3]	Intel(R) NM10 Express Chipset
[0000F0F0 - 0000F0F7]	Intel(R) NM10 Express Chipset
[0000F100 - 0000F107]	Intel(R) Graphics Media Accelerator 3600 Series
[0000FFFF - 0000FFFF]	Motherboard resources
[0000FFFF - 0000FFFF]	Motherboard resources

## B.2 1<sup>st</sup> MB Memory Address Map

---



The image shows a screenshot of the Windows System Information tool, specifically the 'Memory' section. It displays a list of memory addresses and their corresponding hardware components. The list is organized in a tree view under the 'Memory' folder. Each entry includes a memory address range, a small icon, and the name of the hardware component.

Memory Address Range	Hardware Component
[00000000 - 00000FFF]	Motherboard resources
[00000000 - 00000FFF]	Motherboard resources
[00000000 - 00003FFF]	Motherboard resources
[000A0000 - 000BFFFF]	Intel(R) Graphics Media Accelerator 3600 Series
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[000E0000 - 000EFFFF]	PCI bus
[000F0000 - 000FFFFFF]	PCI bus
[3F800000 - 3FFFFFFF]	PCI bus
[40000000 - FEBFFFFFF]	PCI bus
[DFC00000 - DFCFFFFFF]	Intel(R) Graphics Media Accelerator 3600 Series
[DFD00000 - DFD03FFF]	Realtek PCIe GBE Family Controller #2
[DFD00000 - DFD0FFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[DFD04000 - DFD04FFF]	Realtek PCIe GBE Family Controller #2
[DFE00000 - DFE03FFF]	Realtek PCIe GBE Family Controller
[DFE00000 - DFEFFFFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
[DFE04000 - DFE04FFF]	Realtek PCIe GBE Family Controller
[DFF00000 - DFF03FFF]	High Definition Audio Controller
[DFF04000 - DFF043FF]	Intel(R) NM10 Express Chipset
[DFF05000 - DFF053FF]	Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
[E0000000 - EFFFFFFF]	System board
[FEC00000 - FEC00FFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED14000 - FED19FFF]	System board
[FED1C000 - FED1FFFF]	Motherboard resources
[FED1C000 - FED1FFFF]	Motherboard resources
[FED20000 - FED8FFFF]	Motherboard resources
[FED45000 - FED8FFFF]	Motherboard resources
[FEE00000 - FEE00FFF]	Motherboard resources
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device
[FFC00000 - FFFFFFFF]	Motherboard resources

## B.3 IRQ Mapping Chart

Interrupt request (IRQ)	Description
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x00000005 (05)	Communications Port (COM5)
(ISA) 0x00000007 (07)	Communications Port (COM6)
(ISA) 0x00000008 (08)	System CMOS/real time clock
(ISA) 0x0000000A (10)	Communications Port (COM3)
(ISA) 0x0000000B (11)	Communications Port (COM4)
(ISA) 0x0000000C (12)	Microsoft PS/2 Mouse
(ISA) 0x0000000D (13)	Numeric data processor
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System

(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
(ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
(ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
(ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
(ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
(ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System

## B.4 DMA Channel Assignments

- Direct memory access (DMA)
- 4 Direct memory access controller

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		
CN2	External +5VSB Power Input and PS_ON#	JST	XHP-3	ATX Cable	170220020B
CN3	CPU Fan Connector	Molex	22-01-2035	N/A	N/A
CN4	+5VSB Output w/ SMBus	JST	PHR-6	ATX External 5VSB Cable	External AUX Power and PS_ON#
CN5	SATA	Molex	887505318	SATA Cable	1709070500
CN6	External 12V Input	Molex	19211-0003	Power Cable	1702002010
CN7	Digital I/O	Molex	51110-1050	N/A	N/A
CN8	Parallel Port	Molex	51110-2650	Parallel Cable	1701260200
CN9	+5V Output for SATA HDD using	JST	PHR-2	2 Pins For SATA Power	1702150155
CN10	USB Port #6	Molex	51021-0500	USB Wafer Cable	1700050207
CN11	COM Port #6	Molex	51021-0900	UART Wafer Cable	1701090150
CN12	USB Port #5	Molex	51021-0500	USB Wafer Cable	1700050207
CN13	COM Port #5	Molex	51021-0900	UART Wafer Cable	1701090150
CN14	USB Port #4	Molex	51021-0500	USB Wafer Cable	1700050207
CN15	USB Port #3	Molex	51021-0500	USB Wafer Cable	1700050207
CN16	COM Port #4	Molex	51021-0900	UART Wafer	1701090150



