HS-874P

Half-size PISA CPU Card

User's Manual

Edition: 1.1

2009/05/08

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Packing List:

Please check the package material before you install the system.

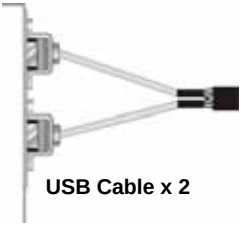
Hardware:

HS-874P Single Board Computer x 1

Cable Kit:

PS/2 Keyboard & Mouse Cable

4-pin to 3-pin ATX Cable x 1

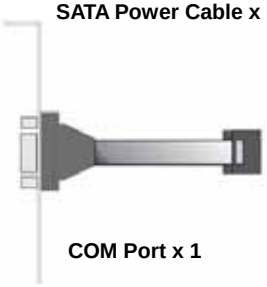


USB Cable x 2

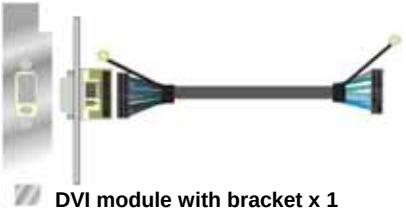
SATA Cable x 2

SATA Power Cable x 1

Audio Port Cable x 1



COM Port x 1



DVI module with bracket x 1

RAID driver Disk for Windows XP and Windows Server 2003

Printed Matters:

Driver CD x 1 (Including User's Manual)

Index

Chapter 1 <Introduction>

1.1 <Product Overview>

The **HS-874P** is an all-in-one single board computer with PISA bus supporting Intel Core2 Quad/ Core 2 Duo processor for 800/1066/1333 MHz front side bus, Intel Q35 and ICH9DO chipset, integrated GMA3100 graphics, DDR2 SO-DIMM memory, Realtek ALC888 HD Audio, Serial ATA and one Intel 82573L Gigabit LAN.

Intel LGA775 Processor

The board supports Intel Core 2 Quad/ Core 2 Duo processor with 800/1066/1333 MHz front side bus, 8MB L2 cache, to provide more powerful performance than before.

New features for Intel Q35 chipset

The board integrates Intel Q35 and ICH9DO chipset, to provide new supports Intel GMA3100 graphics, DDR2 667/800 memory, built-in high speed mass storage interface of serial ATA, HD Audio with 2 channels surrounding sound.

All in One multimedia solution

Based on Intel Q35 and ICH9DO chipset, the board provides high performance onboard graphics, 24-bit Dual channel LVDS interface or DVI and 2 channels HD Audio to meet the every requirement of the multimedia application.

1.2 <Product Specification>

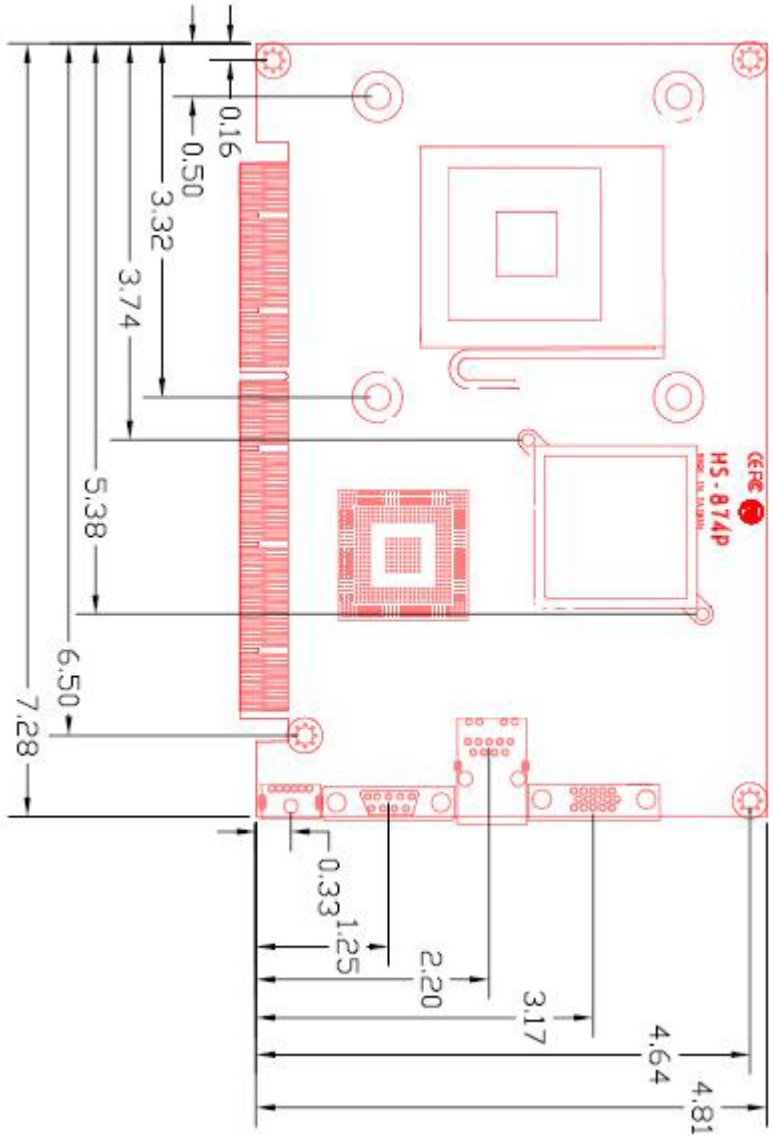
General Specification	
Form Factor	Half size PISA bus CPU card
CPU	Support Intel® Core 2 Quad/ Core 2 Duo processor Package type: LGA775 Front side bus: 800/1066/1333MHz
Memory	DDRII 667/800 MHz SO-DIMM up to 2GB
Chipset	Intel® Q35 and ICH9DO
BIOS	Phoenix-Award v6.00PG 8Mb SPI flash BIOS
Green Function	Power saving mode includes doze, standby and suspend modes. ACPI version 1.0 and APM version 1.2 compliant
Watchdog Timer	System reset programmable watchdog timer with 1 ~ 255 sec./min. of timeout value
Real Time Clock	Chipset integrated RTC with onboard lithium battery
Serial ATA	Intel® ICH9DO built-in 4 x Serial ATAII interface up to 300MB/s Support RAID 0, 1, 5, 10 and Intel Matrix Storage Technology.
Multi-I/O Port	
Chipset	Intel® ICH9DO with Winbond® W83627DHG controller
Serial Port	One RS232 and one jumper selectable RS232/422/485/IR
USB Port	4 x Hi-Speed USB 2.0 ports with 480Mbps of transfer rate
IrDA Port	One IrDA compliant Infrared interface supports SIR
K/B & Mouse	PS/2 keyboard and mouse port on bracket
GPIO	One 12-pin Digital I/O connector with 8-bit programmable
Smart Fan	One CPU fan connector for fan speed controllable
VGA Display Interface	
Chipset	Intel® Q35 & ICH9DO
Memory	Up to 384MB shared with system memory
Display Type	CRT, LCD monitor with analog display, DVI or LVDS
Connector	External DB15 female connector on bracket Onboard 40-Pin LVDS connector (HS-874PX Only) Onboard 26-Pin DVI connector (HS-874PD Only)
Ethernet Interface	
Chipset	Intel 82573L Gigabit Ethernet controller
Type	Triple speed 10/100/1000Base-T auto-switching Fast Ethernet Full duplex, IEEE802.3U compliant
Connector	External one RJ45 connector with LED on bracket
ISA Interface	
ISA Bridge	Winbond W83628AG & W83629AG
Function	I/O & IRQ supported only, no support DMA & bus mastering

ISA Interface	
Chipset	Intel® ICH9DO with Realtek ALC888 HD Audio Intel High Definition Audio compliance
Interface	2 channels sound output
Connector	Internal 10-pin header for line-in/-out, MIC-in, 4-pin header for CD-IN
Power and Environment	
Power Requirement	+5V, +12V power required, optional 5USB for ATX
Dimension	185 (L) x 127 (H) mm
Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F)
Ordering Code	
HS-874PD	Support Intel Core 2 Quad/Core 2 Duo processor Onboard VGA, Intel Gigabit LAN, 4 x USB2.0, 2 x serial port Realtek ALC888 HD Audio, 4 x SATA, 1 x IrDA, DVI Interface
HS-874PX	Support Intel Core 2 Quad/ Core 2 Duo processor Onboard VGA, Intel Gigabit LAN, 4 x USB2.0, 2 x serial port Realtek ALC888 HD Audio, 4 x SATA, 1 x IrDA, 18/24-bits LVDS Interface

