

IAC-H553

***Half-size SBC with NS Geode Low Power CPU,
VGA, LCD, SSD and LAN***

COPYRIGHT[©]

This document is a copyright of the original manufacturer, 2000. The original manufacturer reserves the right to make improvements to the product(s) described in this manual at any time without notice. This manual may not, in whole or in part, be photocopied, reproduced, transcribed, translated, or transmitted in whatever form without the written consent of the manufacturer, except for copies retained by the purchaser for backup purposes. All rights are reserved.

TRADEMARKS[™]

Geode[™] is a registered trademark of NS Corporation.

The following are trademarks or registered trademarks of their respective companies: IBM, Intel, AMD, Cyrix, Award, AMI, Microsoft, Windows, Windows NT, Novell, SCO, PC/104, PICMG, ALI, UMC, SMC, Winbond. Products mentioned in this manual are mentioned for identification purposes only. All names of products or services appearing in this manual are the trademarks or registered trademarks of their respective organizations and companies.

↩ Copyright 2000

Ver. No.: 1.0
LEI-UM-IAC-H553
Date : 07.18.2000

TABLE OF CONTENTS

CHAPTER 1	INTRODUCTION	1
1.1	SPECIFICATION	2
1.2	PACKING CHECK LIST	3
CHAPTER 2	JUMPER SETTINGS AND CONNECTORS	4
2.1	BOARD OUTLINE OF IAC-H553	4
2.2	JUMPER SETTING OVERVIEW	5
2.3	INSTALLING THE DIMM MODULE	5
2.4	JUMPER LOCATION FOR IAC-H553	6
2.5	JUMPER SETTINGS SUMMARY FOR IAC-H553	7
2.6	I/O CONNECTORS LOCATION FOR IAC-H553	11
2.7	I/O CONNECTORS SUMMARY FOR IAC-H553	12
2.8	I/O CONNECTORS DESCRIPTION	13
CHAPTER 3	AWARD BIOS SETUP	21
3.1	RUNNING AWARD BIOS	22
3.2	CMOS SETUP UTILITY	22
3.3	STANDARD CMOS SETUP	23
3.4	BIOS FEATURES SETUP	26
3.5	CHIPSET FEATURES SETUP	29
3.6	POWER MANAGEMENT SETUP	30
3.7	PNP/PCI CONFIGURATION	32
3.8	LOAD SETUP DEFAULTS	34
3.9	LOAD BIOS DEFAULTS	34
3.10	INTEGRATED PERIPHERALS	35
3.11	SUPERVISOR / USER PASSWORD	37
3.12	IDE HDD AUTO DETECTION	37
3.13	SAVE & EXIT SETUP	38
3.14	EXIT WITHOUT SAVING	38
CHAPTER 4	DRIVERS SUPPORT	39
APPENDIX A	HOW TO USE WATCH-DOG TIMER	40
APPENDIX B	TECHNICAL REFERENCE	41
APPENDIX C	PC/104 MODULE INSTALLATION	43
GLOSSARY		44
TERMS AND CONDITIONS		
RMA SERVICE REQUEST FORM		

CHAPTER 1.

INTRODUCTION

The IAC-H553 is a half-size single board computer with full functionality, on-board NS Geode Low Power CPU, LCD/SVGA, LAN, and a PC/104 expansion bus. It is equipped with an on-board NS Geode low power processor that also provides LCD/SVGA feature and 100Base-T Ethernet network function. For boosting operation, this motivated card also supports sockets for a Flash Disk and one DIMM memory module. The IAC-H553 establishes a new class of low-cost, high-performance system that offers all the functions of an industrial computer on a single board, and fits in the space of an Half-size SBC. This design eliminates system conflicts and end-user configuration problems.

The IAC-H553 is built with an ISA bus that is simply upgraded by changing one card from another without replacing the whole system. It provides the primarily elements for building an x86-base computer for a wide variety of applications with system integration.

Other on-board features include two serial ports (one each of RS-232 and one selectable RS-232/422/485), one multi-mode parallel port (ECP/EPP/SPP), a floppy drive controller and a keyboard and PS/2 mouse interface. The built-in one high speed PCI IDE controller supports both PIO and UltraDMA/33bus master modes. Up to two IDE devices can be connected, including large hard disks, CD-ROM drives, tape backup drives and other IDE devices.

1.1 SPECIFICATION

Processor	: NS Geode Low-power 200/233/266/300 MHz CPU on-board (default 233 MHz)
Chipset	: NS GX5530, Winbond 83977F, Realtek RTL8139 chipset
System Memory	: One DIMM socket, support up to 128MB of SDRAM
BIOS	: 256KB Licensed Award Flash BIOS
Flash Memory Disk	: Reserved socket for DiskOnChip from M-System, support up to 144 MB flash memory Disk or 32KB SRAM
VGA/LCD Interface	: NS GX5530, shared memory 2.5MB, support CRT display and 18-bit TFT LCD, resolution up to 1024 x 768 @64K colors
Ethernet Interface	: On-board Realtek RTL8139, support 10/100 BASE-T interface
IDE Drive Interface	: One PCI IDE port, support up to two IDE devices Ultra DMA/33
Floppy Drive Interface	: One FDD port, support up to two floppy devices
Serial Port	: Two COM ports for one RS-232 and one selectable RS-232/422/485
Parallel Port	: One multi-mode parallel port (EPP/ECP/SPP)
Universal Serial Bus	: Support two USB ports
IR Interface	: Supports one IrDA header
Keyboard/Mouse connector	: One 6-pin mini-DIN PS/2 keyboard/mouse connector on-board and one internal keyboard connector
RTC Battery	: Internal RTC with Li battery
Expansion Bus	: ISA bus and PC/104 connector
Power Connector	: One 4-pin power connector with one ATX function connector (For wake-on-lan) (2.54mm) (GND, 5V standby, GND, PSON)
Power Management	: I/O peripheral devices support power saving and doze/standby/suspend modes. APM 1.2 compliant
Watchdog Timer	: Software 16-level time-out intervals (0/2/4/6/8/10/12/14/16/18/20/22/24/26/28/30 sec.)
Digital I/O	: 4-bit digital input / 4-bit digital output
Operating Temperature	: 0°C~60°C
Humidity	: 5%~95% RH, non-condense
Dimensions	: 185 mm X 122 mm (7 1/4" X 4 5/6" inches)
Net weight	: 230 g (0.508 pounds)

1.2 PACKING CHECK LIST

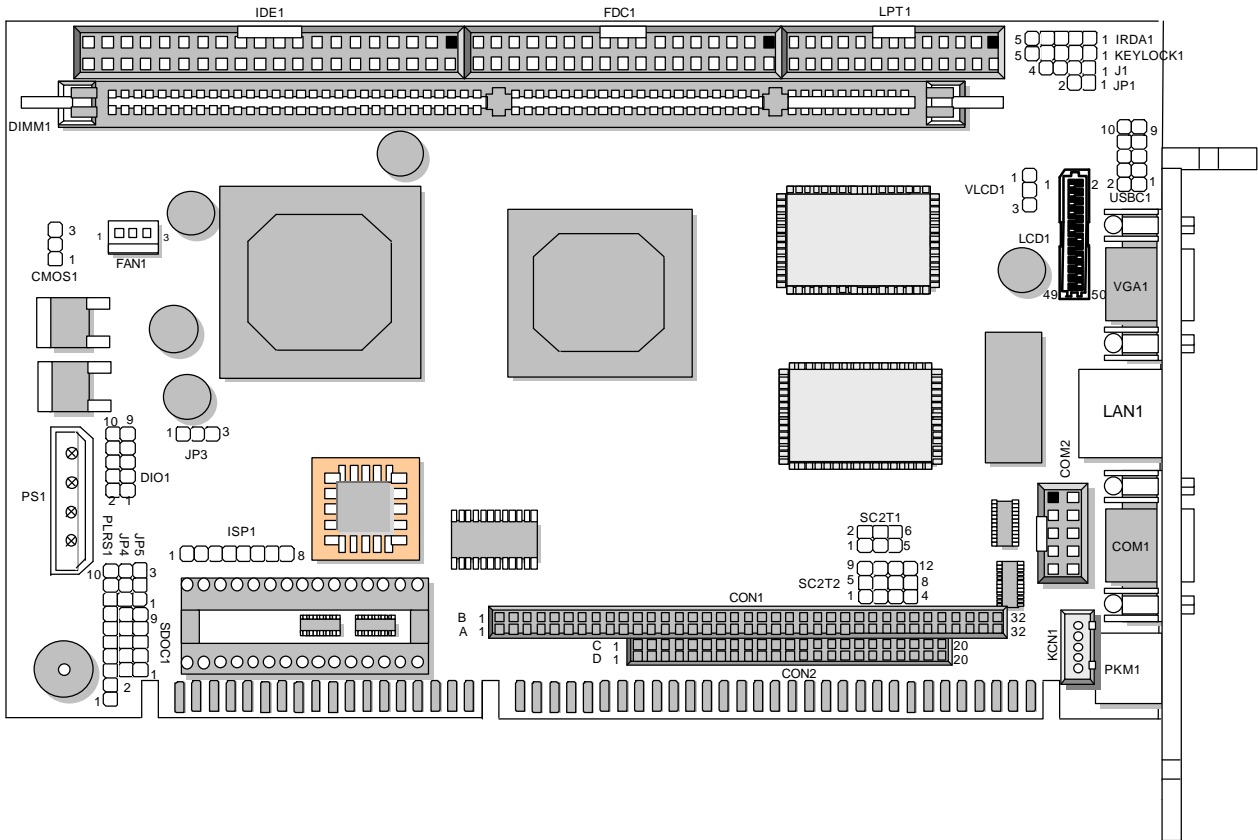
Before you begin to install your card, please make sure that you received the following materials as listed below:

<i>Item</i>	<i>Qty</i>	<i>Remark</i>
Single Board Computer	1 pcs	IAC-H553 SBC
CD-ROM	1 pcs	Drivers
User' s manual	1 pcs	IAC-H553 manual
IDE and FDD cable	1 set	40 to 40-pin IDE cable, 34 to 34-pin Floppy cable
LPT and COM cable	1 set	26 to 25-pin D-Sub, 10 to 9-pin D-sub w / bracket
Keyboard and Mouse Y-cable	1 pcs	6-pin male Mini-Din to 5-pin Din / 6-pin Mini-Din
Keyboard Adapter Cable	1 pcs	5-pin female to 5-pin female
ATX Feature Cable	1 pcs.	4-pin female to 4-pin female, 40cm

CHAPTER 2.

