

PI-6680VN series

All-In-One Pentium III CPU card with on-board VGA/TFTLCD interface ,LAN and Flash/SRAM disk

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Table of contents

Chapter 1	General Information.....	7
1.1	Introductions	8
1.2	Feature.....	9
1.3	Specifications	10
1.4	Board layout and dimensions.....	12
Chapter 2	Installation.....	13
2.1	Jumpers	14
2.2	Connectors.....	15
2.3	Locating jumpers.....	17
2.4	Setting jumpers	18
2.5	CPU installation and upgrading.....	19
2.6	Installing a CPU in the ZIF socket.....	19
2.7	CPU Front Side Bus(FBS) (JP4,JP3,JP12)	20
2.8	IRQ12 re-direction (JP11)	20
2.9	CMOS clear (JP2).....	20
2.10	Installing DRAM (DIMM1,DIMM2,DIMM3)	21
2.11	IDE Hard Drive Connector (CN1,CN7).....	22
2.12	Floppy drive connector (CN13)	23
2.13	Parallel port connector (CN2)	24
2.14	Keyboard (CN26)	24
2.15	Extended PS/2 mouse connector (CN22).....	24
2.16	Speaker (CN7 [9,11,13,15])	24
2.17	Hard disk LED (CN7 [2,4])	24
2.18	Ir port Connector (CN21)	25
2.19	COM-port connector (CN3,CN4).....	25
2.20	COM1/COM2 RI pin setting (JP1).....	26
2.20.1	COM1/3 RI pins settings:.....	26
2.20.2	COM2/4 RI pins settings:.....	26
2.21	VGA interface connections.....	26
2.21.1	CRT display connector (CN15).....	26
2.21.2	Flat panel display connector (CN8)	27
2.21.3	Panel type select (JP5).....	27
2.21.4	Flat Panel SHF_CLK settings(JP7 pin[1,3,5])	28
2.21.5	Flat panel power select(JP7 pin[2,4,6])	29
2.22	Ethernet configuration.....	29
2.22.1	100Base-T connector (CN19).....	29

2.23	Watchdog timer configuration	29
2.23.1	Watchdog timer action (JP8 pin[1-2,3-4])	30
2.23.2	Watch Dog Timer I/O port mapping	30
2.23.3	Watch Dog Time Base Setting (JP8 pin[5-6,7-8])	30
2.23.4	The Watchdog timeout setting	31
2.24	Solid state disk settings (JP9)	31
2.24.1	Memory mapping (JP9 pin [1,2])	31
2.24.2	Base I/O Port mapping (JP9 pin[3,4])	32
2.24.3	Solid state disk device settings.....	32
2.25	USB connectors (CN9,CN10)	32
2.26	Audio interfaces (CN5,CN6,CN14,CN11)	33
2.26.1	Audio connector (CN5)	33
2.26.2	CD audio input connector (CN6)	33
2.26.3	Video audio input connector (CN14)	33
2.26.4	AUX audio input connector (CN11)	33
Chapter 3	BIOS Setup.....	34
3.1	Entering setup.....	35
3.2	Standard CMOS setup	36
3.3	BIOS features setup.....	37
3.4	Chipset features setup	38
3.5	Power management setup	40
3.6	Load BIOS defaults	43
3.7	Supervisor/user password	43
3.8	Integrated Peripherals.....	43
3.9	Auto detect hard disk	45
3.10	Save & exit setup	46
3.11	Exit without saving	46
Chapter 4	PCI SVGA driver installation	47
4.1	Introduction	48
4.1.1	Chipset	48
4.1.2	Display memory.....	48
4.1.3	Display types	48
4.1.4	Dual/simultaneous display	48
4.2	Installation for Window 98.....	49
4.3	Installation for Windows NT	50
Chapter 5	Audio driver installation.....	51

5.1	Introduction	52
5.2	Installation of audio driver	52
5.2.1	Installation for Windows 95/98/2000/NT	52
Chapter 6	PCI Bus Ethernet installation	53
6.1	Introduction	54
6.2	Installation of Ethernet driver	54
6.2.1	Installation for MS-DOS and Windows 3.1	54
6.2.2	Installation for Windows 95/98.....	54
6.2.3	Installation for Windows NT	55
6.2.4	Installation for Windows 2000.....	56
Chapter 7	SCSI driver installation.....	57
7.1	Installation for Window95/98	58
7.1.1	New System Installation	58
7.1.2	Existing System Installation	58
Appendix A	Flash disk setup	61
A.1	About solid state disk	62
A.2	Solid state disk Setup	63
A.3	Using on board 1.7MB Flash disk	66
A.4	How to install Flash or SRAM device on socket M1.....	67
A.4.1	Acceptable device on the socket M1	67
A.4.2	Setting drive of extended disk	67
A.4.3	Format before usgae	67
A.5	How to use DiskOnChip Flash disk.....	70
A.5.1	Using DiskOnChip only.....	70
A.5.2	Using DiskOnChip and 1.7MB Flash simultaneously ...	70
Appendix B	Programming the Watchdog	71
B.1	Watchdog timer example program	72
Appendix C	Pin Assignments	73
C.1	Ext. Speaker Connector (CN17 pin[9,11,13,15])	74
C.2	HDD LED Connector (CN17 pin[2,4])	74
C.3	Power LED (CN17 pin[8,10,12,14]).....	74
C.4	Hardware reset switch connector (CN17 pin[5,7])	75
C.5	ATX power control connector (CN18, CN17 pin[1,3])	76
C.5.1	ATX Power Button connector: CN17 pin[1,3]	76
C.5.2	ATX Power feature connector: CN18	76
C.6	Floppy drive connector (CN9)	77

C.7	IDE hard disk connector (CN9)	78
C.8	Parallel port connector (CN2)	79
C.9	CRT display connector (CN15)	80
C.10	Ext. LCD display connector (CN8)	81
C.11	USB connectors (CN9,CN10)	82
C.11.1	USB 0 and USB 1 (CN9)	82
C.11.2	USB 2 and USB 3 (CN10)	82
C.12	COM port connector (CN3,CN4)	83
C.12.1	COM1(CN3).....	83
C.12.2	COM2(CN4).....	83
C.13	Ir port Connector (CN21)	84
C.14	CPU fan connector (CN24)	84
C.15	Chassis fan connector (CN25).....	84
C.16	CD audio input connector (CN6)	85
C.17	Audio Connector (CN5).....	85
C.18	Video Audio input connector (CN14).....	85
C.19	AUX IN (CN11).....	86
C.20	Extended PS/2 Mouse connector (CN22).....	86
C.21	Keyboard/PS2 mouse connector (CN23,CN26)	87
C.21.1	Keyboard/PS2 mouse DIN-connector : CN26	87
C.21.2	Extended Keyboard Connector : CN23	87
C.22	RJ-45(LAN) connector (CN19).....	88
Appendix D	System Assignments	89
D.1	System I/O ports	90
D.2	DMA channel assignments	91
D.3	IRQ mapping chart.....	91

Chapter 1 General Information

This chapter gives background information on the PI-6680VN.

Introduction

Features

Specifications

Board layout and dimensions

1.1 Introductions

The PI-6680VN is an all-in-one Celeron™/Pentium® III level single board computer (SBC) with an Audio interface a PCI LCD controller, a PCI Fast Ethernet interface. With the Intel Celeron™ processor, the PI-6680VN achieves outstanding performance that surpasses any other SBC in its class. It offers all the functions of a single board industrial computer.

On-board features include two serial ports, one multi-mode parallel (ECP/EPP/SPP) port, four USB (Universal Serial Bus) ports, one infrared port (SIR), one DiskOnChip socket, a floppy drive controller, and a keyboard/PS/2 mouse interface. The built-in high-speed PCI IDE controller supports PIO, UDMA/33 and bus master modes. Up to four IDE devices can be connected, including large hard disks, CD-ROM drives and tape backup drives.

The PI-6680VN features power management to minimize power consumption. It complies with the “Green Function” standard and supports doze, standby and suspend modes. In addition, the board’s watchdog timer can automatically reset the system or generate an interrupt in case the system stops due to a program bug or EMI.

The PI-6680VN has been certified as complying with FCC Class A and CE Marking Class A.

1.2 Feature

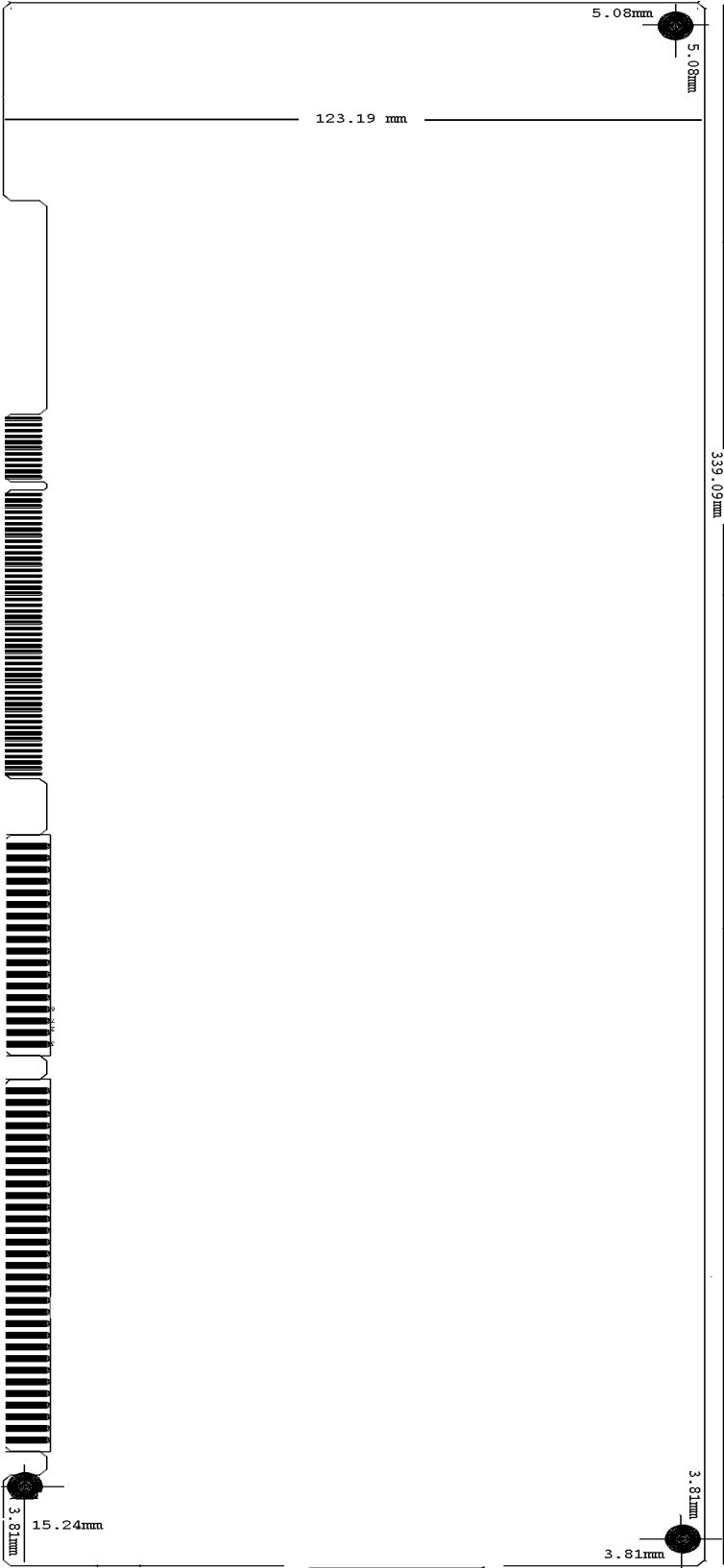
- Supports Intel Socket 370 Celeron / Pentium III processor(FSB:66/100/133MHz)
- Ultra2 SCSI interface up to 132MB/sec transfer rates
- Built-in AC'97 v2.1 Digital Audio controller
- AGP bus CRT/LCD VGA display controller
- On-board PCI bus 10/100 Mbps Ethernet controller
- Three 168-pin DIMM sockets up to 1.5GB PC133/100 SDRAM module
- Built-in Dual IDE Channel with Ultra DMA100/66/33 PCI EIDE controller, floppy disk interface and one SPP/EPP/ECP parallel port
- Two RS-232 ports with 16C550 compatible UARTs
- Four USB connectors. Complies with USB Spec. Rev. 1.1
- Sixteen level watch dog timer range from 1 to 160 sec
- On-Board 1.7M Byte Flash Disk and One 32-pins RAM/Flash ROM Socket
- Hardware monitoring function supported
- Provide One DiskOnChip Socket
- ISA bus high driving

