HSB-668I

Onboard VIA Mark CoreFusion CPU

Half-Size Card

Realtek 8100C/8110S Ethernet

AC97 Codec Audio

HSB-668I Manual Rev. A 1st Ed.

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Packing List

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

- 1 Floppy Cable
- 1 ATA-100 Cable
- 1 USB Cable
- 1 Keyboard Cable
- 1 Serial + Parallel Cable
- 1 ATX Cable
- 1 Serial Cables
- 1 Two Serial Cable
- 1 Quick Installation Guide
- 1 Utility CD
- 1 HSB-688I Half-size CPU Card

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

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Chapter

1

General Information

1.1 Introduction

HSB-668I is a new standard ISA bus half-size CPU Card with onboard VIA Mark CoreFusion 533MHz processor integrating with North Bridge. It supports up to 128MB memory on board and is with one SO-DIMM that memory can support up to 512MB. The HSB-668I performs as a strengthened single board computer with low power consumption while no CPU fan required.

This product is integrated AGP 4X 2D/3D video accelerator with 2 channel TTL interface. It supports 36bit LVDS LCD/CRT, and up to 32 MB frame buffer using system memory.

Excellent connectivity is provided by embedded 10/100Mbps or Gigabit Ethernet connection. The HSB-668I also offers comprehensive I/O support, including 3 USB ports for connecting the latest peripherals and four serial ports for industry standard applications. Other onboard feature is include a parallel port, an IrDA port, and an AC-97 SoundBlaster compatible audio. The SSD solution supports DOC2000 as external storage.

Overall, this powerful CPU card aims to be your most effective choice and perform low power applications at real affordable price!

1.2 Features

- Onboard VIA CoreFusion 533MHz Processor (Fanless)

- On board Memory supports up to 128MB

- Supports One SODIMM SDRAM, Memory Up To 512MB

- Integrated ProSavage4 Graphic, 2D/3D VGA Supports

- Extensive 2 Channel 36-bit LVDS LCD Supports

- Integrated AC97 Codec Audio (Daughter Board Optional)

- Supports Two 10/100 Base-T Ethernet (One 10/100 & GbE Optional)

- Supports Two Ultra ATA100 Channel

- Supports DOC2000

- Supports PC-104 Interface Socket

- 3 USB 1.1 / 1 Parallel / 1 IrDA Ports

- 4 COM Port (3 RS-232, RS-232/422/485)

- Watchdog Function 1 ~ 255 Sec.

- ISA High-driver Supports

1.3 Specifications

System

- Form Factor   ISA Half-size SBC

- Processor   Onboard VIA Mark CoreFusion 533MHz CPU

- System Memory   1 x 144-pin 3.3V SDR SODIMM Socket up to 512MB (on board memory supports up to 128MB), supports PC100/133 types

- Chipset   Mark + VT82C686B

- VGA Controller   Integrated on Mark, 32MB frame buffer share system memory.

- Ethernet   10/100Mb or 10/100/1000Mb LAN optional, RJ-45 x 2, Realtek 8100C/8110S Option

- Audio(Daughter Board) AC97 Codec, MIC-in/Line-in/Line-out/CD-in

● BIOS   Award Plug & Play ISA BIOS –
                     4Mb ROM

● IDE Interface   2 x ATA-100 channel (Support
                     four ATAPI devices)

● Expansion Interface   ISA Interface/PC-104

● Watchdog Timer   1~255 Sec. can be set with
                     software

● RTC   Internal RTC

● Power Requirement +5V Only

● Operating Temperature   32°F~140°F (0°C ~ 60°C)

● EMC   CE / FCC Class A

I/O

● Floppy Drive Interface   1 x Standard Floppy Disk Drive
                           Port, supports up to one Floppy
                           Device

Half-size Card	HSB-668I
● Serial Port	4x COM ports: (Internal Pin Header) COM 1: RS-232 COM 2: RS-232/422/485 (Pin9 Supports +5V by Jumper) COM3: RS-232 COM4: RS-232
● Parallel Port	1x Parallel Port supports SPP/ EPP/ ECP mode
● Keyboard and Mouse	1 x Mini-DIN PS/2 K/B and Mouse connector 1 x internal keyboard pin header
● Universal Serial Bus	One USB 1.1 Port One 5x2 pin header for Internal
● SSD	DOC2000 support
● IR Interface	Supports one IrDA and CIR header