				Cable	
CN17	LPC Expansion I/F	JST	SHR-12V-S-B	AAEON LPC Cable	1703120130
CN18	COM Port #3	Molex	51021-0900	UART Wafer Cable	1701090150
CN19	COM Port #2	Molex	51021-0900	UART Wafer Cable	1701090150
CN20	Touch Screen	JST	SHR-9V-S-B	N/A	N/A
CN21	Stereo-R Channel	Molex	51021-0200	N/A	N/A
CN22	2 <sup>nd</sup> LVDS (Dual channel 18/24bit)	HIROSE	DF13-30DS -1.25C	N/A	N/A
CN23	PS/2 Keyboard & Mouse	JST	PHDR-06V S	KB/MS Cable	1700060152
CN24	2 <sup>nd</sup> LVDS Inverter	JST	PHR-5	Inverter Cable	1705050153
CN25	Stereo-L Channel	Molex	51021-0200	N/A	N/A
CN26	1 <sup>st</sup> LVDS Inverter	JST	PHR-5	Inverter Cable	1705050153
CN27	1 <sup>st</sup> LVDS (Single channel 18/24bit)	HIROSE	DF13-30DS -1.25C	N/A	N/A
CN28	2 <sup>nd</sup> RJ-45 Ethernet	Molex	90075-0141	N/A	N/A
CN29	1 <sup>st</sup> RJ-45 Ethernet	Molex	90075-0141	N/A	N/A
CN31	Audio Line In/Out and MIC Connector	Molex	51021-1000	Audio Cable	1709100254
BAT1	External RTC Connector	Molex	51021-0200	Battery Cable	175011901C

Appendix

D

**AHCI Setting**

## D.1 Setting AHCI

---

OS installation to setup AHCI Mode.

Step 1: Copy the files below from “Driver CD -> STEP5-AHCI\WIN7\_32\F6

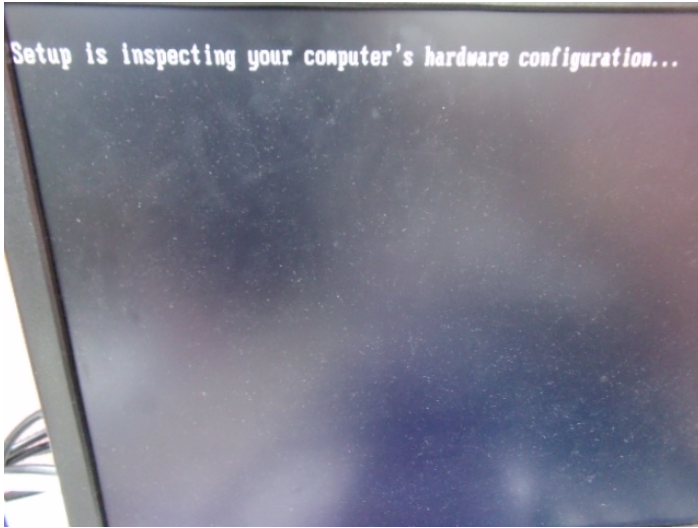
Install Floppy Create for 32 and 64 bit Windows” to Disk



Step 2: Connect the USB Floppy to the board



Step 3: Setup OS



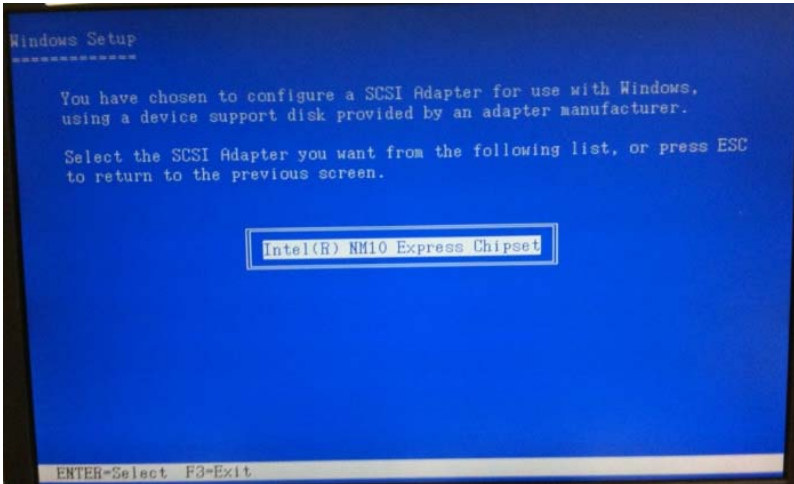
Step 4: Press "F6"



