

**PI-6583V**  
**All-In-One Pentium**  
**CPU card with on-board**  
**VGA interface**  
**and**  
**Flash/SRAM disk**

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# 1. Introductions

## 1.1 Description

Welcome to the PI-6583V Pentium™ with 3D AGP VGA interface and ROM/Flash Disk Single Board Computer. The PI-6583V CPU card is an ISA form factor board, which comes equipped with high performance Pentium P54C/P55C(MMX),AMD K5/K6/K6-2/K6-3,Cyrix M1/M2 CPUs and advanced high performance multi-mode I/O, designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

This board built-in 2MB Flash ROM Disk (*Option*) and one extended disk socket which can accept SRAM/Flash device or DiskOnChip™(DOC) Flash Disk for embedded application. User can use any DOS command without any extra software utility. The DOC currently is available from 2MB to 72MB.

An advanced high performance super AT I/O chip – SMC37C669 is used in the PI-6583V board. Both on-chip UARTs are compatible with the NS16C550. The parallel port and PCI bus Ultra DMA-33 Enhance IDE interface are compatible with IBM PC/AT and XT architecture's.

In addition, the PI-6583V provides one 168-pin DIMM sockets for its on-board SDRAM. The SDRAM module accepts 1MB, 2MB, 4MB, 8MB, 16MB, 32MB,and 64MB.

PI-6583V VGA interface is supported for integrate H/W 3D AGP VGA controller. The VGA controller is high performance and targeted at 3D graphic application.

## 1.2 Specifications :

The PI-6583V Pentium with VGA interface Single Board Computer provides the following specification:

- **CPU :**
  - Intel – Pentium P54C/P55C(MMX) (350MHz or up)
  - AMD - K5/K6-2/K6-3 (450MHz or up)
  - Cyrix – M1/M2
- **CPU voltage:**+1.30V to +3.50V (jumper selectable)
- **Host Clock:** 66.6 MHz to 100 MHz (jumper selectable)
- **Bus :**ISA bus (PC/AT)
- **Chipsets :**
  - System - SiS530 /5595
  - I/O - SMC37C669
  - VGA - Integrated in SiS530
- **System BIOS:**
  - Award BIOS and VGA BIOS in a single Flash ROM
  - Y2K compliant BIOS
- **System memory :**
  - Support One 168-pin DIMM socket up to 0.5GB
  - Supports 1M/2M/4M/8M/16M/32M/64Mxn SDRAM
  - Support PC-100 SDRAM module when running at 100MHz CPU bus speed and use PC-66/PC-100 module when running at 66MHz CPU bus speed.
- **Cache memory :**
  - On-board 512KB up to 2MB of secondary synchronous burst-mode cache
- **Display:**
  - Integrates super CRT AGP VGA controller for Hardware 2D/3D Video/Graphics Accelerators
  - Supports tightly coupled 64 bits 100MHz host interface to VGA to speed up GUI performance and the video playback frame rate.
  - Built-in programmable 24-bit true-color RAMDAC up to 230 MHz pixel clock
  - Shared System Memory Area 2MB, 4MB and 8MB
  - Support non-interlaced CRT monitor with resolutions up to 1600x1200x8

- The integrated 3D VGA controller is also built-in virtual screen mode  
Which could support up to 2048x2048 resolution
- **Universal Serial Bus (USB) interface :**
  - Two USB pin-header connectors
  - USB v1.0 and Intel Universal HCI v1.0 compatible
- **Plug and Play :**
  - Dual interrupt and DMA signal steering with plug and play control.
  - MS Windows 95/98/NT and plug play BIOS compliant
- **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 channel master mode PCI supporting two enhanced IDE devices
  - Support Ultra-DMA 33
  - Supports IDE PIO Timing Mode0,1,2,3 and 4
  - Supports Multiword DMA Mode 0,1,2
  - 16 DW FIFO PCI Burst Transfers
- **Serial ports :**
  - Two NS16550 Compatible RS-232C Serial Ports.
  - Supported +5V(1A) Power Output or Ring Signal input By COM Port pin-9.(Jumper Selectable)
- **Printer Port**
  - One High-Speed SPP/ECP/EPP Bi-direction Parallel Port.
- **ROM/Flash Disk(SSD)**
  - ROM/Flash Disk Controller with On-Board 2M Bytes Flash ROM Disk(*OPTION*)
  - Support DOS level FORMAT (Flash ROM Only)
  - Support One 32-pin Socket For ROM/Flash ROM Disk 1MB/ROM or 512KB/Flash
  - Compatible with JEDEC Standard
  - Provide One M-Systems DiskOnChip Socket
- **Mouse :** Support PS/2 Mouse Port
- **Keyboard :**
  - PS/2 Type mini-DIN that supports PC/AT
  - Supports a 5-pin external keyboard connector
- **WatchDog timer :**
  - Software programmable Watchdog timer
  - 16 level timeout intervals range from 1 to 160 sec

- **Green Function :** Power management via BIOS, or External Ring wakeup
- **Temperature Monitoring :** A sensor for Monitor the CPU and system temperature on the Card.
- **Real-time clock/calendar :**
  - Lithium battery with 10 year data retention
- **PC/104 Connector:**
  - 16-bit PC/104 connector for expansion modules.
- **Support External Power Input Connector(P8)**
- **Power Supply Voltage : +5V,+12V**
- **Power Consumption :**
  - +5VDC/7.0A(AMD K6-III 450MHz,64MB SDRAM)
  - +12V/200mA (Power requirement will Vary with CPU type)
- **Operating Temperature:** 32 to 140F(0 to 60C).  
**Humidity:** 5% to 95%  
(A Heat Sink With Cooling Fan is Needed on CPU)
- **Storage Temperature:** -4 to 248F(-20 to 120C)
- **Dimensions:** 184.79mm(L) x 123.19mm(W) (Half size)
- **Board Type:** Dual/Side SMT, 8-Layer P.C.B

### 1.3 What You Have

In addition to this *User's Manual*, the PI-6583V package includes the following items:

