Synergy Global Technology Inc
www.RackmountMart.com

SB 1003

User Manual

Toll Free: 1-888-865-6888
Tel: 510-226-8368 Fax: 510-226-8968
Email: sales@RackmountMart.com

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Item Checklist:

Completely check your package. If you discover damaged or missing items, contact your retailer.

- ☑ 1 CPU CARD
- ☑ User's manual
- ☑ 1 Drivers'CD-ROM
- ☑ 1 IDE ribbon cable:ATA66
- ☑ 1 IDE ribbon cable:ATA100
- ☑ 1 Floppy ribbon cable
- ☑ 1 USB ribbon cable with braket
- ☑ 1 Parallel port and 1COM port ribbon cable with braket
- ☑ 1 COM port ribbon cable with braket
- ☑ 1 6-pin cable
- ☑ 1 One-Two adapter
- ☑ 1 Bag of jumper caps
- ☑

Chapter 1 Introduction

1.1 Overview

The SB1003 is a full size industrial CPU card with six PCB layers. It utilizes Intel 848P and ICH5 chipset(860 Intel 865PE and ICH5 chipset) . It also utilizes one184-pin DDR DIMM (860 two 184-pin DDR DIMM)socket to (860 support two channels)DDR RAMat speed of 266/ 333/400MHz, providing a fully compatible,high performance andcost-effective inductry control platform. The integration of onboard VGA controller, four USB2.0 ports,serial ATA give customers an advanced solution at a reasonable price.It provides 400/533/800MHZ host bus speed to support INTEL Pendtium4 Socket478 processors.It also provides advanced feathures such as BIOS-proctect,Watchdog Timer and IRDA.

1.2 Key Features

Size

- Full-size PICMG: 338.5 mm x122 mm.

Microprocessor

- Supports 478pin Northwood and Prescott processor
- Up to 3.80GHz and futhre

Chipset

- Intel 848 P/865 PE supports 400/533/800 MHZ FSB
  supports 266/333/400MHZ DDR
- ICH5 Supports serial ATA 150MB/S
- System Bus bandwidth: 3.2/4.2/6.4 GB/s
- Supports Hyper-Threading technology, not support Willamete

System memory

Provides one 184-pin DDR DIMM socket,not support ECC(860 two184-pin DDR DIMM socket not support ECC).

- Support DDR 266/333/400
- Up to 1Gbytes(860 Up to 2Gbytes)
- support DDr dual channel(860 only)

On-board VGA

- Utilize ATI Radeon 7000
- Provide 32/64 Mbytes DDR SDRAM display controller,up to 2.7GB/s

On-board IDE

- Two Ehanced IDE interface connector, supports four IDE devices .
- Ultra DMA mode up to 100MB/sec.

Serial ATA

- 2 serial ATA interface connector.
- transmission speed up to 150MB/s
- Optional features:supports RAID0 or RAID1, change ICH5 into ICH5-R.

On-board I/O

- One floppy port supporting up to two 3.5''or 5.25" floppy drives with 360K/720K/ 1.2M/1.44M/2.88M format.
- Supports two COM connector.
- Supports one PS/2 mouse and one KeyBoard .
- Supports One parallel connector
- Supports one IRDA connector.

Serical/Parall communicatoin CONNECTOR

- One IDC 26 Parallel Port
- COM1 IDC10
- COM2 IDC10
- COM1->RS232,COM2->RS232.

PCI-to-ISA

- Winbond W83628F+W83629D

Advanced features

- 4 USB ports supported,USB 2.0 compliant.
- Supports Windows 98/2000/XP software soft-off.
- Hardware BIOS protection from being attacked by virus such as CIH, by enabling "Flash Write Protect" in CMOS setup.
- All I/O ports can be enabled/disabled in the BIOS setup.

Watchdog Timer:

- 32 level timer intervals. Reset

BIOS

- AMI BIOS License
- 4M bit Flash BIOS
- Supports Plug&Play,APM1.2
- Supports boot from USB device
- Supports boot from CD-ROM

Environmental

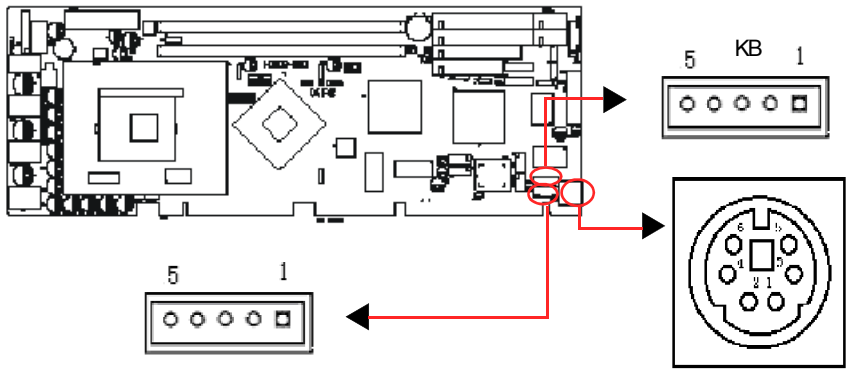
- Temperature: 0°C to 60°C.
- Humidity: 5% to 95%.

