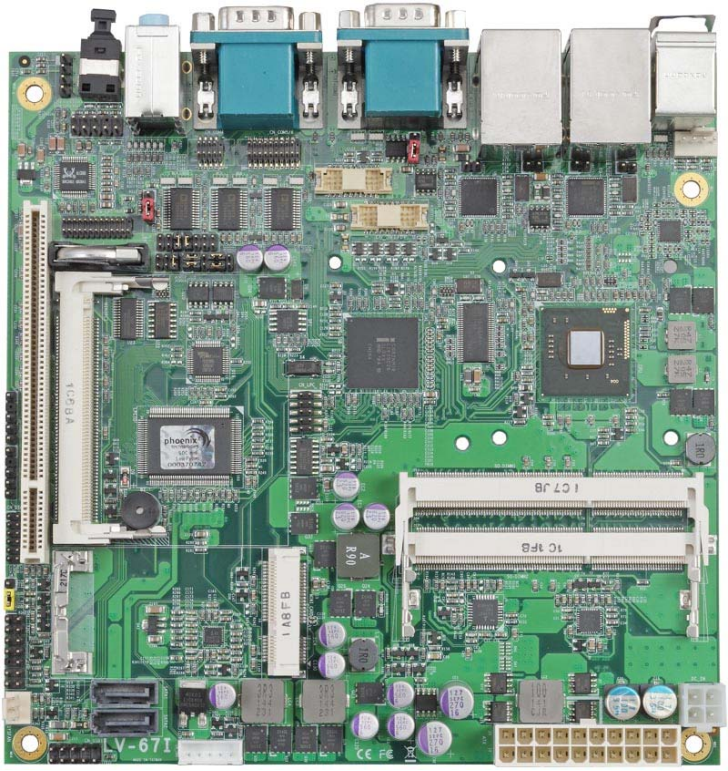
LV-67I

Mini-ITX motherboard

User's Manual

Edition: 1.6
2014/03/18



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Packing List

Please check package component before you use our products.

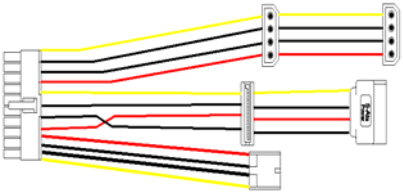
Hardware:

LV-67I Mini-ITX motherboard x 1

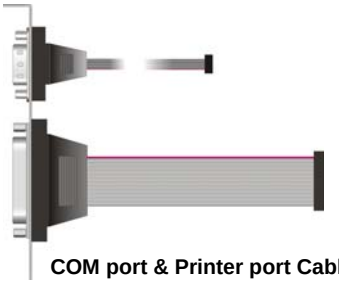
Cable Kit:

SATA Cable x 1
(OALSATA-L)/ (1040142)

DC Power Cable x 1
(OALDC-2)/ (1040072)

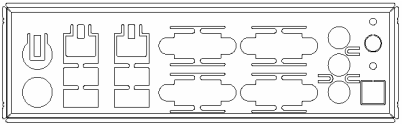


ATX Power Output Cable x 1
(OALATX-P3S2)/ (1040058)



COM port & Printer port Cable x 1
(OALES-BKU-3)/ (1040080)

DVI Module With DVI Cable x 1
(BADPDVIP_A & OALDVI-DF13)
(4120008021 & 1040483)

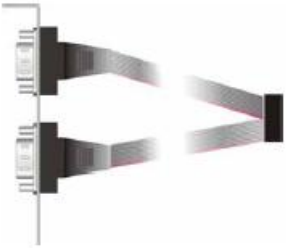


I/O Shieldx 1
(OPLATE-LV67E)/ (1270046)

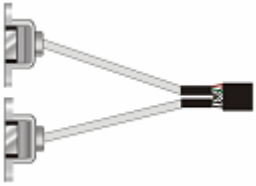
Other Accessories:

Divers CD (including User's Manual) x 1

Optional Cable:



Dual COM Port Cable x 1
(OALES-BKU2)/ (1040087)



USB Cable x 1
(OALUSBA-3)/ (1040173)

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Chapter1 <Introduction>

1.1 <Product Overview>

LV-67I is the Mini-ITX miniboard with Intel® Atom™ CedarTrail Processor with optional D2550 or N2800 platform, Intel® NM10, integrated Intel® GMA 3650 graphics, DDR3 SO-DIMM memory, Realtek ALC888 HD Codec audio and two Intel® 82583V Giga LAN.

Intel® Atom D2550 Processor

The **I**ntel® Atom D2550 Dual core processor is with, 1.86GHz clock Speed, 1MB L2 cache. It's built on 32nm process technology support Hyper-Threading Technology, Intel® 64.

Intel® Atom N2800 Processor

The **I**ntel® Atom N2800 Dual core processor is with, 1.86GHz clock Speed, 1MB L2 cache. It's built on 32nm process technology support Hyper-Threading Technology, Enhanced Intel Speedstep® Technology, Intel® 64.

Intel® NM10 Chipset

The board integrates Intel® NM10. The chipset features power-efficient graphics with an integrated 32-bit 3D graphics engine based on Intel® Graphics Media Accelerator 3650 architecture with DVI, LVDS, CRT display ports. It provides I/O capabilities and flexibility via high-bandwidth interfaces such as PCIE and Hi-Speed USB 2.0 connectivity. It also includes a single channel for 800/1066 MHz DDR3 system memory (SODIMM), HD Audio.

Flexible Extension Interface

The board also provides one Mini card socket.

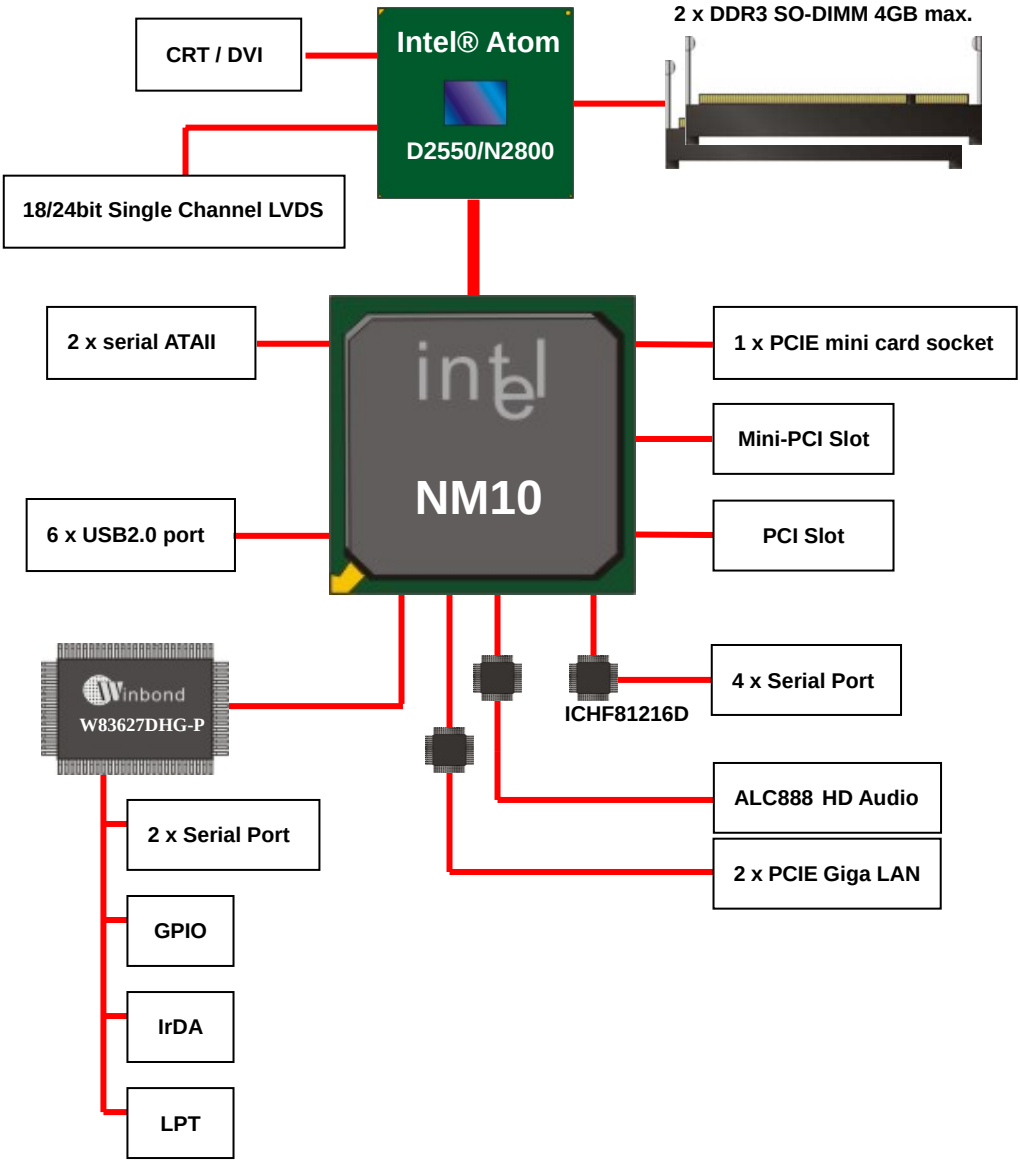
1.2 <Product Specification>

General Specification	
Form Factor	Mini-ITX motherboard
CPU	Intel® Atom™ CedarTrail Processor with optional D2550/ N2800 Package type: Micro-FCBGA559
Memory	2 x 204-pin DDR3 SO-DIMM 800/1066MHz up to 4GB,(SO-DIMM2 Primary) Support Non-ECC, unbufferred, memory only
Chipset	Intel® NM10
Watchdog Timer	Generates a system reset with internal timer for 1min/s ~ 255min/s
Real Time Clock	Chipset integrated RTC with onboard lithium battery
Serial ATAII	2 x Serial ATAII interfaces Up to 300MB/s of transfer rate (No RAID Function)
Multi-I/O Port	
Chipset	Winbond® W83627DHG-P
Serial Port	Five RS-232 and one RS232/422/485 serial ports
USB Port	Six Hi-Speed USB 2.0 ports with 480Mbps of transfer rate
IrDA Port	One IrDA compliant Infrared interface supports SIR
K/B & Mouse	External PS/2 keyboard and mouse ports on rear I/O panel
GPIO	One 12-pin Digital I/O connector with 8-bit programmable I/O Interface
Smart Fan	One CPU fan connectors for fan speed controllable
VGA Display Interface	
Chipset	Intel® integrated extreme GMA 3650
Display Type	CRT, LCD monitor with analog display, single channel LVDS
Connector	External DB15 female connector on rear I/O panel Onboard 20-Pin LVDS and 5-Pin inverter connector Onboard 20-Pin DVI Interface connector
Ethernet Interface	
Controller	2 x Intel® 82583V Gigabit Ethernet controller
Type	Triple speed 10/100/1000Base-T Auto-switching Fast Ethernet Full duplex, IEEE802.3U compliant
Connector	Two External RJ45 connectors with LED on rear I/O panel
Audio Interface	
Chipset	Realtek ALC888 HD Audio
Interface	Stereo audio Line-out and MIC-in
Connector	External 3 phone jack for 2 channel audio on rear I/O panel External SPDIF connector on rear I/O panel Internal 10-pin header for line-out, MIC-in, 4-pin header for CD-IN