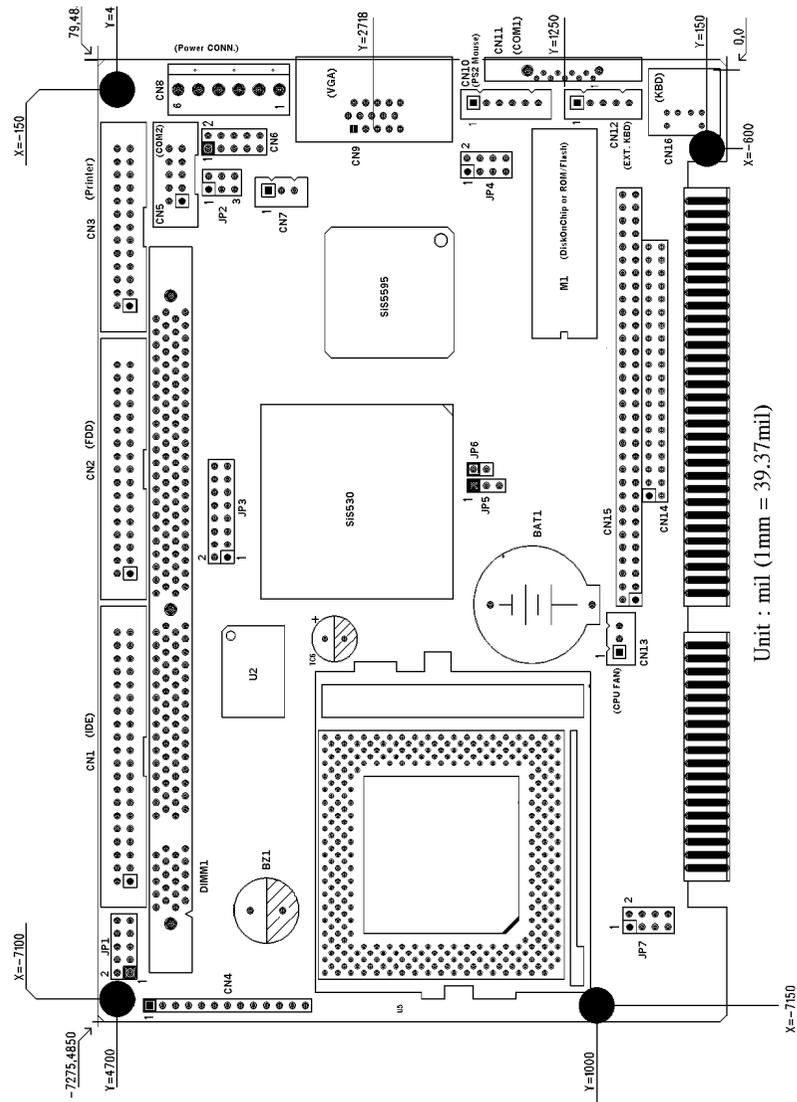
- PI-6583V Pentium with VGA Single Board Computer
- RS-232/Printer Cable
- FDD/HDD Cable
- 6-pin Mini-Din to 5-pin Din Keyboard Adapter Cable
- Two diskettes for Driver Utility

If any of these items is missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton in case you want to ship or store the product in the future.

### 1.4 Installation

This chapter describes how to install the PI-6583V. At first, the layout of PI-6583V is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the PI-6583V's configuration, such as CPU type selection, system clock setting, and watchdog timer are also included.

### 1.5 P.C.B. layout

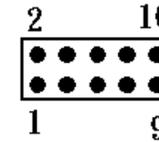


## 2 Hardware Installations

### 2.1 System Memory SDRAM : DIMM1

The PI-6583V supports one 168-pin DIMM socket for a maximum total memory of 512MB SDRAM. Use SDRAM modules with PC100 specification when running 100MHz CPU bus speed. With 66MHz CPU bus speed. SDRAM modules with PC66 or PC100 specification can be used. You have to install the Pentium processor before installing the memory modules.

### 2.2 CPU Core Voltage Setting : JP 1

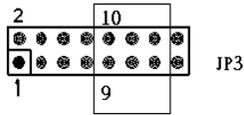


1-2	3-4	5-6	7-8	9-10	Vcc2	1-2	3-4	5-6	7-8	9-10	Vcc2
Open	Open	Open	Open	Close	2.10V	Close	Open	Open	Open	Open	1.30V
Open	Open	Open	Close	Open	2.20V	Close	Open	Open	Open	Close	1.35V
Open	Open	Open	Close	Close	2.30V	Close	Open	Open	Close	Open	1.40V
Open	Open	Close	Open	Open	2.40V	Close	Open	Open	Close	Close	1.45V
Open	Open	Close	Open	Close	2.50V	Close	Open	Close	Open	Open	1.50V
Open	Open	Close	Close	Open	2.60V	Close	Open	Close	Open	Close	1.55V
Open	Open	Close	Close	Close	2.70V	Close	Open	Close	Close	Open	1.60V
Open	Close	Open	Open	Open	2.80V	Close	Open	Close	Close	Close	1.65V
Open	Close	Open	Open	Close	2.90V	Close	Close	Open	Open	Open	1.70V
Open	Close	Open	Close	Open	3.00V	Close	Close	Open	Open	Close	1.75V
Open	Close	Open	Close	Close	3.10V	Close	Close	Open	Close	Open	1.80V
Open	Close	Close	Open	Open	3.20V	Close	Close	Open	Close	Close	1.85V
Open	Close	Close	Open	Close	3.30V	Close	Close	Close	Open	Open	1.90V
Open	Close	Close	Close	Open	3.40V	Close	Close	Close	Open	Close	1.95V
Open	Close	Close	Close	Close	3.50V	Close	Close	Close	Close	Open	2.00V
						Close	Close	Close	Close	Close	2.05V

1. For Single Voltage CPU : Intel P54C, Cyrix 6x86, AMD K5 CPU Core Voltage must be set to 3.3V
2. For Dual Voltage CPU : Intel P55C, Cyrix 6x86L/MX2, AMD K6/K6-2/3 CPU Core Voltage dependent CPU Type

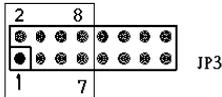
**2.3 CPU internal frequency Bus/Core ratio selector : JP 3**

pin[ 9-10,11-12,13-14 ]



JP 3			
9-10	11-12	13-14	Bus/Core Ratio
Close	Open	Open	2.0x
Close	Close	Open	2.5x
Open	Close	Open	3.0x
Open	Open	Open	3.5x
Close	Open	Close	4.0x
Close	Close	Close	4.5x
Open	Close	Close	5.0x
Open	Open	Close	5.5x

**2.4 CPU external clock speed selector : JP 3 pin[1-2,3-4,5-6,7-8]**



JP 3						
1-2	3-4	5-6	7-8	CPU Fre	SDRAM	PCI Bus
Close	Close	Close	Close	90.0MHz	90.0MHz	30.0MHz
Close	Close	Close	Open	66.7MHz	100MHz	33.3MHz
Close	Close	Open	Close	95MHz	63.3MHz	31.7MHz
Close	Close	Open	Open	100MHz	66.6MHz	33.3MHz
Close	Open	Close	Close	100MHz	75MHz	30.0MHz
Open	Close	Close	Close	66.7MHz	66.7MHz	33.4MHz
Open	Close	Close	Open	75MHz	75MHz	30MHz
Open	Close	Open	Close	83.3MHz	83.3MHz	33.3MHz
Open	Close	Open	Open	95MHz	95MHz	31.7MHz
Open	Open	Close	Close	100MHz	100MHz	33.3MHz

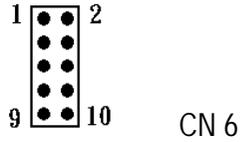
**2.5 CPU Linear/Interleave burst : JP 3 pin[ 15-16 ]**

Signale Name	JP 3 pin 15-16	Remark
Interleave Burst		Default
Linear Burst		For Cyrix L/MX CPU