Chapter 2 Installation Instructions

2.1 External Connectors

2.1.1 Keyboard/Mouse Connector(MKB)

This connector is for the usage of PS/2 mouse and keyboard through a one-two adapter. If using a standard AT keyboard, an adapter should be used to suit this connector. Additionally, it provides two expanding PS/2 keyboard connectors:(KB/MS)



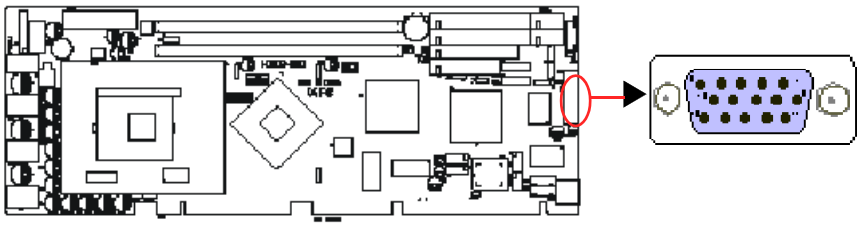
1	KB DATA	3	GND	5	KB CLK
2	MSDATA	4	VCC	6	MSCLK

KB1	1	VCC	2	GND	3	NC	4	KBDATA	5	KBCLK

MS1	1	VCC	2	GND	3	NC	4	MSDATA	5	MSCLK

2.1.2 VGA Connector

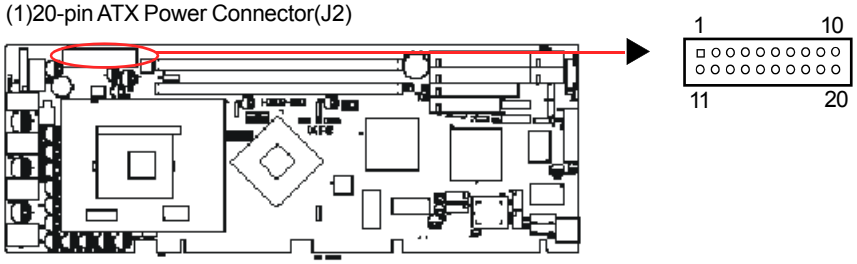
The monitor output connector is for output to VGA-compatible device.



1	RED	5	BLUE	9	GND	13	GND
2	NC	6	NC	10	H-SYNC.	14	SPCLK
3	GREEN	7	NC	11	GND	15	GND
4	GND	8	VGA DDA	12	V-SYNC.		

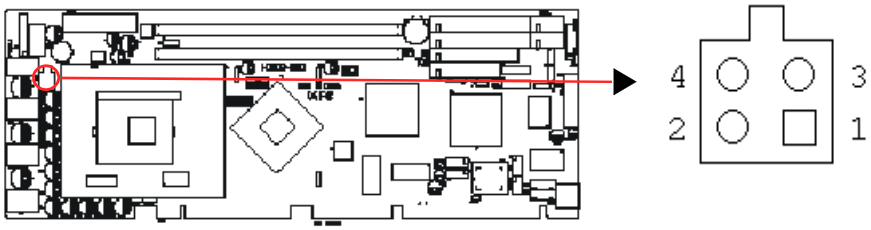
2.1.3 Power Connector

(1)20-pin ATX Power Connector(J2)

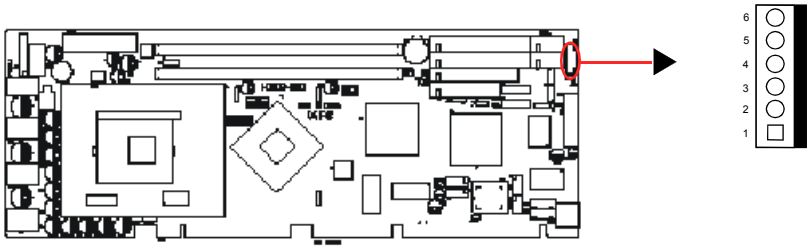


1	3.3V	6	5V	11	3.3V	16	GND
2	3.3V	7	GND	12	-12V	17	GND
3	GND	8	PWR-OK	13	GND	18	-5V
4	5V	9	5VSB	14	PS-ON	19	5V
5	GND	10	12V	15	GND	20	5V

