AR-B1686 Manual

Version 1.3

1. AR-B1686 Series Comparison Table

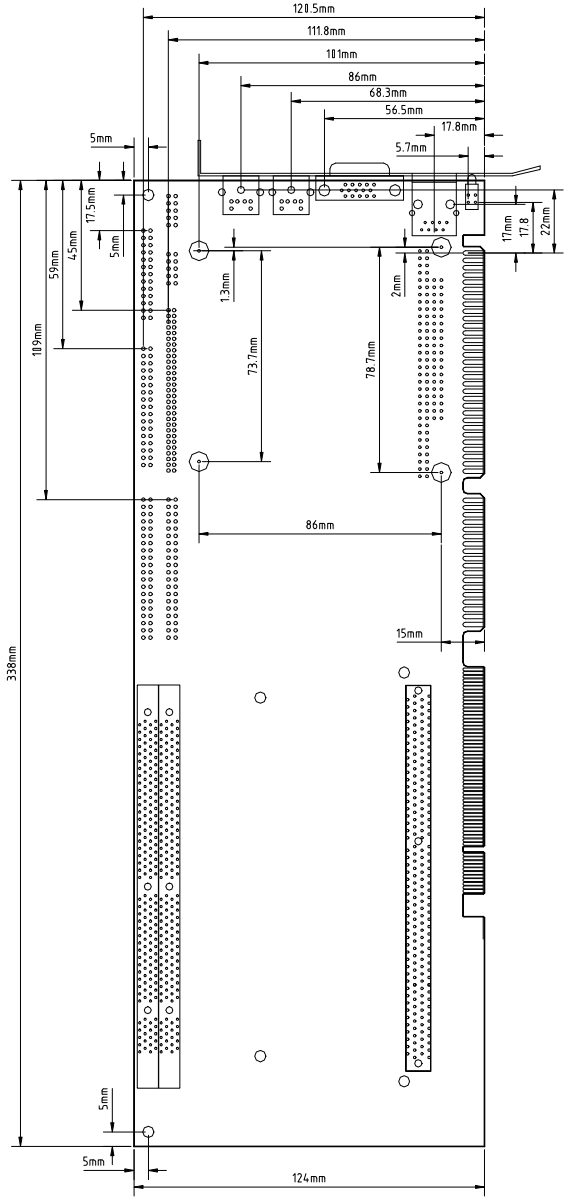
Model	AR-B1686A	AR-B1686S	AR-B1686
Processor	Intel Pentium II	Intel Pentium II	Intel Pentium II
Processor Socket	Slot 1	Slot 1	Slot 1
Chipset	Intel 440BX	Intel 440BX	Intel 440BX
BIOS	Award	Award	Award
L2 cache	CPU Integrated	CPU Integrated	CPU Integrated
Max. SDRAM	256MB unbuffer 512MB buffer	256MB unbuffer 512MB buffer	256MB unbuffer 512MB buffer
Memory Sockets	2 x DIMM	2 x DIMM	2 x DIMM
VGA CRT/LCD	Trident 9525	None	Trident 9525
Watchdog Timer	16-level	16-level	16-level
PC/104 Connector	yes	yes	yes
Multi I/O Chip	Winbond 83977	Winbond 83977	Winbond 83977
Enhanced IDE	yes	yes	yes
2S/1P	yes	yes	yes
USB	yes	yes	yes
IrDA	yes	yes	yes
Ethernet (10/100Mbps)	yes	None	None
H/W Monitoring	Winbond W83781D	Winbond W83781D	Winbond W83781D
Board Size	338mm x 124mm	338mm x 124mm	338mm x 124mm

1.1. PACKING LIST

The accessories are included with the system. Before you begin installing your AR-B1686 series board, take a moment to make sure that the following items have been included inside the AR-B1686 package.

