

E.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

E.3 IRQ mapping chart

IRQ no.	Device used
0	Interval timer
1	Keyboard
2	Interrupt from Controller 2
3	COM2
4	COM1
5	Reserved
6	FDD
7	LPT1
8	RTC
9	Software Redirected to INT 0AH (IRQ2)
10	Reserved
11	Reserved
12	PS/2 mouse
13	Co-processor
14	Primary IDE

PI-6335V/N series
All-In-One 80386SX-40
with on-board
VGA/LAN/DOC/TFT LCD interface
and
General Purpose I/O channels

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E.1 System I/O ports

Addr. range (Hex)	Device
000-01F	DMA controller
020-021	Interrupt controller 1, master
022-023	Watchdog time
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
543	General Purpose I/O (GPIO)
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
544,643-644	SSD control register

Appendix E

System configuration

Table of contents

Chapter 1 Hardware installation.....5

- 1.1 Introductions6
- 1.2 Specifications.....7

Chapter 2 Jumper settings9

- 2.1 Locating jumpers 10
- 2.2 Jumper 11
- 2.3 Setting jumpers..... 11
 - 2.3.1 LCD Panel Shift-Clock setting (JP1) 12
 - 2.3.2 ROM Disk & DOC Setting (JP2 pin[1-10])..... 12
 - 2.3.3 COM1 RS-232/485 mode selection (JP3)..... 13
 - 2.3.4 CMOS RAM Battery (JP4)..... 13

Chapter 3 Connecting Peripherals.....14

- 3.1 Locating Connectors..... 15
- 3.2 Connectors 16
- 3.3 IDE Hard Drive Connector (CN1) 17
- 3.4 Floppy drive connector (CN2)..... 17
- 3.5 Parallel port connector (CN3) 17
- 3.6 PS/2 Keyboard & mouse connector (CN20) 18
- 3.7 Ext. Keyboard connector (CN18)..... 18
- 3.8 Ext. PS/2 mouse connector (CN11)..... 18
- 3.9 General Purpose I/O Connector (CN5)..... 18
- 3.10 Speaker Connector (CN4 pin 10,11,12,13)..... 18
- 3.11 Hard disk LED (CN4 pin 8,9) 18
- 3.12 Power LED & KBD. lock (CN4 pin 3,4,5,6,7) 18
- 3.13 Hardware reset switch (CN4 pin 1,2)..... 19
- 3.14 COM-port connectors(CN15,CN7,CN13,CN8) 19
 - 3.14.1 COM1 RS-232/RS-422/RS-485 (CN15,CN7)..... 19
 - 3.14.2 COM2 RS-232 (CN13,CN8) 19
- 3.15 VGA interface connectors (CN12,CN9,CN6)..... 19
 - 3.15.1 CRT display connector (CN12,CN9) 19
 - 3.15.2 Flat panel display connector (CN6) 19

3.16 External power input connector (CN19).....	20
3.17 Ethernet 10Base-T RJ-45 connector (CN14).....	20
3.18 CPLD Connector (CN10).....	20

Chapter 4 VGA BIOS Setup.....21

4.1 Introduction	22
4.1.1 Chipset	22
4.1.2 Display memory.....	22
4.1.3 Display types	22
4.1.4 Flat Panel BIOS and Utility	22

Appendix A SSD, DiskOnChip Setup.....24

Appendix B Programming EEPROM32

Appendix C Programming Watch dog timer34

Appendix D Pin assignment of connectors36

Appendix E System configuration.....46

D.12 Power Input Connector (CN19)

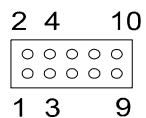
pin	Signal
1	+12VDC
2	GND
3	GND
4	+5V/DC

D.13 Extended PS/2 Mouse connector (CN11)

pin	Signal
1	MS_Data
2	nc
3	GND
4	+5V/DC
5	MS_CLK
6	nc

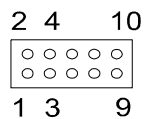
D.14 Ext. Keyboard connector (CN18)

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

D.11 COM port connector (CN13,CN8,CN15,CN7)**D.11.1 COM1 RS-232/RS-422/RS-485 (CN13,CN8)** (ref.3.14.1)

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

➤ RS-422/485 Terminator Resistor : R3 for "TX / DATA" and R8 for "RX"

D.11.2 COM2 RS-232 (CN15,CN7)

