

PCISA – 158HV

Pentium™ w/ VGA Half-Sized

Single Board Computer

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1

Introduction

Welcome to the PCISA-158HV Pentium™ w/ VGA Single Board Computer. The PCISA-158HV board is an ISA form factor board, which comes equipped with high performance Pentium CPU 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 DiskOnChip™(DOC) Flash Disk for embedded application. The DOC Flash Disk is 100% compatible to hard disk. User can use any DOS command without any extra software utility. The DOC currently is available from 2MB to 72MB. There also have PROMDISK-Chip™ can be used in the same DOC socket as an alternative solution.

An advanced high performance super AT I/O chip – Winbond W83877F is used in the PCISA-158HV board. Both on-chip UARTs are compatible with the NS16C550.

In addition, the PCISA-158HV provides two 72-pin SIMM sockets for its on-board DRAM. The RAM module accepts 1MB, 2MB, 4MB, 8MB, 16MB, 32MB, and 64MB. So the total on-board memory can be configured from 2MB to 128MB.

PCISA-158HV uses the advanced SIS Chipset,5598 which is 100% ISA/PCI compatible chipset with PCI 2.1 standard.

1.1 Specifications :

The PCISA-158HV Pentium w/ VGA Single Board Computer provides the following specification:

- **CPU** : Pentium™/MMX up to 233/266Mhz, AMD K5/K6 processor, Cyrix 6x86MX processor
- **Bus** : PCISA bus, meet PCI 2.1 standard
- **DMA channels** : 7
- **Interrupt levels** : 15
- **Chipset** : Sis 5598
- **VGA** : Built-in the SIS 5598 Chipset

Resolution : 1280x1024,256 color,75Hz

1024x768, 64K color,75Hz

800x600,full color,90Hz

More information : **www.sis.com.tw**

- **Real-time clock / calendar** : Dallas 12887 or equivalent device
- **RAM memory** : 2MB to 128MB,EDO and FPM DRAM supported
- **Second Cache memory** : 512KB Pipelined Burst SRAM on board
- **Ultra DMA/33 IDE Interface** : up to two PCI Enhance IDE hard drives. The Ultra DMA/33 IDE can handle data transfer up to 33MB/s. The best of all is that is new technology is compatible with existing ATA-2 IDE specifications. So there is no need to do any change for customer's current accessory.
- **Floppy disk drive interface** : two 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drives.
- **Two high speed Series ports** : NS16C550 compatible UARTs
- **Standard/EPP/ECP Parallel Port**
- **IrDA port** : Support Serial Infrared(SIR) and Amplitude Shift Keyed IR(ASKIR) interface.

- **USB port : Support USB port for future expansion.**
- **Watch-dog timer** : can be set by 1,2,10,20,110 or 220 seconds period. Reset or NMI was generated when CPU did not periodically trigger the timer. Your program use hex 043 and 443 to control the watch-dog and generate a system reset.
- **Flash Disk - DiskOnChip™ or PROMDISK-Chip™** : The Flash Disk provide 100% compatible with hard disk. The built-in TrueFFS Transparent Flash Block Management and Space Reclamation will let customer to use the Flash Disk with DOS command, no need any extra software utility.
- **Keyboard connector**
- **Mouse** : PS/2 Mouse Port on-board.
- **Power Consumption** : +5V @ 4.6A
(Pentium/MMX-200,16MB EDO RAM)
+12V @ 70mA , -12V@20mA
- **Operating Temperature** : 0° ~ 55°C (CPU needs Cooler)

1.2 What You Have

In addition to this *User's Manual*, the PCISA-158HV package includes the following items:

- PCISA-158HV Pentium w/ VGA Single Board Computer
- RS-232/Printer Cable
- FDD/HDD Cable
- 6-pin Mini-Din to 5-pin Din Keyboard Adapter Cable

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.