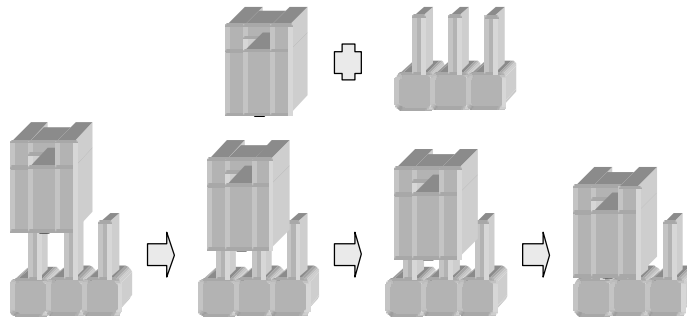
JUMPER SETTINGS AND CONNECTORS

The figure below shows the jumpers and connectors location on the IAC-H553:



2.2 JUMPER SETTING OVERVIEW

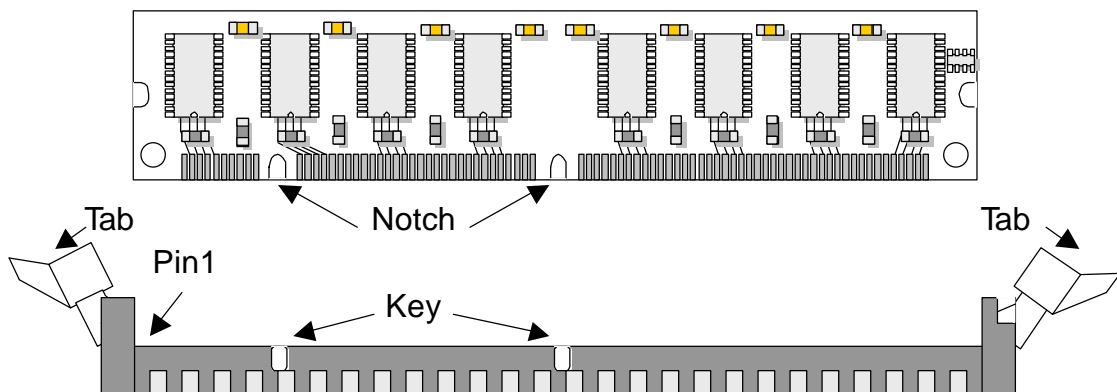
In order to select the operation modes of your system, configure and set the jumpers on your single board computer to match the need of your application. To set a jumper, a black plastic cap containing metal contacts is placed over the jumper pins as designated by the required configuration as listed in this section. A jumper is said to be “ on ” or “ 1-2 ” when the black cap has been placed on two of its pins, as show in the figure below:



A pair of needle-nose pliers is recommended when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local sales representative before you make any changes. In general, you simply need a standard cable to make most connections.

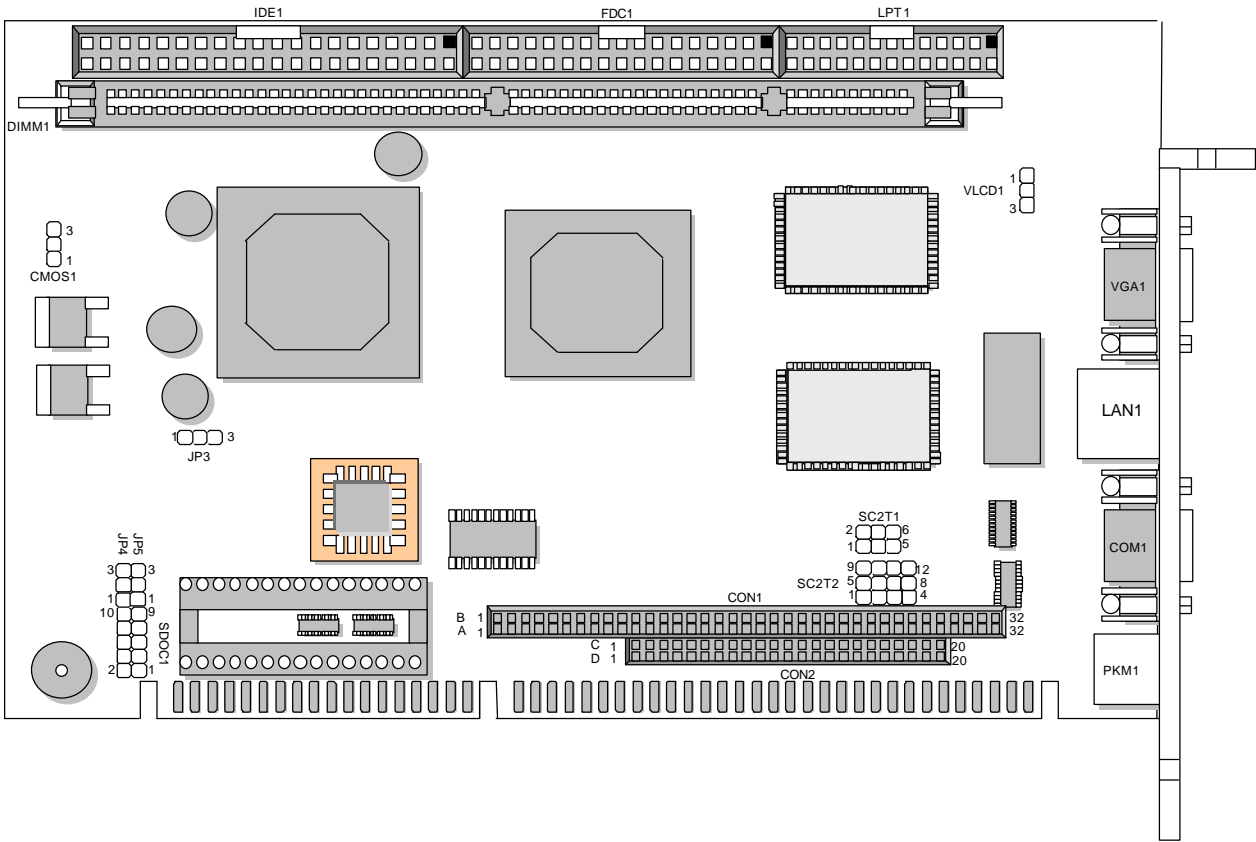
2.3 INSTALLING THE DIMM MODULE

A DIMM module simply snaps into a socket on the system board. Pin1 of the DIMM module must correspond with Pin1 of the socket.



1. Position the DIMM above the socket with the “notch” in the module aligned with the “key” on the socket.
2. Seat the module at a 90 angle into the bank. Make sure it is completely seated. Push down the module until handles of the socket lock up-right and up-left notches.

2.4 JUMPER LOCATION FOR IAC-H553

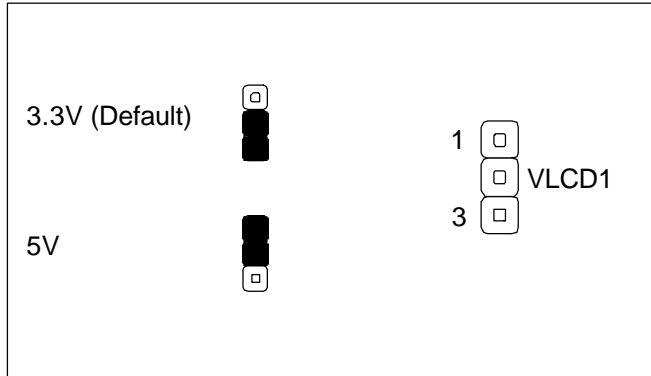
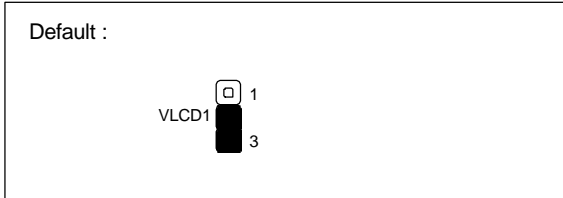


2.5 JUMPER SETTINGS SUMMARY FOR IAC-H553

LOCATION	FUNCTION
VLCD1	Select Panel Voltage
SC2T1 / SC2T2	Select COM2 Type
SDOC1	Select DiskOnChip (Flash Disk) Address
COMS1	Clear COMS Data
JP3	Select Watch-Dog Timer Interval
JP4	Manufacturer Setting
JP5	Manufacturer Setting

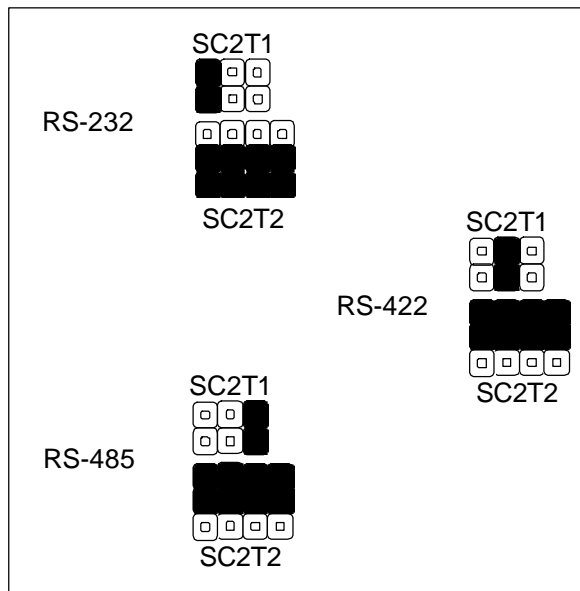
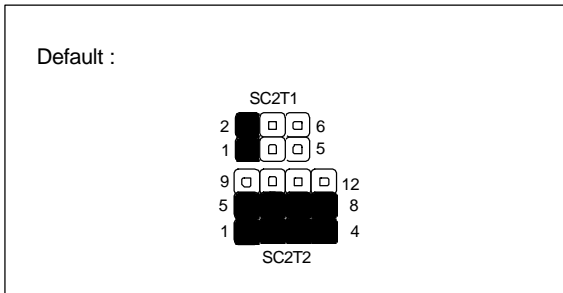
✦ **VLCD1 : Select Panel Voltage**

