

GENE-TC05

Intel® Atom™ E680/ E620/ E620T
(E620T for WiTAS2) Processor

Intel® EG20T PCH

10/100/1000Base-TX

1 SATA 3.0Gb/s, CFast™

6 COM, 4 USB2.0, CAN BUS

Digital I/O, 2 Mini Card

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Packing List

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

- CD-ROM for manual (in PDF format) and drivers
- GENE-TC05 with Passive Heatsink

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-TC05. The GENE-TC05 is a cutting-edge product that provides high performance and low power consumption in the embedded market.

GENE-TC05 adopts the latest Intel® Atom™ E680/E620/E620T (E620T is for WiTAS2 operating temperature) processor and the system memory deploys with onboard DDR2 667/800 memory. In addition, Realtek RTL8211CL and Intel® 82574L support two 10/100/1000Base-TX that allows faster network connections. This model applies two Mini Cards and onboard 4/5/8-wire resistive touch screen controller. Moreover, one SATA 3.0Gb/s and one CFast™ are configured on the GENE-TC05. GENE-TC05 also equips four USB2.0, six COM, one keyboard and one mouse ports for flexible I/O expansions.

The display of GENE-TC05 supports VGA or DVI (Optional) , and up to 24-bit single channel LVDS. 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

- Intel® Atom™ E680/E620/E620T Processor (E620T is for WITAS2)
- Intel® EG20T PCH
- Onboard DDR2 667/800 Memory
- Gigabit Ethernet x 2
- VGA or DVI(Optional) , 24-bit Single Channel LVDS LCD
- 2CH HD Audio
- SATA 3.0Gb/s x 1, CFast™ x 1
- CAN Bus x 1, USB2.0 x 4, COM x 6, 8-bit Digital I/O
- Onboard 4/5/8-wire Resistive Touch Screen Controller
- Mini Card x 2
- +12V Only Operation

1.3 Specifications

System

- Form Factor 3.5"
- Processor Intel® Atom™ E680 1.6GHz/ E620 600MHz/ E620T 600MHz (E620T is for WiTAS2)
- System Memory Onboard DDR2 667/800 Memory
- Chipset Intel® EG20T PCH
- I/O Chipset Nuvoton W82627DHG-P, Fintek F81216DG
- Ethernet Realtek RTL8211CL & Intel® 82574L, 10/100/1000Base-TX, RJ-45 x 2
- BIOS AMI BIOS - 4MB SPI Flash
- Wake On LAN Yes
- Watchdog Timer Generate a time-out system reset
- H/W Monitor Chipset Supports power supply voltages and temperature monitoring
- Expansion Interface Mini Card x 2 (one include SIM slot and USB interface), LPC
- Battery Lithium battery
- Power Requirement +12V
- Board Size 5.75" x 4" (146mm x 101.6mm)
- Gross Weight 0.4kg
- Operating Temperature 32°F ~ 140°F (0°C ~ 60°C)
WiTAS2: -40°F ~ 185°F (-40°C ~ 85°C) (TF-GENE-TC05W2-A10-01)

- Storage Temperature -40°F ~ 176°F (-40°C ~ 80°C)
- Operating Humidity 0% ~ 90% relative humidity, non-condensing

Display: Supports VGA or DVI (Optional) / LVDS LCD

- Chipset Intel® E680/E620/E620T integrated (E620T is for WiTAS2)
- Memory Shared system memory up to 512MB
- Resolution Up to 1280x1024 for VGA, DVI
Up to 1280x768 for LCD
- LCD Interface Up to 24-bit single channel LVDS

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)
- CAN Bus Supports CAN Protocol Version 2.0B, bit rate up to 1M-bit/sec.
- USB Port USB2.0 x 4
- PS/2 Port Keyboard x 1, Mouse x 1
- Touch Screen Support 4/5/8-wire Resistive Touch Screen
- Digital I/O Supports 8-bit (Programmable)
- Audio Line-in, Line-out, Mic-in

Note: To turn on the power in ATX mode, please touch the power button within 1 second.

Chapter

2

Quick Installation Guide

2.1 Safety Precautions

Warning!

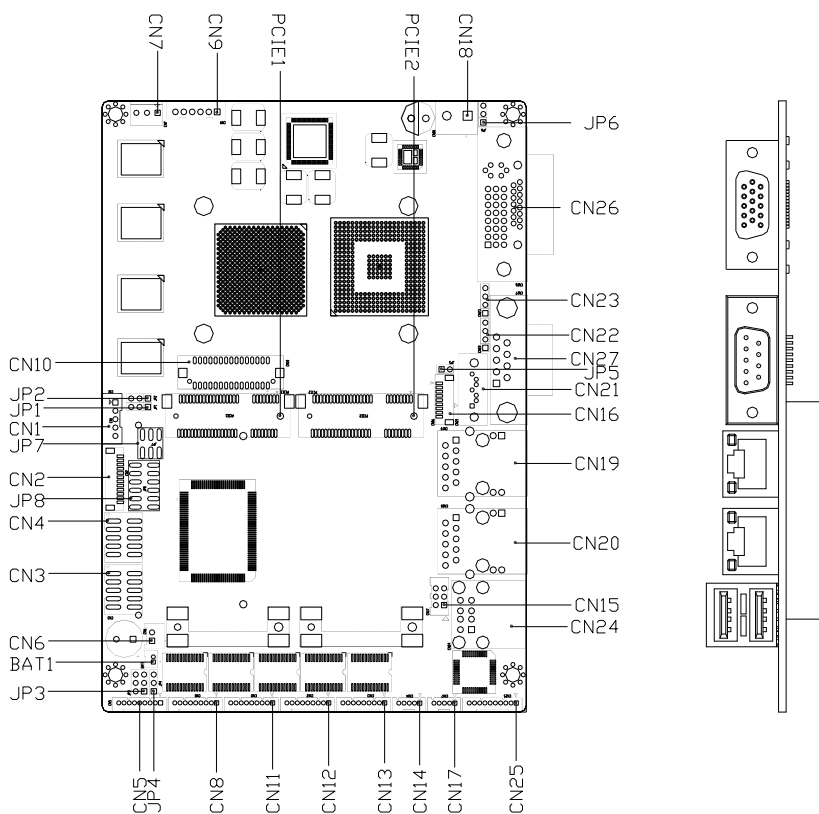
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

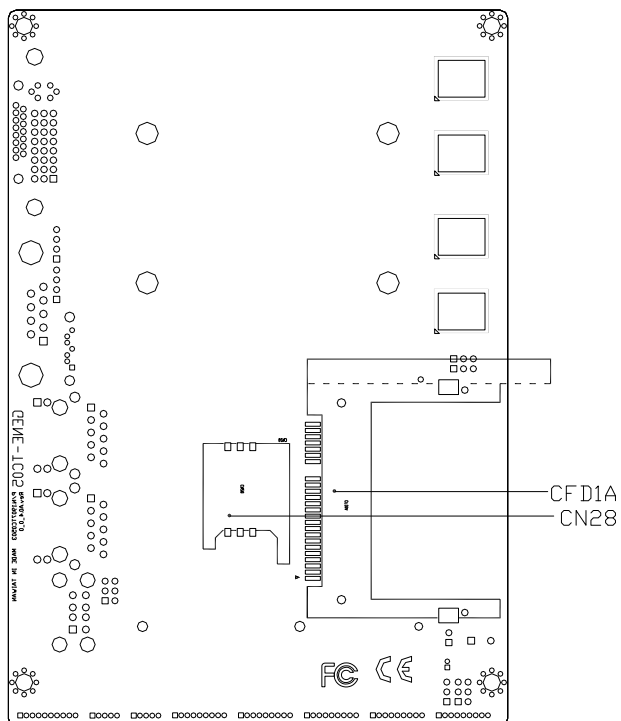
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Location of Connectors and Jumpers

Component Side

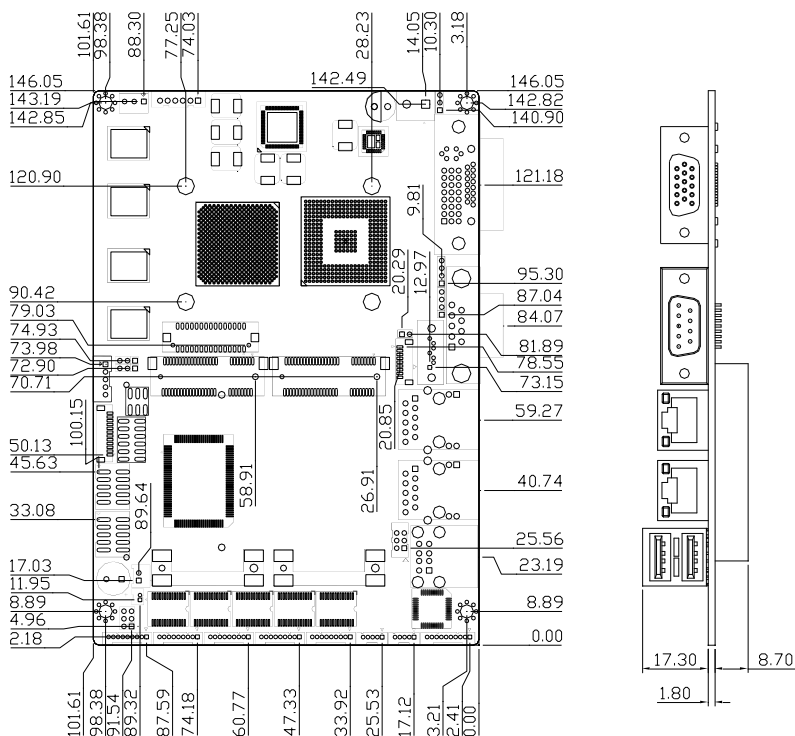


Solder Side

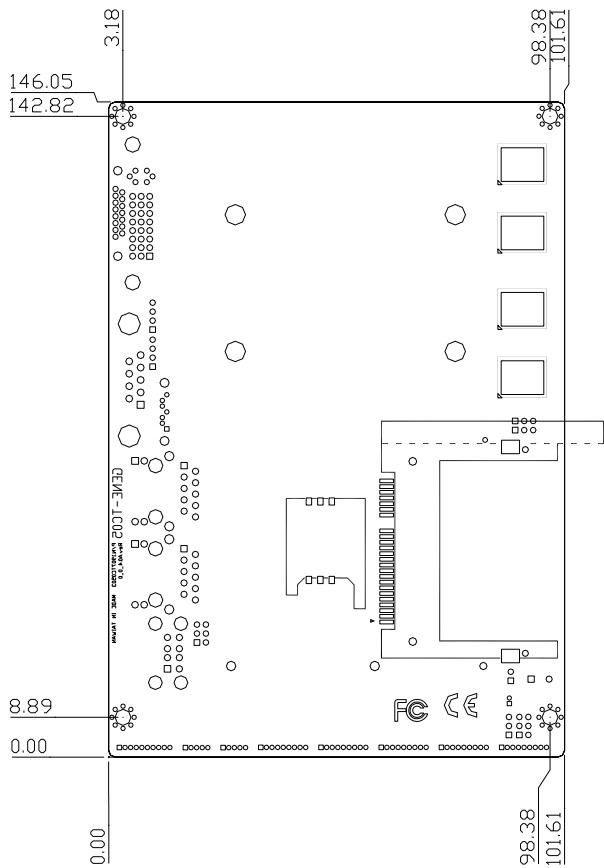


2.3 Mechanical Drawing

Component Side



Solder Side



2.4 List of Jumpers

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
JP1	LVDS Operating Voltage Selection
JP2	LVDS Inverter Voltage Selection
JP3	COM2 RI/+5/+12V
JP5	Touch Screen 4/5/8-wire Mode Selection
JP6	Auto Power Button Selection
JP7	RS-232/422/485 Selection-1
JP8	RS-232/422/485 Selection-2

