HE-772

Half-size PCI Bus CPU Card

User's Manual

Edition 1.0
2011/11/18

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Packing List:

Please check the package content before you starting using the board.

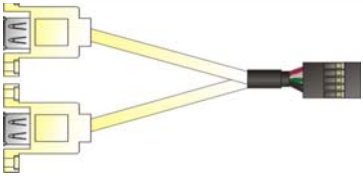
Hardware:

HE-772 "Half-size PCI Bus CPU Card" x 1

Cable Kit:

SATA Cable
(OALSATA-L x 2)

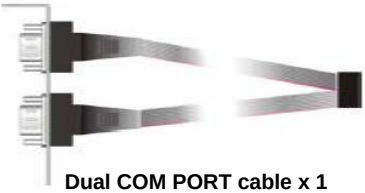
PS/2 Keyboard & Mouse Cable x 1
(OALPS2/MK)



USB Cable x 1
(OALUSBA-3)

Audio Cable x 1
(OALPJ-HDU)

4-pin to 3-pin ATX Cable x 1
(OAL-ATX-C)



Dual COM PORT cable x 1
(OALES-BKU2)

Heatsink x 1
HE-772G & HE-7729
(OHS-67E)

Heatsink x 1
HE-772A & HE-772C & HE-772H
(OHS-67EF)

Printed Matters:

Driver CD x 1 (Including User's Manual)

Index

Chapter 1 <Introduction>

1.1 <Product Overview>

HE-772G/H/A is the Half-size PCI Bus CPU Card, with Intel® Atom N450/D410/D510 processor, integrated GMA3150 graphics, Intel® ICH8M, DDR2 SO-DIMM memory, Realtek HD Audio , CF , SATAII , LVDS , LPT , IrDA , DIO, CN_USB , PS2 , SMBUS, CN_INV , CN_CRT , IDE , CN_ATKB , MINI-CARD and Intel® 82583V Gigabit LAN.

Intel® Atom Processor

The Intel® Atom N450/D410/ D510 processor supports one channel of 667 MHz DDR2 SDRAM up to 2GB/4GB/4GB. The chipset features power-efficient graphics with an integrated 18-bit 3D graphics engine based on Intel® Graphics Media Accelerator 3150 architecture with LVDS, CRT display ports. The DMI is designed into the Pineview-M(D) processor to provide an efficient high-bandwidth communication channel between the processor and the ICH8M.

Embedded Intel® ICH8M

The board integrates Intel® ICH8M. It provides I/O capabilities and flexibility via high-bandwidth interfaces such as PCIE and Hi-Speed USB 2.0 connectivity. Serial ATA . HD Audio , Mini-card , CF , LAN , HD Audio . IDE , CN_USB

Flexible Extension Interface

The board also provides Compact Flash Type II socket and 2 x Mini-card socket.

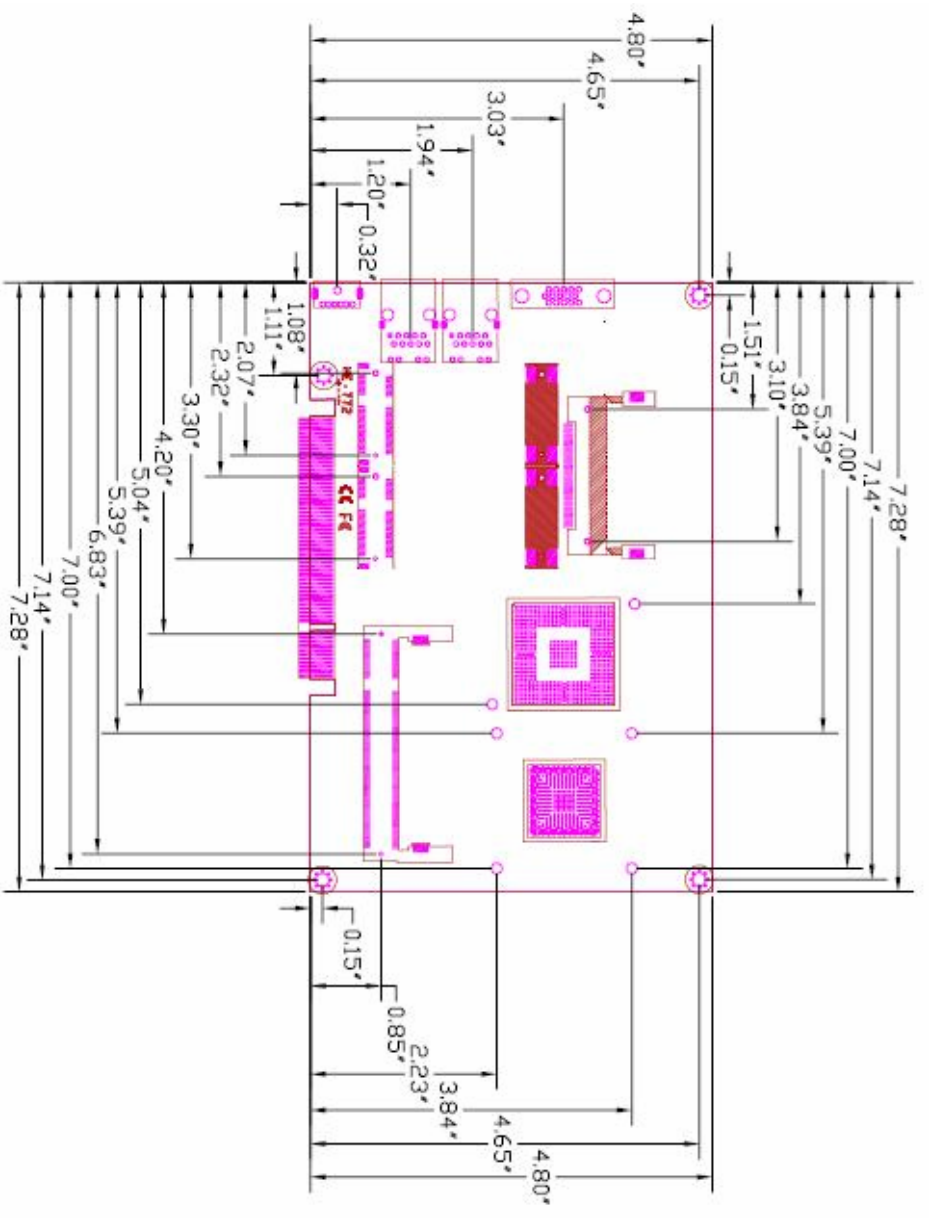
1.2 <Product Specification>

General Specification	
Form Factor	Half-size PCI Bus CPU Card
CPU	Intel® Atom N450 Processor 1.66GHz (HE-772G) Intel® Atom N455 Processor 1.66GHz (HE-7729) Intel® Atom D410 Processor 1.66GHz (HE-772H) Intel® Atom D510 Processor 1.66GHz (HE-772A) Intel® Atom D525 Processor 1.80GHz (HE-772C) Package type: FCBGA559
Memory	1 x 200-pin DDR2 SO-DIMM 667MHz SDRAM up to 2GB/4GB/4GB (HE-772G / HE-7729 / HE-772H / HE-772A / HE-772C) Unbufferred, none-ECC memory supported only
Chipset	Intel® ICH8M
BIOS	Phoenix-Award v6.00PG 8Mb SPI flash BIOS
Green Function	Power saving mode includes doze, standby and suspend modes. ACPI version 2.0 and APM version 1.2 compliant
Watchdog Timer	System reset programmable watchdog timer with 1 ~ 255 sec./min. of timeout value
Real Time Clock	Intel® ICH8-M built-in RTC with lithium battery
Enhanced IDE	IDE supports 44-Pin Disk On Module with +5V power supply One CompactFlash Type II socket on solder side
Serial ATAII	Intel® ICH8M integrates 3 Serial ATAII interfaces (No RAID Function) Up to 300MB/s of transfer rate
Multi-I/O Port	
Chipset	Intel® ICH8M with Winbond® W83627DHG-P controller
Serial Port	Five RS-232 and one RS232/422/485 serial ports
USB Port	Eight 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 I nterface
Smart Fan	One CPU fan connectors for fan speed controllable
Audio Port	Realtek ALC888 HD Codec
VGA Display Interface	
Chipset	Intel® Atom N450 processor (System Controller Hub) (HE-772G) Intel® Atom N455 processor (System Controller Hub) (HE-7729) Intel® Atom D410 processor (System Controller Hub) (HE-772H) Intel® Atom D510 processor (System Controller Hub) (HE-772A) Intel® Atom D525 processor (System Controller Hub) (HE-772C)
Frame Buffer	Up to 384MB shared with system memory

Display Type	CRT, LVDS monitor with analog display
Connector	External DB15 female connector on rear I/O panel Onboard 20-Pin LVDS and 5-Pin inverter 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
Expansive Interface	
PCIE mini card	Two PCIE mini card socket Power supply: +1.5V, 3VSB
Power and Environment	
Power Requirement	DC 5V/12V power required, optional 5VSB for ATX Onboard 4-pin power connector & 3-pin ATX connector
Dimension	185 (L) x 122 (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	
HE-772G	Support Intel® Atom N450 processor with onboard VGA, LVDS for 18-bits, Audio, Giga LAN, USB2.0, SATAII, PCIE mini card, PCI, Mini-PCI, Serial Port, CF, SMBUS, GPIO, IrDA, LPT, CDIN, SPDIF
HE-7729	Support Intel® Atom N455 processor with onboard VGA, LVDS for 18-bits, Audio, Giga LAN, USB2.0, SATAII, PCIE mini card, PCI, Mini-PCI, Serial Port, CF, SMBUS, GPIO, IrDA, LPT, CDIN, SPDIF
HE-772H	Support Intel® Atom D410 processor with onboard VGA, LVDS for 18-bits, Audio, Giga LAN, USB2.0, SATAII, PCIE mini card, PCI, Mini-PCI, Serial Port, CF, SMBUS, GPIO, IrDA, LPT, CDIN, SPDIF
HE-772A	Support Intel® Atom D510 processor with onboard VGA, LVDS for 18-bits, Audio, Giga LAN, USB2.0, SATAII, PCIE mini card, PCI, Mini-PCI, Serial Port, CF, SMBUS, GPIO, IrDA, LPT, CDIN, SPDIF
HE-772C	Support Intel® Atom D525 processor with onboard VGA, LVDS for 18-bits, Audio, Giga LAN, USB2.0, SATAII, PCIE mini card, PCI, Mini-PCI, Serial Port, CF, SMBUS, GPIO, IrDA, LPT, CDIN, SPDIF
CBP-5P4	Support 4 X PCI slots backplane
MPX-954E	PCI Express mini card support 2 x RS232 , 2 x RS422/RS485.

