GENE-9455 Rev.B

Intel® Atom™ N270 Processor
With LVDS, Ethernet,
1 Mini PCI, 1 Mini Card,
6 USB2.0, 4 COM, 1 Parallel
AC97 2.3 Codec 2CH Audio

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Packing List

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

- GENE-9455 Rev.B CPU Card

- Quick Installation Guide

- CD-ROM for manual (in PDF format) and drivers

- Cooler or Heatsink

- 1700060157   Keyboard/ Mouse Cable

- 9657666600   Jumper Cap

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

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Chapter 2 Quick Installation Guide

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-9455 Rev.B.

GENE-9455 Rev.B adopts Intel® Atom™ N270 Processor.   The system memory is deployed with 200-pin SODIMM DDR2 400/533 up to 2GB.   In addition, Intel® 82574L supports two 10/100/1000Base-TX that allows a faster network connections. This model applies a Mini-PCI socket and one Mini Card for flexible expansions.   Moreover, six USB2.0, one SATA 1 and one CompactFlash™ provide a better storage.   Three RS-232, one RS-232/422/485 and 8-bit digital I/O are configured on the GENE-9455 Rev.B as well. Full functions make GENE-9455 Rev.B user friendly.   With the GENE-9455 Rev.B, there are no more worries about installing many necessary devices to complete the functions of your system.

The display of GENE-9455 Rev.B supports CRT/LCD, CRT/TV, LCD/TV, simultaneous and dual view displays, and is up to 24-bit dual-channel LVDS. Furthermore, 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

- Onboard Intel® Atom™ N270 Processor
- Intel® 945GSE + ICH7M
- SODIMM DDR2 400/533, Max. 2 GB
- Gigabit Ethernet x 2
- CRT, Dual LVDS LCDs: 18-bit Dual-Channel LVDS LCD + 24-bit Dual-Channel LVDS LCD, TV
- AC97 2.3 Codec 2CH Audio
- SATA I x 1, CompactFlash™ x 1
- USB2.0 x 6, COM x 4, Parallel x 1, 8-bit Digital I/O
- Mini-PCI x 1, Mini Card x 1
- +12V Only Operation
- Onboard Trusted Platform Module (Optional)

1.3 Specifications

System

- Processor   Intel® Atom™ N270 processor up to 1.6 GHz with FSB 533 MHz
- System Memory   200-pin SODIMM DDR2 400/533 x 1, Max. 2GB
- Chipset   Intel® 945GSE+ICH7M
- I/O Chipset   ITE 8781
- Ethernet   Intel® 82574L, 10/100/1000Base-TX, RJ-45 x 2
- BIOS   Award Plug & Play SPI BIOS – 2 MB Flash
- 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-PCI x 1, Mini Card x 1
- Power Requirement   +12V, AT/ATX
- Trusted Platform Module (TPM)   Infineon SLB 9635 TT 1.2 (Optional)
- Battery   Lithium battery

- Power Consumption   Intel® Atom™ N270, DDRII 667
                                        2GB, 1.55A @ +12V
- Board Size   5.75"(L) x 4"(W) (146mm x
                                        101.6mm)
- Operating Temperature 32˚F~ 140˚F (0˚C ~ 60˚C)
- Storage Temperature -40˚F~ 176˚F (-40˚C ~ 80˚C)
- Operating Humidity   0%~90% relative humidity,
                                        non-condensing
- MTBF (Hours)   70,000

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

- Chipset   Intel® 945GSE integrated
- Memory   Shared system memory up to
                                    224MB w/ DVMT 3.0
- LCD Interface   Dual LVDS LCDs: 18-bit
                                    Dual-channel LVDS LCD +
                                    24-bit Dual-channel LVDS LCD
- Resolution   Up to 1920 x 1440 for CRT
                                    Up to 1920 x 1200 for LCD
- TV-out   Supports NTSC & PAL
                                    Standards S-terminal and
                                    Composite Video

I/O

- Storage   SATA 1 x 1, Type 2
                   CompactFlash™ x 1
- Serial Port   RS-232 x 3, RS-232/422/485 x 1
- Parallel Port   SPP/EPP/ECP x 1
- 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, CD-in

Chapter

2

Quick Installation Guide

Notice:
The Quick Installation Guide is derived from Chapter 2 of user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.

