

# **IB700**

Full-Size Socket 370 CPU Card  
With Optional VGA/LAN/SCSI

## **USER'S MANUAL**

Version 1.0B

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# Introduction

## Product Description

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IB700 is a high-performance flexible CPU card that comes with two built-in MicroPCI Sockets that supports MicroPCI daughter cards with VGA, VGA/LAN, Ethernet (LAN), and SCSI functions. It is based on the Intel 440BX AGPset and features a Socket 370 architecture that supports Intel Celeron and Coppermine processors using 66MHz and 100MHz front side bus respectively.

System memory is provided by three DIMM sockets that accommodate up to 768MB SDRAM. The Award BIOS facilitates easy system configuration and peripheral setup. Other advanced features include *DiskOnChip flash disk support*, watchdog timer, USB and IrDA interface.

*DiskOnChip flash disks* are storage devices that has no moving parts and emulates FDD/HDD with Flash/RAM/ROM offering reliable data/program storage and long life span. They are reliable and suitable for industrial or other harsh environments characterized by motion, shock, vibration, adverse temperature, dust and humidity. Other features include faster data access, longer MTBF, lower power consumption, cost effective for small capacity and small form factor.

The IB700 CPU card is designed with all components placed on a single side, thus, offering stable performance in a harsh industrial environment.

## Checklist

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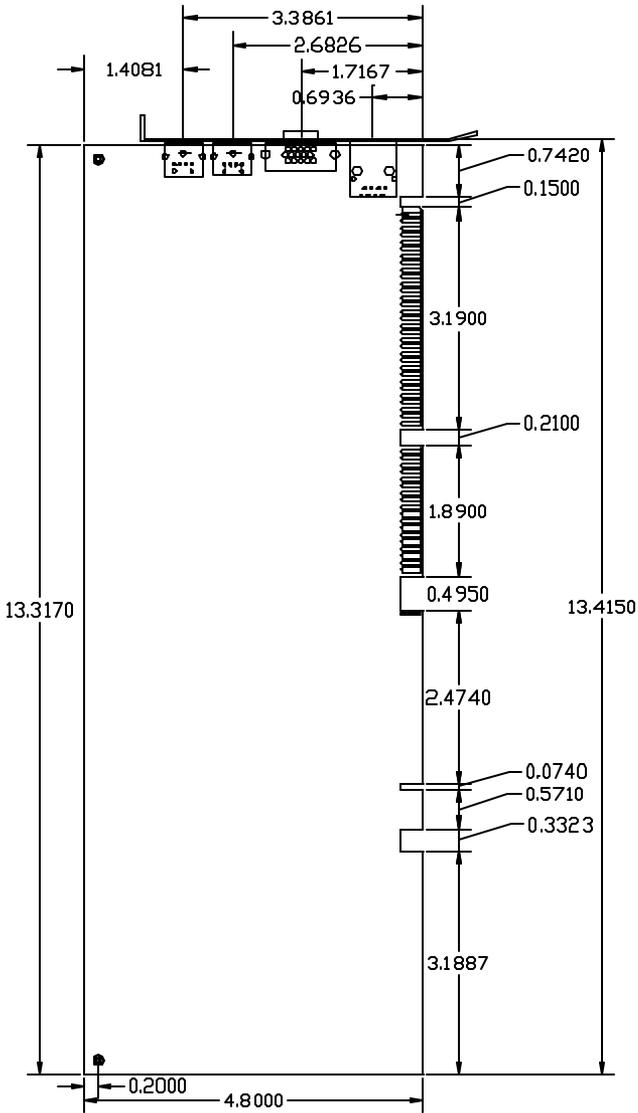
Your IB700 package should include the items listed below.