(2)+12V Power Supply Connector(J3)



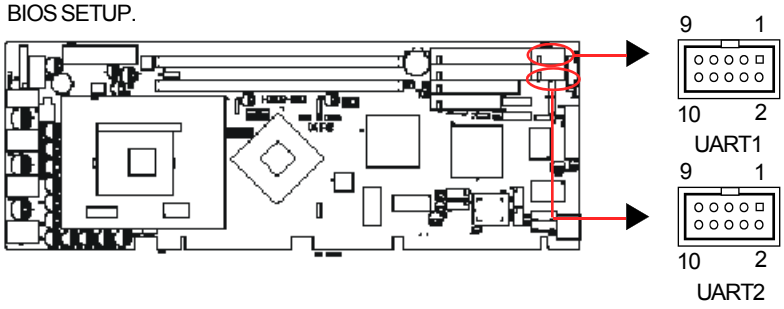
(3) EXT ATX Power Connector(J4)



1	+5VSB	**3**	GND	**5**	GND
2	PWRCTL#	**4**	NC	**6**	SLEEP

2.1.4 UART1,2

The serial ports UART1,2 connectors can be connected with serial port devices. You can enable/disable them and choose the IRQ or I/O address in "INTEGRATED PERIPHERALS" from BIOS SETUP.



1	DCD	3	RXD	5	TXD	7	DTR	9	GND
2	DSR	4	RTS	6	CTS	8	RI	10	GND

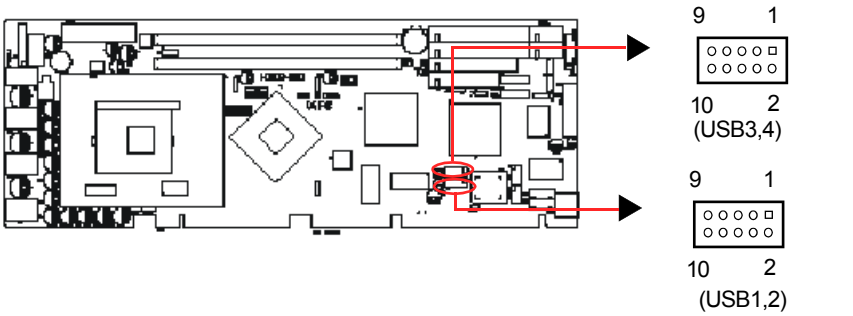
UART1

1	DCD	3	RXD	5	TXD	7	DTR	9	GND
2	DSR	4	RTS	6	CTS	8	RI	10	GND

UART2

2.1.5 USB Connectors

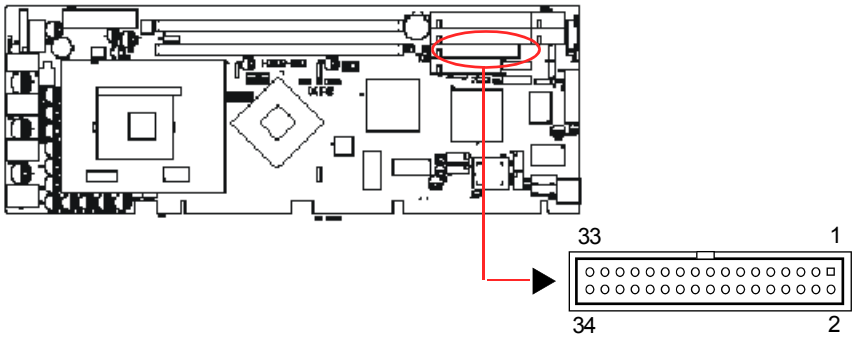
You should use two 10-pin cable to connect onboard USB headers and USB devices.



1	VCC	3	UD0-	5	UD0+	7	GND	9	GND
2	GND	4	GND	6	UD1+	8	UD1-	10	VCC

2.1.6 Floppy Drive Connector

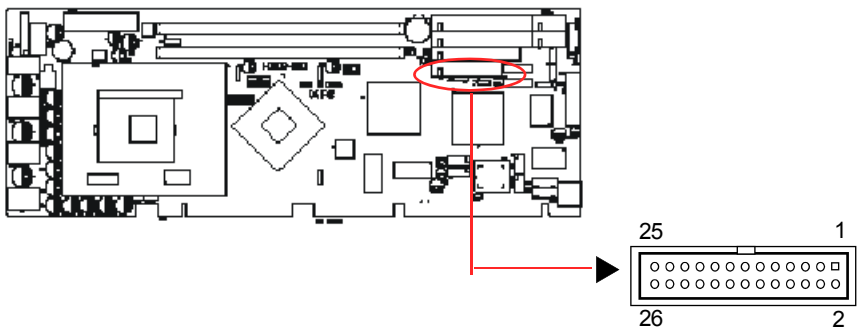
One floppy port supporting up to two 3.5"or 5.25" floppy drives with 360K/ 720K/ 1.2M/1.44M/2.88M format.