Panel Voltage	VLCD1
3.3V (Default)	2-3
5V	1-2



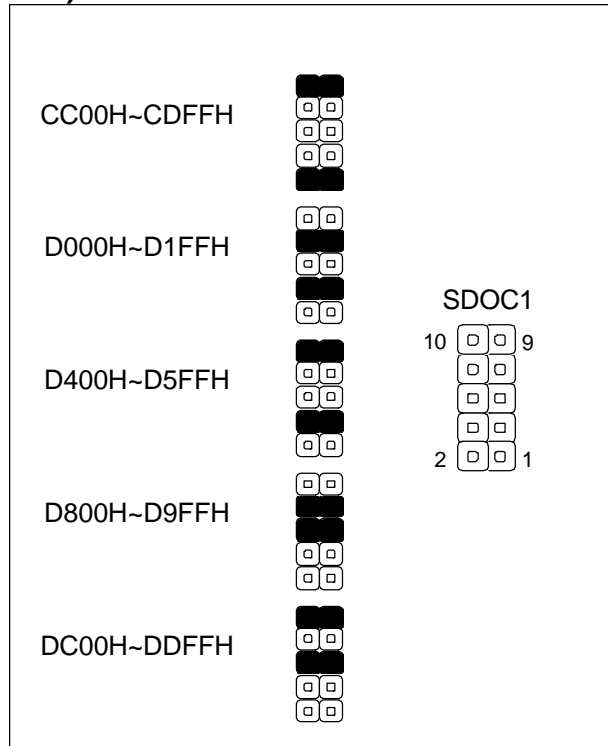
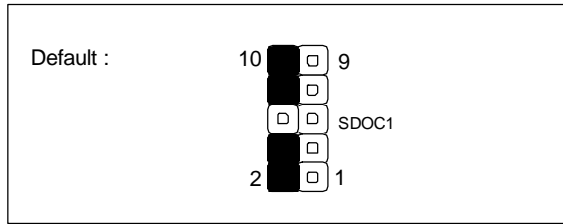
✦ **SC2T1/SC2T2 : Select COM2 Type**

COM2 Type	SC2T1	SC2T2
RS-232 (Default)	1-2	1-5, 2-6, 3-7, 4-8
RS-422	3-4	5-9, 6-10, 7-11, 8-12
RS-485	5-6	5-9, 6-10, 7-11, 8-12



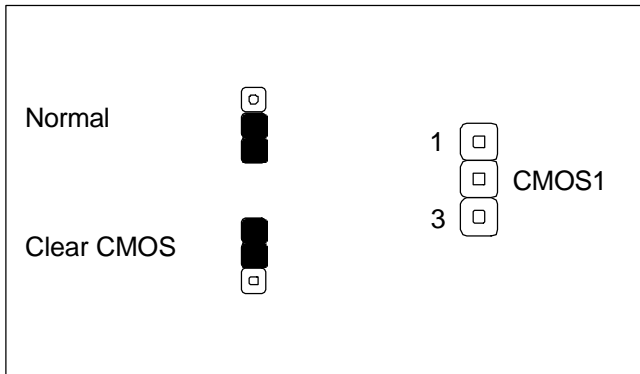
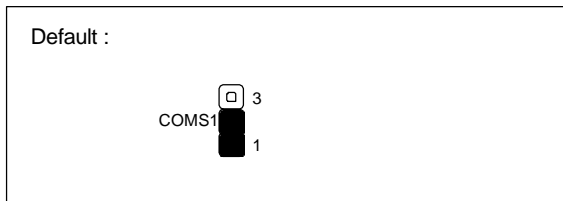
✦ **SDOC1 : Select DiskOnChip (Flash Disk) Address**

Flash Disk Address	SDOC1
CC00H~CDFFH	1-2,9-10
D000H~D1FFH	3-4,7-8
D400H~D5FFH	3-4,9-10
D800H~D9FFH	5-6,7-8
DC00H~DDFFH	5-6,9-10



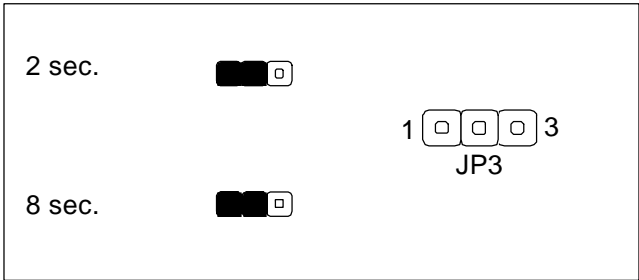
✦ **CMOS1 : Clear CMOS Data**

Description	CMOS1
Normal (Default)	1-2
Clear CMOS	2-3



✦ **JP3 : Select Watch-Dog Timer Interval**

Timer Interval	JP3
2 sec.	1-2
8 sec.	2-3



Note:

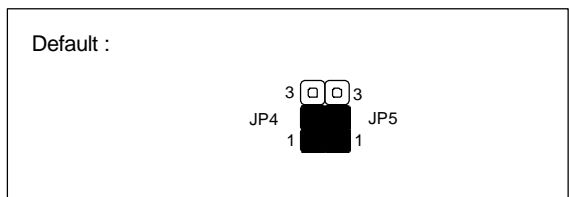
Timer interval command “F~A, 9~0” are represented as following:

For 2 sec. interval are 0/2/4/6/8/10/12/14/16/18/20/22/24/26/28/30/32-second

For 8 sec. interval are 0/8/16/24/32/40/48/56/64/72/80/88/96/104/112/120-second

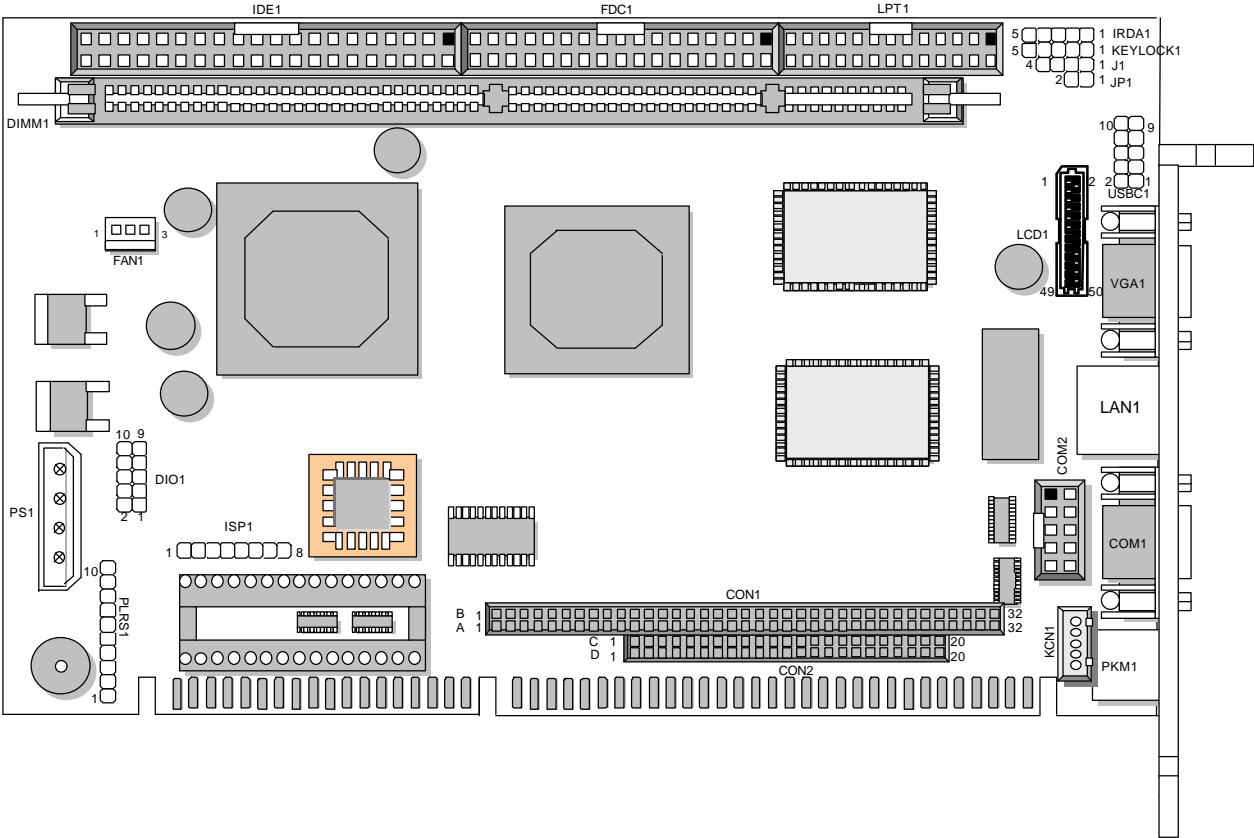
✦ **JP4 : Default Setting (1-2)**

✦ **JP5 : Default Setting (1-2)**



Note : Do not attempt to change the default setting of JP4 and JP5 unless the manufacturer would like to change the specification.

2.6 I/O CONNECTOR LOCATION FOR IAC-H553



2.7 I/O CONNECTOR SUMMARY OF IAC-H553

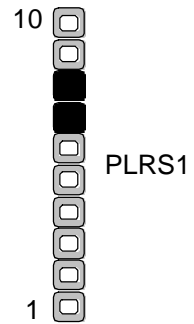
LOCATION	FUNCTION
PLRS1	Power LED, Reset, Speaker Connector (Header)
IRDA1	Alternate IrDA (Header)
KEYLOCK1	Keyboard Lock and Power LED (Header)
J1	ATX Feature Connector (Header)
JP1	ATX Power On / Off (Header)
USBC1	Universal Serial Bus Port1 & 2 (Header)
PS1	4-pin male power connector (For SBC stand alone using)
LCD1	LCD Panel Connector
COM2	Serial Port #2 Connector (Box Header)
KCN1	5-pin Keyboard Cable Connector
FAN1	Fan Connector
DIO1	Digital Input / Digital Output Ports Connector (Header)
ISP1	ISP GAL Connector (Factory Only)
VGA1	VGA Connector (D-Sub)
LAN1	LAN With LED Connector (RJ-45)
COM1	RS-232 Serial Port #1 Connector (D-Sub)
PKM1	PS/2 Keyboard & Mouse Connector (Mini-Din)
IDE1	Primary IDE Cable Connector
FDC1	Floppy Interface Connector
LPT1	Parallel Port Connector
CON1, CON2	PC/104 Connector

Note: PS1 power connector only available since version 1.0

2.8 I/O CONNECTORS DESCRIPTION

✦ PLRS1 : Power LED, Reset, Speaker Connector (Header)