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

1.3 < Drawing >

1.3.1 < Mechanical Drawing >



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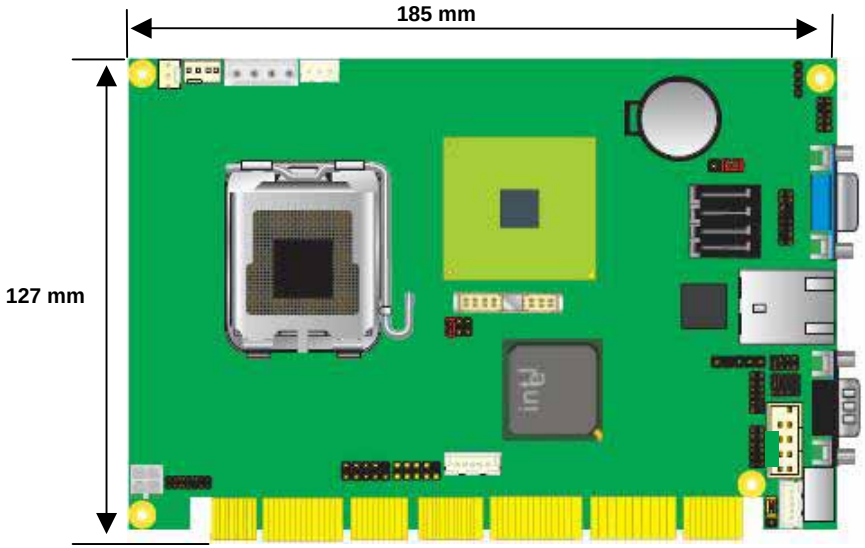
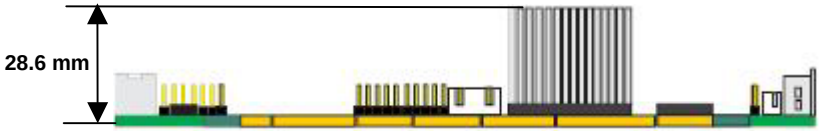
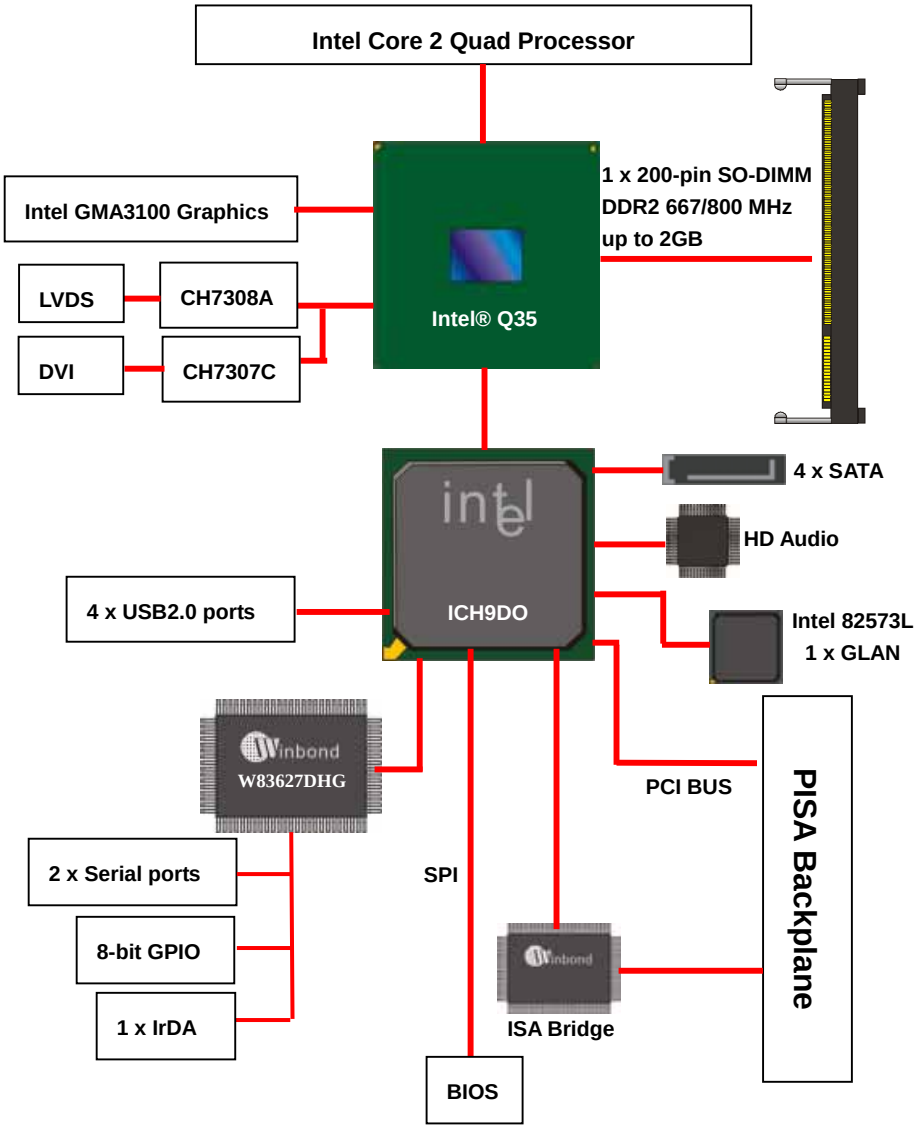
1.3.2 < Motherboard Dimension >





1.4 <Block Diagram>



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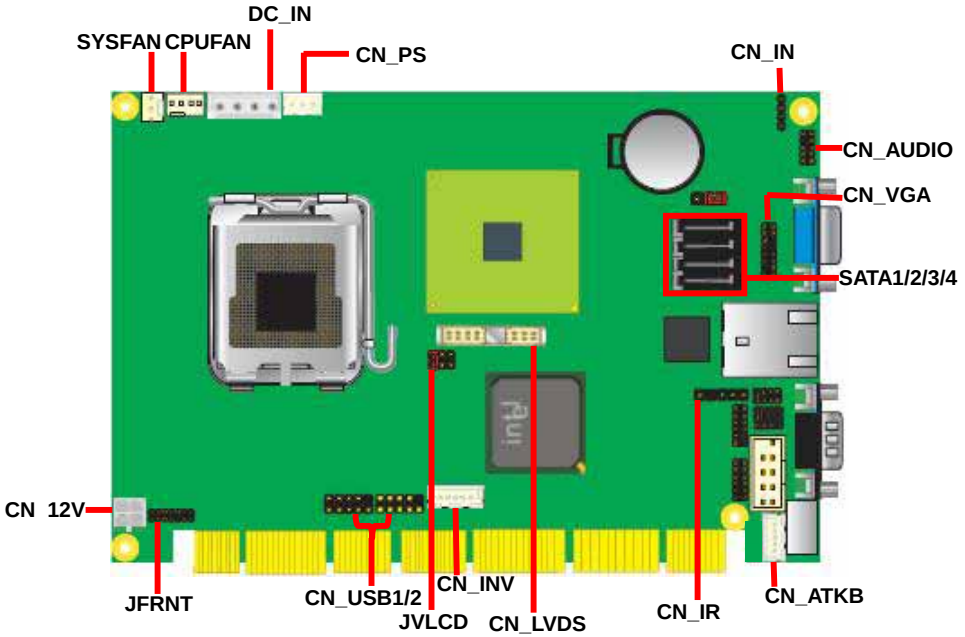
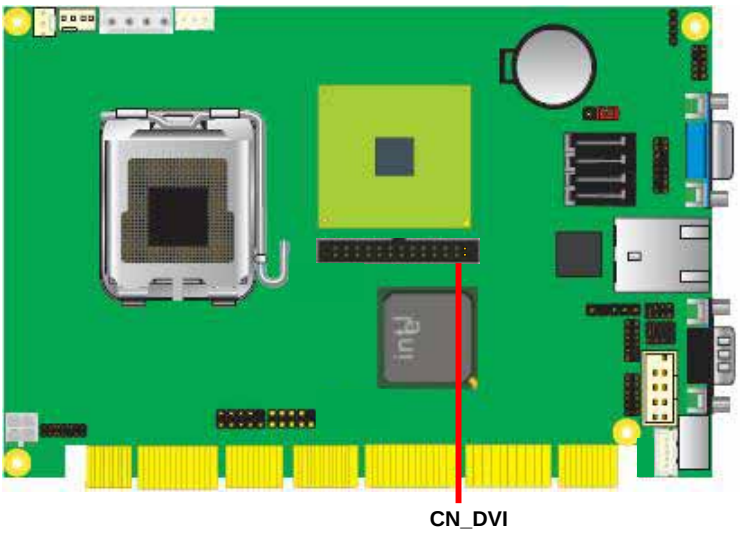
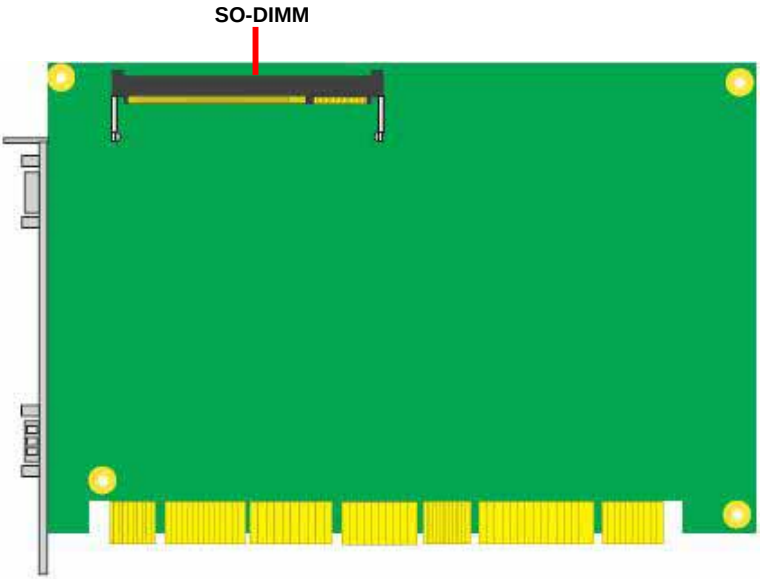
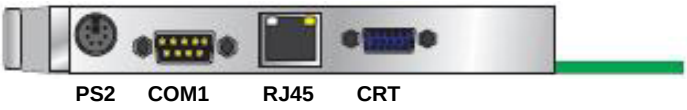
Chapter 2 <Hardware Setup>