1	GND	8	INDEX	15	GND	22	WRITED	29	GND
2	DD SEL	9	GND	16	MOTORE1	23	GND	30	READ DATA
3	GND	10	MOTORE0	17	GND	24	WRITE G	31	GND
4	NC	11	GND	18	DIRECTION	25	GND	32	HEAD SELECT
5	GND	12	DSEL1	19	GND	26	TRACK 00	33	GND
6	DD SEL	13	GND	20	STEP	27	GND	34	DISKETTE CH
7	GND	14	DSEL0	21	GND	28	WRITE P	35	

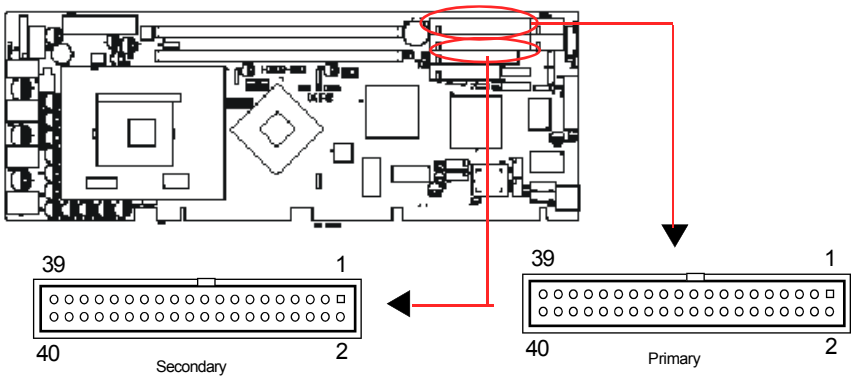
2.1.7 Parallel Port Connector

The parallel port connector can be connected to a parallel device. You can enable/disable them and choose the IRQ or I/O address in "INTEGRATED PERIPHERALS" from BIOS SETUP.



1	STB	6	PD4	11	BUSY	16	INITIALIZE	21	GND
2	PD0	7	PD5	12	PAPER EMP TY	17	SELECT	22	GND
3	PD1	8	PD6	13	SELECT	18	GND	23	GND
4	PD2	9	PD7	14	AUTO FEED	19	GND	24	GND
5	PD3	10	ACK	15	ERROR	20	GND	25	GND

2.1.8 IDE Connetor(IDE1,2)



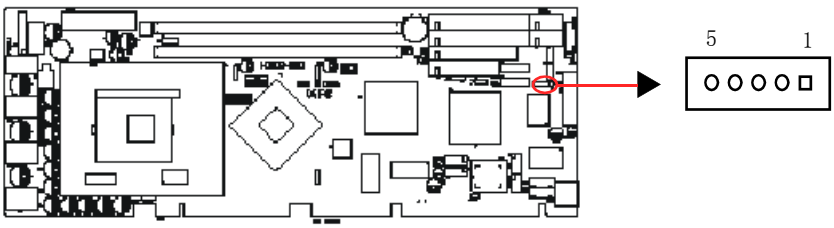
1	Reset IDE	9	Host Data4	17	Host Data0	25	Host IOR	33	Address 1
2	GND	10	Host Data11	18	Host Data15	26	GND	34	NC
3	Host Data7	11	Host Data3	19	GND	27	ROCHRDY	35	Address 0
4	Host Data8	12	Host Data12	20	NC	28	Host ALE	36	Address 3
5	Host Data6	13	Host Data2	21	DRQ1	29	DACKI	37	Chip Select0
6	Host Data9	14	Host Data13	22	GND	30	GND	38	Chip Select1
7	Host Data5	15	Host Data1	23	Host LOW	31	IRQ15	39	Activity
8	Host Data10	16	Host Data14	24	GND	32	NC	40	GND

(1)40pin IDE Connector

1	Reset IDE	9	Host Data4	17	Host Data0	25	Host IOR	33	Address 1
2	GND	10	Host Data11	18	Host Data15	26	GND	34	NC
3	Host Data7	11	Host Data3	19	GND	27	ROCHRDY	35	Address 0
4	Host Data8	12	Host Data12	20	NC	28	Host ALE	36	Address 3
5	Host Data6	13	Host Data2	21	DRQ1	29	DACKI	37	Chip Select0
6	Host Data9	14	Host Data13	22	GND	30	GND	38	Chip Select1
7	Host Data5	15	Host Data1	23	Host LOW	31	IRQ15	39	Activity
8	Host Data10	16	Host Data14	24	GND	32	NC	40	GND