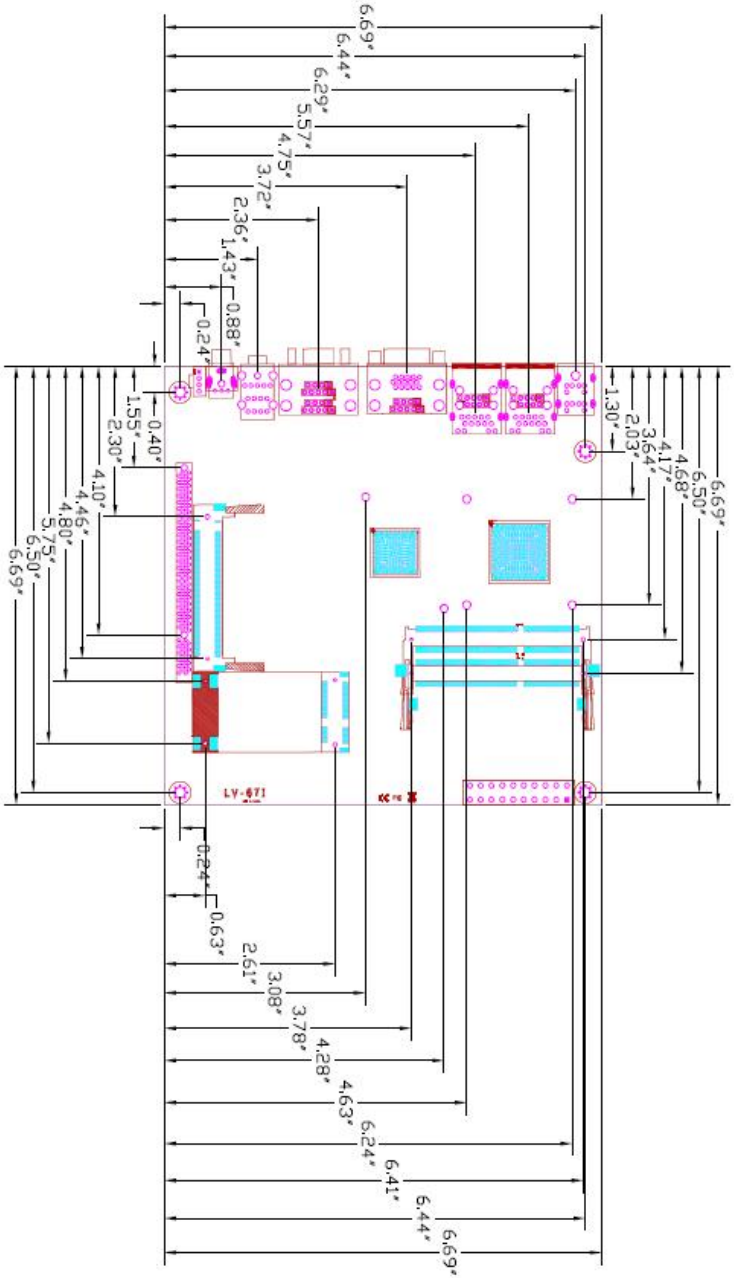
Expansive Interface	
PCI	PCI slot (32-bit, 33MHz) Power supply: +3.3V, +5V, 3VSB +12V, -12V
Mini PCI	One Mini-PCI socket **TYPE III A** (32-bit, 33MHz) Power supply: +3.3V, +5V, 3VSB
PCIE mini card	One PCIE mini card socket Power supply: +1.5V, 3VSB
Power and Environment	
Power Requirement	Standard 20-pin ATX power supply or 9~24V full range DC Input
Dimension	170 (L) x 170 (H) mm
Temperature	Operating within 0 ~ 60^{O}C (32 ~ 140^{O}F) Storage within –20 ~ 85^{O}C (-4 ~ 185^{O}F)
Ordering Code	
LV-67ID5	Support Intel® Atom D2550 processor with onboard VGA, LVDS for 18 or 24 bits, DVI, Audio, Giga LAN, USB2.0, SATAII, PCIE mini card, PCI, Mini-PCI, Serial Port,, SMBUS, GPIO, IrDA, LPT, CDIN, SPDIF
LV-67IN	Support Intel® Atom N2800 processor with onboard VGA, LVDS for 18 bits, DVI, Audio, Giga LAN, USB2.0, SATAII, PCIE mini card, PCI, Mini-PCI, Serial Port,, SMBUS, GPIO, IrDA, LPT, CDIN, SPDIF

The specifications may be different as the actual production.
For further product information please visit the website at http://www.commell.com.tw

1.3 <Block Diagram>



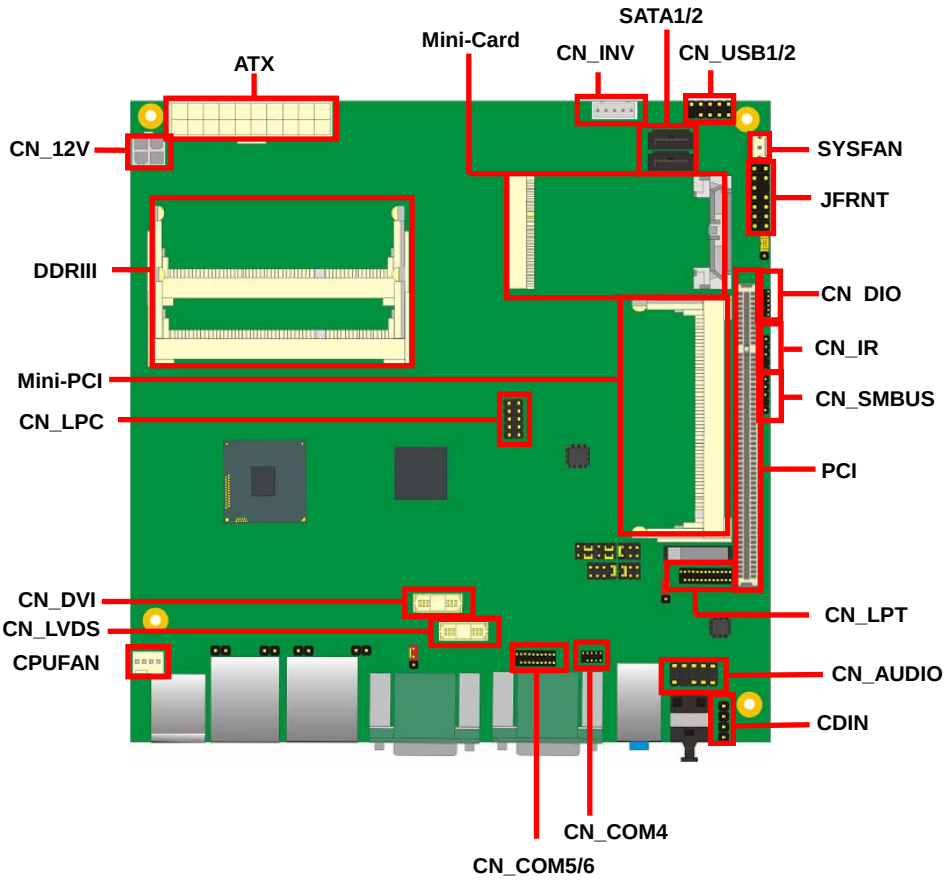
1.4 <Mechanical Drawing >

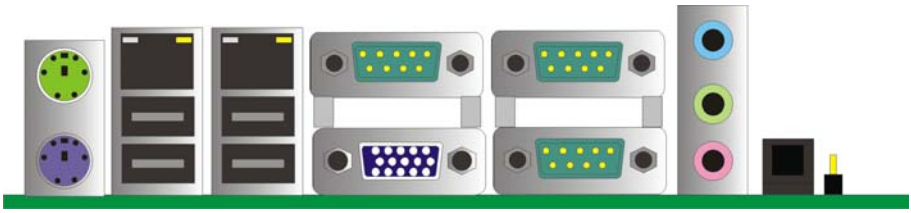


Unit: inch

Chapter 2 <Hardware Setup>

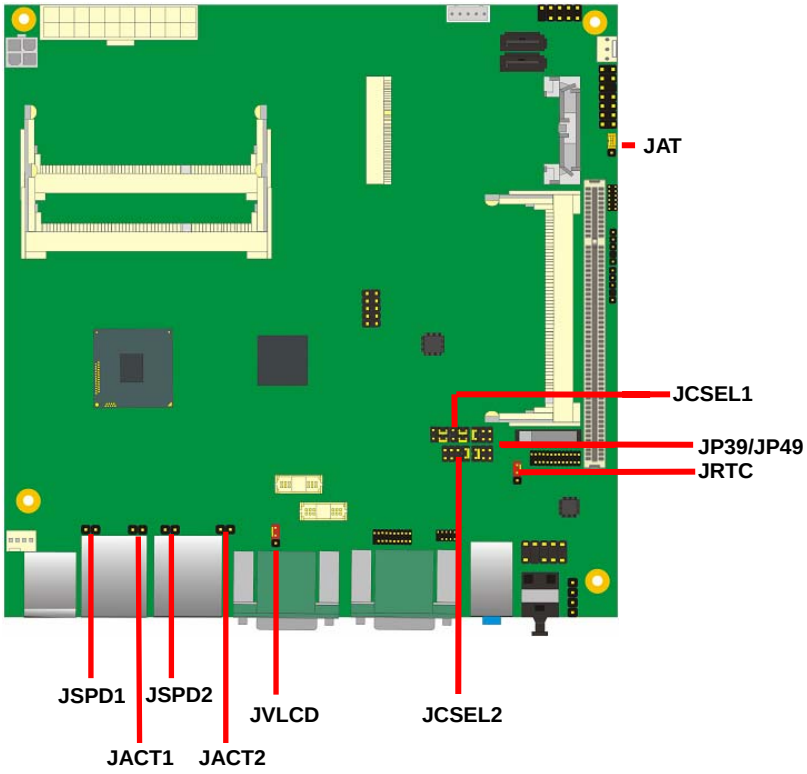
2.1 <Connector Location>





2.2 <Jumper Reference>

Jumper	Function
JRTC	CMOS Operating/Clear Setting
JVLCD	Panel Voltage Setting
JP39	COM3 signal mode switch (For Pin-9)
JP49	COM4 signal mode switch (For Pin-9)
JAT	Power mode select
JCSEL1 **JCSEL2**	CN_COM2 RS-232 RS422 RS485 Setting CN_IR IrDA Setting



2.3 <Connector Reference>

2.3.1 <Internal Connectors>

Connector	Function	Remark
DDRIII1/2	204 -pin DDR3 SO-DIMM SDRAM slot	
SATAII1/2	7-pin Serial ATA II connector	
ATX	24-pin power supply connector	
CN_12V	4-pin +12V additional power supply connector	
CN_AUDIO	5 x 2-pin audio connector	
CDIN	4-pin CD-ROM audio input connector	
CN_DIO	6 x 2-pin digital I/O connector	
CN_USB1/2	10-pin USB connector	
CPUFAN	4-pin CPU cooler fan connector	
SYSFAN	3-pin system cooler fan connector	
CN_IR	5-pin IrDA connector	
CN_COM4	5 x 2-pin RS232	
CN_COM56	10 x 2-pin 2 x RS232	
CN_LPT	13 x 2-pin printer connector	
CN_SMBUS	5-pin SMBUS connector	
CN_INV	5-pin LCD inverter connector	
CN_LVDS	10 x 2-pin LVDS connector	
CN_DVI	10 x 2-pin DVI connector	
JFRNT	14-pin front panel switch/indicator connector	
PCI	120-Pin PCI socket	
Mini-PCI	124-pin Mini-PCI socket	
MINI_CARD	52-pin PCIE mini card socket	
JSPD 1/2	LAN Speed LED connector	
JACT 1/2	LAN Activity LED connector	

2.3.2 <External Connectors>

Connector	Function	Remark
PS2	PS/2 Keyboard/Mouse connector	
CRT+COM1	DB15 VGA + Serial port connector	
USB_RJ45_1/2	Dual USB and one RJ45 LAN Port	
COM 2/3	Serial port connector	
AUDIO	Audio connectors	
SPDIF	SPDIF digital audio output connector	

2.4 <Memory Setup>

Non-ECC, unbuffered memory is supported only.

LV67I provides two 204-pin DDR3 SO-DIMM to support DDR3 800/1066 memory modules support up to 4GB of capacity.

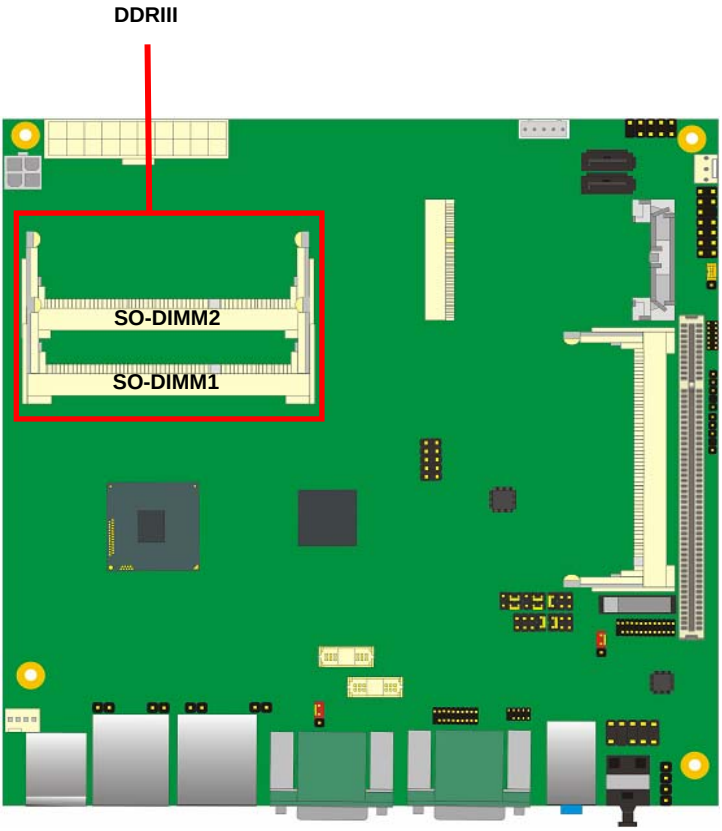
Notice: SO-DIMM2 Primary

Suggestion:

DDR3 SO-DIMM Modules:

- Raw Card C = Single-sided x 8
- Raw Card F = Double-sided x 8

.