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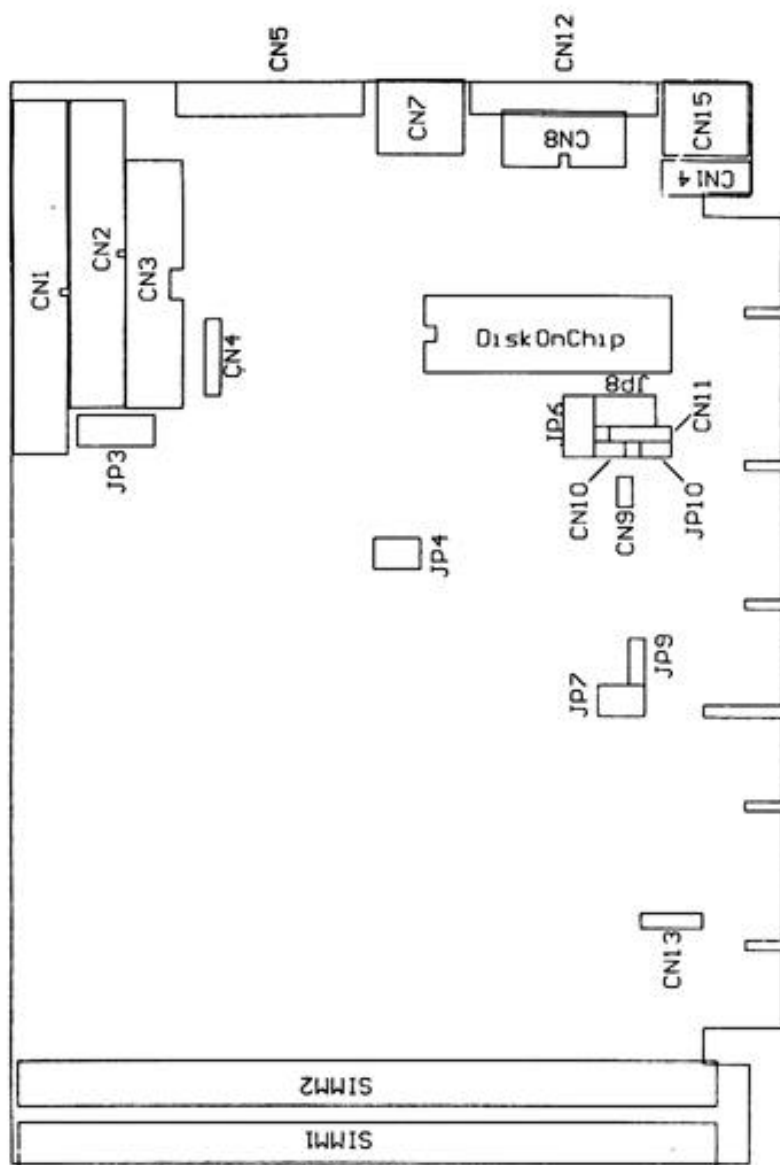
Installation

This chapter describes how to install the PCISA-158HV. At first, the layout of PCISA-158HV is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the PCISA-158HV's configuration, such as CPU type selection, system clock setting, and watch dog timer, are also included.

2.1 PCISA-158HV's Layout

< reference next page >

2.1 PCISA-158HV's Layout



2.2 Setting the CPU of PCISA-158HV

- CPU Clock Setting :

CPU Speed/Clock	JP7 1-2	JP7 3-4	JP7 5-6
50MHz	OPEN	CLOSE	CLOSE
55MHz	OPEN	OPEN	OPEN
60MHz	OPEN	OPEN	CLOSE
66MHz	OPEN	CLOSE	OPEN
75MHz	CLOSE	OPEN	OPEN
83MHz	CLOSE	CLOSE	CLOSE

- CPU to Bus Multiple :

Multiplier	JP3 1-2	JP3 3-4	JP3 5-6
1.5 x	OPEN	OPEN	OPEN
2x	CLOSE	OPEN	OPEN
2.5x	CLOSE	CLOSE	OPEN
3 x	OPEN	CLOSE	OPEN
3.5 x	OPEN	OPEN	OPEN

**CPU Frequency = CPU Clock x Multiplier for example
Pentium 200MHz = 66MHz CPU Clock x 3**

- CPU Internal Cache setting :

**JP3 9-10 : Close Write Through
OPEN Write Back (default)**

- CPU Core Voltage Selection :

Please check the CPU Core Voltage before you install the CPU. Right now new Intel MMX CPU is dual voltages for core and I/O, the I/O is 3.3V but the core is 2.8V. This kind of CPU design will enhance the low power consumption capability. As for the general Pentium CPU is one voltage for I/O and Core - 3.3V, 3.4V, or 3.5V

- **JP1 CPU Core Voltage Setting :**
(The JP1 is on the power module)