(2)40pin IDE Connector

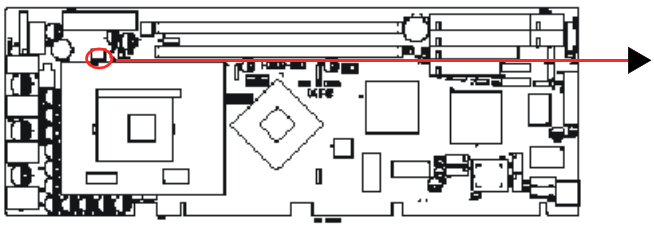
2.1.9 IRDA Connector



1	+5V	2	NC	3	IRTX
4	GND	5	IRRX		

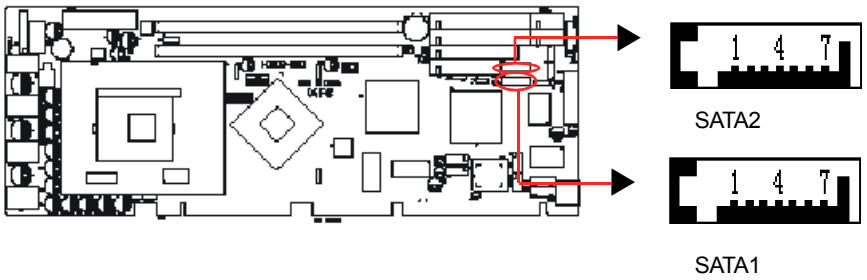
2.1.10 FAN Connetor(CPU FAN)

The fan speeds of CPU FAN can be detected and viewed in “PC Health” section of the BIOS.



1	GND	2	+12V	3	FANTACH

2.1.11 Serial ATA Connector(SATA1,2)



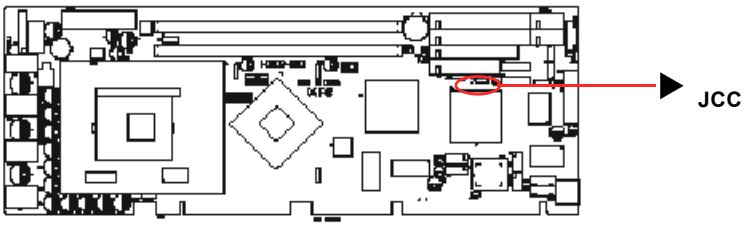
1	GND1	2	TXP	3	TXN
4	GND2	5	RXN	6	RXP
7	GND3				

2.2 Jumper Setting

Jumpers are located on the CPU card, they represent, clear CMOS jumper JCC etc. Pin 1for all jumpers are located on the side with a thick white line (Pin1 ),refer to the CPU card’s silkscreen . Jumpers with three pins will be shown as 1  to represent pin1 & pin2 connected and (1 ) to represent pin2 & pin3 connected.

2.2.1 Clear CMOS (JCC)

If you want to clear CMOS, unplug the AC power supply first, close JCC (pin1 & pin2) once, set JCC back to the normal status with pin2 & pin3 connected, then power on the system.



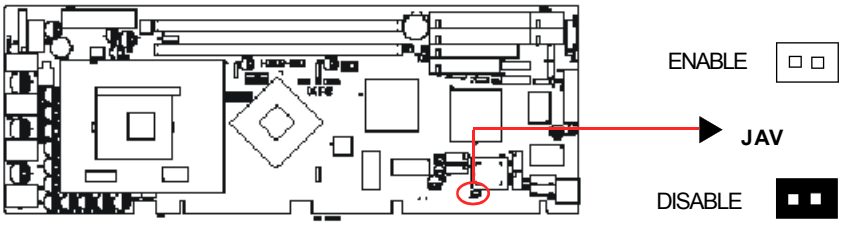
Normal status: 1

Clear CMOS: 1

(TURN OFF AC POWER)

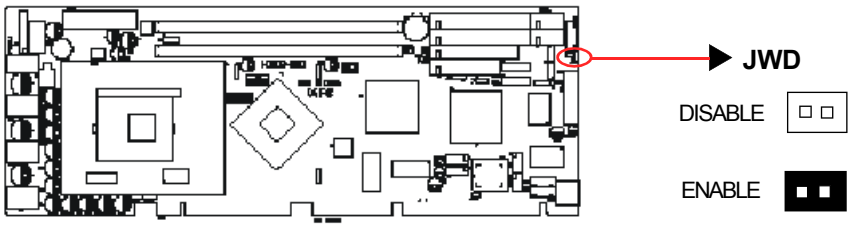
2.2.2 BIOS-Protect Jumper(JAV)

The BIOS of the CPU card is contained inside the Flash ROM. If the jumper JAV is set as closed, you will be unable to flash the BIOS to the mainboard. However in this status, the system BIOS is protected from being attacked by serious virus such as CIH virus.