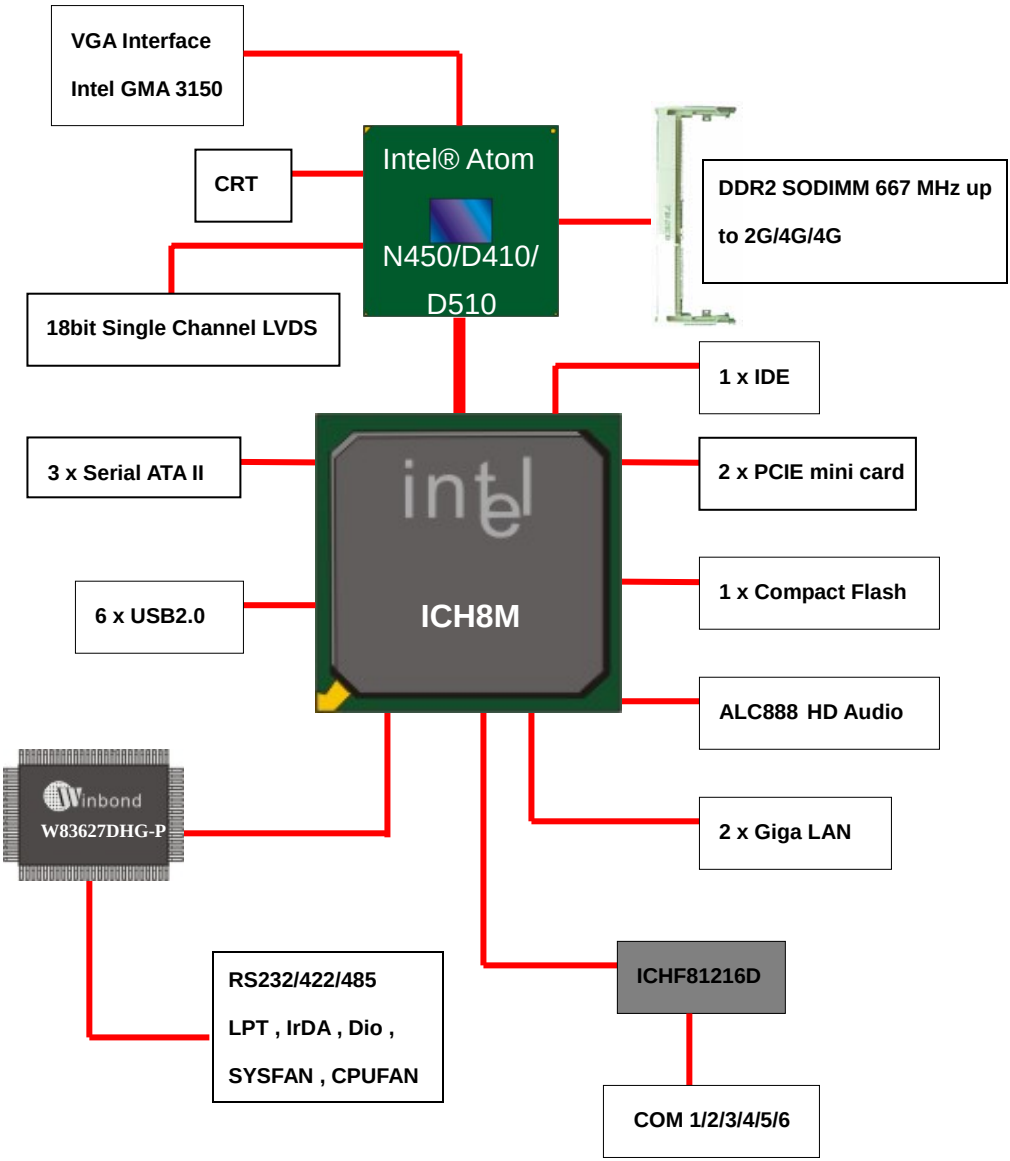
The specifications may be different as the actual production.
For further product information please visit the website at http://www.commell.com.tw.