1.3 Specifications

- **CPU:** Socket 370 for Intel ® Celeron ™ processors up to 850 MHz or higher in the future; Intel ® Pentium ® III in the future
- **Bus interface:** PICMG bus(PC/AT)
- **Chipset:**
 - System : VIA 82C693A, 82C686B
 - I/O Audio : Build-in 82C686
 - LAN : RTL8139C
 - VGA : Chips 69000
 - SCSI-2 : SYMBIOS 53C895
- **Second level cache:** 128 KB on Celeron processor, 256 KB on Pentium III processor
- **System BIOS:** AWARD PnP BIOS with VGA BIOS in a single FLASH ROM(Year 2000 Compliant BIOS)
- **Plug and Play:** Dual interrupt and DMA signal steering with plug and play control. Microsoft Windows 95/98/ME/NT/win2000 and plug and play BIOS compliant
- **DRAM:** Three 168-pin DIMM sockets, supports 32 MB to 512 MB SDRAM up to 1.5GB PC133/100 SDRAM module
- **System Memory:** Three 168-pin DIMM socket up to 1.5GB
- **Display:** C&T69000 HiQVideo Accelerator with integrated memory. support TFT/STN/EL/Mono LCD, Resolutions up to 1024x768@16bpp
- **LAN:** PCI local bus single-chip Fast Ethernet controller and RJ-45 connector. supports 10 Mb/s and 100 Mb/s N-way Auto-negotiation operation
- **AUDIO:** (option) Integrated SoundBlaster / DirectSound AC97 Audio controller in VT82C686B
- **PCI Ultra2 SCSI:** (option) On-board Symbios SYM53C895 Ultra2 SCSI PCI bus controller
- **USB:** Four USB ports,v1.1 and Intel Universal HCI v1.0 compatible
- **Floppy Disk Drive Interface:** Supports Up to two Floppy Disk Drives,5.25"(360KB or 1.2MB) and/or 3.5"(720KB or 1.44MB/2.88MB)
- **IDE Hard Disk Drive Interface:** Dual Channels Ultra-DMA 33/66/100MB/sec PCI EIDE

- **Serial Ports:** Two 16550 Compatible RS-232C Serial Ports.
- **Printer Port:** One SPP/ECP/EPP Bi-direction Parallel Port.
- **Solid state disk:** On Board 1.7M Bytes(option) and one expended 32-pin Sockets for SRAM/Flash Disk or M-Systems **DiskOnChip**
- **Real-time clock/calendar:** Lithium battery with 10 year data retention
- **Keyboard/mouse connector:** A 6-pin mini-DIN PS/2 KBD connector and one 6pin PS/2 mouse FRC connector
- **Watch Dog timer:** Sixteen level watch dog timer range from 1 to 160 sec and Can generate NMI.
- **Power management:** Provide ATX power connector
- **Power Supply Voltage:** + 5V, ±12V
- **Power Consumption:** +5VDC/15A(max), +12V/200mA(max), -12V/200mA(max) (Power requirement will Vary with CPU type)
- **Operating Temperature:** 32 to 140F(0 to 60C). (A Heat Sink With Cooling Fan is Needed on CPU)
- **Operating Temperature:** 0 ~ 60° C (32 ~ 140° F)
- **Dimensions:** 340(L) x 123mm(W)

1.4 Board layout and dimensions



Chapter 2 Installation

This chapter tells how to set up the PI-6680VN hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedure.

2.1 Jumpers

The PI-6680VN has a number of jumpers that allow you to configure your system to suit your application. The table below lists the function of each of the board's jumpers:

Label	Function	page
JP1	COM port RI pin setting	26
JP4,JP3,JP12	CPU Front Side Bus(FBS)	20
JP5	TFT/LCD panel type	27
JP11	IRQ12 re-direction	20
JP2	CMOS clear	20
JP8	Watchdog timer action	30
JP7 [1,3,5]	Flat Panel SHF_CLK setting	28
JP7 [2,4,6]	Flat panel power select	29
JP9 [1,2]	SSD Memory mapping	31
JP9 [3,4]	SSD I/O port select	32
JP9 [5,6]	RAM/Flash disk enable/disable	32
JP9 [7,8]	DiskOnChip enable/disable	32

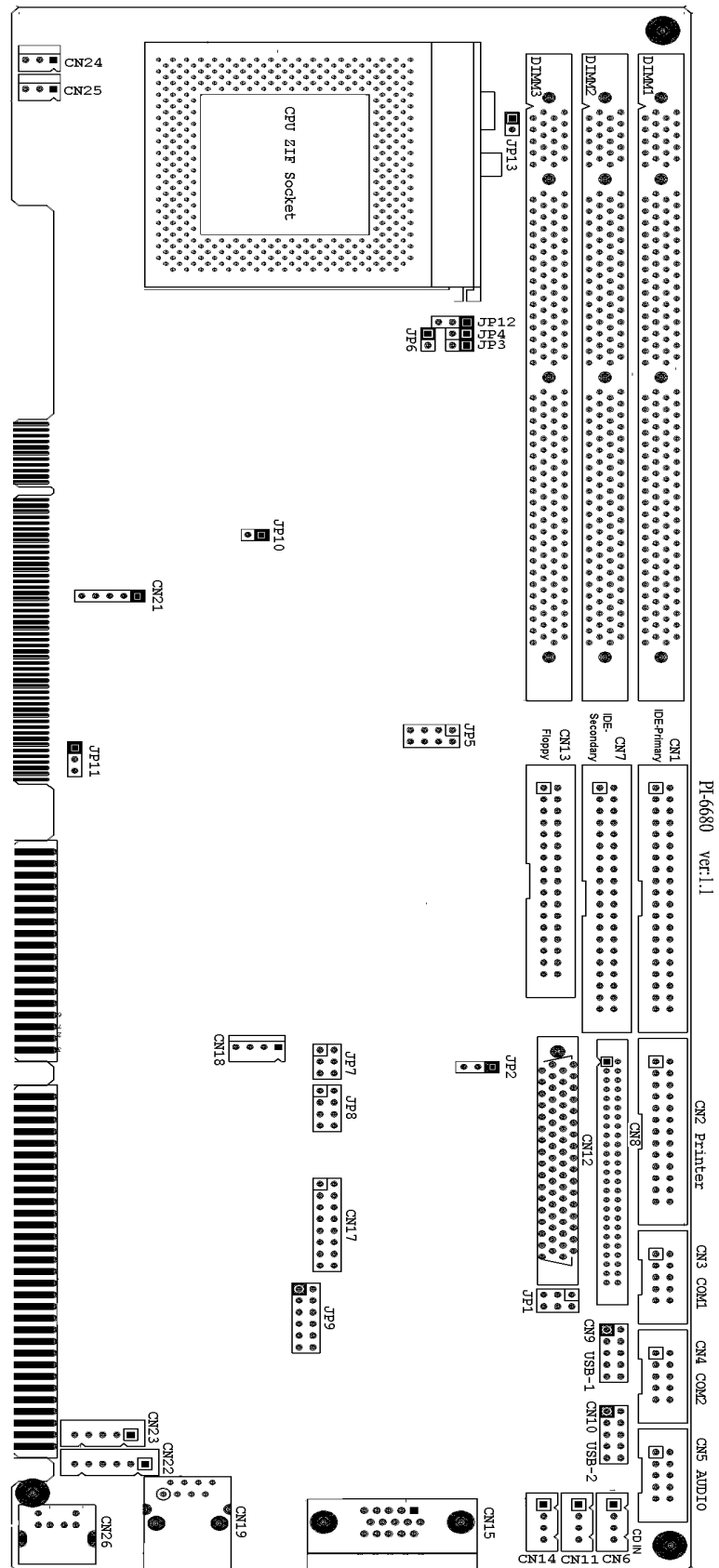
2.2 Connectors

On-board connectors link the PI-6680VN to external devices such as hard disk drives, a keyboard, or floppy drives. The table below lists the function of each of the board's connectors:

Label	Function	page
CN1	Primary IDE hard drive connectors	78
CN2	Parallel port connector	79
CN3,CN4	COM-port connectors	83
CN13	Floppy drive connector	77
CN5	Audio connector	85
CN6	CD Audio input connector	85
CN7	Secondary IDE hard drive connectors	78
CN8	Flat panel connector	81
CN9	USB channel 0, 1 connectors	82
CN10	USB channel 2 , 3 connectors	82
CN11	Audio Aux in	86
CN12	SCSI connectors	
CN14	Video Audio input connector	85
CN15	CRT display connector	80
CN17 [5,7]	Hardware reset switch connector	75
CN17 [9,11,13,15]	Ext. speaker connector	74
CN17 [2,4]	HDD LED connector	74
CN17 [8,10,12,14]	Power LED connector	74
CN17 [1,3]	ATX power switch button	76
CN18	ATX feature connector	76
CN19	Ethernet 100/10Base-T connector	88
CN21	IR connector	84
CN26	Keyboard and PS/2 mouse connector	87
CN22	Extended PS/2 mouse connector	86

CN23	Extend keyboard connector	87
CN24	CPU Fan power connector	84
CN25	Chassis fan power connector	84

2.3 Locating jumpers



2.4 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.

The jumper settings are schematically depicted in this manual as follows:



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 changes.

The Jumper settings with background color are factory default

2.5 CPU installation and upgrading

You can upgrade to a higher power Pentium processor at any time. Simply remove the old CPU, install the new one, and set the jumpers for the new CPU type and speed.