2.1 <Connector Location>






SO-DIMM


PS2
COM1
RJ45
CRT

2.2 <Connector Reference>

2.2.1 <Internal Connector>

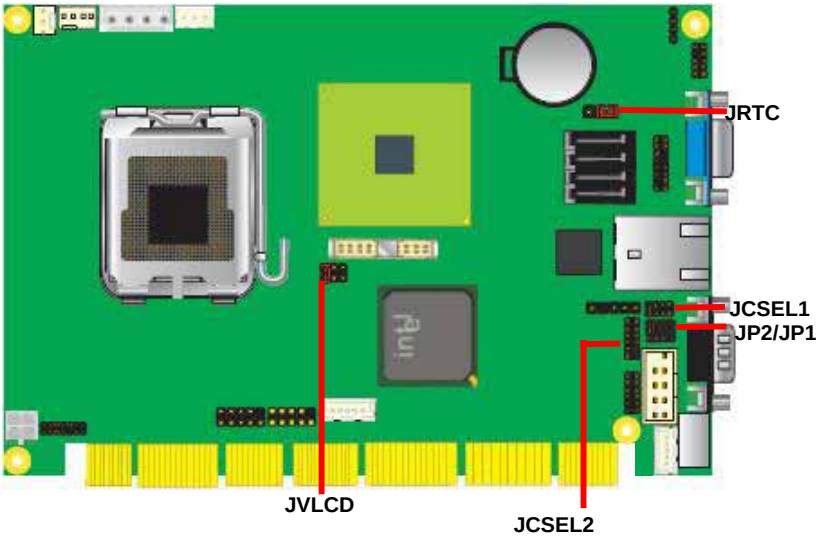
Connector	Function	Remark
DIMM	200-pin DDR2 SDRAM SO-DIMM slot	Standard
S_ATA1/2/3/4	7-pin Serial ATA connector	Standard
DC_IN	4-pin AT power supply connector	Standard
CN_12V	4-pin +12V additional power supply connector	Standard
CN_PS	3-pin ATX function connector	Standard
CN_AUDIO	5 x 2-pin audio connector	Standard
CDIN	4-pin CD-ROM audio input connector	Standard
CN_DIO	6 x 2-pin digital I/O connector	Standard
CN_LVDS	20 x 2-pin LVDS connector	(HS-874PX)
CN_INV	5-pin LCD inverter connector	(HS-874PX)
CN_USB1/2	5 x 2-pin USB connector	Standard
CPUFAN	4-pin CPU cooler fan connector	Standard
SYSFAN	3-pin system cooler fan connector	Standard
CN_IR	5-pin IrDA connector	Standard
CN_ATKB	5-pin AT keyboard connector	Standard
CN_DVI	26-pin DVI connector	(HS-874PD)
JFRNT	14-pin front panel switch/indicator connector	Standard
CN_COM2	10-pin serial port connector	Standard
CN_VGA	8 X 2 pin VGA connector (pitch=2.0mm)	Standard

2.2.2 <External Connector>

Connector	Function	Remark
CRT	DB15 VGA connector	Standard
RJ45	One RJ45 LAN connector	Standard
COM1	Serial port connector	Standard
PS2	PS/2 keyboard and mouse connector	Standard

2.3 <Jumper Reference>

Jumper	Function
JRTC	CMOS Operating/Clear Setting
JVLCD	LCD Panel Voltage Setting
JCSEL1/2	COM2 RS232/422/485/IR mode setting
JP1/JP2	COM PORT Voltage support



Jumper: **JP1 (COM 1)**
Type: onboard 3 x 2-pin header

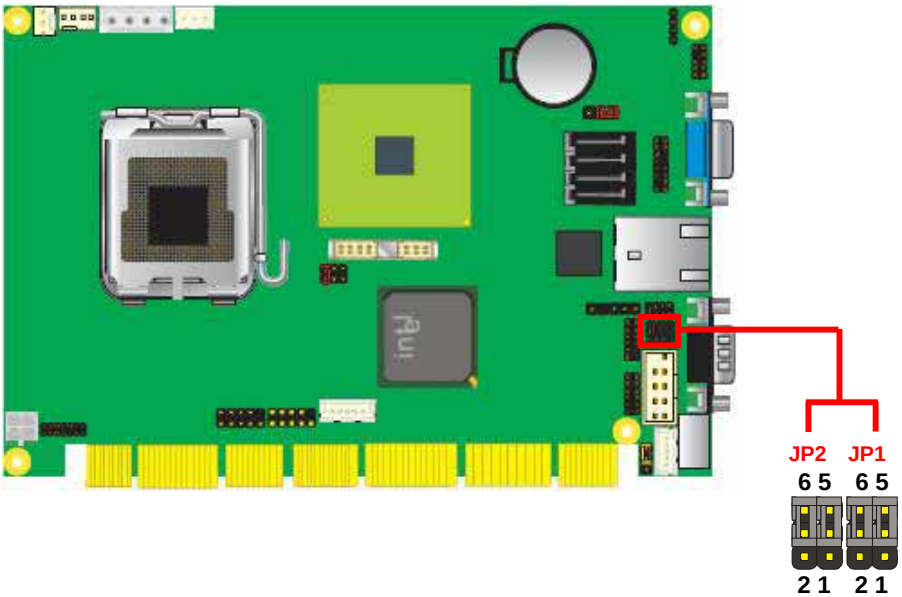
JP1	Mode
1-3	Pin1 with +5V power.
2-4	Pin9 with +12V power.
3-5	Pin1 with DCD signal
4-6	Pin9 with RI signal

Default setting

Jumper: **JP2 (COM 2)**
Type: onboard 3 x 2-pin header

JP2	Mode
1-3	Pin1 with +5V power.
2-4	Pin9 with +12V power.
3-5	Pin1 with DCD/ 422TX-/485- signal
4-6	Pin9 with RI signal

Default setting



2.4 <CPU and Memory Setup >

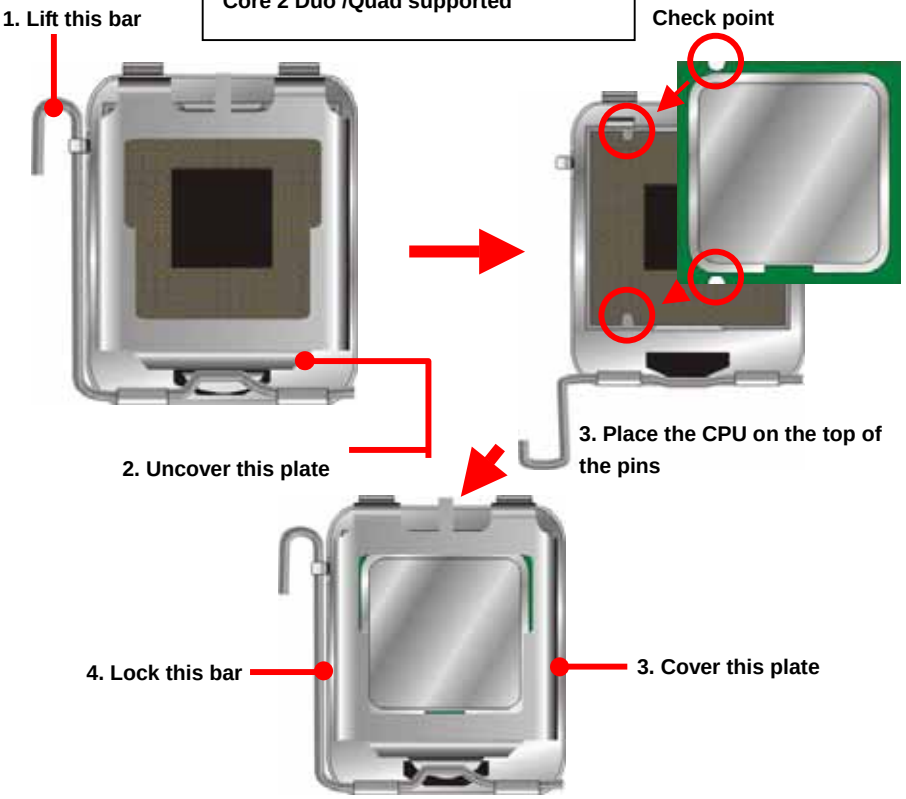
2.4.1 <CPU installation>

HS-874P has a LGA775 CPU socket onboard; please check following steps to install the processor properly.

Attention ***If HS-874P needs RMA please Keep CPU socket cover on the CPU Socket.***

Warring ***If CPU Socket internal Pin damage We could not provide warranty.***

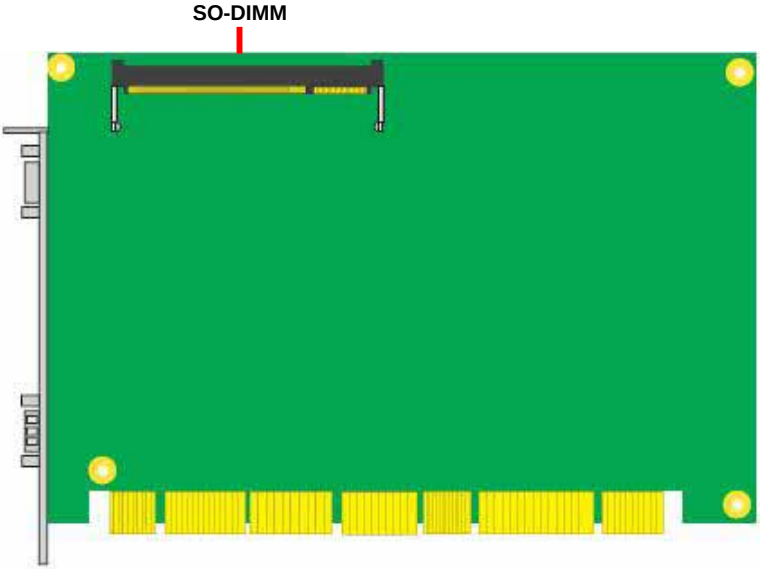
Intel® Core 2 Duo /Quad processor
Package type: 775 pin PLGA
L2 Cache: 8 MB
FSB: 800/1066/1333MHz (266MHz x 4)
Manufacturing: 65nm, 45nm
Intel Hyper Threading Technology and Core 2 Duo /Quad supported



Notice: Please place the CPU on the pins tenderly to avoid bending the pins

2.4.2 <Memory Setup>

HS-874P has one 200-pin DDR2 SO-DIMM support up to 2GB of memory capacity. The memory frequency supports 667/800 MHz. Only Non-ECC memory is supported.