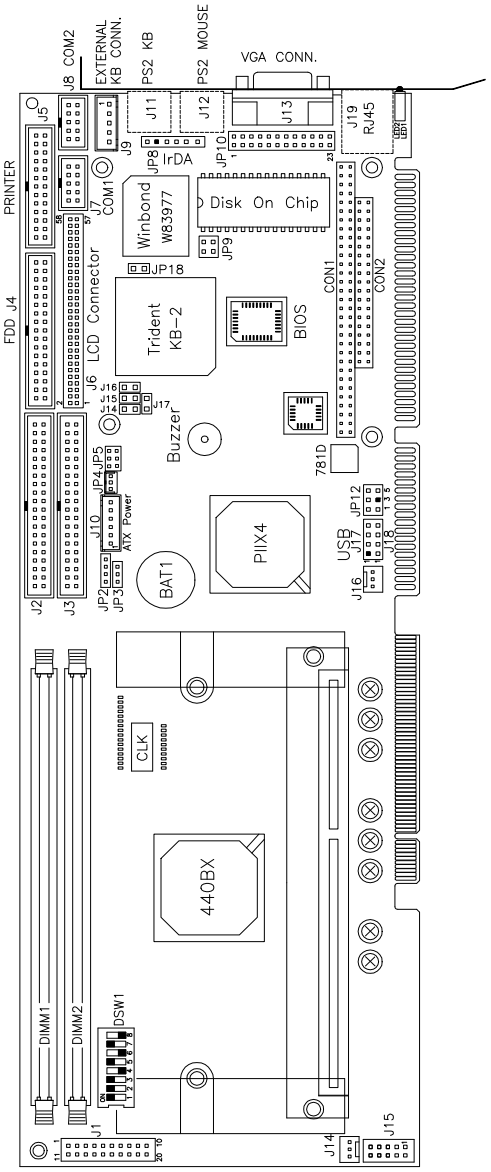
- The AR-B1686A Industrial CPU Card
- The quick setup Manual
- 1 IDE Ribbon Cable
- 1 Floppy Ribbon Connector
- 2 Serial Port Ribbon Cable and 1 Parallel Port Attached to a Mounting Bracket
- 1 Diskette Containing Intel PCI IDE Driver and Flash Memory Utility
- 2 Diskette Containing Trident 9525 VGA Driver (applies for AR-B1686A & AR-B1686)
- 1 Diskette Containing VIA VT86C100A LAN Driver (applies for AR-B1686A)
- 1 Diskette Containing System Monitor utility

2. Dimensions



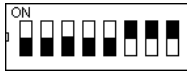
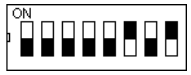
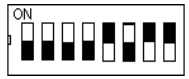
Unit: mil (1 inch = 25.4 mm = 1000 mil)

3. Placement



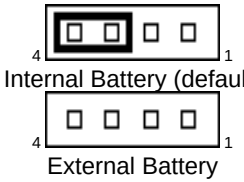
4. Jumper Locations on the AR-B1686A

4.1. DSW1 (1-8): CPU FREQUENCY SELECTOR

CPU Type	CPU Frequency	DSW1(1-8)
Klamath 66MHz Host Clock CPU	3.5 x 66MHz 233MHz	 off off off on off off on
	4 x 66MHz 266MHz	 off off off off on on on
	4.5 x 66MHz 300MHz	 off off off off off on off on
Deschutes 66MHz Host Clock CPU	5x 66MHz 333MHz	 off off off off off off on on
Deschutes 100MHz Host Clock CPU	3 x 100MHz 300MHz	 off off off off on off on on
	3.5 x 100MHz 350MHz	 off off off off on off off on
	4 x 100MHz 400MHz	 off off off off off on on on
	4.5 x 100MHz 450MHz	 off off off off off on off on
	5 x 100MHz 500MHz	 off off off off off on on on

NOTE: Switches DSW1(2), DSW1(3) and DSW1(4) should be left to its default setting of OFF. Do not reset these switches. For 'engineering sample' CPU, DSW1(1) can be used to set the CPU bus speed. For 66MHz, set this switch to ON; for 100MHz, this switch is OFF. For 'mass produced' CPU, DSW1(3) should be set to OFF for auto-detection of the CPU bus speed.

4.2. JP2: EXTERNAL BATTERY CONNECTOR

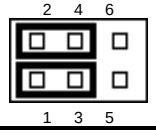
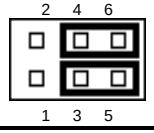


Pin #	Signal Name
1	Vcc
2	N.C.
3	Battery GND
4	Ground

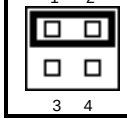
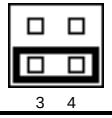
4.3. JP3: CLEAR CMOS CONTENT

JP3	Setting	Function
	Pin 2-3 Short/Closed	Clear CMOS Content
	Pin 1-2 Short/Closed	Normal Operation

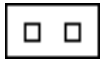
4.4. JP5: LCD POWER SETTING

3.3V Setting	5V Setting
	

4.5. JP9: DISKONCHIP BIOS EXPANSION ADDRESS SELECT

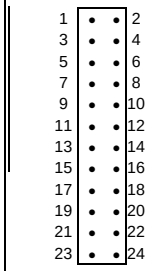
JP9	Address	JP9	Address
	D0000-D7FFF		D8000-DFFFF(default)

4.6. JP18: CRT/LCD DISPLAY SELECTION

JP18	Status	JP18	Status
 short	CRT Display	 open	LCD Display

4.7. JP10: RS232/422/485 (COM2) SELECTION

COM1 is fixed for RS-232 use only.
COM2 is selectable for RS232, RS-422 and RS-485.
The following table describes the jumper settings of this connector.