Warning!

Always disconnect the power cord from your chassis when you are working on it. Do not make connections while the power is on as sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the PC 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.

2.6 Installing a CPU in the ZIF socket

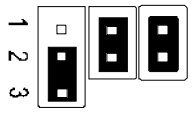
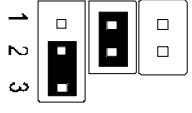
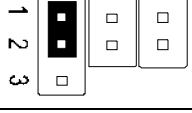
The PI-6680VN provides a Zero Insertion Force (ZIF) socket for easy CPU installation.

1. Make sure the ZIF socket lever is in the upright position. To raise the lever, pull it out to the side a little and raise it as far as it will go.
2. Place the CPU in the empty socket. Follow the instructions that came with the CPU. If you have no instructions, do the following: Carefully align the CPU so it is parallel to the socket and the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Gently slide the CPU in. It should insert easily. If it doesn't, pull the lever up a little more.
3. Press the lever down. The plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and will not damage the CPU.
4. When the CPU is installed, the lever should snap into place at the side of the socket.

Note: To remove a CPU, pull the lever out to the side a little and raise it as far as it will go. Lift out the CPU chip.



2.7 CPU Front Side Bus(FSB)(JP4,JP3,JP12)

The CPU working frequency equal to FSB (Front Side Bus)x f-ratio. According to Intel's announcement, both FSB and f-ratio are locked inside Celeron/Pentium !!!.

FSB Freq	JP12 JP4 JP3
66MHz	
100MHz	
133MHz	

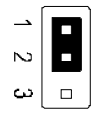
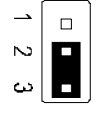
2.8 IRQ12 re-direction (JP11)

The IRQ12 signal is normally used for PS/2 mouse, but also can be redirected to ISA-bus for other application by setting JP11

JP11	IRQ12
	Connect to ISA-bus
	PS/2 mouse

2.9 CMOS clear (JP2)

Warning: To avoid damaging the computer, always turn off the power supply before setting "Clear CMOS." Set the jumper back to "3V Battery On" before turning on the power supply.

Backup CMOS	
Clear CMOS	

2.10 Installing DRAM (DIMM1,DIMM2,DIMM3)

You can install anywhere from 16 MB to 128 MB of on-board DRAM memory using 16, 32, 64 or 128 MB 144-pin DIMMs.

Note:

The modules can only fit into a socket one way and their gold pins must point down into the SDIMM socket.

The procedure for installing SODIMMs appears below. Please follow these steps carefully.

1. Ensure that all power supplies to the system are switched Off.
2. Install the SODIMM card. Install the SODIMM so that its gold pins point down into the SODIMM socket.
3. Slip the SDIMM into the socket at a 45 degree angle and carefully fit the bottom of the card against the connectors.
4. Gently push the SDIMM into a perpendicular position until the clips on the ends of the SODIMM sockets snap into place.
5. Check to ensure that the SODIMM is correctly seated and all connector contacts touch. The SODIMM should not move around in its socket.

2.11 IDE Hard Drive Connector (CN1,CN7)

You can attach one or two Enhanced Integrated Device Electronics hard disk drives to the PI-6680VN's internal controller. The PI-6680VN's IDE controller uses a PCI local-bus interface. This advanced IDE controller supports faster data transfer, PIO mode 3, mode 4.

The connector labeled CN1 is connected to primary IDE and CN2 is connected to secondary IDE

Connecting drives is done in a daisy-chain fashion and requires one of two cables (not included in this packing), depending on the drive size. 1.8" and 2.5" drives need a 1 x 44-pin to 2 x 44-pin flat-cable connector. 3.5" drives use a 1 x 44-pin to 2 x 40-pin connector.

Wire number 1 on the cable is red or blue, and the other wires are gray.

1. Connect one end of the cable to CN1,CN7. Make sure that the red (or blue) wire corresponds to pin 1 on the connector, which is labeled on the board (on the right side).
2. Plug the other end of the cable to the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drive. (See your hard drive's documentation for the location of the connector.)
3. Connect a second drive as described above.
4. Unlike floppy drives, IDE hard drives can connect to either end of the cable. If you install two drives, you will need to set one as the master and one as the slave by using jumpers on the drives. If you install just one drive, set it as the master.

2.12 Floppy drive connector (CN13)

You can attach up to two floppy drives to the PI-6680VN's on-board controller. You can use any combination of 5.25" (360 KB and 1.2 MB) and/or 3.5" (720 KB, 1.44 MB, and 2.88 MB) drives.

A 34-pin daisy-chain drive connector cable is required for a dual-drive system. On one end of the cable is a 34-pin flat-cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3.5" drives) and a printed-circuit board connector (usually used for 5.25" drives).

1. Plug the 34-pin flat-cable connector into CN13 . Make sure that the red wire corresponds to pin one on the connector.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.
3. If you are connecting a 5¼" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3½" floppy drive, you may have trouble determining which pin is pin number one. Look for a number printed on the circuit board indicating pin number one. In addition, the connector on the floppy drive may have a slot. When the slot is up, pin number one should be on the right. Check the documentation that came with the drive for more information. If you desire, connect the B: drive to the connectors in the middle of the cable as described above.

2.13 Parallel port connector (CN2)

Normally, the parallel port is used to connect the card to a printer. The PI-6680VN includes a multi-mode (ECP/EPP/SPP) parallel port, accessed through CN2, a 26-pin flat-cable connector. You will need an adapter cable if you use a traditional DB-25 connector. The adapter cable has a 26-pin connector on one end and a DB-25 connector on the other.

The parallel port is designated as LPT1 and can be disabled or changed to LPT2 or LPT3 in the system BIOS setup. The parallel port interrupt channel is designated to be IRQ7. You can select ECP/EPP DMA channel via BIOS setup.

2.14 Keyboard (CN26)

The PI-6680VN board provides a keyboard connector that supports both **a keyboard and a PS/2 style mouse**. In most cases, especially in embedded applications, a keyboard is not used. The standard PC/AT BIOS will report an error or fail during power-on self-test (POST) after a reset if the keyboard is not present. The PI-6680VN's BIOS standard setup menu allows you to select "All, But Keyboard" under the "Halt On" selection. This allows no-keyboard operation in embedded system applications without the system halting under POST.

2.15 Extended PS/2 mouse connector (CN22)

In addition to CN26 connector. The PI-6680VN board also provides another PS/2 mouse connectors labeled CN22, which can be connected to outside world with convert cable.

2.16 Speaker (CN17 [9,11,13,15])

The PI-6680VN can drive an 8 Ω speaker at 0.5 watts. Make sure that alternatives to this specification do not overload the card.

2.17 Hard disk LED (CN17 [2,4])

The hard disk LED indicator for hard disk access is an active low signal (24 mA sink rate).

2.18 Power LED (CN17 [8,10,12,14])

The Power LED indicator for system power is an active low signal (24 mA sink rate).

2.19 Hardware reset switch (CN17 [5,7])

The hardware reset switch button is an active low signal (24 mA sink rate).

2.20 Ir port Connector (CN21)

The PI-6680VN provides an IrDA port for transfer rates of 115 Kbps. This connector supports the optional wireless infrared transmitting and receiving module. You must configure the setting through BIOS setup.

2.21 COM-port connector (CN3,CN4)

The PI-6680VN provides two serial ports (COM1/3,COM2/4) in two COM port connector. The both port connectors are FRC ,dual-in-line 10-pin male header.

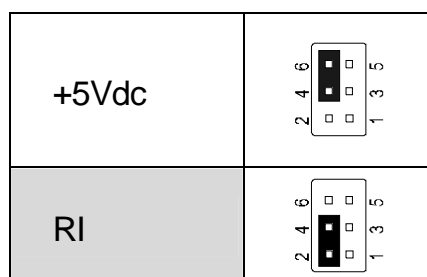
The IRQ and the address range for COM1/3, COM2/4 are fixed. However, if you wish to disable the port or change these parameters later you can do this in the system BIOS setup. The table below shows the settings for the PI-6680VN's serial ports.

Port	Address range	Interrupt
COM1/3	3F8~3FF	IRQ4
COM2/4	2F8~2FF	IRQ3

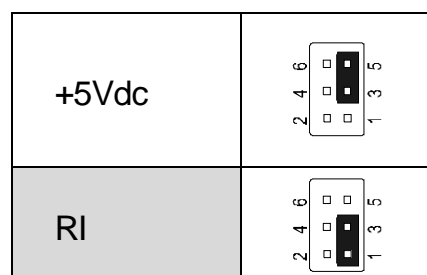
2.22 COM1/COM2 RI pin setting (JP1)

COM1 and COM2 can supply +5 V power to the serial devices via the RI pin of the COM port connector. The outputs of the COM1 ~ COM2 RI pins are selected by setting JP1.

2.22.1 COM1/3 RI pins settings:



2.22.2 COM2/4 RI pins settings:



2.23 VGA interface connections

The PI-6680VN's PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD and active LCD displays. The board has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

2.23.1 CRT display connector (CN15)

CN15 is a 16-pin, dual-in-line header used for conventional CRT displays. A simple one-to-one adapter can be used to match CN15 to a standard 15-pin D-SUB connector commonly used for VGA.

Pin assignments for CRT display connector CN15 are detailed in Appendix C.9

2.23.2 Flat panel display connector (CN8)

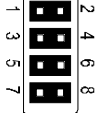
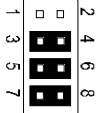
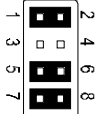
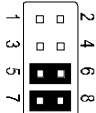
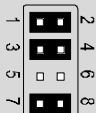
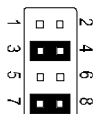
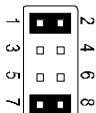
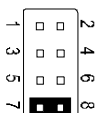
CN8 is a 40-pin connector which can support a 24-bit TFT LCD. It is C&T product no. Chips 69000.

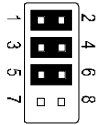
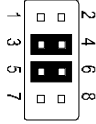
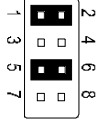
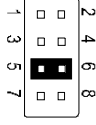
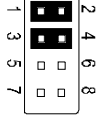
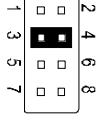
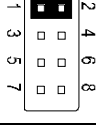
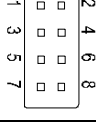
It is recommended that the LCD bias voltage not be applied to the panel until the logic supply voltage (+5 V or +3.3 V) and panel video signals are stable.

Pin assignments for connector CN8 are detailed in Appendix C.10

2.23.3 Panel type select (JP5)

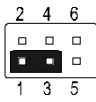
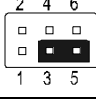
JP5 is a 8-pin headers for selecting the type of panel and display mode.