CPU Core Voltage	JP1 1-2	JP1 3-4	JP1 5-6	JP1 7-8
3.5V(P54C/CS) VRE	CLOSE	CLOSE	CLOSE	CLOSE
3.4V(P54C/CS) STD	OPEN	CLOSE	CLOSE	CLOSE
3.3V	CLOSE	OPEN	CLOSE	CLOSE
3.2V	OPEN	OPEN	CLOSE	CLOSE
3.1V	CLOSE	CLOSE	OPEN	CLOSE
3.0V	OPEN	CLOSE	OPEN	CLOSE
2.9V	CLOSE	OPEN	OPEN	CLOSE
2.8V (P55C)	OPEN	OPEN	OPEN	CLOSE
2.7V	CLOSE	CLOSE	CLOSE	OPEN
2.6V	OPEN	CLOSE	CLOSE	OPEN
2.5V	CLOSE	OPEN	CLOSE	OPEN
2.4V	OPEN	OPEN	CLOSE	OPEN
2.3V	CLOSE	CLOSE	OPEN	OPEN
2.2V	OPEN	CLOSE	OPEN	OPEN
2.1V	CLOSE	OPEN	OPEN	OPEN
2.0V	OPEN	OPEN	OPEN	OPEN

- **JP4 Dual / Single CPU Voltage setting :**

Vcore & VIO	1-3	2-4	3-5	4-6
Pentium (P54C)	OPEN	OPEN	CLOSE	CLOSE
Pentium MMX AMD K6 Cyrix 6x86MX Dual Voltage	CLOSE	CLOSE	OPEN	OPEN

. **Cyrix 6x86MX PR Rating Table**
(Vcore : 2.9V ,dual voltage)

PR Rating	Bus MHz	CPU Core MHz	Clock Multiplier
6x86MX-PR133	50	100	2x
6x86MX-PR133*	55	110	2x
6x86MX-PR150	60	120	2x
6x86MX-PR150	50	125	2.5x
6x86MX-PR166	66	133	2x
6x86MX-PR166	55	138	2.5x
6x86MX-PR166	50	150	3x
6x86MX-PR166	60	150	2.5x
6x86MX-PR200	75	150	2x
6x86MX-PR200	55	165	3x
6x86MX-PR200	66	166	2.5x
6x86MX-PR200	60	180	3x
6x86MX-PR233	75	188	2.5x
6x86MX-PR233	66	200	3x
6x86MX-PR233	83	166	2x
6x86MX-PR266	66	233	3.5x
6x86MX-PR266	75	225	3x
6x86MX-PR266	83	208	2.5x

. **AMD K6 MMX Rating Table(Dual Voltage)**

Product Name	Core Freq	Vcore	Bus MHz	Multiplier
AMD-K6-233	233MHz	3.2V	66	3.5x
AMD-K6-200	200MHz	2.9V	66	3x
AMD-K6-166	166MHz	2.9V	66	2.5x

2.3 System Memory DRAM

There are two 72-pin SIMM sockets to accept Fast Paged/EDO 1MB,2MB,4MB,8MB,16MB,32MB,or 64MB memory modules.

The total capacity is from 2MB to 128MB. Customers can use one RAM module only, but have to install at SIMM 2 which is close to CPU.

2.4 Watch-Dog Timer

The Watch-Dog Timer is enabled by reading port 443H. It should be triggered before the time-out period ends, otherwise it will assume the program operation is abnormal and will issue a reset signal to start again, or activate NMI to CPU. The Watch-Dog Timer is disable by reading port 043H.

• JP10 : Watch-Dog Active Type Setting

JP10	DESCRIPTION
2-3	RESET WHEN WDT TIME-OUT
1-2	ACTIVATE NMI TO CPU WHEN WDT TIME-OUT
OPEN	DISABLE WDT

. JP6: WDT Time-Out Period

PERIOD	1-2	3-4	5-6	7-8
1 sec.	OPEN	OPEN	CLOSE	OPEN
2 sec.	OPEN	OPEN	CLOSE	CLOSE
10 sec.	OPEN	CLOSE	OPEN	OPEN
20 sec.	OPEN	CLOSE	OPEN	CLOSE
110 sec.	CLOSE	OPEN	OPEN	OPEN
220 sec.	CLOSE	OPEN	OPEN	CLOSE

2.5 DiskOnChip™ Flash Disk

The DiskOnChip™ Flash Disk Chip(DOC) is produced by M-Systems. Because the DOC is 100% compatible to hard disk and DOS.Customer don't need any extra software utility. It is just "plug and play",easy and reliable. Right now the DOC is available from 2MB to 72MB.There also have PROMDISK-Chip™ can be used with the same socket. The MD-2200-xMB series DOC will share only 8KB memory address.