2.5 <CMOS & ATX Setup>

The board's data of CMOS can be setting in BIOS. If the board refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

Jumper: **JRTC**

Type: Onboard 3-pin jumper

JRTC	Mode
1-2	Clear CMOS
2-3	Normal Operation

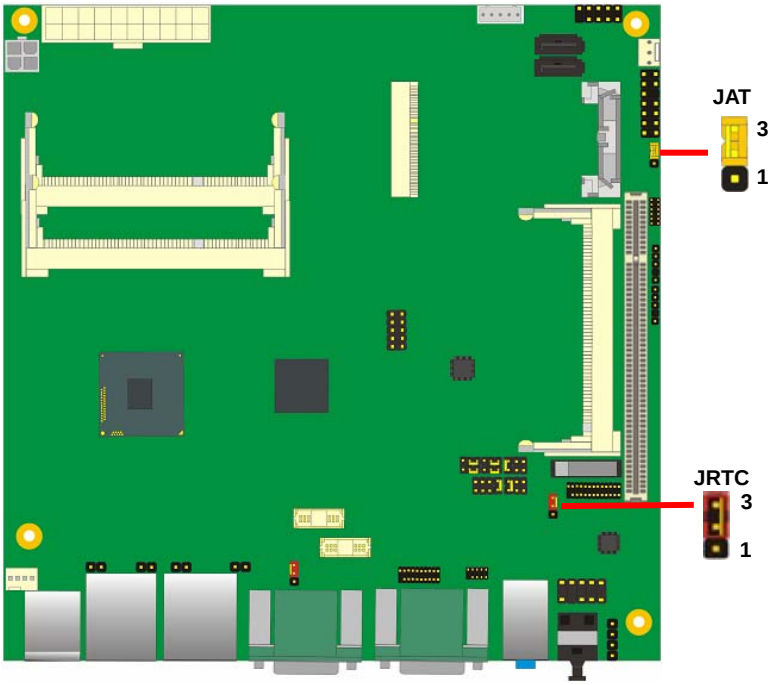
Default setting

Jumper: **JAT**

Type: onboard 3-pin jumper

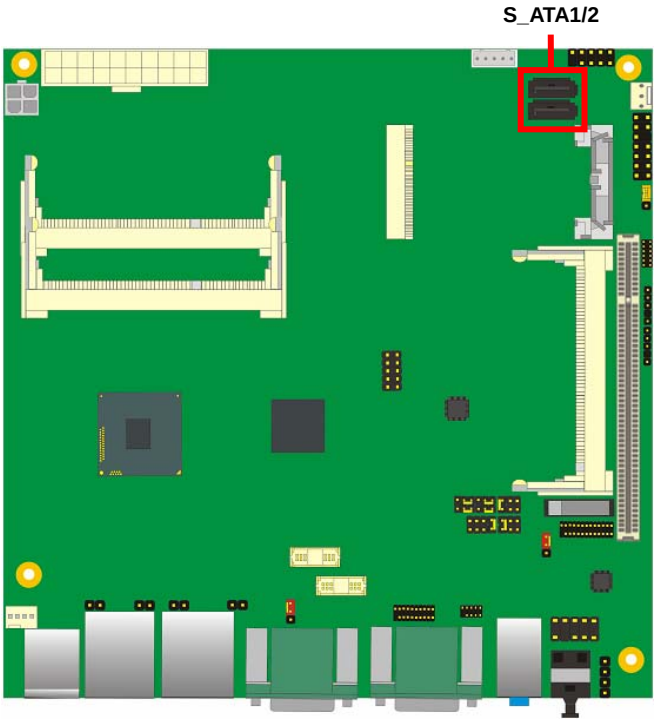
JAT	Mode
1-2	AT Mode
2-3	ATX Mode

Default setting



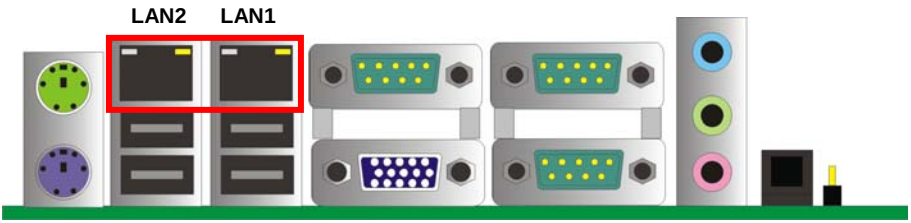
2.6 <Serial ATA Interface>

Based on Intel® NM10, the board provides Three Serial ATAII interfaces with up to 300MB/s of transfer rate.



2.7 <Network Interface>

The board integrates with two Intel® 82583V Gigabit Ethernet controllers, as the PCI Express bus. The Intel® 82583V supports triple speed of 10/100/1000Base-T, with IEEE802.3 compliance and Wake-On-LAN supported.



2.8 <Onboard Display Interface>

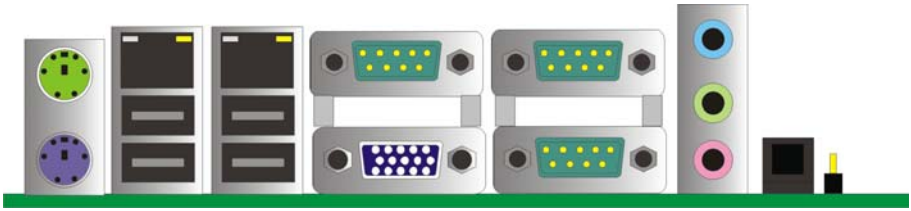
Based on Intel® Atom D2550 / N2800 Processor with built-in graphics, the board provides one DB15 Connector on real external I/O port, and One 20-pin LVDS interface with 5-pin LCD backlight inverter connector. The board provides dual display function with clone mode and extended desktop mode for CRT and LVDS.

Notice: When you install any PCI Graphic card, the onboard graphics would be disabled automatically.

2.8.1 <Analog Display>

Please connect your CRT or LCD monitor with DB15 male connector to the onboard DB15 female connector on rear I/O port.

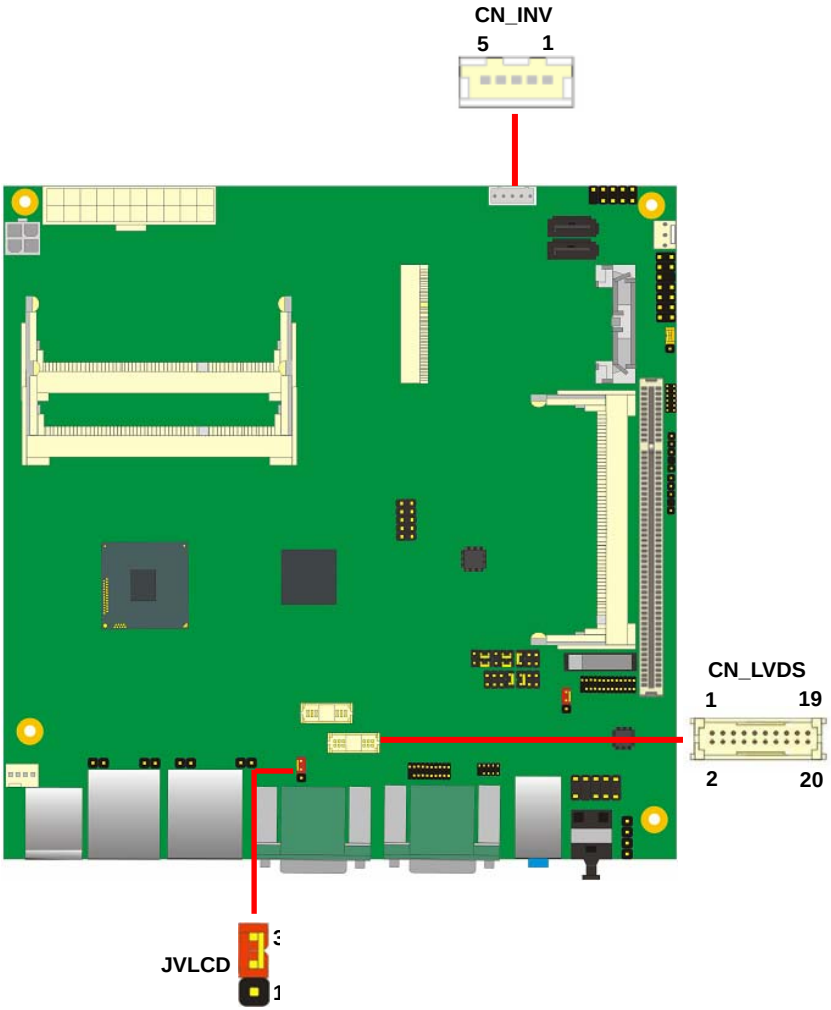
LV-67I supports 1920 x 1080(WUXGA) resolution displays.



CRT

2.8.2 <Digital Display Interface>

The board provides one 20-pin LVDS connector for 18-bit or 24-bit single channel panels. LV-67IN supports 1366 x 768 (WUXGA) of resolution, and LV-67ID5 supports 1400 x 900 (WUXGA) of resolution, with one LCD backlight inverter connector and one jumper for panel voltage setting.



Connector: **CN_INV**

Type: 5-pin Inverter power connector

LV-67I VER.A

Pin	Description
1	+12V
2	CTLBKL
3	GND
4	GND
5	ENABKL

LV-67I VER.B

Pin	Description
1	+12V
2	CTLBKL
3	+5V
4	GND
5	ENABKL

Jumper: **JVLCD**

Type: 3-pin Power select jumper

Pin	Description
1-2	+5V
2-3	+3.3V

Default: 2-3

Connector: **CN_LVDS**

Type: onboard 20-pin connector for LVDS connector

Connector model:

E&T 3950-B40C-00R or similar (**HIROSE DF13-40DP-1.25V** compatible)

Pin	Signal	Pin	Signal
2	LCDVCC	1	LCDVCC
4	GND	3	GND
6	TXL0P	5	TXL0N
8	TXL1N	7	GND
10	GND	9	TXL1P
12	TXL2P	11	TXL2N
14	TXLCKN	13	GND
16	GND	15	TXLCKP
18	TXL3P (LV-67ID5)	17	TXL3N (LV-67ID5)
20	GND	19	GND

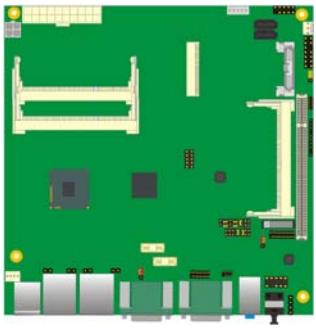
To setup the LCD, you need the component below:

1. A panel with LVDS interfaces.
2. An inverter for panel's backlight power.
3. A LCD cable and an inverter cable.

For the cables, please follow the pin assignment of the connector to make a cable, because every panel has its own pin assignment, so we do not provide a standard cable; please find a local cable manufacture to make cables.

LCD Installation Guide:

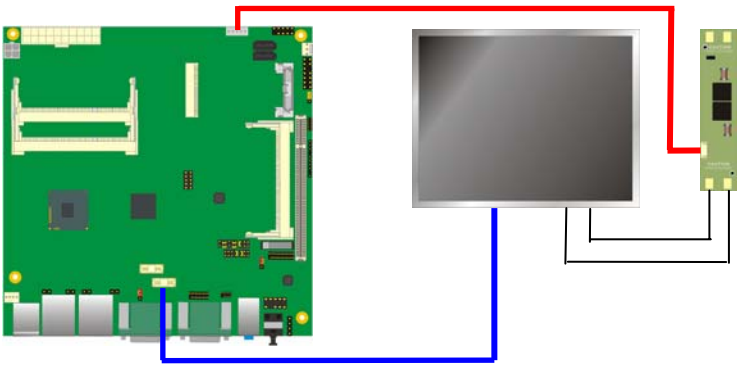
1. Preparing the LV-67I, LCD panel and the backlight inverter.



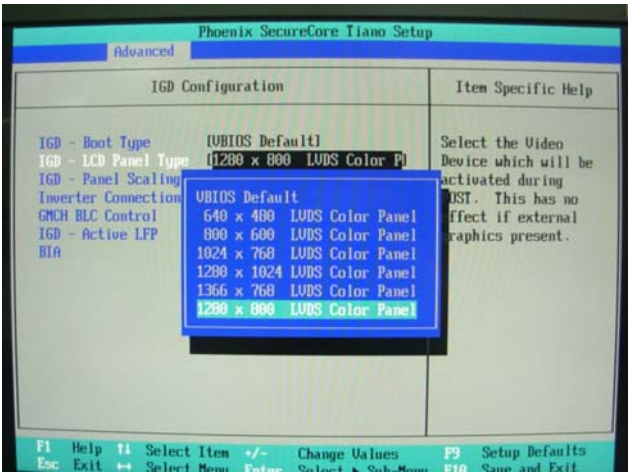

2. Please check the datasheet of the panel to see the voltage of the panel, and set the jumper **JVLCD** to +5V or +3.3V.
3. You would need a LVDS type cable.

For sample illustrator only

4. To connect all of the devices well.



After setup the devices well, you need to select the LCD panel type in the BIOS.