JP5	Panel type
	1024x768 Dual scan STN color
	1280x1024 TFT color
	640x480 Dual scan STN color
	800x600 Dual scan STN color
	640x480 sharp 12bit TFT color
	640x480 18bit TFT color
	1024x768 TFT color
	800x600 TFT color

	800x600 TFT color
	800x600 TFT color
	800x600 Dual scan STN color
	800x600 Dual scan STN color
	1024x768 TFT color
	1280x1024 Dual scan STN color
	1024x600 Dual scan STN color
	1024x600 TFT color

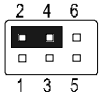
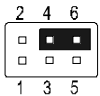
All modes can be run in simultaneous display with CRT

2.23.4 Flat Panel SHF_CLK settings(JP7 pin[1,3,5])

JP7 pin[1,3,5].	Signal Name
	SHF_CLK inverted (for EL panel)
	Normal

2.23.5 Flat panel power select(JP7 pin[2,4,6])

(The power outputs from CN8 pin[32,34])

JP7 pin[2,4,6].	Signal Name
	DC +3V
	DC +5V

2.24 Ethernet configuration

The PI-6680VN is equipped with a high performance 32-bit PCI-bus Ethernet interface which is fully compliant with IEEE 802.3U 10/100Mbps CSMA/CD standards. It is supported by all major network operating systems.

2.24.1 100Base-T connector (CN19)


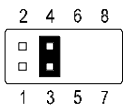
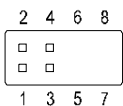
100Base-T connects to the PI-6680VN via a RJ-45 jack (CN19) on the front of cards.

2.25 Watchdog timer configuration

An on-board watchdog timer reduces the chance of disruptions which EMP (electro-magnetic pulse) interference can cause. This is an invaluable protective device for standalone or unmanned applications. Setup involves one jumper and running the control software (refer to Appendix B).

2.25.1 Watchdog timer action (JP8 pin[1-2,3-4])

When the watchdog timer activates (CPU processing has come to a halt), it can reset the system or generate an interrupt on NMI. This can be set via setting JP8 as shown below:

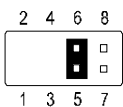
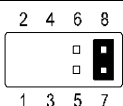
JP8	Action
	Reset
	NMI
	Disable

2.25.2 Watch Dog Timer I/O port mapping

The I/O port of the watchdog timer is fixed to 443H

Base port	function
Write to 443H	Setting time out fatcor
Read from 443H	Refresh watchdog timer

2.25.3 Watch Dog Time Base Setting (JP8 pin[5-6,7-8])

JP8	Time base
	1 sec
	10 sec

2.25.4 The Watchdog timeout setting

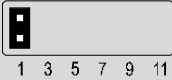
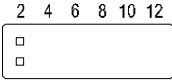
The watchdog timeout factor can be selected by writing desired value into the timeout factor register (Port address=443h) as shown bellow table

Timeout period =time base x timeout factor


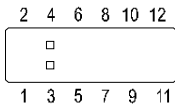
Value	Timeout factor	Value	Timeout factor.
0	Disable	17h	x9.
1Fh	x1	16h	x10
1Eh	x2	15h	x11
1Dh	x3	14h	x12
1Ch	x4	13h	x13
1Bh	x5	12h	x14
1Ah	x6	11h	x15
19h	x7	10h	x16
18h	x8		

2.26 Solid state disk settings (JP9)

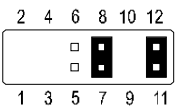
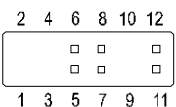
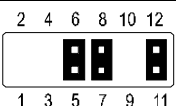
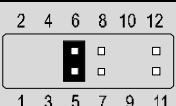
2.26.1 Memory mapping (JP9 pin [1,2])

JP9 pin 1-2	Memory mapping
	D0000h - D3FFFh
	CC000h - CFFFFh

2.26.2 Base I/O Port mapping (JP9 pin[3,4])

JP9 pin 3-4	Base I/O mapping
	136h,536h
	236h,536h

2.26.3 Solid state disk device settings

JP9 pin [5-6,7-8,11-12]	1.7M flash disk	M1 socket
	Enable	SRAM
	Enable	DOC
	Disable	SRAM
	Disable	DOC

2.27 USB connectors (CN9,CN10)

The PI-6680VN board provides four USB (Universal Serial Bus) interfaces which gives complete plug and play, hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification rev. 1.0 and are fuse protected.

The USB interfaces are accessed through two 8-pin flat-cable connectors, CN9 (USB 0,USB 1) and CN10(USB 2,USB 3). You will need an adapter cable if you use a standard USB connector. The adapter cable has a 8-pin connector on one end and an USB connector on the other.

The USB interfaces can be disabled in the system BIOS setup.

2.28 Audio interfaces (CN5,CN6,CN14,CN11)

The PI-6680VN is equipped with a high-quality audio interface, which provides 16-bit CD-quality recording and playback as well as OPL3 compatible FM music. It is supported by all major operating systems, and is 100% Sound Blaster Pro compatible.

2.28.1 Audio connector (CN5)

The PI-6680VN provides all major audio signals on a 16-pin flat-cable connector, CN5. These audio signals include Microphone in (mono), Line in (stereo), Line out (stereo), and Speaker out (stereo). If you use traditional telephone jack connectors for these audio signals, you will need an adapter cable.

2.28.2 CD audio input connector (CN6)

Any CD-ROM drive can provide analog audio signal output when used as a music CD player. The CN6 on PI-6680VN is a connector to input CD audio signals into the audio controller. The audio cable of your CD-ROM drive will be used to connect to CN6.

2.28.3 Video audio input connector (CN14)

Any A/V drive can provide analog audio signal output. The CN14 on PI-6680VN is a connector to input A/V audio signals into the audio controller.

2.28.4 AUX audio input connector (CN11)

This AUX audio connector provides an other non-standard analog audio signal input

Chapter 3

BIOS Setup

This chapter describes how to set BIOS configuration data.

Award's 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.

3.1 Entering setup

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

AWARD SOFTWARE INC.

STANDARD CMOS SETUP	CPU SPEED SETTING
BIOS FEATURE SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURE SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑ ↓ ← → : Select Item
F10 : Save & Exit Setup	(Shfit)F2 : Change Color
Auto-Configure HDD: Sector,Cylinder, Head...	

3.2 Standard CMOS setup

When you choose the STANDARD CMOS SETUP option from the INITIAL SETUP SCREEN menu, the screen shown below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

STANDARD CMOS SETUP								
AWARD SOFTWARE, INC.								
Date (mm:dd:yy) : Fri, Aug 16 1996								
Time (hh:mm:ss) : 11 : 9 : 4								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: Auto	0	0	0	0	0	0	AUTO
Primary Slave	: Auto	0	0	0	0	0	0	AUTO
Secondary Master	: Auto	0	0	0	0	0	0	AUTO
Secondary Slave	: Auto	0	0	0	0	0	0	AUTO
Drive A : 1.44M, 3.5 in.								
Drive B : None								
Video : EGA/VGA								
Halt On : All Errors								
			Base Memory: 640K					
			Extended Memory: 14336K					
			Other Memory: 384K					
			Total Memory: 15360K					
ESC : Quit			↑ ↓ → ← : Select Item			PU/PD/+/- : Modify		
F1 : Help			(Shift)F2 : Change Color					

3.3 BIOS features setup

By choosing the BIOS FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PI-6680VN. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

Virus Warning	:Disabled	Video BIOS Shadow	:Enabled
CPU Internal Cache	:Enabled	C8000-CBFFF Shadow	:Disabled
CPU L2 Cache ECC	:Enabled	CC000-CFFFF Shadow	:Disabled
Checking	:Enabled	D0000-D3FFF Shadow	:Disabled
Processor Number Feature	:Disabled	D4000-D7FFF Shadow	:Disabled
Quick Power On Self Test	:A ,C	D8000-DBFFF Shadow	:Disabled
Boot Sequence	:Disabled	DC000-DFFFF Shadow	:Disabled
Swap Floppy Drive	:Enabled"		
Boot Up Floppy Seek	:On		
Boot Up NumLock Status	:Fast		
Gate A20 Option	:Disabled		
Typematic Rate Setting	:6		
Typematic Rate (Chars/Sec)	:250		
Typematic Delay (Msec)	:Setup		
Security Option	:Disabled		
PCI/VGA Palette Snoop	:Non-OS2		
OS Select For DRAM>64MB			

3.4 Chipset features setup

By choosing the CHIPSET FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PI-6680VN.

Bank 0/1 DRAM Timing : SDRAM 10ns	
Bank 2/3 DRAM Timing : SDRAM 10ns	
Bank 4/5 DRAM Timing : SDRAM 10ns	
SDRAM Cycle Length : 3	
DRAM Clock : Host CLK	
Memory Hole : Disabled	
Read Around write : Disabled	
Concurrent PCI/Host : Disabled	
System BIOS Cacheable : Disabled	
Video RAM Cacheable : Disabled	
AGP Aperture Size : 128M	
AGP-2X Mode : Disabled	
OnChip USB : Enabled	
USB Keyboard Support : Disabled	
	ESC : Quit ↑↓↓* : Select Item
	F1 : Help PU/PD/+/- : Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

BANK0/1DRAM Timing

This item allows you to select the value in this field, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs.

SDRAM Cycle Length

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

Read Around write

If a memory read is addressed to a location whose latest write is being held in a buffer before being written to memory, the read is satisfied through the buffer contents, and the read is not sent to the DRAM

Concurrent PCI/Host

When disabled, CPU bus will be occupied during the entire PCI operation period.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance.

Video ROM Cacheable

Select Enabled allows caching of the video RAM , resulting in better system performance. However, if any program writes to this memory area, a system error may result

AGP Aperture Size

Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

AGP- 2X Mode

This item allows you to enable / disable the AGP-2X (Clock 133MHz) Mode

OnChip USB

This should be enabled if your system has a USB installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

USB Keyboard Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

3.5 Power management setup

By choosing the POWER MANAGEMENT SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PI-6680VN.

ACPI function	: Disabled	Primary INTR	: ON
Power Management	: User Define	IRQ3 (COM 2)	: Disabled
PM Control by APM	: No	IRQ4 (COM 1)	: Disabled
Video Off After	: NA	IRQ5 (LPT 2)	: Disabled
Video Off Method	: Blank Screen	IRQ6 (Floppy Disk)	: Disabled
MODEM Use IRQ	: NA	IRQ7 (LPT 1)	: Disabled
Soft-Off by PWRBTN	: Delay 4 Sec	IRQ8 (RTC Alarm)	: Disabled
HDD Power Down	: Disable	IRQ9 (IRQ2 Redir)	: Disabled
Doze Mode	: Disable	IRQ10 (Reserved)	: Disabled
Suspend Mode	: Disable	IRQ11 (Reserved)	: Disabled
** PM Events **		IRQ12 (PS/2 Mouse)	: Disabled
VGA	: OFF	IRQ13 (Coprocessor)	: Disabled
LPT & COM	: NONE	IRQ14 (Hard Disk)	: Disabled
HDD & FDD	: OFF	IRQ15 (Reserved)	: Disabled
DMA/master	: OFF	ESC : Quit	↑↓↓↑ : Select Item
Modem Ring Resume	: Disabled	F1 : Help	PU/PD/+/- : Modify
RTC Alarm Resume	: Enabled	F5 : Old Values (Shift)	F2 : Color
Date (of Month)	: 0	F6 : Load BIOS Defaults	
Timer (hh:mm:ss)	: 0: 0: 0	F7 : Load Setup Defaults	

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

PM Control by APM

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting Yes gives better power savings.

Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend --> Off	Monitor blanked when the systems enters the Suspend mode.
Susp,Stby --> Off	Monitor blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

Soft-Off by PWRBTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."

PM Timers

The following four modes are Green PC power saving functions which are only user configurable when *User Defined Power Management* has been selected. See above for available selections.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Doze Mode

When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

PM Events

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *On*, even when the system is in a power down mode

1. VGA
2. LPT & COM
3. HDD & FDD
4. DMA / master
5. Modem Ring Resume
6. RTC Alarm Function
7. Primary INTR

When set to *On*, any event occurring at will awaken a system which has been powered down. When set *Off*, activity will neither prevent the system from going into a power management mode nor awaken it.

IRQ3 (COM 2)	IRQ10 (Reserved)
IRQ4 (COM 1)	IRQ11 (Reserved)
IRQ5 (LPT 2)	IRQ12 (PS / 2 Mouse)
IRQ6 (Floppy Disk)	IRQ13 (Coprocesor)
IRQ7 (LPT 1)	IRQ14 (Hard Disk)
IRQ8 (RTC Alarm)	IRQ15 (Reserved)
IRQ9 (IRQ2 Redir)	

3.6 Load BIOS defaults

LOAD BIOS DEFAULTS loads the default system values directly from ROM. If the stored record created by the Setup program becomes corrupted (and therefore unusable), these defaults will load automatically when you turn the PI-6680VNon.

3.7 Supervisor/user password

You can set either supervisor or user password, or both of them. The differences between are:

supervisor password : can enter and change the options of the setup menus.

user password : just can only enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Press <Enter>.

3.8 Integrated Peripherals

OnChip IDE Channel0 : Enabled OnChip IDE Channel1 : Enabled IDE Prefetch Mode : Enabled Primary Master PIO: Auto Primary Slave PIO: Auto Secondary Master PIO: Auto Secondary Slave PIO: Auto Primary Master UDMA: Disable Primary Slave UDMA: Disable Secondary MasterUDMA: Disable Secondary Slave UDMA: Disable Init Display First : PCI Slot KBC input clock : 6 MHz Onboard FDC Controller: Disabled Onboard Serial Port 1 : Disabled Onboard Serial Port 2 : UART Mode Select : RxD , TxD Active : Hi,Hi IR Transmittiion delay: Disabled	Onboard Parallel Port : Parallel Port Mode : ECP Mode Use DMA : 1 EPP Mode Select : EPP1.9 ESC : Quit ↑↓↓* : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
---	---

OnChip IDE Channel 0

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface

OnChip IDE Channel 1

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface

IDE Prefetch Mode

The onboard IDE drive interfaces supports IDE prefetching, for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support prefetching.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

Init Display First

This item allows you to decide to active whether PCI Slot or AGP first

KBC input clock

Set the frequency for the keyboard controller input clock.

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports.

UART Mode Select

This item allows you to determine which Infra Red (IR) function of onboard I/O chip.

RxD, TxD Active

This item allows you to determine the active of RxD, TxD.

IR Transmission delay

This item allows you to enable/disable IR transmission delay.

Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O address.

Parallel Port Mode

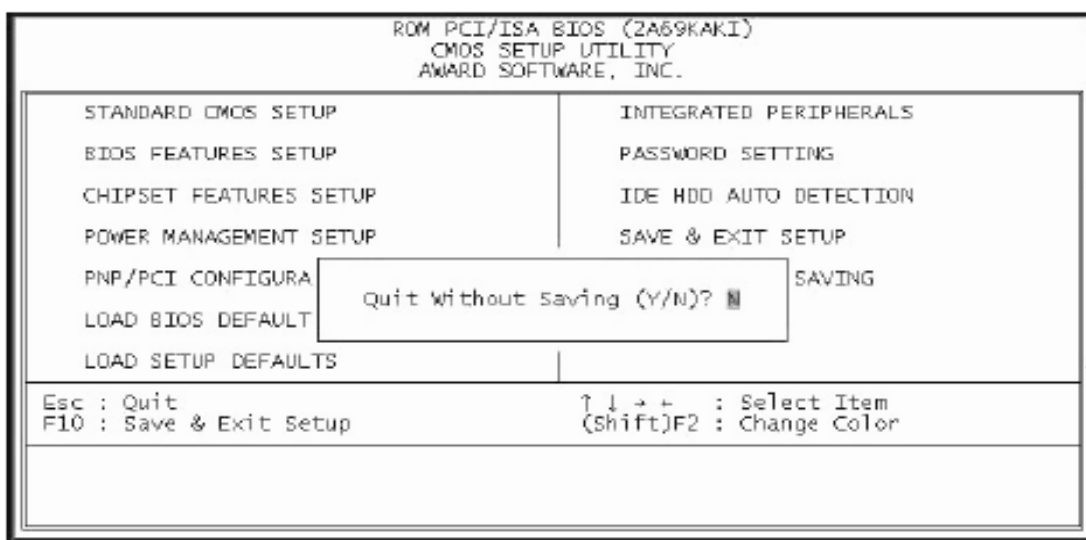
Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require one of the other modes offered in this field.

ECP Mode: Select a DMA channel for use during ECP mode.

EPP Mode: Select EPP port type 1.7 or 1.9.

3.9 Auto detect hard disk

The IDE HDD AUTO DETECTION utility can automatically detect the IDE hard disk installed in your system.



3.10 Save & exit setup

If you select this option and press <Enter>, the values entered in the setup utilities will be recorded in the chipset's CMOS memory. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.

3.11 Exit without saving

Selecting this option and pressing <Enter> lets you exit the Setup program without recording any new values or changing old ones.

Chapter 4 PCI SVGA driver installation

Introduction

Installation of SVGA driver for Windows 95/98/NT

4.1 Introduction

The PI-6680VN has an on-board PCI flat panel/VGA interface. The specifications and features are described as follows:

4.1.1 Chipset

The PCA-9574 uses a C&T 69000 chipset for its PCI/SVGA controller. It supports many popular LCD, EL, and gas plasma flat panel displays and conventional analog CRT monitors. The 69000 VGA BIOS supports monochrome LCD, EL, color TFT and STN LCD flat panel displays. In addition, it also supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

4.1.2 Display memory

With 2 MB display memory on board, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1024 x 768 at 16.8 M colors.

4.1.3 Display types

CRT and panel displays can be used simultaneously. The PCA-9574 can be set in one of three configurations: on a CRT, on a flat panel display, or on both simultaneously. The system is initially set to simultaneous display mode. The BIOS setup can be used to configure the display. In BIOS, select "Integrated Peripherals", then "Boot-up display type." You can then choose one of the following modes: "CRT only", "Panel only", or "Simultaneous."

4.1.4 Dual/simultaneous display

The PI-6680VNs uses a Trident Cyber 9525DVD LCD controller that is capable of providing multiple views and simultaneous display with mixed video and graphics on a flat panel and CRT. To set up dual display under Windows 98, follow these steps:

1. Select "Windows98", "Control panel", "Display", "Settings".
2. Select "1" for current display, or "2" for second display.
3. Enable "Extend my Windows desktop onto this monitor".
4. Click "OK".

4.2 Installation for Window 98

Complete the following steps to install the SVGA driver. Follow the procedures in the flow chart that apply to the operating system that you are using within your PI-6680VN.

Important: The following windows illustrations are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.

1. Select "Start" ,"Settings" ,"Control Panel" ,"Display" ,"Settings".
2. Press "Advanced Properties".
3. Choose the "Adapter" label.
4. Press the "Change..." button.
5. Select the second item.
6. Press the "Have Disk" button.
7. Insert the disc into the CD-ROM drive.
8. Type " D:\VGAWIN98 ".
9. The 'Select Device' dialog box will appear. Select 'chips98.inf'
10. Press "OK".
11. Click the "Apply" button.
12. Press "Yes" to reboot.
13. Repeat Step 1 on the previous page of this manual. The "chips" label appears in "Display".
14. Adjust resolution and color.
15. Click "Advanced" for further adjustment.
16. Click "OK" to exit.

4.3 Installation for Windows NT

1. Click the Start button, then go to Settings and click on Control Panel.
2. Click on the Display icon to start the Display Properties window.
3. Click on the Settings tab, and then click on Display Type.
4. In the Change Display Type window, click on Change in Adapter Type. This will bring up the Select Device Window.
5. In the Change Display window, click on Have Disk. Follow the directions on the screen to supply the directory where the Windows NT driver files (D:\VGA\WINNT40) are located.
6. Then select OK, or press enter.
7. Select Chips Video Accelerator from Display list provided, then click OK or press enter.
8. You will then see a warning panel about Third Party Drivers. Click on Yes to finish the install.
9. Once the installation is complete, the system must be shut down and restarted for the new drivers to take effect.
10. When the system has restarted, the default graphics mode (usually 640x480x256color) has been automatically selected.
11. Click the Start button, then go to Settings and click on Control Panel.
12. Click on the Display icon to start the Display Properties window.
13. Click on the Settings tab.
14. A new screen setting can be selected using either of the following methods:
 - 1: Use the slide-bar in the Desktop Area to select new setting.
 - 2: Click on List All Modes. From the list provided, select a new setting, then click OK or press enter.
15. Click on Test to test the newly selected graphics mode. Follow the instructions given on the screen. A test screen should appear, followed by the Testing Mode window. Click on Yes to continue. Click on Apply to switch to the new graphics mode.

Graphics modes are changed dynamically on NT 4.0, so you do not need to shutdown and restart for the new screen settings to work.

Chapter 5 Audio driver installation

Introduction

Installation of audio driver for Windows 95/98/NT/2000

5.1 Introduction

The PI-6680VN on-board audio interface provides high-quality stereo sound and FM music synthesis (ESFM) by using the ES1989 audio controller from Creative Technology Ltd. The audio interface can record, compress, and play back voice, sound, and music with a built-in mixer control. The PI-6680VN's on-board audio interface also supports the Plug and Play (PnP) standard and provides PnP configuration for audio, FM, and MPU-104 logical devices. It is compatible with AC97 version 2.0, voice, and music functions. The ESFM synthesizer is register compatible with the OPL3 and has extended capabilities.

5.2 Installation of audio driver

Before installing the audio driver, please take note of the procedures detailed below. You must know which operating system you are using in your PI-6680VN, and then refer to the corresponding installation flow chart. Just follow the steps in the flow chart. You can quickly and successfully complete the installation, even though you are not familiar with instructions for Windows.

5.2.1 Installation for Windows 95/98/2000/NT

1. Select "Start", "Run".
2. Type the correct path:"D:\AUDIO\Setup.exe".
3. Click the "OK" button.
4. Get into ESS installation screen
5. Click "Next" to continue
6. Follow the procedure which appears on your screen
7. Choose "Upgrade rivers
8. Click "Next" to continue
9. After installation, select "Yes" and click "Finish" to restart the computer.