- The IB700 Industrial CPU Card
- This User's Manual
- 1 IDE Ribbon Cable
- 1 Floppy Ribbon Connector
- 2 Serial Port Ribbon Cable and 1 Parallel Port Attached to a Mounting Bracket
- 1 CD containing the following:
  - Intel PCI IDE Driver and Flash Memory Utility
  - CHIPS C&T 69000 VGA Drivers
  - Ethernet Drivers
  - Initio Inic1060 Ultra2 SCSI Drivers

## Specifications

<b>Processor Supported</b>	Socket 370 support Intel Celeron / Coppermine, 300MHz~850MHz, 66MHz/100MHz Bus Speed
<b>Chipset</b>	Intel 440BX AGPset
<b>BIOS</b>	Award BIOS Supports ACPI, DMI, PnP
<b>System Memory</b>	3x DIMM sockets support up to 768MB capacity ECC supported
<b>Multi I/O Chipset</b>	Winbond W83977TF (keyboard controller is built-in)
<b>I/O Features</b>	1x FDD (up to 2.88MB, 3 Mode, LS120) 1x Parallel Port (EPP, ECP Port) 2x Serial Ports (1x RS232 and 1x RS232/422/485) 1x IrDA TX/RX Headers
<b>Bus Master IDE</b>	2x IDE interfaces for up to 4 devices; supports PIO Mode 3/4 or Ultra DMA/33 IDE HDD, and ATAPI CD-ROM
<b>VGA (option)</b>	Using <b>IBD69</b> MicroPCI VGA card or <b>IBD99</b> MicroPCI VGA/LAN Combo card that features: CHIPS 69000 PCI VGA accelerator CRT & LCD panel support 2MB integrated memory
<b>Ethernet (option)</b>	Using <b>IBD59</b> MicroPCI LAN card or <b>IBD99</b> MicroPCI VGA/LAN Combo card that features: Intel 82559 Fast Ethernet controller 10/100Mbps data transfer speeds WakeOnLAN support
<b>SCSI (option)</b>	Using IBD60 MicroPCI LAN SCSI card featuring: Initio Inic1060 Ultra 2 SCSI controller Built-in Ultra2 SCSI connector
<b>Hardware Monitoring</b>	Winbond W83781D IC Monitors CPU/system temperature and voltages
<b>SSD Interface</b>	Support M-Systems 2MB~144MB DiskOnChip flash disk
<b>Other Features</b>	Watchdog timer, ISA high drive, PICMG compliance
<b>Form Factor</b>	Full Size
<b>Dimensions</b>	338mm x 122mm (13.3" x 4.8")
<b>Power Requirements</b>	+5V : 12A (max) +/-12V : 200mA (max)

# Board Dimensions



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## Installations

This section provides information on how to use the jumpers and connectors on the IB700 in order to set up a workable system. The topics covered are:

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## Installing the CPU

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The IB700 CPU card supports a Socket 370 processor socket for Intel Celeron/Coppermine processors.

The Socket 370 processor socket comes with a lever to secure the processor. Raise this lever to about a 90° angle to allow the insertion of the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, return the lever to the lock position. After you have installed the processor into the socket, check if the jumpers for the CPU type and speed are correct.

***NOTE:** Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.*

## MicroPCI Daughter Card Installation

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The IB700 CPU card is integrated with two **MicroPCI sockets** that use SO-DIMM 144-pin connectors. These sockets can accommodate the VGA, Ethernet or SCSI MicroPCI daughter cards.

To insert a MicroPCI daughter card, position it at about 30° (Figure 1) to the PCB and gently push it into the MicroPCI socket. Once inserted, slowly press the card towards the PCB until it locks on both sides to the clips of the connector (Figure 2). Screw the card to the PCB to secure the installation.

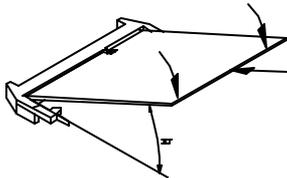


Figure 1.

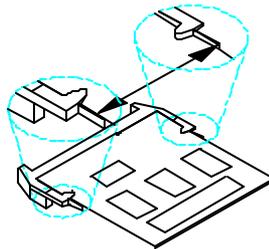


Figure 2.

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## Installing the Memory (DIMM)

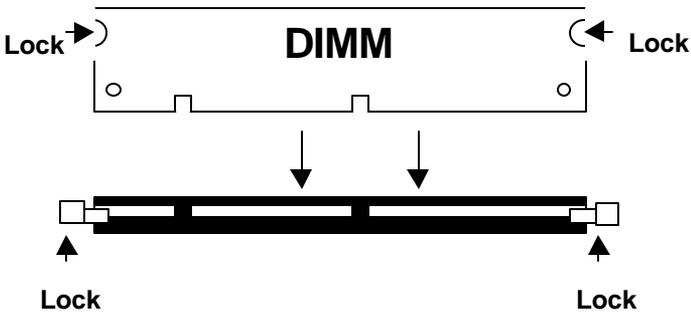
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The IB700 CPU Card supports three 168-pin DIMM socket for a maximum total memory of 768MB in SDRAM type. The memory module capacities supported are 32MB, 64MB, 128MB and 256MB.