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	LVDS Inverter Connector
CN2	LPC Expansion I/F
CN3	Front Panel
CN4	Digital I/O
CN5	COM Port #2
CN6	+5V Output for SATA HDD using
CN7	SYSTEM FAN
CN8	COM Port #3
CN9	+5VSB Output w/ SMBus
CN10	LVDS

SubCompact Board		GENE-TC05
CN11	COM Port #4	
CN12	COM Port #5	
CN13	COM Port #6	
CN14	USB Port #4	
CN15	PS/2 Keyboard & Mouse	
CN16	Touch Screen I/F	
CN17	USB Port #3	
CN18	Power Input (Vin)	
CN19	RJ-45 Ethernet #1	
CN20	RJ-45 Ethernet #2	
CN21	SATA	
CN22	I2C	
CN23	CAN Bus	
CN24	USB Port #1 and #2	
CN25	Audio Line In/Out and MIC Connector	
CN26	CRT/DVI Display	
CN27	COM Port #1	
CN28	SIM Card Socket	
CFD1	CFast™ Disk	
PCIE1	Mini Card Slot #1	
PCIE2	Mini Card Slot #2	

Note:

(1) Because of the limitation of the Intel® processor, the GENE-TC05 needs battery—CR-2450 with higher capacity to deal with higher power consumption.

(2) We put the battery-CR-2450 together with the discrete component next

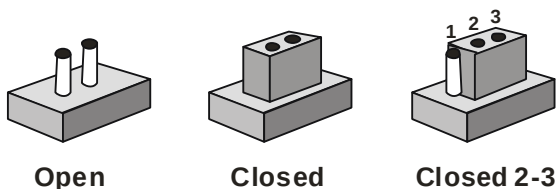
to the CPU board to keep the fully energy of the battery, users have to assemble it yourselves on the “BAT1” connector.

(3) If the CR-2450 battery is in low energy, the RTC (Real Time Clock) will lose in this condition and users have to change another CR-2450 battery.

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.



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 LVDS Operating Voltage Selection (JP1)

JP1	Function
1-2	+5V
2-3	+3.3V (Default)

2.8 LVDS Inverter Voltage Selection (JP2)

JP2	Function
1-2	+12V
2-3	+5V (Default)

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

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

2.10 Touch Screen 4/5/8-wire Mode Selection (JP5)

JP5	Function
1-2	4/8-wire (Default)
Open	5-wire

2.11 Auto Power Button Selection (JP6)

JP6	Function
1-2	Enable (Default)
2-3	Disable

2.12 RS-232/422/485 Selection (JP7)

JP7	Function
1-2	RS-232 (Default)
3-4	RS-422
5-6	RS-485

2.13 RS-232/422/485 Selection (JP8)

JP8	Function
1-3, 2-4, 7-9, 8-10	RS-232 (Default)
3-5, 4-6, 9-11, 10-12	RS-422
3-5, 9-11	RS-485

2.14 LVDS Inverter Connector (CN1)

Note: The max. rating of pin 1 is 1A

Pin	Signal
1	+5 Volt. / +12 Volt.
2	BKL_CONTROL
3	Ground
4	Ground
5	Backlight Enable (Controlled by CH7308C)

2.15 LPC Expansion I/F (CN2)

Pin	Signal
1	LAD0
2	LAD1
3	LAD2
4	LAD3

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5	+3.3V
6	LFRAME#
7	LRESET#
8	Ground
9	LPC_CLK
10	LDRQ#0
11	LDRQ#1
12	SERIRQ

2.16 Front Panel (CN3)

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

2.17 Digital I/O Connector (CN4)

This connector offers 4-pair of digital I/O functions and address is 6Eh. The pin definitions are illustrated below:

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	+3.3V	10	Ground

Note: The max. rating of pin 9 is 1A

BIOS Setting	Connector Definition	Address (Register)	F75111 GPIO Setting
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		Output	Input	
Port 8 @6Eh	Pin 8	21h/Bit7	22h/Bit7	U8 Pin 20 (GPIO 27)
Port 7 @6Eh	Pin 7	21h/Bit6	22h/Bit6	U8 Pin 21 (GPIO 26)
Port 6 @6Eh	Pin 6	21h/Bit5	22h/Bit5	U8 Pin 22 (GPIO 25)
Port 5 @6Eh	Pin 5	21h/Bit4	22h/Bit4	U8 Pin 23 (GPIO 24)
Port 4 @6Eh	Pin 4	21h/Bit3	22h/Bit3	U8 Pin 24 (GPIO 23)
Port 3 @6Eh	Pin 3	21h/Bit2	22h/Bit2	U8 Pin 8 (GPIO 22)
Port 2 @6Eh	Pin 2	21h/Bit1	22h/Bit1	U8 Pin 7 (GPIO 21)
Port 1 @6Eh	Pin 1	21h/Bit0	22h/Bit0	U8 Pin 6 (GPIO 20)

2.18 COM Port #2 (CN5)

Note: The max. rating of pin 8 is 0.5A

RS-232

Pin	Signal	Pin	Signal
1	DCDB	2	DSRB
3	RXB	4	RTSB
5	TXB	6	CTSB
7	DTRB	8	RIB / +5V / +12V
9	Ground		

RS-422

Pin	Signal	Pin	Signal
1	TXD-	2	N/C
3	RXD+	4	N/C
5	TXD+	6	N/C
7	RXD-	8	N/C / +5V / +12V

9 Ground

RS-485

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 / +5V / +12V
9	Ground		

2.19 +5V Output For SATA HDD (CN6)

Note: The max. output of CN6 is 1A @ 5V

Pin	Signal
1	+5V
2	Ground

2.20 System Fan (CN7)

Pin	Signal
1	Ground
2	+5 Volt. (Optional) / +12V
3	FAN Sense

2.21 COM Port #3 (CN8)

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

2.22 +5VSB Output w/SMBus (CN9)

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

2.23 LVDS Output (CN10)

Note: The total max. rating of pin 3, 7, 27 is 3A

Pin	Signal	Pin	Signal
1	Back-Light Enable	2	Back-Light Control
3	LCD Volt.	4	Ground
5	LA_CLK#	6	LA_CLK
7	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	DDCDATA	18	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	LCD Volt.	28	Ground
29	N/C	30	N/C

2.24 COM Port #4 (CN11)

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

2.25 COM Port #5 (CN12)

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

2.26 COM Port #6 (CN13)

Pin	Signal	Pin	Signal
1	DCDF	2	DSRF
3	RXF	4	RTSF
5	TXF	6	CTSF
7	DTRF	8	RIF
9	Ground		

2.27 USB Port #4 (CN14)

Pin	Signal
1	+5V Standby
2	Data4-

3	Data4+
4	Ground
5	Ground

2.28 PS/2 Keyboard and Mouse (CN15)

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

2.29 Touch Screen I/F (CN16)

Pin	8-wire Signal	5-wire Signal	4-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

2.30 USB Port #3 (CN17)

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

5	Ground
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2.31 Power Input (Vin) (CN18)

Pin	Signal
1	+12V
2	Ground

2.32 RJ-45 Ethernet #1 (CN19)

Pin	Signal	Pin	Signal
R1	GPHY_MDIO0+	R2	GPHY_MDIO0-
R3	GPHY_MDIO1+	R4	GPHY_MDIO1-
R5	TCD0	R6	TCD1
R7	GPHY_MDIO2+	R8	GPHY_MDIO2-
R9	GPHY_MDIO3+	R10	GPHY_MDIO3-
L1	SPD100_LED	L2	SPD1K_LED
L3	ACT_LED	L4	+3.3V

2.33 RJ-45 Ethernet #2 (CN20)

Pin	Signal	Pin	Signal
R1	MDIO0+	R2	MDIO0-
R3	MDIO1+	R4	MDIO1-
R5	TCD0	R6	TCD1
R7	MDIO2+	R8	MDIO2-
R9	MDIO3+	R10	MDIO3-
L1	SPD100_LED	L2	SPD1K_LED
L3	ACT_LED	L4	+3.3V

2.34 SATA Connector (CN21)

Pin	Signal
1	Ground
2	TX+
3	TX-
4	Ground
5	RX-
6	RX+
7	Ground

2.35 I2C (CN22)

Pin	Signal
1	+3.3V
2	SCL
3	SDA
4	Ground

2.36 CAN Bus (CN23)

Pin	Signal
1	CANH
2	Ground
3	CANL
4	N/C

2.37 USB Port #1 & #2 (CN24)

Pin	Signal	Pin	Signal
1	+5V Standby	5	+5V Standby

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2	Data1-	6	Data2-
3	Data1+	7	Data2+
4	Ground	8	Ground

2.38 Audio Line In/Out and MIC Connector (CN25)

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	+5V

2.39 DVI/CRT Display (CN26)

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	VSYSN
9	DVI_TDC1#	10	DVI_TDC1
11	Ground	12	N/C

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13	N/C	14	+5V
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

Pin	Signal	Pin	Signal
29	DDCCLK	30	N/C
31	+5V	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#		

2.40 COM Port #1 (CN27)

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

2.41 SIM Card Socket (CN28)

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

2.42 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	+3.3V
P14	+3.3V
P15	Ground
P16	Ground
P17	N/C

2.43 Mini Card Slot #1 (PCIE1)

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	+3.3V Standby
3	N/C	4	Ground
5	N/C	6	+1.5V
7	N/C	8	UIM_PWR
9	Ground	10	UIM_DATA
11	MCARD_CLK1#	12	UIM_CLK
13	MCARD_CLK1	14	UIM_RESET
15	Ground	16	UIM_VPP
17	N/C	18	Ground
19	N/C	20	W_DISABLE#1
21	Ground	22	PCIE_RST#
23	PCIE_RXN1	24	+3.3V Standby
25	PCIE_RXP1	26	Ground
27	Ground	28	+1.5V
29	Ground	30	SMBCLK
31	PCIE_TXN1	32	SMBDATA
33	PCIE_TXP1	34	Ground
35	Ground	36	USB_Data5-
37	Ground	38	USB_Data5+
39	+3.3V Standby	40	Ground

SubCompact Board		GENE-TC05	
41	+3.3V Standby	42	N/C
43	Ground	44	N/C
45	N/C	46	N/C
47	N/C	48	+1.5V
49	N/C	50	Ground
51	N/C	52	+3.3V Standby

2.44 Mini Card Slot #2 (PCIE2)

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	+3.3V Standby
3	N/C	4	Ground
5	N/C	6	+1.5V
7	N/C	8	N/C
9	Ground	10	N/C
11	MCARD_CLK2#	12	N/C
13	MCARD_CLK2	14	N/C
15	Ground	16	N/C
17	N/C	18	Ground
19	N/C	20	W_DISABLE#2
21	Ground	22	PCIE_RST#
23	PCIE_RXN2	24	+3.3V Standby
25	PCIE_RXP2	26	Ground
27	Ground	28	+1.5V
29	Ground	30	SMBCLK
31	PCIE_TXN2	32	SMBDATA
33	PCIE_TXP2	34	Ground
35	Ground	36	N/C
37	Ground	38	N/C

SubCompact Board	GENE-TC05
------------------	-----------

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

Below Table for China RoHS Requirements

產品中有毒有害物質或元素名稱及含量

AAEON Main Board/ Daughter Board/ Backplane

部件名稱	有毒有害物質或元素					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr(VI))	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
印刷電路板 及其電子元件	x	○	○	○	○	○
外部信號 連接器及線材	x	○	○	○	○	○
O：表示該有毒有害物質在該部件所有均質材料中的含量均在 SJ/T 11363-2006 標準規定的限量要求以下。 X：表示該有毒有害物質至少在該部件的某一均質材料中的含量超出 SJ/T 11363-2006 標準規定的限量要求。 備註：此產品所標示之環保使用期限，系指在一般正常使用狀況下。						

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.