**2.6 On-Board VGA controller Enable/disable : JP6**

JP6	VGA	Remark
Open	Enable	Default
Close	Disable	

**2.7 USB (Universal serial Bus ) connector : CN 6**



**USB Port 0**

Pin No.	Signal
1	+5V
3	USB-
5	USB+
7	GND
9	GND

**USB Port 1**

Pin No.	Signal
2	+5V
4	USB-
6	USB+
8	GND
10	GND

**2.8 COM Serial Port Connector : CN 5,CN 11**

The On-Board serial ports of PI-6583V are a DB-9pin(CN11) and a 10 pin-header(CN5)

**COM1/3 D-Type 9-pin Connector : CN 11**

CN 11 (D-Type 9-pin)	
Pin No.	Signal Name
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI or +5V

DB-pin9 signal RI or +5Vdc is selector by JP2

**COM2/4 10-pin Header : CN 5**

CN 5 (10-pin Header)			
Pin No.	Signal Name	Pin No.	Signal Name
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI or +5V
9	GND	10	nc

CN5 Ext. by flat-cable to D-TYPE 9-pin Connector,  
DB-pin9 signal RI or +5VDC is selected by JP2

### 2.9 Jumper for selecting Ring or +5VDC of COM port : JP 2

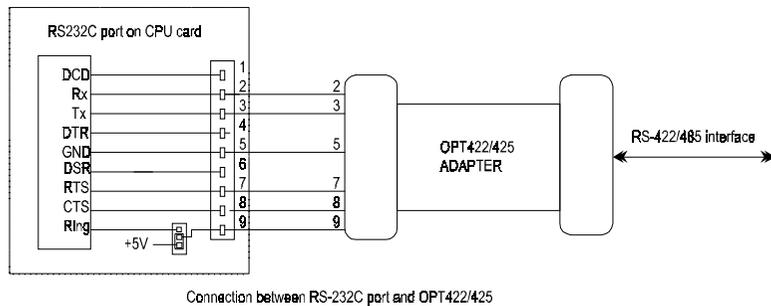
COM port	JP 2	Signal	Remark
COM 1/3		Ring	Default
		+5VDC	
COM 2/4		Ring	Default
		+5VDC	

+5VDC has Fuse/1A (FS1) protected)

### 2.10 Converting RS-232 serial port to RS-422/485

The RS-232C serial port(s) on this card can easily be converted to RS-422/485 interface by using OPT422/485 adapter

The OPT425 can convert four RS-232C level signals into RS-422 level( Tx,Rx,RTS,CTS), and supplied by +5V through pin-9 of RS-232C connector as shown below.



See chapter 2 to set jumper called JP2 properly before using OPT425 adapter

### 2.11 Keyboard connector : CN 16 (6-pin mini DIN)

Pin No.	Signal
1	KB_data
2	N.C
3	GND
4	+5V DC
5	KB_clk
6	GND

### 2.12 Extended keyboard connector : CN 12 (5-pin header)

Pin No.	Signal
1	KB_clk
2	KB_data
3	N.C
4	GND
5	+5V DC

### 2.13 PS/2 Mouse connector : CN 10

Pin No.	Signal
1	MS_data
2	N.C
3	GND
4	+5V DC
5	MS_clk
6	N.C

**Notes :** Due to PS/2 Mouse and USB Controller occupied IRQ12 channel  
 If you want use IRQ12 on ISA BUS must be Disabled PS/2 and USB function by BIOS CMOS Setup :  
 INTEGRATED PERIPHERALS → PS/2 Mouse function : Disable  
 → USB Controller : Disable

**2.14 Clear CMOS setup : JP 5**

JP5	Signal	Remark
	Clear CMOS	
	Normal	Default

Note : . The system should be turned off before Clear CMOS RAM  
 . You should close the JP5 pin 1-2 about 3 seconds, Then set back to normal operation mode(Close JP5 pin 2-3)

**2.15 CPU FAN Power Connector : CN 13**

CN13 is a 3-pin header for the CPU FAN. The FAN must use +12V FAN

Pin No.	Signal
1	GND
2	+ 12V DC
3	Rotation

**2.16 Chassis FAN power connector : CN 7**

CN7 is a 3-pin header for the Chassis FAN. The FAN must use +12V FAN

Pin No.	Signal
1	GND
2	+ 12V DC
3	Rotation

**2.17 Hardware Reset Switch connector : CN 4 pin [ 1 , 2 ]**



12

Pin No	Signal Name
1	Reset
2	GND

**2.18 Power LED & Key Lock : CN 4 pin [ 3,4,5,6,7 ]**

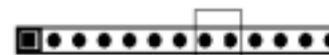


CN 4

1 3 4 5 6 7

Pin No	Signal
3	PWR LED
4	NC
5	GND
6	Key Lock
7	GND

**2.19 HDD LED Connector : CN 4 pin [ 8,9 ]**



1 8 9

Pin No	Signal Name
8	+5V
9	GND



## 2.24 Floppy Disk Driver Connector : CN 2

Pin No.	Signal
1 -33 (odd)	Ground
2	High density
4,6	Unused
8	Index
10	Motor enable A
12	Driver select B
14	Driver select A
16	Motor enable B
18	Direction
20	Step pulse
22	Write data
24	Write enable
26	Track 0
28	write protect
30	Read data
32	Select head
34	Disk change

## 2.25 Hard Disk Driver Connector : CN 1

Pin No.	Signal	Pin No.	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	-ACT	40	GND

### 2.26 Watchdog reset setting : JP 7

The watch dog timer is programmable in 16 level from 1 to 160 seconds. When the timer counts to completion, it sets a flag and optionally asserts **Reset** or **NMI**.

It is define at I/O port 443h, When you want to enable/disable the watchdog timer, write data to I/O port 443h. IF you want to refresh watch dog timer Read I/O port from 443h.

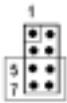
The watch dog timer base can be set at 1.0 or 10 seconds by JP 7 pin [ 5-6 , 7-8 ]

#### Watch Dog Active Type setting : JP 7 pin [ 1-2 , 3-4 ]



ACT Type	JP 7 pin [1-2 , 3-4 ]	Remark
Reset		
NMI		
Disable		Default

#### Watchdog timer base setting : JP 7 [ 5-6 , 7-8 ]



Time Base	JP 7 [ 5-6 , 7-8 ]	Remark
1.0 sec		Default
10 sec		

### The watch dog timer table ( Time Base = 1.0 sec )

Value	Time/sec	Value	Time/sec
0	Disable	17H	9
1FH	1	16H	10
1EH	2	15H	11
1DH	3	14H	12
1CH	4	13H	13
1BH	5	12H	14
1AH	6	11H	15
19H	7	10H	16
18H	8		

### The watch dog timer table ( Time Base = 10 sec )

Value	Time/sec	Value	Time/sec
0	Disable	17H	90
1FH	10	16H	100
1EH	20	15H	110
1DH	30	14H	120
1CH	40	13H	130
1BH	50	12H	140
1AH	60	11H	150
19H	70	10H	160
18H	80		

**Example 1 :**

```

; Time Base = 1.0 sec (JP7 pin[5,6] = SHORT, pin[7,8] = OPEN)
mov    dx,443h          ; Load Watch dog I/O port Addr.
mov    al,11h          ; Set to 15 sec
out    dx,al           ; Write to Control REG.
...
...
    in    al,dx          ; Clear(Refresh) watch dog timer. repeat
...
...
mov    al,0             ; Disable Watch dog
out    dx,al           ; Write to Control REG.