Pin No.	Description
1	Power LED +
2	GND
3	HDD LED +
4	HDD LED -
5	RESET SW +
6	RESET SW - (GND)
7	External Speaker -
8	Internal Buzzer -
9	NC
10	External Speaker +



Default :
7-8 (ON)
Internal Buzzer

✦ IRDA1 : Alternate IrDA (Header)

Pin No.	Description
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX



✦ KEYLOCK1 : Keyboard Lock and Power LED (Header)

Pin No.	Description
1	VCC
2	NC
3	GND
4	KEYLOCK
5	GND



✦ **J1 : ATX Feature Connector (Header)**

Pin No.	Description
1	GND
2	+5V Standby
3	GND
4	Power Supply On



✦ **JP1 : ATX Power On / Off (Header)**

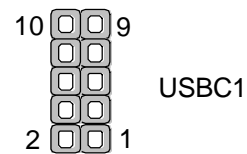
Pin No.	Description
1	PANSW
2	GND



Note : To have ATX features of ATX switch and Wake-On-LAN, you need to wire pins of J1 via ATX power connector through backplane by using ATX feature cable. (ATX momentary switch connected to JP1, push the button once will switch the system between ON and SOFT OFF controls the system power. For Wake-On-LAN feature, your ATX power supply must supply at least 720mA +5Vsb)

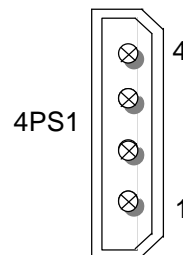
✦ **USBC1 : Universal Serial Bus Port1 & 2 (Header)**

Pin No.	Description	Pin No.	Description
1	USB Port #0 Vcc	2	USB Port #1 Vcc
3	USB D0-	4	USB D1-
5	USB D0+	6	USB D1+
7	USB Port #0 Ground	8	USB Port #1 Ground
9	Ground	10	Ground



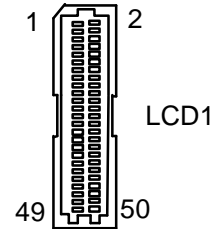
✦ **PS1 : 4-Pin Power Connector (Big-4P Male)**

Pin No.	Description
1	12V
2	Ground
3	Ground
4	5V



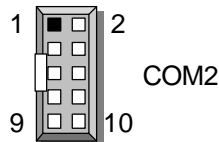
✦ **LCD1 : LCD Panel Connector**

Pin No.	Description	Pin No.	Description
1	FVCC	2	FVCC
3	LP	4	FLM
5	DE	6	ENBKL
7	NC	8	ENVDD
9	SHFCLK	10	+12V
11	GND	12	GND
13	NC	14	NC
15	FD0	16	FD1
17	FD2	18	FD3
19	FD4	20	FD5
21	NC	22	NC
23	FD6	24	FD7
25	FD8	26	FD9
27	FD10	28	FD11
29	GND	30	NC
31	NC	32	FD12
33	FD13	34	FD14
35	FD15	36	FD16
37	FD17	38	GND
39	NC	40	NC
41	NC	42	NC
43	NC	44	NC
45	NC	46	NC
47	NC	48	NC
49	NC	50	NC



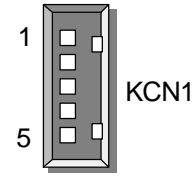
✦ **COM2 : Serial Port #2 Connector (Header)**

Pin No.	Description		
	RS-232	RS-422	RS-485
1	Data Carrier Detect (DCDB #)	Transmit Data- (TXD-)	Data -
2	Data Set Ready (DSRB #)	NC	NC
3	Receive Data (RXDB)	Transmit Data+ (TXD+)	Data +
4	Request To Send (RTSB #)	NC	NC
5	Transmit Data (TXDB)	Receive Data+ (RXD+)	NC
6	Clear To Send (CTSB #)	NC	NC
7	Data Terminal Ready (DTRB #)	Receive Data- (RXD-)	NC
8	Ring Indicator (RIB #)	NC	NC
9	Ground	NC	NC
10	NC	NC	NC



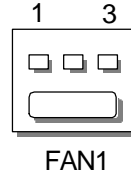
✦ **KCN1 : 5-pin Keyboard Cable Connector**

Pin No.	Description
1	Keyboard Clock
2	Keyboard Data
3	NC
4	Ground
5	+5V



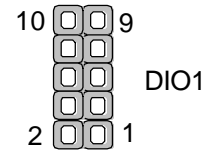
✦ **FAN1 : FAN Connector**

Pin No.	Description
1	Ground
2	+5V
3	FAN Status



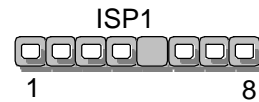
✦ **DIO1 : Digital Input / Digital Output Ports Connector (Header)**

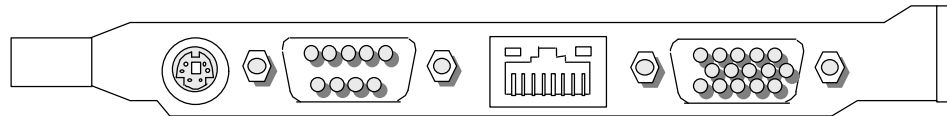
Pin No.	Description	Pin No.	Description
1	IN0	2	OUT0
3	IN1	4	OUT1
5	IN2	6	OUT2
7	IN3	8	OUT3
9	Ground	10	Ground



✦ **ISP1: ISP GAL Connector (Factory Only)**

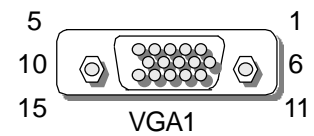
Pin No.	Description
1	VCC
2	SDO
3	SDI
4	ISP
5	NC
6	MODE
7	Ground
8	SCLK





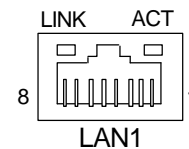
✦ **VGA1 : VGA Connector (D-Sub)**

Pin No.	Description
1	Red Color Signal
2	Green Color Signal
3	Blue Color Signal
4	NC
5	Ground
6	Ground
7	Ground
8	Ground
9	NC
10	Ground
11	NC
12	DDC-DATA
13	H-Sync.
14	V-Sync.
15	DDC-CLK



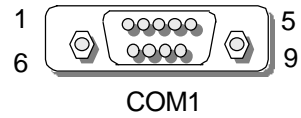
✦ **LAN1 : LAN WITH LED CONNECTOR (RJ-45)**

Pin No.	Description
1	TX+
2	TX-
3	RX+
4	T45
5	T45
6	RX-
7	T78
8	T78
9	ACT
10	Vcc
11	LINK
12	Vcc



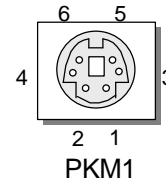
✦ **COM1 : RS-232 Serial Port #1 Connector (D-Sub)**

Pin No.	Description
1	Data Carrier Detect (DCDA #)
2	Receive Data (RXDA)
3	Transmit Data (TXDA)
4	Data Terminal Ready (DTRA #)
5	Ground (GND)
6	Data Set Ready (DSRA #)
7	Request To Send (RTSA #)
8	Clear To Send (CTSA #)
9	Ring Indicator (RIA #)



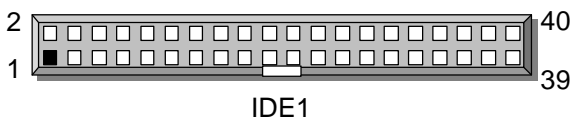
✦ **PKM1 : PS/2 Keyboard & Mouse Connector (Mini-Din)**

Pin No.	Description
1	PS/2 Keyboard Data
2	PS/2 Mouse Data
3	Ground
4	VCC
5	PS/2 Keyboard Clock
6	PS/2 Mouse Clock



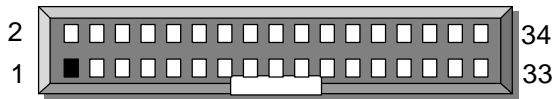
✦ **IDE1 : Primary IDE Cable Connector**

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	NC
21	DMA REQ	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	NC
29	DMA ACK #	30	Ground
31	Interrupt	32	IOCS16 #
33	SA1	34	NC
35	SA0	36	SA2
37	HDC CS0 #	38	HDC CS1 #
39	HDD Active LED #	40	Ground



✦ **FDC1 : Floppy Interface Connector**

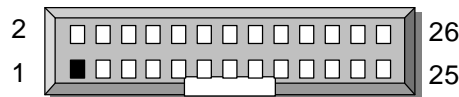
Pin No.	Description	Pin No.	Description
1	Ground	2	Density Select
3	Ground	4	NC
5	Ground	6	DS1
7	Ground	8	Index #
9	Ground	10	Motor Enable A #
11	Ground	12	Drive Select B #
13	Ground	14	Drive Select A #
15	Ground	16	Motor Enable B #
17	Ground	18	Direction #
19	Ground	20	Step #
21	Ground	22	Write Data #
23	Ground	24	Write Gate #
25	Ground	26	Track 0 #
27	Ground	28	Write Protect #
29	NC	30	Read Data #
31	Ground	32	Head Side Select #
33	NC	34	Disk Change #



FDC1

✦ **LPT1 : Parallel Port Connector**

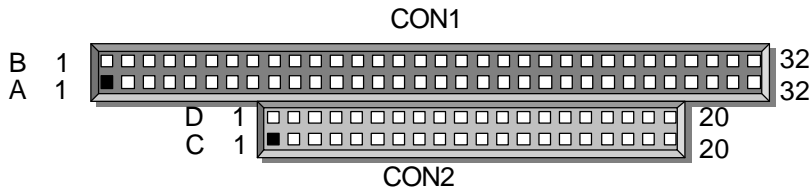
Pin No.	Description	Pin No.	Description
1	Strobe #	2	Auto Form Feed
3	Data0	4	Error #
5	Data1	6	Initialize #
7	Data2	8	Printer Select IN #
9	Data3	10	Ground
11	Data4	12	Ground
13	Data5	14	Ground
15	Data6	16	Ground
17	Data7	18	Ground
19	Acknowledge #	20	Ground
21	Busy	22	Ground
23	Paper Empty	24	Ground
25	Printer Select	26	Ground



LPT1

✦ **CON1, CON2 : PC/104 Connector**

Pin No.	Description			
	CON1		CON2	
	Row A	Row B	Row C	Row D
1	IOCHCK#	Ground	Ground	Ground
2	SD7	RSTDRV	SBHE#	MEMCS16#
3	SD6	+5V	LA23	IOCS16#
4	SD5	IRQ9	LA22	IRQ10
5	SD4	-5V	LA21	IRQ11
6	SD3	DRQ2	LA20	IRQ12
7	SD2	-12V	LA19	IRQ15
8	SD1	0 WS#	LA18	IRQ14
9	SD0	+12V	LA17	DACK0#
10	IOCHRDY	NC	MEMR#	DRQ0
11	AEN	SMEMW#	MEMW#	DACK5#
12	SA19	SMEMR#	SD8	DRQ5
13	SA18	IOW#	SD9	DACK6#
14	SA17	IOR#	SD10	DRQ6
15	SA16	DACK3#	SD11	DACK7#
16	SA15	DRQ3	SD12	DRQ7
17	SA14	DACK1#	SD13	+5V
18	SA13	DRQ1	SD14	MASTER#
19	SA12	REFRESH#	SD15	Ground
20	SA11	SYSCLK	NC	Ground
21	SA10	IRQ7	---	---
22	SA9	IRQ6	---	---
23	SA8	IRQ5	---	---
24	SA7	IRQ4	---	---
25	SA6	IRQ3	---	---
26	SA5	DACK2#	---	---
27	SA4	TC	---	---
28	SA3	BALE	---	---
29	SA2	+5V	---	---
30	SA1	OSC	---	---
31	SA0	Ground	---	---
32	Ground	Ground	---	---



CHAPTER 3.

