

IP350

3U CompactPCI
ETX Base Board

USER'S MANUAL

Version 1.0

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Introduction

Product Description

The IP350 3U CompactPCI ETX baseboard is designed for ETX CPU modules as an interface platform. It packs all the PC connectors for the ETX CPU module to be a high-performance functional embedded board.

The IP350 includes the following features:

- Dual 10/100Mbps LAN or dual Gigabit LAN on board
- TI Ti2150 PCI to PCI Bridge
- LSI 53C1000 SCSI Controller (160MB/s)
- Dual Gigabit or 10/100Mbps RJ45 Connectors
- One 10/100Mbps RJ45 Connector
- Dual IDE channels
- PS/2 type Keyboard and Mouse Connectors
- DB15 VGA Connector
- LVDS Panel Signal (rear side)
- CF Card Socket for Type I Cards
- COM1 and COM2 Connectors
- 6 PCB Layers
- 160mm x 100mm Board Size

The board has three RJ45 connectors on board. One of them supports the Ethernet function featured on the ETX module that is used. Another two connectors support either two 10/100Mbps LAN or two Gigabit LAN on the baseboard.

The IP350 comes with an extension interface card that sits on top of the first layer connectors. The card is IP350R which has connectors for printer port, 3rd and 4th USB connectors, COM1 D-sub connector and COM2 serial port pin header.

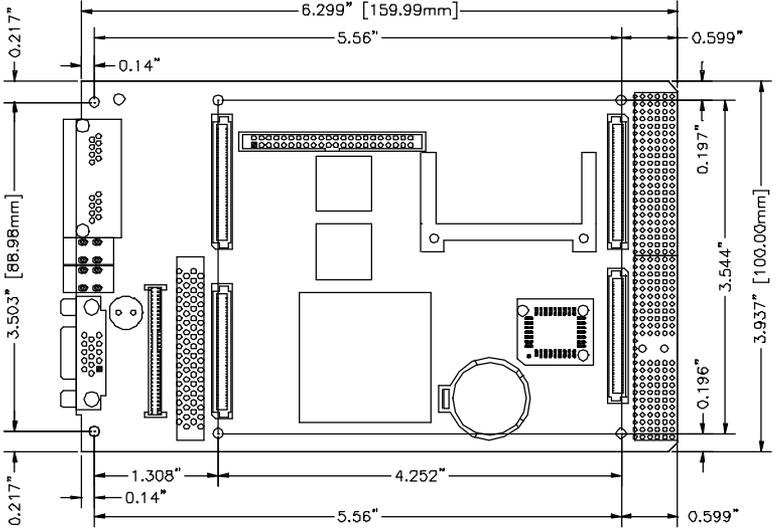
The Compact Flash connector on board is for CompactFlash Type I memory cards. A Compact Flash memory card is a solid state disk card with a 50pin connector. The pins provide a connection between the memory and the Compact Flash drive. Compact Flash cards are designed with flash technology, a non-volatile storage solution that does not lose its information once power is removed from the card. The cards contain no moving parts and are extremely rugged, providing much greater protection of data than conventional magnetic disk drives.

Checklist

Your IP350 package should include the items listed below. Damaged or missing items should be reported to your supplier.

- The IP350 3U CompactPCI Baseboard
- The IP350R Daughter Board
- One CD disk containing the necessary drivers
- Standard /optional cables such as:
 - 1 44-pin IDE Ribbon Cable
 - 1 COM Port Cable (optional)
 - 1 Printer Port Cable (optional)
 - 1 PS/2 Keyboard/Mouse Cable
 - 1 26-pin FDD Flat Cable

Board Dimensions



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Installations

This section provides information on how to use the jumpers and connectors on the IP350 in order to set up a workable system. The topics covered are:

Setting the Jumpers	6
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Setting the Jumpers

Jumpers are used on the IP350 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 IP350 and their respective functions.

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JP7: Primary LAN Enable / Disable	9
JP8: Reserved.....	9
JP9: System Power Good Enable/Disable.....	9

JP1: CF Socket Master/Slave Select

JP1	Setting	Function
 1 2	Short/Closed	Master
 1 2	Open	Slave

JP2: Reserved

JP3: SCSI Terminator Enable/Disable

JP3	Setting	SCSI Terminator
 1 2 3	Pin 1-2 Short/Closed	Enabled
 1 2 3	Pin 2-3 Short/Closed	Auto
 1 2 3	Pins Open	Disabled

JP4: ETX Module Selection

JP4	Setting	ETX Module User
 1 2 3	Pin 1-2 Short/Closed	Other ETX Modules (Default)
 1 2 3	Pin 2-3 Short/Closed	ET815