Chapter

2

Quick Installation Guide

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

OZONE SAFE

RECYCLABLE

2.1 Safety Precaution

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

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

2.2 Location of Connectors and Jumpers

Component Side
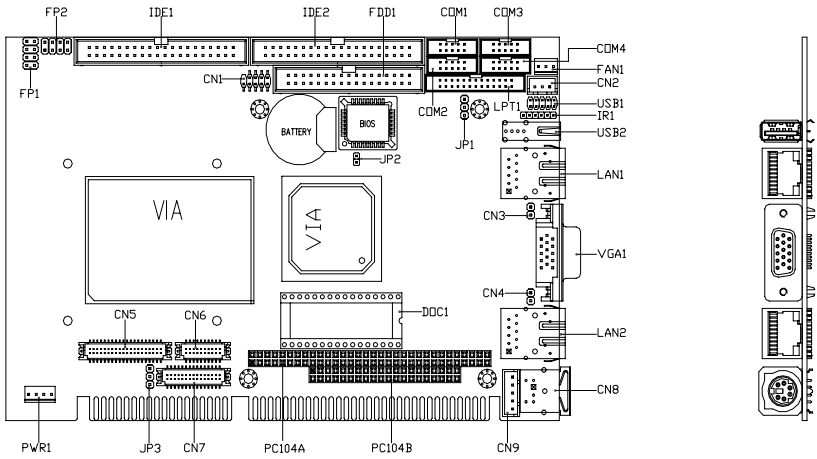
Solder Side
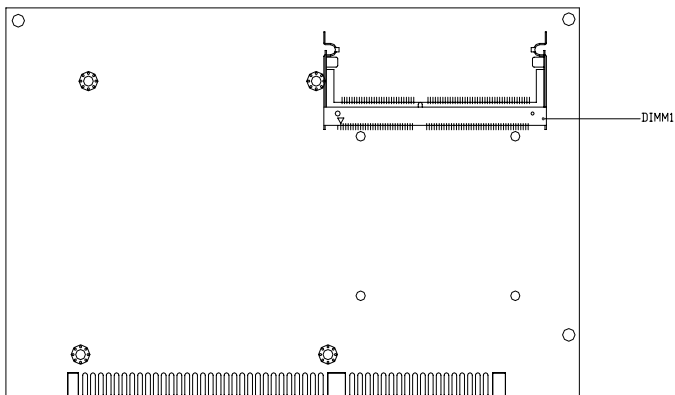
2.3 Mechanical Drawing

Component Side
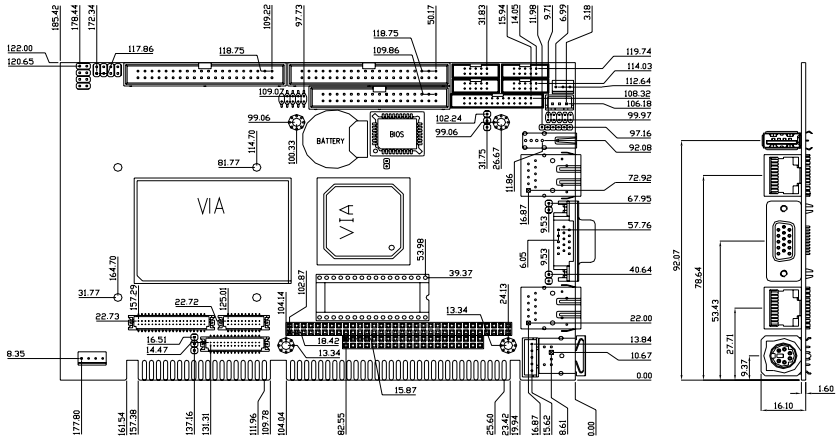
Solder Side
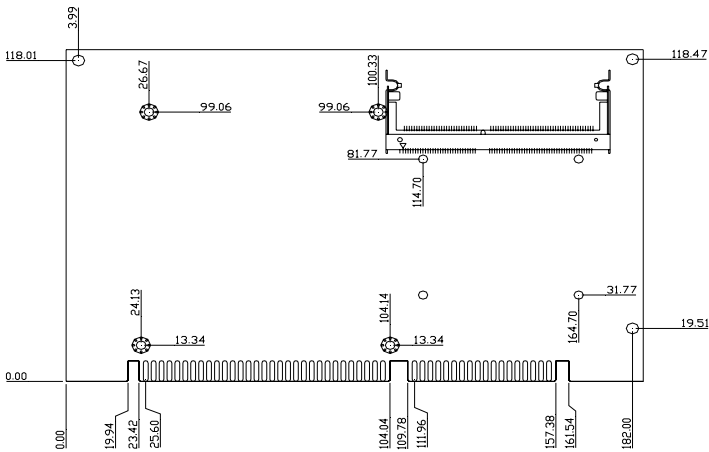
2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Jumpers