```

**Example 2 :**

```

; Time Base = 10 sec (JP7 pin[7,8] = SHORT, pin[5,6] = OPEN)
mov    dx,443h          ; Load Watch dog I/O port Addr.
mov    al,16h          ; Set to 100 sec
out    dx,al           ; Write to Control REG.
...
...
    in    al,dx          ; Clear(Refresh) watch dog timer. repeat
...
...
mov    al,0             ; Disable Watch dog
out    dx,al           ; Write to Control REG.

```

**2.27 PC/104 ISA Bus Connector : CN14, CN15****XT- bus**

CN15	Name	CN15	Name	CN15	Name	CN15	Name
A1	-IOCHK	A17	SA14	B1	GND	B17	-DACK1
A2	SD7	A18	SA13	B2	RESET	B18	DRQ1
A3	SD6	A19	SA12	B3	VCC	B19	-REFSH
A4	SD5	A20	SA11	B4	IRQ9	B20	SCLK
A5	SD4	A21	SA10	B5	-5V	B21	IRQ7
A6	SD3	A22	SA9	B6	DRQ2	B22	IRQ6
A7	SD2	A23	SA8	B7	-12V	B23	IRQ5
A8	SD1	A24	SA7	B8	-WS0	B24	IRQ4
A9	SD0	A25	SA6	B9	+12V	B25	IRQ3
A10	IORDY	A26	SA5	B10	NC	B26	-DACK2
A11	BAEN	A27	SA4	B11	-SMWR	B27	TC
A12	SA19	A28	SA3	B12	-SMRD	B28	BALE
A13	SA18	A29	SA2	B13	-IOW	B29	VCC
A14	SA17	A30	SA1	B14	-IOR	B30	OSC
A15	SA16	A31	SA0	B15	-DACK3	B31	GND
A16	SA15	A32	GND	B16	-DRQ3	B32	GND

AT - bus

CN14	Name	CN14	Name	CN14	Name	CN14	Name
D1	GND	D11	-DACK5	C1	GND	C11	-MWR
D2	-MCS16	D12	DRQ5	C2	-SBHE	C12	SD8
D3	-IOCS16	D13	-DACK6	C3	SA23	C13	SD9
D4	IRQ10	D14	DRQ6	C4	SA22	C14	S10
D5	IRQ11	D15	-DACK7	C5	SA21	C15	SD11
D6	IRQ12	D16	DRQ7	C6	SA20	C16	SD12
D7	IRQ13	D17	VCC	C7	SA19	C17	SD13
D8	IRQ14	D18	MASTR	C8	SA18	C18	SD14
D9	DACK0	D19	GND	C9	SA17	C19	SD15
D10	DRQ0	D20	GND	C10	-MRD	C20	NC

2.28 Solid state Disk Controller(SSD) :

The PI-6583V is 2M Byte(Unformat) Flash Disk On-board (Option) call "M0" that can be R/W under DOS and can be booted from Driver "A", "B", "C" or "E" and support One 32-pin sockets call "M1" for EXT. ROM/Flash disk or DiskOnChip.

. M1 socket Support Memory Type :

**EPROM** : INTEL/AMD/TI 27C010, 27C020, 27C040, 27C080 or equivalent.

**Flash ROM (VPP=+5V)** : AMD 29F010(128KB), 29F040(512KB), SST 28CF040, ATM 29C040A or equivalent.

**DiskOnChip** : The DiskOnChip(DOC) Flash Disk is produced by M-Systems Because the DOC is 100% compatible to hard disk and DOS Customer don't need any extra software utility. Right now the DOC is available from 2MB to 144MB.

Note : 1. Memory Access time ≤ 150ns

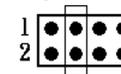
2. VPP +12V Flash memory can not be write on - board

The PI-6583V SSD Controller have multi- function:

1. On-Board 2M Byte(Formatted = 1.7MB) Flash Disk Only(M0)
2. On-board flash disk(M0) with ROM/Flash disk(M1)
3. On-Board Flash Disk(M0) with DiskOnChip (M1)
4. DiskOnChip(M1) Only

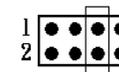
Note: The ROM/Flash Disk and DiskOnChip the driver Name is separate.

Base I/O Port Address Select : JP 4 pin[ 3,4 ]



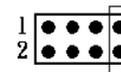
JP 4 pin[ 3-4 ]	I/O Addr	Remark
Open	236h,636h	
Close	136h,536h	Default

ROM/Flash disk Enable/Disable : JP 4 [ 5- 6 ]



JP 4 pin[ 5-6 ]	ROM/Flash	Remark
Open	Enable	
Close	Disable	Default

DiskOnChip Enable/Disable : JP 4 pin [ 7-8 ]



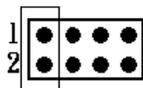
JP 4 pin[ 7-8 ]	DiskOnChip	Remark
Open	Enable	
Close	Disable	Default

## 2.29 How to install DiskOnChip

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

1. Disable on-board 1.7MB Flash disk by setting jumper JP4 pin [ 5-6 ] Close
2. Insert DiskOnChip Flash device(s) into M1
3. Boot system form normal CMOS setup sequence
4. Format DiskOnChip flash disk at DOS prompt as:  
*C>format D: /S (if one active hard disk existed)*  
 Or  
*C>format E: /S (if two hard active disk existed)*
5. Copy your application files into DiskOnChip Flash disk by using "COPY" command
6. Reboot system and then modify System BIOS SETUP to have Hard Disk(s) not installed
7. The system will boot DOS from Flash disk

## 2.30 SSD memory Address select : JP 4 pin [ 1-2 ]



JP 4 pin[ 1-2 ]	Memory addr	Remark
Open	C8000h-CFFFFh	
Close	D0000h-D7FFFh	Default

### Summary View :

JP 4			
pin [ 5-6 ]	Pin [ 7-8 ]	M0	M1
Open	Close	Enable	ROM/Flash
Open	Open	Enable	DiskOnChip
Close	X	Disable	DiskOnChip

## SSD Occupies System Memory Address Select : JP4 pin[ 1,2 ]

(The ROM/Flash Disk Total Occupies System Memory 24KByte Area)  
 (The DiskOnChip Occupies System Memory 8KByte Area)

### 1. On-Board Flash disk(M0) with EXT. ROM/Flash disk(M1) active : JP 4

JP 4					
Address	M0	M1	pin [ 1-2 ]	pin [ 5-6 ]	pin [ 7-8 ]
D0000h~D5FFFh	Enable	ROM/Flash	Close	Open	Close
C8000H~CDFFFH	Enable	ROM/Flash	Open	Open	Close