Pin	RS-232	Pin	RS-232
1	DCD	2	DSR
3	RX	4	RTS
5	TX	6	CTS
7	DTR	8	RI
9	GND	10	NC

Chapter 1

Hardware installation

1.1 Introductions

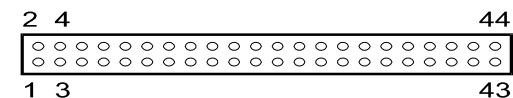
The PI-6335V/N is a full-function Half size CPU Card which integrates the VGA LCD panel, GPIO, Ethernet (PI-6335VN) and other enhanced I/O interfaces on a PC/104 CPU Card. This Card uses an embedded ALI-80386SX-40MHz low power CPU and embedded 4MB EDO RAM on board

The PI-6335V/N offers power management to minimize power consumption. It complies with the "Green Function" standard and supports three power saving features: doze, sleep, and suspended mode.

Its high performance VGA display supports both CRT and panel displays with a display memory of up to 1 MB and a resolution of up to 1024x768. The VGA controller is a ISA bus TOPRO TP6508IQ, which comes equipped with a windows accelerator.

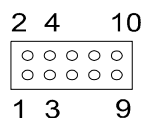
The PI-6335V/N also offers several industrial features such as a 255-level watchdog timer with jumperless setup, supports M-systems DiskOnChip Flash Disk and PC/104 connection for additional functions with PC/104 modules.

D.10 44-pin header LCD display connector (CN6)



Pin	Signal	Pin	Signal
1	GND	2	GND
3	SHF_CLK	4	M (ACD_CLK)
5	HSYNC (LP)	6	VSYNC (FLM)
7	P0	8	P1
9	P2	10	P3
11	P4	12	P5
13	P6	14	P7
15	P8	16	P9
17	P10	18	P11
19	P12	20	P13
21	P14	22	P15
23	P16	24	P17
25	P18	26	P19
27	P20	28	P21
29	P22	30	P23
31	GND	32	GND
33	+5VDC	34	+5VDC
35	+5VDC	36	ENABKL
37	ENA_VEE	38	+12VDC
39	+12VDC	40	ENA_VDD
41	nc	42	GND
43	nc	44	nc

D.9 Ext. 10-pin header CRT display connector (CN9)



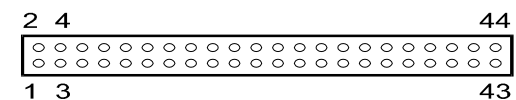
Pin	Signal	Pin	Signal
1	RED	2	GND
3	GREEN	4	GND
5	BLUE	6	GND
7	HSYNC	8	GND
9	VSYNC	10	nc

1.2 Specifications

- **CPU:** ALi 80386SX-40MHz low power CPU
- **Bus interface:** PC/AT ISA bus
- **Chipset:**
 - System : ALi M6117C
 - Multi I/O : SMSC FDC37C669
 - LAN : RTL8019C (For PI-6335VN)
 - VGA : TOPRO TP6508IQ
- **System BIOS:** AMI 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.
- **System Memory:** On-board 4MB EDO DRAM up to 8MB
- **Display:**
 - . TOPRO TP6508IQ Accelerator with 1MB memory. support TFT/STN/EL/Mono LCD, Resolutions up to [1024x768@16bpp](#)
 - . Panel data bus : 24bit
 - . Display output: DB-15 VGA connector, 44 x 2 pin header general purpose flat panel display connector
- **LAN:** ISA bus single-chip Ethernet controller and RJ-45 connector. supports 10 Mb/s N-way Auto-negotiation operation (For PI-6335VN)
- **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:** One port and up to two Enhanced IDE devices of PIO mode 4
- **Serial Ports:** One RS-232C and one RS-232/422/485 serial Ports. All with 16C550 UART And 16 byte FIFOs
- **Printer Port:** One SPP/ECP/EPP Bi-direction Parallel Port.
- **Solid state disk:** One expended 32-pin Sockets for M-Systems **DiskOnChip**
- **EEPROM :** Reserved 240 words(16bits) EEPROM register for user R/W
- **Real-time clock/calendar:** Lithium battery with 10 year data retention
- **General Purpose I/O interface:** 16-channels (8-in/8-out) GPIO connector
- **Watch Dog timer:** The watch dog timer range from 0 to 254 sec
- **I/O bus expansion:** PC/104 ISA Bus connector