2.5 <CMOS Setup>

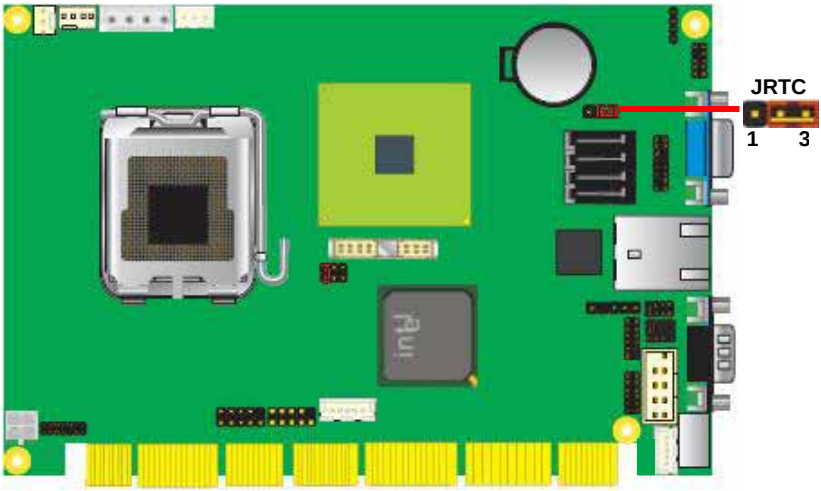
The board's data of CMOS can be setting in BIOS. If the board refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

Jumper: JRTC

Type: Onboard 3-pin jumper

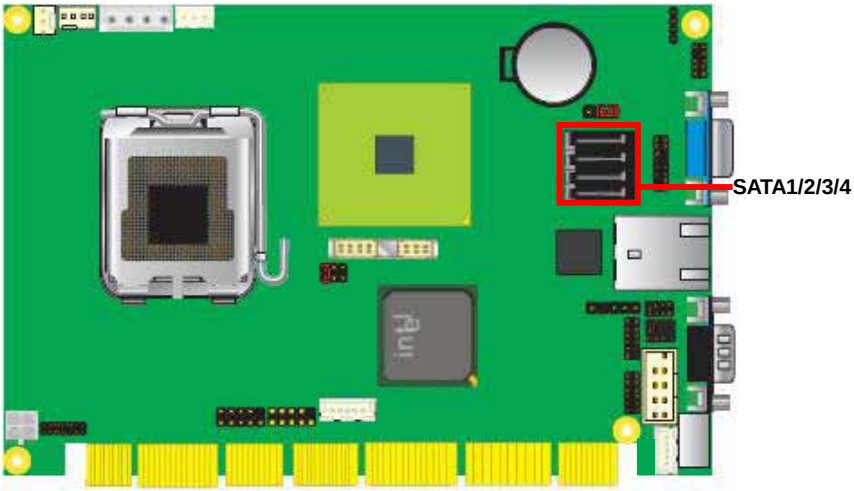
JRTC	Mode
1-2	Clear CMOS
2-3	Normal Operation

Default setting



2.6 <Serial ATA interface>

Based on Intel ICH9DO, the board provides four Serial ATA interfaces with up to 300MB/s of transfer rate.



2.7 <LAN Interface>

The Intel 82573L 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 Q35 chipset with built-in GMA (Graphic Media Accelerator) 3100 graphics, the board provides one DB15 connector on real external I/O port, and one 40-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 LCD or DVI.

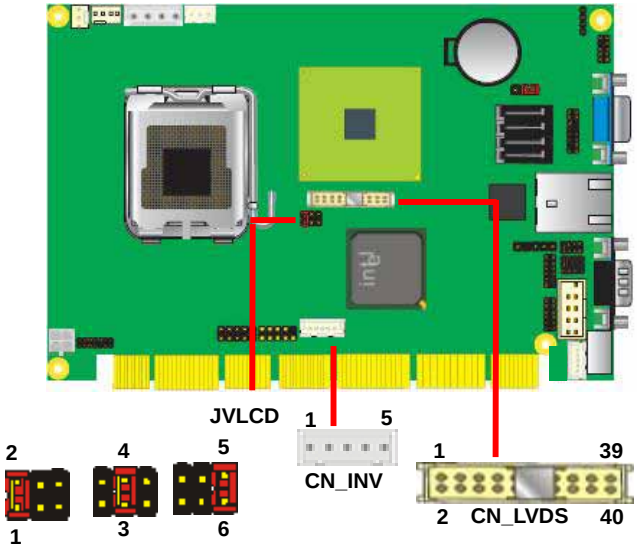
2.8.1 <Analog VGA Interface>

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

VGA

2.8.2 <LVDS Display> (HS-874PX only)

The board provides one 40-pin LVDS connector for 18/24-bit dual channel panels, supports up to 1600 x 1200 (UXGA) of resolution, with one LCD backlight inverter connector and one jumper for panel voltage setting.



Effective patterns of connection: 1-2 / 3-4 / 5-6

Warning: others cause damages

Connector: **CN_INV**
Type: 5-pin LVDS Power Header
Connector model: **JST B5B-XH-A**

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

Connector: **JVLCD**
Type: 6-pin Power select Header

Pin	Description
1-2	LCDVCC (3.3V)
3-4	LCDVCC (5V)
5-6	LCDVCC (+12V)

Default setting

Connector: **CN_LVDS**
Type: onboard 40-pin connector for LVDS connector
Connector model: **HIROSE DF13-40DP-1.25V**

Pin	Signal	Pin	Signal
2	LCDVCC	1	LCDVCC
4	GND	3	GND
6	ATX0-	5	BTX0-
8	ATX0+	7	BTX0+
10	GND	9	GND
12	ATX1-	11	BTX1-
14	ATX1+	13	BTX1+
16	GND	15	GND
18	ATX2-	17	BTX2-
20	ATX2+	19	BTX2+
22	GND	21	GND
24	ACLK-	23	BTX3-
26	ACLK+	25	BTX3+
28	GND	27	GND
30	ATX3-	29	BCLK-
32	ATX3+	31	BCLK+
34	GND	33	GND
36	N/C	35	N/C
38	N/C	37	N/C
40	N/C	39	N/C

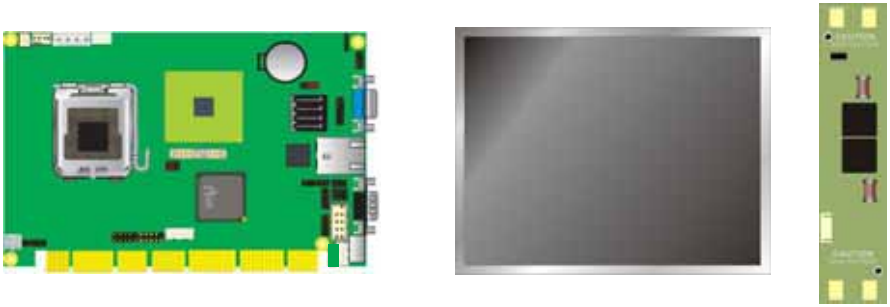
To setup the LCD, you need the component below:

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

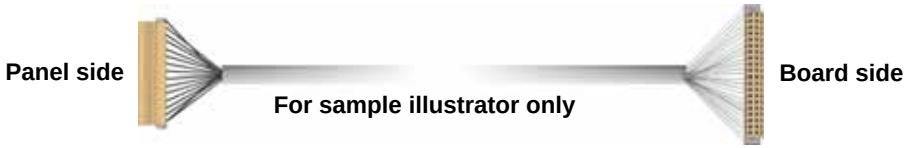
For the cables, please follow the pin assignment of the connector to make a cable, because every panel has its own pin assignment, so we do not provide a standard cable; please find a local cable manufacture to make cables.

LCD Installation Guide:

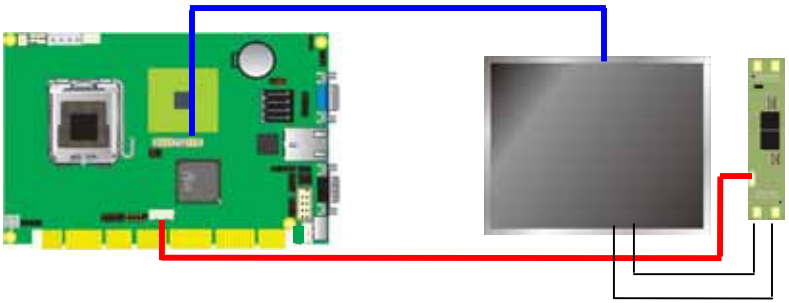
1. Preparing the **HS-874PX**, **LCD panel** and the **backlight inverter**.



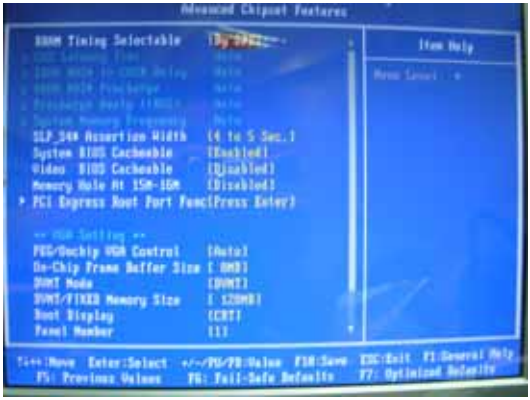
2. Please check the datasheet of the panel to see the voltage of the panel, and set the jumper **JVLCD** to +5V or +3.3V or +12V
3. You would need a LVDS type cable.