Chapter 6

PCI Bus Ethernet installation

Introduction

Installation of Ethernet driver for Windows 95/98/NT

6.1 Introduction

The PI-6680VN is equipped with a high performance 32-bit Ethernet chipset which is fully compliant with IEEE 802.3 100 Mbps CSMA/CD standards. It is supported by major network operating systems. It is also both 100Base-T and 10Base-T compatible. The medium type can be configured via the RSET8139.exe program included on the utility disk. The Ethernet port provides a standard RJ-45 jack on board.

6.2 Installation of Ethernet driver

Before installing the Ethernet driver, note the procedures below. You must know which operating system you are using in your PI-6680VN, and then refer to the corresponding installation flow chart. Then just follow the steps described in the flow chart. You will quickly and successfully complete the installation, even if you are not familiar with instructions for MS-DOS or Windows.

Note: The windows illustrations in this chapter are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.

6.2.1 Installation for MS-DOS and Windows 3.1

If you want to set up your Ethernet connection under the MS-DOS or Windows 3.1 environment, you should first check your server system model. For example, MS-NT, IBM-LAN server, and so on.

Then choose the correct driver to install in your panel PC.

The installation procedures for various servers can be found on CD-ROM, the correct path being:

6.2.2 Installation for Windows 95/98

1. Turn the PC power ON then boot from Windows 98.
2. Windows 98 will prompt "PCI Ethernet Controller" in "New Hardware Found" dialog box and "Add New Hardware Wizard" dialog box.
3. Click "Next >" button when "Search for the best for your device. "[Recommended]" is on.
4. Insert the Adapter Driver Diskette in your floppy drive.
5. Disable the "Floppy disk drives" check box. Click "Specify a location" and type "D:\LAN\WIN95" or "D:\LAN\WIN98", then click "Next >" button.
6. Windows 98 will prompt "32-Bit PCI Fast Ethernet Adapter" in "Add New Hardware Wizard" dialog box.

7. Click "Next >" button and Windows starts to copy files from Windows 98 CD-ROM to your hard disk.
8. Click "Finish" button from "Add New Hardware Wizard" dialog box.
9. Restart your computer to take effect the network function.

Configuring NDIS5 Miniport driver on Microsoft Windows 98

1. Click the "My Computer" icon in the Main Program Group.
2. Click the "Control Panel" icon from My Computer window.
3. Click the "Network" icon from the Control Panel window.
4. Select "32-Bit PCI Fast Ethernet Adapter" item from "Network" dialog box, then click "Properties" button.
5. Click "Advanced" button from "32-Bit PCI Fast Ethernet Adapter Properties" dialog box.
6. Select the Line Speed/Duplex Mode (Auto,100 full,100 half,10 full, 10half) from "Value" item, then click OK button in the "32-Bit PCI Fast Ethernet Adapter Properties" dialog box.
7. Click OK button from "Network" dialog box.
8. Restart your computer to take effect the new configuration.

6.2.3 Installation for Windows NT

1. Click the "Start" command button, select the "Settings" icon to display an option list under it.
2. Click the "Control Panel" icon.
3. Double-click the "Network" icon.
4. Select the "Adapters" item, then click the "Add..." button in the "Network" dialog box.
5. Click the "Have Disk..." button in the "Select Network Adapter" dialog box.
6. Insert the CD_ROM . Enter the full pathname D:\LAN\OEMSETNT.INF'
7. Select "32-Bit PCI Fast Ethernet Adapter" and then click the OK button in the "Select OEM Option" dialog box.

8. Select the Line Speed value (AUTO,100full,100half,10full, 10half) and then click the OK button in the "Select Line Speed" dialog box.
9. To complete network installation, remember to bind the adapter to the transport drivers by choosing the "Bindings" button from the "Network" dialog box.
10. Click the "Close" button in the "Network" dialog box.
11. Restart your computer to initialize the network function.

6.2.4 Installation for Windows 2000

Microsoft had put the RTL8139A/B/C chip driver in the Windows 2000 system. Please plug 32-Bit PCI Fast Ethernet Adapter into PCI slot. After Win2000 starts up, it can recognize this adapter automatically.

Chapter 7 SCSI driver installation

Introduction

Installation of Ethernet driver for Windows 95/98/NT

This procedure installs the SYMC8XX.MPD, SYM_HI.MPD, or SYM_U3.MPD driver onto a Windows 95/98 system for all new system installations. Use this procedure when initially upgrading to Windows 95/98. Windows 95/98 automatically adds the driver to the registry and copies the driver to the appropriate directories.

7.1 Installation for Window95/98

7.1.1 New System Installation

If the system is new installed Window95/98 operating system, the following steps shows you how to install SCSI drivers

1. Start the Windows 95/98 Setup according to the Microsoft instructions.
2. Setup enters the hardware detection phase after a system reboot. The "Setting up Hardware" message box appears. If the message "Symbios PCI SCSI Host Adapter" appears, then the host adapter supports the bundled driver, and it installs automatically. After the Windows 95/98 installation has completed, the user can install the SYMC8XX.MPD, SYM_HI.MPD, and/or SYM_U3.MPD drivers according to the "Existing System Installation" instructions.
3. If the bundled driver does not support the host adapter, Setup displays a New Hardware Found - PCI SCSI Bus Controller dialog box. Select "Driver from disk provided by hardware manufacturer" and click OK.
4. Insert the CD_ROM, then enter pathname 'D:\SCSI\WIN98X'
5. Windows 95/98 automatically copies the appropriate driver files and rebuilds its driver database.
6. A "System Settings Change" dialog box appears.
7. At this point, Windows 95/98 Setup has completed, and the new driver is operational.

7.1.2 Existing System Installation

This procedure installs the SYMC8XX.MPD driver onto an existing Windows 95/98 system. These instructions indicate where specific information applies to Windows 95 or Windows 98. Unless noted, the instructions apply to both operating systems. Please review the steps below before beginning the installation.

1. Boot Windows 95/98.
2. Click Start. Select Settings-->Control Panel.
3. Double click on the System icon.
4. Click on the Device Manager tab.
5. Either double click on the SCSI controllers entry, or click once on the plus sign to the left of it.
6. Select the desired PCI Symbios xxx SCSI Host Adapter entry. Click the Properties button.
7. Click on the Driver button. In Windows 95, the version of the currently active driver should display in the File details section. In Windows 98, press the DRIVER FILE DETAILS button to get this information to appear.
8. Click on the Change Driver... button.

For Windows 95

1. Click on the Have Disk... button to install a newer version.
2. Insert CD_ROM and enter pathname 'D:\SCSIWIN9X' and click OK.
3. The Select Device dialog box should display " SYM53C895 PCI SCSI Existing System InstallationHost Adapter,"
4. Click OK.
5. The Driver tab is updated to display the new driver files.
6. Click OK to install these driver files. (Do NOT click on the Change Driver... button.)
7. The driver files are copied, and a new driver database is built.

For Windows 98

"Update Device Driver Wizard" starts and provides several windows with choices. Follow the steps below to correctly install the device driver for Windows 98.

1. After the Intro window appears, click on the NEXT button.
2. The Wizard provides a choice between having the Wizard search for a better driver than the one in use or displays a list of drivers from a specific location.
3. Choose "search..." and click on the NEXT button.
4. The next window allows the user to specify which device(s) will be searched, such as a floppy diskette, CD-ROM, or specify a specific path.

5. Select "Floppy disk drive" only and click on the NEXT button.
6. The next window queries the user about utilizing the currently installed driver.
7. Mark "Install one of the other drivers" and click on the "View List" button. Next, a list of drivers appears from the specified search devices and the currently installed driver.
8. Highlight the driver of choice and click OK. The previous window appears with the selected driver displayed as the driver to install.
9. Click on the NEXT button. The next window displays the chosen driver along with reference to the designated path to install it in.
10. Click on the NEXT button. The Wizard summary window appears.
11. Click on the Finish button.

Upon completion of the installation for WIN95/98, the "System Settings Change" dialog box appears. Remove the diskette from the drive and click Yes to restart the computer.

At this point, the new driver is operational. To ensure the correct driver has been installed, see the section "Verifying Correct Driver Installation."

Appendix A

Flash disk setup

The PI-6680VN is equipped with an on-board 1.7MB flash disk that can be accessed under DOS environments as normal floppy disk

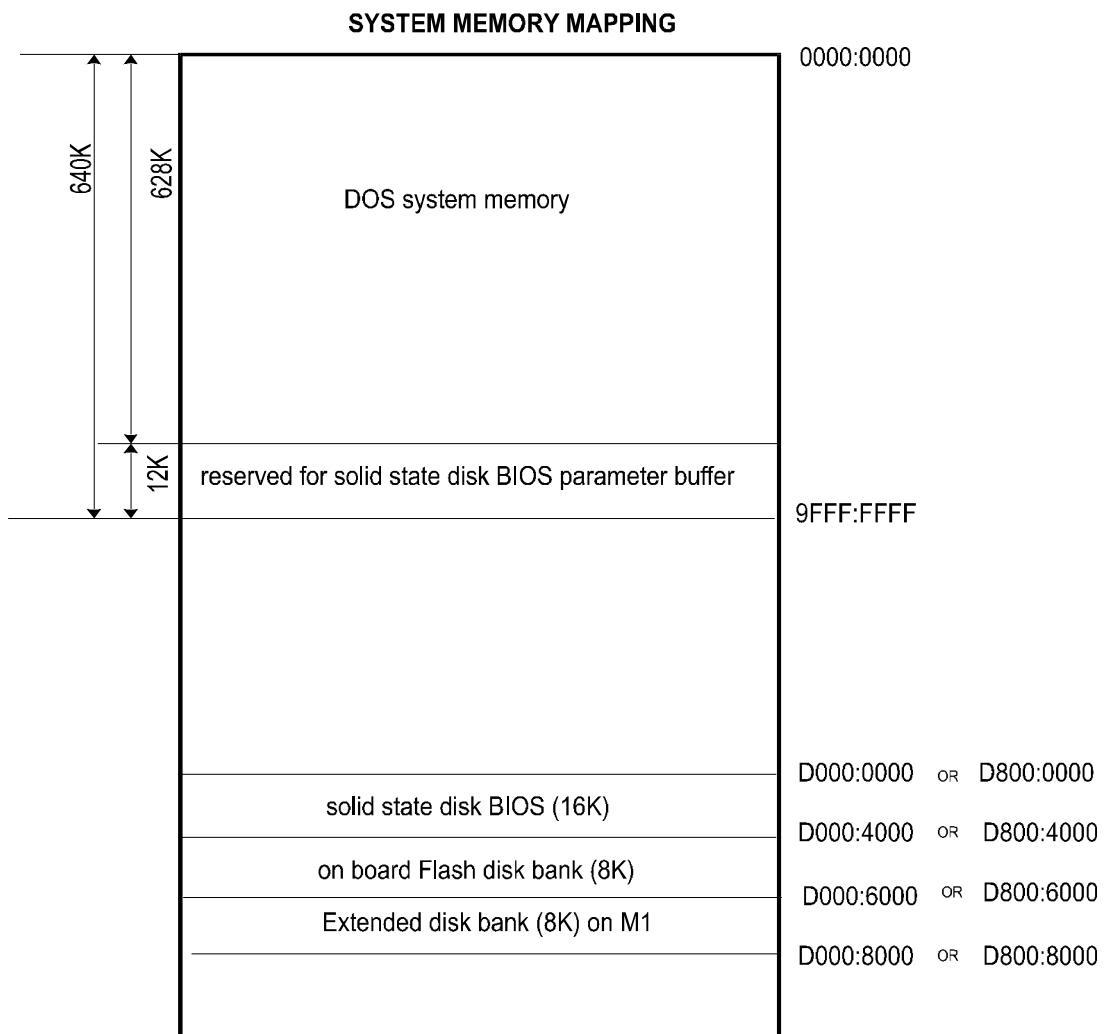
This chapter is available for PI-6680VN-F only

A.1 About solid state disk

The PI-6680VN provides on-board 1.7MB flash ROM disk and one extended solid state disk sockets (M1) which can accept EPROM/SRAM/FLASH. and also **DiskOnChip™** device

The PI-6680VN solid state disk occupies two system memory sections.