1.3 <Mechanical Drawing>



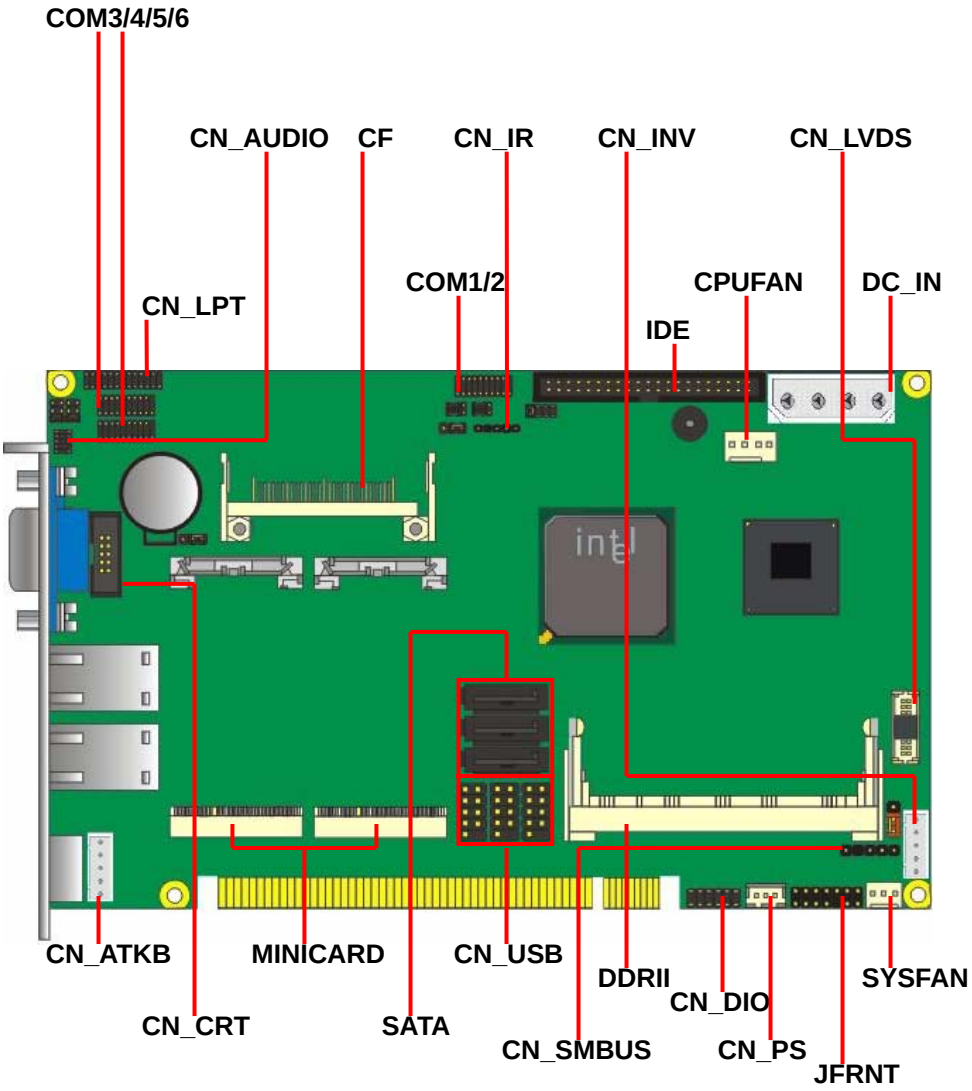
Unit: inch

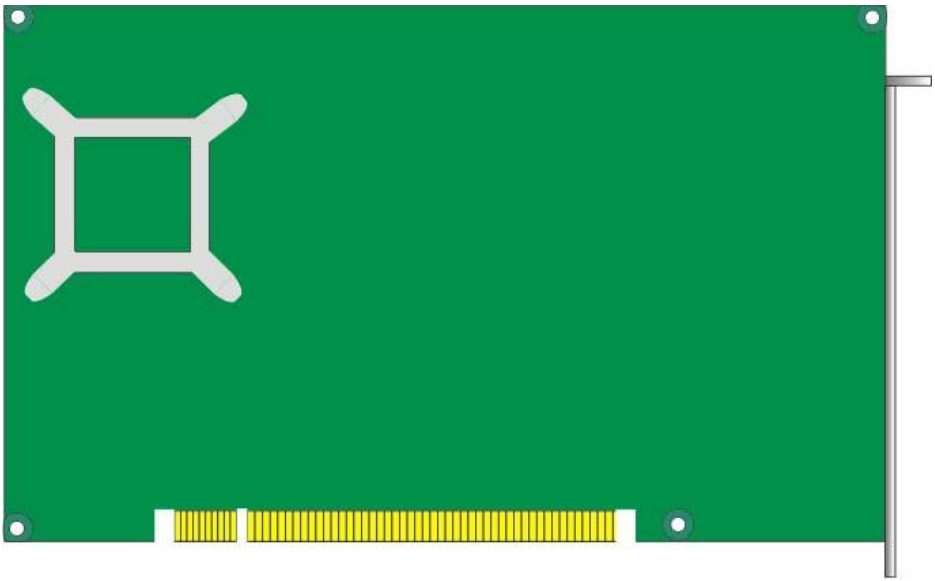
1.4 <Block Diagram>



Chapter 2 <Hardware Setup>

2.1 <Connector Location>

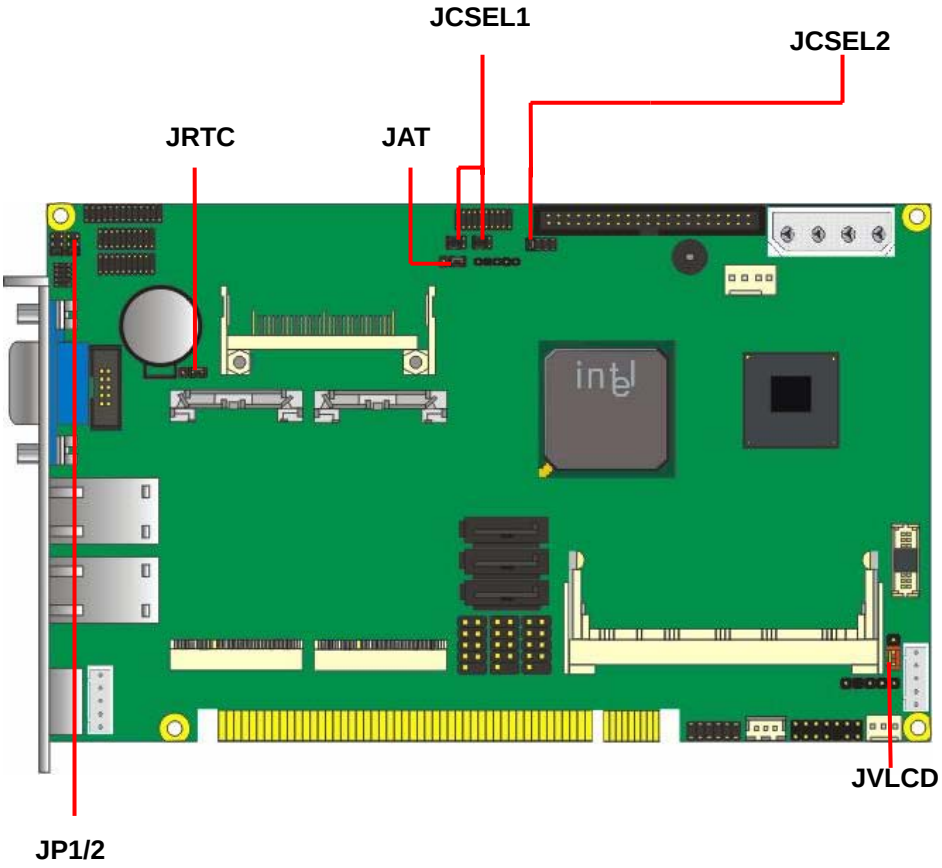




HE-772G/9/H/A/C

2.2 <Jumper Reference>

Jumper	Function
JRTC	CMOS Operating/Clear Setting
JVLCD	Panel Voltage Setting
JAT	Power mode select
JCSEL1 **JCSEL2**	CN_COM2 RS-232 RS422 RS485 Setting / CN_IR IrDA Setting
JP1 **JP2**	CN_COM3/4/5/6 RS-232



2.3 <Connector Reference>

2.3.1 <Internal Connector>

Connector	Function	Remark
DDRII	200 –pin DDR2 SO-DIMM SDRAM slot	
SATA1/2/3	7-pin Serial ATA connector	
CF	Compact Flash Type II socket	
IDE	44-pin primary IDE connector	
MINI_CARD	2 x 52-pin PCI Express mini card	
CN_LVDS	10 x 2-pin LVDS connector	
CN_INV	5-pin LCD inverter connector	
CN_USB1/2/3	5 x 2-pin USB connector	
CN_AUDIO	5 x 2-pin audio connector	
CN_COM1/2/3/4/5/6	10 x 2-pin com connector	
JFRNT	10-pin switch/indicator connector	
SYSFAN	3-pin system cooler fan connector	
CPUFAN	4-pin CPU cooler fan connector	
DC_IN	DC 5V/12V input connector	
CN_LPT	13 x 2-pin printer connector	
CN_DIO	6 x 2-pin digital I/O connector	
CN_IR	5-pin IrDA connector	
JCSEL1 JCSEL2	CN_COM2 RS-232 RS422 RS485 Setting / CN_IR IrDA Setting	
JRTC	CMOS Operating/Clear Setting	
CN_CRT	5 x 2-pin CRT connector	
CN_SMBUS	5-pin SMBUS connector	
JAT	Power mode select	
JRTC	CMOS Operating/Clear Setting	

2.3.2 <External Connector>

Connector	Function	Remark
CRT	DB15 VGA connector	
PS2	PS2 keyboard and mouse connector	
RJ45	RJ45 LAN connector	

2.4 <CPU and Memory Setup>

Non-ECC, unbuffered memory is supported only.

HE-772G provides one 200-pin DDR2 SO-DIMM to support DDR2 667 memory modules support up to 2GB of capacity.

Suggestion:

DDR2 SO-DIMM Modules:

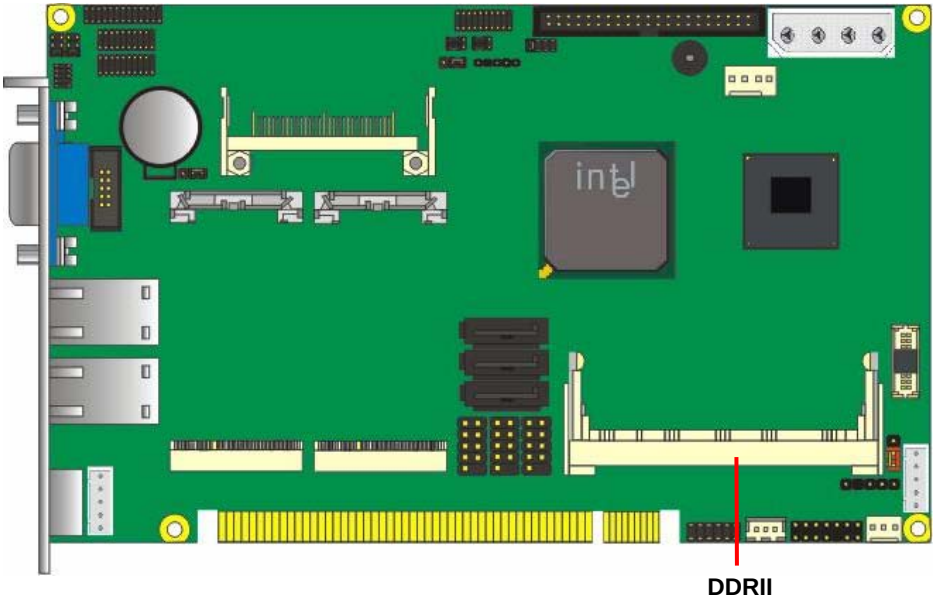
- Raw Card A = 2 Ranks of x16 SDRAMs (Double-sided)
- Raw Card C = 1 Rank of x16 SDRAMs (Single-sided)

HE-772H/ A provides one 200-pin DDR2 SO-DIMM to support DDR2 667 memory modules support up to 4GB of capacity.

Suggestion:

DDR2 SO-DIMM Modules:

- Raw Card C = 1 Rank of x16 SDRAMs (Single -sided)
- Raw Card D = 1 Rank of x8 SDRAMs (Single-sided)
- Raw Card E = 2 Ranks of x8 SDRAMs (Double -sided)