The panel type mapping is list below:

LV-67I BIOS panel type selection form		
On board Single channel LVDS		
18bit (LV-67IN)		24bit (LV-67ID5)
NO.	Output format	Output format
1	640 x 480	640 x 480
2	800 x 600	800 x 600
3	1024 x 768	1024 x 768
4	1280 x 1024	1280 x 1024
5	1366 x 768	1366 x 768
6	1280 x 800	1280 x 800

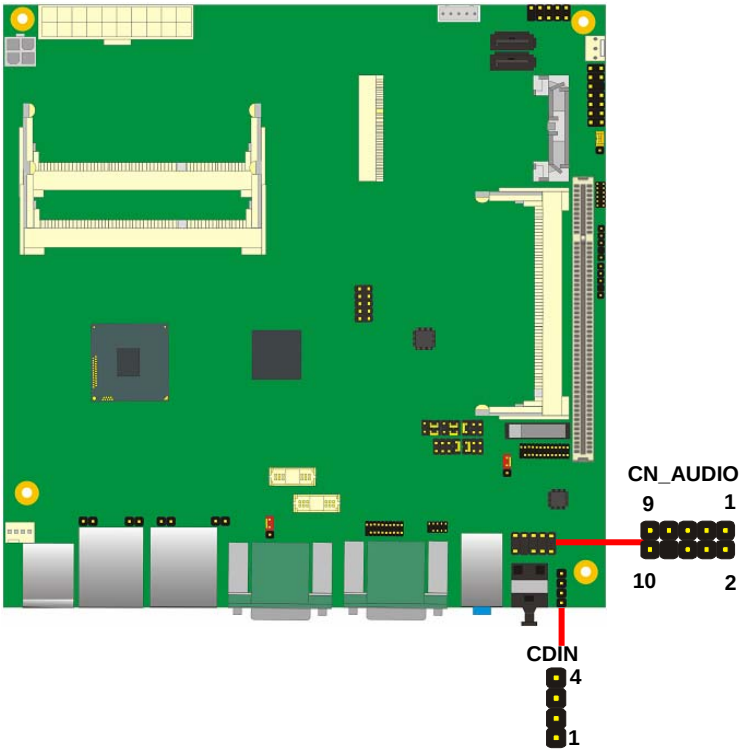
2.9 <Audio Interface>

The board integrates onboard audio interface with REALTEK ALC888 codec, with Intel next generation of audio standard as High Definition Audio, it offers more vivid sound and other advantages than former HD audio compliance.

The main specifications of ALC888 are:

- **High-performance DACs with 100dB S/N ratio**
- **2 DAC channels support 16/20/24-bit PCM format for 2 audio solution**
- **16/20/24-bit S/PDIF-OUT supports 44.1K/48K/96kHz sample rate**
- **Compatible with HD**
- **Meets Microsoft WHQL/WLP 2.0 audio requirements**

The board provides 2 channels audio phone jacks on rear I/O port, Line-in/MIC-in ports for front I/O panel through optional cable.



Connector: CN_AUDIO

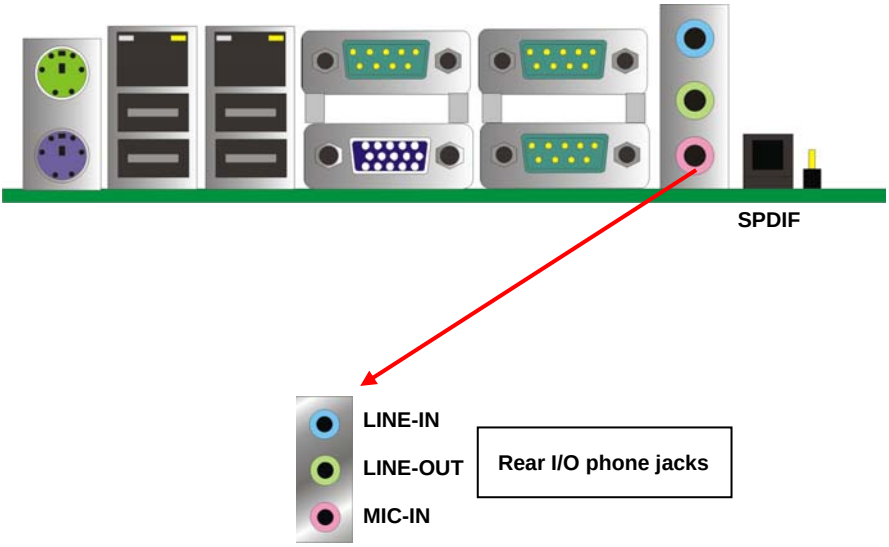
Type: 10-pin (2 x 5) header (pitch = 2.54mm)

Pin	Description	Pin	Description
1	MIC2_L	2	Ground
3	MIC2_R	4	AVCC
5	FP_OUT_R	6	MIC2_JD
7	SENSE	8	N/C
9	FP_OUT_L	10	LINE2_JD

Connector: CDIN

Type: 4-pin header (pitch = 2.54mm)

Pin	Description
1	CD – Left
2	Ground
3	Ground
4	CD – Right

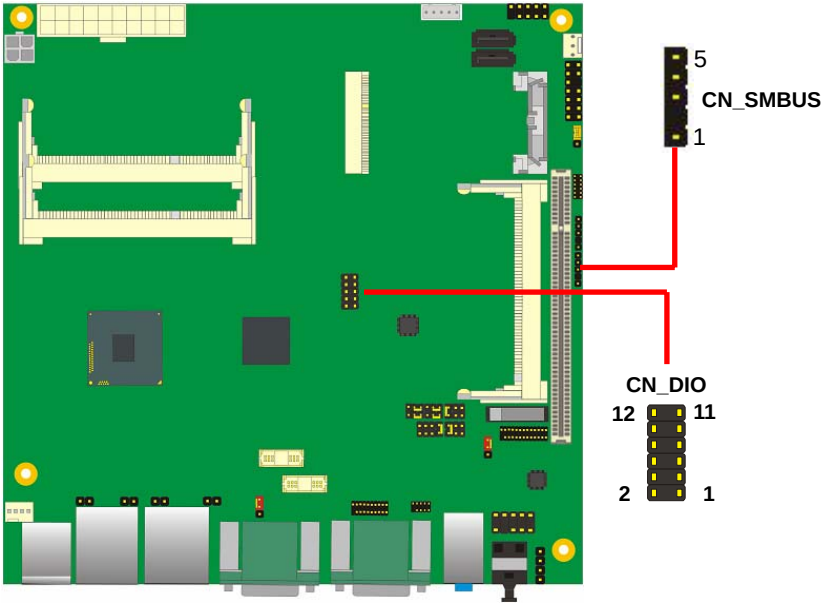


2.10 <GPIO and SMBUS Interface>

The board provides a programmable 8-bit digital I/O interface, and a SMBUS (System management bus) interface for control panel application.

Connector: **CN_DIO**
Type: onboard 2 x 6-pin header, pitch=2.0mm

Pin	Description	Pin	Description
1	Ground	2	Ground
3	GP10	4	GP14
5	GP11	6	GP15
7	GP12	8	GP16
9	GP13	10	GP17
11	+5V	12	+12V



Connector: **CN_SMBUS**
Type: 5-pin header for SMBUS Ports

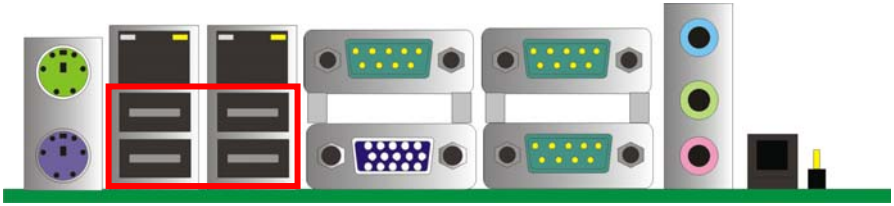
Pin	Description
1	+5V
2	N/C
3	SMBDATA
4	SMBCLK
5	Ground

2.11 <USB Interface>

LV-67I integrates eight USB2.0 ports. The specifications of USB2.0 are listed below:

Interface	USB2.0
Controller	Intel®NM10
Transfer Rate	Up to 480Mb/s
Voltage	5V

The Intel® NM10 contains one Enhanced Host Controller Interface (EHCI) and four Universal Host Controller Interfaces (UHCI), it can determine whether your connected device is for USB1.1 or USB2.0, and change the transfer rate automatically.

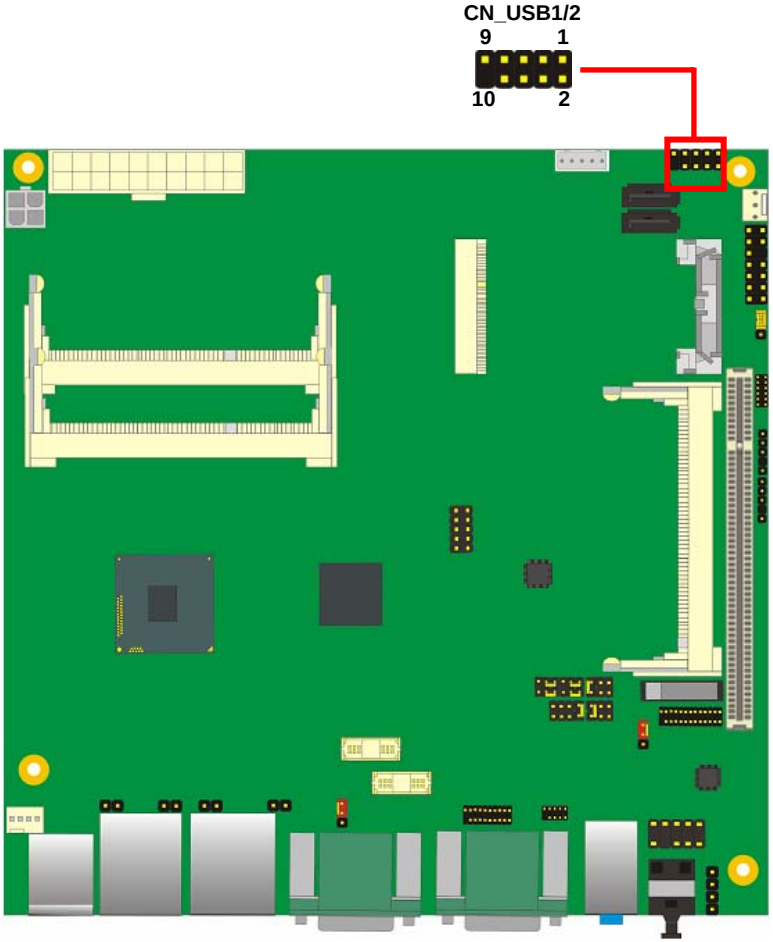


USB3/4/5/6

Connector: **CN_USB1/2**

Type: 10-pin (5 x 2) header for USB5/6 Ports

Pin	Description	Pin	Description
1	VCC	2	VCC
3	Data0-	4	Data1-
5	Data0+	6	Data1+
7	Ground	8	Ground
9	Ground	10	N/C



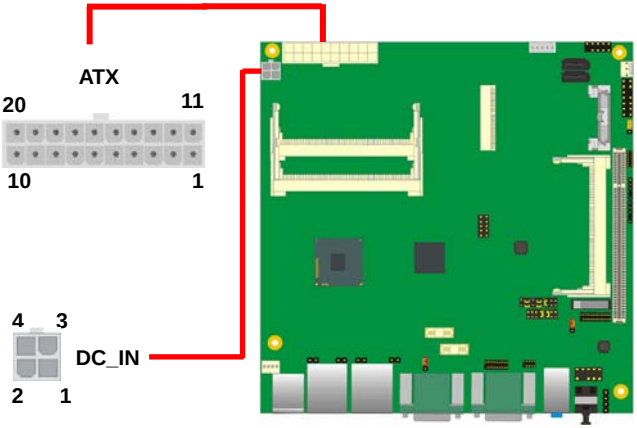
2.12 <Power Supply and Fan Interface>

2.12.1 <Power Input>

The board requires onboard **4-pin** DC-input connector voltage range is from 9V to 24V, or onboard **20-pin** ATX2.0, for the input current, please take a reference of the power consumption report on appendix.

Connector: **ATX** *(It also can become Output when DC-IN be used)*
Type: 20-pin ATX power connector

Pin	Assignment	Pin	Assignment
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	-PSON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	N/C
9	5V_SB	19	5V
10	12V	20	5V



Connector: **DC_IN**
Type: 4-pin standard Pentium 4 additional +9~24V power connector

Pin	Description	Pin	Description
1	Ground	2	Ground
3	+9~24V	4	+9~24V

2.12.2 <Power Output>

The board provides one 20-pin ATX connector for +5V/+12V output for powering your HDD, CDROM or other devices.