The GENE-TC05 CMOS memory has an integral lithium battery backup for system time retention. However, you will need to replace the complete unit when it finally 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 NVRAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press 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/disables quiet boot option.

Security

Set setup administrator password.

Save&Exit

Exit system setup after saving the changes.

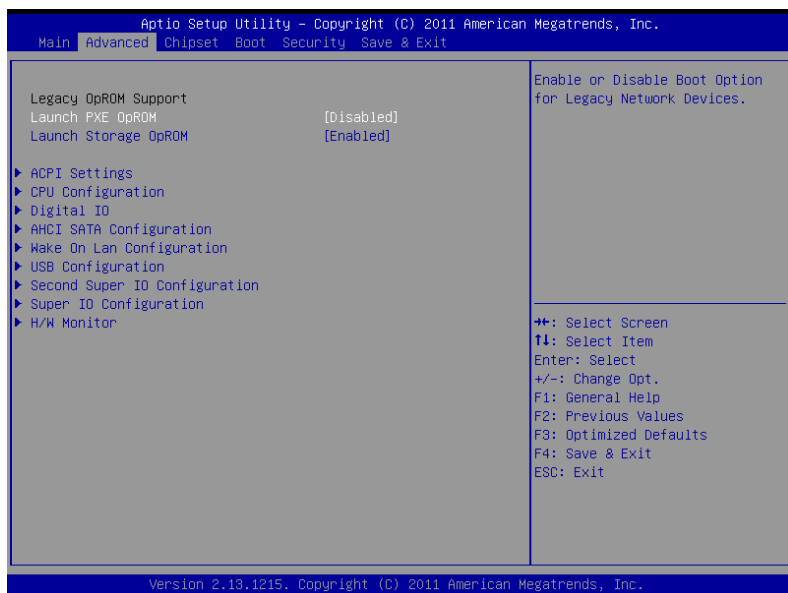
Setup Menu

Press '*Delete*' Key to enter Setup menu

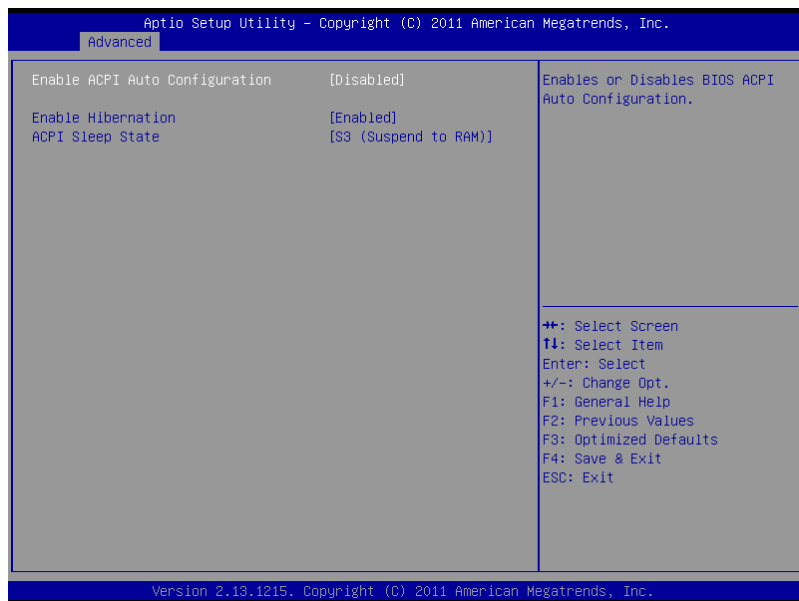
Main



Advanced



ACPI Settings

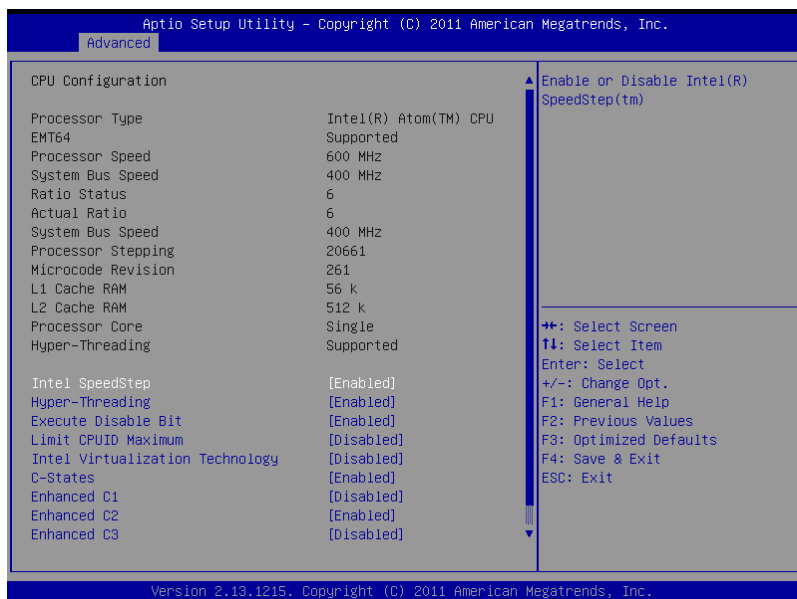


Options summary:

Enable Hibernation	Disable	
	Enable	Optimal Default, Failsafe Default
<i>Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.</i>		
ACPI Sleep State	Suspend Disabled	
	S1 (CPU Stop Clock)	
	S3 (Suspend to RAM)	Optimal Default, Failsafe Default

Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

CPU Configuration



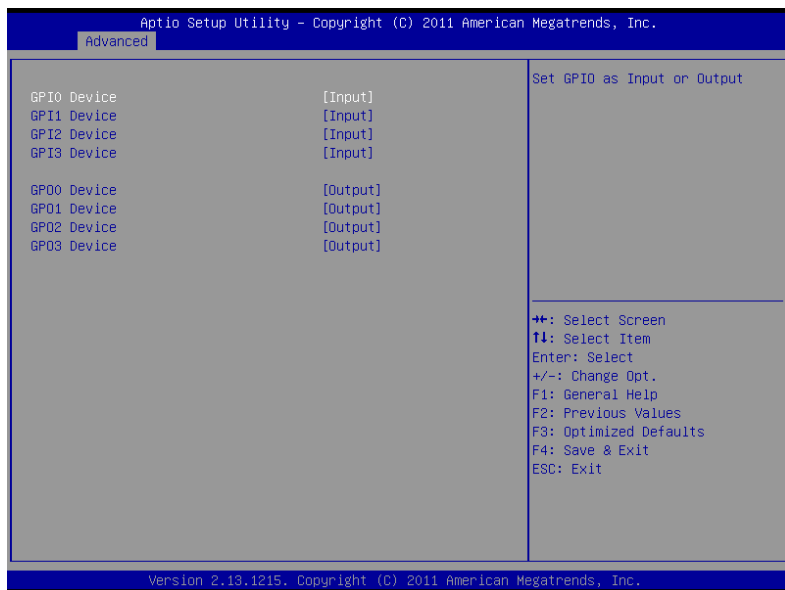
Options summary:

Intel SpeedStep	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>Enable or Disable Intel(R) SpeedStep(tm)</i>		
Hyper-Threading	Disabled	

	Enabled	Optimal Default, Failsafe Default
<i>Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology)</i>		
Execute Disable Bit	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)</i>		
Limit CPUID Maximum	Disabled	Optimal Default, Failsafe Default
	Enabled	
<i>Disabled for Windows XP</i>		
Intel Virtualization Technology	Disabled	Optimal Default, Failsafe Default
	Enabled	
<i>When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology</i>		
C-States	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>Enable or Disable C2 and above</i>		

Enhanced C1	Disabled	Optimal Default, Failsafe Default
	Enabled	
<i>Enable or Disable Enhanced C1 State</i>		
Enhanced C2	Disable	
	Enable	Optimal Default, Failsafe Default
<i>Enable or Disable Enhanced C2 State</i>		
Enhanced C3	Disable	Optimal Default, Failsafe Default
	Enable	
<i>Enable or Disable Enhanced C3 State</i>		
Enhanced C4	Disable	
	Enable	Optimal Default, Failsafe Default
<i>Enable or Disable Enhanced C4 State</i>		

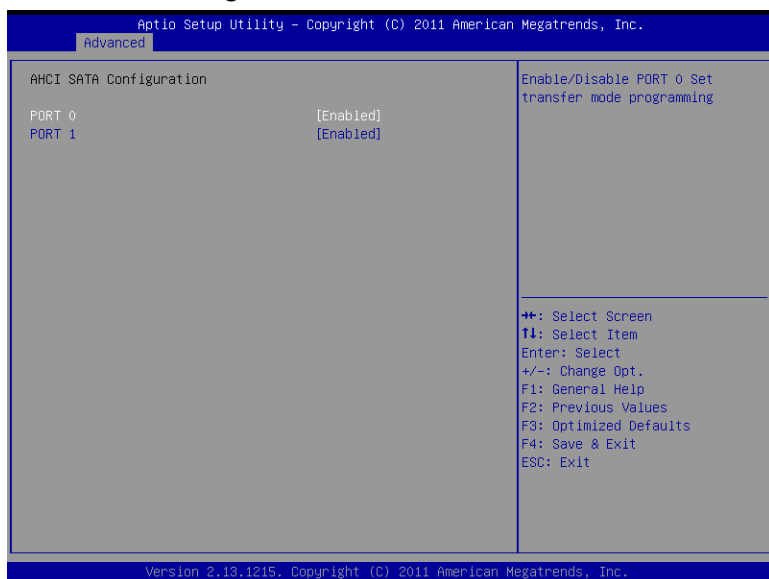
Digital IO



Options summary:

GPI0-3 Device	Input	Optimal Default, Failsafe Default
	Output	
<i>Set GPI0 as Input or Output</i>		
GPO0-3 Device	Input	
	Output	Optimal Default, Failsafe Default
<i>Set GPO0-3 as Input or Output</i>		

AHCI SATA Configuration



Options summary:

PORT 0	Disabled	
	Enable	Optimal Default, Failsafe Default
<i>Enable/Disable PORT 0 Set transfer mode programming</i>		
PORT 1	Disabled	
	Enable	Optimal Default, Failsafe Default
<i>Enable/Disable PORT 1 Set transfer mode programming</i>		