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:

BIOS panel type selection form			
Single channel		**Dual channel**	
NO.	**Output format**	**NO.**	**Output format**
1	800 x 600 (18bit)	3	1280 x 1024 (24bit)
2	1024 x 768 (24bit)	4	1366 x 768 (24bit)

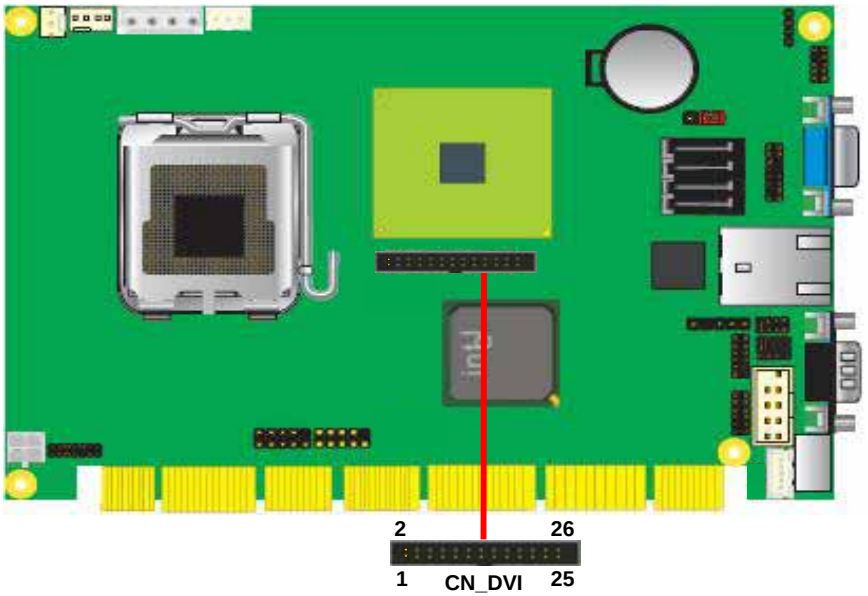
2.8.3 <DVI Display> (HS-874PD only)

The board provides optional DVI-D interface with Intel Q35, compliant with DVI 1.0 standard.

Connector: **CN_DVI**

Connector type: 26-pin header connector (pitch = 2.0mm)

Pin Number	Assignment	Pin Number	Assignment
1	TX1+	2	TX1-
3	Ground	4	Ground
5	TXC+	6	TXC-
7	Ground	8	PVDD
9	N/C	10	N/C
11	TX2+	12	TX2-
13	Ground	14	Ground
15	TX0+	16	TX0-
17	N/C	18	HPDET
19	DDCDATA	20	DDCCLK
21	GND	22	N/C
23	N/C	24	N/C
25	N/C	26	N/C



2.9 <Onboard Audio Interface>

The board provides the onboard HD 2-channel audio interface with Realtek ALC888

Connector: CN_AUDIO

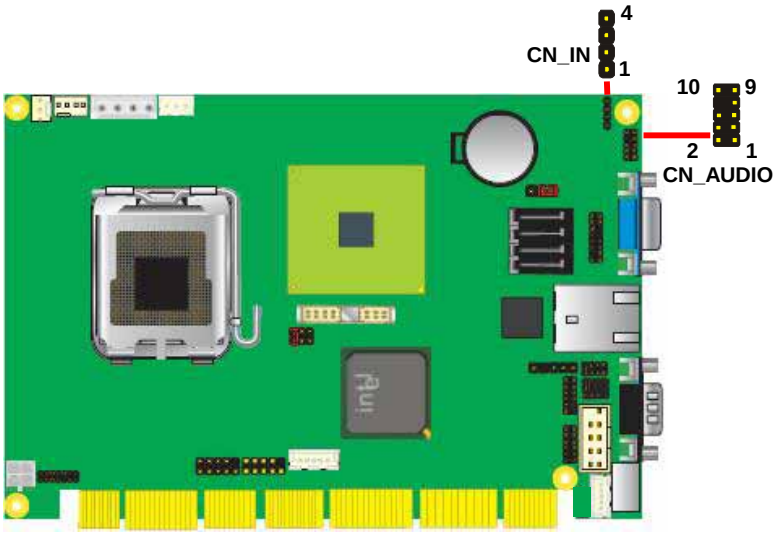
Type: 10-pin (2 x 5) header (pitch-2.54mm)

Pin	Description	Pin	Description
1	MIC_L	2	Ground
3	MIC_R	4	ACZ_DET
5	Speaker_R	6	MIC Detect
7	SENSE	8	N/C
9	Speaker_L	10	Speaker Detect

Connector: **CDIN**

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

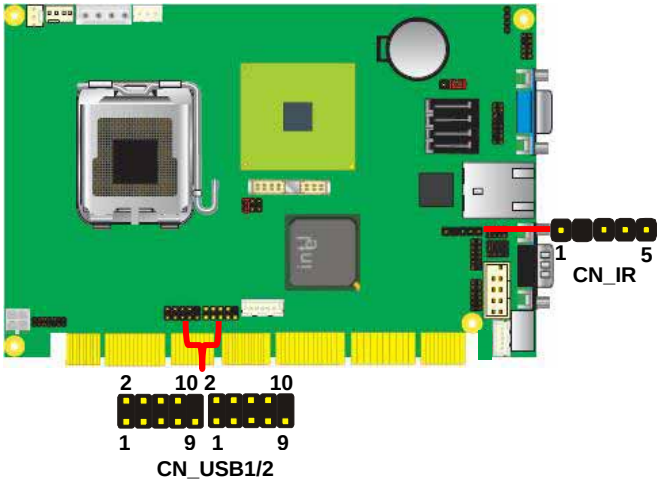
Pin	Description
1	CD – Left
2	Ground
3	Ground
4	CD – Right



2.10 <USB2.0 Interface>

Based on Intel ICH9DO, the board provides 4 USB2.0 ports. The USB2.0 interface provides up to 480Mbps of transferring rate.

Interface	USB2.0
Controller	ICH9DO
Transfer Rate	Up to 480Mb/s
Output Current	500mA



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

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

Connector: **CN_USB1/2**
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

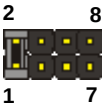
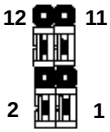
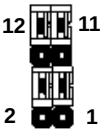
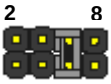
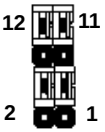
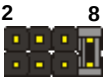
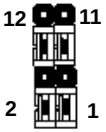
PS: The USB2.0 will be only active when you connecting with the USB2.0 devices, if you insert an USB1.1 device, the port will be changed to USB1.1 protocol automatically. The transferring rate of USB2.0 as 480Mbps is depending on device capacity exact transferring rate may not be up to 480Mbps.

2.11 <Serial Port Jumper Setting >

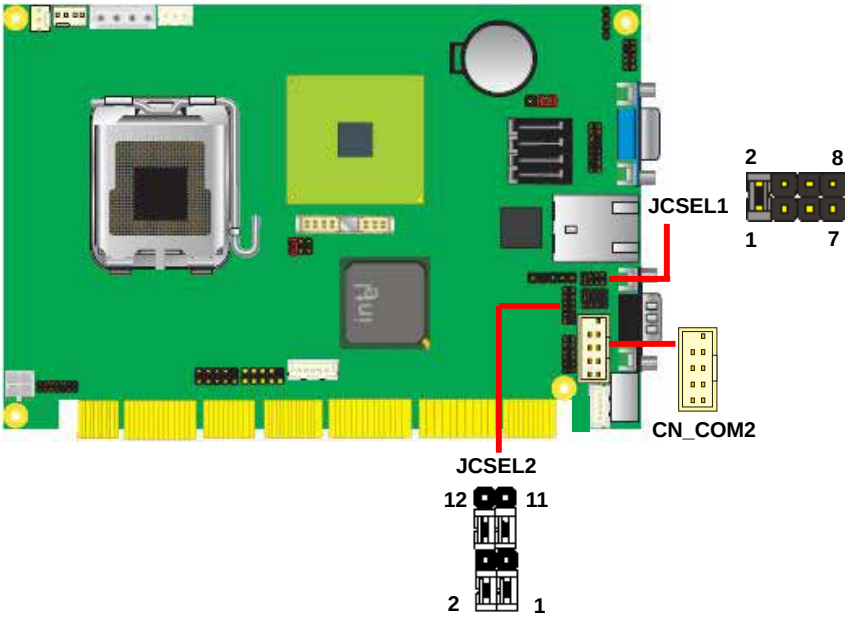
The board supports one RS232 serial port and one jumper selectable RS232/422/485 serial ports. The jumper JCSEL1 & JCSEL2 can let you configure the communicating modes for COM2.

Connector: **CN_COM2**
Type: 10-pin (5 x 2) 2.54mm x 2.54mm-pitch header 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

	JCSEL1	JCSEL2
RS-232		
RS-485		
RS-422		
IR		

Default setting: RS-232


2
8
JCSEL1
1
7
CN_COM2
JCSEL2
12
11
2
1

2.12 <Power and Fan Installation>

The board comes with a 4-pin AT and 4pin 12V power connector for powering the board, two fan connectors for CPU and system. The board also provides a 3-pin ATX function connector. You can just connect the two power connectors without any backplane to work.