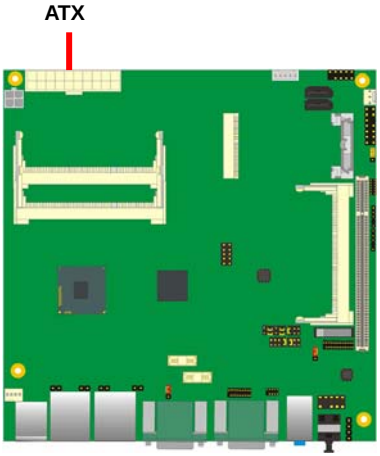
Attention: When DC-IN had power supplied, the ATX become output !

Avoid DC-IN and ATX power supply input at the same time !

Connector: **ATX** *(When DC-IN be used)*
Type: 20-pin ATX connector for +3.3V/+5V/+12V **Output**

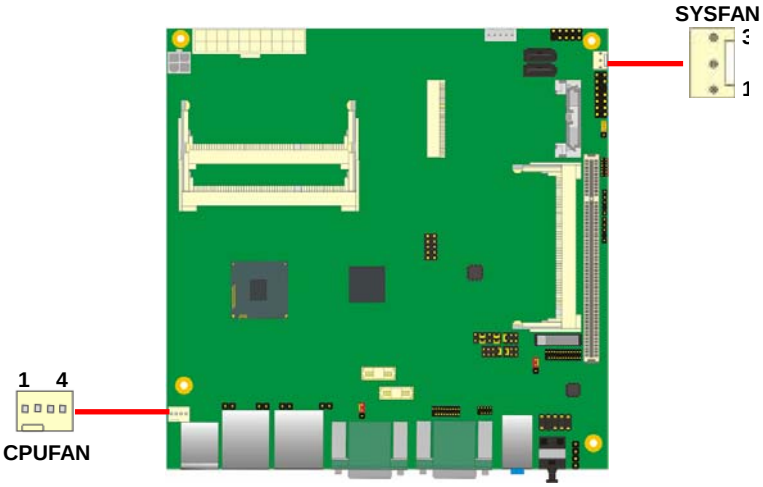
Pin	Assignment	Pin	Assignment
1	3.3V	11	3.3V
2	3.3V	12	*
3	*	13	*
4	5V	14	*
5	GND	15	*
6	*	16	GND
7	GND	17	GND
8	*	18	*
9	*	19	5V
10	12V	20	5V

Note: Maximum output voltage: ***12V/2A & 5V/3A &3.3V/2A***



2.12.3 <Fan connector>

The board provides one **4-pin** fan connectors supporting smart fan for CPU cooler and one **3-pin** cooler fan connectors for system.



Connector: **CPUFAN**
Type: 4-pin fan wafer connector

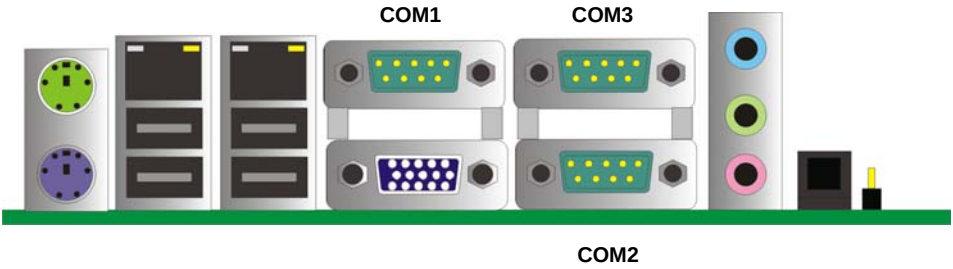
Pin	Description	Pin	Description
1	Ground	2	+12V
3	Fan Speed Detection	4	Fan Control

Connector: **SYSFAN**
Type: 3-pin fan wafer connector

Pin	Description	Pin	Description	Pin	Description
1	Ground	2	+12V	3	Sense

2.13 <Serial Port>

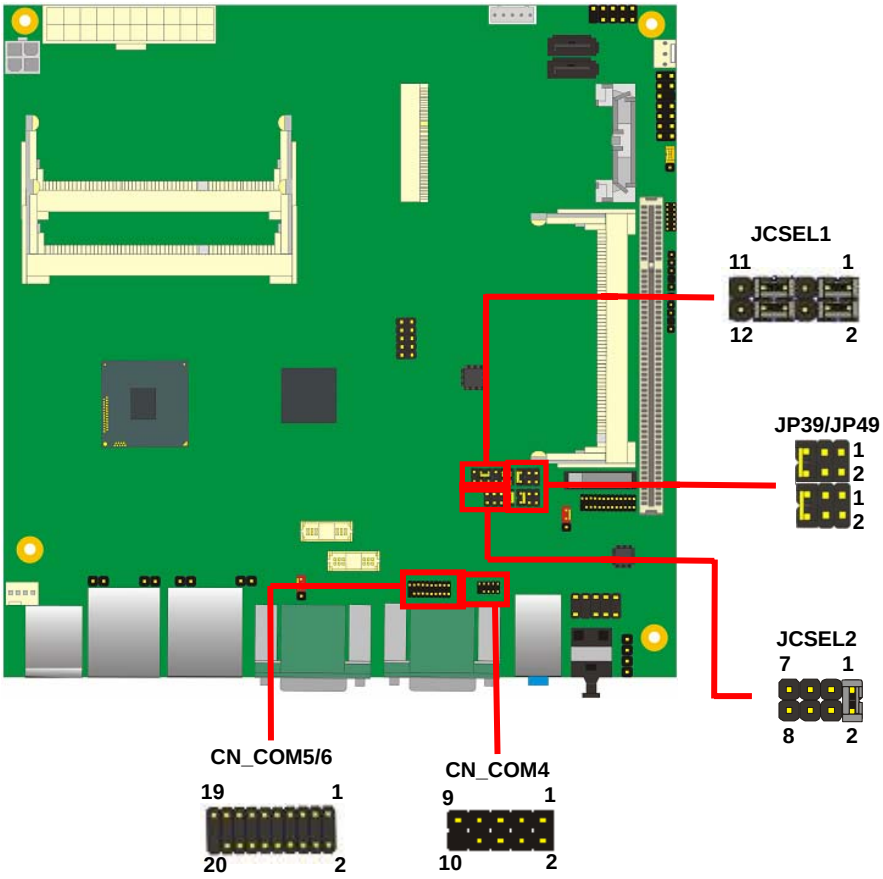
The board supports Three RS232 serial port and one jumper selectable RS232/422/485 serial ports. The jumper JCSEL1 & JCSEL2 can let you configure the communicating modes for COM2.

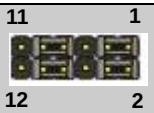


Connector: **COM2**
Type: 9-pin D-sub male connector on bracket for COM2

Pin	Description	Pin	Description
1	DCD/422TX-/485-	2	RXD/422TX+/485+
3	TXD/422RX+	4	DTR/422RX-
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N/C

Setting RS-232 & RS-422 & RS-485 for COM2



Function	JCSEL2	JCSEL1
IrDA		
RS-422		
RS-485		
RS-232		

Default setting:

JCSEL1: (1-3, 2-4, 7-9, 8-10) JCSEL2: (1-2)

Jumper: **JP39/JP49 (COM3/4)**
Type: onboard 6-pin header

Power Mode	JP39/JP49
Pin 9 with 5V Power	1-2
Pin 9 with 12V Power	3-4
Standard COM port	5-6

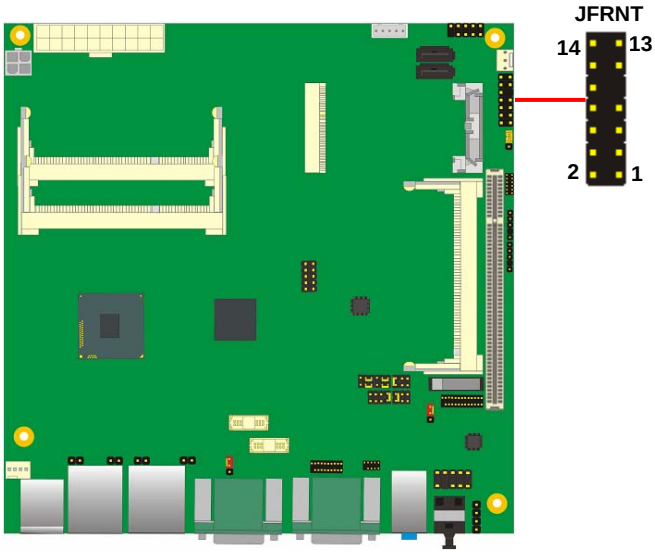
Default setting (5-6)

2.14 <Switch and Indicator>

The **JFRNT** provides front control panel of the board, such as power button, reset and beeper, etc. Please check well before you connecting the cables on the chassis.

Connector: **JFRNT**
Type: onboard 14-pin (2 x 7) 2.54-pitch header

Function	Signal	PIN		Signal	Function
IDE LED	HDLED+	1	2	PWDLED+	**Power LED**
	HDLED-	3	4	N/C	
Reset	Reset+	5	6	PWDLED-	
	Reset-	7	8	SPKIN+	**Speaker**
	N/C	9	10	N/C	
Power Button	PWRBT+	11	12	N/C	
	PWRBT-	13	14	SPKIN-	



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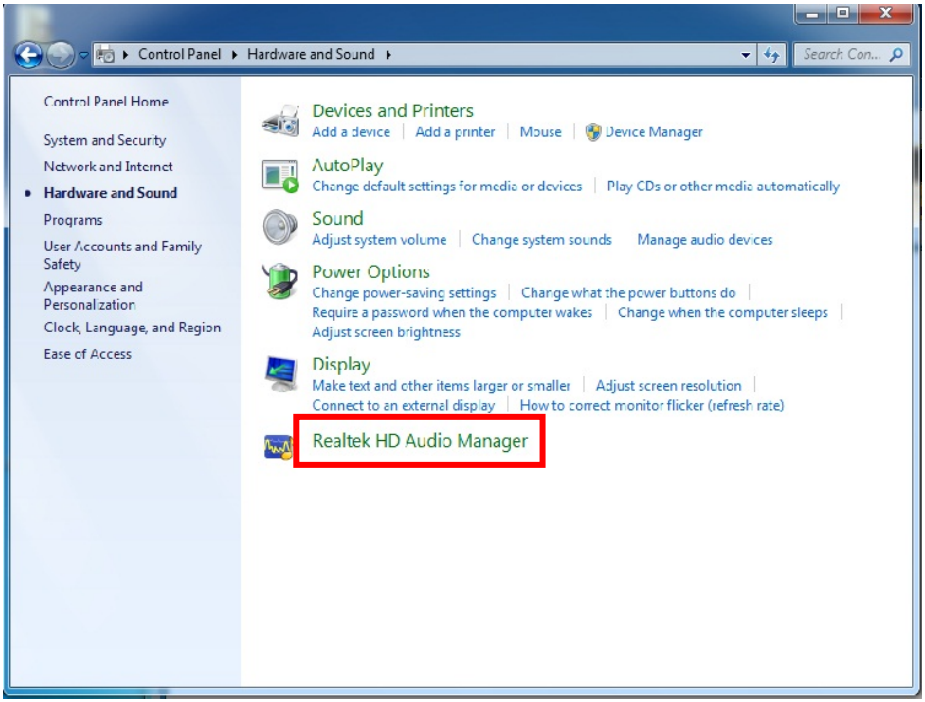
Chapter 3 <System Configuration>

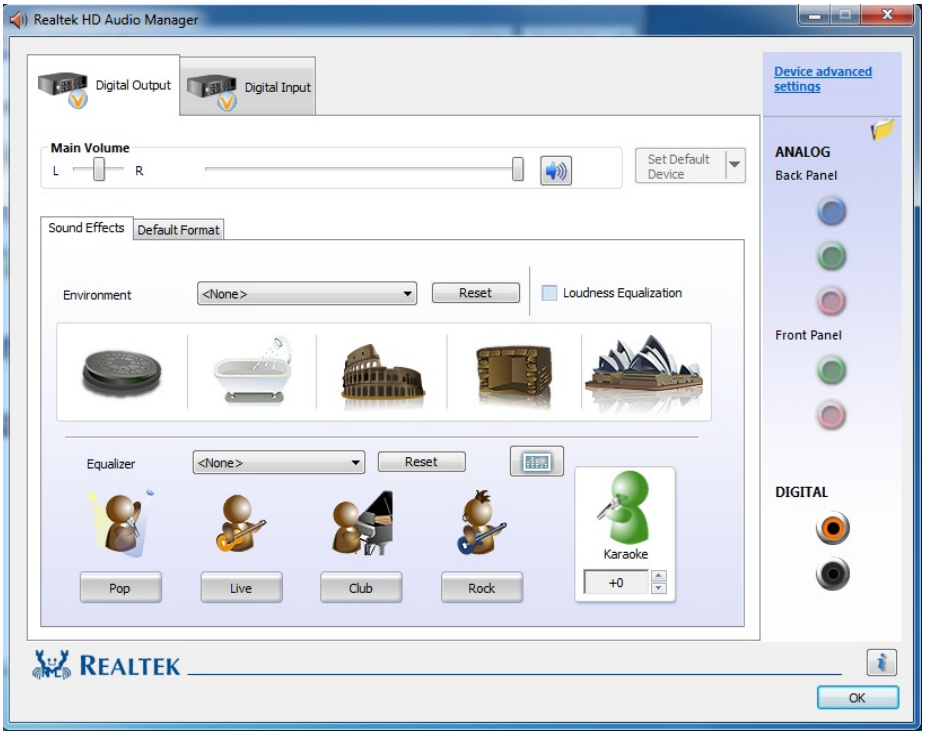
3.1 <Audio Configuration>

The board integrates Intel® NM10 with REALTEK® ALC888 codec. It can support 2-channel sound under system configuration. Please follow the steps below to setup your sound system.