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

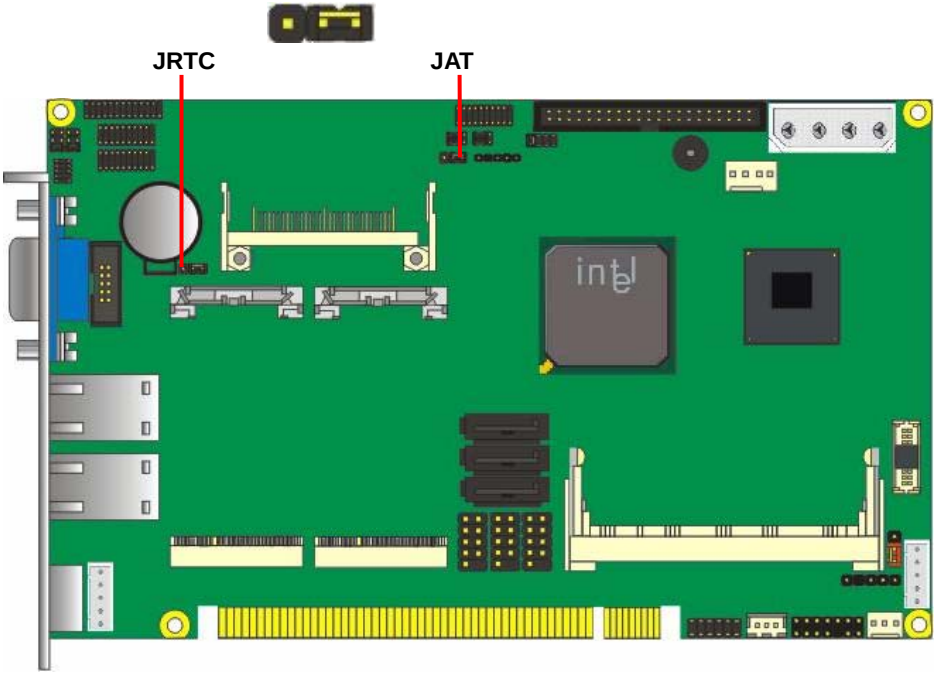
Default setting

Jumper: **JAT**

Type: onboard 3-pin jumper

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

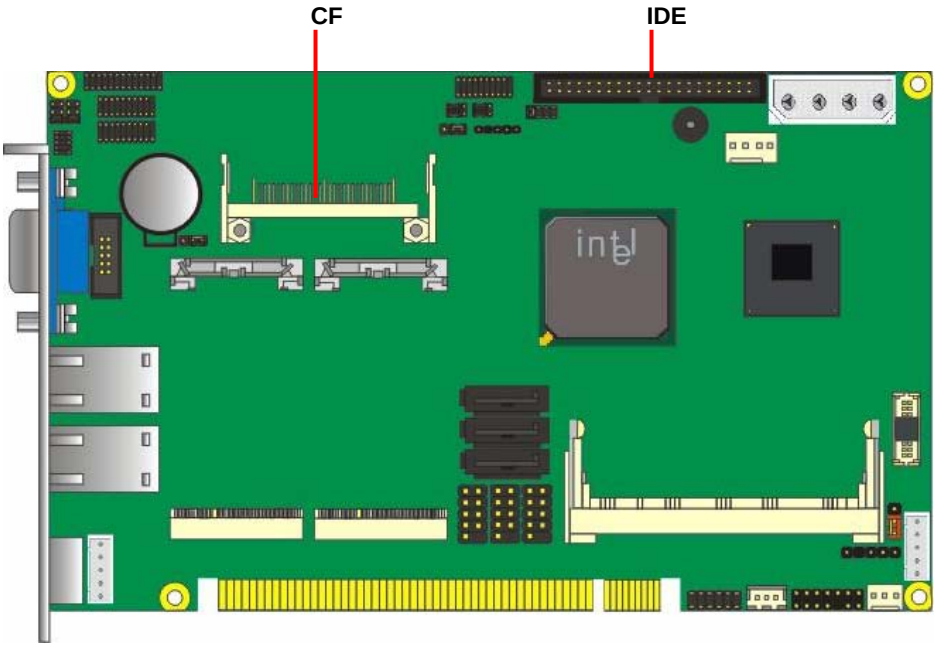
Default setting



2.6 < Enhanced IDE & CF Interface >

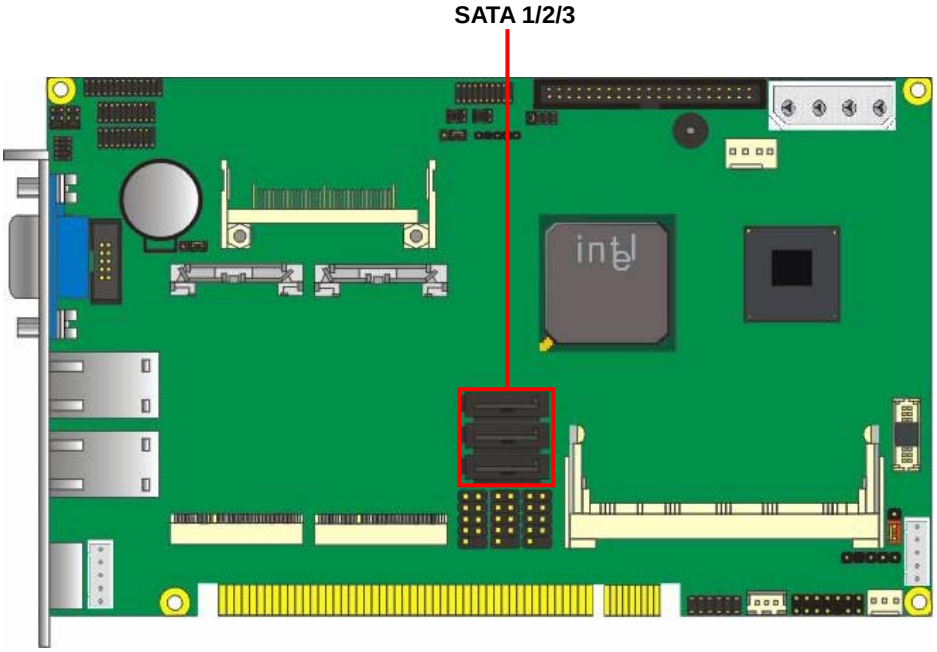
The board supports one enhanced IDE interface for 2 ATAPI devices with ATA33. Based on embedded application, the board has one 44-pin IDE connector +5V supported for disk on module.

The board also provides a Compact Flash Type II socket.



2.7 <Serial ATA Interface>

Based on Intel ICH8M, the board provides one Serial ATAII interfaces with up to 300MB/s of transfer rate.



2.8 <LAN Interface>

The Intel® 82583v supports triple speed of 10/100/1000Base-T, with IEEE802.3 compliance.

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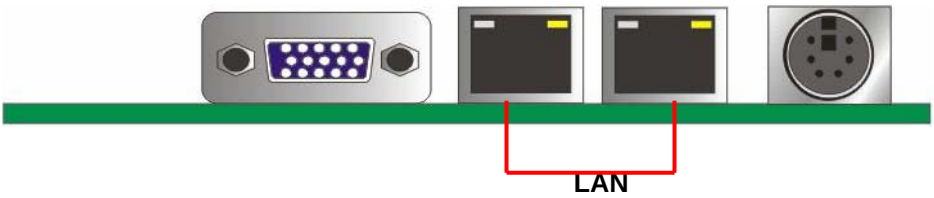


2.9 <Onboard Display Interface>

Based on Intel® Atom N450/D410/D510 with built-in GMA (Graphic Media Accelerator) 3150 graphics, the board provides one DB15 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.

2.9.1 <Analog VGA Interface>

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

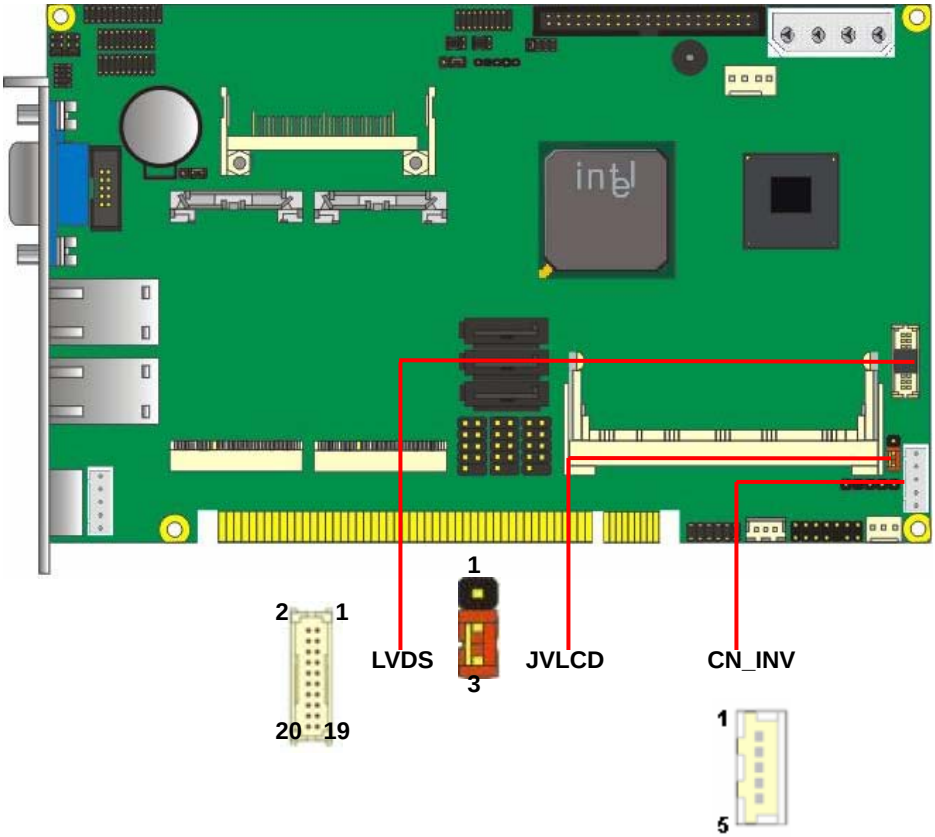
HE-772G /9 supports 1400 x 1050 (WUXGA) resolution displays.

HE-772H/ A/C supports 2048 x 1536 (WUXGA) resolution displays.

2.9.2 <Digital Display>

The board provides one 20-pin LVDS connector for 18 bit single channel panels, HE-772G/9 supports 1280 x 800 (WUXGA) resolution displays.

HE-772H/A/C supports 1366 x 768 (WUXGA) resolution displays, with one LCD backlight inverter connector and one jumper for panel voltage setting



Connector: **CN_INV**
Type: 5-pin Inverter power connector
Connector model: **molex_53261-5pin**

Pin	Description
1	+12V
2	GND
3	GND
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: **HIROSE DF13-20DP-1.25V**

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	NC	17	NC
20	GND	19	GND

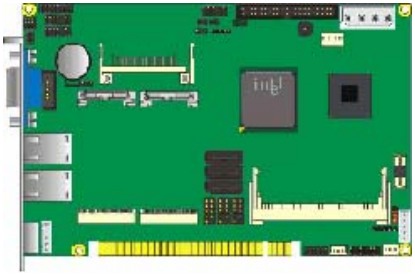
To setup the LCD, you need the component below:

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 HE-772, LCD panel and the backlight inverter

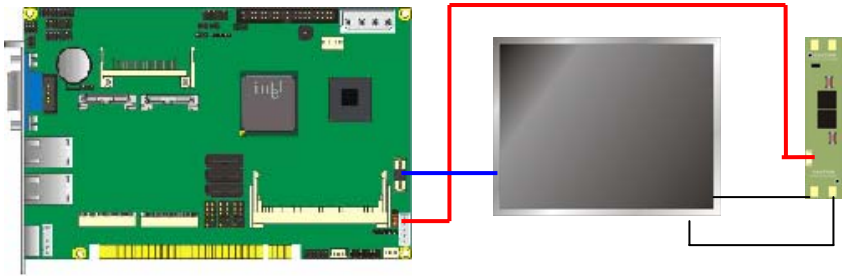


2. Please check the datasheet of the panel to see the voltage of the panel, and set the jumper **JVLCD** to +5V or +3.3V.
3. You would need a LVDS type cable.