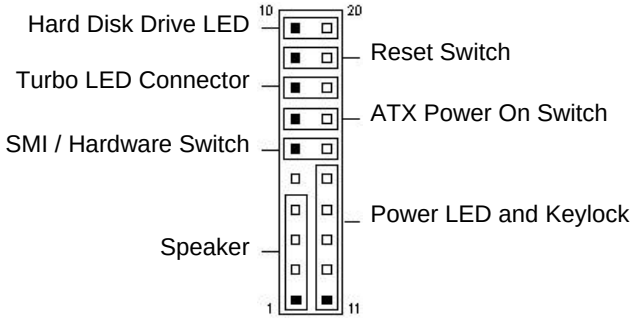
COM2 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	all jumpers open	1-2 3-4 5-6 7-8 11-12 15-16 17-18 19-20 23-24	1-2 3-4 5-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20 21-22 23-24
Jumper Illustration	 JP10	 JP10	 JP10

4.8. JP14, JP15, JP16, JP17: LCD PANEL TYPE SELECT

JP14	JP15	JP16	JP17	TFT LCD Panel
short	short	short	short	640 x 480 -18
short	open	short	short	800 x 600 -18
short	short	short	open	1024 x 768 -18
short	open	short	open	1024 x 768 -18+18
short	short	open	short	1280 x 1024 -18+18
JP14	**JP15**	**JP16**	**JP17**	**DSTN LCD Panel**
open	short	short	short	640 x 480 -16
open	open	short	short	800 x 600 -16
open	short	short	open	1024 x 768 -16
open	open	short	open	1024 x 768 -24
open	short	open	short	1280 x 1024 -24

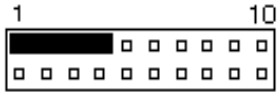
5. Connectors on the AR-B1686A

5.1. J1: FRONT BEZEL CONNECTOR



(1.) Speaker: Pins 1 - 4

This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.

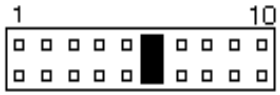


Pin #	Signal Name
1	Speaker out
2	No connect
3	Ground
4	+5V

(2.) Power LED and Keylock: Pins 11 – 15

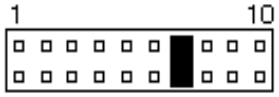
Pin #	Signal Name
11	Power LED
12	No connect
13	Ground
14	Keylock
15	Ground

(3.) SMI/Hardware Switch: Pins 6 and 16

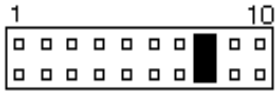


Pin #	Signal Name
6	Sleep
16	Ground

(4.) ATX Power ON Switch: Pins 7 and 17

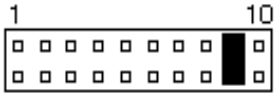


(5.) Turbo LED Connector: Pins 8 and 18

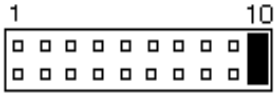


Pin #	Signal Name
8	5V
18	Ground

(6.) Reset Switch: Pins 9 and 19



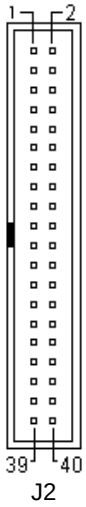
(7.) Hard Disk Drive LED Connector: Pins 10 and 20



Pin #	Signal Name
10	Ground
20	5V

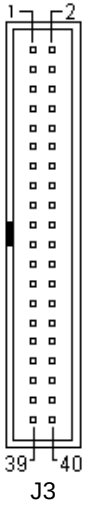
5.2. J2, J3: EIDE CONNECTORS

(1.) J2: Primary IDE Connector



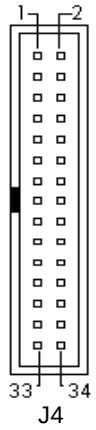
Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