1. Install REALTEK HD Audio driver.



2. Lunch the control panel and Sound Effect Manager.
3. Select Speaker Configuration



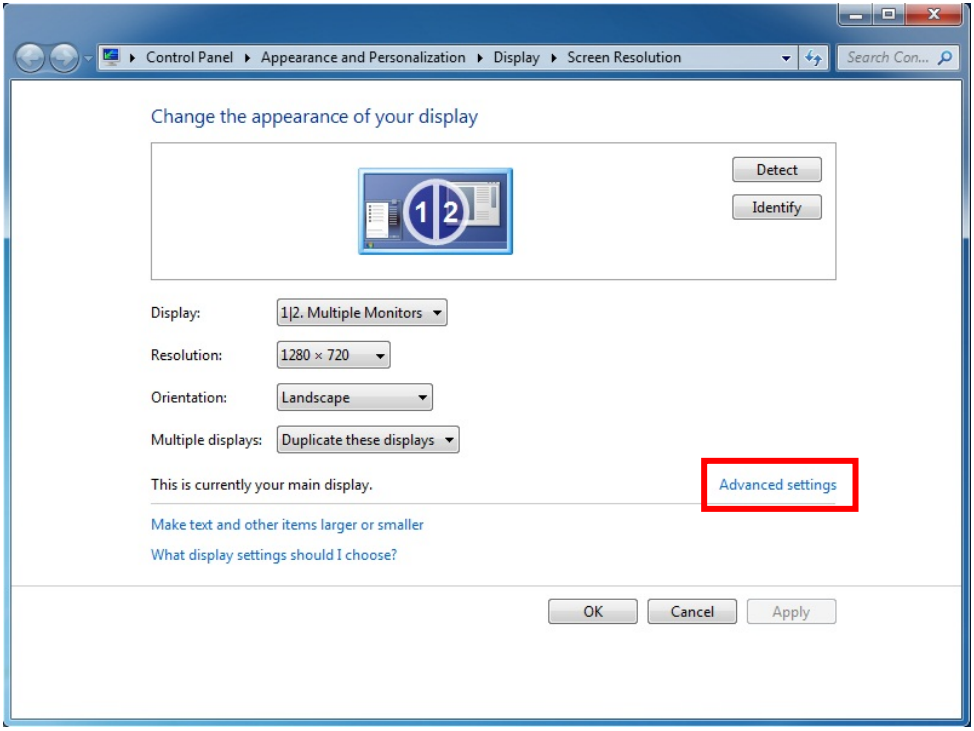
4. Select the sound mode to meet your speaker system.

3.2 <Display Properties Setting>

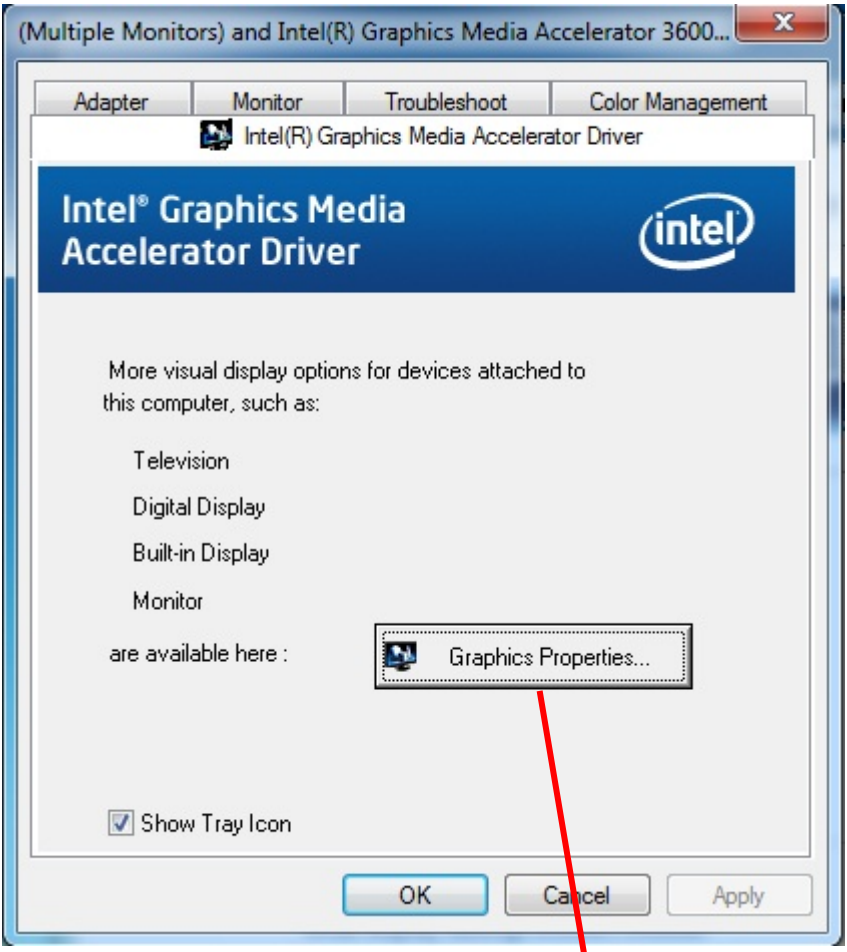
Based on Intel® Atom D2550 / N2800 with GMA3650 (Graphic Media Accelerator), the board supports two DACs for display device as different resolution and color bit.

Please install the Intel Graphic Driver before you starting setup display devices.

1. Click right button on the desktop to lunch Screen Resolution



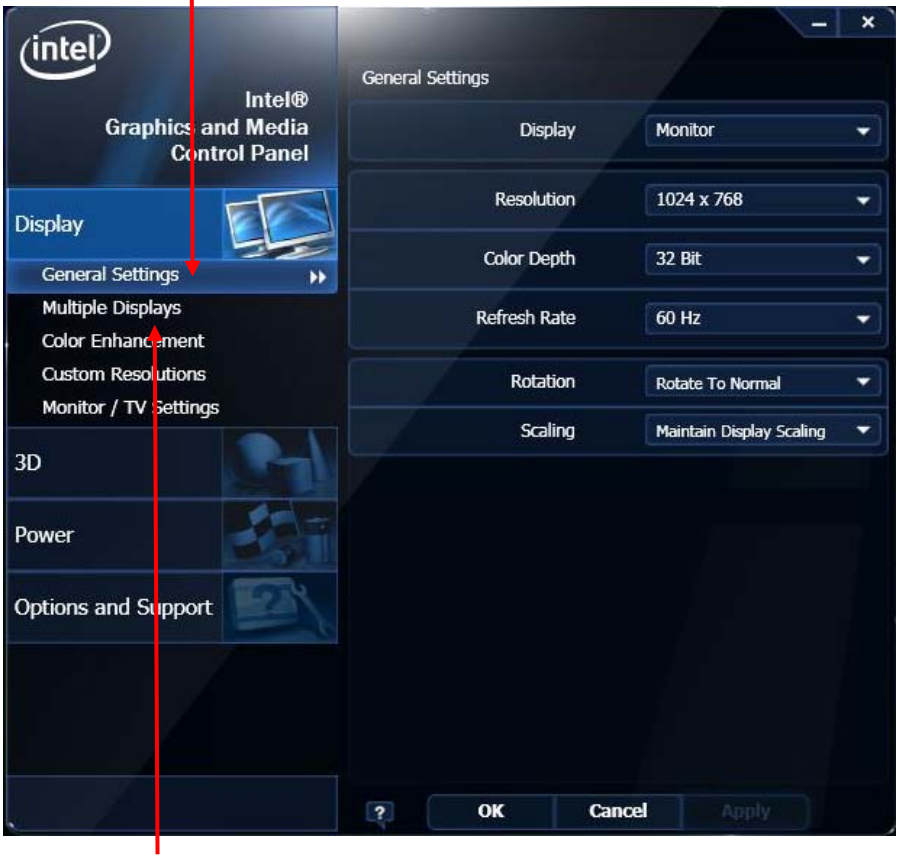
2. Click **Advanced** button for more specificity setup.



Click Graphics Properties... for advanced setup

3. This setup options can let you define each device settings.

Click Monitor to setup the CRT monitor for Resolution and Refresh Rate



Click Intel® Dual Display Clone to setup the dual display mode as same screen

Chapter 4 <BIOS Setup>

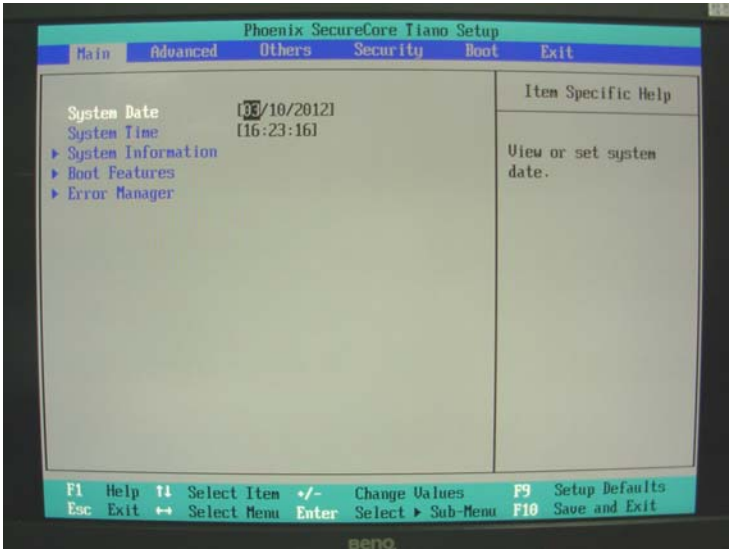
The motherboard uses the Phoenix BIOS for the system configuration. The Phoenix BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel® x86 and compatible CPU architecture based processors and computers. The BIOS provides critical low-level support for the system central processing, memory and I/O sub-systems.

The BIOS setup program of the single board computer let the customers modify the basic configuration setting. The settings are stored in a dedicated battery-backed memory, NVRAM, retains the information when the power is turned off. If the battery runs out of the power, then the settings of BIOS will come back to the default setting.

The BIOS section of the manual is subject to change without notice and is provided here for reference purpose only. The settings and configurations of the BIOS are current at the time of print, and therefore they may not be exactly the same as that displayed on your screen.

To activate CMOS Setup program, press ＜DEL＞ key immediately after you turn on the system. The following message "Press DEL to enter SETUP" should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed as **Figure 4-1**. You can use arrow keys to select your function, press ＜Enter＞ key to accept the selection and enter the sub-menu.