Label	Function
JP1	COM2 Pin 9 Function Selection
JP2	Clear CMOS
JP3	LCD Voltage Selection

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

Label	Function
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
PWR1	5V Connector
VGA1	VGA Display Connector
FDD1	Floppy Connector
IDE1~2	EIDE Connector
COM1	RS-232 Serial Port Connector
COM2	RS-232/422/485 Serial Port Connector
COM3	RS-232 Serial Port Connector
COM4	RS-232 Serial Port Connector
IR1	IrDA Connector
LPT1	LPT Port Connector
USB1	USB Connector
USB2	USB Connector
LAN1	10/100 or 100/1000 Base-Tx Ethernet Connector
LAN2	10/100 or 100 Base-Tx Ethernet Connector
DIMM1	DIMM Slot
FAN1	Fan Connector
CN1	AC97 Connector
CN2	ATX Power Control Connector
CN3	LAN 1 Active LED Connector
CN4	LAN 2 Active LED Connector

CN5	TTL 18/24BIT Channel Connector
CN6	TTL 36BIT Channel Connector
CN7	LVDS Channel Connector
CN8	PS2 Keyboard/Mouse Connector
CN9	Internal Keyboard Connector
DOC1	Disk on Chip Socket

2.6 Setting Jumpers

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

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

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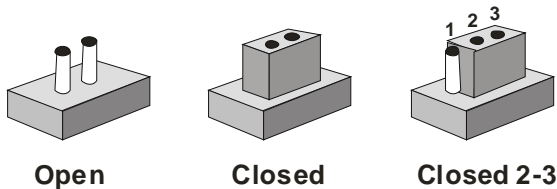
A pair of needle-nose pliers may be helpful when working with jumpers.

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

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

2.7 COM2 Pin 9 Function (RIB or +5V) Selection (JP1)

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

2.8 Clear CMOS (JP2)

JP2	Function
1-2	Open (Default)
Clear	Protected

2.9 LCD Voltage Selection (JP3)

JP3	Function
1-2	+5 V
2-3	+3.3 V (Default)

2.10 DOC2000 Address (Selection By BIOS)

Function
Disable (Default)
DC00h
D800h
D400h

2.11 Front Panel Connector (FP1)

Pin	Signal	Pin	Signal
1	Power On Button(+)	2	Reset Switch(+)

Half-size CPU Card		HSB-668I	
3	Power On Button(-)	4	Reset Switch(-)
5	IDE LED(+)	6	Power LED(+)
7	IDE LED(-)	8	Power LED(-)

2.12 Front Panel Connector (FP2)

Pin	Signal	Pin	Signal
1	External Speaker(+)	2	KeyBoard Lock (+)
3	NC	4	GND
5	Internal Buzzer(-) (Default)	6	I2C Bus SMB Clock
7	External Speaker(-) (Default)	8	I2C Bus SMB Data

2.13 RS232 Serial Port Connector (COM1/COM3/COM4)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N.C

2.14 RS232/422/485 Serial Port Connector (COM2)

Pin	Signal	Pin	Signal
1	DCD(422TXD-/485DATA-)	2	RXD(422RXD+)

