HS-6301

Dual PIII / Dual LAN / VGA / SCSI

・ Dual CPU・ Dual LAN・ CRT/Panel・ 133MHz FSB・
・ SCSI・ DMA33・ WDT・ PC/104・ USB・
・ DOC・ IrDA ・ Hardware Monitor・
・ PICMG Bus Industrial Single Board Computer・

HS-6301LLV

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Chapter-1

General Information

The HS-6301 is a Dual FC-PGA PICMG Bus Industrial Single Board Computer with combined features to make it an ideal all-in-one Industrial Single Board Computer, equipped with enhanced I/O effects, CRT/Panel interface and Dual Intel® 82559 100 Based LAN.

With on board DMA33 of mode 4 to IDE drive interface architecture, the HS-6301 supports 33MB/sec data transfer rates and up to four IDE disk drive connections.

The advanced PICMG Bus add-on connection of the HS-6301 allows users to easily use both ISA' s 16bit and PCI' s 32bit full set signals. The HS-6301 provides four DIMM sockets that support up to 1GB of main system memory.

A single Flash chip holds the system BIOS, and you can change the Flash BIOS using Utility Update. Advanced USB and IR ports also provide faster data transmissions. The DOS version of the DiskOnChip™ socket can also be used by issuing commands from the DOS prompt without the necessity of other software. DiskOnChip supports up to 144MB.

In case a program stops unexpectedly, the on board Watch-Dog Timer will automatically reset the CPU or generate an interrupt. The Watch-Dog Timer is designed with hardware and doesn' t need any arithmetical functions of a real-time clock chip. This ensures the reliability in an unmanned or standalone system.

1.1 Major Features

- Dual Socket 370 for Intel® Celeron™ / Coppermine™ 266~933MHz CPU
- 100MHz system clock provides up to 133MHz
- Four DIMM sockets provides up to 1GB
- Fast PCI DMA33 controller supports four IDE disk drives
- Two RS-232 serial ports include 16C550 UART with 16byte FIFO
- One enhanced bi-directional parallel port supports SPP/EPP/ECP
- On board PS/2 Keyboard and PS/2 Mouse connector
- On board Winbond W83977 super I/O chipset
- On board 8MB SMI 721 CRT/Panel display controller
- On board Dual Intel® 82559 100 Based LAN
- On board Symbios 53C1000 Ultra III SCSI
- On board PCI Bridge
- PC/104 Bus connector
- DiskOnChip™ memory size up to 144MB
- TV Out Function support
- ATX Power Function support
- Hardware Monitor support

1.2 Specifications

- **CPU：** Dual Socket 370 for Intel® Celeron™/Coppermine™ 266~933MHz CPU
- **Bus Interface：** PICMG Bus
- **Bus Clock Rate：** 100MHz system clock provides up to 133MHz
- **Memory：** Four DIMM sockets provides up to 1GB
- **Chipset：** Intel® 82443 BX
- **I/O Chipset：** Winbond® W83977
- **PCI Bridge：** HINT® or equivalent device
- **VGA：** SMI 721 with 8MB memory support CRT/Panel display up to 1280x1024, 64Kcolors
- **IDE：** Four IDE disk drives support DMA33 transfer rate up to 33MB/sec
- **Floppy：** Support to two floppy disk drives
- **Parallel Port：** Supports SPP/ECP/EPP
- **Dual LAN：** Dual Intel® 82559 100 Based LAN
- **SCSI：** Symbios 53C1000 Ultra III SCSI single channel SCSI control speed up to 160MB/sec
- **Serial Port：** Two RS-232 serial ports include 16C550 UART with 16byte FIFO
- **PC/104：** PC/104 connector for 16bit ISA Bus
- **IR：** One IrDA TX/RX header
- **USB：** Support two USB ports
- **TV Out：** Support PAL or NTSC system
- **Keyboard：** PS/2 6pin Mini Din or 5pin connector
- **Mouse：** PS/2 6pin Mini Din or 4pin header
- **DiskOnChip™：** Socket for DiskOnChip™ and memory size up to 144MB
- **BIOS：** Award Y2K PnP Flash BIOS
- **Watch-Dog Timer：** Set 1, 2, 10, 20, 110, 220 seconds activity trigger with Reset or NMI
- **CMOS：** DS12C887 or equivalent device
- **DMA Channels：** 7

- **Interrupt Levels：** 15
- **Fuse ：** Automatically resumes poly switch resetable fuse
- **Extra Power：** One ATX Power input connector
- **Power Voltage ：** +5V, +12V, -12V
- **Maximum Power Consumption：** +5V@14A(850MHz x 2), +12V@220mA, -12V@20mA
- **Operating Temperature ：** 0~60℃
- **Hardware Monitor：** Winbond W83783S
- **Board Size：** 13.26”(L) x 4.8”(W)

1.3 Delivery Package

The Delivery package of HS-6301/HS-6301LLV includes all following items：

- HS-6301/HS-6301LLV Industrial Single Board
- One Printer Flat Cable
- One COM Port Flat Cable
- Two IDE Flat Cable
- FDD Flat Cable
- Utility CD-ROM
- User' s Manual
- SCSI Flat Cable (HS-6301 only)

Please contact your dealer if any of the items is missing or damaged upon purchase. Keep all parts of the delivery package with packing materials in case of shipping or storing the product.