OZONE SAFE

RECYCLABLE

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

DIMM1

CFD1

CN32
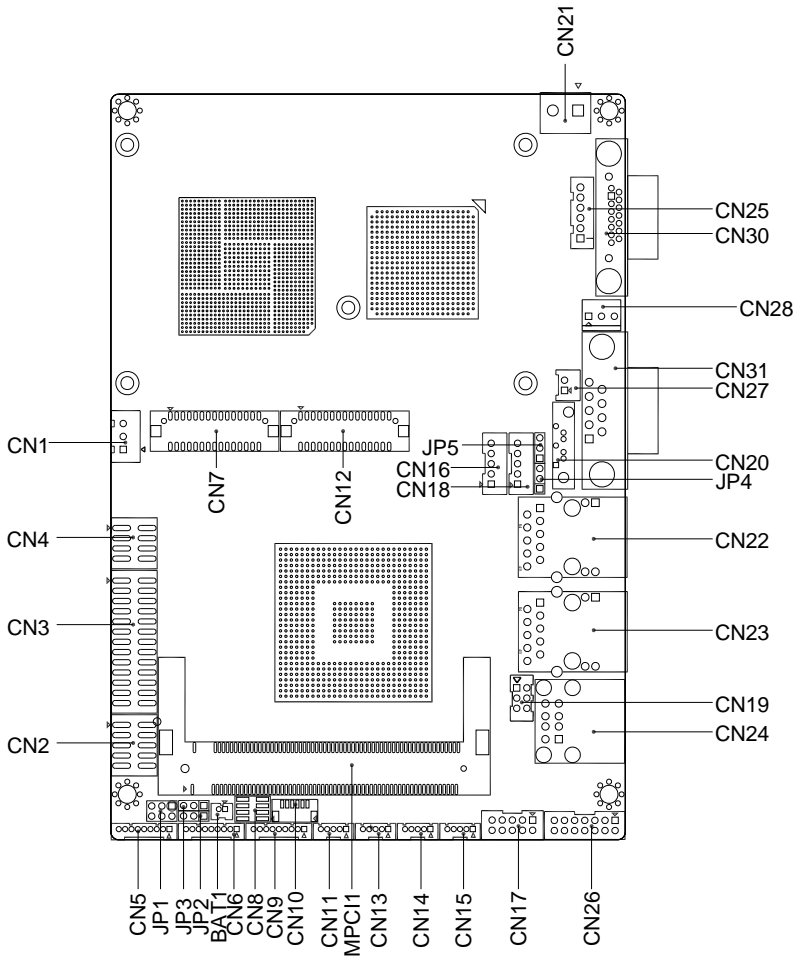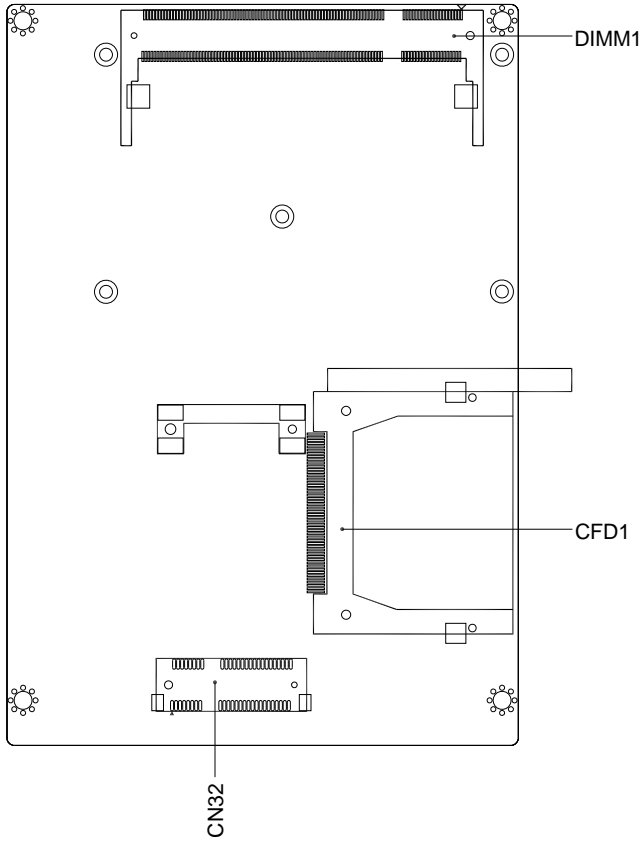
2.3 Mechanical Drawing