## Step 5: Choose "S"

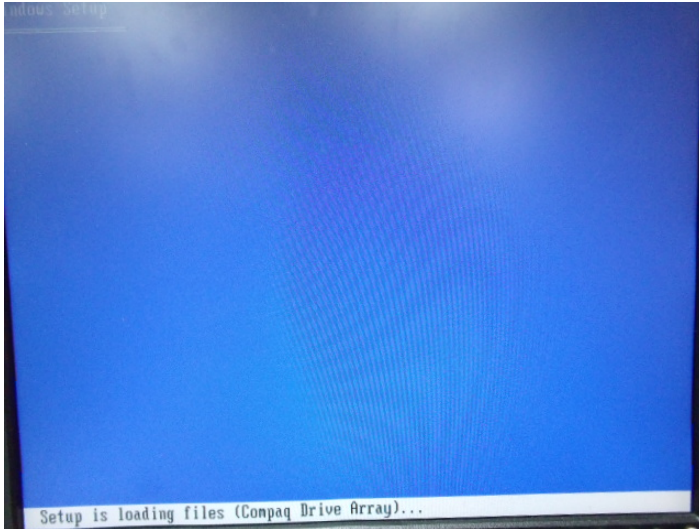


## Step 6: Choose "Intel(R) NM10 Express Chipset"



Step 7: It will show the model number you select and then press “**ENTER**”

Step 8: Setup is loading files



Appendix

**E**

**Digital I/O**

## E.1 Digital I/O

---

The F75111 provides one serial access interface, I2C Bus, to read/write internal registers. The address of Serial Bus is 0x6E (0110\_1110)

The related register for configuring DIO is list as follows:

### Configuration and Control Register-Index 01h

Power-on default [7:0]=0000\_1000b

Bit	Name	R/W	PWR	Description
7	INIT	R/W	VSB3V	Software reset for all registers including Test Mode registers. Users use only.
6	Reserved	R/W	VSB3V	
5	EN_WDT10	R/W	VSB3V	Enable Reset Out. If set to 1, enable WDTOUT10# output. Default is disable.
4	Reserved	R/W	VSB3V	
3	Reserved	R/W	VSB3V	
2	Reserved	R/W	VSB3V	
1	SMART_P OWR_MAG EMENT	R/W	VSB3V	Set this bit to 1 will enable auto power down mode, when all function are idle then 20ms the chip will auto power down, it will wakeup when GPIO state change or read write register
0	SOFT_PO WR_DOW N	R/W	VSB3V	Set this bit to 1 will power down all of the analog block and stop internal clock, write 0 to clear this bit or when GPIO state change will auto clear this bit to 0.



**GPIO2x Output Control Register-Index 20h**

Power-on default [7:0]=0000\_0000b

Bit	Name	R/W	PWR	Description
7	GP27_OCT RL	R/W	VSB3V	GPIO 27 output control. Set to 1 for output function. Set to 0 for input function (default).
6	GP26_OCT RL	R/W	VSB3V	GPIO 26 output control. Set to 1 for output function. Set to 0 for input function (default).
5	GP25_OCT RL	R/W	VSB3V	GPIO 25 output control. Set to 1 for output function. Set to 0 for input function (default).
4	GP24_OCT RL	R/W	VSB3V	GPIO 24 output control. Set to 1 for output function. Set to 0 for input function (default).
3	GP23_OCT RL	R/W	VSB3V	GPIO 23 output control. Set to 1 for output function. Set to 0 for input function (default).
2	GP22_OCT RL	R/W	VSB3V	GPIO 22 output control. Set to 1 for output function. Set to 0 for input function (default).
1	GP21_OCT RL	R/W	VSB3V	GPIO 21 output control. Set to 1 for output function. Set to 0 for input function (default).
0	GP20_OCT RL	R/W	VSB3V	GPIO 20 output control. Set to 1 for output function. Set to 0 for input function (default).

**GPIO2x Output Data Register-Index 21h**

Power-on default [7:0]=0000\_0000b

Bit	Name	R/W	PWR	Description
7	GP27_ODA TA	R/W	VSB3V	GPIO 27 output data.
6	GP26_ODA TA	R/W	VSB3V	GPIO 26 output data.
5	GP25_ODA TA	R/W	VSB3V	GPIO 25 output data.