Chapter-2

Hardware Installation

This chapter provides information on how to install the hardware of HS-6301. Read sections 1.3, 2.1 and 2.2 about the delivery package and unpacking information. Afterwards, pay attention to the jumpers setting of switch, Watch-Dog Timer and the DiskOnChip™ address selection etc.

2.1 Caution of Static Electricity

The HS-6301 has been well packaged with an anti-static bag to protect sensitive components and circuitry from damage caused by static electric discharge.

Note：DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT THE NECESSARY ANTI-STATIC PROTECTION.

You should follow the steps below to protect the board against static electric discharge whenever you handle the board：

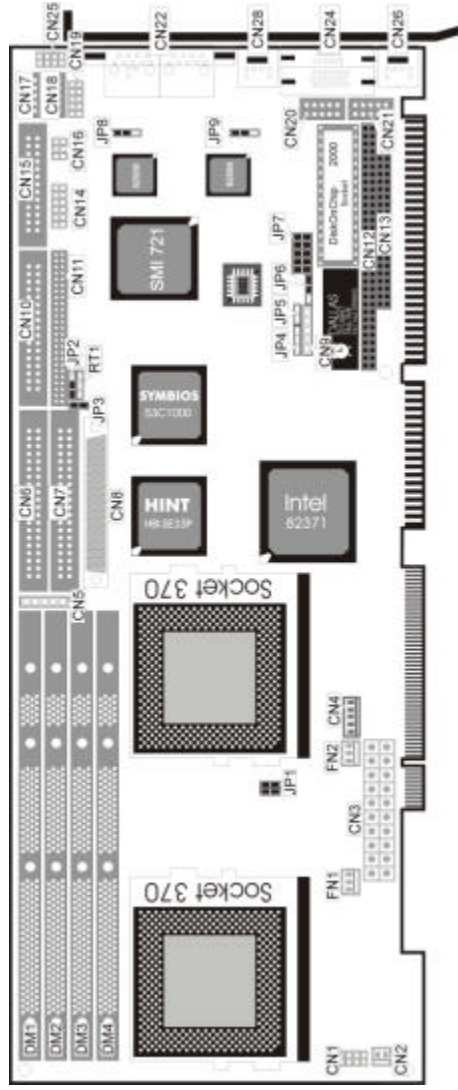
1. Please use a grounding wrist strap on whoever needs to handle the HS-6301. Clip the ALLIGATOR clip of the strap to the end of shielded wire lead from a grounded object. Put on and connect the strap before handling the HS-6301 to harmlessly discharge any static electricity through the strap.
2. Please use an anti-static pad to put any components or parts or tools on the pad whenever you work on them outside the system. You may also use an anti-static bag instead of the pad. Please ask your local supplier for assistance regarding anti-static requirements.

2.2 Caution on Unpacking and Before Installation

Follow the steps in section 2.1 to protect the HS-6301 from electricity discharge. With reference to section 1.3, please check the delivery package again with the following steps：

1. Unpack the HS-6301; Store away all packing materials, manual and diskette, etc.
2. Is there any component missing？ DO NOT INSTALL IF THIS HAPPENS.
3. Is there any visual damaged of the board？ DO NOT INSTALL IF THIS HAPPENS.
4. Check the optional parts (i.e. CPU, SRAM, DRAM, ROM-Disk etc.) to complete settings of jumpers, jumper pin-set and CMOS setup, please refer to all information on jumper settings in this manual.
5. Check the external devices (i.e. Add-On-Card, Driver Type etc.). To complete add-in or connections and CMOS setup correctly, please refer to all information of connector connections in this manual.
6. Keep the manual and diskettes for re-installation purposes or if you would like to change the Operating System.

2.3 HS-6301's Layout



2.4 Quick Listing of Jumpers

2.5 Quick Listing of Connectors

2.6 Jumper Setting Description

A jumper pin-set is ON as a shorted circuit with a plastic cap inserted over two pins. A jumper pin-set is OFF as an open circuit with a plastic cap inserted over one or no pin between pins. The below figure 2.2 shows the examples of different jumper pin-set setting as ON or OFF in this manual.