JP5: PCI to PCI Bridge Enable/Disable

JP5	Setting	PCI to PCI Bridg
 1 2 3	Pin 1-2 Short/Closed	Disable
 1 2 3	Pin 2-3 Short/Closed	Enabled (Default)

JP6: Secondary LAN Enable / Disable

JP6	Setting	Secondary LAN
 1 2 3	Pin 1-2 Short/Closed	Enabled
 1 2 3	Pin 2-3 Short/Closed	Disabled

JP7: Primary LAN Enable / Disable

JP7	Setting	Primary LAN
 1 2 3	Pin 1-2 Short/Closed	Enabled
 1 2 3	Pin 2-3 Short/Closed	Disabled

JP8: Reserved

JP9: System Power Good Enable/Disable

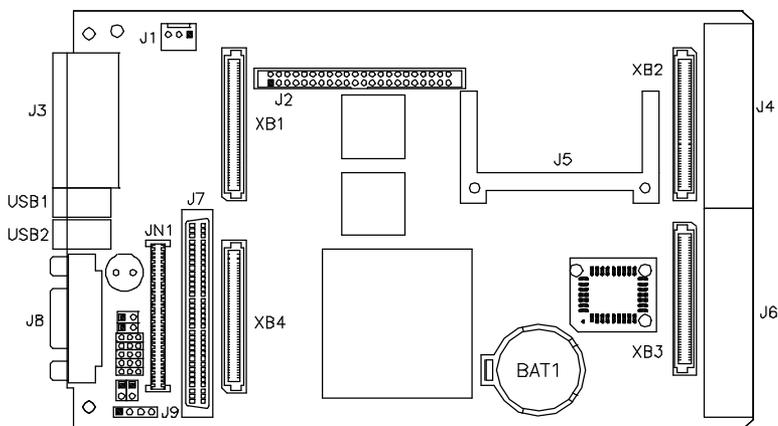
JP9	Setting	Function
 1 2	Short/Closed	Enabled (Default)
 1 2	Open	Disabled

Connectors on IP350

The connectors on IP350 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on IP350 and their respective functions.

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Connector Locations on IP350 / IP350R

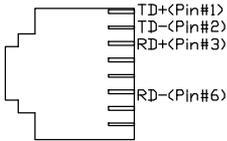


Connectors on IP350

- J1: 10/100M RJ45 Connector (on IP350R)
- J2: Keyboard/Mouse Connector (on IP350R)
- J3: TV Out Connector (on IP350R)
- J4: Printer Port Pin Header (on IP350R)
- J5: USB2/USB3 Pin Header (on IP350R)
- J6, J7: COM1 / COM2 Serial Ports (on IP350R)
- J1: System Fan Power Connector
- J2: IDE Connector
- J3: Dual LAN Connectors
- J5: Compact Flash (CF) Socket
- J7: SCSI Connector (Optional)
- J8: VGA CRT Connector
- USB1, USB2: 1st and 2nd USB Connectors
- J1, J2: CompactPCI Slot Connector

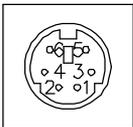
J1: 10/100M RJ45 Connector (on IP350R)

J1 is the RJ45 connector beside the keyboard/mouse PS/2 connector on the IP350R interface daughter board. See below for the respective pin assignments.



J2: Keyboard/Mouse Connector (on IP350R)

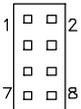
J2 is used with a Y-cable with dual D-connectors to support a PS/2 keyboard and a PS/2 mouse.



J2

Pin #	Signal Name
1	Keyboard data
2	Mouse data
3	Ground
4	Vcc
5	Keyboard Clock
6	Mouse Clock

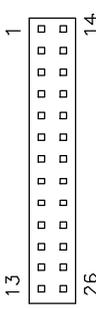
J3: Optional TV Out Connector (on IP350R)



Signal Name	Pin #	Pin #	Signal Name
Comp	1	2	Ground
S-Y	3	4	S-C
NC	5	6	NC
Comp	7	8	NC

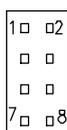
NOTE: This connector usable only depending on the system board if the TV out function is supported or not.