### Installing and Removing DIMMs

To install the DIMM, locate the memory slot on the CPU card and perform the following steps:

1. Hold the DIMM so that the two keys of the DIMM align with those on the memory slot.
2. Gently push the DIMM in an upright position until the clips of the slot close to hold the DIMM in place when the DIMM touches the bottom of the slot.
3. To remove the DIMM, press the clips with both hands.



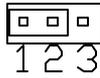
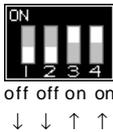
**Top View of DIMM Socket**

## Setting the Jumpers

Jumpers are used on IB700 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on IB700 and their respective functions.

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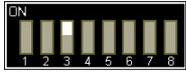
*The following conventions are used in this section:*



Pin 1-2  
Short/Closed

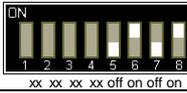
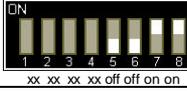
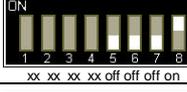
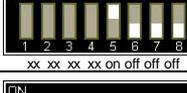


**DSW1 (3): CPU Bus Speed Selector**

Bus Speed	SW1 (3)	Switch Setting
100MHz		off
66MHz		on

**DSW1 (5-8): CPU Frequency Selector**

The table below shows the correct setting to match the CPU frequency.

Frequency Multiplier	CPU Frequency (66MHz)	CPU Frequency (100MHz)	SW1(5-8)
4.5X	300MHz	450MHz	 xx xx xx xx off on off on
5X	333MHz	500MHz	 xx xx xx xx off on on on
5.5X	366MHz	550MHz	 xx xx xx xx off off on on
6X	400MHz	600MHz	 xx xx xx xx on on on off
6.5X	433MHz	650MHz	 xx xx xx xx on on off off
7X	466MHz	700MHz	 xx xx xx xx on on on off
7.5X	500MHz	750MHz	 xx xx xx xx on off off off
8X	533MHz	800MHz	 xx xx xx xx off on on off

**\*IB700 BIOS can detect 850MHz CPU and no switch setting is required.**

**JP3: Onboard LAN Enable/Disable (IBD99)**

JP3	Setting	LAN Function
	Pin 1-2 Short/Closed	Enabled
	Pin 2-3 Short/Closed	Disabled

**JP4: Onboard C&T VGA Enable/Disable (IBD99)**

JP4	Setting	VGA Function
	Pin 1-2 Short/Closed	Enabled
	Pin 2-3 Short/Closed	Disabled

**JP5: Watchdog Selection**

JP5	Setting	Function
	Pin 1-2 Short/Closed	Reset
	Pin 2-3 Short/Closed	NMI

**JP6: DiskOnChip Address Select**

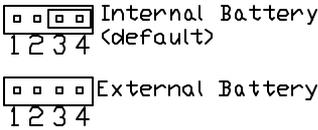
JP6	Address
	D0000-D7FFF
	D8000-DFFFF (default)

**JP8: Clear CMOS Content**

JP8	Setting	Function
	Pin 1-2 Short/Closed	Normal Operation
	Pin 2-3 Short/Closed	Clear CMOS Content

**JP9: External Battery Connector**

This 4-pin connector allows the user to connect an external battery to maintain the information stored in the CMOS RAM in case the built-in battery malfunctions.



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

**JP10, JP11, JP12 : 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 for COM2 selection.

COM2 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	JP10: 1-2	JP10: 3-4	JP10: 5-6
	JP11: 3-5 & 4-6	JP11: 1-3 & 2-4	JP11: 1-3 & 2-4
	JP12: 3-5 & 4-6	JP12: 1-3 & 2-4	JP12: 1-3 & 2-4

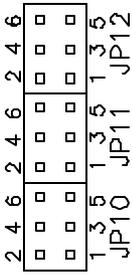


Diagram showing three 6-pin connectors labeled JP10, JP11, and JP12. JP10 has pins 1-2 connected, JP11 has pins 1-3 and 2-4 connected, and JP12 has pins 1-3 and 2-4 connected.