AWARD BIOS SETUP

Award's ROM BIOS provides a built-in Setup program that allows user to modify the basic system configuration and settings. The modified data will be stored in a battery-backed CMOS RAM so that these data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment is installed.

3.1 RUNNING AWARD BIOS

The Setup Utility is stored in the BIOS ROM. When the power of the computer system is turned on, a screen message appears to give you an opportunity to call up the Setup Utility; while the BIOS will enter the Power On Self Test (POST) routines. The POST routines perform various diagnostic checks while initializing the board hardware. If the routines encounter an error during the tests, the error will be reported in either of the two different ways, hear a series of short beeps or see an error message on the screen display. There are two kinds of error: fatal or non-fatal. The system can usually continue to boot up sequence with the non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

“ Press <F1> to RESUME ”

Write down the message and press the F1 key to continue the bootup sequence. After the POST routines are completed, the following message appears:

“ Press DEL to enter SETUP ”





Entering Setup

Turn on the power of the computer system and press immediately. If you don't have the chance to respond, reset the system by simultaneously typing the <Ctrl>, <Alt> and <Delete> keys, or by pushing the ' Reset ' button on the system cabinet. You can also restart by turning the system OFF then ON.

3.2 CMOS SETUP UTILITY

To access the AWARD BIOS SETUP program, press the key. The screen display will appear as :



Main Program Screen

ROM PCI / ISA BIOS (2A434L7P) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP / PCI CONFIGURATION LOAD SETUP DEFAULTS LOAD BIOS DEFAULTS	INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION SAVE & EXIT SETUP EXIT WITHOUT SAVING
ESC : Quit F10 : Save & Exit Setup	    : Select Item (Shift) F2 : Change Color
Time, Date, Hard Disk Type....	

This screen provides access to the utility's various functions.

Listed below are explanation of the keys displayed at the bottom of the screen:

<ESC> : Exit the utility.

ARROW KEYS : Use arrow keys     to move cursor to your desired selection.

<F10> : Saves all changes made to Setup and exits program.

<Shift><F2> : Changes background and foreground colors.

3.3 STANDARD CMOS SETUP

When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appear as :

Standard CMOS Setup Screen

ROM PCI / ISA BIOS (2A434L7P)								
STANDARD CMOS SETUP								
AWARD SOFTWARE, INC.								
Date	(mm : dd : yy)	:	Fri ,Jun 9 2000					
Time	(hh : mm : ss)	:	9 : 27: 2					
HARD DISKS	TYPE	SIZE	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
Drive C	: Auto	0M	0	0	0	0	0	AUTO
Drive D	: Auto	0M	0	0	0	0	0	AUTO
Drive A : 1.44M, 3.5 in.								
Drive B : None								
Video : EGA/VGA								
Halt On : All Error								
			Base Memory :			640K		
			Extended Memory :			127488K		
			Other Memory :			384K		
			Total Memory :			128512K		
ESC : Quit		⏏ ⏏ ⏏ ⏏ : Select Item		PU / PD / + / - : Modify				
F1 : Help		(Shift) F2 : Change Color						

The Standard CMOS Setup utility is used to configure the following components such as date, time, hard disk drive, floppy drive, display, and memory. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

Set Date : Month, Date, Year.

Set Time : Hour, Minute and Second. Use 24 Hour clock format (for p.m. time, add 12 to the hour number, you would enter 4:30p.m. as 16:30)

Hard Disks : There are four hard disks listed: "Primary Master", "Primary Slave", "Secondary Master" and "Secondary Slave". For each IDE channel, the first device is the "Master" and the second device is "Slave". Hard disk types from 1 to 45 are the standard ones. To select or change the configuration, move the cursor to the desired position and press <Page Up> or <Page Down> to change the option: (1) Press "Auto" for IDE HDD auto detection, (2) Press "User" for user definable, and Press "None" for not installed (e.g. SCSI).

There are six categories of information that you must enter for a HDD: "CYLS." for (number of cylinders), "HEADS" for (number of heads), "PRECOMP" for (write pre-compensation), "LANDZ" for (landing zone), "SECTOR" for (number of sectors) and "MODE" for (Normal, LBA, LARGE and AUTO). The hard disk vendor's or system manufacturer's documentation should provide you with the drive specifications. For an IDE hard drive, you can set "TYPE" to "Auto" or use the "IDE HDD AUTO DETECTION" utility in the main program screen to enter the drive specifications.

The AWARD BIOS supports three HDD modes: NORMAL, LBA and LARGE.

NORMAL mode : This is a Generic Access mode in which neither the BIOS nor the IDE controller will make any transformation during the accession. The maximum HDD size is supported by the NORMAL mode that is 528 Megabytes.

LBA mode : This is a Logical Block Addressing mode which is a HDD accessing method to overcome the 528 Megabytes restriction. The number of cylinders, heads and sectors that are shown in setup may not be the physical number contained in the HDD.

During the HDD accessing, the IDE controller will transform the logical address that is described by the cylinder, head and sector numbers into its own physical address as contained inside the HDD. The maximum HDD size that is supported by the LBA mode is 8.4 Gigabytes.

LARGE mode : Some IDE HDD contains more than 1024 cylinders without the LBA support. This access mode tricks DOS (or other OS) with the number of cylinders that is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside INT13H in order to access to the right HDD address. The maximum HDD size that is supported by the LARGE mode is 1 Gigabytes.

Note : 1. To support LBA or LARGE mode, there are software located in the AWARD HD Service Routine "INT13H". It may fail to access a HDD with LBA or LARGE modes selected if you are running under an Operating System that replaces the whole INT13H service routine.

2. Entering incorrect drive specifications will result in a hard disk drive that will function improperly or no function at all.

Floppy Drive A and Floppy Drive B : The options are as follows –

360K, 5.25 in. 720K, 3.5in. 2.88M, 3.5in.

1.2M, 5.25in 1.44M, 3.5in. None (for Not Installed).

- Note :**
1. Not Installed could be used as an option for diskless workstations..
 2. Highlight the listing after each drive name and select the appropriate entry.

Video : This category selects the type of video adapter that is used for the primary system monitor. Although secondary monitors are also supported here, you do not have to select the type in the 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 : This category determines whether the computer will stop if an error is detected during power up.

No errors	Whenever the BIOS detects a non-fatal error the system will not be stopped and you will be prompted
All errors	The system boot will be stopped for any error that may be detected.
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.

3.4 BIOS Features Setup

When you select the “BIOS FEATURES SETUP” on the main program, the screen display will appears as:

BIOS Features Setup Screen

ROM PCI / ISA BIOS (2A434L7P)			
BIOS FEATURES SETUP			
AWARD SOFTWARE, INC			
Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	CC000-CFFFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D0000-D3FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D4000-D7FFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up NumLock Status	: On	DC000-DFFFF Shadow	: Disabled
Boot up System Speed	: High		
Gate A20 Option	: Fast		
Memory Parity Check	: Enabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars Sec.)	: 6		
Typematic Delay (M/Sec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled	ESC : Quit	 : Select Item
OS Select For DRAM >64MB	: Non-OS/2	F1 : Help	PU /PD +/- : Modify
Report No FDD For WIN95	: Yes	F5 : Old Values (Shift) F2	: Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

The following explains the options for each of the features as listed in the above menu:

Virus Warning : The default setting of the Virus Warning is “Disabled”. When it is enabled, any attempt to write the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot, to clean and to investigate your system.

CPU Internal Cache : The default setting is “Enabled”. This setting enables the CPU internal cache .

Quick Power On Self Test : The default setting is “Enabled”. This speeds up the Power On Self Test (POST) by skipping some items that are normally checked during the full POST. If your system is functioning normally, you can choose this feature to speed the booting process.

Boot Sequence : The default setting is "C:,A:"; the other options are "CDROM, C, A" and "A, C" and "C, CDROM, A". This setting determines where the computer looks first for an operating system, the hard disk, or the floppy disk, ...or other. The BIOS will load the operating system from the disk drives in the sequence as selected here.

Swap Floppy Drive : The default setting is "Disabled". This setting gives you an option to swap A and B floppy disks. Normally, the floppy drive A is the one at the end of the cable and drive B is at the other end. If you set this option to "Enabled", the Drive A will function as Drive B, and vice-versa under the DOS.

Boot Up Floppy Seek : The default setting is "Disabled". When enabled, the BIOS will check whether there is a floppy disk drive installed.

Boot Up Numlock Status : The default setting is "On". If set "Off" the cursor controls will function on the numeric keypad.

Boot Up System Speed : The default setting is "High". This sets the CPU speed at boot up.

Gate A20 Option : The default setting is "Fast". This is the optimal setting for the CPU card. The other option is "Normal".

Memory Parity Check: Select "Enabled", "Disabled", or "Auto". In Auto mode, the BIOS enabled memory checking automatically when it detects the presence of ECC or parity DRAM.

Typematic Rate Setting : The default setting is "Disabled". If enabled, you can set the typematic rate and typematic delay.

Typematic Rate (Chars/Sec) : This setting controls the speed at which the system registers the repeated keystrokes. The choices range from 6 to 30 Chars/Sec. The default setting is "6" Chars/Sec.