Panel side

Board side

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:

HE-772 BIOS panel type selection form	
On board Single channel LVDS	
18bit	
NO.	**Output format**
1	640 x 480
2	800 x 480
3	800 x 600
4	1024 x 600
5	1024 x 768
6	1280 x 768

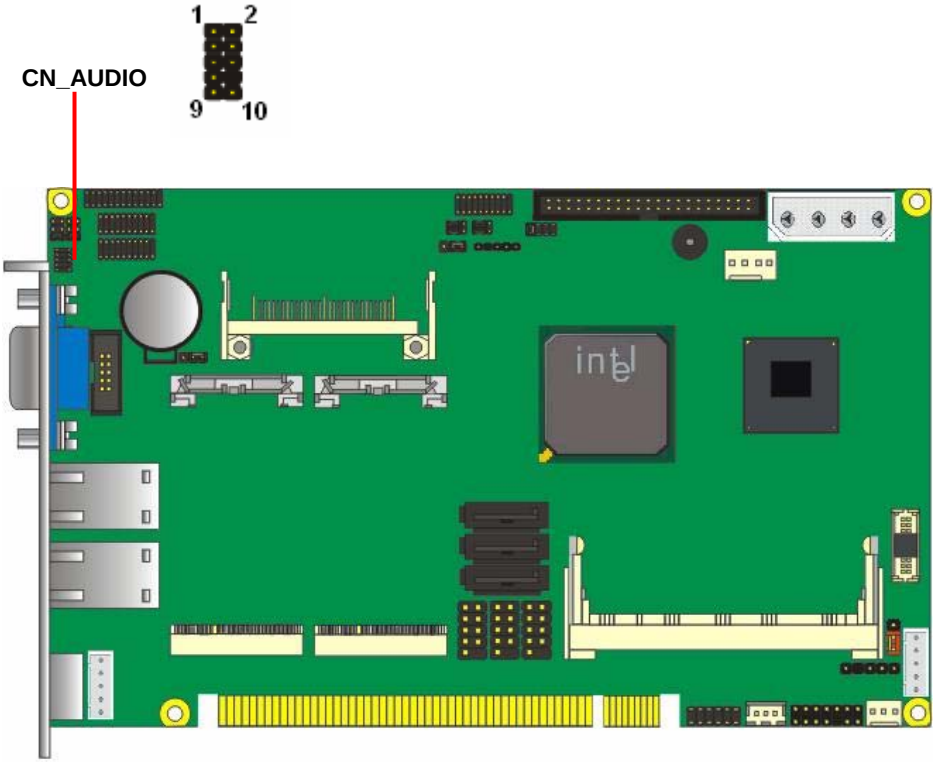
2.10 <Onboard Audio Interface>

The board provides the onboard high definition audio with Realtek ALC888

Connector: CN_AUDIO

Type: 10-pin (2 x 5) 1.27mm x 2.54mm-pitch header

Pin	Description	Pin	Description
1	MIC2_L	2	AGND
3	MIC2_R	4	AVCC
5	FRO_R	6	MIC2_JD
7	F_IO_SEN	8	N/C
9	FRO_L	10	LINE2_JD

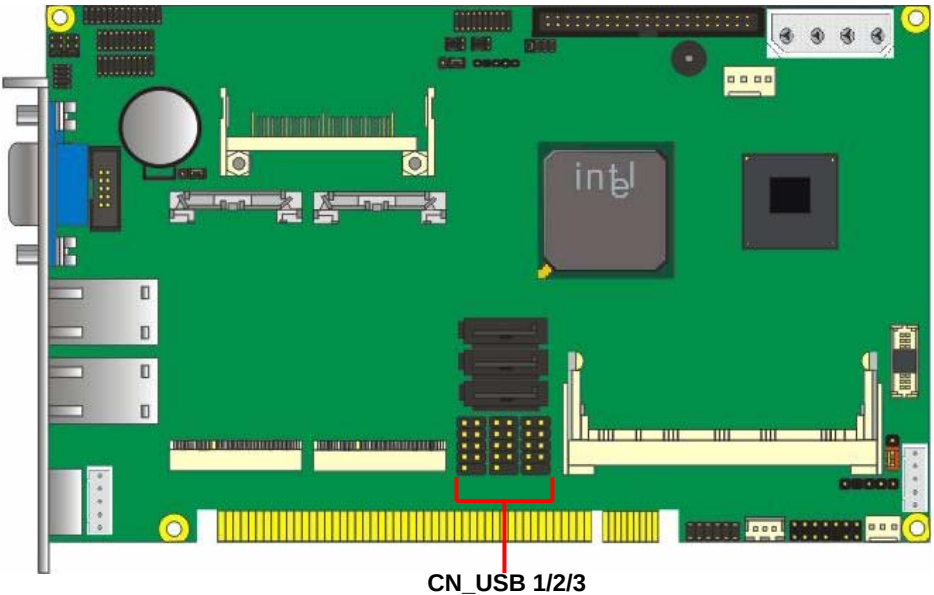


2.11 <USB2.0 Interface>

Connector: **CN_USB**

Type: 10-pin (5 x 2) header for USB Port

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



CN_USB 1/2/3

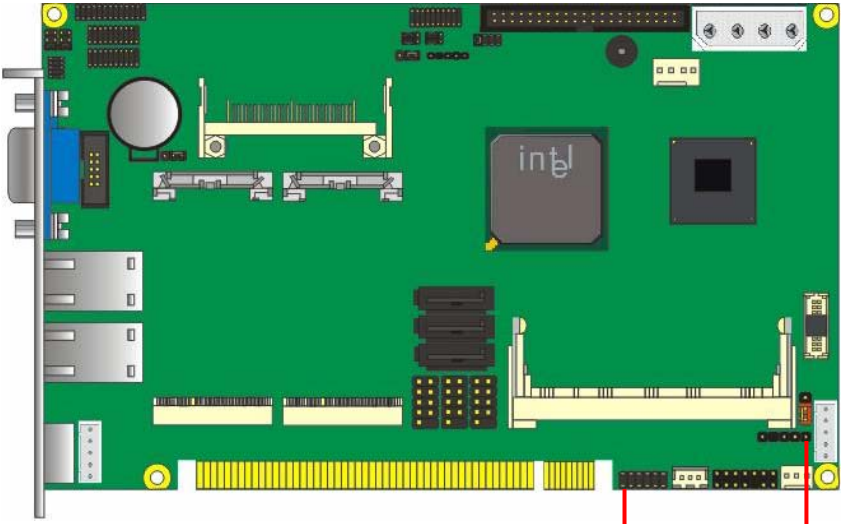
PS: The USB2.0 will be only active when you connecting with the USB2.0 devices, if you insert an USB1.1 device, the port will be changed to USB1.1 protocol automatically. The transferring rate of USB2.0 as 480Mbps is depends on device capacity, exact transferring rate may not be up to 480Mbps.

2.12 <GPIO and SMBUS Interface>

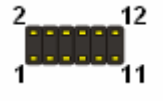
The board provides a programmable 8-bit digital I/O interface, and a SMBUS (System management bus) interface for control panel application.

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	VCC	12	+12V



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



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

2.13 <Serial Port Jumper Setting >

The board provides two RS232 serial ports, with jumper selectable RS422/485/IrDA for COM2.

Connector: **CN_COM 1/2**

Type: 20-pin D-sub male connector

Pin	Description	Pin	Description
1	MDCD1-	11	DCDBTXC-
2	MSIN1-	12	SINBTXC
3	MSO1-	13	SOUTBRXC
4	MDTR1-	14	DTRBRXC-
5	Ground	15	Ground
6	MDSR1-	16	MDSR2-
7	MRTS1-	17	MRTS2-
8	MCTS1-	18	MCTS2-
9	MRI1-	19	MRI2-
10	NC	20	NC

Connector: **CN_COM3/4**

Type: 20-pin (10 x 2) 1.27mm x 2.54mm-pitch header for COM3/4

Pin	Description	Pin	Description
1	HS_DCD1-	11	HS DCD2-
2	HS_RXD1	12	HS RXD2
3	HS_TXD1	13	HS TXD2
4	HS_DTR1-	14	HS DTR2-
5	Ground	15	Ground
6	HS_DSR1-	16	HS DSR2-
7	HS_RTS1-	17	HS RTS2-
8	HS_CTS1-	18	HS DSR2-
9	COM39	19	COM49
10	NC	20	NC

Connector: **CN_COM5/6**

Type: 20-pin (10 x 2) 1.27mm x 2.54mm-pitch header for COM5/6

Pin	Description	Pin	Description
1	HS_DCD3-	11	HS DCD4-
2	HS_RXD3	12	HS RXD4
3	HS_TXD3	13	HS TXD4
4	HS_DTR4-	14	HS DTR4-
5	Ground	15	Ground
6	HS_DSR3-	16	HS DSR4-
7	HS_RTS3-	17	HS RTS4-
8	HS_CTS3-	18	HS DSR4-
9	HS RI3-	19	HS RI4-
10	NC	20	NC

Jumper: **JCSEL1,JCSEL2**

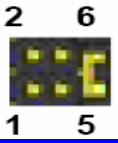
Type: 12-pin (6 x 2) & 8-pin (4 x 2) for set COM2 mode jumper