(Total Occupies System Memory 24KByte(M0+M1) Area)

### 2. On-Board Flash disk(M0) with DiskOnChip(M1) active : JP 4

JP 4					
Address	M0	M1	pin [ 1-2 ]	pin [ 5-6 ]	pin [ 7-8 ]
D0000h~D7FFFh	Enable	DiskOnChip	Close	Open	Open
C8000H~CFFFFH	Enable	DiskOnChip	Open	Open	Open

(Total Occupies System Memory 32KByte(M0+M1) Area)

### 3.DiskOnChip Only(M1) : JP 4

JP 4					
Address	M0	M1	pin [ 1-2 ]	pin [ 5-6 ]	pin [ 7-8 ]
D6000h~D7FFFh	Disable	DiskOnChip	Close	Close	Open
CE000H~CFFFFH	Disable	DiskOnChip	Open	Close	Open

(Total Occupies System Memory 8KByte(M0+M1) Area)

## 3 VGA driver installation

This chapter provides information on how to install VGA drivers that come in the floppy diskette with your PI-6583V card. Please note that there must be relevant software installed in your system before you could proceed to install the VGA drivers.

### 3.1 Installing the drivers for Windows 95

The following section describes the normal display driver installation procedures for Windows 95. Use the following procedures when installing the display drivers for Windows 95

1. Click Start, then Settings, then Control Panel
2. Double click on "Display"
3. Select the "Settings" page, click the "Change Display Type button.
4. Click the "Change" button and press "OK"
5. Click the "Have Disk" button and press "OK"
6. Specify the path to the new driver and press <ENTER>:
7. Example: Insert the drivers disk in the A: floppy disk, and enter a:\win95
8. The "Select Device" dialog box will appear. Select the adapter that corresponds to the one you installed in your machine and click OK.
9. Windows 95 will copy the display drivers to the proper directories on your system
10. Continue choosing "Close" until asked to restart your machine from the "System Settings change" dialog box
11. After the system has restarted, you can go back into Display applet and select alternate screen resolution and color depths

### 3.2 Installing the drivers for Windows NT 3.5X

The following section describes the VGA driver installation procedures for Windows NT 3.5X

1. Run Windows NT Setup from Main Group
2. Choose Option from the menu (Alt-O)
3. Select change System Setting (Alt-C)
4. Choose "Other" under the Display section
5. Insert display driver disk in appropriate floppy drive
6. Type the destination as "A:\NT35x"

### 3.3 Installing the drivers for Windows NT 4.0

Once you are in the Windows NT 4.0 environment, follow the procedures below to install the VGA drivers in the diskette that comes with your CPU card

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 window, click on have Disk. Follow the directions on the screen to supply the directory where the Windows NT driver files are located. Then select OK, or press ENTER.
5. Select Chips Video Accelerator from Display list provided, then click OK or press ENTER
6. You will then see a warning panel about Third Party Drivers. Click on Yes to finish the installation
7. Once the installation is completed, the system must be shut down and restarted for the new drivers to take effect
8. When the system has restarted, the default graphic mode (usually 640x480x256 color) has been automatically selected. Click the Start button, then go to Setting and click on Control Panel. Click on the Display icon to start the Display Properties window. Click on the Setting tab. A new screen setting can be selected using either of the following methods:
  - A. Use the slide-bar in the Desktop Area to select new setting.
  - B. Click on List All Modes. From the list provides, select a new setting, then click OK or press ENTER
  - C. 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 shut down and restart for the new screen settings to work

## 4 IDE Driver installation

This chapter provides information on how to install IDE hard disk drivers that come in the floppy diskette with your PI-6583V card. Please note that there must be relevant software installed in your system before you could proceed to install the IDE hard disk drivers.

### 4.1 Installing the drivers for NetWare 386 v3.1x, v4.x

Use the NetWare 386 v3.11 file "SERVER.EXE" to start the installation process. You will be prompted for a file server name and an IPX internal network number. Consult the "NetWare 386 User's Manual" for this information.

Installing SiS NetWare driver requires use the "LOAD" console command.

For a complete explanation of "LOAD", see the "NetWare System Administration" manual.

- For NetWare 3.1x :
 

```
:LOAD [path]SiSIDE.DSK [parameters]
```
- For NetWare 4.x :
 

```
:LOAD [path]SiSIDE.DSK [parameters]
```

#### Warning!!!

It's improper to switch IDE driver for NetWare server. Please load SiS driver during installation and keep on using it. If you use other driver and than switch to SiS driver, the data in hard disk will not be guaranteed to be correct, and vice versa.

## 4.2 Installing drivers for Window 95/98?

Use the following sequence step by step:

1. Popup 'Control Panel' and open 'Add New Hardware'. Choice 'Next'.
2. Switch to 'No' - don't let Windows to search for your new hardware, and click 'Next'.
3. Select 'Hard disk controller' and click 'Next'.
4. Click the button 'Have Disk' ( or press Alt+H).
5. Make sure the install disk is in drive A(or drive B), and then click 'OK'. A 'Select Device' dialog box will be popup.
6. Select the device that you wish to install and click 'Next'.
7. After this install procedure is complete, you may need to restart the computer.

### **Attention :**

1. When the Win95 install the software for primary and secondary channel for IDE driver, please DO NOT RESTART COMPUTER after Win95 just finish primary channel. Let Win95 continue to install software for secondary channel. After secondary channel is finished, the RESTART COMPUTER to let new installed IDE driver to take effect.
2. Sometimes, the SiS IDE controller has already been installed with the standard driver provided by Microsoft. In order to use SiS IDE controller with the driver we provided, it is necessary to remove the standard driver from "Control Panel/System/Device Manager".
3. This version support Ultra-33 feature.

## 4.3 Installing drivers for Window NT 4.0

1. From the Control Panel menu, double click the SCSI Adapters icon.
2. When the SCSI Adapters dialog box appears, click [Drivers] in the upper menu . Pick the [Add...] button.
3. Click [Have Disk...] in the Install Driver dialog box.
4. Insert the IDE Driver installation diskette for Windows NT4.0 into floppy drive. Key in the correct driver and path, then click [OK].
5. "SiS Bus Master IDE Controller" will present in the Install Driver dialog box. Please click [OK] again.
6. When the dialog box asks you " Do you want to restart your computer now?" select [Yes]. System will reboot.
7. When the system brings up again, repeat procedure 1.
8. When the SCSI Adapters dialog box appears, select the driver which you do not want, click [Remove].
9. Shutdown and reboot system, installation is complete.

## 5 BIOS Setup

### 5.1 Main menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

ROM PCI/ISA BIOS (2A59F008)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type...	

#### ■ Standard CMOS Setup

This setup page includes all the items in a standard, AT-compatible BIOS

#### ■ BIOS Features Setup

This setup page includes all the items of Award special enhanced features

#### ■ Chipset Features Setup

This setup page includes all the items of chipset special features.