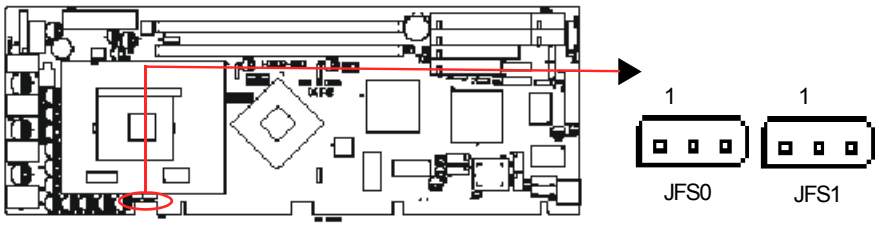
2.2.3 Watchdog Timer Action Jumper setting(JWD)

We provide the fuction of Watchdog Timer, set JWD closed for enable, otherwise,set JWD open for disable.



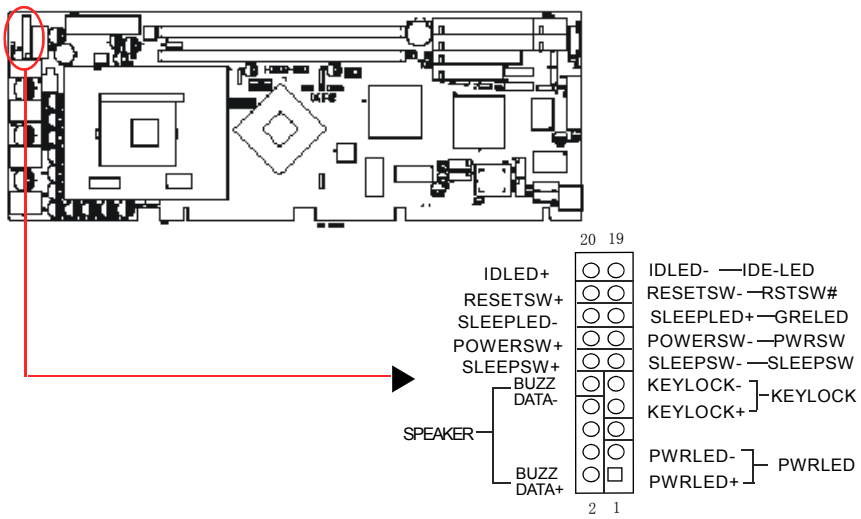
2.2.4 FSB Jumper Setting(JFS0,1)

Jumpers labeled JFS0 and JFS1 are located on the mainboard providing users with CPU on the correct clock. The host bus speed can be set as 400/533/800MHz or AUTO select. Refer to the chart below for the location of these jumpers, and the table for information on how to set them.