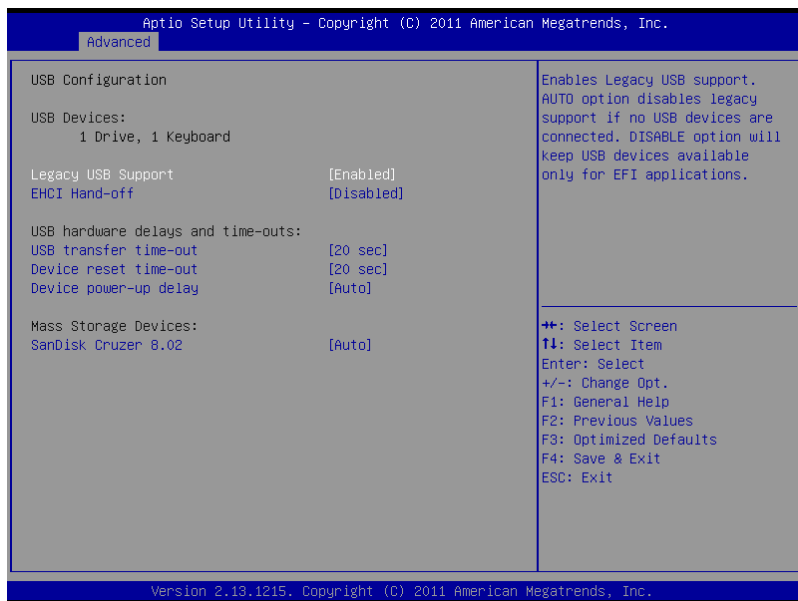
Wake On Lan Configuration



Options summary:

Wake On Lan	Disabled	
	Enable	Optimal Default, Failsafe Default
<i>Enable/Disable WOL</i>		

USB Configuration



Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
<i>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</i>		
USB transfer time-out	1 sec	
	5 sec	

	10 sec	
	20 sec	Optimal Default, Failsafe Default
<i>The time-out value for Control, Bulk, and Interrupt transfers</i>		
Device reset time-out	1 sec	
	5 sec	
	10 sec	
	20 sec	Optimal Default, Failsafe Default
<i>USB mass storage device Start Unit command time-out</i>		
Device Name (Emulation Type)	Auto	Optimal Default, Failsafe Default
	Floppy	
	Forced FDD	
	Hard Disk	
	CDROM	
<i>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)</i>		

Second Super IO Configuration



Serial Port 3 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Advanced	
Serial Port 3 Configuration	
Serial Port	[Enabled]
Change Settings	[IO=3E8h; IRQ=10;]
Enable or Disable Serial Port (COM)	
↑↓: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.13.1215. Copyright (C) 2011 American Megatrends, Inc.	

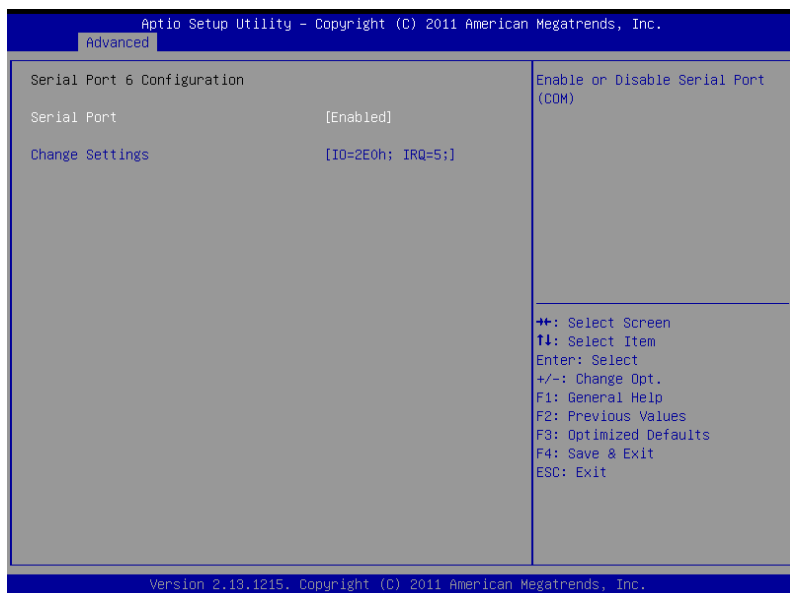
Serial Port 4 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Advanced	
Serial Port 4 Configuration	
Serial Port	[Enabled]
Change Settings	[IO=2E8h; IRQ=11;]
Enable or Disable Serial Port (COM)	
++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.13.1215. Copyright (C) 2011 American Megatrends, Inc.	

Serial Port 5 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Advanced	
Serial Port 5 Configuration	
Serial Port	[Enabled]
Change Settings	[I/O=2F0h; IRQ=7;]
Enable or Disable Serial Port (COM)	
++: Select Screen T1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.13.1215, Copyright (C) 2011 American Megatrends, Inc.	

Serial Port 6 Configuration



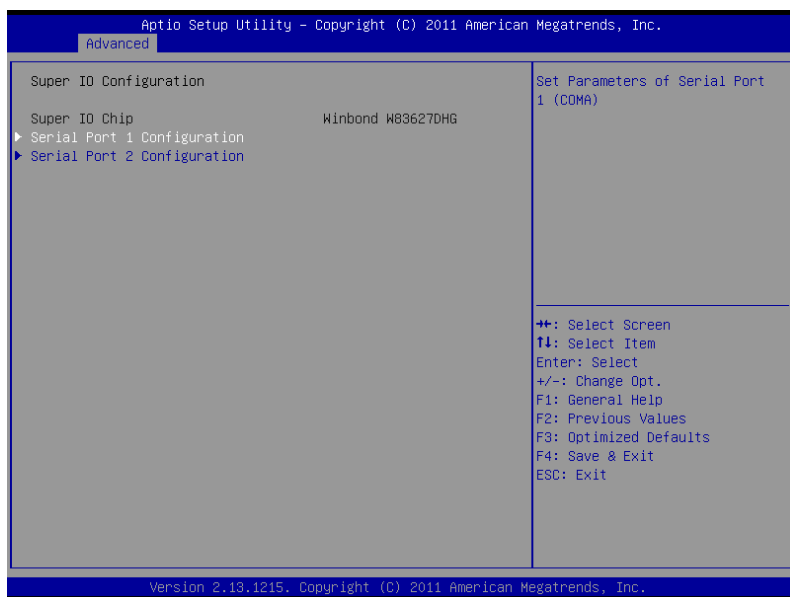
Options summary:

Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>Enable or Disable Serial Port (COM)</i>		
Change Settings (Serial Port 3)	IO=3E8h; IRQ=10;	Optimal Default, Failsafe Default
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;	

	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	
Change Settings (Serial Port 4)	IO=2E8h; IRQ=11;	Optimal Default, Failsafe Default
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	
Change Settings (Serial Port 5)	IO=2F0h; IRQ=7;	Optimal Default, Failsafe Default
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	

	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	
Change Settings (Serial Port 6)	IO=2E0h; IRQ=5;	Optimal Default, Failsafe Default
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	
<i>Select an optimal setting for Super IO device</i>		

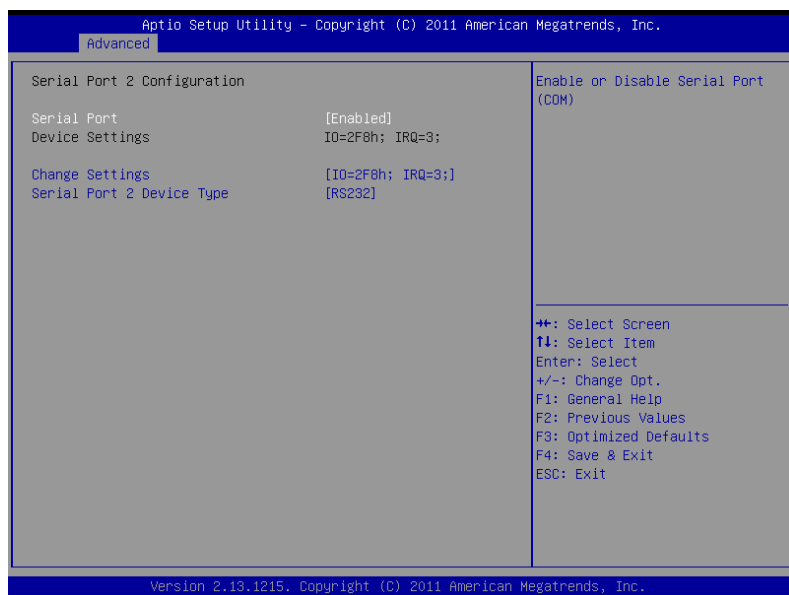
Super IO Configuration



Serial Port 1 Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Advanced	
Serial Port 1 Configuration	
Serial Port	[Enabled]
Device Settings	IO=3F8h; IRQ=4;
Change Settings	[IO=3F8h; IRQ=4;]
Enable or Disable Serial Port (COM)	
⬅: Select Screen ⬅: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.13.1215. Copyright (C) 2011 American Megatrends, Inc.	

Serial Port 2 Configuration

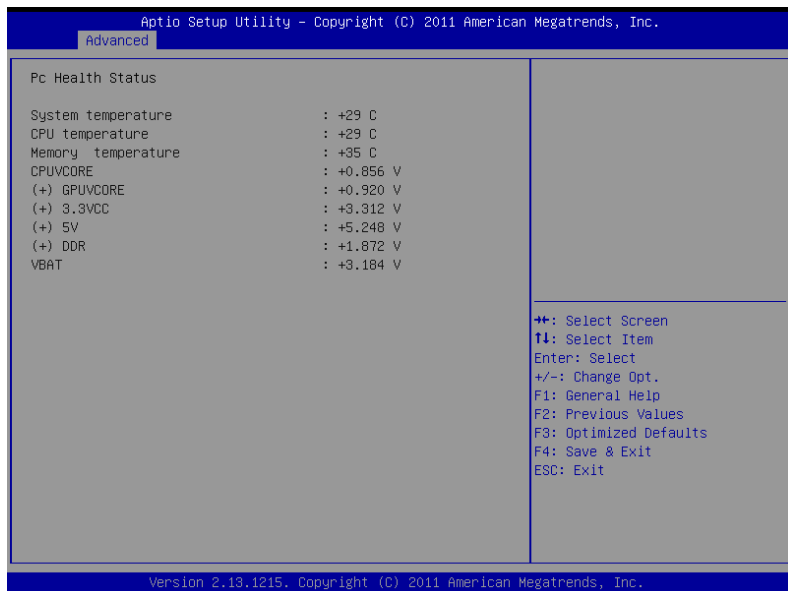


Options summary:

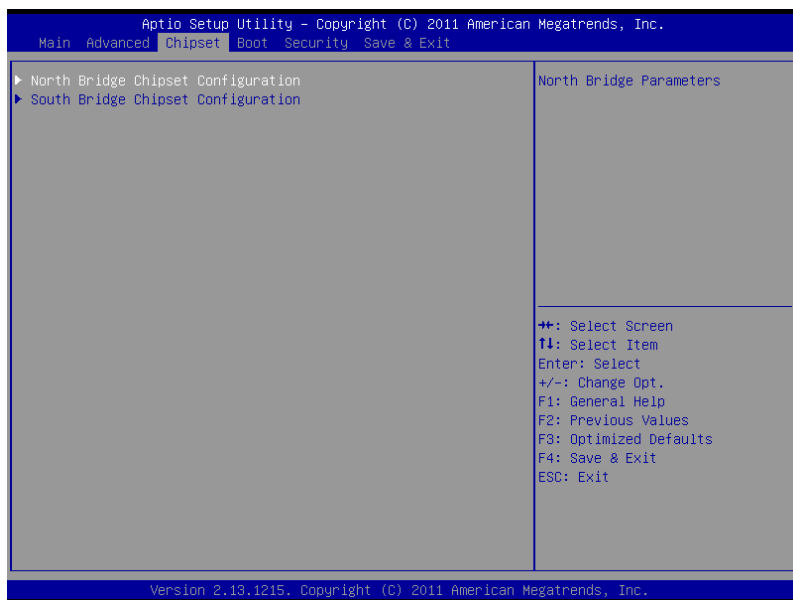
Serial Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>Enable or Disable Serial Port (COM)</i>		
Change Settings (Serial Port 1)	IO=3F8h; IRQ=4;	
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;	