#### ■ Power Management Setup

This entry only appears if your system supports Power Management, "Green PC", standards PNP / PCI Configuration Setup. This entry appears if your system supports PNP / PCI.

#### ■ Load BIOS Defaults

The BIOS defaults have been set by the manufacturer and represent settings which provide the minimum requirements for your system to operate.

#### ■ Load Setup Defaults

The chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.

#### ■ Password setting

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup

#### ■ Integrated Peripherals

This section page includes all the items of IDE hard drive and Programmed Input / Output features."

#### ■ IDE HDD Auto Detection

Automatically detect and configure hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk's parameters. See also Section 2, "Standard CMOS Setup".

#### ■ Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

#### ■ Exit Without Save

Abandon all CMOS value changes and exit setup.

## 5.2 Standard SMOS setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

ROM PCI/ISA BIOS (2A59F008)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

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

### ■ Date

The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan through Dec.
year	The year, from 1900 through 2099

### ■ Time

The time format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

### ■ Primary Master/Primary Slave/Secondary Master/Secondary Slave

The categories identify the types of 1 channel that have been installed in the computer. There are 45 predefined types and 4 users definable types are for Enhanced IDE BIOS. Type 1 to

Type 45 are predefined. Type user is user-definable.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type "User" to define your own drive type manually.

If you select Type "User", you will need to know the information listed below. Enter the information directly from the keyboard and press <Enter>. This information should be included in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, the selection shall be "Type 1".

If the controller of HDD interface is SCSI, the selection shall be "None".

If you select Type "Auto", BIOS will Auto-Detect the HDD & CD-ROM Drive at the POST stage and showing the IDE for HDD & CD-ROM Drive.

### ■ Drive A Type / Drive B Type

The category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

### ■ Video

The category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

### ■ Halt On

The category determines whether the computer will stop if an error is detected during power up.

No errors	The system boot will not be stopped for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

### 5.3 BIOS Features Setup

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

ROM PCI/ISA BIOS (2A59F008)  
BIOS FEATURES SETUP  
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		
		ESC : Quit	↑↓→← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

#### ■ Virus Warning

When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt is made, the BIOS will halt the system and the following error message will appear. Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

#### ■ CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is enable.

#### ■ Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

### ■ Boot Sequence

This category determines which drive to search first for the disk operating system (i.e., DOS). Default value is A,C.

### ■ Swap Floppy Drive

This item allows you to determine whether enable the swap floppy drive or not.

The choice: Enabled/Disabled.

### ■ Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

### ■ Boot Up NumLock Status

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on.

### ■ Boot Up System Speed

Selects the default system speed -- the normal operating speed at power up.

### ■ Typematic Rate Setting

This determines if the typematic rate is to be used. When disabled, continually holding down a key on your keyboard will generate only one instance. In other words, the BIOS will only report that the key is down. When the typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin the report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys.

### ■ Typematic Rate (Chars/Sec)

When the typematic rate is enabled, this selection allows you select the rate at which the keys are accelerated.

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

### ■ Typematic Delay (msec)

When the typematic rate is enabled, this selection allows you to select the delay between when the key was first depressed and when the acceleration begins.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

### ■ Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

### ■ PCI / VGA Palette Snoop

It determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not.

### ■ OS Select for DRAM > 64

This item allows you to access the memory that over 64MB in OS/2.

The choice: Non-OS2, OS2.

### ■ Video BIOS Shadow

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

### ■ C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

These categories determine whether option ROMs will be copied to RAM. An example of such option ROM would be support of on-board SCSI.

## 5.4 Chipset Feature setup

ROM PCI/ISA BIOS (2A5IM009)  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE, INC.

Auto Configuration	: Disabled	ECC Function Support	: Disabled
Refresh Rate Control	: 15.6us	AGP Aperture Size	: 4MB
Ref/Act Command Delay	: 8T	System BIOS Cacheable	: Disabled
Refresh Queue Depth	: 0	Video BIOS Cacheable	: Disabled
RAS Precharge Time	: 2T	Memory Hole at 15M-16M	: Disabled
RAS to CAS Delay	: 2T	VGA Shared Memory Size	: 1 MB
ISA Bus Clock Frequency	: 7.159MHz	VGA Memory Clock (MHz)	: 66
Starting Point of Paging	: 1T	DRAM Controller 1 T WR	: Disabled
NA# Enable	: Disabled	DRAM Controller 1 T RD	: Enabled
L2 Cache Burst RD Cycle	: Normal	PCI Post Write Buffer	: Disabled
Asyn/Sync Mode CPU/DRAM	: Asynchronous	PCI Delayed Transaction	: Disabled
SDRAM CAS Latency	: 2T		
SDRAM WR Retire Rate	: X-2-2-2	ESC : Quit	↑↑↑ : Select Item
DRAM Opt RAS Precharge	: Disabled	F1 : Help	PU/PD/+/- : Modify
PCI Peer Concurrency	: Disabled	F5 : Old Values (Shift)F2 : Color	
Read Prefetch Memory RD	: Enabled	F6 : Load BIOS Defaults	
Assert TRDY After Prefet	: 2 QWs	F7 : Load Setup Defaults	
CPU to PCI Burst Mem. WR	: Disabled		
CPU to PCI Post Write	: Disabled		
Linear Mode SRAM Support	: Disabled		

### ■ Auto Configuration

This item allows you select pre-determined optimal values of chipset parameters. When Disabled, chipset parameters revert to setup information stored in CMOS. Many fields in this screen are not available when Auto Configuration is Enabled.

The Choice: Enabled, Disabled.

**Note:** When this item is enabled, the pre-defined items will become SHOW-ONLY.

### ■ Refresh Rate Control

Select the period required to refresh the DRAMs, according to DRAM specifications.

### ■ Ref / Act Command Delay

Set the DRAM clock of the refresh command to refresh/active command delay.

### ■ Refresh Queue Depth

Set the depth of refresh queue.

### ■ RAS Precharge Time

The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refreshes. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data.

### ■ RAS to CAS Delay

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe).

### ■ ISA Bus Clock Frequency

You can set the speed of the AT bus at one-third or one-fourth of the CPU clock speed.

### ■ Starting Point of Paging

This value controls the start timing of memory paging operations.

### ■ NA# DRAM

Selecting *Enabled* permits pipelining, in which the chipset signals the CPU for a new memory address before all data transfers for the current cycle are complete, resulting in faster performance.

### ■ L2 Cache Burst RD Cycle

These timing numbers are the pattern of cycles the CPU uses to read data from the cache.

### ■ Asyn/Sync Mode CPU/DRAM

This feature can only be enabled when the frequency of CPU clock and the frequency of DRAM clock are the same and the skew between these two clocks should be zero.

### ■ SDRAM CAS Latency

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.

### ■ SDRAM WR Retire Rate

The system designer must select the correct timing for data transfers from the write buffer to memory, according to DRAM specifications

### ■ DRAM Opt RAS Precharge

The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refreshes. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data.

### ■ PCI Peer Concurrency

Peer concurrency means that more than one PCI device can be active at a time.