2.12.1 <Power connectors>

Connector: **DC_IN**

Type: 4-pin P-type connector for +5V/+12V input

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

Connector: **DC_12V**

Type: 4-pin P-type connector for +5V/+12V input

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

Connector: **CN_PS**

Type: 3-pin ATX function connector

Pin	Description	Pin	Description	Pin	Description
1	5V Standby	2	Ground	3	Power On

2.12.2 <Fan Connectors>

Connector: **CPUFAN**

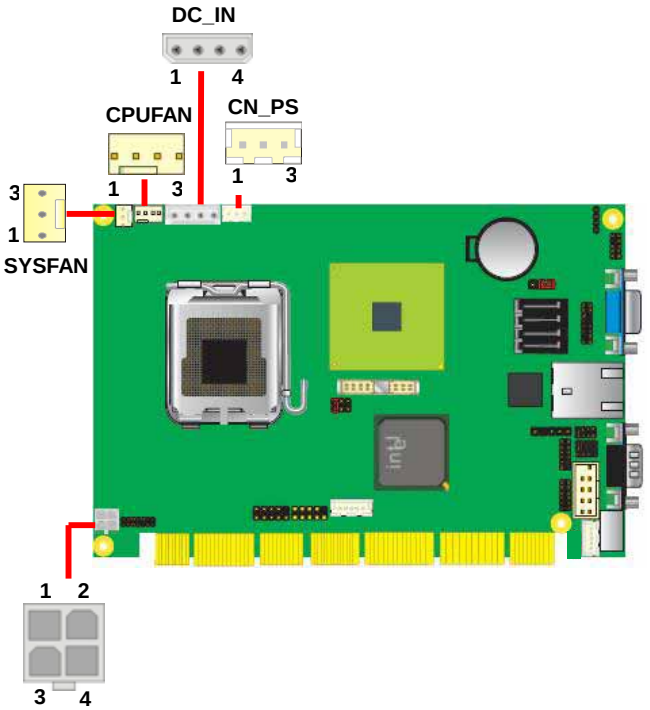
Type: 4-pin fan wafer connector

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	Fan Speed Detection

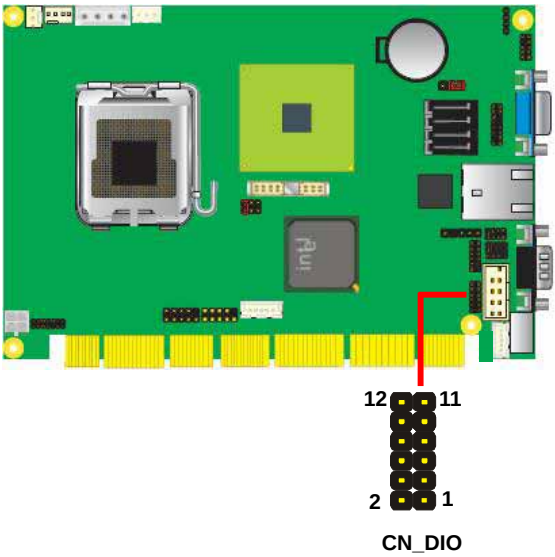


2.13 <GPIO Interface>

The board provides a 12-pin General Purpose I/O interface, with programmable 8-bit I/O (4-bit input & 4-bit output).

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

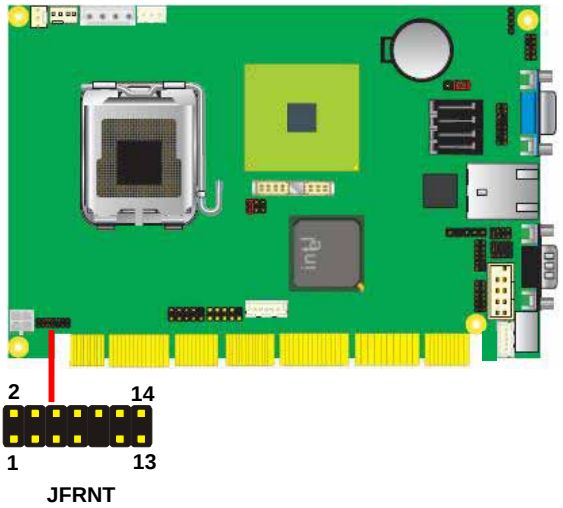


2.14 <Switch and Indicator>

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	HD LED+	1	2	PWDLED+	**Power LED**
	HD LED-	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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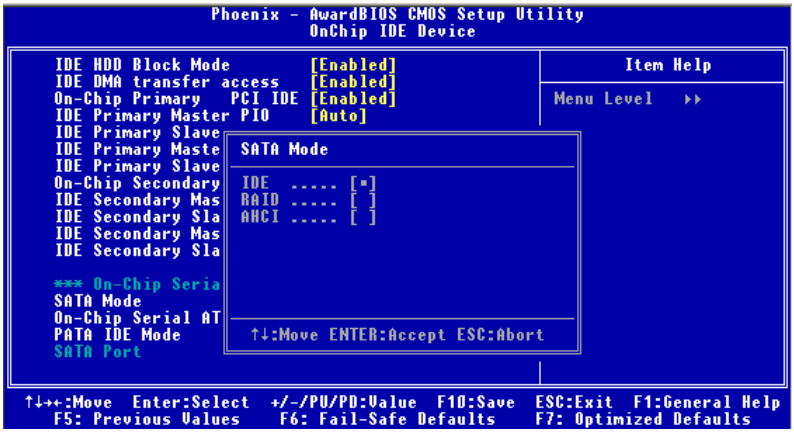
Chapter 3 <System Configuration>

3.1 <SATA configuration>

SATA Mode:



This option can let you select whether the Serial ATA hard drives would work under normal IDE mode or RAID mode. The RAID mode need more than one HDD is applied.

3.2 <SATA RAID Configuration>

The board integrates Intel® ICH9DO with RAID function for Serial ATA II drives, and supports the configurations below:

RAID 0 (Stripping): Two hard drives operating as one drive for optimized data R/W performance. It needs two unused drives to build this operation.

RAID 1 (Mirroring): Copies the data from first drive to second drive for data security, and if one drive fails, the system would access the applications to the workable drive. It needs two unused drives or one used and one unused drive to build this operation. The second drive must be the same or lager size than first one.

RAID 5 (striping with parity)

A RAID 5 array contains three or more hard drives where the data is divided into manageable blocks called strips. Parity is a mathematical method for recreating data that was lost from a single drive, which increases fault-tolerance. The data and parity are striped across all the hard drives in the array. The parity is striped in a rotating sequence to reduce bottlenecks associated with the parity calculations.

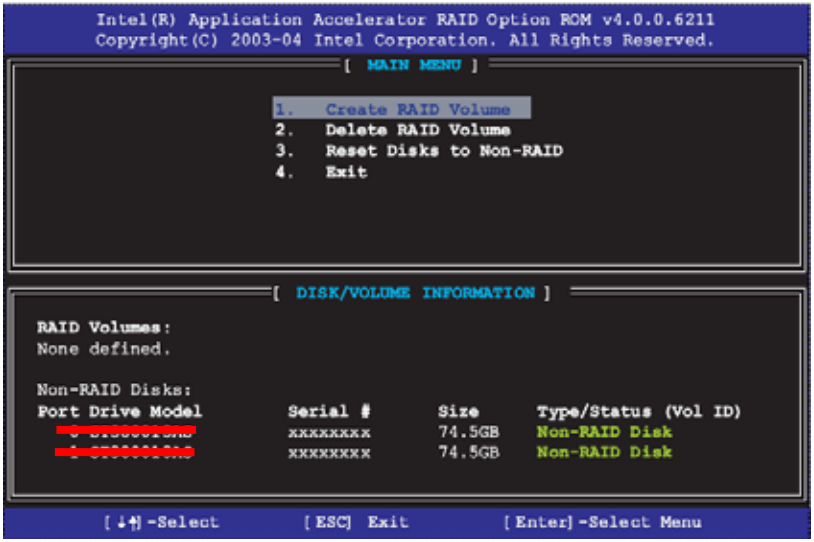
RAID 10 (RAID 0+1)

A RAID 10 array uses four hard drives to create a combination of RAID levels 0 and 1. The data is striped across a two-drive array forming the RAID 0 component. Each of the drives in the RAID 0 array is then mirrored by a RAID 1 component.

Intel Matrix Storage Technology: This technology would allow you to use **RAID 0+1** mode on only two drives (4 drives needed on traditional RAID 0+1). It will create two partitions on each hard drive to simulate **RAID 0** and **RAID 1**. It also can let you modify the partition size without re-formatted.

For more information of Intel Matrix S4torage Technology, please visit Intel's website.

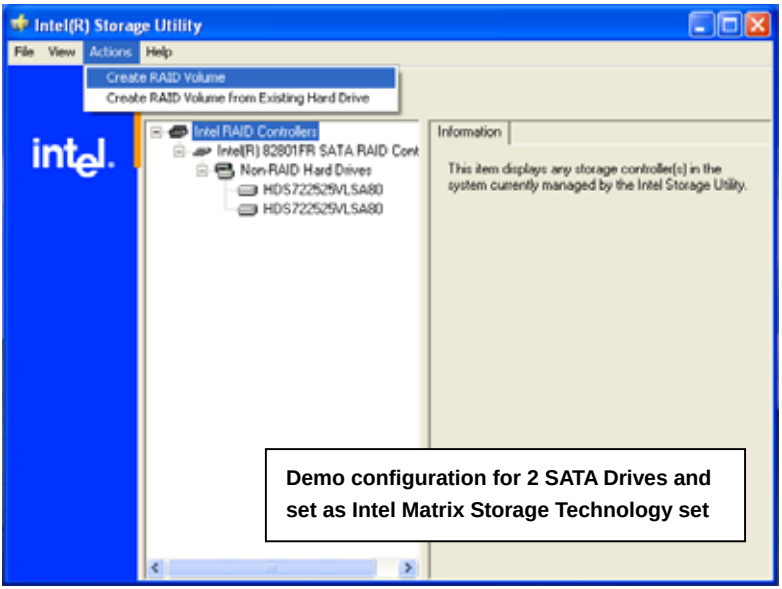
If you need to install an operation system on the RAID set, please use the driver disk attached in the package when it informs you to obtain the RAID drivers.