. JP8 : DiskOnChip Memory Address Setting

Address	1-2	3-4	5-6	7-8
D0000	CLOSE	OPEN	OPEN	OPEN
D8000	OPEN	CLOSE	OPEN	OPEN

2.6 Clear CMOS Setup

If want to clear the CMOS Setup(for example forgot the password you should clear the setup and then set the password again.),you should close the JP5 about 3 seconds, then open again. Set back to normal operation mode, take it off

- **JP5: Clear CMOS Setup (Reserve Function)**

JP5	DESCRIPTION
OPEN	Normal Operation
CLOSE	Clear CMOS Setup

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Connection

This chapter describes how to connect peripherals, switches and indicators to the PCISA-158HV board.

3.1 Floppy Disk Drive Connector

PCISA-158HV board equipped with a 34-pin daisy-chain driver connector cable.

• CN2 : FDC CONNECTOR

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	GROUND	6	N/C
7	GROUND	8	INDEX#
9	GROUND	10	MOTOR ENABLE A#
11	GROUND	12	DRIVE SELECT B#
13	GROUND	14	DRIVE SELECT A#
15	GROUND	16	MOTOR ENABLE B#
17	GROUND	18	DIRECTION#
19	GROUND	20	STEP#
21	GROUND	22	WRITE DATA#
23	GROUND	24	WRITE GATE#
25	GROUND	26	TRACK 0#
27	GROUND	28	WRITE PROTECT#
29	GROUND	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT#
33	GROUND	34	DISK CHANGE#

3.2 PCI E-IDE Disk Drive Connector

You can attach four IDE(Integrated Device Electronics) hard disk drives to the PCISA-158HV IDE controller.

Please note the IDE support Ultra DMA/33 high performance interface.

• CN1 : IDE Interface Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	IDE DRQ	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	IDE CHRDY	28	GROUND
29	IDE DACK	30	GROUND - DEFAULT
31	INTERRUPT	32	NC
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND

3.3 Parallel Port

This port is usually connected to a printer, The PCISA-158HV includes an on-board parallel port, accessed through a 26-pin flat-cable connector CN3.

- **CN3 : Parallel Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	2	DATA 0
3	DATA 1	4	DATA 2
5	DATA 3	6	DATA 4
7	DATA 5	8	DATA 6
9	DATA 7	10	ACKNOWLEDGE
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GROUND
19	GROUND	20	GROUND
21	GROUND	22	GROUND
23	GROUND	24	GROUND
25	GROUND	26	N/C

3.4 Serial Ports

The PCISA-158HV offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports.

- **CN12 : Serial Port DB-9 Connector(ACE0)**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND (GND)
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)

• **CN8 : Serial Port 10-pin Header(ACE1)**

Pin No.	Description	Pin No.	Description
1	DCD	2.	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	NC

3.5 Keyboard Connector

The PCISA-158HV provides two keyboard connectors.

• **CN14 : 5-pin Header Keyboard Connector**

PIN NO.	DESCRIPTION
1	KEYBOARD CLOCK
2	KEYBOARD DATA
3	N/C
4	GROUND
5	+5V

• **CN15 : 6-pin Mini-DIN Keyboard Connector**

PIN NO.	DESCRIPTION
1	KEYBOARD DATA
2	N/C
3	GROUND
4	+5V
5	KEYBOARD CLOCK
6	N/C

3.6 External Switches and Indicators

There are many external switches and indicators for monitoring and controlling your CPU board.

• **CN11 : KeyLock and Power LED**

PIN NO.	DESCRIPTION
1	+5V
2	N/C
3	Ground
4	KeyLock Signal
5	Ground

. CN9 : RESET BUTTON

PIN NO.	DESCRIPTION
1	EXTERNAL RESET
2	GROUND

. CN16 : HDD LED

PIN NO.	DESCRIPTION
1	HDD ACTIVE #
2	+5V

3.7 External Speaker

The PCISA-158HV has its own buzzer, you also can connect to the external speaker through the connector CN10..