	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	
Change Settings (Serial Port 2)	IO=2F8h; IRQ=3;	
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	
<i>Select an optimal setting for Super IO device</i>		
Serial Port 2 Device Type	RS232	Optimal Default, Failsafe Default
	RS422	
	RS485	
<i>Select RS232, RS422 or RS485</i>		

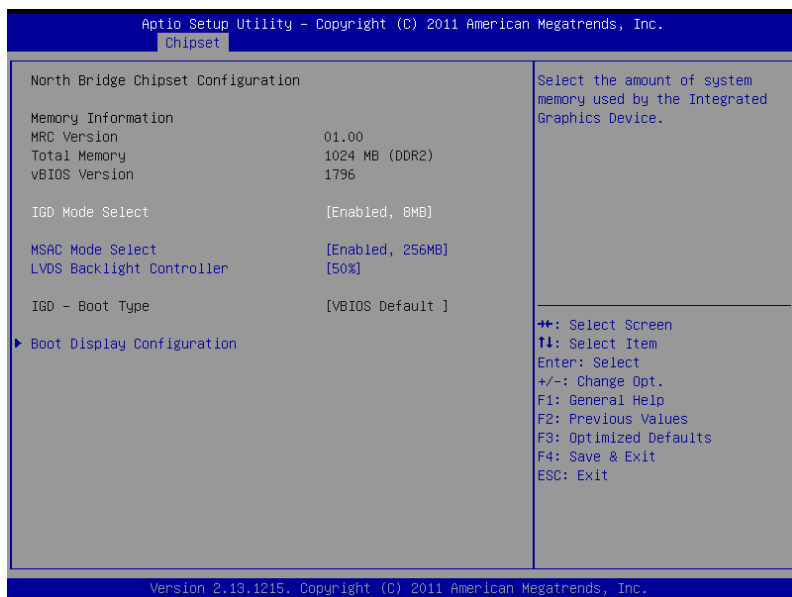
H/W Monitor



Chipset



North Bridge Chipset Configuration



Options summary:

IGD Mode Select	Enabled, 1MB	
	Enabled, 4MB	
	Enabled, 8MB	Optimal Default, Failsafe Default
	Enabled, 16MB	
	Enabled, 32MB	
	Enabled, 48MB	
	Enabled, 64MB	

Select the amount of system memory used by the Integrated Graphics Device.

MSAC Mode Select	Enabled, 512MB	
	Enabled, 256MB	Optimal Default, Failsafe Default
	Enabled, 128MB	

Select the size of the graphics memory aperture and untrusted space. Used by the Integrated Graphics Device

LVDS Backlight Controller	100%	
	90%	
	80%	
	70%	
	60%	
	50%	Optimal Default, Failsafe Default
	40%	
	30%	
	20%	
	10%	
	0%	

Adjust backlight brightness

Boot Display Configuration

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

Chipset

Boot Display Configuration Primary Display [Auto] Boot Display Device [External CRT] Flat Panel Scaling [Auto] Flat Panel Type [1024x768 18Bit] DPST Control [VBIOS-Default]		Select which graphics controller to use as the primary boot display. ++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
---	--	--

Version 2.13.1215. Copyright (C) 2011 American Megatrends, Inc.

Options summary:

Primary Display	Auto	Optimal Default, Failsafe Default
	IGD	
	PEG	
<i>Select which graphics controller to use as the primary boot display</i>		
Boot Display Device	Integrated LVDS	
	External DVI	
	External CRT	Optimal Default, Failsafe Default

Select Boot Display Device

Flat Panel Scaling	Auto	Optimal Default, Failsafe Default
	Forced	
	Disabled	

Select Flat Panel Scaling

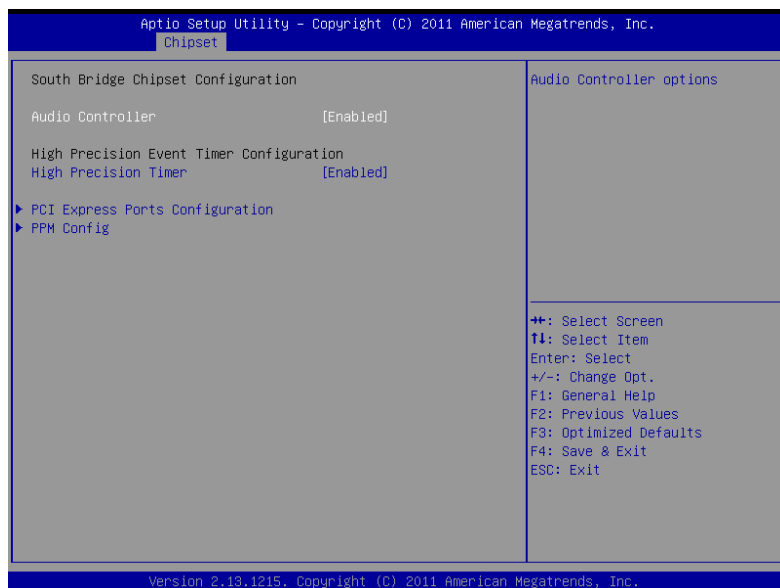
Flat Panel Type	640x480 18Bit	
	640x480 24Bit	
	800x600 18Bit	
	800x600 24Bit	
	1024x768 18Bit	Optimal Default, Failsafe Default
	1024x768 24Bit	
	1280x768 18Bit	
	1280x768 24Bit	

Select Flat Panel Type

DPST Control	VBIOS-Default	
	DPST Disabled	
	DPST Enabled L1	
	DPST Enabled L2	
	DPST Enabled L3	Optimal Default, Failsafe Default
	DPST Enabled L4	
	DPST Enabled L5	

Select DPST Control

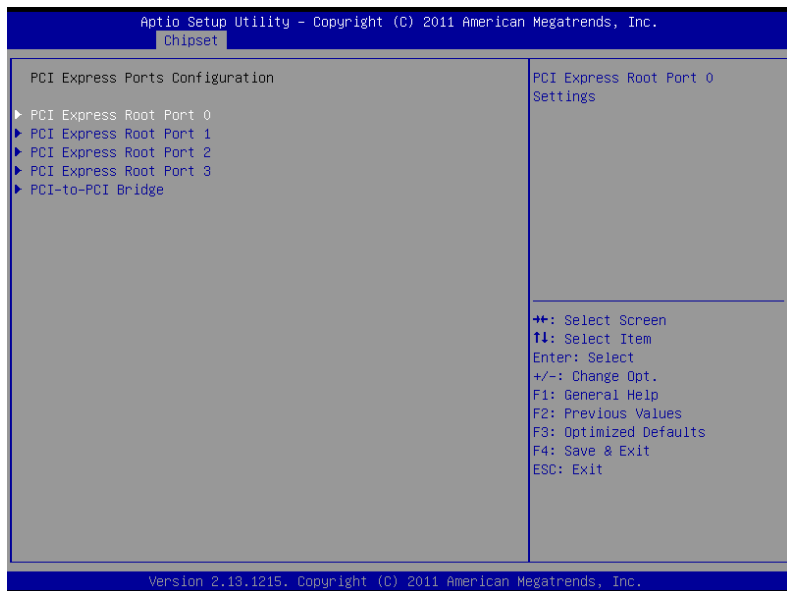
South Bridge Chipset Configuration



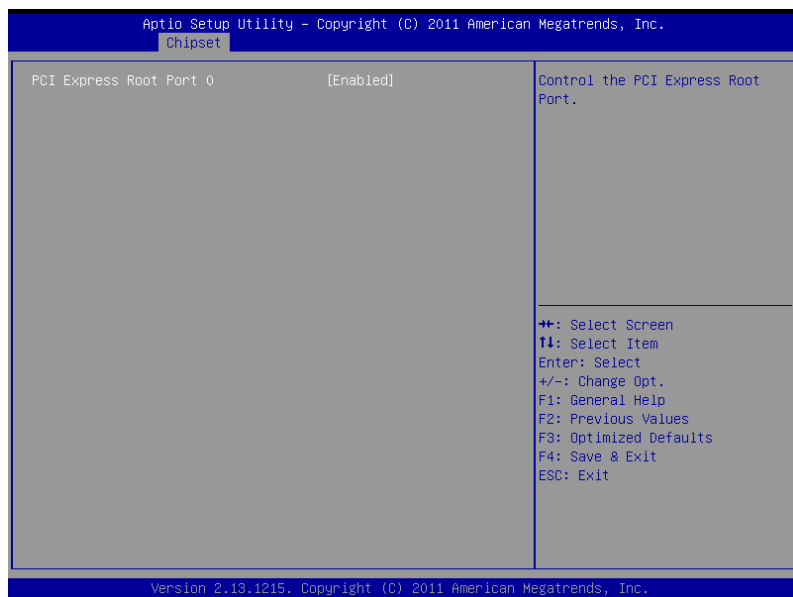
Options summary:

Primary Display	Auto	Optimal Default, Failsafe Default
	IGD	
	PEG	
Select which graphics controller to use as the primary boot display		