**JP2: LCD Power Setting (IBD99/69)**

The IBD99/69 C&T 69000 VGA MicroPCI daughter card supports 5V and 3.3V power. Use JP2 to select the power setting.

3.3V Setting	5V Setting
 1 2 3	 1 2 3

## Connectors on IB700

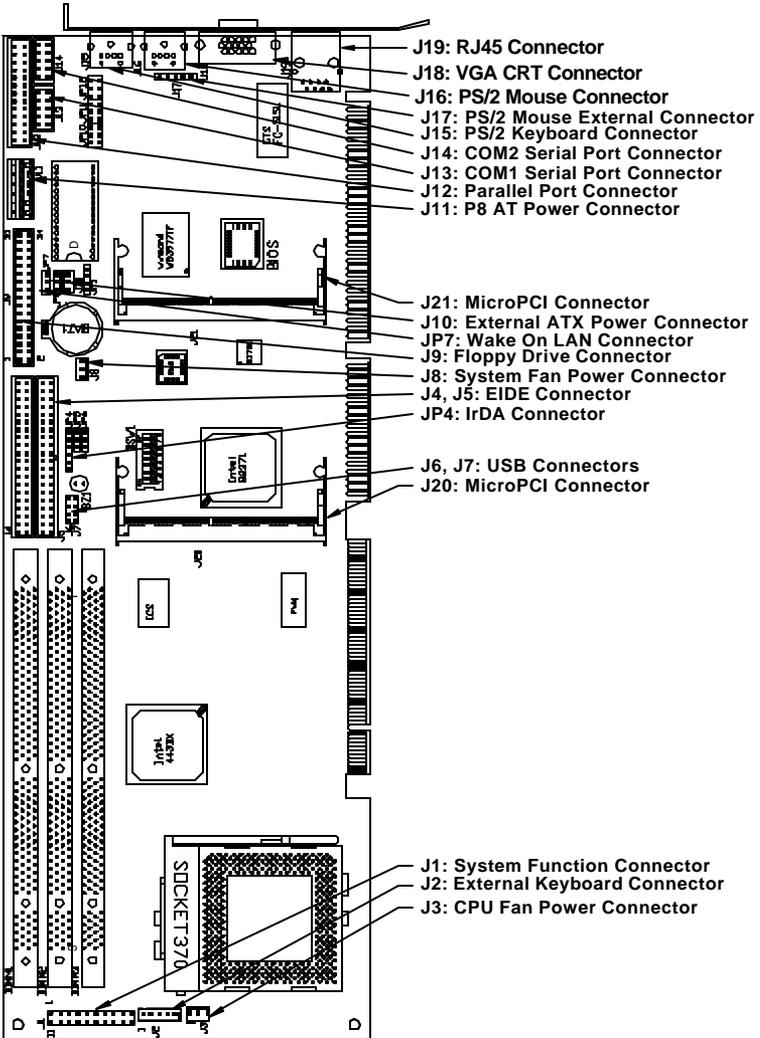
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The connectors on IB700 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on IB700 and their respective functions.

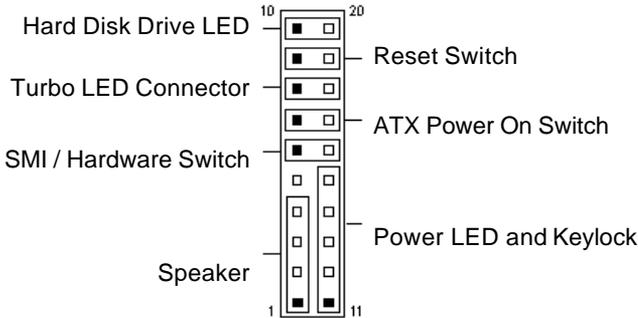
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Connector Locations on IB700



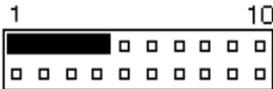
**J1: System Function Connector**

J1 provides connectors for system indicators that provides light indication of the computer activities and switches to change the computer status. J1 is a 20-pin header that provides interfaces for the following functions.



**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

**Power LED and Keylock: Pins 11 - 15**

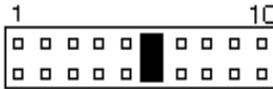
The power LED indicates the status of the main power switch. The keylock switch, when closed, will disable the keyboard function.