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

Default: RS232

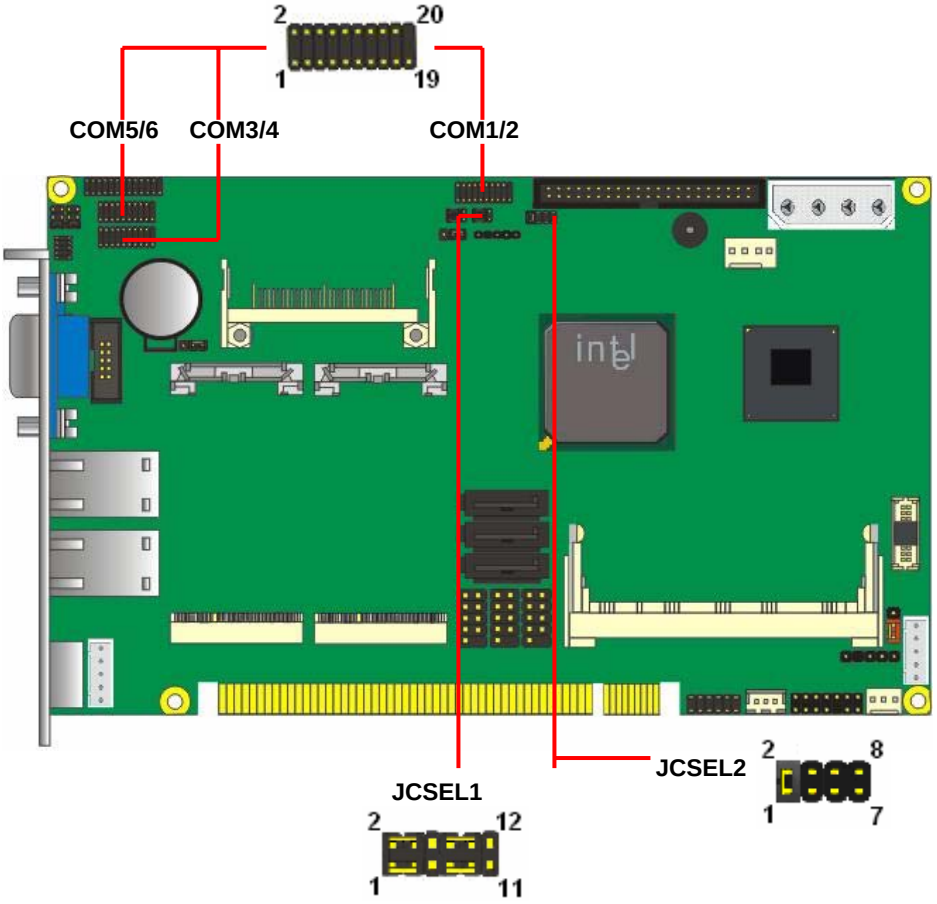
Jumper: **JP1 (COM 4)/ JP2(COM3)**

Type: onboard 3 x 2-pin header



JP1/JP2	Mode
5-6	**Standard COM Port**
3-4	**Pin9 with 12V signal**
1-2	**Pin9 with 5V signal**

Default setting



2.14 <Power & FAN Connector >

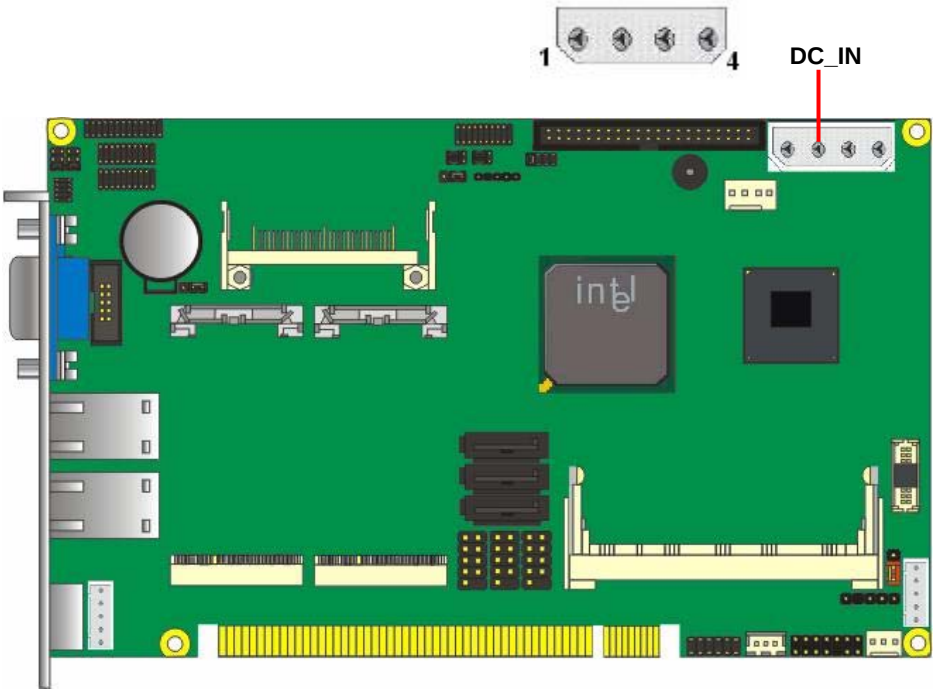
The board requires onboard 4-pin DC 5V/12V power required, optional 5VSB for ATX.