Typematic Delay (Msec) : This setting controls the time between the display of the first and second characters. There are four delay choices: 250ms, 500ms, 750ms and 1000ms. The default setting is "250" ms.

Security Option : This setting controls the password in the main screen. The options are "Setup" and "System". Select "Setup" and it will protect the Setup Utility settings from being tampered with. Select "System" if you want to use password feature every time the system boots up. The default setting is "Setup". You can create your password by using the "SUPERVISOR/USER PASSWORD" utility on the main program screen.

PCI/VGA Palette Snoop : The default setting is "Disabled". Set to "Enable" if any ISA adapter card installed requires VGA palette snooping.

OS Select For DRAM > 64MB : The default setting is "Non-OS2". Set to "OS2" if the system memory size is greater than 64MB and the operating system is OS/2.

Report No FDD For WIN 95 : Select "Yes" to release IRQ6 when the system contains no floppy drive , for compatibility with Windows 95 logo certification. In the Integrated Peripherals screen select "Disabled" for the Onboard FDC Controller field.





Video BIOS Shadow : The default setting is "Enabled" which will copy the VGA display card BIOS into system DRAM to improve performance.

C8000-CBFFF Shadow to DC000-DFFFF Shadow : The default setting for the shadow feature is "Disabled". When enabled, the ROM with the specific address is copied into system DRAM. It will also reduce the size of memory available to the system. After you have made your selection in the BIOS FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.5 CHIPSET FEATURES SETUP

When you select the “CHIPSET FEATURES SETUP” on the main program, the screen display will appear as:

Chipset Features Setup Screen

ROM PCI / ISA BIOS (2A434L7P) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.	
SDRAM CAS latency Time	: 3 T
SDRAM Clock Ratio Div By	: 4
16-bit I/O Recovery (CLK)	: 5
8-bit I/O Recovery (CLK)	: 5
USB Controller	: Enabled
USB Legacy Support	: Disabled
Video Memory Size	: 2.5 M
Flat Panel Status	: Disabled
Flat Panel Resolution	: 640 x 480
ESC : Quit     : Select Item F1 : Help PU /PD /+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

This screen controls the settings for the board's chipset. All the entries on the screen are automatically configured. However, you can change it according to your operating environment.

SDRAM CAS Latency Time: 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.

16-bit/8-bit I/O Recovery (CLK) : The I/O recovery mechanism adds bus clock cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is so much faster than the ISA bus. These two fields let you add recovery time (in bus clock cycles) for 16-bit and 8-bit I/O.

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

Video Memory Size: Select video memory shared size, 1.5M or 2.5M

Flat Panel Status: Select “Enable” to use flat panel as video output





Flat Panel Resolution: Select flat panel resolution, 640x480, 800x600 or 1024x768

After you have made your selections in the CHIPSET FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.6 POWER MANAGEMENT SETUP

The “Power Management Setup” controls the CPU card’s “Green” features. When you select the “POWER MANAGEMENT SETUP” on the main program, the screen display will appear as:

Power Management Setup Screen

ROM PCI / ISA BIOS (2A434L7P) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.			
Power Management	: Disabled	IRQ1 (Keyboard)	: ON
** PM Timers **		IRQ3 (COM 2)	: OFF
Doze Mode	: Disabled	IRQ4 (COM1)	: OFF
Standby Mode	: Disabled	IRQ5 (LPT 2)	: OFF
HDD Power Down	: Disabled	IRQ6 (Floppy Disk)	: OFF
MODEM Use IRQ	: NA	IRQ7 (LPT 1)	: OFF
Throttle Duty Cycle	: 33.3%	IRQ9 (IRQ2 Redir)	: OFF
		IRQ10 (Reserved)	: OFF
		IRQ11 (Reserved)	: OFF
		IRQ12 (PS /2 Mouse)	: OFF
		IRQ13 (Coprocessor)	: OFF
		IRQ14 (Hard Disk)	: OFF
		IRQ15 (Reserved)	: OFF
		ESC : Quit	    : Select Item
		F1 : Help	PU /PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Power Management: This setting controls the System Doze Mode, Standby Mode and Suspend Mode Timer features. There are four options namely --

User Define: Allows you to customize all power saving timer features.

Optimize: This is the recommended setting for general use.

Test/Demo: This is for test/demonstration purpose.

Disable: Disable the power management features.

Doze Mode: Options are from “1 Min” to “1 Hour” and “Disable”. The system speed will change from turbo to slow and the video signal will be suspended, if no Power Management events occur for a specified length of time. Full power function will return when a Wake-Up event is detected.

Standby Mode: Options are from “1 Min” to “1 Hour” and “Disable”. The system speed will change from turbo to slow and the video signal will be suspended, if no Power Management events occur for a specified length of time. Full power function will return when a Wake-Up event is detected.

HDD Power Down: Options are from “1 Min.” to “15 Min.” and “Disable”. The IDE hard drive will spin down if it is not accessed within a specified length of time.

MODEM Use IR : This field name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

Throttle Duty Cycle: When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

IRQ1~IRQ15: These fields are designed for selected peripherals, e.g. Keyboard, COM2, COM1, LPT2, Floppy Drive, etc ... You can set to either “ON” or “OFF” fields to activate or deactivate these peripherals.





After you have made your selection in the POWER MANAGEMENT SETUP, press the <ESC> key to go back to the main program screen.

3.7 PNP/PCI CONFIGURATION

Both the ISA and PCI buses on the CPU card use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configuration Setup utility, otherwise the SBC will not work properly.

When you select the “PnP /PCI CONFIGURATION” on the main program, the screen display will appear as:

PnP/PCI Configuration Setup Screen

ROM PCI / ISA BIOS (2A434L7P) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
PNP OS Installed : No Resources Controlled By : Manual Reset Configuration Data : Disabled	PCI IRQ Activated By : Level Used MEM base addr : N/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

PNP OS Installed: Select Yes if the system operating environment is Plug-and-Play aware .

Resources Controlled By: The defaults setting is “Auto” which will control all IRQs and DMAs automatically. The other option is “Manual” which allows you to control IRQs and DMAs individually.

Reset Configuration Data: The default setting is “Disabled”. When set to “Enabled”, the content of the ESCD block in flash BIOS will be cleared.

IRQ assigned to and DMA assigned to: If there is a legacy ISA device which uses an IRQ or a DMA, set the corresponding IRQ or DMA to “ Legacy ISA”; otherwise you should set to PCI/ISA PnP.

PCI IRQ Activated By: Options are “Level” or “Edge“. The default setting is ”Level“, this option is used to select the IRQ’s trigger method.

Used MEM base addr: Because BIOSes fail to auto detect some specific ISA Legacy cards with requested memory space below 1M address, we have added the “Used MEM base addr” and “Used MEM Length” to support such kind of cards. Now, with these two functions, users can define where the used memory address is located and its length of the legacy area correspondingly. Based on this, BIOS will skip the UMB area that is used by the legacy device to avoid the memory space conflict. For example, if the user select “D000” for “Used MEM base addr” and “16K” for “Used MEM Length” that means the address region D0000H-D3FFFH is occupied by ISA legacy cards, and BIOS will not assign this region for PnP/ISA and PCI cards.

3.8 LOAD SETUP DEFAULTS

“LOAD SETUP DEFAULTS” loads the optimal settings which are stored in BIOS ROM. The defaults loaded affect only the BIOS Features Setup, Chipset Features Setup, Power Management Setup, PnP/PCI configuration setup and Integrated Peripherals Setup. There is no effect on the Standard CMOS Setup. To use this feature, highlight the entry on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Setup default values. Press the <Y> key and then press the <Enter> key if you want to load the Setup defaults. Press <N> if you do not want to proceed.

3.9 LOAD BIOS DEFAULTS

The BIOS defaults have been set by the manufacturer which represent settings provided with the minimum requirements for your system to operate. “ **Load BIOS Defaults** ” loads the troubleshooting default values permanently recorded in the BIOS ROM. These settings are non-optimal and turn off all high performance features.





The Standard CMOS Setup screen is not affected. To use this feature, highlight it on the main screen and press <Enter>. A line will appear asking if you want to load the BIOS default values. Press the <Y> key and the <Enter>. The default settings will load. Press <N> if you do not want to proceed.

ROM PCI / ISA BIOS (2A434L7P) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP / PCI CONFIGURATION LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION SAVE & EXIT SETUP WITHOUT SAVING
Load BIOS Default (Y/N)? Y	
ESC : Quit ⏏ : Select Item F10 : Save & Exit Setup (Shift) F2 : Change Color	
Time, Date, Hard Disk Type....	

3.10 INTEGRATED PERIPHERALS

When you select the “INTEGRATED PERIPHERALS” on the main program, the screen display will appear as:

Integrated Peripheral Setup Screen

ROM PCI / ISA BIOS (2A434L7P) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.	
IDE HDD Block Mode	: Enabled
Primary IDE Channel	: Enabled
Master Drive PIO Mode	: Auto
Slave Drive PIO Mode	: Auto
IDE Primary Master UDMA	: Auto
IDE Primary Slave UDMA	: Auto
KBC input clock	: 8MHz
Onboard FDC Controller	: Enabled
Onboard Serial Port 1	: 3F8/IRQ4
Onboard Serial Port 2	: 2F8/IRQ3
Onboard Parallel Port	: 378/IRQ7
Parallel Port 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	

IDE HDD Block Mode: The Default setting is “Enabled”. This feature enhances the hard disk performance by making multi-sector transfers instead of one sector per transfer. Most IDE drives, except the very early design, have Block Mode transfer feature.

Primary IDE Channel: Select “Enabled” to activate the on-chip IDE interface.

Master Drive PIO and Slave Drive PIO: There are six options namely “Auto”, “Mode 0”, “Mode 1”, “Mode 2”, “Mode 3” and “Mode 4”. The default setting is “Auto”. When it is set to “Auto”, the BIOS will automatically set the mode to match the transfer rate of hard disk. If the system won't boot up when set to “Auto”, set it manually to the lower mode (e.g. From Mode 3 to Mode 2). All IDE drives should work with PIO mode 0.