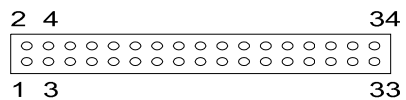
- **Power Supply Voltage:** + 5VDC
- **Power Consumption:** +5VDC/1.05A (max)
- **Storage Temperature:** -4 to 248D(-20 to 120C)
- **Operating Temperature:** 0 ~ 60° C (32 ~ 140° F)
- **Dimensions:** 186.79mm(L) x 123.19mm(W)

D.8 IDE hard disk connector (CN1)



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	IORDY	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	-LED	40	GND

D.7 Floppy drive connector (CN2)



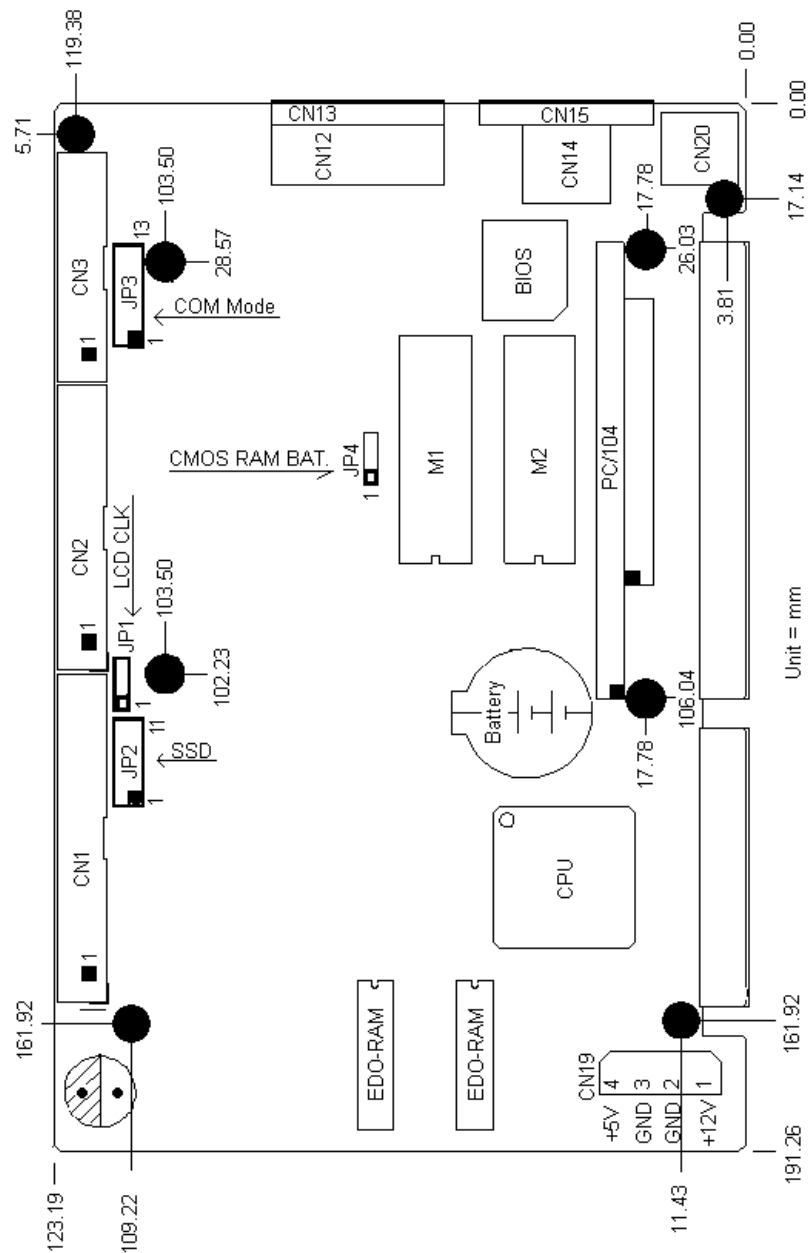
Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT*
3	GND	4	N/C
5	GND	6	DRIVE TYPE
7	GND	8	INDEX*
9	GND	10	MOTOR 0*
11	GND	12	DRIVE SELECT 1*
13	GND	14	DRIVE SELECT 0*
15	GND	16	MOTOR 1*
17	GND	18	DIRECTION*
19	GND	20	STEP*
21	GND	22	WRITE DATA*
23	GND	24	WRITE GATE*
25	GND	26	TRACK 0*
27	GND	28	WRITE PROTECT*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