Component Side
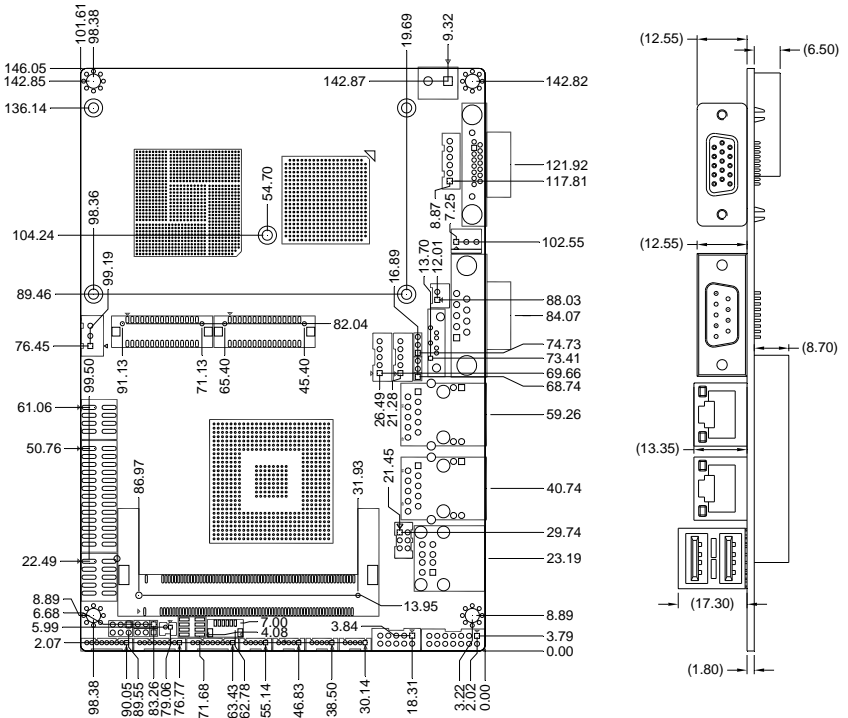
Solder Side
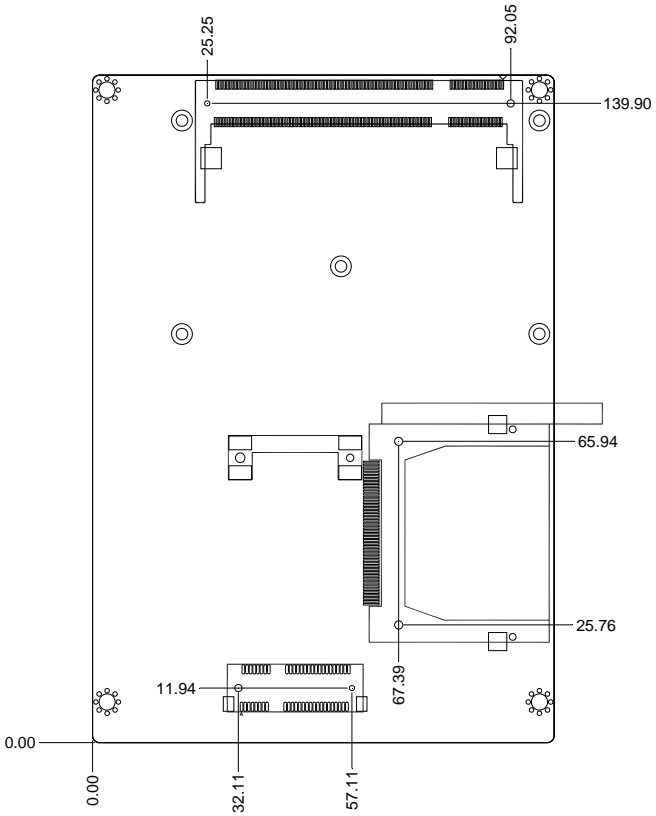
2.4 List of Jumpers

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:

Jumpers

Label	Function
JP1	COM2 RI/+5/+12V Selection
JP2	Clear CMOS Front Panel
JP3	AT/ATX Power Mode Selection
JP4	LVDS Inverter Voltage Selection
JP5	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:

Connectors

Label	Function
CN1	External +5V Standby Power Input and PS_ON#
CN2	Digital I/O Connector
CN3	Parallel Port Connector
CN4	TV-out Connector
CN5	COM Port 2 Connector
CN6	COM Port 3 Connector
CN7	2nd LVDS Connector for 18/24-bit LCD
CN8	Onboard BIOS Programming I/F (Optional)
CN9	COM Port 4 Connector
CN10	UIM Connector
CN11	USB Port 1 Connector
CN12	1st LVDS Connector for 18-bit LCD
CN13	USB Port 2 Connector
CN14	USB Port 3 Connector
CN15	USB Port 4 Connector
CN16	2nd LVDS Inverter Connector
CN17	Front Panel
CN18	1st LVDS Inverter Connector
CN19	Keyboard / Mouse Connector