. CN10 : Speaker Connector

PIN NO.	DESCRIPTION
1	+5V
2	Speaker Signal

3.8 PS/2 Mouse 6-pin Mini-DIN Connector

• CN7 : PS/2 Mouse Connector

PIN NO.	DESCRIPTION
1	MS DATA
2	NC
3	GROUND
4	+5V
5	MS CLOCK
6	NC

3.9 USB Port Connector

The PCISA-158HV built-in USB ports for the future new I/O bus expansion.

. CN13 : USB Connector

1	VCC
2	DATA-
3	DATA+
4	GROUND

3.11 IrDA Infrared Interface Port

The PCISA-158HV built-in a IrDA port which support Serial Infrared(SIR) or Amplitude Shift Keyed IR(ASKIR) interface. When use the IrDA port have to set SIR or ASKIR model in the BIOS's Peripheral Setup's COM 2. Then the normal RS-232 COM 2 will be disabled.

. CN4 : IrDA connector

PIN NO.	DESCRIPTION
1	VCC
2	NC
3	IR-RX
4	Ground
5	IR-TX

3.11 VGA Connector

The PCISA-158HV built-in 15-pin VGA connector directly to your CRT monitor.

. CN5 : 15-pin Female Connector

1	RED	2	GREEN
3	BLUE	4	NC
5	GROUND	6	GROUND
7	GROUND	8	GROUND
9	NC	10	GROUND
11	NC	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK		

4

AWARD BIOS Setup

The PCISA-158HV uses the AWARD PCI/ISA BIOS for system configuration. The AWARD BIOS setup program is designed to provide maximum flexibility in configuring the system by offering various options which may be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

4.1 Getting Start

When power on the system, the BIOS will enter the Power-On-Self-Test routines. These routines will be executed for system test and initialization and system configuration verification. After the POST routines are completed, the following message appears :

" Hit DEL if you want to run SETUP"

To access AWARD PCI/ISA BIOS Setup program, press key. The following screen will be displayed at this time.

When choose **Load BIOS Defaults** will load the minimized settings for Troubleshooting. The performance should be very poor when use this setting.

When choose **Load Setup Defaults** will load optimized defaults for regular use. Choosing this setting, will modify all applicable settings.

ROM PCI/ISA BIOS (2ASIII9B)
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

4.2 Standard CMOS Setup

The Standard CMOS Setup is used for basic hardware system configuration. The main function is for Date/Time setting and Floppy/Hard Disk Drive setting. Please refer the following screen for this setup.

For IDE hard disk drive setup, please check the following possible setup procedure,

1. Use the Auto setting for detection during bootup.
2. Use the IDE HDD AUTO DETECTION in the main menu to automatically enter the drive specifications.
3. Manually enter the specifications by yourself from the "User" option.

Halt On (All Errors) : You could choose **All Errors, No Errors All,but Keyboard , All.but Diskette, and All,but Disk/Key**

As for some embedded system which don't need keyboard and monitor in application,then you could choose No Errors.

ROM PCI/ISA BIOS (2A51119B)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Sat, Nov 29 1997							
Time (hh:mm:ss) : 14 : 45 : 51							
	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	MODE	
Drive C : Auto (0b)	0	0	0	0	0	AUTO	
Drive D : Auto (0b)	0	0	0	0	0	AUTO	
Drive A : 1.44M, 3.5 in.							
Drive B : None							
Video : EGA/VGA							
Halt On : All Errors							
				Base Memory:	0K		
				Extended Memory:	0K		
				Other Memory:	512K		
				<hr/>			
				Total Memory:	512K		
ESC : Quit	↑ ↓ → : Select Item			PU/PD/+/- : Modify			
F1 : Help	(Shift)F2 : Change Color						

4.3 BIOS Features Setup

This BIOS Features Setup is designed for customer's tuning best performance of the PCISA-158HV board. As for normal operation customers don't have to change any default setting. The default setting is pre-set for most reliable operation.

ROM PCI/ISA BIOS (2A5III9B)
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,SCSI	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		
Memory Parity Check	: Enabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled	ESC : Quit	++ : Select Item
OS Select For DRAM > 64MB	: Non-OS2	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

BootUp Sequence :

You could set the sequence of A:,C:,and CDROM.

Video BIOS Shadow C000,32K:

Enable - Will increase the video speed.

Shadow C8000-CFFFF,D0000-D7FFF,& D8000-DFFFF :

When the installed add-on card's ROM address is as above address, you could enable the shadow to get higher operation performance. When you enable the shadow function, it will also reduce the memory available by between 640KB and 1024KB.