3	TXD(422TXD+/485DATA+)	4	DTR(422RXD-)
5	GND	6	DSR
7	RTS	8	CTS
9	RIB / +5V	10	N.C

2.15 IrDA Connector (IR1)

Pin	Signal
1	+5V
2	N.C
3	IRRX
4	GND
5	IRTX
6	N.C

2.16 LPT Port Connector (LPT1)

Pin	Signal	Pin	Signal
1	#STROBE	2	#AFD
3	DATA0	4	#ERROR
5	DATA1	6	#INIT
7	DATA2	8	#SLIN
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	#ACK	20	GND

21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	N.C

2.17 USB Connector (USB1)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD1-	4	GND
5	USBD1+	6	USBD2+
7	GND	8	USBD2-
9	GND	10	+5V

2.18 Fan Connector (FAN1)

Pin	Signal
1	GND
2	+5V
3	Speed Sense

2.19 AC97 Connector (CN1)

Pin	Signal	Pin	Signal
1	AC_RST-	2	AC_SYNC
3	AC_DAIN2	4	AC_DAOUT
5	GND	6	AC_BCLK
7	GND	8	+5V

9	Lock	10	+3.3V

2.20 ATX Power Control Connector (CN2)

Pin	Signal
1	PS-ON
2	+5V
3	+5VSB

AT Power Use: Close Pin 2,3

2.21 LAN LED Connector (CN3/CN4)

Pin	Signal		
1	Link_LED(-)	2	Active_LED(+)

2.22 18/24Bit TTL Channel Connector (CN5)

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	GND	4	GND
5	+3.3V	6	+3.3V
7	ENBKL	8	GND
9	BLUE0(24bit),NC(18bit)	10	BLUE1(24bit) ,NC(18bit)
11	BLUE2(24bit), BLUE0(18bit)	12	BLUE3(24bit), BLUE1(18bit)

13	BLUE4(24bit), BLUE2(18bit)	14	BLUE5(24bit), BLUE3(18bit)
15	BLUE6(24bit) ,BLUE4(18bit)	16	BLUE7(24bit), BLUE5(18bit)
17	GREEN0(24bit) ,NC(18bit)	18	GREEN1(24bit) ,NC(18bit)
19	GREEN2(24bit) ,GREEN0(18bit)	20	GREEN3(24bit), GREEN1(18bit)
21	GREEN4(24bit), GREEN2(18bit)	22	GREEN5(24bit) ,GREEN3(18bit)
23	GREEN6(24bit), GREEN4(18bit)	24	GREEN7(24bit), GREEN5(18bit)
25	RED0(24bit) ,NC(18bit)	26	RED1(24bit) ,NC(18bit)
27	RED2(24bit), RED0(18bit)	28	RED3(24bit) ,RED1(18bit)
29	RED4(24bit), RED2(18bit)	30	RED5(24bit), RED3(18bit)
31	RED6(24bit), RED4(18bit)	32	RED7(24bit), RED5(18bit)
33	GND	34	GND
35	DOT_CLOCK	36	VSYNC
37	DE	38	HSYNC
39	N.C	40	ENAVEE

2.23 36Bit TTL Channel Connector (CN6)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	SBLUE0(36bit)	4	SBLUE1(36bit)
5	SBLUE2(36bit)	6	SBLUE3(36bit)
7	SBLUE4(36bit	8	SBLUE5(36bit)
9	SGREEN0(36bit)	10	SGREEN1(36bit)
11	SGREEN2(36bit)	12	SGREEN3(36bit)

13	SGREEN4(36bit)	14	SGREEN5(36bit)
15	SRED0(36bit)	16	SRED1(36bit)
17	SRED2(36bit)	18	SRED3(36bit)
19	SRED4(36bit)	20	SRED5(36bit)