4	GP24_ODA TA	R/W	VSB3V	GPIO 24 output data.
3	GP23_ODA TA	R/W	VSB3V	GPIO 23 output data.
2	GP22_ODA TA	R/W	VSB3V	GPIO 22 output data.
1	GP21_ODA TA	R/W	VSB3V	GPIO 21 output data.
0	GP20_ODA TA	R/W	VSB3V	GPIO 20 output data.

### GPIO2x Input Status Register-Index 22h

Power-on default [7:0]=xxxx\_xxxx<sub>b</sub>

Bit	Name	R/W	PWR	Description
7	GP27_PST S	RO	VSB3V	Read the GPIO27 data on the pin.
6	GP26_PST S	RO	VSB3V	Read the GPIO26 data on the pin.
5	GP25_PST S	RO	VSB3V	Read the GPIO25 data on the pin.
4	GP24_PST S	RO	VSB3V	Read the GPIO24 data on the pin.
3	GP23_PST S	RO	VSB3V	Read the GPIO23 data on the pin.
2	GP22_PST S	RO	VSB3V	Read the GPIO22 data on the pin.
1	GP21_PST S	RO	VSB3V	Read the GPIO21 data on the pin.
0	GP20_PST S	RO	VSB3V	Read the GPIO20 data on the pin.

The following is a sample code for 8 input

```
.MODEL      SMALL
.CODE
```

begin:

```
mov cl,01h
mov al,80h
call CT_I2CWriteByte
call Delay5ms
```

```
mov al,00h
mov cl,20h
call CT_I2CWriteByte

mov cl,22h
call CT_I2CReadByte
```

;Input : CL - register index

; CH - device ID

;Output : AL - Value read

Ct\_I2CReadByte Proc Near

```
mov ch,06eh
```

```
mov dx, 0f000h + 00h ; Host Control Register
```

```
mov al, 0ffh ; Clear previous
```

commands

```
out dx, al
```

```
    call    Delay5ms

    mov     dx, 0f000h + 04h      ; Transmit Slave Address
Register
    inc     ch                    ; Set the slave address and
    mov     al, ch                ; prepare for a READ command
    out     dx, al

    mov     dx, 0f000h + 03h      ; Host Command Register
    mov     al, cl                ; offset to read
    out     dx, al

    mov     dx, 0f000h + 05h
    xor     al, al                ; Clear old data
    out     dx, al

    mov     dx, 0f000h + 02h ; Host Control Reegister
    mov     al, 48h              ; Start a byte access
    out     dx, al

    call    CT_Chk_SMBus_Ready
    mov     dx, 0f000h + 05h
    in      al, dx

    ret
```

Ct\_I2CReadByte    Endp

;Input : CL - register index

;        CH - device ID

;        AL - Value to write

;Output: none

Ct\_I2CWriteByte   Proc   Near

      mov    ch,06eh

      xchg   ah, al

      mov     dx, 0f000h + 00h ; Host Control Register

      mov     al, 0ffh                                ; Clear previous

commands

      out     dx, al

      call    Delay5ms

      mov     dx, 0f000h + 04h                    ; Transmit Slave Address

Register

      mov     al, ch                                ; Set the slave address and

      out     dx, al                                ; prepare for a WRITE

command

      mov     dx, 0f000h + 03h                    ; Host Command Register

      mov     al, cl                                ; offset to write

```
        out    dx, al

        mov    dx, 0f000h + 05h
        mov    al, ah
    out    dx, al

        mov    dx, 0f000h + 00h ; Host Control Register
        mov    al, 48h    ; Start a byte access
        out    dx, al

        call   CT_Chk_SMBus_Ready
        ret

Ct_I2CWriteByte    Endp

; Wait until the busy bit clears, indicating that the SMBUS
; activity has concluded.

CT_Chk_SMBus_Ready Proc Near
        mov    dx, 0f000h+ 0;status port
        cld
        mov    cx, 0800h

Chk_I2c_OK:
        in     al, dx        ;get status
        call   Delay5ms
```

```
out dx,al ;clear status
call Delay5ms

test al, 02H ;termination of command ?
jnz short Clear_final

and al, NOT 40H ;mask INUSE bit
or al,al ;status OK ?
jz short Clear_final

test al,04h ;device error
jnz short SMBus_Err
```

```
loop short Chk_I2c_OK
```

```
;SMBus error due to timeout
```

```
SMBus_Err:
```

```
stc
```

```
ret
```

```
Clear_final:
```

```
clc
```

```
ret
```

```
CT_Chk_SMBus_Ready Endp
```

```
END begin
```