* low active

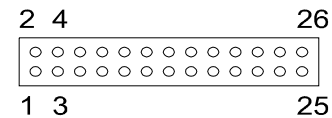
Chapter 2

Jumper settings

2.1 Locating jumpers



D.6 Parallel port connector (CN3)

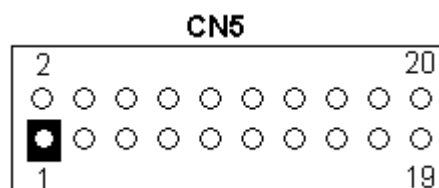


Pin	Signal	Pin	Signal
1	STROBE*	2	AUTOFD*
3	D0	4	ERR
5	D1	6	INIT*
7	D2	8	SLCTINI*
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	ACK*	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	N/C

D.5 General Purpose I/O Port connector (CN5)

(The I/O port address of the GPIO is fixed to **hex 543**)

Pin NO.	Function	Pin NO.	Function
1	GPI0	2	GPI1
3	GPI2	4	GPI3
5	GPI4	6	GPI5
7	GPI6	8	GPI7
9	GND	10	GND
11	GPO0	12	GPO1
13	GPO2	14	GPO3
15	GPO4	16	GPO5
17	GPO6	18	GPO7
19	GND	20	GND



2.2 Jumper

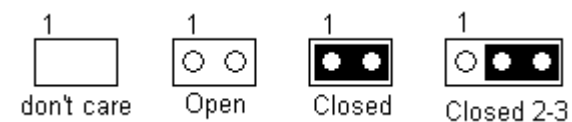
The PI-6335V has a number of jumper that allow you to configure your system to suit your application. The table below lists the function of each of the board's jumper:

Label	Function	page
JP1	LCD Panel Shift-Clock setting	12
JP2	ROM Disk & DOC Setting	12
JP3	COM1 RS-232/422/ 485 type selection	13
JP4	CMOS RAM Battery	13

2.3 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:

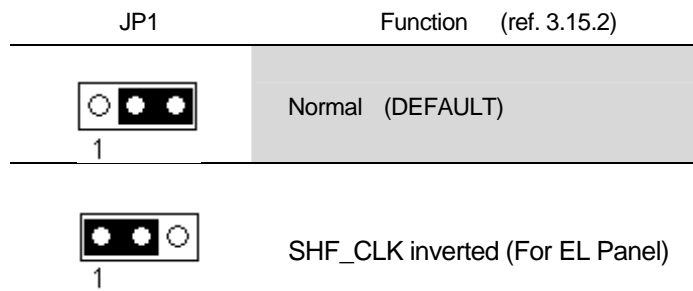


A pair of needle-nose pliers may be helpful when working with jumpers.

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

2.3.1 LCD Panel Shift-Clock setting (JP1)



2.3.2 ROM Disk & DOC Setting (JP2 pin[1-10])



SSD Device Type Setting :

Device	SRAM	Flash & ROM	M1 = SRAM,Flash,ROM M2 = DiskOnChip	M1 & M2= DOC (DEFAULT)
M1	pin(1-2) = ON	pin(1-2) = ON	Ref. SRAM,Flash,ROM	pin(1-2)=OFF
	pin(5-6) = OFF	pin(5-6) = OFF		pin(9-10)=OFF
	pin(9-10) = ON	pin(9-10) = OFF		
M2	pin(1-2) = ON	pin(1-2) = ON	pin(1-2) = ON	pin(1-2)=OFF
	pin(5-6) = OFF	pin(5-6) = OFF	pin(5-6) = ON	pin(7-8)=OFF
	pin(7-8) = ON	pin(7-8) = OFF	pin(7-8) = OFF	

The On-board 1.7MB Flash Disk data Write Enabled/Disabled setting:

Flash Disk Write Enabled (Read/Write)	JP2 pin(1-2)=ON
Flash Disk Write Disabled(Read Only)	JP2 pin(1-2)=OFF

SSD Address Setting :

JP2 pin(3-4)	SSD Address
OFF	C8000h-CFFFFh (DEFAULT)
ON	D8000h-DFFFFh

D.1 Hardware reset switch connector (CN4 pin 1-2)

Pin	Function
1	Reset SW+
2	Reset SW-

D.2 Power LED & KBD. lock Connector (CN4 pin 3-7)

Pin	Function
3	Power LED+
4	nc
5	Power LED-
6	KBD. lock
7	GND

D.3 HDD LED Connector (CN4 pin 8-9)