### ■ Read Prefetch Memory RD

When this item is *Enabled*, the system is allowed to prefetch the next read instruction and initiate the next process.

### ■ Assert TRDY After Prefet

When you select 1QWs, SiS530 asserts its first TRDY# for 1 transaction after it prefetched 1 quadword of data from system memory. Otherwise, SiS530 asserts its first TRDY# after 2 quadwords are prefetched.

### ■ CPU to PCI Burst Mem. WR

Select enabled permits PCI burst memory write cycles, for faster performance. When disabled, performance is slightly slower, but more reliable.

### ■ CPU to PCI Post Write

Select enabled to use a fast buffer for posting writes to memory. Using a fast buffer releases the CPU before completion of a write cycle to DRAM.

■ **AGP Aperture Size**

Select the size of the 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. See [www.agpforum.org](http://www.agpforum.org) for APG information.

■ **System BIOS Cacheable**

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

■ **Video BIOS Cacheable**

Selecting *Enabled* allows caching of the system BIOS ROM at C0000h-F7FFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

■ **Memory Hole at 15M-16M**

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

■ **VGA Shared Memory Size**

Specify the size of system memory to allocate for video memory, from 1 MB to 8 MB.

■ **VGA Memory Clock (MHz)**

Set the speed (MHz) of the VGA memory clock.

■ **PCI Post Write Buffer**

Enable/disable PCI post write buffer.

■ **PCI Delayed Transaction**

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

5.5 Power Management Setup

ROM PCI/ISA BIOS (2A5IM009)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

ACPI function : Enabled	VGA Activity : Disabled
Power Management : User Define	IRQ [3-7,9-15],NMI : Disabled
PM Control by APM : No	IRQ 8 Break Suspend : Disabled
Video Off Option : Always On	Power Button Over Ride : Instant Off
Video Off Method : Blank Screen	Ring Power Up Control : Disabled
Switch Function : Disabled	GPI05 Power Up Control : Disabled
Doze Speed (div by): 8/8	KB Power ON Password : Enter
Stdby Speed(div by): 8/8	Power Up by Alarm : Disabled
MODEM Use IRQ : NA	
Hot Key Function As: Disable	
** PM Timers **	
HDD Off After : Disable	
Doze Mode : Disable	
Standby Mode : Disable	
Suspend Mode : Disable	
** PM Events **	
HDD Ports Activity : Disabled	ESC : Quit ↑↑** : Select Item
COM Ports Activity : Disabled	F1 : Help PU/PD/+/- : Modify
LPT Ports Activity : Disabled	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

■ **ACPI function**

Select *Enabled* if your system has an ACPI function.

■ **Power management**

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. See the section *PM Timers* for a brief description of each mode.

This table describes each power management mode:

Disable	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.

Max. Power Saving	Maximum power management -- <b>ONLY AVAILABLE FOR SL CPU'S</b> . Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allow you to set each mode individually. When not disabled, each of the ranges is from 1 min. to 1 hr. except for HDD Power Down, which ranges from 1 min. to 15 min. and disable.

■ **PM Control 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.

If the Max. Power Saving is not enabled, this will be preset to *No*.

■ **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.
--	---------------------------------------

■ **Switch Function**

You can choose whether or not to permit your system to enter complete Suspend mode. Suspend mode offers greater power savings, with a correspondingly longer awakening period..

■ **Doze Speed (div by)**

Sets the CPU's speed during Doze mode. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8

■ **Stdby Speed (div by)**

Select a divisor to reduce the CPU speed during *Standby* mode to a fraction of the full CPU speed. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8-0.

■ **Modem Use IRQ**

Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

■ **Hot Key Power Off**

Select *Enabled* if your system has a hot key for soft power off.

■ **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 Off After**

By default, this item is disabled, meaning that no matter the mode the rest of the system, the hard drive will remain ready. Otherwise, you have a range of choices from 1 to 15 minutes or Suspend. This means that you can elect to have your hard disk drive be turned off after a selected number of minutes or when the rest of the system goes into a Suspend mode.

**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.

**Standby Mode**

When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off 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**

You may disable activity monitoring of some common I/O events and interrupt requests so they do not wake up the system. The default wake-up event is keyboard activity. When *On* (or named, in the case of LPT & COM), any activity from one of the listed system peripheral devices or IRQs wakes up the system.

**HDD Ports Activity**

When set to *On* (default), any event occurring at a HDD (serial) port will awaken a system which has been powered down.

**COM Ports Activity**

When set to *On* (default), any event occurring at a hard or floppy drive port will awaken a system which has been powered down.

**LPT Ports Activity**

When set to *On* (default), any event occurring at a LPT (printer) port will awaken a system which has been powered down.

**VGA Activity**

When set to *On* (default), any event occurring at VGA will awaken a system which has been powered down.

**5.6 PNP/PCI Configuration**

ROM PCI/ISA BIOS (2A5IM009)  
 PNP/PCI CONFIGURATION  
 AWARD SOFTWARE, INC.

Resources Controlled By : Manual	PCI IRQ Activated By : Edge
Reset Configuration Data : Disabled	PCI IDE IRQ Map To : PCI-AUTO
	Primary IDE INT# : A
	Secondary IDE INT# : A
IRQ-3 assigned to : PCI/ISA PnP	
IRQ-4 assigned to : PCI/ISA PnP	
IRQ-5 assigned to : PCI/ISA PnP	
IRQ-7 assigned to : PCI/ISA PnP	
IRQ-9 assigned to : PCI/ISA PnP	
IRQ-10 assigned to : PCI/ISA PnP	
IRQ-11 assigned to : PCI/ISA PnP	
IRQ-12 assigned to : PCI/ISA PnP	
IRQ-14 assigned to : PCI/ISA PnP	
IRQ-15 assigned to : PCI/ISA PnP	
DMA-0 assigned to : PCI/ISA PnP	
DMA-1 assigned to : PCI/ISA PnP	
DMA-3 assigned to : PCI/ISA PnP	
DMA-5 assigned to : PCI/ISA PnP	
DMA-6 assigned to : PCI/ISA PnP	
DMA-7 assigned to : PCI/ISA PnP	
	ESC : Quit
	↑↓→← : Select Item
	F1 : Help
	PU/PD/+/- : Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

■ **Resource controlled by**

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95.

■ **Reset Configuration Data**

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

■ **IRQ3/4/5/7/9/11/12/14/15**

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

---

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt ( such as IRQ4 for serial port 1). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

#### ■ DMA0/1/3/5/6/7 assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt: Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt ( such as IRQ4 for serial port 1). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

#### ■ PCI IRQ Activated by

This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised otherwise by your system's manufacturer.

#### ■ PCI IDE IRQ Map to

This allows you to configure your system to the type of IDE disk controller in use. By default, Setup assumes that your controller is an ISA (Industry Standard Architecture) device rather than a PCI controller. The more apparent difference is the type of slot being used.

If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the controller and which PCI interrupt (A, B, C or D) is associated with the connected hard drives.