2.14.1 <Power Input>

Connector: DC_IN

Type: 4-pin header

Pin	Description	Pin	Description
1	+12V	3	Ground
2	Ground	4	+5V

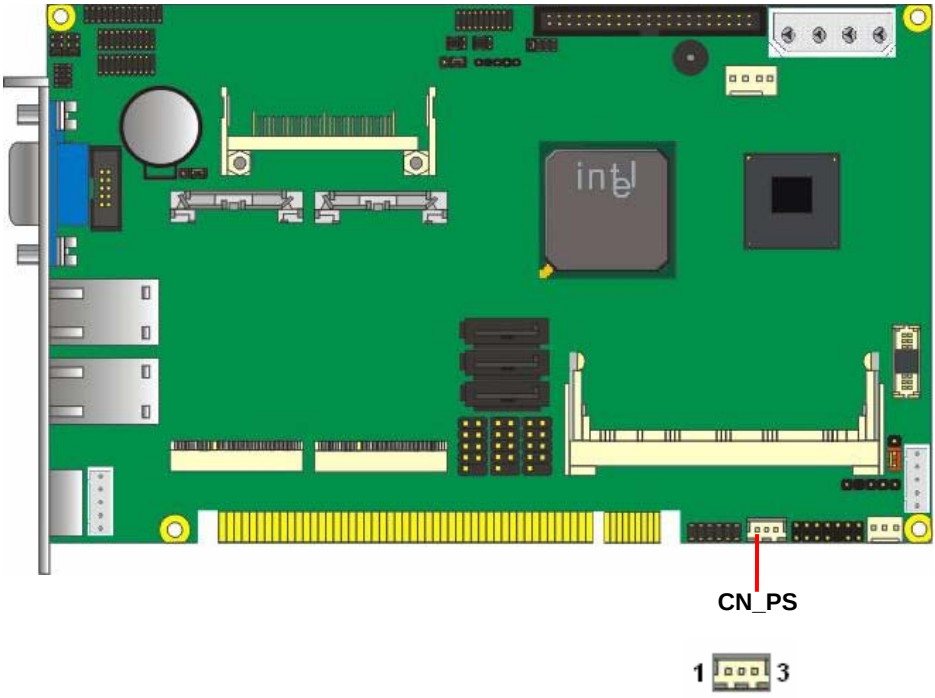


2.14.2 <Power Input>

Connector: **CN_PS**

Type: 3-pin connector

Pin	Description
1	+5VSTBY
2	GND
3	+5V



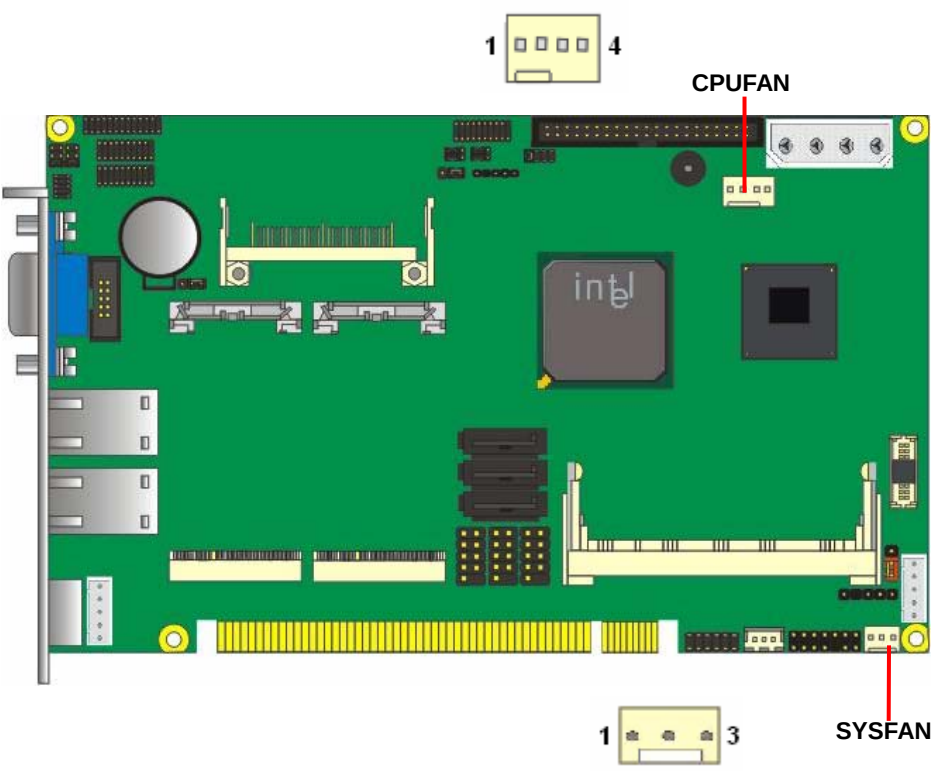
2.14.3 <Fan Connector>

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

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

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

Pin	Description
1	Ground
2	+12V
3	P1FAN
4	+5V

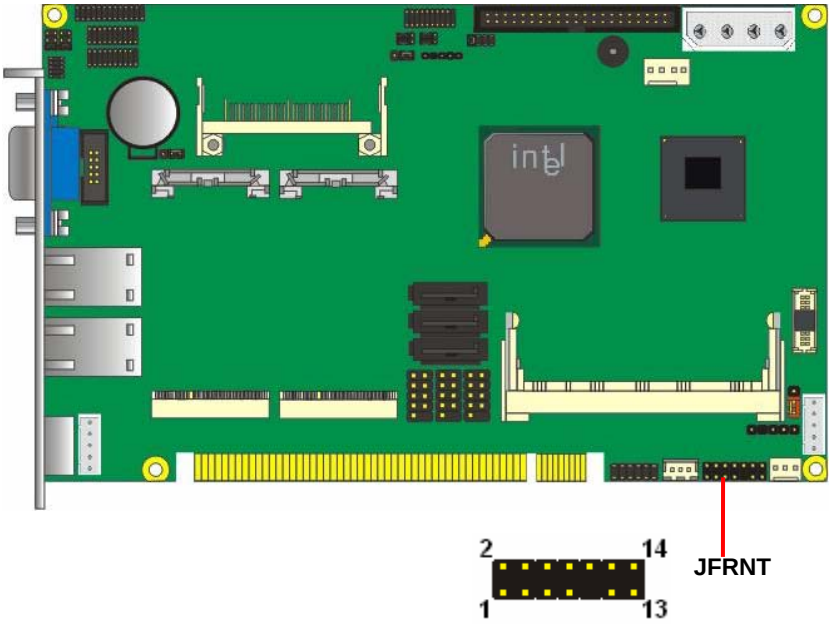


2.15 <Indicator and Switch>

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	GND	
	GND	7	8	SPKIN+	**Speaker**
	N/C	9	10	N/C	
Power Button	PWRBT+	11	12	N/C	
	PWRBT-	13	14	SPKIN-	

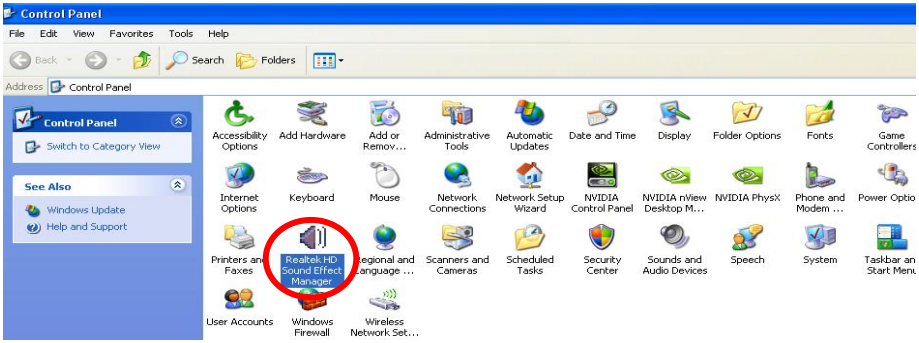


Chapter 3 <System Configuration>

3.1 <Audio Configuration>

The board integrates Intel® ICH8-M 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.

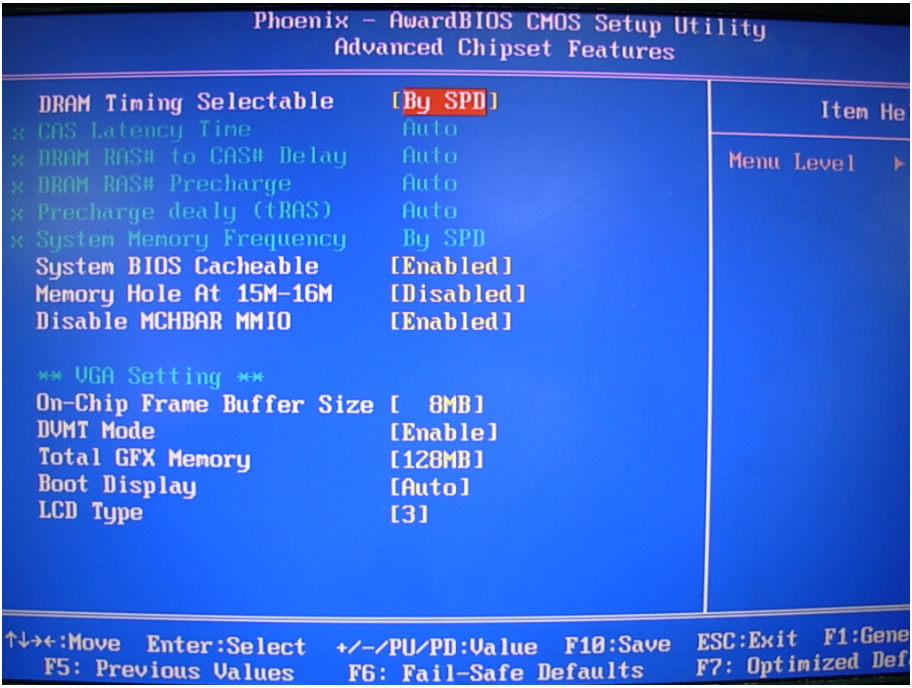
3. Select Speaker Configuration

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

3.2 <Video Memory Setup>

Based on Intel® Atom N450/D410/D510 chipset with GMA (Graphic Media Accelerator) 3150, the board supports Intel® DVMT (Dynamic Video Memory Technology) 3.0, which would allow the video memory be triggered up to 384MB.

To support DVMT, you need to install the Intel GMA3150 Driver with supported OS.



BIOS Setup:

On-Chip Frame Buffer Size:

This item can let you select video memory which been allocated for legacy VGA and SVGA graphics support and compatibility. The available option is **1MB** and **8MB**.

Total GFX Memory Size:

This item can let you select a static amount of page-locked graphics memory; which will be allocated during driver initialization. Once you select the memory amount, it will be no longer available for system memory.

DVMT Memory Size:

This item can let you select a maximum size of dynamic amount usage of video memory, the system would configure the video memory depends on your application, this item is strongly recommend to be selected as **MAX DVMT**.

Fixed + DVMT Memory Size:

You can select the fixed amount and the DVMT amount at the same time for a guaranteed video memory and additional dynamic video memory

Notice:

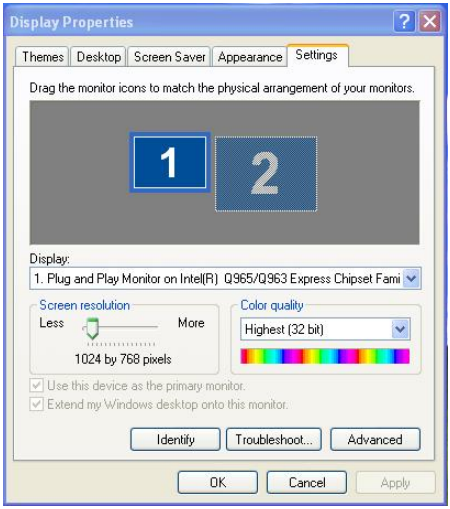
1. The On-Chip Frame Buffer Size would be included in the Total GFX Memory Size.

3.3 <Display Properties Setting>

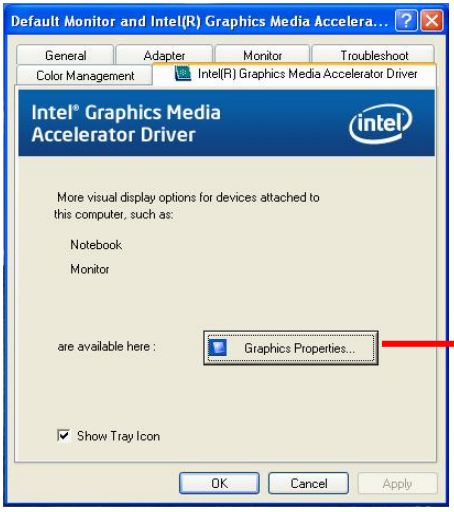
Based on Intel® Atom N450/D410/D510 with GMA3150 (Graphic Media Accelerator), the board supports two DACs for display device as different resolution and color bit.

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

1. Click right button on the desktop to lunch **display properties**



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



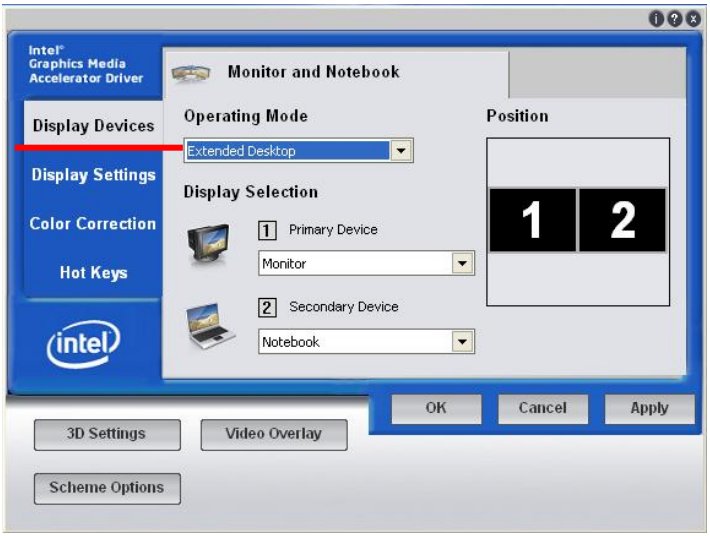
Click Graphics Properties... for advanced setup