J4: Printer Port Pin Header (on IP350R)



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	2	AutoFeed
PD0, parallel data 0	3	4	Error
PD1, parallel data 1	5	6	Initialize
PD2, parallel data 2	7	8	Select
PD3, parallel data 3	9	10	Ground
PD4, parallel data 4	11	12	Ground
PD5, parallel data 5	13	14	Ground
PD6, parallel data 6	15	16	Ground
PD7, parallel data 7	17	18	Ground
ACK, acknowledge	19	20	Ground
Busy	21	22	Ground
Paper empty	23	24	Ground
Select	25	26	N/A

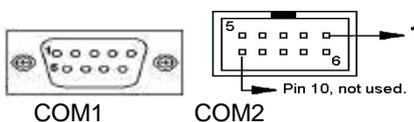
J5: USB2/USB3 Pin Header (on IP350R)



Signal Name	Pin	Pin	Signal Name
Vcc	1	2	Ground
USB2-	3	4	USB3-
USB2+	5	6	USB3+
Ground	7	8	Vcc

J6, J7: COM1 / COM2 Serial Ports (on IP350R)

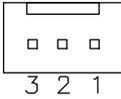
J6 (COM1) is a DB-9 connector, while J7 (COM2) is a pin header connector. Refer to the table below for their pin assignments.



Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

J1: System Fan Power Connector

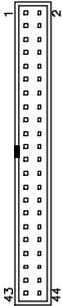
J1 is a 3-pin header for the system fan. The fan must be a 12V fan.



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

J2: IDE Connector

J2 is the 44-pin IDE connector that can connect to your IDE devices.



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
Vcc	41	42	Vcc
Ground	43	44	N.C.

J3: Dual LAN Connectors

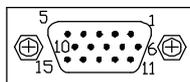
The two LAN connectors, supporting either two 10/100 Mbps LAN or two Gigabit LAN controller, are on board the IP350 baseboard side by side to each other.

J5: Compact Flash (CF) Socket

J7: SCSI Connector (Optional)

J8: VGA CRT Connector

The pin assignments of the J8 VGA CRT connector are as follows:



J8

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		

USB1, USB2: 1st and 2nd USB Connectors

The USB1 and USB2 USB connectors are on the IP350 base board and situated between the Gigabit LAN connectors and the VGA CRT connector. USB 1.1 data transfer rate is supported.

J1, J2: CompactPCI Slot Connector

J1 CompactPCI Connector

Type	2mm (IEC1076-4-101)
	110
	J1

J1 Pin Assignment

Pin #	A	B	C	D	E	(F)
25	5V	REQ64#	ENUM#	3.3V	5V	GND
24	AD[1]	5V	V(I/O)	AD[0]	ACK64#	GND
23	3.3V	AD[4]	AD[3]	5V	AD[2]	GND
22	AD[7]	GND	3.3V	AD[6]	AD[5]	GND
21	3.3V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	3.3V	AD[15]	AD[14]	GND	AD[13]	GND
18	SERR#	GND	3.3V	PAR	C/BE[1]#	GND
17	3.3V	SDONE	SBO#	GND	PERR#	GND
16	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	3.3V	FRAME#	IRDY#	GND	TRDY#	GND
12-14	KEY AREA					
11	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	AD[21]	GND	3.3V	AD[20]	AD[19]	GND
9	C/BE[3]#	IDSEL	AD[23]	GND	AD[22]	GND
8	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	REQ#	GND	3.3V	CLK	AD[31]	GND
5	BRSVP1A5	BSVP1B5	RST#	GND	GNT#	GND
4	BRSVP1A4	GND	V(I/O)	INTP	INTS	GND
3	INTA#	INTB#	INTC#	5V	INTD#	GND
2	TCK	5V	TMS	TDO	TDI	GND
1	5V	-12V	TRST#	+12V	5V	GND

J2 CompactPCI Connector

Type	2mm (IEC1076-4-101)
	110
	J2

J2 Pin Assignment

Pin #	A	B	C	D	E	(F)
22	GA4	IDE-D7	IDE-D15	FPVDDEN	GA0	GND
21	CLK6	GND	IDE-D14	FPEN	RSV	GND
20	CLK5	GND	IDE-D13	GND	IDE-RST	GND
19	GND	GND	IDE-D12	YTX2-	IDE-ACTP	GND
18	YTXC-	IDE-D6	IDE-D11	GND	IDE-DIAG	GND
17	YTXC+	GND	IDE-D10	REQ6#	GNT6#	GND
16	BRSVP2A16	IDE-D5	IDE-D9	GND	IDE-A2	GND
15	BRSVP2A15	GND	IDE-D8	REQ5#	GNT5#	GND
14	Reserved	IDE-D4	K/B-CLK	GND	IDE-A1	GND
13	Reserved	GND	V(I/O)	YTX2+	IDE-A0	GND
12	RI1-	IDE-D3	K/B-DAT	GND	IDE-CS3	GND
11	TXD1	GND	V(I/O)	YTX1-	P66D	GND
10	CTS1-	IDE-D2	M/S-CLK	GND	IDE-CS1	GND
9	DSR1-	GND	V(I/O)	YTX1+	IRQ14	GND
8	DCD1-	IDE-D1	M/S-DAT	GND	IDE-DACK	GND
7	DTR1-	GND	V(I/O)	YTX0+	IDE-RDY	GND
6	RTS1-	IDE-D0	Reserved	GND	IDE-IOR	GND
5	RXD1	GND	V(I/O)	YTX0-	IDE-IOW	GND
4	V(I/O)	BRSVP2B4	Reserved	GND	IDE-DRQ	GND
3	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
2	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	CLK1	GND	REQ1#	GNT1#	REQ2#	GND