Remember that this setting refers to the hard disk drive itself, rather than individual partitions. Since each IDE controller supports two separate hard drives, you can select the INT# for each. Again, you will note that the primary has a lower interrupt than the secondary as described in "*Slot x Using INT#*" above.

Selecting "*PCI Auto*" allows the system to automatically determine how your IDE disk system is configured.

## 5.7 Load BIOS Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optional and disable all high-performance features

## 5.8 Load Setup Default

This option allows you to load the default values to your system configuration. These default settings are optional and enable all high-performance features

## 5.9 Integrated Peripherals

ROM PCI/ISA BIOS (2A5IK000)  
INTEGRATED PERIPHERALS  
AWARD SOFTWARE, INC.

Internal PCI/IDE : Both	Onboard Parallel Mode : ECP/EPP
IDE Primary Master PIO : Auto	ECP Mode Use DMA : 3
IDE Primary Slave PIO : Auto	Parallel Port EPP Type : EPP1.9
IDE Secondary Master PIO: Auto	PS/2 mouse function : Disabled
IDE Secondary Slave PIO: Auto	USB Controller : Disabled
Primary Master UltraDMA: Disabled	Power Button Over Ride : Disabled
Primary Slave UltraDMA: Disabled	Ring Power Up Control : Disabled
Secondary MasterUltraDMA: Disabled	GPI05 Power Up Control : Disabled
Secondary Slave UltraDMA: Disabled	Power Up by Alarm : Enabled
IDE Burst Mode : Disabled	Month Alarm : NA
IDE Data Port Post Write: Disabled	Day of Month Alarm : 2
IDE HDD Block Mode : Disabled	Week Alarm
Onboard FDD Controller : Enabled	*** SUN MON TUE WED THU FRI SAT ***
Onboard Serial Port 1 : 3F8/IRQ4	Off Off Off Off Off Off Off
Onboard Serial Port 2 : 3F8/IRQ4	Time (hh:mm:ss) Alarm : 0: 0: 0
UART 2 Mode : HPSIR	F1 : Help PU/PD/+/- : Modify
IR Function Duplex : Full	F5 : Old Values (Shift)F2 : Color
RxD , TxD Active : Hi,Hi	F6 : Load BIOS Defaults
Onboard Parallel Port : 3BC/IRQ7	F7 : Load Setup Defaults

### Internal PCI / IDE

This chipset contains a internal PCI IDE interface with support for two IDE channels.

### IDE 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.

### IDE Primary/Secondary Master/Slave UDMA

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select *Auto* in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

### IDE Burst Mode

Selecting Enabled reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled. This field does not appear when the Internal PCI/IDE field, above, is Disabled.

### IDE Data Port Post Write

Selecting Enabled speeds up processing of drive reads and writes, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled.

### IDE HDD Block Mode

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface IDE interface.

Enabled	Secondary HDD controller used
Disabled	Secondary HDD controller not used.

### Onboard FDD Controller

This should be enabled if your system has a floppy disk drive (FDD) 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.

### Onboard Serial Port 1/Port 2

This item allows you to determine access onboard serial port 1/port 2 controller with which I/O address.

### UART 2 Mode

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

### IR Function Duplex

This item allows you to select the IR function when your select the UART 2 Mode is ASKIR

### ■ RxD, TxD Active

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

### ■ Onboard Parallel Port

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

### ■ Onboard Parallel Mode

Select an operating mode for the onboard parallel (printer) port. Normal EPP (Extended Parallel Port) ECP (Extended Capabilities Port) CEP+EPP PC AT parallel port bidirection port Fast, buffered port Fast, buffered, bidirection port.

Select Normal unless you are certain your hardware and software both support EPP or ECP mode.

### ■ ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode.

### ■ Parallel Port EPP Type

Select EPP port type 1.7 or 1.9

### ■ PS/2 mouse function

If your system has a PS/2 mouse port and you install a serial pointing device, select *Disabled*.

### ■ USB Controller

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

## 5.10 Password Setting

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:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

### 5.11 IDE HDD Auto Detection

Automatically detect and configure hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk's parameters

### 5.12 Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

### 5.13 Exit Without Save

Abandon all CMOS value changes and exit setup.

## 6 About RDISK.EXE utility

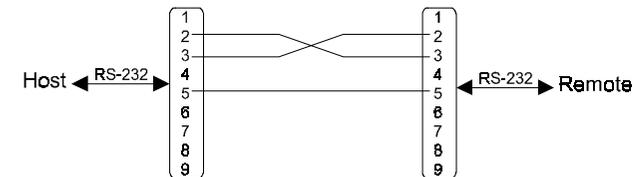
The RDISK.EXE program is a comprehensive driver, which can help you to directly access the solid-state disk in the remote system with RS-232 or RS-422 serial ports.

When RDISK.EXE be executed, it will be keep resident in host memory and redirects DOS disk I/O to remote system.

After RDISK.EXE executed at DOS prompt. The solid state disk(s) in the remote system are logged into the host system as local disk drive(s) (A:,B:) or (A: and B:),and all DOS commands are available for remote disk(s) such as COPY, DEL, FORMAT, MD...etc

The following procedures show you how to install RDISK.EXE program

1. Enter your host computer **system BIOS SETUP** menu and configure your host Floppy disks to have following configuration  
 Floppy disk A: 1.44MB or 1.2MB  
 Floppy disk B: 1.44MB or 1.2MB
2. Reboot your host system
3. Connects a RS-232 cable between the HOST and REMOTE systems



4. Turn-on your remote system
5. Press "F10" key to run ROM/RAM disk SETUP. and
6. Set "Primary ROM/RAM disk " to A:,B:,C:,or D:
7. Enable "COM Port for Remote Flash PGM:" to COM1 or COM2
8. Press "F7" to save SETUP values

9. Type RDISK <Enter> at DOS prompt of host system

10. The following message shows up on the screen

```

=====  RDISK configurations  =====
Primary Disk  = A:(local)
Secondary Disk= No used
COM port      = COM1
Baud Rate     = 57600
=====
Reboot or turn-on remote system
Type Rdisk /? for Helps
Press [ESC] to abort
Connecting ( ) _
    
```

11. At this time, the RDISK are attempting link to remote system

12. Reboot your remote system

"Connecting (-) ....." message will show up after connecting completed

13. RDISK now returns to DOS prompt and remote solid state disk(s) are ready to be accessed

14. Format remote disk(s): ( if disk in the remote system is unformatted)  
Type one of the following commands to format remote solid state disk(s) which are installed at first time

```

C>FORMAT [remote disk drive] /T:16/N:32    for 512KB Flash disk
C>FORMAT [remote disk drive] /T:32/N:32    for 1.0MB Flash disk
C>FORMAT [remote disk drive] /T:48/N:32    for 1.5MB Flash disk
    
```

15. The disk(s) in the remote are already to be accessed by the host system

16. Type " RDISK /R " at DOS prompt can release this TSR driver from host system

17. Type " RDISK /? " at DOS prompt will show more information about RDISK