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

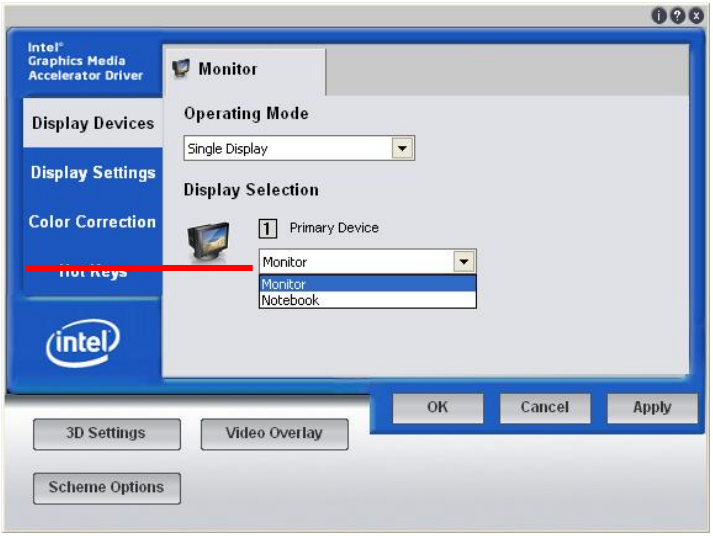
Set the main display device here

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

Choose **Extended Desktop** to setup the dual display mode as different screen display



Choose **Monitor** to setup the CRT monitor for Colors, Resolution and Refresh Rate



Chapter 4 <BIOS Setup>

The motherboard uses the Award BIOS for the system configuration. The Award 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

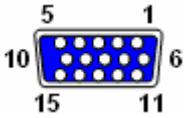
Appendix A <I/O Port Pin Assignment>

A.1 < LPT Port >

Connector: **CN_LPT**
Type: 25-pin header for LPT Port

Pin	Description	Pin	Description
1	-PSTB	2	PRD0
3	PRD1	4	PRD2-
5	PRD3	6	PRD4
7	PRD5	8	PRD6
9	PRD7	10	ACK-
11	BUSY	12	PE
13	SLCT	14	AFD-
15	ERR-	16	INIT-
17	SLIN-	18	Ground
19	Ground	20	Ground
21	Ground	22	Ground
23	Ground	24	Ground
25	Ground		

A.2 < CRT Port >



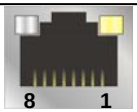
Connector: **CRT**

Type: 15-pin D-sub female connector on rear panel

Pin	Description	Pin	Description	Pin	Description
1	RED	6	Ground	11	N/C
2	GREEN	7	N/C	12	5VCDA
3	BLUE	8	Ground	13	5HSYNC
4	N/C	9	N/C	14	5VSYNC
5	-CRTATCH	10	-CRTATCH	15	5VCLK

A.3 < LAN Port >

Connector: **RJ45**
Type: RJ45 connector with LED on rear panel



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

A.4 < IrDA Port >

Connector: **CN_IR**
Type: 5-pin header for SIR Port

Pin	Description
1	+5V
2	N/C
3	IRRXD
4	Ground
5	IRTXD

A.5 < SMBUS Port >

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

Pin	Description
1	+5V
2	N/C
3	SMDATA
4	SMCLK
5	Ground

A.6 < DIO Port >

Connector: **CN_DIO**

Type: 12-pin D-sub male connector on rear panel

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

A.7 < IDE Port >

Connector: **IDE**

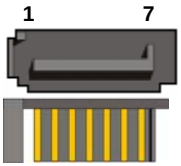
Type: 10-pin D-sub male connector on rear panel

Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C
21	REQ	22	Ground
23	IOW-/STOP	24	Ground
25	IOR-/HDMARDY	26	Ground
27	IORDY/DDMARDY	28	Ground
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	SD
35	A0	36	A2
37	CS1	38	CS3
39	ASP1	40	Ground
41	Vcc	42	Vcc
43	Ground	44	Ground

A.8 < Serial ATA Port >

Connector: **SATA1/2/3**

Type: 7-pin wafer connector



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

A.9 < PS2 Port >

The PS/2 connector supports standard PS/2 keyboard directly or both PS/2 keyboard and mouse through for PS/2 Y-cable.

Connector: **PS2**

Type: 6-pin Mini-DIN connector on bracket

Pin	1	2	3	4	5	6
Description	KBCLK	MSCLK	GROUND	VCC	KBDATA	MSDATA

A.10 < ATKB Port >

Connector: **CN_ATKB**

Type: 5-pin box header

Pin	1	2	3	4	5
Description	VCC	GROUND	N/C	KBDATA	KBCLK

Appendix B <Flash BIOS>

B.1 BIOS Auto Flash Tool

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

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

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

B.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 awardflash.exe to the disk.
4. Power on the system and flash the BIOS. (Example: C:/ awardflash 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 C <System Resources>

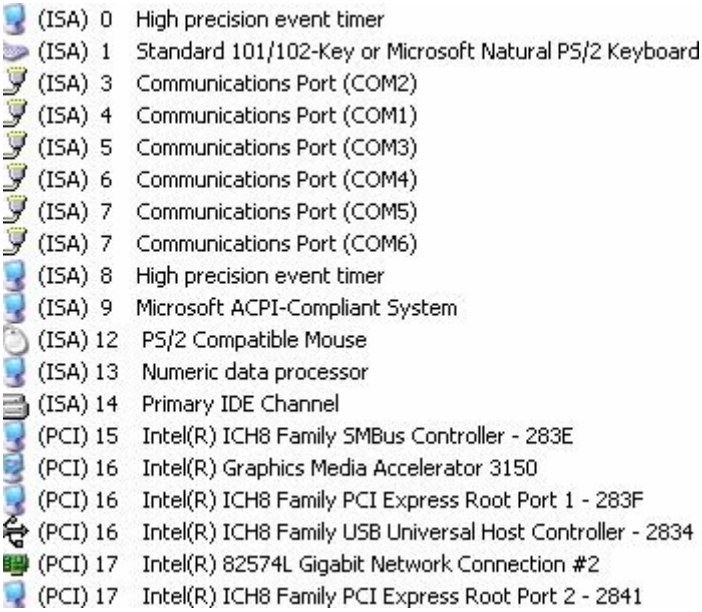
C.1 <Direct memory access(DMA)> (HE-772A)

4 Direct memory access controller

C.2<Input/output(IO)> (HE-772A)

[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 - 0000005F] 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
[00000280 - 00000287] Communications Port (COM3)
[00000288 - 0000028F] Communications Port (COM4)
[000002A0 - 000002A7] Communications Port (COM5)
[000002A8 - 000002AF] Communications Port (COM6)
[000002F8 - 000002FF] Communications Port (COM2)
[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] Intel(R) Graphics Media Accelerator 3150
[000003C0 - 000003DF] Intel(R) Graphics Media Accelerator 3150
[000003F6 - 000003F6] Primary IDE Channel
[000003F8 - 000003FF] Communications Port (COM1)

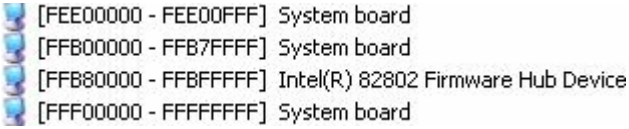
C.3<Interrupt reguest(IRQ)> (HE-772A)



(PCI) 18 Intel(R) ICH8 Family USB Universal Host Controller - 2832
(PCI) 18 Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
(PCI) 19 Intel(R) ICH8 Family USB Universal Host Controller - 2831
(PCI) 19 Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
(PCI) 21 Intel(R) ICH8 Family USB Universal Host Controller - 2835
(PCI) 22 Microsoft UAA Bus Driver for High Definition Audio
(PCI) 23 Intel(R) ICH8 Family USB Universal Host Controller - 2830
(PCI) 23 Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836

C.4<Memory> (HE-772A)

[00000000 - 0009FFFF] System board
[000A0000 - 000BFFFF] Intel(R) Graphics Media Accelerator 3150
[000A0000 - 000BFFFF] PCI bus
[000C0000 - 000DFFFF] PCI bus
[000E0000 - 000EFFFF] System board
[000F0000 - 000FFFFF] System board
[00100000 - 3F58FFFF] System board
[3F590000 - 3F5FFFFF] System board
[3F600000 - 3F6FFFFF] System board
[3F700000 - FEBFFFFF] PCI bus
[D0000000 - DFFFFFFF] Intel(R) Graphics Media Accelerator 3150
[E0000000 - EFFFFFFF] Motherboard resources
[FD700000 - FD7FFFFF] Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
[FD800000 - FD8FFFFF] Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
[FDB00000 - FDBFFFFF] Intel(R) Graphics Media Accelerator 3150
[FDC00000 - FDCFFFFF] Intel(R) ICH8 Family PCI Express Root Port 2 - 2841
[FDD00000 - FDDFFFFF] Intel(R) ICH8 Family PCI Express Root Port 2 - 2841
[FDDC0000 - FDDDFFFF] Intel(R) 82574L Gigabit Network Connection #2
[FDDFC000 - FDDFFFFF] Intel(R) 82574L Gigabit Network Connection #2
[FDE80000 - FDEFFFFF] Intel(R) Graphics Media Accelerator 3150
[FDFF8000 - FDFFBFFF] Microsoft UAA Bus Driver for High Definition Audio
[FDFFD000 - FDFFD0FF] Intel(R) ICH8 Family SMBus Controller - 283E
[FDFFE000 - FDFFE3FF] Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836
[FDFFF000 - FDFFF3FF] Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
[FEB80000 - FEBFFFFF] Intel(R) Graphics Media Accelerator 3150
[FEC00000 - FEC00FFF] System board
[FED00000 - FED000FF] System board
[FED00000 - FED003FF] High precision event timer
[FED13000 - FED1FFFF] System board
[FED20000 - FED9FFFF] System board


[FEE00000 - FEE00FFF] System board
[FFB00000 - FFB7FFFF] System board
[FFB80000 - FFBFFFFF] Intel(R) 82802 Firmware Hub Device
[FFF00000 - FFFFFFFF] System board

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

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

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

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.

Taiwan Commate Computer Inc.

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E-Mail	info@commell.com.tw (General Information) tech@commell.com.tw (Technical Support)
Facebook	https://www.facebook.com/pages/Taiwan-Commate-Computer-Inc/547993955271899
Twitter	https://twitter.com/Taiwan_Commate