CPU FSB	400MHz	533MHz	800MHz	AUTO
JFS0	2-3	OPEN	2-3	1-2
JFS1	2-3	2-3	OPEN	1-2

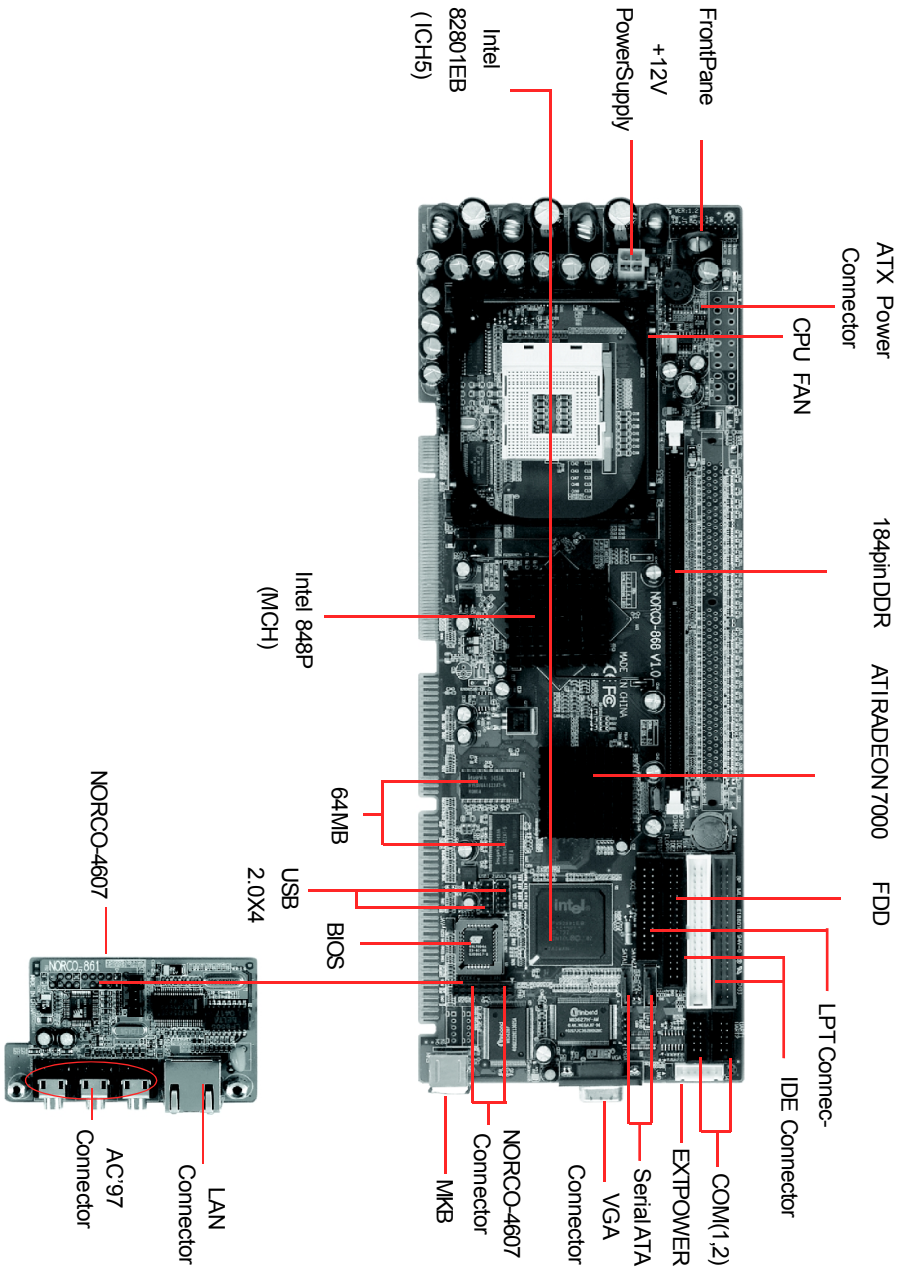
2.2.5 Front Panel Connector

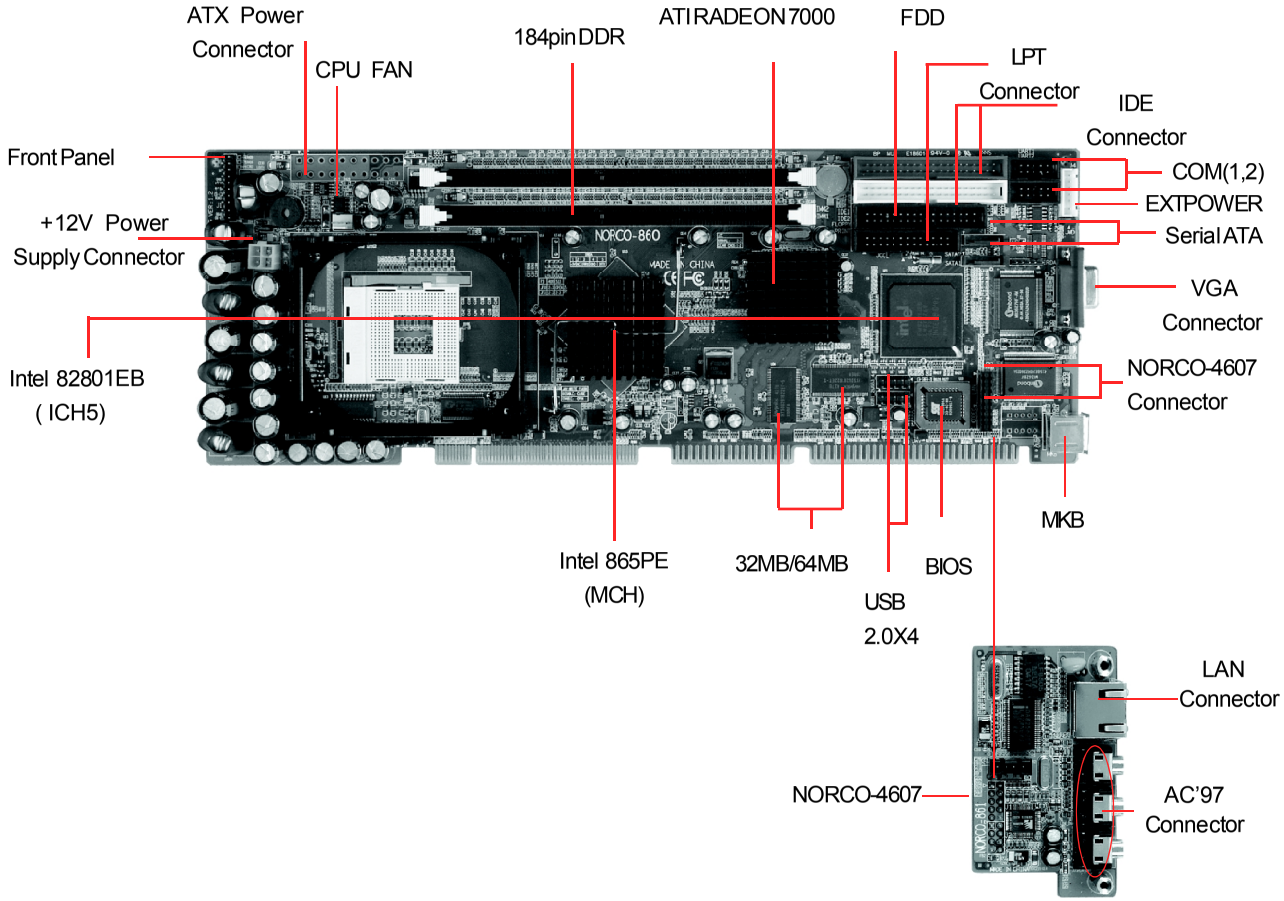


1	PWRLED+	6	NC	11	SLEEPSW-	16	SLEEPLED-
2	BUZZDATA+	7	KEYLOCK+	12	SLEEPSW+	17	RESETSW-
3	PWRLED-	8	BUZZDATA-	13	POWERSW-	18	RESETSW+
4	NC	9	KEYLOCK-	14	POWERSW+	19	IDELED-
5	NC	10	NC	15	SLEEPLED+	20	IDELED+

1-3 PWRLED The power LED indicates the status of the main power switch.
2-8 BUZZD ATA The connector connects to the case's buzzer.
7-9 KEYLOCK The connector can be connected to the keyboard lock sowith on the case for locking the keyboard.
11-12 SLEEPSW Push once the swith connected to this header,the system enters suspend mode.
13-14 POWERSW The connector connects to the case's power botton.
15-16 SLEEPLED When the system enter green mode, the LED will flash.
17-18 RESETSW The connector connects to the case's reset switch. Press the swith once, the system resets.
19-20 IDELED The connector connects to the case's IDE indicator LED indicating the activity status of IDE hard disk.

Chapter 3 Structure Shown As Below




ATX Power
Connector
CPU FAN
184pin DDR
ATI RADEON 7000
FDD
LPT
Connector
IDE
Connector
COM(1,2)
EXTPOWER
Serial ATA
VGA
Connector
NORCO-4607
Connector
MKB
Front Panel
+12V Power
Supply Connector
Intel 82801EB
(ICH5)
Intel 865PE
(MCH)
32MB/64MB
BIOS
USB
2.0X4
LAN