1. The last 12K bytes at higher memory address for solid state disk BIOS parameter buffer
2. Disk bank(32K) at D000:0000-D000:7FFFH or D800:0000-D800:7FFFH (16K disk BIOS+16K disk bank)



A.2 Solid state disk Setup

The solid state disk SETUP configures the solid state disk information that is stored in EEPROM. The solid state disk has a window Setup interface that is recognizable to anyone.

This setup function is available for on-board 1.7MB Flash and extended disk (M1 socket) configuration

As Award BIOS POST executes, the following appears:

```
.
.
.WAIT.....
```

Hit <F10> to Run Advanced Solid state disk SETUP

At this time, Hit <F10> to run Solid state disk SETUP. A SETUP window shows up on the screen.

All-in-one Pentium CPU Card ROM/RAM Disk SetUp Vx.x	
Primary disk drive	:A
Secondary disk drive	None
System boot sequence	:Flash disk
COM port for remote Flash PGM	:COM1
Auto detect and boot from Disk A:	:Disabled

PgUp/PgDn:Select - Esc:No save - F7:Save

Where

■ Primary disk drive

The on board 1.7MB flash disk can emulate disk drive A:,B:,C:,D: or disabled.

A	=	Drive A:
B	=	Drive B:
C	=	Drive C:
D	=	Drive D:
Disabled:	=	Disable solid state disk

■ Secondary disk drive

There are two configurations for extended device on the extended socket called M1. The device can be configured into primary or to secondary drive as shown below

None	Combine device into on board 1.7MB flash disk
M1	Be a secondary disk alone

■ System Boot Up Sequence

The system may boot up from two following sequences as:

CMOS SETUP	Boot up according to CMOS Setup sequence
ROM Disk	Boot up from solid state disk, if DOS files existed in the Primary disk

■ COM Port for Remote Flash PGM

If you are going to remotely access the 1.7MB Flash disk or extended disk on M1 socket with utility called "RDISK.EXE" . You should select which communication port be connected to communicate with host system.

COM1	=	COM1 port (3F8H) IRQ4
COM2	=	COM2 port (2F8H) IRQ3
Disabled	=	No remote Access required

■ Auto detect and boot from Disk A:

Enabled	If system files(IO.SYS, SMDOS.SYS) existed in Floppy disk A:, the system will automatically boot form disk A:.
Disabled	Normal boot sequence

■ Selects and save SETUP

PgDn	Moves reverse bar down
Esc	Quit without saving SETUP
F7	Quit and saves current SETUP to EEPROM

A.3 Using on board 1.7MB Flash disk

The on-board 1.7MB flash disk provides you an easy way to build a *mechanical diskless system* without any additional disk devices. You can directly read/write this Flash disk at DOS prompt such as (COPY, DEL, FORMAT, ..etc).

The following procedures show you how to use this Flash disk

1. Setting JP9 (see page 31) properly before turn on system
2. Boot system form normal CMOS setup sequence
3. Format on-board 1.7MB Flash disk at DOS prompt as:
C>format <Flash disk drive name> /S
4. Create "AUOTOEXEC.BAT" file in the flash disk
5. Copy "DISKSWAP.EXE" file into flash disk
6. Modifies "AUTOEXEC.BAT" file to have "DISKSWAP.EXE" at first line
7. Copy your application files into Flash disk by using "COPY" command
8. Reboot system and then modify the ROM/RAM disk setup to set "Boot Sequence" to "ROM Disk" and press F7 to save
9. The system will boot DOS from Flash disk

A.4 How to install Flash or SRAM device on socket M1

See jumper settings (see page 31) before installing device

A.4.1 Acceptable device on the socket M1

The extended socket "M1" can accept many types of Volatile memory devices, including Flash, SRAM as shown followings

SRAM	:SONY CXK581000/584000 or equivalent
ATMEL Flash	:29C010, 29C040, 29C040A
SST Flash	:29EE010, 28SF040

Note:

1. ATMEL 29Cxxx and SST 29EE101, 28SF040 Flash ROMs are all operated as static RAM device on the solid state disk, but no battery backup required and program cycle are limited to 100,000 to 500,000 times.
2. If SRAM is installed, Jumper JP13 pin 7-8 should be shorted to backup SRAM data

A.4.2 Setting drive of extended disk

You have two way to use extended device on the socket M1

1. Combines into on board 1.7MB Flash disk in primary disk
2. Be a secondary disk alone

A.4.3 Format before usgae

If device (Flash or SRAM) is first time installed into extended socket (labeled M1) and combined into primary disk. The "FORMAT" process is necessary before usage.

```
C> FORMAT <Primary disk name>/S
```

The primary disk size=1.7MB + size of device on the socket M1

If device (Flash or SRAM) is first time installed into extended socket (labeled M1) and set to be secondary disk alone. The "FORMAT" process is necessary before usage.

```
C> FORMAT <Secondary disk name>
```

The primary disk size=1.7MB

Secondary disk size= size of device on the socket M1

Flash disk installation examples

■ Example 1

Assume to use on board 1.7MB Flash disk and 128KB SRAM on the socket M1, and Primary disk is B”

Step 1 :Press “F10” at BIOS POST to run ROM/RAM disk setup

Step 2 :Set “Primary disk drive” to B, and “Secondary disk drive” to None
(Primary disk drive=on board 1.7MB+128KB SRAM)

All-in-one Pentium CPU Card ROM/RAM Disk SetUp Vx.x	
Primary disk drive	:B
Secondary disk drive	None
System boot sequence	: CMOS setup
COM port for remote Flash PGM	:COM1
Auto detect and boot from Disk A:	:Disabled

Step 3 :Set “Boot sequence” to CMOS setup

Step 4 :Press “F7” to save setup value and exit

Step 5 :Format B:/S (Primary disk drive) at DOS prompt

The total capacity of disk B: is 1700KB +128KB=1828KB

Step 6 :Creat “Autoexec.bat” file in disk B:, and modify the first line in “autoexec.bat” file to have “@ Diskswap.exe” command

Step 7 :Copy “DISKSWAP.EXE” file to disk B: from provided utility diskette

Step 8 :reboot your system and press “F10” again and modify “Boot sequence” to ROM disk

■ Example 2

Assume to use on board 1.7MB Flash disk as disk A: (Primary disk), and 512KB ATMEL Flash on the socket M1 as Disk B (Secondary disk)

Step 1 :Press “F10” at BIOS POST to run ROM/RAM disk setup

Step 2 :Set “Primary disk drive” to A, and “Secondary disk drive” to M1
(Primary disk drive=on board 1.7MB)
(Secondary disk drive=512KB Flash)

All-in-one Pentium CPU Card ROM/RAM Disk SetUp Vx.x	
Primary disk drive	:A
Secondary disk drive	M1
System boot sequence	:CMOS setup
COM port for remote Flash PGM	:COM1
Auto detect and boot from Disk A:	:Disabled

Step 3 :Set “Boot sequence” to CMOS setup

Step 4 :Press “F7” to save setup value and exit

Step 5 :Format A: and B: at DOS prompt
C>Format A:/S (format Primary disk with system files)
C>format B: (format Secondary disk)

Step 6 :Creat “Autoexec.bat” file in disk A:, and modify the first line in “autoexec.bat” file to have “@ Diskswap.exe” command

Step 7 :Copy “DISKSWAP.EXE” file to disk A: from provided utility diskette

Step 8 :reboot your system and press “F10” again and modify “Boot sequence” to ROM disk

A.5 How to use DiskOnChip Flash disk

The DiskOnChip™ Flash disk chip is produced by M-Systems. The DiskOnChip™ Flash disk occupies only 8KB system memory address, and can completely emulate a disk in PC system

The PI-6680VN card allows the user to install this device on the socket called M1. A jumper called JP9 pin 5-6, pin 7-8 and pin 11-12 (see page32) are used to enable or disable DiskOnChip™ Flash disk

A.5.1 Using DiskOnChip only

1. Setting JP9 pin 5-6 on, pin 7-8 off, and pin 11-12 off (see page32).
2. Insert DiskOnChip flash disk module onto the M1 socket
3. Boot system and format DiskOnChip at drive C: or D: before using

A.5.2 Using DiskOnChip and 1.7MB Flash simultaneously

1. Setting JP9 pin 5-6 off, pin 7-8 off, and pin 11-12 off (see page32).
2. Insert DiskOnChip flash disk module onto the M1 socket
3. Boot system and format 1.7MB flash disk at drive A:,B:,C: or D: and DiskOnChip at drive name after 1.7MB flash disk before using

4.

Appendix B Programming the Watchdog

The PI-6680VN is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for whatever reason. This feature ensures system reliability in industrial standalone, or unmanned, environments

B.1 Watchdog timer example program

The following example shows how you might program the watchdog timer in BASIC:

```
10 REM Watchdog timer example program
20 OUT &H443,&H1F REM Start and preset watchdog timeout factor
30 GOSUB 1000 REM Your application task #1
40 X=INP (&H443) REM refresh the watchdog timer
50 GOSUB 2000 REM Your application task #2
60 X=INP (&H443) REM refresh the watchdog timer
70 OUT &H443,&H00 REM Disable the watchdog timer
80 END

1000 REM Subroutine #1, you application task
.
.
.
1070 RETURN

2000 REM Subroutine #2, you application task
.
.
.
2090 RETURN
```


Appendix C

Pin Assignments

This appendix contains information of a detailed or specialized nature. It includes:

Ext. Speaker Connector (CN17 pin[9,11,13,15])

HDD LED Connector (CN17 pin[2,4])

Power LED (CN17 pin[8,10,12,14])

Hardware reset switch connector (CN17 pin[5,7])

ATX power control connector (CN18, CN17 pin[1,3])

Floppy drive connector (CN9)

IDE hard disk connector (CN1,CN7)

Parallel port connector (CN2)

CRT display connector (CN15)

Ext. LCD display connector (CN8)

USB connectors (CN9,CN10)

COM port connector (CN3,CN4)

Ir port Connector (CN21)

CPU fan connector (CN24)

Chassis fan connector (CN25)

CD audio input connector (CN6)

Audio Connector (CN5)

Video Audio input connector (CN14)

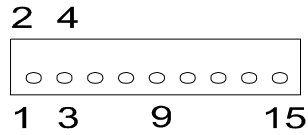
AUX IN (CN11)

Extended PS/2 Mouse connector (CN22)

Keyboard/PS2 mouse connector (CN23,CN26)

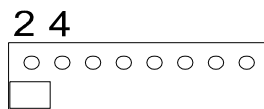
RJ-45(LAN) connector (CN19)

C.1 Ext. Speaker Connector (CN17 pin[9,11,13,15])



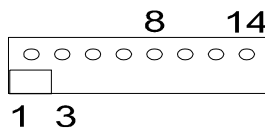
Pin	Function
15	Speaker Data
11,13	GND
9	+5V DC

C.2 HDD LED Connector (CN17 pin[2,4])



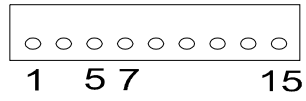
Pin	Function
2	LED+
4	LED--

C.3 Power LED (CN17 pin[8,10,12,14])



Pin	Function
8,10	+5V DC
12	GND
14	N.C.