Pin	Function
8	LED+
9	LED-

D.4 Ext. Speaker Connector (CN4 pin 10-13)

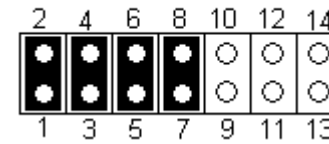
Pin	Function
10	+5V DC
11	GND
12	GND
13	Speaker Data

Appendix D

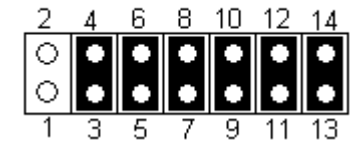
Pin assignment of connectors

2.3.3 COM1 RS-232/485 mode selection (JP3)

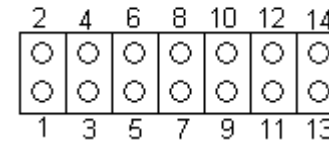
RS-485 :



RS-422 :



RS-232 :



2.3.4 CMOS RAM Battery (JP4)

JP4	Function
	Normal (DEFAULT)
	Clear CMOS RAM

Chapter 3

Connecting Peripherals

C.1 How to use watch dog timer

The PI-6335V/N is equipped with watch-dog timer that resets the system if processing comes to a standstill, Typically caused by electromagnetic interface(EMI) or software bugs. This features ensures continued operation in industrial stand-alone and unmanned applications. The watch-dog timer is a circuit that should be refreshed periodically. If it is not refreshed within a certain time, the watch-dog timer will automatically reset the system,generate interrupts or NMI. This prevents a system from hanging indefinitely.

The watchdog timer uses 32.768KHz frequency source can be programmed in two steps 1 count a 24-bit counter so the time range is from 30.usec to 512 sec with resolution 30.5usec.

C.2 Watch dog timer I/O Ports

Watch dog timer uses two I/O port address hex 22 and hex 23

- ◆ I/O 22h port : Index register
 1. Index 13h : internal register write enable
 2. Index 37h : enable watch dog timer(bit 6)
 3. Index 38h : watchdog time out report signal select(bit 7,6,5,4)
 4. Index 39h : watchdog timer counter value (byte 0)
 5. Index 3Ah : watchdog timer counter value (byte 1)
 6. Index 3Bh : watchdog timer counter value (byte 2)

- ◆ I/O 23h port : data register

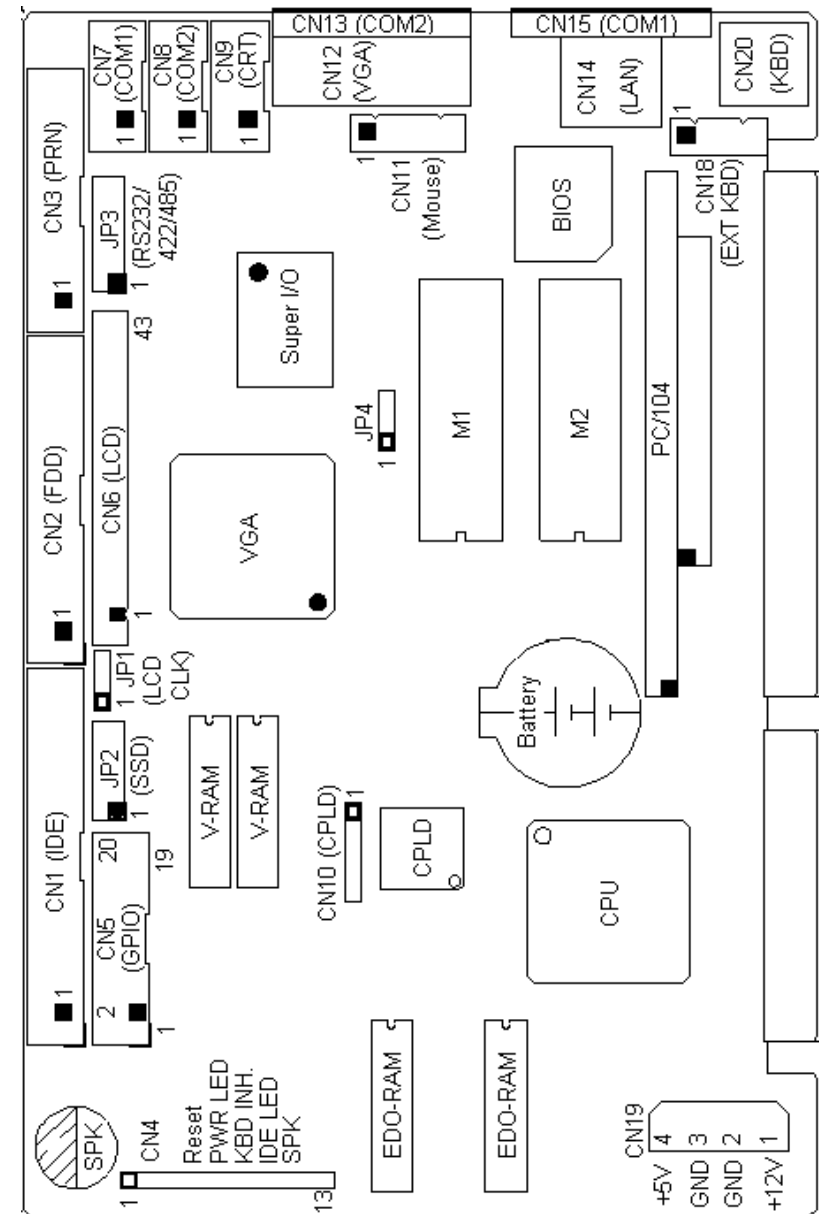
In packing diskette, there are a watchdog timer driver,driver header and two demo program which shows you how to program the watchdog timer written with C language.