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

**SMI/Hardware Switch: Pins 6 and 16**

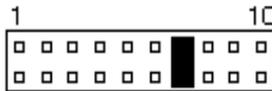
This connector supports the "Green Switch" on the control panel, which, when pressed, will force the system into the power-saving mode immediately.



Pin #	Signal Name
6	Sleep
16	Ground

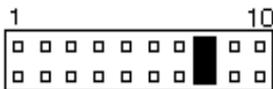
**ATX Power ON Switch: Pins 7 and 17**

This 2-pin connector is an "ATX Power Supply On/Off Switch" on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.



**Turbo LED Connector: Pins 8 and 18**

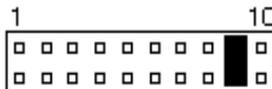
There is no turbo/deturbo function on the CPU card. The Turbo LED on the control panel will always be On when attached to this connector.



Pin #	Signal Name
8	5V
18	Ground

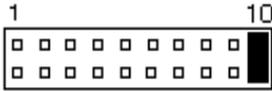
**Reset Switch: Pins 9 and 19**

The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.



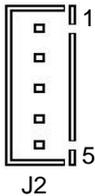
**Hard Disk Drive LED Connector: Pins 10 and 20**

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.



Pin #	Signal Name
10	Ground
20	5V

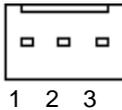
**J2: External Keyboard Connector**



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

**J3: CPU Fan Power Connector**

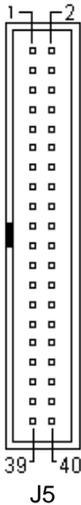
J3 is a 3-pin header for the CPU fan. The fan must be a 12V fan.



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

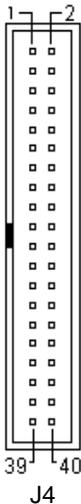
**J4, J5: EIDE Connectors**

**J5: 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

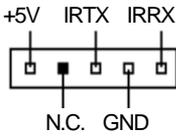
**J4: Secondary IDE Connector**



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

**JP4: IrDA Connector**

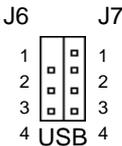
JP4 is used for an IrDA connector for wireless communication.



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

**J6, J7: USB Connectors**

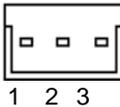
The following table shows the pin outs of the USB connectors.



J6 Pin #	J7 Pin #	Signal Name
1	1	Vcc
2	2	USB-
3	3	USB+
4	4	Ground

**JP7: Wake On LAN Connector**

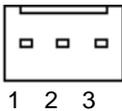
JP7 is a 3-pin header for the Wake On LAN function on the CPU card. The following table shows the pin out assignments of this connector. Wake On LAN will function properly only with an ATX power supply with 5VSB that has 200mA.



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

**J8: System Fan Power Connector**

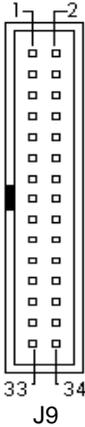
J8 is a 3-pin header for the system fan. The fan must be a 12V fan.



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

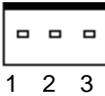
**J9: Floppy Drive Connector**

J9 is a 34-pin header and will support up to 2.88MB floppy drives.



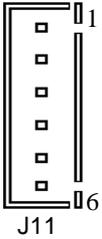
Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connect
Ground	5	6	No connect
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	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

**J10: External ATX Power Connector**



Pin #	Signal Name
1	5VSB (Standby +5V)
2	PS-ON (soft on/of)
3	Ground

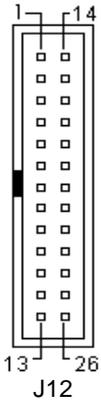
**J11: P8 AT Power Connector**



Pin #	Signal Name
1	N.C.
2	+5V
3	+12V
4	-12V
5	Ground
6	Ground

**J12: Parallel Port Connector**

The following table describes the pin out assignments of this connector.



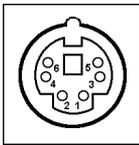
Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
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

**J13, J14: COM1, COM2 Serial Port**

J13 and J14, both 10-pin headers, are the onboard serial port connectors of the IB700. The following table shows the pin assignments of these connectors.