CN20	SATA 1 Connector
CN21	+12V Power Input Connector
CN22	RJ-45 Ethernet#1 Connector
CN23	RJ-45 Ethernet#2 Connector
CN24	USB Port 5&6 Connector
CN25	+5V Standby Power Output w/ PS_ON# & SMBus
CN26	Audio In/Out/CD-in and MIC Connector
CN27	+5V Output Connector for 2.5" SATA Hard Disk
CN28	System FAN Connector
CN30	CRT Display Connector
CN31	COM Port 1 Connector
CN32	Mini-Card Slot
CFD1	Compact Flash Disk
MPCI1	Mini-PCI Slot
DIMM1	DDR2 SODIMM Slot

2.6 Setting Jumpers

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

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

Open   **Closed**   **Closed 2-3**
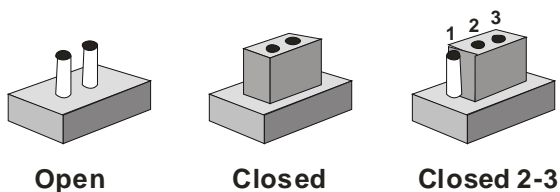
A pair of needle-nose pliers may be helpful when working with jumpers.

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

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

2.7 COM2 Ring/+5V/+12V Selection (JP1)

JP1	Function
1-2	+12V
3-4	+5V
5-6	RI (Default)

2.8 Clear CMOS (JP2)

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

2.9 AT/ATX Power Mode Selection (JP3)

JP3	Function
1-2	AT (Default)
2-3	ATX

2.10 LVDS Inverter Voltage Selection (JP4)

JP4	Function
1-2	+12V
2-3	+5V (Default)

2.11 LVDS Operating Voltage Selection (JP5)

JP5	Function
1-2	+5V
2-3	+3.3V (Default)

2.12 External +5V Standby Power Input & PS ON# (CN1)

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

2.13 Digital I/O Connector (CN2)

This connector offers 4-pair of digital I/O functions and address is 2A0, 2A2, 2A4H. 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	+5 Volt.	10	Ground

The pin definitions and registers mapping are illustrated below:

Address: 2A0, 2A2, 2A4H

BIOS Setting	Connector Definition	Address	IT8781F GPIO
Port 8 @2A4h	CN2 Pin 8	GPIO Set 5 / Bit 2	U6 Pin 9 (GPIO 52)
Port 7 @2A4h	CN2 Pin 7	GPIO Set 5 / Bit 1	U6 Pin 10 (GPIO 51)
Port 6 @2A2h	CN2 Pin 6	GPIO Set 3 / Bit 7	U6 Pin 11 (GPIO 37)
Port 5 @2A2h	CN2 Pin 5	GPIO Set 3 / Bit 6	U6 Pin 12 (GPIO 36)
Port 4 @2A0h	CN2 Pin 4	GPIO Set 1 / Bit 4	U6 Pin 31 (GPIO 14)
Port 3 @2A0h	CN2 Pin 3	GPIO Set 1 / Bit 3	U6 Pin 32 (GPIO 13)
Port 2 @2A0h	CN2 Pin 2	GPIO Set 1 / Bit 2	U6 Pin 33 (GPIO 12)
Port 1 @2A0h	CN2 Pin 1	GPIO Set 1 / Bit 1	U6 Pin 34 (GPIO 11)

2.14 Parallel Port Connector (CN3)

Pin	Name	Pin	Name
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

2.15 TV-Out Connector (CN4)

Pin	Signal	Pin	Signal
1	Y/Y	2	CVBS/Pb
3	Ground	4	Ground
5	C/Pr	6	N/C
7	Ground	8	N/C

2.16 COM Port 2 Connector (CN5)

COM2 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

COM2 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

COM2 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

2.17 COM Port 3 Connector (CN6)

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

2.18 2nd LVDS Connector for 18/24-bit LCD (CN7)

Pin	Signal	Pin	Signal
1	Back-Light Enable	2	N/C
3	LCD Volt.	4	Ground
5	LC_CLK#	6	LC_CLK
7	LCD Volt.	8	Ground
9	LC_DATA#_0	10	LC_DATA_0
11	LC_DATA#_1	12	LC_DATA_1
13	LC_DATA#_2	14	LC_DATA_2
15	LC_DATA#_3	16	LC_DATA_3
17	LVDS_DATA	18	LVDS_CLK
19	LD_DATA#_0	20	LD_DATA_0
21	LD_DATA#_1	22	LD_DATA_1
23	LD_DATA#_2	24	LD_DATA_2
25	LD_DATA#_3	26	LD_DATA_3
27	LCD Volt.	28	Ground
29	LD_CLK#	30	LD_CLK

2.19 Onboard BIOS Programming I/F (CN8) (Optional)

Pin	Signal	Pin	Signal
1	+3.3 Volt.	2	Ground
3	SPI_CE#	4	SPI_CLK
5	SPI_SO	6	SPI_SI
7	N/C	8	N/C