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

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

Onboard Serial Port 1 / 2: These options are used to assign the I/O addresses for the two on-board serial ports. They can be assigned as follows:

Auto **[Default]**

3F8 / IRQ4

2F8 / IRQ3

3E8 / IRQ4

2E8 / IRQ3

Disabled (Disable the onboard serial port)

Onboard Parallel Port: This option is used to assign the I/O address for the onboard parallel port. The options are “378/IRQ7” (defaults), “278/IRQ7”, “3BC/IRQ7” and “Disabled” (disable the onboard parallel port). Note: Printer port always use IRQ7 when set to “378/IRQ7” or “278/IRQ7”, or from “3BE/IRQ7” to “Enabled”.

Parallel Port Mode: There are four options “Normal” (default), “ECP”, “ECP/EPP” and “EPP/SPP”. Change the mode from “Normal” to the enhanced mode only if your peripheral device can support it. When it is set to ECP mode, the printer port always uses DMA3.

Onboard Serial Port 3:

Serial Port 3 Use IRQ:

Onboard Serial Port 4:

Serial Port 4 Use IRQ:

Onboard Parallel Port 2:

Parallel Port 2 Use IRQ:

3.11 SUPERVISOR/USER PASSWORD

The “SUPERVISOR/USER PASSWORD” utility sets the password. The SBC is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt -- enter your new password. The password is case sensitive, and can be up to 8 alphanumeric characters. Press <Enter> after you have finished typing in the password. At the next prompt, confirm the new password by re-typing it and pressing <Enter> again. When you are done, the screen automatically reverts to the main screen. Remember that when you use this feature, the “Security Option” line in BIOS FEATURES SETUP will determine when entering the password will be required.

To disable the password, press the <Enter> key instead of entering a new password when the “Enter Password” in the dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

Note : If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on the S1 (open pad) for 5 seconds, then removing the shunt.

3.12 IDE HDD AUTO DETECTION

If your system has an IDE hard drive, you can use this utility to detect its parameters and enter them into the Standard CMOS Setup automatically.

If the auto-detected parameters displayed do not match the ones that should be used for your hard drive, do not accept them. Press the <N> key to reject the values and enter the correct ones manually on the Standard CMOS Setup screen.

Note : If you are setting up a new hard disk drive (nothing on it) that supports LBA mode, more than one line will appear in the parameter box, choose the line that lists LBA for an LBA drive.

Do not choose Large or Normal if the hard disk drive is already fully formatted when you install it, choose the mode “HDD Low Level Format” to format it.

3.13 SAVE & EXIT SETUP

Select this option and press the <Enter> key to save the new setting information in the CMOS memory and continue with the booting process.

3.14 EXIT WITHOUT SAVING

Select this option and press the <Enter > key to exit the Setup Utility without recording any new values or changing old ones

CHAPTER 4.

DRIVERS SUPPORT

4.1 DRIVERS OF CD-ROM LIST

The table list below shows the drivers supported for IAC-H553.

Driver Directory	Driver Function
\ IAC-H553 \ VGA	Video Graphics Array Driver
\ IAC-H553 \ LAN	Local Area Network Driver

APPENDIX A

HOW TO USE WATCH-DOG TIMER

You can enable the watch-dog when your application software monitors an unexpected or not respond, then the timer generates a reset to reboot your system. During the period of enable to reset, you could still cancel reset by disable the watch-dog. Decision the way you want to set the period for reset by select hardware or software watch-dog (if both of them are available). For hardware setting period, select period by jumper. For software setting period, normally setting hardware watch-dog timer period to 16 sec.

Hardware watch-dog using example

EX.1: For DOS

Execute the **DEBUG.EXE** under DOS, Then key-in **i443**. The system will reboot automatically according to the time-out you set.

Enable

```
C:\DOS> DEBUG
-i443
```

Disable

```
C:\DOS>DEBUG
-i43
```

EX.2: For assemble Language

Enable :

```
MOV DX, 443H
IN AL, DX
```

Disable :

```
IN AL, 43H
```

Software watch-dog using example

EX.1: For DOS

Enable

```
C:\DOS> DEBUG
-o443F
```

Disable

```
C:\DOS>DEBUG
-o441F
```

EX.2: For assemble Language

Enable :

```
MOV DX, 443H
MOV AL, 0FH
OUT DX, AL
```

Disable :

```
MOV DX, 441H
MOV AL, 0FH
OUT DX, AL
```

Note : "F" is the period of software watch-dog timer (normally "F" indicated 0 sec.). 0 to 9 and A to F are used for represent different period. Normally, the step is 2 sec. That means "E" is 2, "D" is 4, "2" is 26, "1" is 28 and "0" is 30 seconds.

APPENDIX B

TECHNICAL REFERENCE

I/O PORT ADDRESS MAP

Address	Function
000 - 01F	DMA Controller #1
020 - 03F	Interrupt Controller #1
040 - 05F	Timer Chip
043	Disable Watch-Dog Times Operation (Read)
060 - 06F	Keyboard Controller
070 - 07F	Read Time Clock/NMI Mask
080 - 09F	DMA Page Register
0A0 - 0BF	Interrupt Controller #2
0C0 - 0DF	DMA Controller #2
0F0 - 0F1	Clear/Reset Math Coprocessor
1F0 - 1F7	Hard Disk Controller
200 - 210	Game Port
278 - 27F	Parallel Port #2
2E8 - 2EF	Serial Port #4 (COM 4)
2F8 - 2FF	Serial Port #2 (COM 2)
300 - 31F	prototype Card/Streaming Tape Adapter
360 - 36F	PC Network
378 - 3FF	Parallel Port #1
380 - 38F	SDLC #2
3A0 - 3AF	SDLC #1
3B0 - 3BF	MDA Video Card (Including LPT0)
3C0 - 3CF	EGA Card
3D0 - 3DF	CGA Card
3E8 - 3EF	Serial Port #3 (COM 3)
3F0 - 3F7	Floppy Disk Controller
3F8 - 3FF	Serial Port #1 (COM 1)
443	Enable Watch-dog Timer Operation (read)

MEMORY ADDRESS MAP

Address Range (Hex)	Description
000000H - 09FFFFH	640 KB of Conventional RAM
0A0000H - 0BFFFFH	128 KB of Video RAM
0C0000H - 0EFFFFH	256 KB of I/O Expansion ROM
0F0000H - 0FFFFFFH	64 KB of System BIOS ROM
0100000H - 7FFFFFFFH	1 MB ~ 128MB of User RAM

DMA CHANNELS

CHANNEL	Function
DMA 0	Reserved
DMA 1	Reserved
DMA 2	Floppy Disk Controller
DMA 3	ECP Parallel Port
DMA 4	Cascade for DMA #1
DMA 5	Reserved
DMA 6	Reserved
DMA 7	Reserved

INTERRUPT CONTROLLER

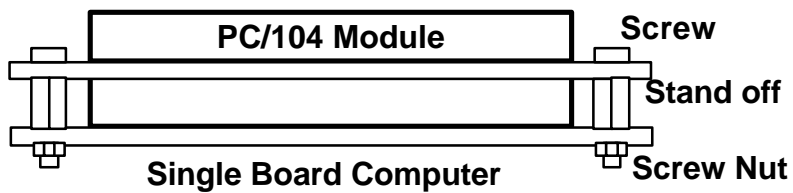
IRQ	Function
IRQ 0	System timer output
IRQ 1	Keyboard
IRQ 2	Cascade for INTC #2
IRQ 3	Serial port #2
IRQ 4	Serial port #1
IRQ 5	Parallel port #2
IRQ 6	Floppy disk controller
IRQ 7	Parallel port #1
IRQ 8	Real time clock
IRQ 9	Software redirected to INT 0AH (IRQ 2)
IRQ 10	Reserved
IRQ 11	Reserved
IRQ 12	PS/2 Mouse
IRQ 13	Math Coprocessor (CPU Internal)
IRQ 14	Primary Hard disk
IRQ 15	Secondary Hard Disk
NMI	Parity Check Error

APPENDIX C

PC/104 MODULE INSTALLATION

There are four steps to install the PC/104 module on Single Board Computer.

- Step 1.** Place stand off in four PC/104 fixation holes
- Step 2.** Fasten stand off by screw nut
- Step 3.** Plug the PC/104 module into the PC/104 female connector
- Step 4.** Screws down PC/104 module on stand off



GLOSSARY

8-Bit Bus – Data is transmitted to expansion slots and other components on the bus only along 8 parallel data line.

10Base-T – It is a 10Mbps IEEE 802.3/Ethernet standard that uses un-shielded twisted pair cable specification. 10Base-T supports network configuration using the CSMA/CD access method over a twisted pair transmission system up to 100 meters in length without the use of repeater.

16-Bit Bus or ISA Bus – Data is transmitted along either 8 or 16 data lines, depending on what kind of adapter card is used in an expansion slot. ISA is the abbreviation of Industry Standard Architecture.

100Base-TX – It is a 100Mbps IEEE 802.3/Ethernet standard that uses UTP cable. Also called Fast Ethernet, it uses RJ-45 connectors and EIA/TIA T568B pinning. Maximum cable length from hub to node is 100 meters without a repeater.

Adapter – It is also called an expansion board, expansion card, or adapter card. It is a small circuit board that is installed in the expansion slots on the motherboard. You can install a particular adapter that connects a new device such as internal modem, sound card, and scanner.

AGP (Accelerated Graphic Port) – is a 32-bit, 66MHz external frequency data bus that transmit a maximum of 528MB/s of data (4 times the speed of PCI transmission); this design improves the speed of large amount in video transaction.

BIOS (Basic Input /Output System) – This is a chip on the motherboard that contains the instructions for starting up, or booting, the computer, and more.

Bus – Data that travels in a computer along the circuits on the motherboard are called buses. Although three main buses (data bus, address bus, and control bus) manage the computer's operation, often these are collectively called the bus. The bus carries instructions back and forth between the CPU and other devices in the system. ISA, EISA, VL-Bus, PCI and SCSI are examples of PC buses.

bps – Bits per second. Also often preceded by K (kilo/thousands), Kbps – Kilo bytes per second, and M (mega/million), Mbps – Mega bytes per second.

Bus Mastering – A method of transferring data through a bus in which the device takes over the bus and directly controls the transfer of data to the computer's memory. Bus mastering is a method of Direct Memory Access (DMA) transfer.

Cache – Cache RAM is an extra holding area for program instructions that need to be frequently used by the CPU or swapped in and out of RAM. Your CPU can usually access those instructions from the cache more quickly than it could from a hard disk or even RAM, so a cache helps the system work more efficiently. Most systems sold today offer either 256K or 512K cache.