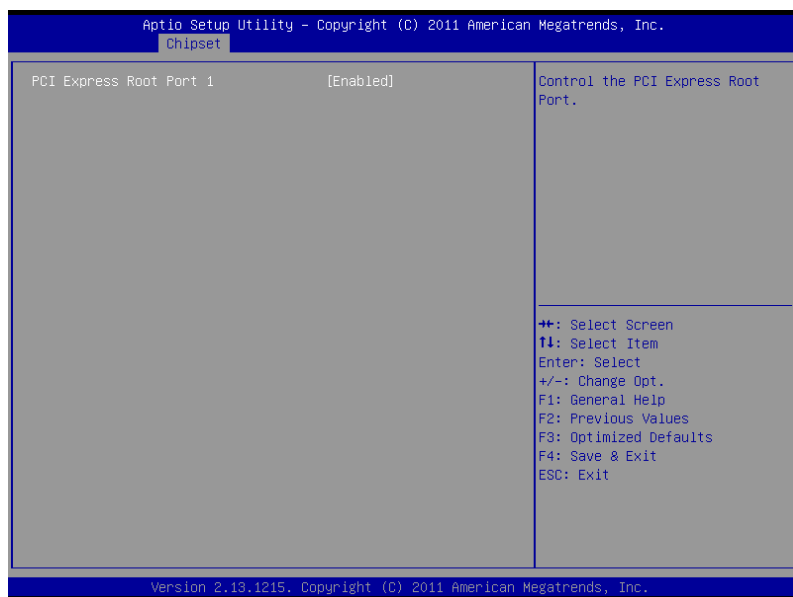
PCI Express Ports Configuration



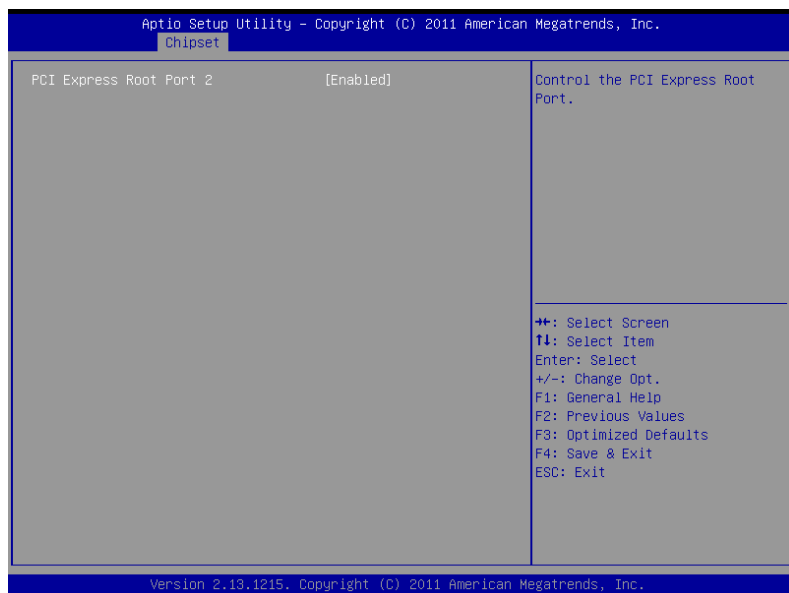
PCI Express Root Port 0



PCI Express Root Port 1



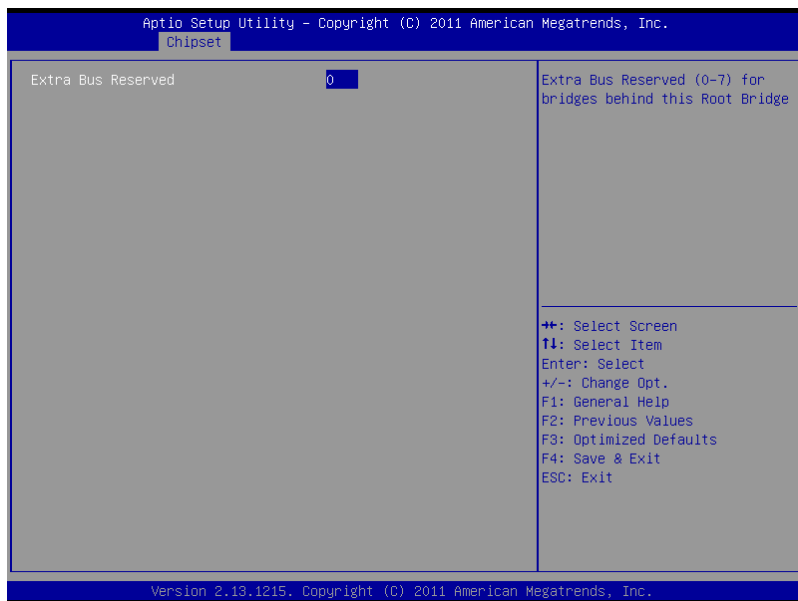
PCI Express Root Port 2



PCI Express Root Port 3

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Chipset		
PCI Express Root Port 3	[Enabled]	Control the PCI Express Root Port.
		↑↓ : Select Screen Tab : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.13.1215. Copyright (C) 2011 American Megatrends, Inc.		

PCI-to-PCI Bridge

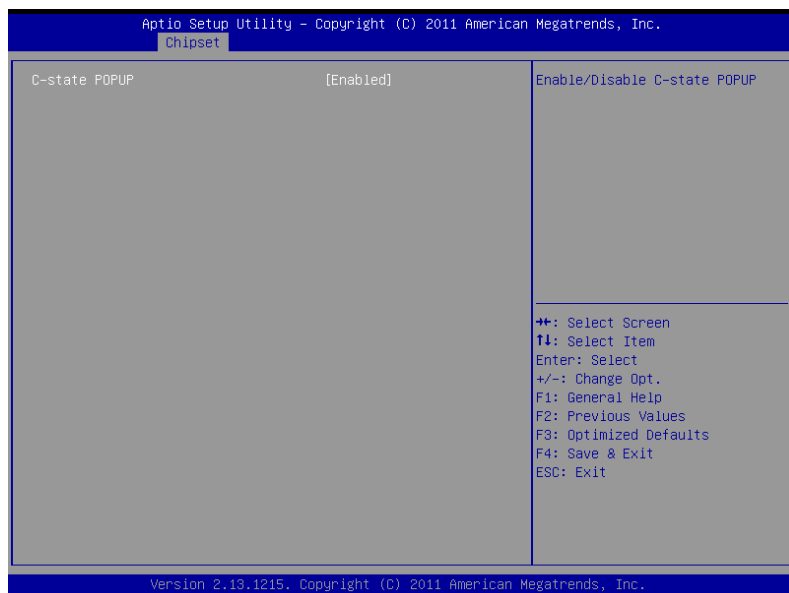


Options summary:

PCI Express Root Port 0	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>PCI Express Root Port 0 Settings</i>		
PCI Express Root Port 1	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>PCI Express Root Port 1 Settings</i>		
PCI Express Root Port 2	Disabled	

	Enabled	Optimal Default, Failsafe Default
<i>PCI Express Root Port 2 Settings</i>		
PCI Express Root Port 3	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>PCI Express Root Port 3 Settings</i>		
Extra Bus Reserved	0	Optimal Default, Failsafe Default
<i>Extra Bus Reserved (0-7) for bridges behind this Root Bridge</i>		

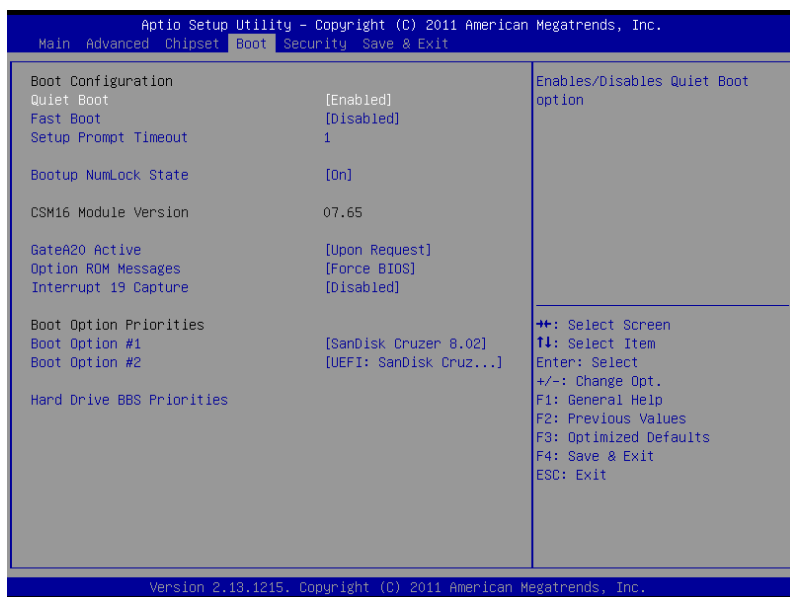
PPM Config



Options summary:

C-state POPUP	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>Enable/Disable C-state POPUP</i>		

Boot



Options summary:

Quiet Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>Enables or disables Quiet Boot option</i>		
Fast Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
<i>Enables/Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options</i>		

Setup Prompt Timeout	Integer	
<i>Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.</i>		
Bootup NumLock State	On	
	Off	Optimal Default, Failsafe Default
<i>Select the keyboard NumLock state</i>		
GateA20 Active	Upon Request	Default
	Always	
<i>UPON REQUEST - GA20 can be disabled using BIOS services. ALWAYS - do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.</i>		
Option ROM Messages	Force BIOS	Default
	Keep Current	
<i>Set display mode for Option ROM</i>		
Interrupt 19 Capture	Disabled	
	Enabled	Default
<i>Enabled: Allows Option ROMs to trap Int 19</i>		

Security

Change User/Supervisor Password

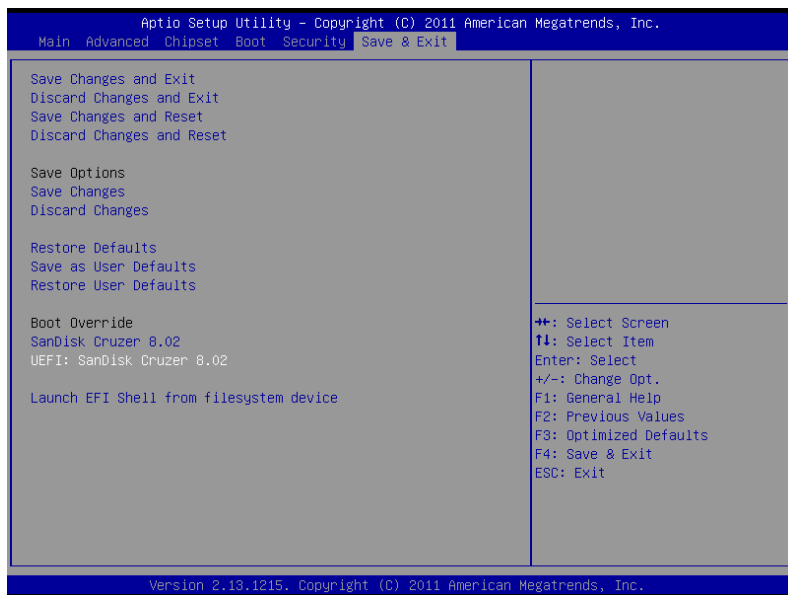
You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility. If you highlight these items and press Enter, a dialog box appears which lets you enter a password. 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.



Save & Exit



Chapter

4

Driver Installation

The GENE-TC05 comes with a CD-ROM that contains all drivers your need.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install VGA Driver

Step 3 – Install PCH EG20T Driver

Step 4 – Install LAN Driver

Step 5 – Install Audio Driver

Step 6 – Install Touch Driver

Please read following instructions for detailed installations.

4.1 Installation:

Insert the GENE-TC05 DVD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 6 in order.

Step 1 – Install Chipset Driver

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

Step 2 – Install VGA Driver

For the VGA drivers, there are three types. 2a is for CRT only, 2b is for DVI only, and 2c is for LVDS and CRT only.