2.20 COM Port 4 Connector (CN9)

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

2.21 UIM Connector (CN10)

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

2.22 USB Port 1 Connector (CN11)

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

2.23 1st LVDS Connector for 18-bit LCD (CN12)

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	N/C	16	N/C
17	N/C	18	N/C
19	LB_DATA#_0	20	LB_DATA_0
21	LB_DATA#_1	22	LB_DATA_1
23	LB_DATA#_2	24	LB_DATA_2
25	N/C	26	N/C
27	LCD Volt.	28	Ground
29	LB_CLK#	30	LB_CLK

2.24 USB Port 2 Connector (CN13)

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

2.25 USB Port 3 Connector (CN14)

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

2.26 USB Port 4 Connector (CN15)

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

2.27 2nd LVDS Inverter Connector (CN16)

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

2.28 Front Panel (CN17)

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

2.29 1st LVDS Inverter Connector (CN18)

Pin	Signal
1	+5 Volt. / +12 Volt.
2	Brightness Control

3	Ground
4	Ground
5	Backlight Enable (Controlled by i82945GSE)

2.30 Keyboard/Mouse Connector (CN19)

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

2.31 SATA 1 Connector (CN20)

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

2.32 +12V Power Input Connector (CN21)

Pin	Signal
1	+12 Volt.
2	Ground

2.33 RJ-45 Ethernet #1 Connector (CN22)

Pin	Signal	Pin	Signal
R1	MDI1_0+ / TXD+	R2	MDI1_0- / TXD-

Pin	Signal	Pin	Signal
R3	MDI1_1+ / RXD+	R4	MDI1_1- / RXD-
R5	TCD1_0	R6	TCD1_1
R7	MDI1_2+	R8	MDI1_2-
R9	MDI1_3+	R10	MDI1_3-
L1	SPD100_1_LED	L2	SPD1K_1_LED
L3	ACT_1_LED	L4	+3.3 Volt.

2.34 RJ-45 Ethernet #2 Connector (CN23)

Pin	Signal	Pin	Signal
R1	MDI2_0+ / TXD+	R2	MDI2_0- / TXD-
R3	MDI2_1+ / RXD+	R4	MDI2_1- / RXD-
R5	TCD2_0	R6	TCD2_1
R7	MDI2_2+	R8	MDI2_2-
R9	MDI2_3+	R10	MDI2_3-
L1	SPD100_2_LED	L2	SPD1K_2_LED
L3	ACT_2_LED	L4	+3.3 Volt.

2.35 USB Port 5 & 6 Connector (CN24)

Pin	Signal	Pin	Signal
1	+5 Volt. Standby	5	+5 Volt. Standby
2	Data-	6	Data-
3	Data+	7	Data+
4	Ground	8	Ground

2.36 +5V Standby Power Output w/ PS_ON# & SMBUS (CN25)

Pin	Signal
1	SMBDATA
2	Ground

3	SMBCLK
4	Ground
5	PS_ON#
6	+5 Volt. Standby

2.37 Audio In/Out/ CD In and MIC Connector (CN26)

Pin	Signal	Pin	Signal
1	MIC	2	MIC_Vcc
3	Ground	4	CD_GND
5	LINE_IN L	6	CD_L
7	LINE_IN R	8	CD_GND
9	Ground	10	CD_R
11	LINE_OUT L	12	LINE_OUT R
13	Ground	14	Ground

2.38 +5V Output Connector (CN27)

Pin	Signal
1	+5 Volt. (1A Max.)
2	Ground

2.39 System Fan Connector (CN28)

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

2.40 CRT Display Connector (CN30)

Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	N/C
5	GREEN	6	Ground
7	Ground	8	Ground
9	+5 Volt.	10	CRT_PLUG#
11	N/C	12	DDCDATA
13	HSYNC	14	VSYNC
15	DDCCLK		

2.41 COM Port 1 Connector (CN31)

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

2.42 Mini-Card Slot (CN32)

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	+3.3 Volt. Standby
3	N/C	4	Ground
5	N/C	6	+1.5 Volt.
7	N/C	8	UIM_PWR
9	Ground	10	UIM_DATA
11	PCIE_CLK#	12	UIM_CLK

13	PCIE_CLK	14	UIM_RESET
15	Ground	16	UIM_VPP
17	N/C	18	Ground
19	N/C	20	W_DISABLE#
21	Ground	22	PCIE_RST#
23	PCIE_RXN	24	+3.3 Volt. Standby
25	PCIE_RXP	26	Ground
27	Ground	28	+1.5 Volt.
29	Ground	30	SMBCLK
31	PCIE_TXN	32	SMBDATA
33	PCIE_TXP	34	Ground
35	Ground	36	USB_Data-
37	Ground	38	USB_Data+
39	+3.3 Volt. Standby	40	Ground
41	+3.3 Volt. Standby	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