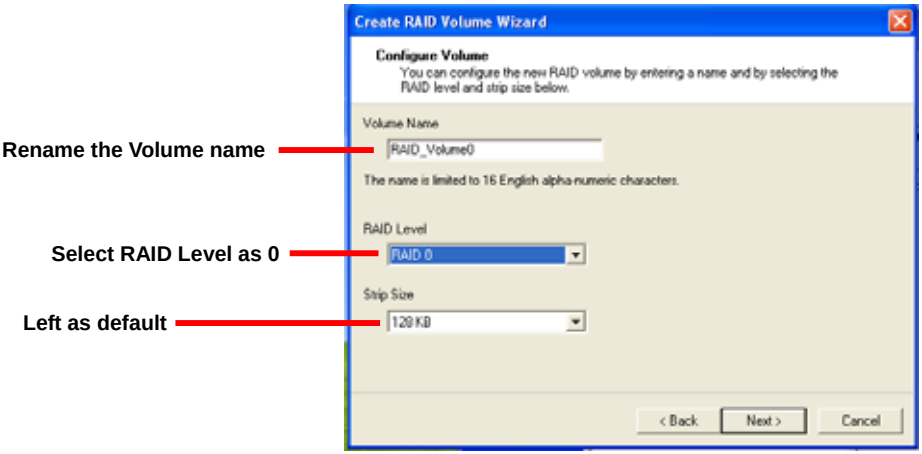
Please press **<CTRL+I>** to enter the RAID configuration menu.

You can setup the RAID under operation system for Microsoft® Windows XP SP1, please install the Intel® Application Accelerator Ver.7.8 later to support RAID configuration with Intel® Matrix Storage Technology.

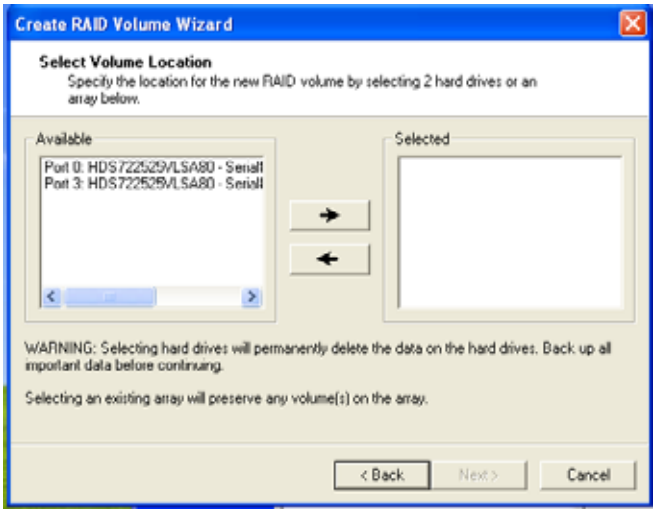
1. After installing Intel Application Accelerator, please execute Intel® Storage Utility.



2. Select Actions to Create RAID Volume

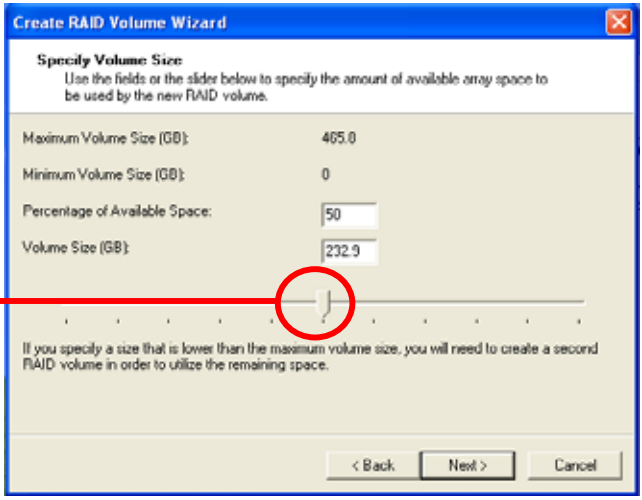


3. Please select two hard drives to prepare to set the RAID volume

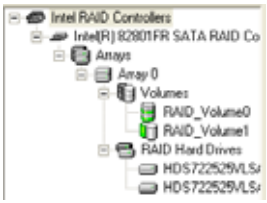


4. Specify the Volume size

Tune this bar to specify the volume size, if you specify the volume size lower than maximum, you can create a second volume for another RAID set.
(Make RAID 0+1 on only two hard drives)



5. Repeat the step 1 to create second volume as RAID Level 1.



For other configuration set please click Help on tool bar.

3.3 <Audio Configuration>

The board integrates Intel® ICH9DO with REALTEK® ALC888 code. It can support 2-channels 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

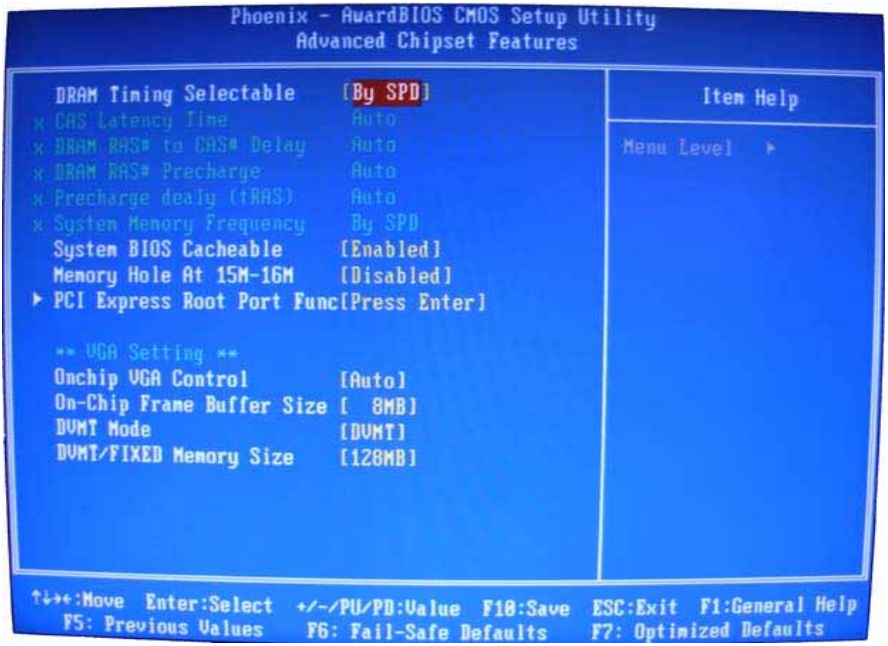
4. Select the sound mode to meet your speaker system.

3.4 <Video Memory Setup>

Based on Intel® Q35 chipset with GMA (Graphic Media Accelerator) 3100, 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 GMA 3100 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**.

DVMT Mode:

This item can let you select Graphics shared memory DVMT or Fixed.

DVMT/FIXED Memory Size:

This item can let you select size of video memory, the system would configure the video memory depends on your application, If set DVMT mode this item is strongly recommend to be selected as **MAX.**

System Memory	On-Chip Frame Buffer Size	Fixed Memory Size	DVMT Memory Size	Total Graphic Memory
256MB ~ 511MB	1MB	128MB	0MB	128MB
	1MB	0MB	128MB	128MB
	8MB	128MB	0MB	128MB
	8MB	0	128MB	128MB
512MB~1023MB	1MB	128MB	0	128MB
	1MB	256MB	0	256MB
	1MB	0	128MB	128MB
	1MB	0	256MB	256MB
	8MB	128MB	0	128MB
	8MB	256MB	0	256MB
	8MB	0	128MB	128MB
	8MB	0	256MB	256MB
1024MB upper	1MB	128MB	0	128MB
	1MB	256MB	0	256MB
	1MB	0	128MB	128MB
	1MB	0	256MB	256MB
	1MB	0	MAX	384MB
	8MB	128MB	0	128MB
	8MB	256MB	0	256MB
	8MB	0	128MB	128MB
	8MB	0	256MB	256MB
	8MB	0	MAX	384MB

Notice:

1. The On-Chip Frame Buffer Size would be included in the Fixed Memory.
2. Please select the memory size according to this table.

Chapter 4 <BIOS Setup>

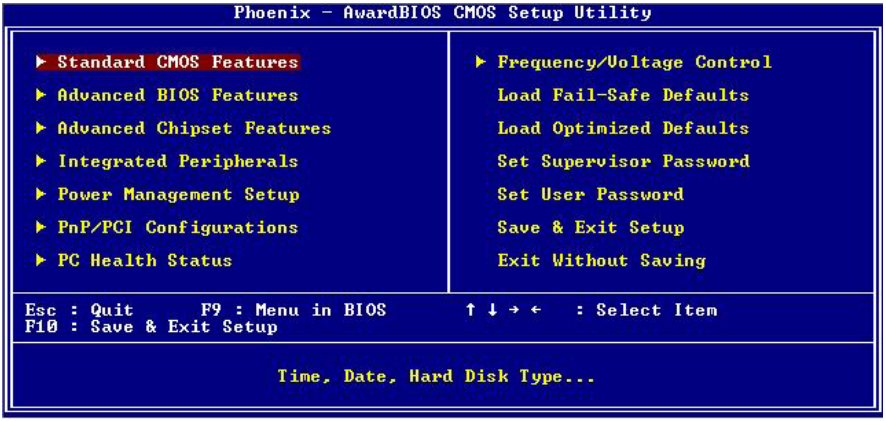
The motherboard uses the Award BIOS for the system configuration. The Award BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The BIOS provides 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



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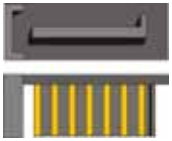
Appendix A <I/O Port Pin Assignment>

A.1 <Serial ATA Port>

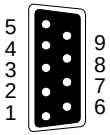
Connector: **SATA1/2/3/4**

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 <Serial Port>



Connector: **COM1**

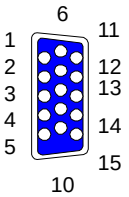
Type: 9-pin D-sub male connector on I/O l bracket