C.4 Hardware reset switch connector (CN17 pin[5,7])



Pin	Function
5	Reset SW+
7	Reset SW-

C.5 ATX power control connector (CN18, CN17 pin[1,3])

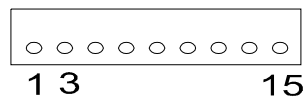
The PI-6680 can support an advanced power button if an ATX power supply is used.. To enable the power button:

1. Connect the 3-pin plug of the cable to CN18 (ATX power feature connector) from ATX power supplied backplane.
2. Connect the power on/off button to CN17 pin[1,3]. (A momentary type of button should be used.)

Important:

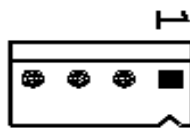
Be sure that the ATX power supply can take at least 10 mA load on the 5 V standby lead (5 VSB). If not, you may have difficulty powering on your system.

C.5.1 ATX Power Button connector: CN17 pin[1,3]



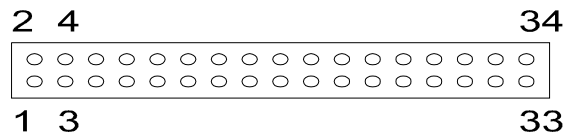
Pin	Function
1	Power button
3	Power button

C.5.2 ATX Power feature connector: CN18



Pin	Function
1	N.C
2	STB_5V
3	PS_ON
4	GND

C.6 Floppy drive connector (CN9)



Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT*
3	GND	4	N/C
5	GND	6	DRIVE TYPE
7	GND	8	INDEX*
9	GND	10	MOTOR 0*
11	GND	12	DRIVE SELECT 1*
13	GND	14	DRIVE SELECT 0*
15	GND	16	MOTOR 1*
17	GND	18	DIRECTION*
19	GND	20	STEP*
21	GND	22	WRITE DATA*
23	GND	24	WRITE GATE*
25	GND	26	TRACK 0*
27	GND	28	WRITE PROTECT*
29	GND	30	READ DATA*
31	GND	32	HEAD SELECT*
33	GND	34	DISK CHANGE*

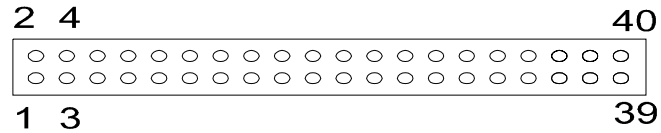
* low active

C.7 IDE hard disk connector (CN1,CN7)

PI-6680VN provides two hard disk connectors called CN1 and CN7

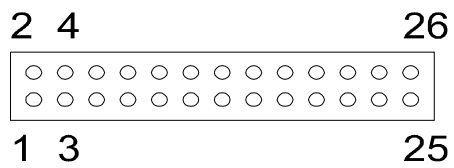
CN1: Primary hard disk connector

CN2: Secondary hard disk connector



Pin	Signal	Pin	Signal
1	-RST	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	N.C
21	N.C	22	GND
23	IOW	24	GND
25	IOR	26	GND
27	IRDY	28	BALE
29	N.C.	30	GND
31	IRQ	32	IO16
33	A1	34	N.C.
35	A0	36	A2 CS0
37	CS0	38	CS1
39	-ACT	40	GND

C.8 Parallel port connector (CN2)



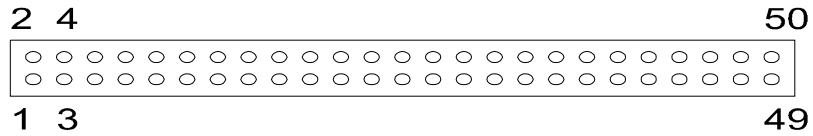
Pin	Signal	Pin	Signal
1	STROBE*	2	AUTOFD*
3	D0	4	ERR
5	D1	6	INIT*
7	D2	8	SLCTINI*
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	ACK*	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	N/C

C.9 CRT display connector (CN15)



Pin	Signal
1	RED
2	GREEN
3	BLUE
4	N.C
5	GROUND
6	R/G/B return GND
7	R/G/B return GND
8	R/G/B return GND
9	N.C
10	GND
11	N.C
12	N.C
13	HSYNC
14	VSYNC
15	N.C

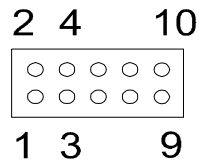
C.10 Ext. LCD display connector (CN8)



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

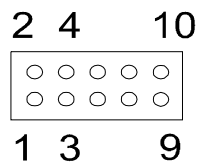
C.11 USB connectors (CN9,CN10)

C.11.1 USB 0 and USB 1 (CN9)



Signal	USB 0	USB 1
+5V	pin-1	pin-2
USB-	pin-3	pin-4
USB+	pin-5	pin-6
GND	pin-7	pin-8

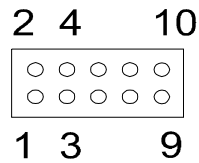
C.11.2 USB 2 and USB 3 (CN10)



Signal	USB 2	USB 3
+5V	pin-1	pin-2
USB-	pin-3	pin-4
USB+	pin-5	pin-6
GND	pin-7	pin-8

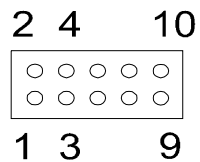
C.12 COM port connector (CN3,CN4)

C.12.1 COM1(CN3)



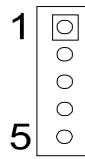
Pin	Signal
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI (or Vcc)

C.12.2 COM2(CN4)



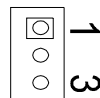
Pin	Signal
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI (or Vcc)

C.13 Ir port Connector (CN21)



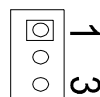
Pin	Signal
1	VCC
2	nc
3	IR_RX
4	GND
5	IR_TX

C.14 CPU fan connector (CN24)



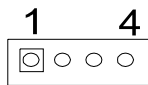
pin	signal
3	GND
2	+12V/DC
1	Rotation

C.15 Chassis fan connector (CN25)



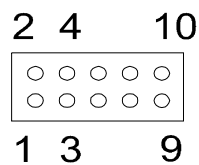
pin	signal
3	GND
2	+12V/DC
1	Rotation

C.16 CD audio input connector (CN6)



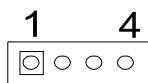
pin no.	signal
1	CD in L
2,3	CD-GND
4	CD in R

C.17 Audio Connector (CN5)



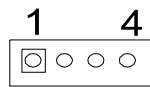
pin	signal	pin	signal
1	Line out L	2	Audio GND
3	Line out R	4	Audio GND
5	MIC-IN	6	MIC-PWR
7	Audio GND	8	Line in L
9	Audio GND	10	Line in R

C.18 Video Audio input connector (CN14)



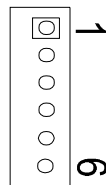
pin no.	signal
1	VA in L
2,3	VA-GND
4	VA in R

C.19 AUX IN (CN11)



pin no.	signal
1	AUX in L
2,3	AUX-GND
4	AUX in R

C.20 Extended PS/2 Mouse connector (CN22)



pin	Signal
1	MS_Data
2	N.C
3	GND
4	+5V/DC
5	MS_CLK
6	N.C

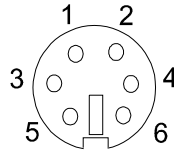
C.21 Keyboard/PS2 mouse connector (CN23,CN26)

There are two keyboard connectors(CN23,CN26) for PS2/keyboard

CN26: Supports PS/2 standard keyboard and PS/2 mouse with Mini DIN

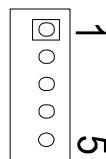
CN23: 5-pin keyboard socket for using the external keyboard socket on front panel

C.21.1 Keyboard/PS2 mouse DIN-connector : CN26



pin	Signal
1	KB_Data
2	MS_DATA
3	GND
4	+5V/DC
5	KB_CLK
6	MS_CLK

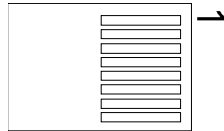
C.21.2 Extended Keyboard Connector : CN23



pin	Signal
1	KB_Data
2	KB_CLK
3	NC
4	GND
5	+5V/DC

C.22 RJ-45(LAN) connector (CN19)

This connector supports Ethernet 10Mbps/100Mbps network data transfer rate operation, with built-in Tx-link LED indicators for monitoring network communication



pin	signal
1	TX+
2	TX-
3	RX+
4	COMM
5	COMM
6	RX-
7	COMM
8	COMM

Appendix D

System Assignments

System I/O ports

DMA channel assignments

Interrupt assignments

D.1 System I/O ports

Addr. range (Hex)	Device
000-01F	DMA controller
020-021	Interrupt controller 1, master
022-023	Chipset address
040-05F	8254 timer
060-06F	8042 (keyboard controller)
070-07F	Real-time clock, (NMI) mask
080-09F	DMA page register,
0A0-0BF	Interrupt controller 2
0C0-0DF	DMA controller
0F0	Clear math co-processor
0F1	Reset math co-processor
0F8-0FF	Math co-processor
1F0-1F8	Fixed disk
200-207	Reserved (Game I/O)
278-27F	Reserved
2E8-2EF	Serial port 4
2F8-2FF	Serial port 2
300-31F	Prototype card
360-36F	Reserved
378-37F	Parallel printer port 1 (LPT 2)
380-38F	SDLC, bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome display and LPT1
3C0-3CF	Reserved
3D0-3DF	Color/graphics monitor adapter
3E8-3EF	Serial port 3
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1
443	Watchdog timer

D.2 DMA channel assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available (Parallel Port)
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

D.3 IRQ mapping chart

IRQ no.	Device used
0	Interval timer
1	Keyboard
2	Interrupt from Controller 2
3	COM2
4	COM1
5	COM4
6	FDD
7	LPT1
8	RTC
9	Reserved
10	COM3
12	PS/2 mouse or for free to user
13	INT from co-processor
14	Primary IDE
15	Secondary IDE