2.43 CompactFlash Disk (CFD1)

Pin	Signal	Pin	Signal
1	Ground	26	Ground
2	PDD3	27	PDD11
3	PDD4	28	PDD12
4	PDD5	29	PDD13
5	PDD6	30	PDD14

6	PDD7	31	PDD15
7	PDCS#1	32	PDCS#3
8	Ground	33	Ground
9	Ground	34	PDIOR#
10	Ground	35	PDIOW#
11	Ground	36	+3.3 Volt.
12	Ground	37	INT_IRQ14
13	+3.3 Volt.	38	+3.3 Volt.
14	Ground	39	CSEL#
15	Ground	40	N/C
16	Ground	41	IDERST#
17	Ground	42	PIORDY
18	PDA2	43	N/C
19	PDA1	44	+3.3 Volt.
20	PDA0	45	DASP#
21	PDD0	46	PDIAG#
22	PDD1	47	PDD8
23	PDD2	48	PDD9
24	N/C	49	PDD10
25	Ground	50	Ground

2.44 Mini-PCI Slot (MPC1)

Standard Specification.

2.45 DDR2 SODIMM Slot (DIMM1)

Standard Specification.

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

AAEON Main Board/ Daughter Board/ Backplane

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

O：表示该有毒有害物质在该部件所有均质材料中的含量均在
     SJ/T 11363-2006 标准规定的限量要求以下。
 	
X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出
     SJ/T 11363-2006 标准规定的限量要求。
 	
备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。						

Chapter

3

Award 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. Non-fatal error messages usually appear on the screen along with the following instructions:

Press <F1> to RESUME

Write down the message and press the F1 key to continue the boot up sequence.

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-9455 Rev.B CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2   Award BIOS Setup

Awards 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> immediately. This will allow you to enter Setup.

Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

Security Chip Configuration

Use this menu to specify your settings for Security Chip Configuration.

(Enable/Disable Trusted Platform Module.)

Power Management Setup

Use this menu to specify your settings for power management.

(HDD power down, power on by ring, KB wake up, etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu allows you to set the shutdown temperature for your system.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

You can refer to the " AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.

Chapter

4

Driver Installation

The GENE-9455 Rev.B comes with a CD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install INF Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Step 5 – Install TPM Driver

4.1 Installation:

Insert the GENE-9455 Rev.B CD-ROM into the CD-ROM Drive.
And install the drivers from Step 1 to Step 5 in order.

Step 1 – Install INF Driver

1. Click on the ***Step 1 - INF Update Utility*** folder and select the OS folder your system is

2. Double click on the ***Setup.exe*** located in each OS folder

3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the ***Step 2 - Intel Graphics Media Accelerator Driver*** folder and select the OS folder your system is

2. Double click on the ***.exe*** located in each OS folder

3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 3 – Install LAN Driver

1. Click on the ***Step 3 - Intel Ethernet Driver*** folder and select the OS folder your system is

2. Double click on the ***.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 ***Step 4 - Realtek ALC655 Audio Driver*** 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 TPM Driver

1. Click on the ***Step 5 - TPM Driver*** folder and then double click on the ***Setup.exe***

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Appendix

A

Programming the Watchdog Timer

A.1 Programming

GENE-9455 Rev.B utilizes ITE 8781 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 8781 enters the

normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.
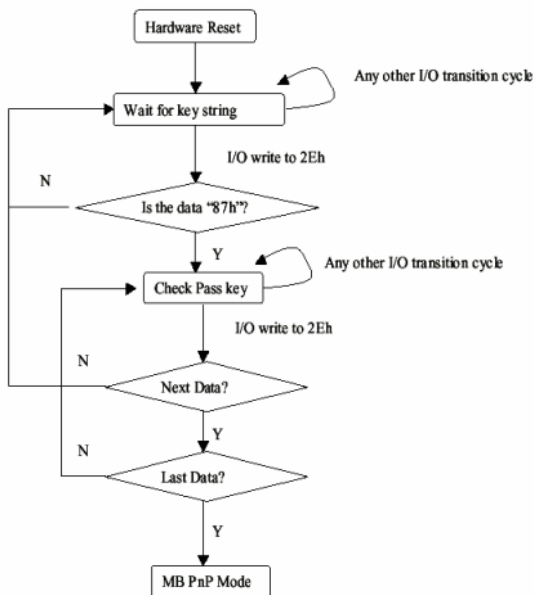
There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