(2.) J3: Secondary IDE Connector



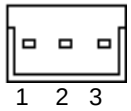
Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ1	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK1	29	30	Ground
IRQ15	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

5.3. J4: FLOPPY DRIVE CONNECTOR



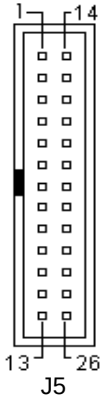
Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connect
Ground	5	6	No connect
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

5.4. JP4: WAKE ON LAN CONNECTOR



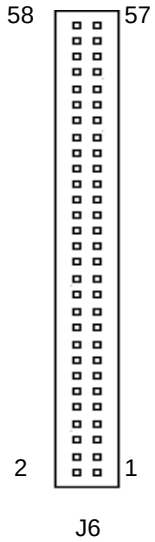
Pin #	Signal Name
1	+5VSB
2	Ground
3	Wake on LAN

5.5. J5: PARALLEL PORT CONNECTOR



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

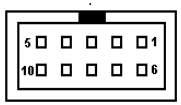
5.6. J6: FLAT PANEL LCD CONNECTOR



J6

Signal Name	Pin #	Pin #	Signal Name
+12V	1	2	+12V
GND	3	4	GND
+5V/3.3V	5	6	+5V/3.3V
ENPVEE	7	8	GND
PD0	9	10	PD1
PD2	11	12	PD3
PD4	13	14	PD5
PD6	15	16	PD7
PD8	17	18	PD9
PD10	19	20	PD11
PD12	21	22	PD13
PD14	23	24	PD15
PD16	25	26	PD17
PD18	27	28	PD19
PD20	29	30	PD21
PD22	31	32	PD23
GND	33	34	GND
SHFCLK	35	36	FLM
M	37	38	LP
GND	39	40	ENABKL
GND	41	42	PVDD
ENAVDD	43	44	+5V/3.3V
NC	45	46	NC
PD24	47	48	PD25
PD26	49	50	PD27
PD28	51	52	PD29
PD30	53	54	PD31
PD32	55	56	PD33
PD34	57	58	PD35

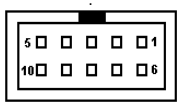
5.7. J7: COM1 SERIAL PORT



J7: COM1

Pin #	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator
10	NC

5.8. J8: COM2 SERIAL PORT



J8: COM2

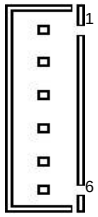
Pin #	Signal Name		
	RS-232	R2-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC

5.9. J9: EXTERNAL KEYBOARD CONNECTOR

J9

Pin #	Signal Name
1	Keyboard clock
2	Keyboard data
3	PG
4	GND
5	Vcc

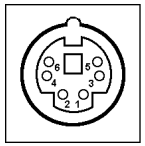
5.10. J10: EXTERNAL ATX POWER CONNECTOR



J10

Pin #	Signal Name
1	N.C.
2	GND
3	N.C.
4	GND
5	PS-ON (soft on/off)
6	5V SB (standby +5V)

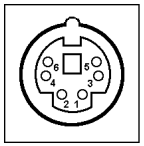
5.11.J11: PS/2 KEYBOARD CONNECTOR



J11

Pin #	Signal Name
1	Keyboard data
2	N.C.
3	GND
4	5V
5	Keyboard clock
6	N.C.

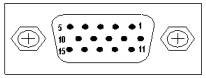
5.12. J12: PS/2 MOUSE CONNECTOR



J12

Pin #	Signal Name
1	Mouse data
2	N.C.
3	N.C.
4	5V
5	Mouse Clock
6	N.C.

5.13. J13: VGA CRT CONNECTOR

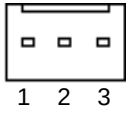


J13

Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

5.14. J14: CPU FAN POWER CONNECTOR

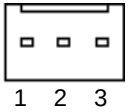
J14 is a 3-pin header for the CPU fan. The fan must be a 12V fan.



1 2 3

Pin #	Signal Name
1	Rotation
2	+12V
3	Ground

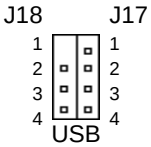
5.15. J16: CHASSIS FAN POWER CONNECTOR



1 2 3

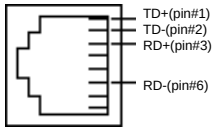
Pin #	Signal Name
1	Rotation
2	+12V
3	Ground

5.16. J17, J18: USB CONNECTORS

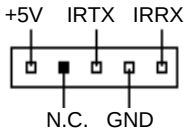


J18 Pin #	J17 Pin #	Signal Name
1	1	Vcc
2	2	USB-
3	3	USB+
4	4	Ground

5.17. J19: RJ45 CONNECTOR



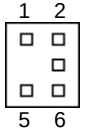
5.18. JP8: IRDA CONNECTOR



Pin #	Signal Name
1	+5V
2	No connect
3	Ir TX
4	Ground
5	Ir RX

5.19.JP12: SB-LINK CONNECTOR

This connector is used for Creative Sound AWE64D PCI sound card.