Figure 4-1 CMOS Setup Utility Main Screen



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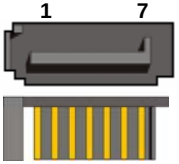
Appendix A <I/O Port Pin Assignment>

A.1 <Serial ATA Port>

Connector: **S_ATA1/2**

Type: 7-pin wafer connector



1	2	3	4	5	6	7
GND	RSATA_TXP1	RSATA_TXN1	GND	RSATA_RXN1	RSATA_RXP1	GND

A.2 <IrDA Port>

Connector: **CN_IR**

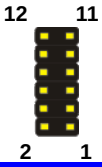
Type: 5-pin header for SIR Ports

Pin	Description
1	VCC
2	N/C
3	IRRX
4	Ground
5	IRTX

A.3 <GPIO Port>

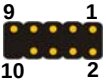
Connector: **CN_DIO**

Type: onboard 2 x 6-pin header, pitch=2.0mm



Pin	Description	Pin	Description
1	Ground	2	Ground
3	GP10	4	GP14
5	GP11	6	GP15
7	GP12	8	GP16
9	GP13	10	GP17
11	VCC	12	+12V

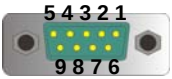
A.4 <USB Interface>



Connector: **CN_USB1/2**
Type: 10-pin (5 x 2) header for dual USB Ports

Pin	Description	Pin	Description
1	VCC	2	VCC
3	Data0-	4	Data1-
5	Data0+	6	Data1+
7	Ground	8	Ground
9	Ground	10	N/C

A.5 <Serial Port>



Connector: **COM1/2/3**
Type: 9-pin D-sub male connector on bracket

Pin	Description	Pin	Description
1	DCD/422TX-/485-	2	RXD/422TX+/485+
3	TXD/422RX+	4	DTR/422RX-
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N/C

A.6 <Parallel Port>

Connector: **CN_LPT**

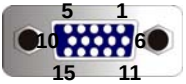
Type: 26-Pin box header Connector on bracket

Pin	Assignment	Pin	Assignment
1	-PSTB	14	AFD-
2	PRO0	15	ERR-
3	PRO1	16	INT-
4	PRO2	17	SLIN-
5	PRO3	18	Ground
6	PRO4	19	Ground
7	PRO5	20	I/O Ground
8	PRO6	21	Ground
9	PRO7	22	Ground
10	ACK-	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	N/C

A.7 <VGA Port>

Connector: **CRT**

Type: 15-pin D-sub female connector on bracket

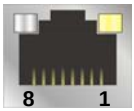


Pin	Description	Pin	Description	Pin	Description
1	RED	6	Ground	11	N/C
2	GREEN	7	Ground	12	DDC_DA
3	BLUE	8	Ground	13	HSYNC
4	N/C	9	+5V	14	VSYNC
5	Ground	10	Ground	15	DDC_CLK

A.8 <LAN Port>

Connector: **RJ45_1/2**

Type: RJ45 connector with LED on rear panel



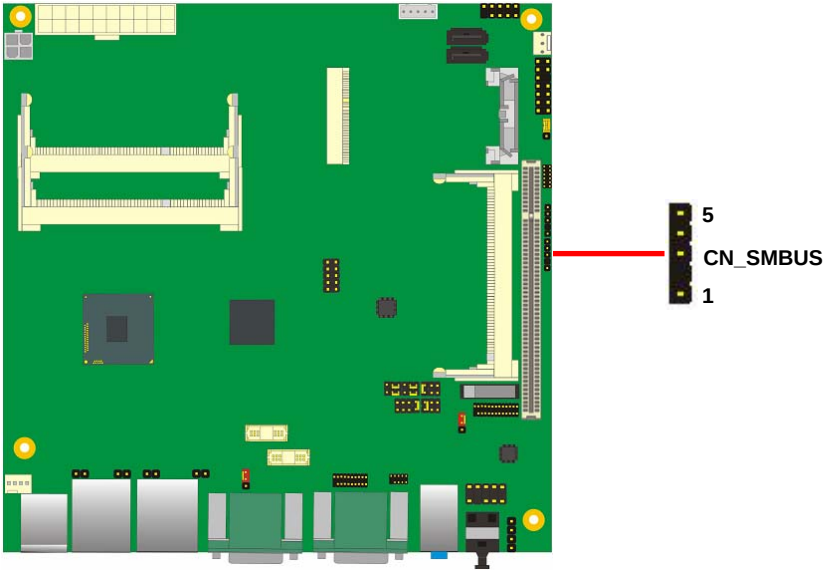
Pin	1	2	3	4	5	6	7	8
Description	TRD0+	TRD0-	TRD1+	TRD2+	TRD2-	TRD1-	TRD3+	TRD3-

A.9 <SMBus>

Connector: **CN_SMBUS**

Type: 4-pin SMBus connector

Pin	Description	Pin	Description
1	VCC	2	N/C
3	SMBDATA	4	SMBCLK
5	Ground		

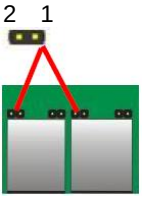


A.10 <LAN LED Port>

Connector: **JSPD1/2**
Type: 5-pin header for LAN Speed LED connector

When Lan speed 10/100Mbps

Pin	Description
1	LED-
2	LED+

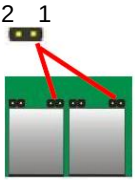


When Lan speed 1Gbps

Pin	Description
1	LED+
2	LED-

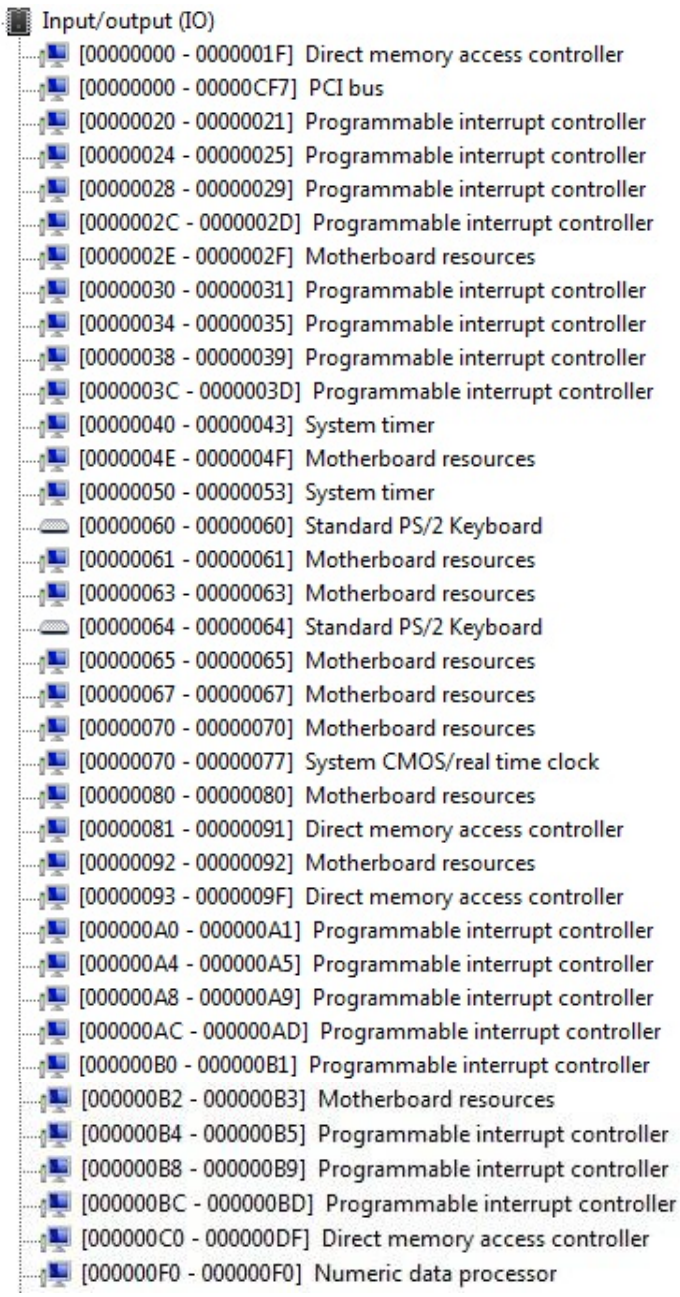
Connector: **JACT1/2**
Type: 5-pin header for LAN Activity LED connector