1. Click on the **Step 2a - Graphic CRT only** folder and double click on **WindowsDriverSETUP** file

Click on the **Step 2b - Graphic DVI only** folder and double click on **WindowsDriverSETUP** file

Click on the **Step 2c- Graphic LVDS and CRT** folder and double click on **WindowsDriverSETUP** file
2. Follow the instructions that the window shows
3. The system will help you to install the driver automatically

Step 3 – Install PCH EG20T Driver

1. Click on the **Step 3 - PCH EG20T** folder and select the OS your system is
2. Double click on **.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you to install the driver automatically

Step 4 – Install LAN Driver

1. Click on the **Step 4 - Intel 82574L Ethernet** folder and select the OS your system is
2. Double click on **.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you to install the driver automatically

Step 5 – Install Audio Driver

1. Click on the **Step 5 - Realtek ALC888 Audio Codec** folder and select the OS your system is
2. Double click on **.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you to install the driver automatically

Step 6 – Install Touch Driver

1. Click on the **Step 6 - PenMount Touch 6000 series (Option)** folder and select the OS your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows you
4. The system will help you install the driver automatically

Appendix

A

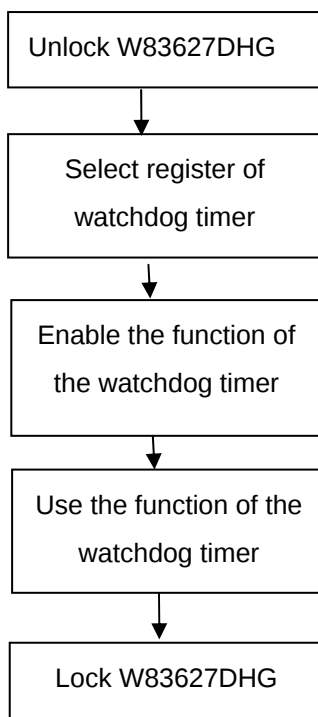
Programming the Watchdog Timer

A.1 Programming

GENE-TC05 utilizes W83627DHG-P 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



There are three steps to complete the configuration setup:

- (1) Enter the W83627DHG config Mode
- (2) Modify the data of configuration registers

- (3) Exit the W83627DHG config Mode. Undesired result may occur if the config Mode is not exited normally.

(1) Enter the W83627DHG config Mode

To enter the W83627DHG config Mode, two 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 two write operations to the Special Address port (2EH). The different enter keys are provided to select configuration ports (2EH/2Fh) of the next step.

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

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the config 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 W83627DHG config Mode

The exit key is provided to select configuration ports (2EH/2Fh) of the next step.

	Address Port	Data Port
0aah:	2Eh	2Fh

WatchDog Timer Register I (Index=F5h, Default=00h)

CRF5 (PLED and KBC P20 Control Mode Register)

Bit 7-5 : select PLED mode

= 000 Power LED pin is driven high.

= 001 Power LED pin outputs 0.5Hz pulse with 50% duty cycle.

= 010 Power LED pin is driven low.

= 011 Power LED pin outputs 2Hz pulse with 50% duty cycle.

= 100 Power LED pin outputs 1Hz pulse with 50% duty cycle.

= 101 Power LED pin outputs 4Hz pulse with 50% duty cycle.

= 110 Power LED pin outputs 0.25Hz pulse with 50% duty cycle.

=111 Power LED pin outputs 0.25Hz pulse with 50% duty cycle..

Bit 4 : WDTO# count mode is 1000 times faster.

= 0 Disable.

= 1 Enable.

Bit 3 : select WDTO# count mode.

= 0 second

= 1 minute

Bit 2 : Enable the rising edge of keyboard Reset (P20) to force Time-out event.

= 0 Disable

= 1 Enable

Bit 1 : Disable / Enable the WDTO# output low pulse to the KBRST# pin (PIN60)

= 0 Disable

= 1 Enable

Bit 0 : Reserved.

WatchDog Timer Register II (Index=F6h, Default=00h)

- Bit 7-0** = 0 x 00 Time-out Disable
- = 0 x 01 Time-out occurs after 1 second/minute
- = 0 x 02 Time-out occurs after 2 second/minutes
- = 0 x 03 Time-out occurs after 3 second/minutes
-
- = 0 x FF Time-out occurs after 255 second/minutes

WatchDog Timer Register III (Index=F7h, Default=00h)

- Bit 7** : Mouse interrupt reset Enable or Disable
- = 1 Watchdog Timer is reset upon a Mouse interrupt
- = 0 Watchdog Timer is not affected by Mouse interrupt
- Bit 6** : Keyboard interrupt reset Enable or Disable
- = 1 Watchdog Timer is reset upon a Keyboard interrupt
- = 0 Watchdog Timer is not affected by Keyboard interrupt
- Bit 5** : Force Watchdog Timer Time-out. Write Only

= 1 Force Watchdog Timer time-out
event: this bit is self-clearing

Bit 4 : Watchdog Timer Status. R/W

= 1 Watchdog Timer time-out occurred

= 0 Watchdog Timer counting

Bit 3-0 : These bits select IRQ resource for
Watchdog. Setting of 2 selects SMI.

A.2 W83627DHG Watchdog Timer Initial Program

Example: Setting 10 sec. as Watchdog timeout interval

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Mov dx,2eh           ;Enter W83627DHG config mode
```

```
Mov al,87h           (out 87h to 2eh twice)
```

```
Out dx,al
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Mov al,07h
```