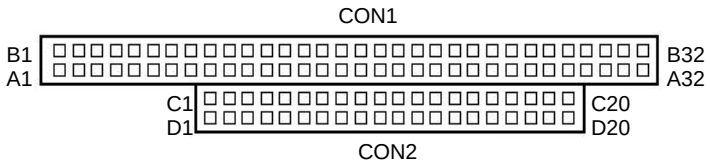
1 2

5 6

Pin #	Signal Name	Pin #	Signal Name
1	GNTA#	4	REQA#
2	Ground	5	Ground
3	N.C.	6	SERIRQ#

5.20. CON1, CON2: PC-104 CONNECTOR

CON1				CON2			
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
A1	IOCHK	B1	GND	C1	GND	D1	GND
A2	D7	B2	REST	C2	SBHE	D2	MEMCS16
A3	D6	B3	VCC	C3	LA23	D3	IOCS16
A4	D5	B4	IRQ9	C4	LA22	D4	IRQ10
A5	D4	B5	-5V	C5	LA21	D5	IRQ11
A6	D3	B6	DRQ2	C6	LA20	D6	IRQ12
A7	D2	B7	-12V	C7	LA19	D7	IRQ15
A8	D1	B8	OWS	C8	LA18	D8	IRQ14
A9	D0	B9	+12V	C9	LA17	D9	DACK0
A10	IOCHRDY	B10	GND	C10	MEMR	D10	DRQ0
A11	AEN	B11	SMEMW	C11	MEMW	D11	DACK5
A12	A19	B12	SMEMR	C12	D8	D12	DRQ5
A13	A18	B13	IOW	C13	D9	D13	DACK6
A14	A17	B14	IOR	C14	D10	D14	DRQ6
ZA15	A16	B15	DACK3	C15	D11	D15	DACK7
A16	A15	B16	DRQ3	C16	D12	D16	DRQ7
A17	A14	B17	DACK1	C17	D13	D17	VCC
A18	A13	B18	DRQ1	C18	D14	D18	MASTER
A19	A12	B19	REFRESH	C19	D15	D19	GND
A20	A11	B20	CLK	C20	KEY PIN	D20	GND
A21	A10	B21	IRQ7				
A22	A9	B22	IRQ6				
A23	A8	B23	IRQ5				
A24	A7	B24	IRQ4				
A25	A6	B25	IRQ3				
A26	A5	B26	DACK2				
A27	A4	B27	TC				
A28	A3	B28	BALE				
A29	A2	B29	VCC				
A30	A1	B30	OSC				
A31	A0	B31	GND				
A32	GND	B32	GND				



5.21. LED1, LED2: LAN ACTIVITY INDICATORS

- DSW1 (1-8): CPU Frequency Selector
- JP2: External Battery Connector
- JP3: Clear CMOS Content
- JP5: LCD Power Setting
- JP9: DiskOnChip BIOS Expansion Address Select
- JP10: RS232/422/485 (COM2) Selection
- JP14, JP15, JP16, JP17: LCD Panel Type Select
- JP18: CRT/LCD Display Selection
- J1: Front Bezel Connector
- J2, J3: EIDE Connectors
- J4: Floppy Drive Connector
- JP4: Wake On LAN Connector
- J5: Parallel Port Connector
- J6: LCD Panel Connector
  Panel Signal Mapping
- J7: COM1 Serial Port
- J8: COM2 Serial Port
- J9: External Keyboard Connector
- J10: External ATX Power Connector
- J11: PS/2 Keyboard Connector
- J12: PS/2 Mouse Connector
- J13: VGA CRT Connector
- J14: CPU Fan Power Connector
- J16: Chassis Fan Power Connector
- J17, J18: USB Connectors
- J19: RJ45 Connector
- JP8: IrDA Connector
- JP12: SB-Link Connector
- CON1, CON2: PC-104 Connector
- LED1, LED2: LAN Activity Indicators

CAUTION: The detail description manual file was attached in the software utility diskette.