J13 fixed as RS-232	Pin #	Signal Name		
		RS-232	RS-422	RS-485
J14 configurable as RS-232/ RS-422/485 with jumpers JP10/11/12 (refer to p.12)	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

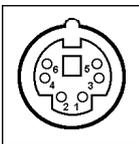
**J15: PS/2 Keyboard Connector**



J15

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

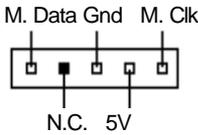
**J16: PS/2 Mouse Connector**



J16

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

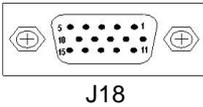
**J17: PS/2 Mouse External Connector**



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

**J18: VGA CRT Connector**

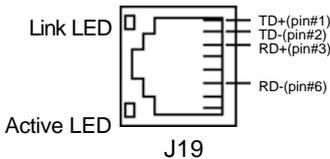
The pin assignments of the J18 VGA CRT connector are as follows:



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		

**J19: RJ45 Connector**

This connector is for the 10/100Mbps Ethernet capability of the CPU card. The figure below shows the pin out assignments of this connector and its corresponding input jack.

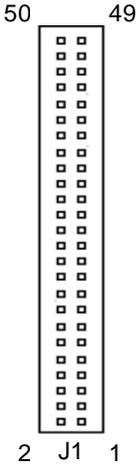


**J20, J21: MicroPCI Connectors**

J20 and J21 are MicroPCI connectors supporting MicroPCI daughter cards with VGA, Ethernet or SCSI function.

**J1: LCD Panel Connector (IBD69)**

The IBD69 C&T 69000 VGA MicroPCI daughter card supports LCD panels. Use J1 to connect the system to an LCD panel.



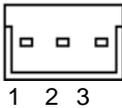
Signal Name	Pin #	Pin #	Signal Name
GND	1	2	P33
P34	3	4	P31
P35	5	6	P32
P30	7	8	P28
P29	9	10	P27
P25	11	12	P26
P24	13	14	P21
P23	15	16	P22
P16	17	18	P20
P17	19	20	P18
P19	21	22	P14
P13	23	24	P12
P15	25	26	P11
P7	27	28	P10
5V or 3.3V	29	30	5V or 3.3V
P9	31	32	P8
P4	33	34	P6
P3	35	36	P5
P2	37	38	P1
M	39	40	P0
SHFCLK	41	42	ENABKL
FPVDD	43	44	FLM(V SYNC)
FPVEE	45	46	LP(H SYNC)
GND	47	48	GND
+12V	49	50	+12V

**Flat Panel Display Interface Pin Descriptions**

	Mono	Mono	Mono	Color	Color	Color	Color	Color	Color	Color	Color	Color	Color
Pin Name	SS 8-bit	DD 8-bit	DD 16-bit	TFT 9/12/16 bit	TFT 18/24 bit	TFT 36-bit	TFT 18/24 bit	TFT+HR 8-bit (4bP)	STN-SS 16-bit (4bP)	STN-SS 8-bit (4bP)	STN-DD 16-bit (4bP)	STN-DD 24-bit	
P0	D0	UD3	UD7	B0	B0	FB0	FB0	R1	R1	UR1	UR0	UR0	
P1	D1	UD2	UD6	B1	B1	FB1	FB1	B1	G1	UG1	UG0	UG0	
P2	D2	UD1	UD5	B2	B2	FB2	FB2	G2	B1	UB1	UB0	UB0	
P3	D3	UD0	UD4	B3	B3	FB3	FB3	B3	R2	UR2	UR1	LR0	
P4	D4	LD3	UD3	B4	B4	FB4	SB0	G4	G3	LR1	LR0	LG0	
P5	D5	LD2	UD2	G0	B5	FB5	SB1	R5	B2	LG1	LG0	LB0	
P6	D6	LD1	UD1	G1	B6	SB0	SB2	B5	R3	LB1	LB0	UR1	
P7	D7	LD0	UD0	G2	B7	SB1	B3		G3	LR2	LR1	UG1	
P8			LD7	G3	G0	SB2	FG0		B3		UG1	UB1	
P9			LD6	G4	G1	SB3	FG1		R4		UB1	LR1	
P10			LD5	G5	G2	SB4	FG2		G4		UR2	LG1	
P11			LD4	R0	G3	SB5	FG3		B4		UG2	LB1	
P12			LD3	R1	G4	FG0	SG0		R5		LG1	UR2	
P13			LD2	R2	G5	FG1	SG1		G5		LB1	UG2	
P14			LD1	R3	G6	FG2	SG2		B5		LR2	UB2	
P15			LD0	R4	G7	FG3	SG3		G6		LG2	LR2	
P16					R0	FG4	FR0					LG2	
P17					R1	FG5	FR1					LB2	
P18					R2	SG0	FR2					UR3	
P19					R3	SG1	FR3					UG3	
P20					R4	SG2	SR0					LR3	
P21					R5	SG3	SR1					LG3	
P22					R6	SG4	SR2					LB3	
P23					R7	SG5	SR3						
P24						FR0							
P25						FR1							
P26						FR2							
P27						FR3							
P28						FR4							
P29						FR5							
P30						SR0							
P31						SR1							
P32						SR2							
P33						SR3							
P34						SR4							
P35						SR5							
SHFCLK	SHFCLK K	SHFCLK K	SHFCLK K	SHFCLK	SHFCLK K	SHFCLK K	SHFCLK K	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	
Pixels/Clk:	8	8	16	1	1	2	2	2-2/3	5-1/3	2-2/3	5-1/3	8	