Connector
NORCO-4607
AC'97
Connector

Chapter 4
Watchdog Timer Action

We provide the function of Watchdog Timer. Users could select different Watchdog Timer function to set I/O EFH. Another control port is 2E2FH.The introduction of Watchdog Timer action jumper setting is following:

1. Set with I/O EFH
I/O address EC value
1～EFH: Set Timer count from 1 to 239 (second/minute)
F0H: Set Timer as minute
F1H: Set Timer as second (Default setting)
F2H: Stop/clear Watchdog Timer
0: Disable Watchdog Timer

eg1：set Watchdog Timer (5 minute)
```
MOV DX,0EFH
MOV AL,0F0H
OUT DX,AL
MOV AL,5
OUT DX,AL
```

eg2：Stop Watchdog Timer
```
MOV DX,0EFH
MOV AL,0F2H
OUT DX,AL
```

2. set with 2E2FH

We could manipulate another port to achieve the operation which aim for W83627 super I/O chip from Winbond computer. The operation port of INDEXP DATAP are 2FH and 2FH. Under the DEBUG, we could operate port with writing conesponding data.

port definition：
2EH： INDEXP
2FH: DATAP
F5H: command memory, store minue/second definition
F6H： command memory, store Timer count
1～EFH: Set Timer count from 1 to 239 (second/minute)
08H: Set Timer as minute
00H: Set Timer as second

eg: setup Watchdog Timer of 30 second
Under the DOS run DEBUG, then put in:
O 2E 87
O 2E 87 ; analysis code
O 2E 07
O 2F 08 ; Select LOGIC Device
O 2E F5
O 2F 00 ; select time unit as second
O 2E F6
O 2F 30 ; setup Timer Count as 30 second