- | | |
|--------------|---------------------------|
| 1. WDDEMO1.C | Demo Program 1 |
| 2. WDDEMO2.C | Demo program 2 |
| 3. WDOGDRV.C | Driver for watchdog timer |
| 4. WDOGDRV.H | Driver header |

Appendix C

Programming Watch dog timer

3.1 Locating Connectors



3.2 Connectors

On-board connectors link the PI-6335V/N 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	Hard disk connector	16
CN2	Floppy disk connector	16
CN3	Parallel port connector	17
CN20	PS/2 Keyboard & mouse connector	20
CN18	Ext. Keyboard connector	20
CN11	Ext. PS/2 connector	19
CN5	General Purpose I/O connector	19
CN4	Speaker connector	18
CN4	Hard disk LED Connector	18
CN4	Power LED Connector & KBD. Lock	18
CN4	Hardware Reset Switch	18
CN15	COM1 D-type connector (PI-6335/V)	19
CN7	COM1 10-pin header connector	19
CN13	COM2 D-type connector (PI-6335)	19
CN8	COM2 10-pin header connector	19
CN12	CRT VGA Display connectot	19
CN9	Ext. 10-pin header CRT Display connecotr	19
CN6	Flat panel Display Connector	19
CN19	External Power Input connector	20
CN14	Ethernet connector (PI-6335VN)	20
CN10	CPLD Connector	19

B.1 How to use EEPROM

The PI-6335V/N provide a 93C66 EEPROM for backup system configures and reserved 240 words for user R/W through the interrupt vector by press <F10> at power-on to select EEPROM R/W interrupt vector number.

Read data from EEPROM

```
Entry :  AH = 0 - Read EEPROM
         DL      - Address (10h - FFh)

Exit :   AX      - data (16bits)
```

Write data to EEPROM

```
Entry :  AH = 1 - Write EEPROM
         DL      - Address (10h - F0h)
         BX      - data (16bits)

Exit :   none
```

Example: EEPROM R/W interrupt vector number is 6Fh

```
; Write data to EEPROM
```

```
Mov  ah,1          ; Write data function number
Mov  dl,20h        ; Address
Mov  bx,3A2Bh      ; data
Int  6Fh           ; Write data to EEPROM
```

```
; Read data from EEPROM
```

```
Mov  ah,0          ; Read data function number
Mov  dl,20h        ; Address
Int  6Fh           ; Read data from EEPROM (data saved in AX)
```


Appendix B

Programming EEPROM

3.3 IDE Hard Drive Connector (CN1)

You can attach one or two Enhanced Integrated Device Electronics hard disk drives to the PI-6335V/N's internal controller. This advanced IDE controller supports faster data transfer, PIO mode 3, mode 4.

Connect one end of the cable to CN1. 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).

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.)

3.4 Floppy drive connector (CN2)

You can attach up to two floppy drives to the PI-6335V/N'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.

1. Plug the 34-pin flat-cable connector into CN2. 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.

If you are connecting a 3.5½" 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 connector 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.