Pin	Description	Pin	Description
1	DCD	6	DSR
2	SIN	7	RTS
3	SO	8	CTS
4	DTR	9	RI
5	Ground		

A.3 <VGA Port>

Connector: **CRT**

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

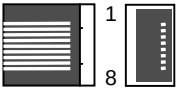


Pin	Description	Pin	Description	Pin	Description
1	RED	6	Ground	11	N/C
2	GREEN	7	Ground	12	5VCDA
3	BLUE	8	Ground	13	HSYNC
4	N/C	9	LVGA5V	14	VSYNC
5	Ground	10	Ground	15	5VCLK

A.4 <LAN Port>

Connector: **RJ45**

Type: RJ45 connector with LED on bracket



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

A.5 <AT Keyboard Port>

Connector: **CN_ATKB**

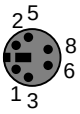
Type: 5-pin box header

Pin	1	2	3	4	5
Description	VCC	Ground	N/C	DATA	CLK

A.6 <PS/2 Keyboard & Mouse Port>

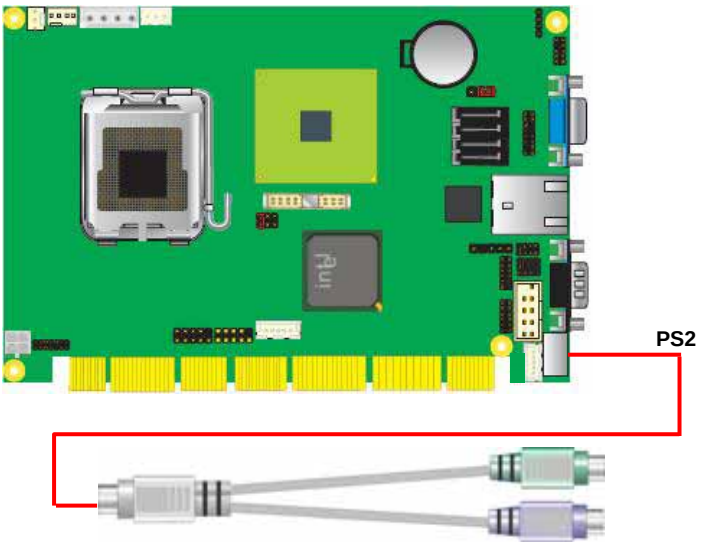
Connector: **PS2**

Type: 6-pin Mini-DIN connector on bracket



Pin	1	2	3	5	6	8
Description	KBD	MSD	Ground	VCC	KBC	MSC

Note: The PS/2 connector supports standard PS/2 keyboard directly or both PS/2 keyboard and mouse through the PS/2 Y-type cable.



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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 <I/O Port Address Map>

[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
[00000274 - 00000277] ISAPNP Read Data Port
[00000279 - 00000279] ISAPNP Read Data Port
[000002F8 - 000002FF] Communications Port (COM2)
[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] Intel(R) Q35 Express Chipset Family
[000003C0 - 000003DF] Intel(R) Q35 Express Chipset Family
[000003F0 - 000003F5] Standard floppy disk controller
[000003F7 - 000003F7] Standard floppy disk controller
[000003F8 - 000003FF] Communications Port (COM1)
[00000400 - 000004BF] Motherboard resources
[000004D0 - 000004D1] Motherboard resources

[00000500 - 0000051F] Intel(R) ICH9 Family SMBus Controller - 2930
[00000778 - 0000077B] Printer Port (LPT1)
[00000800 - 0000087F] Motherboard resources
[00000880 - 0000088F] Motherboard resources
[00000A79 - 00000A79] ISAPNP Read Data Port
[00000D00 - 0000FFFF] PCI bus
[0000C000 - 0000CFFF] Intel(R) ICH9 Family PCI Express Root Port 1 - 2940
[0000CF00 - 0000CF1F] Intel(R) PRO/1000 PL Network Connection
[0000EC00 - 0000EC0F] Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
[0000ED00 - 0000ED0F] Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
[0000EE00 - 0000EE03] Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
[0000EF00 - 0000EF07] Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
[0000F000 - 0000F003] Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
[0000F100 - 0000F107] Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
[0000F300 - 0000F30F] Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
[0000F400 - 0000F40F] Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
[0000F500 - 0000F503] Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
[0000F600 - 0000F607] Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
[0000F700 - 0000F703] Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
[0000F800 - 0000F807] Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
[0000F900 - 0000F91F] Intel(R) ICH9 Family USB Universal Host Controller - 2936
[0000FA00 - 0000FA1F] Intel(R) ICH9 Family USB Universal Host Controller - 2935
[0000FB00 - 0000FB1F] Intel(R) ICH9 Family USB Universal Host Controller - 2934
[0000FC00 - 0000FC1F] Intel(R) ICH9 Family USB Universal Host Controller - 2939
[0000FD00 - 0000FD1F] Intel(R) ICH9 Family USB Universal Host Controller - 2938
[0000FE00 - 0000FE1F] Intel(R) ICH9 Family USB Universal Host Controller - 2937
[0000FF00 - 0000FF07] Intel(R) Q35 Express Chipset Family

C.2 <Memory Address Map>

[00000000 - 0009FFFF] System board
[0000046E - 0000056D] System board
[000A0000 - 000BFFFF] Intel(R) Q35 Express Chipset Family
[000A0000 - 000BFFFF] PCI bus
[000C0000 - 000DFFFF] PCI bus
[000E0000 - 000EFFFF] System board
[000F0000 - 000FFFFF] System board
[00100000 - 7F5DFFFF] System board
[7F5E0000 - 7F5FFFFF] System board
[7F600000 - 7F6FFFFF] System board
[7F650000 - FEBFFFFF] PCI bus
[D0000000 - DFFFFFFF] Intel(R) Q35 Express Chipset Family
[E0000000 - EFFFFFFF] Motherboard resources
[FD900000 - FD9FFFFF] Intel(R) ICH9 Family PCI Express Root Port 1 - 2940
[FDA00000 - FDAFFFFF] Intel(R) ICH9 Family PCI Express Root Port 1 - 2940
[FDAE0000 - FDAFFFFF] Intel(R) PRO/1000 PL Network Connection
[FDD00000 - FDDFFFFF] Intel(R) Q35 Express Chipset Family
[FDE80000 - FDEFFFFF] Intel(R) Q35 Express Chipset Family
[FDFF8000 - FDFFBFFF] Microsoft UAA Bus Driver for High Definition Audio
[FDFFD000 - FDFFD0FF] Intel(R) ICH9 Family SMBus Controller - 2930
[FDFFE000 - FDFFE3FF] Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A
[FDFFF000 - FDFFF3FF] Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C
[FEB80000 - FEBFFFFF] Intel(R) Q35 Express Chipset Family
[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

C.3 <System IRQ Resources>

(ISA) 0 High precision event timer
(ISA) 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3 Communications Port (COM2)
(ISA) 4 Communications Port (COM1)
(ISA) 6 Standard floppy disk controller
(ISA) 8 High precision event timer
(ISA) 9 Microsoft ACPI-Compliant System
(ISA) 12 PS/2 Compatible Mouse
(ISA) 13 Numeric data processor
(PCI) 11 Intel(R) ICH9 Family SMBus Controller - 2930
(PCI) 16 Intel(R) ICH9 Family PCI Express Root Port 1 - 2940
(PCI) 16 Intel(R) ICH9 Family USB Universal Host Controller - 2937
(PCI) 16 Intel(R) PRO/1000 PL Network Connection
(PCI) 16 Intel(R) Q35 Express Chipset Family
(PCI) 18 Intel(R) ICH9 Family USB Universal Host Controller - 2939
(PCI) 18 Intel(R) ICH9 Family USB Universal Host Controller - 2936
(PCI) 18 Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C
(PCI) 19 Intel(R) ICH9 2 port Serial ATA Storage Controller 2 - 2926
(PCI) 19 Intel(R) ICH9 4 port Serial ATA Storage Controller 1 - 2920
(PCI) 19 Intel(R) ICH9 Family USB Universal Host Controller - 2935
(PCI) 21 Intel(R) ICH9 Family USB Universal Host Controller - 2938
(PCI) 22 Microsoft UAA Bus Driver for High Definition Audio
(PCI) 23 Intel(R) ICH9 Family USB Universal Host Controller - 2934
(PCI) 23 Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A

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 2A

-o 2F FD ;enable GPIO function

-o 2E 07

-o 2F 07 ;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 value 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 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

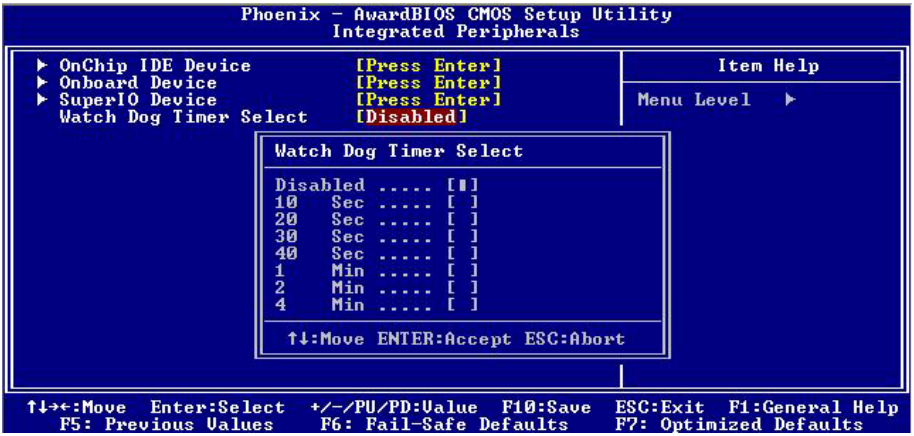
Program Sample

Watchdog timer setup as system reset with 5 second of timeout

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 = 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.



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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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