```
Out dx,al
```

```
Inc dx
```

```
Mov al,08h           ;Select Logical Device 8 (GPIO Port  
2)
```

```
Out dx,al
```

```
;/;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
Dec dx
```

```
Mov al,30h           ;CR30 (GP20~GP27)
```

```
Out dx,al
```

```
Inc dx
```

```
Mov al,01h           ;Activate GPIO2
```

```
Out dx,al
```

```

;/////////////////////////////////////////////////////////////////
Dec dx
Mov al,0f5h          ;CRF5 (PLED mode register)
Out dx,al
Inc dx
In al,dx
And al,not 08h       ;Set second as counting unit
Out dx,al
;/////////////////////////////////////////////////////////////////
Dec dx
Mov al,0f6h          ; CRF6
Out dx,al
Inc dx
Mov al,10             ;Set timeout interval as 10 sec.
Out dx,al
;/////////////////////////////////////////////////////////////////
Dec dx                ;Exit W83627DHG config mode
Mov al,0aah           (out 0aah to 2eh once)
Out dx,al
;/////////////////////////////////////////////////////////////////

```

Appendix

B

I/O Information

B.1 I/O Address Map

Input/output (I/O)	
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 000000CF]	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
[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
[00000050 - 00000053]	System timer
[00000060 - 00000060]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000061 - 00000061]	System speaker
[00000063 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000065 - 00000065]	Motherboard resources
[00000067 - 0000006F]	Motherboard resources
[00000070 - 00000077]	System CMOS/real time clock
[00000072 - 0000007F]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000081 - 00000083]	Direct memory access controller
[00000084 - 00000086]	Motherboard resources
[00000087 - 00000087]	Direct memory access controller
[00000088 - 00000088]	Motherboard resources
[00000089 - 0000008B]	Direct memory access controller
[0000008C - 0000008E]	Motherboard resources
[0000008F - 0000008F]	Direct memory access controller
[00000090 - 0000009F]	Motherboard resources
[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
[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 - 000000FF]	Numeric data processor
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[00000295 - 000002A4]	Motherboard resources

	[000002E0 - 000002E7]	Communications Port (COM6)
	[000002E8 - 000002EF]	Communications Port (COM4)
	[000002F0 - 000002F7]	Communications Port (COM5)
	[000002F8 - 000002FF]	Communications Port (COM2)
	[00000380 - 0000038B]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0
	[000003C0 - 000003DF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0
	[000003E8 - 000003EF]	Communications Port (COM3)
	[000003F8 - 000003FF]	Communications Port (COM1)
	[00000400 - 0000043F]	System board
	[00000480 - 000004BF]	System board
	[000004D0 - 000004D1]	Motherboard resources
	[000004D0 - 000004D1]	Programmable interrupt controller
	[00000900 - 0000097F]	System board
	[000009C0 - 000009FF]	System board
	[00000A79 - 00000A79]	ISAPNP Read Data Port
	[00000D00 - 0000FFFF]	PCI bus
	[0000D000 - 0000D01F]	Intel(R) 82574L Gigabit Network Connection
	[0000D000 - 0000DFFF]	Intel(R) Atom(TM) Processor E6xx PCI Express Port 2 - 8185
	[0000E000 - 0000E01F]	Intel(R) Platform Controller Hub EG20T SATA AHCI Controller - 880B
	[0000E000 - 0000EFFF]	Intel(R) Atom(TM) Processor E6xx PCI Express Port 1 - 8184
	[0000E000 - 0000EFFF]	Intel(R) Platform Controller Hub EG20T PCI Express Port - 8800
	[0000E020 - 0000E03F]	Intel(R) Platform Controller Hub EG20T Gigabit Ethernet Controller - 8802
	[0000E040 - 0000E047]	Intel(R) Platform Controller Hub EG20T UART Controller - 8814 (COM10)
	[0000E050 - 0000E057]	Intel(R) Platform Controller Hub EG20T UART Controller - 8813 (COM9)
	[0000E060 - 0000E067]	Intel(R) Platform Controller Hub EG20T UART Controller - 8812 (COM8)
	[0000E070 - 0000E077]	Intel(R) Platform Controller Hub EG20T UART Controller - 8811 (COM7)
	[0000F000 - 0000F007]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Extension
	[0000F010 - 0000F017]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0

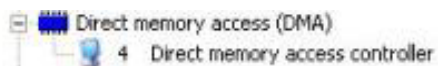
B.2 Memory Address Map

Memory	
[000A0000 - 000BFFFF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	System board
[000E0000 - 000EFFFF]	System board
[000F0000 - 000FFFFF]	System board
[3F6F0000 - 3F6FFFFF]	System board
[3F700000 - 3F7FFFFF]	System board
[3F800000 - 3F8FFFFF]	System board
[40000000 - FFFFFFFF]	PCI bus
[80000000 - BFFFFFFF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Extension
[C0000000 - CFFFFFFF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0
[D0000000 - D00FFFFF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0
[D0100000 - D01FFFFF]	Intel(R) Platform Controller Hub EG20T PCI Express Port - 8800
[D0100000 - D02FFFFF]	Intel(R) Atom(TM) Processor E6xx PCI Express Port 1 - 8184
[D0140000 - D0141FFF]	Intel(R) Platform Controller Hub EG20T USB Client Controller - 8808
[D0142000 - D0142FFF]	Intel(R) Platform Controller Hub EG20T IEEE 1588 Hardware Assist - 8819
[D0143000 - D0143FFF]	Intel(R) Platform Controller Hub EG20T Controller Area Network (CAN) Controller - 8818
[D0144000 - D0144FFF]	Intel(R) Platform Controller Hub EG20T I2C Controller - 8817
[D0145000 - D0145FFF]	Intel(R) Platform Controller Hub EG20T Serial Peripheral Interface Bus - 8816
[D0146000 - D0146FFF]	Intel(R) Platform Controller Hub EG20T DMA Controller #2 - 8815
[D0147000 - D0147FFF]	Intel(R) Platform Controller Hub EG20T UART Controller - 8814 (COM10)
[D0148000 - D0148FFF]	Intel(R) Platform Controller Hub EG20T UART Controller - 8813 (COM9)
[D0149000 - D0149FFF]	Intel(R) Platform Controller Hub EG20T UART Controller - 8812 (COM8)
[D014A000 - D014AFFF]	Intel(R) Platform Controller Hub EG20T UART Controller - 8811 (COM7)
[D014B000 - D014BFFF]	Intel(R) Platform Controller Hub EG20T DMA Controller #1 - 8810
[D014C000 - D014CFFF]	Intel(R) Platform Controller Hub EG20T USB2 EHCI Controller #1 - 880F
[D014D000 - D014DFFF]	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #3 - 880E
[D014E000 - D014EFFF]	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #2 - 880D
[D014F000 - D014FFFF]	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #1 - 880C
[D0150000 - D0150FFF]	Intel(R) Platform Controller Hub EG20T SATA AHCI Controller - 880B
[D0151000 - D0151FFF]	Intel(R) Platform Controller Hub EG20T SDIO Controller #2 - 880A
[D0152000 - D0152FFF]	Intel(R) Platform Controller Hub EG20T SDIO Controller #1 - 8809
[D0153000 - D0153FFF]	Intel(R) Platform Controller Hub EG20T USB2 EHCI Controller #2 - 8807
[D0154000 - D0154FFF]	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #6 - 8806
[D0155000 - D0155FFF]	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #5 - 8805
[D0156000 - D0156FFF]	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #4 - 8804
[D0157000 - D0157FFF]	Intel(R) Platform Controller Hub EG20T General Purpose IO Controller - 8803
[D0158000 - D0158FFF]	Intel(R) Platform Controller Hub EG20T Gigabit Ethernet Controller - 8802
[D0159000 - D0159FFF]	Intel(R) Platform Controller Hub EG20T Packet Hub - 8801
[D0300000 - D031FFFF]	Intel(R) 82574L Gigabit Network Connection
[D0300000 - D03FFFFF]	Intel(R) Atom(TM) Processor E6xx PCI Express Port 2 - 8185
[D0320000 - D0323FFF]	Intel(R) 82574L Gigabit Network Connection
[D0400000 - D047FFFF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Extension
[D0480000 - D048FFFF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Extension
[D04C0000 - D04FFFFF]	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0
[D0500000 - D0503FFF]	Microsoft UAA Bus Driver for High Definition Audio
[E0000000 - EFFFFFFF]	System board
[FEC00000 - FEC85FFF]	System board
[FED00000 - FED003FF]	High precision event timer
[FED1C000 - FED1FFFF]	System board
[FEE00000 - FEEFFFFFFF]	System board
[FF800000 - FFFFFFFF]	System board

B.3 IRQ Mapping Chart

Interrupt request (IRQ)	
(ISA) 0	System timer
(ISA) 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3	Communications Port (COM2)
(ISA) 4	Communications Port (COM1)
(ISA) 5	Communications Port (COM6)
(ISA) 7	Communications Port (COM5)
(ISA) 8	System CMOS/real time clock
(ISA) 9	Microsoft ACPI-Compliant System
(ISA) 10	Communications Port (COM3)
(ISA) 11	Communications Port (COM4)
(ISA) 12	Microsoft PS/2 Mouse
(ISA) 13	Numeric data processor
(PCI) 7	Intel(R) Platform Controller Hub EG20T DMA Controller #2 - 8815
(PCI) 11	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Extension
(PCI) 16	Intel Corporation Atom? E6xx Intel? Embedded Media and Graphics Driver Function 0
(PCI) 16	Intel(R) Atom(TM) Processor E6xx PCI Express Port 1 - 8184
(PCI) 16	Intel(R) Atom(TM) Processor E6xx PCI Express Port 2 - 8185
(PCI) 16	Intel(R) Atom(TM) Processor E6xx PCI Express Port 3 - 8180
(PCI) 16	Intel(R) Atom(TM) Processor E6xx PCI Express Port 4 - 8181
(PCI) 16	Intel(R) Platform Controller Hub EG20T General Purpose IO Controller - 8803
(PCI) 16	Intel(R) Platform Controller Hub EG20T Gigabit Ethernet Controller - 8802
(PCI) 16	Intel(R) Platform Controller Hub EG20T PCI Express Port - 8800
(PCI) 16	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #1 - 880c
(PCI) 16	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #2 - 880d
(PCI) 16	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #3 - 880e
(PCI) 16	Intel(R) Platform Controller Hub EG20T USB2 EHCI Controller #1 - 880f
(PCI) 16	Microsoft UAA Bus Driver for High Definition Audio
(PCI) 17	Intel(R) 82574L Gigabit Network Connection
(PCI) 17	Intel(R) Platform Controller Hub EG20T SATA AHCI Controller - 8808
(PCI) 18	Intel(R) Platform Controller Hub EG20T Controller Area Network (CAN) Controller - 8818
(PCI) 18	Intel(R) Platform Controller Hub EG20T I2C Controller - 8817
(PCI) 18	Intel(R) Platform Controller Hub EG20T IEEE 1588 Hardware Assist - 8819
(PCI) 18	Intel(R) Platform Controller Hub EG20T SDIO Controller #1 - 8809
(PCI) 18	Intel(R) Platform Controller Hub EG20T SDIO Controller #2 - 880a
(PCI) 18	Intel(R) Platform Controller Hub EG20T Serial Peripheral Interface Bus - 8816
(PCI) 19	Intel(R) Platform Controller Hub EG20T DMA Controller #1 - 8810
(PCI) 19	Intel(R) Platform Controller Hub EG20T UART Controller - 8811 (COM7)
(PCI) 19	Intel(R) Platform Controller Hub EG20T UART Controller - 8812 (COM8)
(PCI) 19	Intel(R) Platform Controller Hub EG20T UART Controller - 8813 (COM9)
(PCI) 19	Intel(R) Platform Controller Hub EG20T UART Controller - 8814 (COM10)
(PCI) 19	Intel(R) Platform Controller Hub EG20T USB Client Controller - 8808
(PCI) 19	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #4 - 8804
(PCI) 19	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #5 - 8805
(PCI) 19	Intel(R) Platform Controller Hub EG20T USB OHCI Controller #6 - 8806
(PCI) 19	Intel(R) Platform Controller Hub EG20T USB2 EHCI Controller #2 - 8807

B.4 DMA Channel Assignments



Appendix

C

Mating Connecotor

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.		
CN1	LVDS Inverter Connector	JST	PHR-5	Invertor Cable	1705050153
CN4	Digital I/O Connector	Neltron	2026B-10	N/A	N/A
CN5	COM Port 2 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN6	+5Vout Connector	N/A	N/A	2 Pins For SATA Power	1702150155
CN7	System Fan Connector	Catch	1190-700-03S	N/A	N/A
CN8	COM Port 3 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN9	External AUX Power and PS_ON#	Catch	2418HJ-06	ATX External 5VSB Cable	External AUX Power and PS_ON#
CN10	LVDS Connector	HIROSE	DF13-30DS-1.25C	N/A	N/A
CN11	COM Port 4 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN12	COM Port 5 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN13	COM Port 6 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN14	USB Port Connector	Molex	51021-0500	USB Wafer Cable	1700050207

CN15	Keyboard / Mouse Connector	Catch	A003-290	KB/MS Cable	1700060152
CN17	USB Port Connector	Molex	51021-0500	USB Wafer Cable	1700050207
CN18	+12V Vin Connector	N/A	N/A	Power Cable	1702002010
CN19	RJ-45 Ethernet#1 Connector	Neltron	7001-8P8C	N/A	N/A
CN20	RJ-45 Ethernet#1 Connector	Neltron	7001-8P8C	N/A	N/A
CN21	SATA Connector	Molex	67582-0000	SATA Cable	1709070500
CN25	Audio In/Out/CD-in and MIC Connector	N/A	N/A	Audio Cable	1709100254
CN26	DVI Connector	LIAN TAY	H820-2X10	DVI Cable	1700250450
BAT1	External RTC Connector	Molex	51021-0200	Battery Cable	175011901R

Appendix

D

AHCI Setting

D.1 WIN XP OS installation

Note: BIOS Setting Requirement : “BIOS Setting→Advanced →Launch Storage OpROM : **Enable** to enable HDD”

Step 1: Copy the files below from “Driver CD” ->“STEP 3 PCH EG20T

\\EG20T_WinXP_WePOS_Package_220\\FD_Inst_WinXP

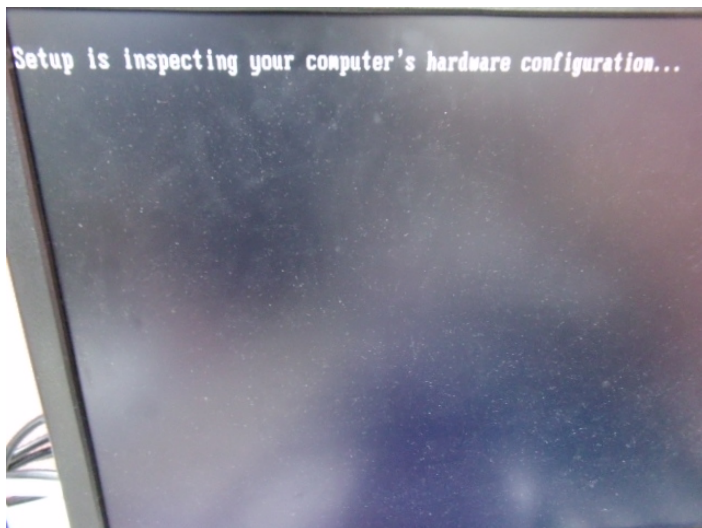
To Disk.



Step 2: Connect the USB floppy (disk with AHCI files) to the board.



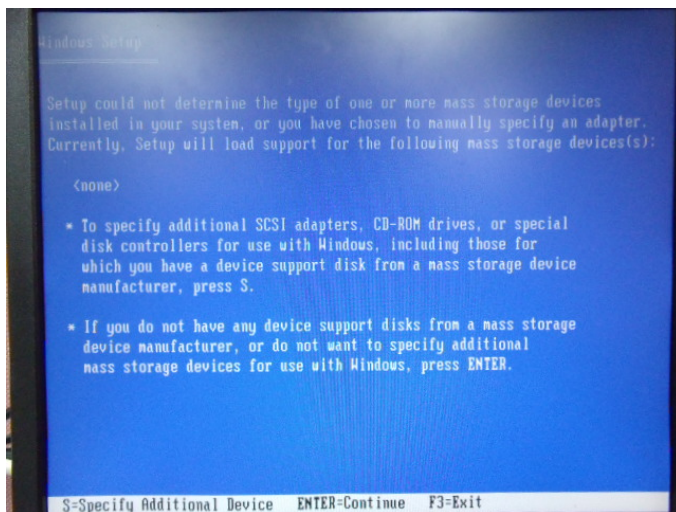
Step 3: Setup OS



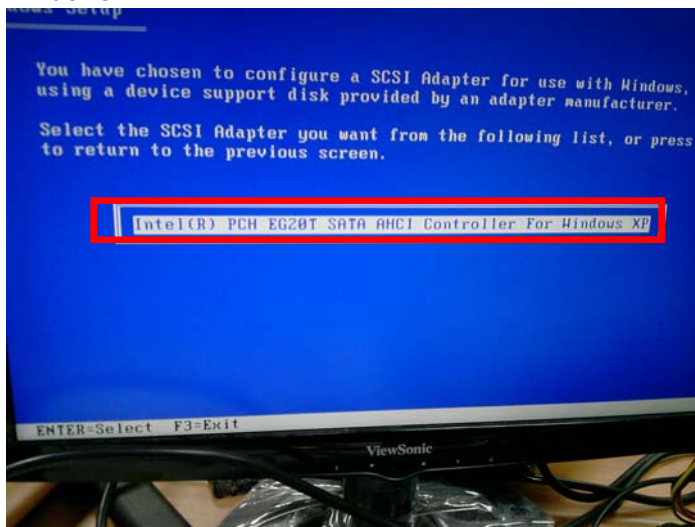
Step 4: Press "F6"



Step 5: Choose “S”



Step 6: Choose “Intel(R) PCH EG20T SATA AHCI Controller For Windows XP”



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



Step 8: Setup is starting Windows