**JP1: WakeOnLAN Connector (IBD59)**

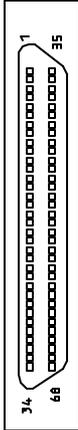
The IBD59 Intel 82559 LAN MicroPCI daughter card supports the JP1 WakeOnLAN connector. The following table shows the pin out assignments of this connector. WakeOnLAN will function properly only with an ATX power supply with 5VSB that has 800mA.



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

**J1: Ultra2 SCSI Connector (IBD60)**

The IBD60 Initio Inic1060 SCSI MicroPCI daughter card supports a 68-pin SCSI connector. The table below shows its pin-out assignments.



Signal Name	Pin #	Pin #	Signal Name
LVDP12	1	35	LVDM12
LVDP13	2	36	LVDM13
LVDP14	3	37	LVDM14
LVDP15	4	38	LVDM15
LVDPHP	5	39	LVDPHM
LVDP0	6	40	LVDM0
LVDP1	7	41	LVDM1
LVDP2	8	42	LVDM2
LVDP3	9	43	LVDM3
LVDP4	10	44	LVDM4
LVDP5	11	45	LVDM5
LVDP6	12	46	LVDM6
LVDP7	13	47	LVDM7
LVDP1P	14	48	LVDP1M
GROUND	15	49	GROUND
DFFSENSE	16	50	LVEXT68
GROUND	17	51	LVTRMPWR
LVTRMPWR	18	52	LVTRMPWR
LVTRMPWR	19	53	N.C.
GROUND	20	54	GROUND
LVATNP	21	55	LVATNM
GROUND	22	56	GROUND
LVBSYP	23	57	LVBSYM
LVACKP	24	58	LVACKM
LVRSTP	25	59	LVRSTM
LVMSGP	26	60	LVMSGM
LVSELP	27	61	LVSELM
LVCDP	28	62	LVCDM
LVREQP	29	63	LVREQM
LVIOP	30	64	LVIOM
LVDP8	31	65	LVDM8
LVDP9	32	66	LVDM9
LVDP10	33	67	LVDM10
LVDP11	34	68	LVDM11

## Watchdog Timer Configuration

The function of the watchdog timer is to reset the system automatically and is defined at I/O port 0443H. To enable the watchdog timer and allow the system to reset, write I/O port 0443H. To disable the timer, write I/O port 0441H for the system to stop the watchdog function. The timer has a tolerance of 20% for its intervals.

The following describes how the timer should be programmed.

### Enabling Watchdog:

```
MOV AX, 000FH (Choose the values from 0)
MOV DX, 0443H
OUT DX, AX
```

### Disabling Watchdog

```
MOV AX, 00FH (Any value is fine.)
MOV DX, 0441H
OUT DX, AX
```

WATCHDOG TIMER CONTROL TABLE

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	16
2	E	2	10	6	18
3	D	4	11	5	20
4	C	6	12	4	22
5	B	8	13	3	24
6	A	10	14	2	26
7	9	12	15	1	28
8	8	14	16	0	30