2.24 LVDS Channel Connector (CN7)

Pin	Signal	Pin	Signal
1	BKLEN	2	BKLCTL
3	PPVCC	4	GND
5	CH1_CLK#	6	CH1_CLK
7	PPVCC	8	GND
9	CH1_TX0#	10	CH1_TX0
11	CH1_TX1#	12	CH1_TX1
13	CH1_TX2#	14	CH1_TX2
15	CH1_TX3#	16	CH1_TX3
17	I2C_DATA	18	I2C_CLK
19	CH2_TX0#	20	CH2_TX0
21	CH2_TX1#	22	CH2_TX1
23	CH2_TX2#	24	CH2_TX2
25	CH2_TX3#	26	CH2_TX3
27	PPVCC	28	GND
29	CH2_CLK#	30	CH2_CLK

2.25 PS2 Keyboard/Mouse Connector (CN8)

Pin	Signal	Pin	Signal
1	KB_DATA		
2	MS-DATA		
3	GND		
4	+5V		
5	KB_CLK		
6	MS_CLK		

2.26 Internal Keyboard Connector (CN9)

Pin	Signal
1	KB_CLK
2	KB_DATA
3	N.C
4	GND
5	+5V

Chapter

3

Award BIOS Setup

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

Press <F1> to RESUME

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

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time

2. You have changed the hardware attached to your system

3. The CMOS memory has lost power and the configuration information has been erased.

The HSB-835P CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> immediately. This will allow you to enter Setup.

Standard CMOS Features

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

IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your

system.

Advanced Chipset Features

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

Integrated Peripherals

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

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring, KB wake

up, etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

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

Frequency/Voltage Control

Use this menu to specify your settings for auto detect DIMM/PCI clock and spread spectrum.

Load Fail-Safe Defaults

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

Load Optimized Defaults

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

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

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

Chapter

4

Driver Installation

The The HSB-668I comes with a AutoRun CD-ROM which contains most of drivers and utilities of your needs.

There are several installation ways depending on the driver package under different Operating System application.

Please follow the sequence below to install the drivers:

Step 1 – Install VIA 4 in 1 Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

For installation procedures of each driver, you may refer to section 4.1

4.1 Installation:

Insert the HSB-668I CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 4 in order.

Step 1 – Install VIA 4 in 1 Driver Driver

1. Click on the *VIA 4 IN 1 folder* and go to the Public folder

2. Double click on the **.exe file*

3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the *VGA folder*

2. Select the folder of HSB-668I

3. Choose the OS your system is

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

5. Follow the instructions that the window shows

6. The system will help you install the driver automatically

Step 3 –Install LAN Driver

1. Click on the *LAN Driver folder*

2. Select the folder of HSB-668I

3. Choose the OS your system is

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

5. Follow the instructions that the window shows

6. The system will help you install the driver automatically

Step 4 – Install Audio Driver

1. Click on the *Audio folder*

2. Choose the folder of PER-U00A

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

4. Follow the instructions that the window shows

5. The system will help you to install the driver automatically

Note:

Under the Window OS environment, if the CRT connector is

connected to display monitor by the data switch device, the user need to set the color and resolution from Intel Graphic utility (VGA driver) instead of setting from the control panel in case of the wrong display appearance.

Appendix
A

Programming the

Watchdog Timer

Programming

An onboard watchdog timer reduces the chance of disruptions which CPLD (Compact Programmable Logical Device) interface can cause. This is an invaluable protective device for standalone or punmanned applications. When the watchdog timer activates (CPU processing has come to a halt), it can reset the system, or generate an interrupt on IRQ10, IRQ11, IRQ15, and NM1. This can be set via I/O Port 444, the function as following:

0: RESET
1: NM1
2: IRQ10
3: IRQ11
4: IRQ15

If you decide to program the watchdog timer, you must write data to I/O port 443 (hex). The output data is a value timer. You can write form 01 (hex) to FF (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should read a Hex value from I/O port 80 (hex).
The following procesude is a sample program for the watchdog timer:

■ Type C:\DOS\Debug <ENTER>

■ To start watchdog timer and set function "Reset" type;

o 444 0<Enter>; out 444h data 0

■ To input Watchdog timers time-out interval of 5 seconds type; o 443 05<Enter>; out 443h data 05

■ To disable the watch timer type; i80 <Enter>

The time interval data of the watchdog timer is shown in binary code (8 bits).

Sample 2: 5 seconds

0	0	0	0	0	1	0	1