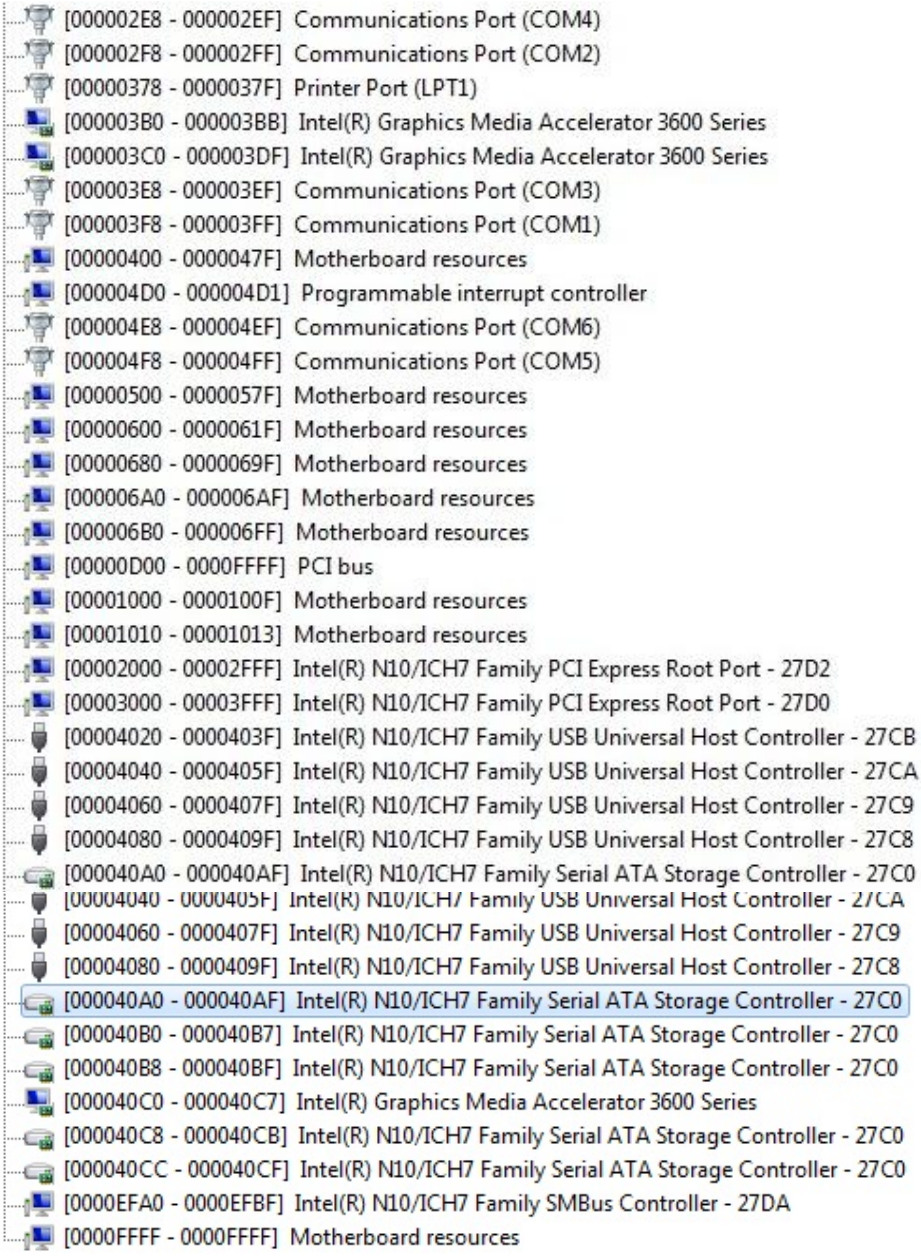
Pin	Description
1	LED-
2	LED+



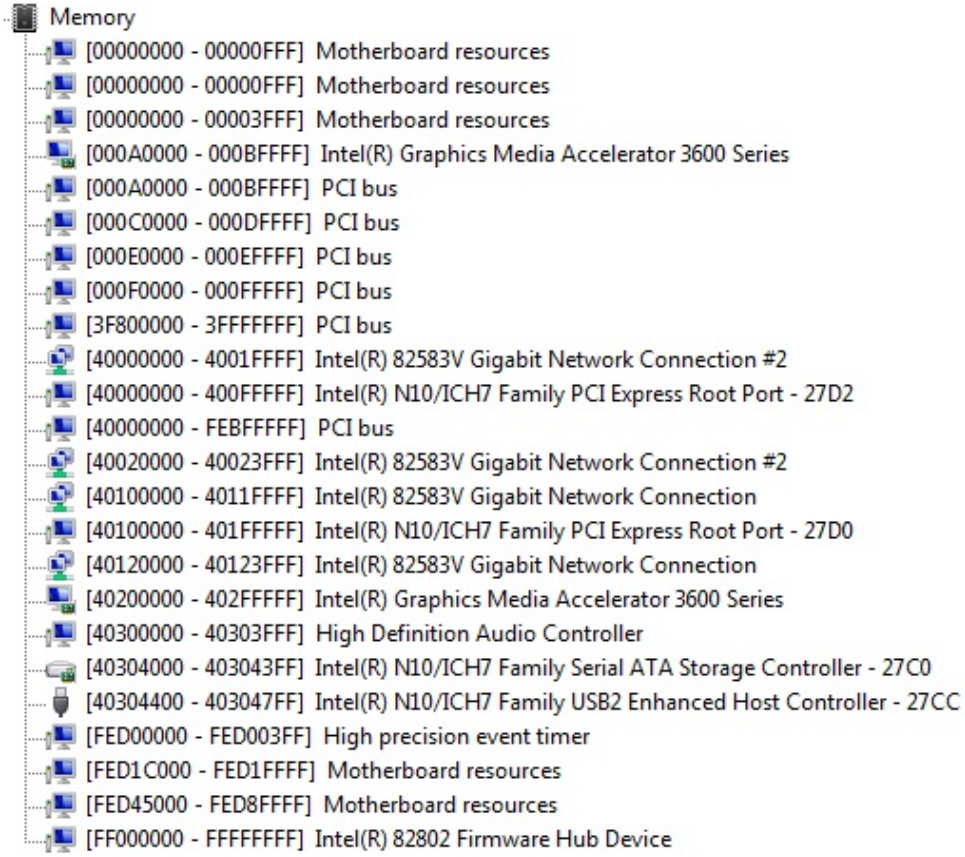
Appedix B <System Resources>

B.1 < I/O Port Address Map >

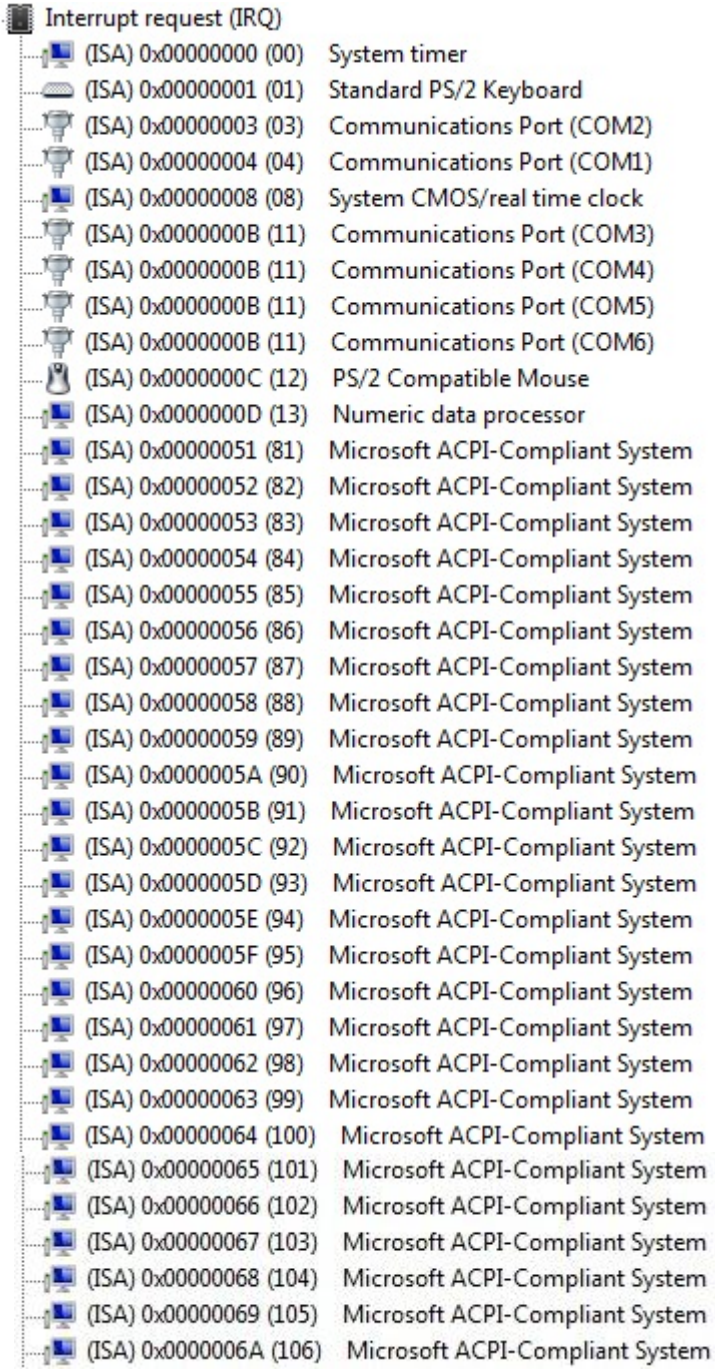



[000002E8 - 000002EF] Communications Port (COM4)
[000002F8 - 000002FF] Communications Port (COM2)
[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] Intel(R) Graphics Media Accelerator 3600 Series
[000003C0 - 000003DF] Intel(R) Graphics Media Accelerator 3600 Series
[000003E8 - 000003EF] Communications Port (COM3)
[000003F8 - 000003FF] Communications Port (COM1)
[00000400 - 0000047F] Motherboard resources
[000004D0 - 000004D1] Programmable interrupt controller
[000004E8 - 000004EF] Communications Port (COM6)
[000004F8 - 000004FF] Communications Port (COM5)
[00000500 - 0000057F] Motherboard resources
[00000600 - 0000061F] Motherboard resources
[00000680 - 0000069F] Motherboard resources
[000006A0 - 000006AF] Motherboard resources
[000006B0 - 000006FF] Motherboard resources
[00000D00 - 0000FFFF] PCI bus
[00001000 - 0000100F] Motherboard resources
[00001010 - 00001013] Motherboard resources
[00002000 - 00002FFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[00003000 - 00003FFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
[00004020 - 0000403F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
[00004040 - 0000405F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
[00004060 - 0000407F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
[00004080 - 0000409F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
[000040A0 - 000040AF] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[00004040 - 0000405F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
[00004060 - 0000407F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
[00004080 - 0000409F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
[000040A0 - 000040AF] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[000040B0 - 000040B7] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[000040B8 - 000040BF] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[000040C0 - 000040C7] Intel(R) Graphics Media Accelerator 3600 Series
[000040C8 - 000040CB] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[000040CC - 000040CF] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[0000EFA0 - 0000EFBF] Intel(R) N10/ICH7 Family SMBus Controller - 27DA
[0000FFFF - 0000FFFF] Motherboard resources

B.2 < Memory Address Map >



B.3 < System IRQ Resources >



(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
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(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
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(ISA) 0x000000A8 (168) Microsoft ACPI-Compliant System
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(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
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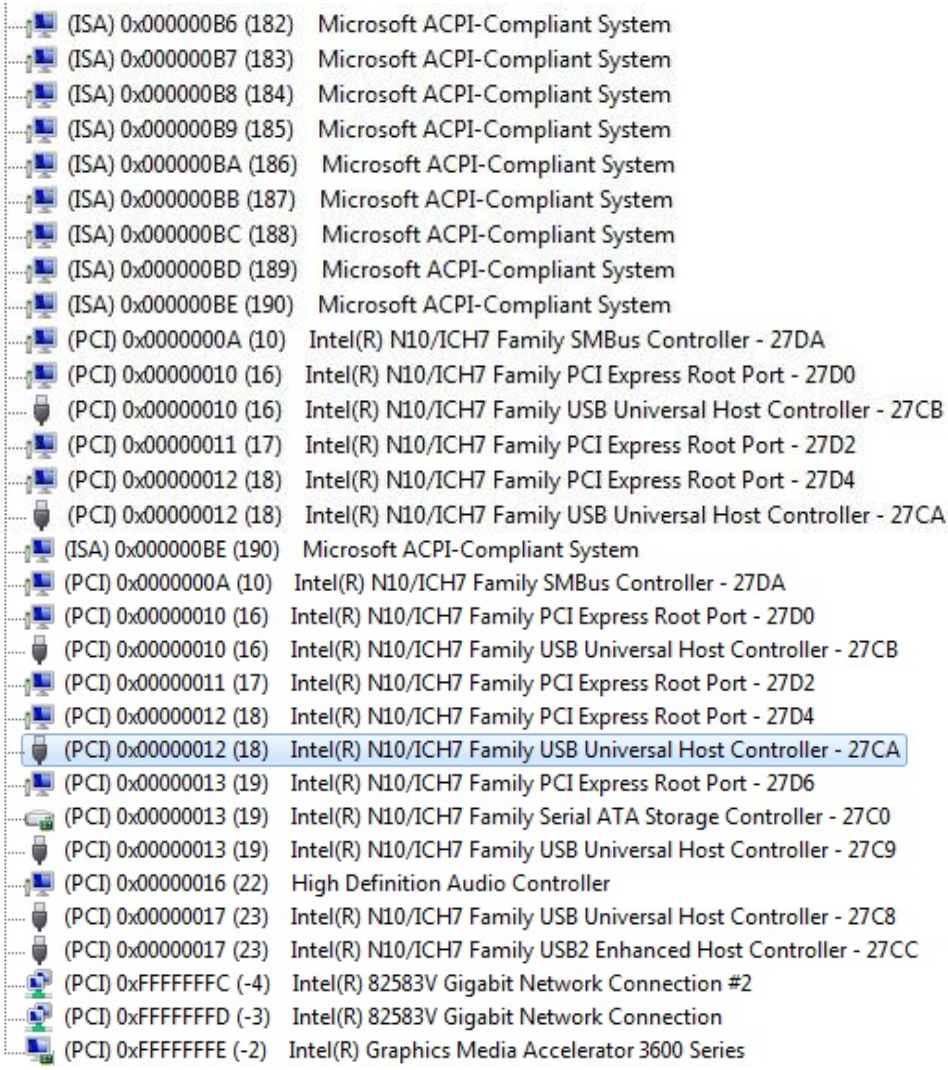
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(ISA) 0x000000BD (189) Microsoft ACPI-Compliant System
(ISA) 0x000000BE (190) Microsoft ACPI-Compliant System
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(PCI) 0x00000010 (16) Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
(PCI) 0x00000010 (16) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
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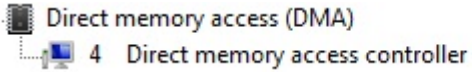
(PCI) 0x00000013 (19) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
(PCI) 0x00000016 (22) High Definition Audio Controller
(PCI) 0x00000017 (23) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
(PCI) 0x00000017 (23) Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
(PCI) 0xFFFFFFFC (-4) Intel(R) 82583V Gigabit Network Connection #2
(PCI) 0xFFFFFFFD (-3) Intel(R) 82583V Gigabit Network Connection
(PCI) 0xFFFFFFFE (-2) Intel(R) Graphics Media Accelerator 3600 Series

B.4 < System DMA Resources >



Appedix C <Flash BIOS>

C.1 <BIOS Auto Flash Tool>

The board is based on Phoenix BIOS and can be updated easily by the BIOS auto flash tool. You can download the tool online at the address below:

http://www.phoenix.com/en/home/

http://www.commell.com.tw/Support/Support_SBC.htm

File name of the tool is "Pflash.exe", it's the utility that can write the data into the BIOS flash ship and update the BIOS.

C.2 <Flash Method>

1. Please make a bootable floppy disk.
2. Get the last .bin files you want to update and copy it into the disk.
3. Copy phoenixflash.exe to the disk.
4. Power on the system and flash the BIOS.
   (Example: C:/Pflash /sa /bbl /cvar XXX.bin)
5. Re-star the system.

Any question about the BIOS re-flash please contact your distributors or visit the web-site at below:

http://www.commell.com.tw/support/support.htm

Appendix D <Programming GPIO's>

The GPIO' can be programmed with the MSDOS debug program using simple IN/OUT commands. The following lines show an example how to do this.

GPIO0…..GPIO7 bit0……bit7

-o 2E 87 ;enter configuration

-o 2E 87

-o 2E 07

-o 2F 09 ;enable GPIO function

-o 2E 30

-o 2F 02 ;enable GPIO configuration

-o 2E F0

-o 2F xx ;set GPIO as input/output; set '1' for input,'0'for output

-o 2E F1

-o 2F xx ;if set GPIO's as output,in this register its value can be set

Optional :

-o 2E F2

-o 2F xx ; Data inversion register ; '1' inverts the current valus of the bits ,'0' leaves them as they are

-o 2E 30

-o 2F 01 ; active GPIO's

For further information ,please refer to Winbond W83627DHG-P datasheet.

Appendix E <Watch Dog timer Setting >

The watchdog timer makes the system auto-reset while it stops to work for a period. The integrated watchdog timer can be setup as system reset mode by program.

Timeout Value Range

- 1 to 255
- Second or Minute

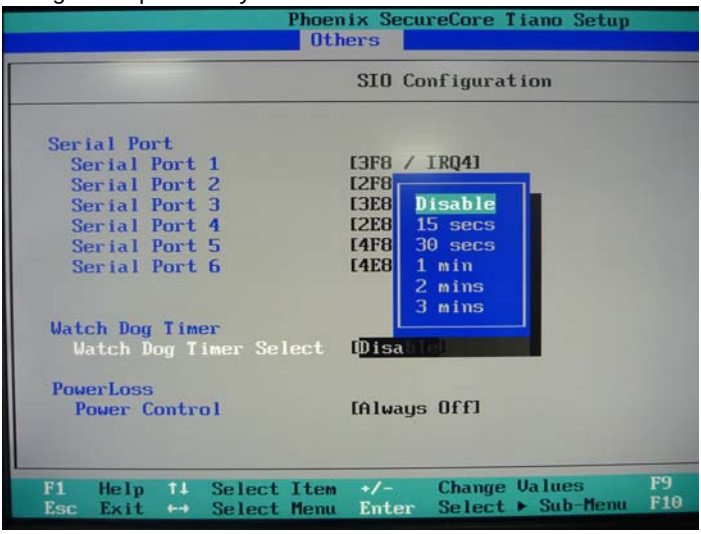
Program Sample

Watchdog timer setup as system reset with 5 second of timeout

o 2E, 87	
o 2E, 87	
o 2E, 07	
o 2F, 08	Logical Device 8
o 2E, 30	Activate
o 2F, 01	
o 2E, F5	Set as Second*
o 2F, 00	
o 2E, F6	Set as 5
o 2F, 05	

* Minute: bit 3 = 0; Second: bit 3 = 1

You can select Timer setting in the BIOS, after setting the time options, the system will reset according to the period of your selection.



Contact Information

Any advice or comment about our products and service, or anything we can help you please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

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Twitter	https://twitter.com/Taiwan_Commate

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