4.4 Chipset Features Setup

This setup functions are almost working for ChipSet (SIS 5598). These options are used to change the ChipSet's registers. Please carefully change any default setting ,otherwise the system could be running unstable.

Auto Configuration : Enable or Disable

When use the 60nS general type DRAM,please enable the setting to get the optimal timings.

VGA Shared Memory : 0.5MB to 4MB

The SIS5598 provides UMA architect which can share the on board memory from 0.5MB to 4MB. The default setting is 2MB.

Memory Hole at 15M-16M : Enable or Disable

This setting reserve 15MB to 16MB memory address space for ISA expansion cards that specifically require this setting. Memory from 15MB and up will be unavailable to the system because expansion cards can only access memory up to 16MB.

ROM PCI/ISA BIOS (2A51119B)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration : Enabled	CPU to PCI Burst Mem. WR: Disabled
L2 (WB) Tag Bit Length : 8bits	ISA Bus Clock Frequency : 7.159MHz
SRAM Back-to-Back : Enabled	System BIOS Cacheable : Enabled
NA# Enable : Enabled	Video BIOS Cacheable : Enabled
Starting Point of Paging: 1T	Memory Hole at 15M-16M : Disabled
Refresh Cycle Time (us) : 15.6	VGA Shared Memory Size : 2 MB
RAS Pulse Width Refresh : 4T	VGA Memory Clock (MHz) : 55
RAS Precharge Time : 2T	
RAS to CAS Delay : 2T	
CAS# Pulse Width (FP) : 2T	
CAS# Pulse Width (EDO) : 1T	
RAM# Assertion Timing : 3T	
CAS Precharge Time (FP) : 1T/2T	
CAS Precharge Time (EDO) : 1T/2T	
Enhanced Memory Write : Disabled	ESC : Quit ←→ : Select Item
Read Prefetch Memory RD : Enabled	F1 : Help PU/PD/+/- : Modify
CPU to PCI Post Write : 4T	F5 : Old Values (Shift) F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

4.5 Integrated Peripherals

This setup is almost working for Multi-I/O Chip(W83877F). These options are used to change the ChipSet's registers. Please carefully change any default setting to meet your application need perfectly. The only special concern is Onboard Serial Port2. If you are using the IrDA port, you have to set this port accordingly.

ROM PCI/ISA BIOS (2A51119B)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

Internal PCI/IDE : Primary	PS/2 mouse function : Enabled
IDE Primary Master PIO : Auto	USB Controller : Disabled
IDE Primary Slave PIO : Auto	
IDE Burst Mode : Enabled	
IDE Data Port Post Write: Enabled	
IDE HDD Block Mode : Enabled	
Onboard FDD Controller : Enabled	Power Up by Alarm : Disabled
Onboard Serial Port 1 : 3F8/IRQ4	
Onboard Serial Port 2 : 2F8/IRQ3	
UART 2 Mode : Standard	
Onboard Parallel Port : 378/IRQ7	
Onboard Parallel Mode : SPP	
	ESC : Quit ↑↓ : Select Item
	F1 : Help PU/PD/+/- : Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

4.6 Power Management Setup

Power Management Setup help user handles the PCISA-158HV board's "green" function. The features could shut down the video display and hard disk to save energy for example. The power management setup screen is as following,

Power Management : Disable, Max Saving, Min Saving, or User Defined

Max Saving puts the system into power saving mode after a brief inactivity period. Min Saving is almost the same as Max Saving except that the inactivity period is longer. User Defined allows you to set power saving options according to your requirement.

Note : **Advanced Power Management(APM)** have to be installed to keep the system time updated when the computer enters suspend mode activated by the Power Management.

Under DOS environment, you need to add

DEVICE=C:\DOS\POWER.EXE in your CONFIG.SYS

Under Windows 3.x and Windows 95,you have to install Windows with APM feature. A battery and power cord icon labeled "Power" Will appear in the "Control Panel"