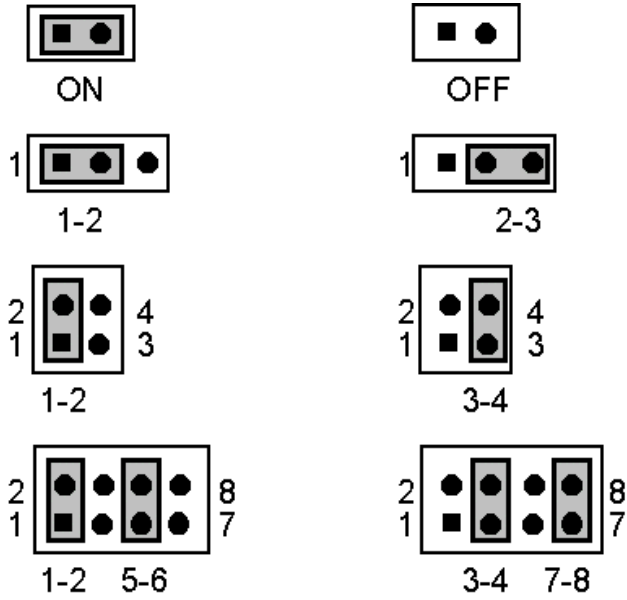


Figure 2.2

All jumper pin-set already has its default setting with the plastic cap inserted as ON, or without the plastic cap inserted as OFF. The default setting is referred to in this manual with a " *" symbol in front of the selected item.

2.7 Setting CPU Host Clock

The HS-6301's JP1 is used for internal Host Bus Clock Ratio.

✍ **JP1：CPU Host Clock：**

JP1	1-2	3-4
*Auto by CPU	ON	ON
66.8/33M or BIOS Setting	OFF	OFF

2.8 DiskOnChip™ Address Setting

The HS-6301 has a U22 socket for a DiskOnChip™ module.
JP7 (pin 1-2, 3-4) is used to select the starting memory address of the DiskOnChip™ to avoid the same mapping area with any other memory devices. If you have another extra memory device in the system with the same memory, neither the HS-6011 nor the extra memory device will function properly. Please set both with different memory address mapping.

✍ **JP7：DiskOnChip™ Address**

Memory Address	JP7 3-4	JP7 1-2
*D000	ON	ON
D800	ON	OFF

(*) ：default setting

The D.O.C. function allows the system to run even without FDD or HDD. The D.O.C. may be formatted just like drive C: or drive A:. Users may also use the DOS's commands such as FORMAT, SYS, COPY, XCOPY, DISCOPY and DISKCOMP. This is means that the D.O.C. may be used as drive A if the system comes without FDD-A for ambient application. Please contact your supplier for different sizes of D.O.C. module.

2.9 Watch-Dog Timer

There are three access cycles of Watch-Dog Timer: Enable, Refresh and Disable. The Enable cycle should proceed by READ PORT 443H. The Disable cycle after a first Enable cycle means Refresh.

Once the Enable cycle is active, a Refresh cycle is requested before the time-out period to restart counting the WDT' s period. Otherwise, it will assume that the program operation is abnormal when the time counting is over and the period preset of WDT Timer. A system reset signal to start again or a NMI cycle to the CPU comes if over.

JP6 is used to select the active function of Watch-Dog Timer in disable the Watch-Dog Timer, or presetting the Watch-Dog Timer activity at the reset trigger, or at the NMI trigger.

✍ **JP7(5-10)：Time of Watch-Dog**

Period	5-6	7-8	9-10
*1 sec	ON	ON	ON
2 sec	OFF	ON	ON
10 sec	ON	OFF	ON
20 sec	OFF	OFF	ON
110 sec	ON	ON	OFF
220 sec	OFF	ON	OFF

✍ **JP6：Watch-Dog Active Setting**

JP6	Description
1-2	Active NMI
*2-3	System Reset
OFF	Disable

The Watch-Dog Timer is disabled after the system Power On. The Watch-Dog Timer can be enabled by a Enable cycle with reading the control port (443H), a Refresh cycle with reading the control port (443H) and a Disable cycle by reading the Watch-Dog Timer disable control

port (045H). After an Enable cycle of WDT, user must constantly proceed a refresh cycle to WDT before its period setting comes ending of every 1, 2, 10, 20, 110 or 220 seconds. If the Refresh cycle does not active before WDT period cycle, the on board WDT architecture will issue a Reset or NMI cycle to the system.