3.5 Parallel port connector (CN3)

Normally, the parallel port is used to connect the card to a printer. The PI-6335V/N includes a multi-mode (ECP/EPP/SPP) parallel port, accessed through CN3, 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.

3.6 PS/2 Keyboard & mouse connector (CN20)

The PI-6335V/N 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-6335VN'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.

3.7 Ext. Keyboard connector (CN18)

In addition to CN18 connector. The PI-6335VN board also provides another keyboard connectors labeled CN18, which can be connected to outside world with convert cable.

(Ref. P45)

3.8 Ext. PS/2 mouse connector (CN11)

The PI-6335V/N board also provides PS/2 mouse Ext. connectors CN11, which can be connected to outside world with convert cable. (Ref. P45)

3.9 General Purpose I/O Connector (CN5)

The Card provide 16-channels (8-in/8-out) general purpose I/O Port(GPIO). All I/O signals confirm to LS-TTL levels and support Pull-Up resistore(10K Ω) for each channel

(The I/O port address of theGPIO is fixed to **hex 543**) (Ref. P38)

3.10 Speaker Connector (CN4 pin 10,11,12,13)

The PI-6335V/N can drive an 8 Ω speaker at 0.5 watts. Make sure that alternatives to this specification do not overload the card. (detailed in Appendix D.4)

3.11 Hard disk LED (CN4 pin 8,9)

The hard disk LED indicator for hard disk access is an active low signal (24 mA sink rate).
(detailed in Appendix D.3)

3.12 Power LED & KBD. lock (CN4 pin 3,4,5,6,7)

The Power LED indicator for system power is an active low signal (24 mA sink rate).
(detailed in Appendix D.2)

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-6335VN card allows the user to install this device on the socket called M1/M2. A jumper called JP2 pin(1-2,7-8,9-10) (see 2.3.2) are used to enable or disable DiskOnChip™ Flash disks

A.5.1 M1 and/or M2 Using DiskOnChip only

- 1 For M1 : Setting JP2 pin(1-2)=off, pin(9-10)=off (see2.3.2).
- 2 For M1 : Setting JP2 pin(1-2)=off, pin(7-8)=off (see 2.3.2).
- 3 Insert DiskOnChip flash disk module onto the M1 and/or M2 socket(s)
- 4 Boot system and format DiskOnChip at drive C: or D: before using

A.5.2 Using DiskOnChip(M2) and 1.7MB Flash disk simultaneously

- 1 For M2 Setting JP2 pin 1-2=on, pin 5-6=on, and pin 7-8 off (see 2.3.2).
- 2 Insert DiskOnChip flash disk module onto the M2 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

■ Example 2

Assume to use on board 1.7MB Flash disk as disk A: (Primary disk), and 512KB SRAMs on the socket M1 and M2 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=512KBx2 SRAM)

All-in-one Pentium CPU Card ROM/RAM Disk Setup Vx.x	
Primary disk drive	:A
Secondary disk drive	M1+M2
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: Create "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

3.13 Hardware reset switch (CN4 pin 1,2)

The hardware reset switch button is an active low signal (24 mA sink rate) (detailed in Appendix D.1)

3.14 COM-port connectors(CN15,CN7,CN13,CN8)

The PI-6335V/N are supported two 16C550 compatible UARTs with 16 byte FIFOs. A simple one-to-one adapter can be used to match CN7,CN8 to a standard 9-pin D-SUB connector commonly used for COM. (Ref. P44)

3.14.1 COM1 RS-232/RS-422/RS-485 (CN15,CN7)

- CN15 -- D-type connector (for PI-6335V/N) (detailed in Appendix D.11)
- CN7 -- 10-pin dual-in-line header connector (detailed in Appendix D.11)

3.14.2 COM2 RS-232 (CN13,CN8)

- CN13 -- D-type connector (for PI-6335) (detailed in Appendix D.11.1)
- CN8 -- 10-pin dual-in-line header connector (detailed in Appendix D.11.1)

3.15 VGA interface connectors (CN12,CN9,CN6)

The PI-6335V/N's ISA 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.

3.15.1 CRT display connector (CN12,CN9)

- CN12 -- 15-pin D-SUB connector used for conventional CRT displays.
- CN9 -- 10-pin dual-in-line header connector.

Pin assignments for CRT display connector CN9 are detailed in Appendix D.9

3.15.2 Flat panel display connector (CN6)

CN6 is a 44-pin connector which can support a 24-bit TFT LCD. It is TOPRO product no. TP6508IQ.