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Drivers Installation

This section describes the installation procedures for software and drivers under the Windows 98, Windows NT 4.0 and Windows 2000. The software and drivers are included with the motherboard. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

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SCSI Driver Installation for Windows NT	23

IMPORTANT NOTE:

After installing your Windows operating system (Windows 98/98SE/ME/2000/XP), you must install first the Intel Chipset Software Installation Utility before proceeding with the drivers installation.

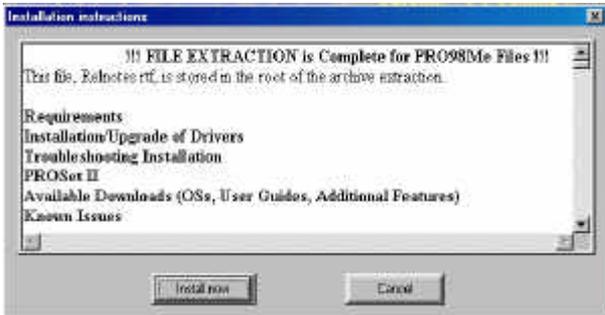
Intel PRO LAN Drivers Installation

The Intel PRO LAN drivers support both Intel® PRO/100 and PRO/1000 drivers. Follow the steps below to complete the installation.

1. Insert the CD that comes with the motherboard and the screen below would appear. Click on LAN Card on the left side to make the LAN drivers selection. Click on Intel(R) PRO LAN Drivers.



2. Click Install Now.



3. Click Restart now to restart the computer and new settings to take effect.



SCSI Drivers Installation

Execute the steps below if your system supports the SCSI function.

Installing SCSI Driver for Windows 95/98

A: New Windows 95/98 installation:

1. Run SETUP.EXE from the Windows 95/98 CD-ROM and follow the directions on the screen.
2. After a Windows 95/98 session is established, select My Computer/Control Panel/System/Device Manager/Other devices/PCI SCSI Bus Controller from the Windows 95/98 desktop.
3. Click the Driver tab, then click the Change Driver tab.
4. Double click SCSI controllers, then click the Have Disk button.
5. Insert the CD disc that has been bundled with your IBD100 card. The location of the SCSI drivers is in the following directory of the CD you received : \SCSI\LSI1000R\WIN9X.
6. Use this as the location of the drivers and follow the instructions on the screen to finish the drivers installation.

SCSI Driver Installation for Windows 2000

Before starting with the installation of the SCSI drivers, you need to copy the necessary files from the CD disc bundled with the card into a floppy diskette. The location of the necessary files in the CD is \SCSI\LSI1000R\WIN2000. Copy all the files in this directory into a floppy diskette.

When you install the Windows 2000 operating system, insert the diskette containing the necessary files.

To install Windows 2000 from your CDROM drive, make sure that your start up boot drive as set in the BIOS is the CDROM drive. Insert the Windows 2000 CD disc into the CDROM drive and start the system.

When the blue setup screen appears, press F6 to install the SCSI drivers. Setup will start to load files.

After loading files is finished, press Enter S. The screen will prompt you to insert the diskette containing the drivers to Drive A.

Make sure that the diskette containing the driver files is in Drive A and press Enter.

When the system has found the drivers, press Enter to continue. Setup will show a screen saying that it will load support for the massive storage device found. Press Enter to continue. Setup will now load files and continue with the operating system setup.

SCSI Driver Installation for Windows NT

Before starting with the installation of the SCSI drivers, you need to copy the necessary files from the CD disc bundled with the card into a floppy diskette. The location of the necessary files in the CD is \SCSI\LSI1000R\WINNT. Copy all the files in this directory into a floppy diskette.

When you install the Windows NT operating system, insert the diskette containing the necessary files.

To install Windows NT from your CDROM drive, make sure that your start up boot drive as set in the BIOS is the CDROM drive. Insert the Windows NT CD disc into the CDROM drive and start the system.

When the blue setup screen appears, press F6 to install the SCSI drivers. Setup will start to load files.

After loading files is finished, press Enter S. The screen will prompt you to insert the diskette containing the drivers to Drive A.

Make sure that the diskette containing the driver files is in Drive A and press Enter.

When the system has found the drivers, press Enter to continue. Setup will show a screen saying that it will load support for the massive storage device found. Press Enter to continue. Setup will now load files and continue with the operating system setup.

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