ROM PCI/ISA BIOS (2A51119B)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management : Disable	VGA Activity : Disabled
PM Control by APM : Yes	IRQ3 (COM 2) : Enabled
Video Off Option : Susp,Stby -> Off	IRQ4 (COM 1) : Enabled
Video Off Method : V/H SYNC+Blank	IRQ5 (LPT 2) : Enabled
Switch Function : Break/Wake	IRQ6 (Floppy Disk) : Enabled
Doze Speed (div by): 2	IRQ7 (LPT 1) : Enabled
Stby Speed(div by): 3	IRQ8 (RTC Alarm) : Disabled
MODEM Use IRQ : 3	IRQ9 (IRQ2 Redir) : Enabled
	IRQ10 (Reserved) : Enabled
** PM Timers **	IRQ11 (Reserved) : Enabled
HDD Off After : Disable	IRQ12 (PS/2 Mouse) : Enabled
Doze Mode : Disable	IRQ13 (Coprocessor) : Enabled
Standby Mode : Disable	IRQ14 (Hard Disk) : Enabled
Suspend Mode : Disable	IRQ15 (Reserved) : Enabled
	ESC : Quit +<-> : Select Item
** PM Events **	F1 : Help PU/PD/+/- : Modify
COM Ports Activity : Enabled	F5 : Old Values (Shift)F2 : Color
LPT Ports Activity : Enabled	F6 : Load BIOS Defaults
HDD Ports Activity : Enabled	F7 : Load Setup Defaults

4.7 PNP/PCI Configuration

The PNP/PCI Configuration help user handles the PCISA-158HV board's "PCI" function. All PCI bus slots on the system use INTA#, thus all installed PCI slots must be set to this value.

PNP OS Installed : Yes or No

When PNP OS is installed, interrupts may be reassigned by the OS when the setting is Yes. When a non-PNP OS is installed or to prevent reassigning of interrupt settings, select setting to No.

ROM PCI/ISA BIOS (2A51119B)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed : No	PCI IRQ Activated By : Level
Resources Controlled By : Manual	PCI IDE IRQ Map To : PCI-AUTO
Reset Configuration Data : Disabled	Primary IDE INT# : A
IRQ-3 assigned to : Legacy ISA	
IRQ-4 assigned to : Legacy ISA	
IRQ-5 assigned to : PCI/ISA PnP	
IRQ-7 assigned to : Legacy ISA	
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

5

E² Key™ Function

The PCISA-158HV provides an outstanding E²KEY™ function for system integrator. Based on the E²KEY™ you could free to store the ID Code, Pass Word, or Critical Data in the 1Kbit EEPROM. Because the EEPROM is nonvolatile memory, you don't have to worry the losing of the very important data.

Basically the E²KEY™ is based on a 1Kbit EEPROM which is configured to 64 words(from 0 to 63). You could access(read or write) each word at any time.

When you start to use the E²KEY™ you should have the utility in the package. The software utility will include four files as follows,

README.DOC
E2KEY.OBJ
EKEYDEMO.C
EKEYDEMO.EXE.

The E2KEY.OBJ provides two library function for user to integrate their application with E²KEY™ function. These library (**read_e2key** and **write_e2key**) are written and compiled in C format. Please check the following statement, then you will know how to implement it easily.

unsigned int read_e2key(unsigned int address)

/* This function will return the E²KEY™'s data at address. The address range is from 0 to 63. Return data is one word,16 bits */

void write_e2key(unsigned int address,unsigned data)

/* This function will write the given data to E²KEY™ at address.
The address range is from 0 to 63. The data value is from 0 to
0xffff. */

To easy start to use the function, please refer the include
EKEYDEMO.C code at first.

Please note the E²KEY™ function is based on the working of
parallel port. So you should enable the PCISA-158HV's parallel
port, otherwise will be not working.

Appendix A. Watch-Dog Timer

The Watch-Dog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that caused the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, hardware on the board will either perform a hardware reset (cold boot) or a non-maskable interrupt (NMI) to bring the system back to a known state.

The Watch-Dog Timer is controlled by two I/O ports.

443 (hex)	Read	Enable the refresh the Watch-Dog Timer.
043 (hex)	Read	Disable the Watch-Dog Timer.

To enable the Watch-Dog Timer, a read from I/O port 443H must be performed. This will enable and activate the countdown timer which will eventually time out and either reset the CPU or cause an NMI depending on the setting of JP10. To ensure that this reset condition does not occur, the Watch-Dog Timer must be periodically refreshed by reading the same I/O port 443H. This must be done within the time out period that is selected by jumper group JP6.

A tolerance of at least 30% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time consuming. Therefore if the time out period has been set to 10 seconds, the I/O port 443H must be read within 7 seconds.

Note: when exiting a program it is necessary to disable the Watch-Dog Timer, otherwise the system will reset.