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

Pin assignments for connector CN6 are detailed in Appendix D.10

3.16 External power input connector (CN19)

The connector CN19 is four pins +12VDC & +5VDC power input connector detailed in Appendix D.12

3.17 Ethernet 10Base-T RJ-45 connector (CN14)

The Card **PI-6335VN** is equipped with a high performance ISA-bus Ethernet interface which is fully compliant with IEEE 802.3U 10Mbps CSMA/CD standards. It is supported by all major network operating systems.

3.18 CPLD Connector (CN10)

CPLD programming connector

■ 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: Create "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

A.4 How to install Flash or SRAM device on socket M1/M2

See jumper settings (Ref P12) before installing device

A.4.1 Acceptable device on the socket M1,M2

The extended sockets "M1,M2" can accept many types of Volatile memory devices, including 128KB ,512KB SRAM as shown followings

SRAM :SONY CXK581000/584000 or equivalent

A.4.2 Setting drive of extended disk

You have two way to use extended device on the sockets M1/M2

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

A.4.3 Format before usage

If device (Flash or SRAM) is first time installed into extended socket (labeled M1/M2) 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 sockets M1/M2

If device (Flash or SRAM) is first time installed into extended sockets (labeled M1/M2) 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/M2

Flash disk installation examples

Chapter 4

VGA BIOS Setup

4.1 Introduction

The PI-6335V/N has an on-board flat panel/VGA interface. The specifications and features are described as follows:

4.1.1 Chipset

The PI-6335V/N uses a TOPRO TP6508IQ chipset for its SVGA controller. It supports many popular LCD, EL, and gas plasma flat panel displays and conventional analog CRT monitors. The TP6508IQ 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 1 MB display memory on board, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1024 x 768 at 256 colors.

4.1.3 Display types

CRT and panel displays can be used simultaneously. The PI-6335V/N 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.

4.1.4 Flat Panel BIOS and Utility

Below is a list of optional Flat Panel SVGA BIOS. The VGA BIOS is combined with the system BIOS in a single. To change to another BIOS please contact your local dealer.

DSTN.dat - Data file for Color DSTN640*480

Example : (1) Sanyo LCM-5331-22NTK
(2) SHARP LM64C35P

MLCD.dat - Data File for MONO DSTN640*480

Example : (1) OPTREX DMF_50260NFU-FW-8
(2) HITACHI LMG5160XUFC
(3) CASIO MD650TS00-01
(4) HOSIDEN HLM6667

TFT_S1.dat - Data File for TFT640*480-Sync (16 BIT)

TFT_S2.dat - Data File for TFT640*480-Sync (18/24 BIT)

Example : (1) HITACHI TX26D60/TX24D55
(2) TOSHIBA LTM09C015A
(3) SHARP LQ10D321

■ 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 from 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 (option)

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 JP2 (Ref P12) 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. Reboot system and then modify the ROM/RAM disk setup to set "Boot Sequence" to "ROM Disk" and press F7 to 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+M2	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

TFT_LP1.dat - Data File For TFT640*480-LP (16 BIT)
TFT_LP2.dat - Data File For TFT640*480-LP (18/24 BIT)
Example : (1) Toshiba LTM09c015A)

TFT86_S1.dat - Data File for TFT800*600_sync (16 BIT)
TFT86_S2.dat Data File for TFT800*600_sync (18/24 BIT)
Example : (1) NEC NL8060AC26-05
(2) NEC NL8060AC26-04
(3) NEC NL8060BC31-02

EL.dat - Data File for EL640*480
Example : (1) PLANAR EL640.480-A

PLASMA.dat - Data File for PLASMA640*480
Example : (1) PANASONIC S817

CRT/Flat Panel Mode

All the above BIOS support either CRT only, Flat Panel only or CRT/Flat Panel simultaneously. To set the mode a Panel Switching Utility is used USAGE:

At DOS prompt type >SW508 then Screen will show

1. CRT Only
2. Panel Only
3. CRT/Panel Simutaneous

Appendix A

SSD, DiskOnChip Setup

A.1 About solid state disk

The PI-6335VN provides on-board 1.7MB(option) flash ROM disk and one extended solid state disk sockets (M1,M2) which can accept SRAM and also **DiskOnChip™** device. The PI-6335VN solid state disk occupies two system memory area addr. C8000-CFFFF and D8000-DFFFF (see 2.3.2)

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