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

	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	Reserved
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	**WDT Timeout Enable(WTE)** 1: Disable. 0: Enable.
6	**WDT Reset upon Mouse Interrupt(WRKMI)** 0: Disable. 1: Enable.
5	**WDT Reset upon Keyboard Interrupt(WRKBI)** 0: Disable. 1: Enable.
4	**Reserved**
3-2	**Reserved**
1	**Force Time-out(FTO)** This bit is self-clearing.
0	**WDT Status(WS)** 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	**WDT Time-out Value Select 1 (WTVS)** 1: Second 0: Minute
6	**WDT Output through KRST (Pulse) Enable(WOKE)** 1: Enable 0: Disable
5	**WDT Time-out value Extra select(WTVES)** 1: 64ms x WDT Timer-out value (default = 4s) 0: Determined by WDT Time-out value select 1 (bit 7 of this register)
4	**WDT Output through PWROK (Pulse) Enable(WOPE)** 1: Enable 0: Disable During LRESET#, this bit is selected by JP7 power-on strapping option
3-0	**Select interrupt level** [Note1] **for WDT(SIL)**

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

Bit	Description
7-0	**WDT Time-out Value 7-0(WTV)**

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

Bit	Description
7-0	**WDT Time-out Value 15-8(WTV)**

A.2 ITE8781 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 - 0000000F] Direct memory access controller
    [00000000 - 00000CF7] PCI bus
    [00000010 - 0000001F] Motherboard resources
    [00000020 - 00000021] Programmable interrupt controller
    [00000022 - 0000003F] Motherboard resources
    [00000040 - 00000043] System timer
    [00000044 - 0000004D] Motherboard resources
    [00000050 - 0000005E] Motherboard resources
    [00000060 - 00000060] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
    [00000061 - 00000061] System speaker
    [00000062 - 00000063] Motherboard resources
    [00000064 - 00000064] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
    [00000065 - 0000006F] Motherboard resources
    [00000070 - 00000073] System CMOS/real time clock
    [00000074 - 0000007F] Motherboard resources
    [00000080 - 00000090] Direct memory access controller
    [00000091 - 00000093] Motherboard resources
    [00000094 - 0000009F] Direct memory access controller
    [000000A0 - 000000A1] Programmable interrupt controller
    [000000A2 - 000000BF] Motherboard resources
    [000000C0 - 000000DF] Direct memory access controller
    [000000E0 - 000000EF] Motherboard resources
    [000000F0 - 000000FF] Numeric data processor
    [000001F0 - 000001F7] Primary IDE Channel
    [00000274 - 00000277] ISAPNP Read Data Port
    [00000279 - 00000279] ISAPNP Read Data Port
    [000002E8 - 000002EF] Communications Port (COM4)
    [000002F8 - 000002FF] Communications Port (COM2)
    [00000378 - 0000037F] ECP Printer Port (LPT1)
    [000003B0 - 000003BB] Mobile Intel(R) 945 Express Chipset Family
    [000003C0 - 000003DF] Mobile Intel(R) 945 Express Chipset Family
    [000003E8 - 000003EF] Communications Port (COM3)
    [000003F6 - 000003F6] Primary IDE Channel
    [000003F8 - 000003FF] Communications Port (COM1)
    [00000400 - 0000048F] Motherboard resources
    [000004D0 - 000004D1] Motherboard resources
    [00000500 - 0000051F] Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
    [00000778 - 0000077B] ECP Printer Port (LPT1)
    [00000880 - 0000088F] Motherboard resources
    [00000A79 - 00000A79] ISAPNP Read Data Port
    [00000D00 - 0000FFFF] PCI bus
    [00004700 - 0000477F] Motherboard resources
    [0000B000 - 0000BFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
    [0000BF00 - 0000BF1F] Intel(R) 82574L Gigabit Network Connection
    [0000C000 - 0000CFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
    [0000CF00 - 0000CF1F] Intel(R) 82574L Gigabit Network Connection #2
    [0000F000 - 0000F0FF] Realtek AC'97 Audio
    [0000F300 - 0000F30F] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
    [0000F400 - 0000F403] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
    [0000F500 - 0000F507] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
    [0000F600 - 0000F603] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