CPU (Central Processing Unit) – executes all commands and controls the flow of data, providing the “ brain ” that enables the PC to calculate and perform the operations like sorting information more quickly than a human could. The CPU makes perhaps the greatest contribution to a PC's speed and power. Note: Any additional information is subject to change without prior revision from the supplier.

Table 1 -- CPU Speeds

Processor type	Speed ratings (MHz)
486DX2	66, 80
486DX4	75, 100, 120
Pentium	90, 100, 120, 133, 166, 200
Pentium MMX	166, 200, 233
Pentium Pro	166, 180, 200
Pentium II	233, 266, 300, 333

EIDE (Enhanced IDE) – It is a hard drive controller that enables your system to be able to handle fast hard disk drives at a speed of 10Mbps.

EISA or MCA Bus – Data is transmitted along 32 data lines to adapter cards designed specifically to work with the 32-bit buses. MCA expansion slots cannot accept 8-bit or 16-bit adapter cards. EISA stands for Extended Industry Standard Architecture, while MCA stands for MicroChannel Architecture. MCA is architecture used in IBM Microcomputer.

Expansion slots – Expansion slots are plug-in connectors that allow you to insert additional circuit boards that attach to the rest of the PC through special circuitry called the bus. By inserting the right circuit board -- usually called an adapter or an expansion card – you can increase the resolution and the number of colors used by the display, or you can transform your PC into a machine for recording and playing music.

Fast SCSI – The common nomenclature associated with SCSI-2, the second generation of SCSI offering mandatory parity checking improvements over SCSI-1.

IDE (Integrated Drive Electronics) – It was developed from ST-506 type hard drive interface, utilizes BIOS INT 13h hard drive secondary software and supports two hard drives (Master and Slave). Do not need extra software to drive since it is directly initiated in the BIOS. Data transfer rate is 4.1 Mbps. Take note that this interface cannot support other drive like CD-ROM drive.

IEEE (Institute of Electrical and Electronic Engineers) – It is an international professional society that issues its own standard, and is a member of ANSI and ISO. Popular known standards is:

- IEEE802.3 – is a physical layer standard for 10Base-T, 100Base-T, Ethernet, and StarLAN.
- IEEE802.5 – is a physical layer standard for Token Ring.
- IEEE802.11 – is a physical layer standard for Wireless LAN/WAN compatibility.
- IEEE802.12 – is a physical layer standard for 100VG AnyLAN.

LAN (Local Area Network) – A data communications network spanning a limited area. It provides communications between three or more computers and peripherals, in most cases using a high-speed media as it' s backbone.

Keyboard – This is a component that comes in direct contact for you with your PC. The mechanism of keyboard converts a key cap's movement into a signal sent to the computer. The most common key mechanism are “capacitate” and “hard contact”. Capacitate keyboard has a spring that causes the plastic and the metal plunger to move nearer to two pads that have large plates (plated in tin, nickel, and copper). These pads are connected to the keyboard's printed circuit board. Hard contact keyboard causes the key cap to collapse a foam rubber dome that presses against a sheet of plastic on the bottom of which is metallic area connected to the rest of the keyboard's circuit board.

LDCM (LANdesk Client Manager) – With the help of LDCM, PCs that are either stand-alone or on a network can not escape the control of a system administrator. Alerts will be sent to the user if an abnormal condition is encountered in a PC. It allows the administrator to give each PC a thorough check-up. Additionally, this feature is available to multiple OS' s on the market today. LDCM Key Features include the following : ■ Health Monitoring , ■ Real-Time Alerting , ■ Remote Accessibility , ■ Extensive Instrumentation. This is a product from Intel.

Mouse – The keyboard is a barrier to learn how to use a computer. Xerox Corporation first developed the concept of a pointing device, something a computer user could move with his or her hand, causing a corresponding move on screen. Because of its size and tail like cable, the device was named for the mouse. Apple Computer made the mouse a standard feature of its Macintosh computers, and with the popularity of Windows, a mouse is becoming standard equipment on all PCs, as well. The “Trackball” have survived more awkward methods of navigating with the keyboard. “Digitizing tablets” are popular with architects and engineers who must translate precise movements of a pen into lines on the screen. “Touch screens”, on which you press either your finger and a special light pen to control the software, are too tiring to use for any length of time.

MMX – CPU' s with MMX technology are optimized to run multimedia application, and therefore, offer faster multimedia playback than standard CPUs. However, when manufacturers introduce any new hardware technology, the software makers need to catch up. At this time of compilation, most applications can't yet take advantage of MMX capabilities.

Parallel port – Parallel ports (labeled LPT1, LPT2, and so on) are usually for plugging in printers. It is also often called a Centronics port – has been almost synonymous with printer port. Although a serial port can also be used to send data from a PC to some models of printers, the parallel port is faster. A serial port sends data one bit at a time over a single one-way wire; a parallel port can send several bits of data across eight parallel wires simultaneously. Take note that a serial connection sends a single bit, a parallel port send an entire byte.

PCI Bus (Peripheral Component Interconnect) – It is a connection slot in a motherboard that supports 32-bit bus transfer rates. The now standard PCI Local Bus carries data along at least 32 lines, that is, at least 32 bits at a time. Local bus computer designs add special buses so the CPU can communicate directly with key components like the monitor, resulting in much better performance. You should look for PCI local bus capabilities in any system you buy, especially PCI local bus video (which helps the monitor display more quickly).

POST (Power-On Self-Test) – is the first thing your PC does when you turn it on, and it's your first warning of trouble with any of the components. When the POST detects an error from the display, memory, keyboard, or other basic components, it produces an error warning in the form of a message on your display and —in case your display is part of the problem—in the form of a series of beeps.

RAM (Random Access Memory) – consists of a bank of chips that act as “ working memory ”, holding program instructions and data only while your computer's on. Unless the instructions and data are saved to a disk, RAM forgets them when you turn your computer off. RAM is measured in megabytes (M). Most computers today come with 32M of RAM, though some sell with only 16M installed. There are a few different flavors and speeds of RAM, as well. One of the most prominent today is Extended Data Output (EDO) RAM, but an even faster type of RAM that has just hit the market is called SyncDRAM.

Serial port – Serial ports are also sometimes called COM (short for COMmunications) ports, and are labeled COM1, COM2, and so on. It is simple in concept: one line to send data, another line to receive data, and a few other lines to regulate how data is sent over the other two lines – from commonplace modems and printers to plotters and burglar alarms. The most common use for serial port is with a mouse or modem. The reason for this is that a serial port is not a very efficient way to transfer data, so little data that speed is not crucial, and perfect for modems because. With current technology, phone

lines cannot transport more than one signal at a time anyway. The serial port is often referred to as an RS-232 port.

SCSI (Small Computer System Interface) – An intelligent bus for transmitting data commands between a variety of devices. There are many implementations of SCSI, including Fast SCSI, Wide SCSI, Fast Wide SCSI, Fast-20, and Fast-40.

SCSI-2 – The second generation of SCSI; includes many improvements to SCSI-1, including Fast SCSI, Wide SCSI, and mandatory parity checking.

SCSI-3 – The third generation of SCSI; introduces Fast-20 and Fast-40 as improvements to the parallel bus. The standard also includes a number of specifications for high-speed serial bus architectures such as SSA, Fiber Channel, and IEEE 1394. Also known as Ultra SCSI.

Ultra SCSI – Also known as SCSI-3, is a third generation SCSI standard that introduced parallel bus speed improvements (FAST-20 and FAST-40), and the miniaturized 68-pin micro connector.

USB (Universal Serial Bus) – USB consolidates serial, parallel, keyboard, mouse, and game ports into one asynchronous and isochronous communications port with bandwidth for data transfer speeds up to 12 Mbps without termination. By daisy-chaining USB hubs, up to 127 I/O devices can be connected to one USB port on the PC. USB is completely plug-and play meaning peripherals can be correctly detected and configured automatically as soon as they are connected.

UTP (Unshielded Twisted Pair) – Twisted pair cable with neither individual nor overall shielding. Twisted Pair are two wires twisted together to reduce susceptibility to RF crosswalk.

VGA (Video Graphics Array) – A video adapter that supports 640x480 pixels color resolution. The Windows OS provides medium text & graphics standard.

VL-Bus – It is also known as Local Bus; this is an I/O interface that is directly connected and depended of the system CPU. The VL-Bus is an abbreviation of VESA Local Bus.

Terms and Conditions

Date:1997.10.20

Warranty Policy

1. All products are warranted against defects in materials and workmanship on a period of two years from the date of purchase by the customer.
2. The buyer will bear the return freight charges for goods that are returned for repair within the warranty period whereas manufacturer will bear the other way after repair.
3. The buyer will pay for repair (for the replaced materials plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service " , RMA goods will be returned at the customer expense.
5. The following conditions are excluded from this warranty :
 - A. Improper or inadequate maintenance by the customer.
 - B. Unauthorized modification or misuse.
 - C. Operation outside of the environmental specifications for the product.

RMA Service

1. **Request a RMA# :**

Complete and fax to Supplier the "RMA Request Form" to obtain a RMA number.

2. **Shipping:**

- A. The customer is requested to fill up the problem code as listed . If none of the code is selected, please write the symptom description on the remark.
- B. Ship the defective units with freight prepaid.
- C. Mark the RMA # clearly on the box.
- D. Shipping damage as a result of inadequate packing is the customer's responsibility.
- E. Use the original packing materials whenever possible .

3. **All RMA# are valid for 30 days only:**

When RMA goods are received after valid RMA# period , the goods will be rejected.

RMA Service Request Form

Date: 1997.10.20

When requesting RMA service, please fill out this "RMA Service Request Form". This form needs to be shipped with your returns. Service cannot begin until we have this information.

Company:	Person to contact:
Phone No.	Purchased Date:
Fax No.:	Applied Date:
Return Shipping Address _____	

*For Supplier only	RMA No:
	Account Sales:

Model No.	Serial No.	Problem Code	Remark
			*This form could be copied for more description

***Problem Code:**

- | | | |
|------------------------|------------------------------|----------------------------|
| 01: D.O.A. | 06: HDC Fail | 11: Memory Socket Bad |
| 02: Second Time R.M.A. | 07: Bad Slot | 12: Hang Up Hardware |
| 03: No Screen | 08: BIOS Problem | 13: Hang Up Software |
| 04: CMOS Data Lost | 09: Keyboard Controller Fail | 14: Other (Pls. Specify) |
| 05: FDC Fail | 10: Cache RMA Problem | |

Request Party

Confirmed By Supplier

Authorized Signatures

Authorized Signatures