    [0000F700 - 0000F707] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
    [0000F800 - 0000F80F] Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
    [0000FA00 - 0000FA3F] Realtek AC'97 Audio
    [0000FB00 - 0000FB1F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
    [0000FC00 - 0000FC1F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
    [0000FD00 - 0000FD1F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
    [0000FE00 - 0000FE1F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
    [0000FF00 - 0000FF07] Mobile Intel(R) 945 Express Chipset Family
```

B.2 1st MB Memory Address Map

Memory
- [00000000 - 0009FFFF] System board
- [000A0000 - 000BFFFF] Mobile Intel(R) 945 Express Chipset Family
- [000A0000 - 000BFFFF] PCI bus
- [000C0000 - 000DFFFF] PCI bus
- [000E0000 - 000EFFFF] System board
- [000F0000 - 000FFFFF] System board
- [00100000 - 1F6DFFFF] System board
- [1F6E0000 - 1F6FFFFF] System board
- [1F750000 - FEBFFFFF] PCI bus
- [D0000000 - DFFFFFFF] Mobile Intel(R) 945 Express Chipset Family
- [E0000000 - EFFFFFFF] Motherboard resources
- [FD800000 - FD8FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
- [FD900000 - FD9FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
- [FD9C0000 - FD9DFFFF] Intel(R) 82574L Gigabit Network Connection
- [FD9FC000 - FD9FFFFF] Intel(R) 82574L Gigabit Network Connection
- [FDA00000 - FDAFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
- [FDD00000 - FDDFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
- [FDDC0000 - FDDDFFFF] Intel(R) 82574L Gigabit Network Connection #2
- [FDDFC000 - FDDFFFFF] Intel(R) 82574L Gigabit Network Connection #2
- [FDF00000 - FDF7FFFF] Mobile Intel(R) 945 Express Chipset Family
- [FDF80000 - FDFBFFFF] Mobile Intel(R) 945 Express Chipset Family
- [FDFFC000 - FDFFC3FF] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
- [FDFFD000 - FDFFD0FF] Realtek AC'97 Audio
- [FDFFE000 - FDFFE1FF] Realtek AC'97 Audio
- [FDFFF000 - FDFFF3FF] Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
- [FEB80000 - FEBFFFFF] Mobile Intel(R) 945 Express Chipset Family
- [FEC00000 - FEC00FFF] System board
- [FED13000 - FED1DFFF] System board
- [FED20000 - FED3FFFF] System board
- [FED40000 - FED44FFF] PCI bus
- [FED45000 - FED8FFFF] System board
- [FEE00000 - FEE00FFF] System board
- [FFB00000 - FFB7FFFF] System board
- [FFB80000 - FFBFFFFF] Intel(R) 82802 Firmware Hub Device
- [FFF00000 - FFFFFFFF] System board

B.3 IRQ Mapping Chart

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	External +5VSB Power Input and PS_ON#	N/A	N/A	ATX Cable	170220020B
CN2	Digital I/O Connector	Neltron	2026B-10	N/A	N/A
CN3	Parallel Port Connector	Catch	H754-2x13	Parallel Cable	1701260200
CN4	TV-out Connector	Astron	27-24041-204-1G-TB1-R	TV Cable	1700080180
CN5	COM Port 2 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN6	COM Port 3 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN7	2nd LVDS Connector	HIROSE	DF13-30DS-1.25C	N/A	N/A
CN9	COM Port 4 Connector	Molex	51021-0900	UART Wafer Cable	1701090150
CN11	USB Port 1 Connector	Molex	51021-0500	USB Wafer Cable	1700050207
CN12	1st LVDS Connector	HIROSE	DF13-30DS-1.25C	N/A	N/A
CN13	USB Port 2 Connector	Molex	51021-0500	USB Wafer Cable	1700050207
CN14	USB Port 3 Connector	Molex	51021-0500	USB Wafer Cable	1700050207
CN15	USB Port 4 Connector	Molex	51021-0500	USB Wafer	1700050207

				Cable	
CN16	2nd LVDS Inverter Connector	Molex	ZHR-5	Invertor Cable	1705050153
CN18	1st LVDS Inverter Connector	Molex	ZHR-5	Invertor Cable	1705050153
CN19	Keyboard / Mouse Connector	Catch	A003-290	KB/MS Cable	1700060157
CN20	SATA Connector	Molex	67582-0000	SATA Cable	1709070500
CN21	+12V Vin Connector	N/A	N/A	Power Cable	1702002010
CN22	RJ-45 Ethernet#1 Connector	Neltron	7001-8P8C	N/A	N/A
CN23	RJ-45 Ethernet#2 Connector	Neltron	7001-8P8C	N/A	N/A
CN25	External AUX Power and PS_ON#	Catch	2418HJ-06		N/A
CN26	Audio In/Out/CD-in and MIC Connector	Catch	052-D200-14P	Audio Cable	1709140181
CN27	+5V out Connector	N/A	N/A	2 Pins For SATA Power	1702150155
CN28	System Fan Connector	Catch	1190-700-03S	N/A	N/A
BAT1	External RTC Connector	Molex	51021-0200	Battery Cable	175011901C