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

443H	I/O Read	The Enable Cycle
443H	I/O Read	The Refresh Cycle
045H	I/O Read	The Disable Cycle

The following sample programs showing how to Enable, Disable and Refresh the Watch-Dog Timer：

```
WDT_EN_RF       EQU     0443H
WDT_DIS         EQU     0045H

WT_Enable       PUSH    AX              ; keep AX DX
                PUSH    DX
                MOV     DX,WDT_EN_RF    ; enable the watch-dog timer
                IN      AL,DX
                POP     DX              ; get back AX, DX
                POP     AX
                RET

WT_Refresh      PUSH    AX              ; keep AX, DX
                PUSH    DX
                MOV     DX,WDT_ET_RF    ; refresh the watch-dog timer
                IN      AL,DX
                POP     DX              ; get back AX, DX
                POP     AX
                RET

WT_DISABLE      PUSH    AX
                PUSH    DX
                MOV     DX,WDT_DIS      ; disable the watch-dog timer
                IN      AL,DX
                POP     DX              ; get back AX, DX
```

```
POP     AX
RET
```

2.10 USB Ports Connector

The HS-6301 has two internal 8pin USB ports connectors. Please refer to the following for detailed pin information.

✍ **CN25：8pin USB Port**

PIN No.	CN25	PIN No.	CN25
1	VCC	2	VCC
3	USBV0-	4	USBD1-
5	USBDO+	6	USBD1+
7	GND	8	GND

2.11 Setting the RTC Configuration

The HS-6301 provides a setting for the selection of the RTC Clear Jumper of JP5 setting as following：

✍ **JP5：Clear CMOS(DS12B887 only)**

JP5	CMOS Clear Jumper
*OFF	Normal
ON	Clear CMOS

2.12 System Memory DRAM

The HS-6301 features four DIMM sockets for memory modules with access time of 70 n-second or faster. The maximum memory capacity is 1GB.

See the figure on section 2.3 for identifying the banks.

Chapter-3

Connection

This chapter provides all the necessary information for peripheral connections, switches and indicators.

3.1 Power Connector

The HS-6301 has one 20pin ATX power connector, CN3, and a 5pin ATX Power connector, CN4.

The HS-6301 reserves CN2 for Power On Connector.

The HS-6301 also supports CPU cooler fans with FAN1 and FAN2.

CN2 : Power On Connector

CN2	Description	
1	Low	High
	Switch Power OFF	Switch Power ON
2	GND	

CN4 : 5pin EXT ATX Power Connector

PIN No.	CN4	PIN No.	CN4
1	VCC	2	5VSB
3	+12V	4	PSON
5	GND		

3.2 IDE's LED, Keylock and Reset Button

The following provides the pin information for IDE' s LED indicator, Keylock and Reset Button connections from CN1(7-8), CN1(3-4) and CN1(1-2).

✍ **CN1 : Reset, Keylock, IDE' s LED**

PIN NO.	Description	PIN NO.	Description
1	JP-RST	2	GND
3	Keylock	4	GND
5	SPK3	6	VCC
7	IDE LED	8	VCC

3.3 PCI E-IDE Drive Connector

Two standard 40-pin header daisy-chain drive connectors, CN6 & CN7, have the following pin assignments. A total of four IDE drives may be connected.

CN6(IDE 1)：Primary IDE Connector

CN7(IDE 2)：Secondary IDE Connector

✍ **CN6/CN7 : IDE Interface Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET	2	GND
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	GND	20	N/C
21	REQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	RDY	28	PD1
29	ACK	30	GND
31	INTERRUPT	32	N/C
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0	38	HDC CS1#
39	HDD ACTIVE	40	GND

3.4 Parallel Port Connector

A standard 26-pin flat cable drive connector, CN15, has the following pin assignments for connection to a parallel port-based printer.

CN15 : Parallel Port Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STBJ	2	PD0
3	PD1	4	PD2
5	PD3	6	PD4
7	PD5	8	PD6
9	PD7	10	ACKJ
11	BUSY	12	PE
13	SLCT	14	AFDJ
15	ERRJ	16	INTJ
17	SLINJ	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	26	GND

3.5 The Floppy Disk Drive Connector

A standard 34-pin header daisy-chain drive connector, CN10, has the following pin assignments. Two FDD drives may be connected.

CN10 : FDD Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	P WCJ
3	GND	4	N/C
5	GND	6	DS1J
7	GND	8	INDEX#
9	GND	10	MOTOR ENABLE A#
11	GND	12	DRIVE SELECT B#
13	GND	14	DRIVE SELECT A#
15	GND	16	MOTOR ENABLE B#
17	GND	18	DIRECTION#
19	GND	20	STEP#
21	GND	22	WRITE DATA#
23	GND	24	WRITE DATA#
25	GND	26	TRACK 0#
27	GND	28	WRITE PROTECT#
29	GPI 21	30	READ DATA#
31	GND	32	Head J
33	N/C	34	DISK CHANGE#

3.6 Serial Ports

The HS-6301 offers two NS16C550 compatible UARTs with Read/Receive 16byte FIFO serial ports.

CN17/CN18 : Serial Port 10pin Header

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

3.7 Keyboard & Mouse Connector

The HS-6301 offers two possibilities for keyboard connections to external PS/2 type keyboard with CN28, or an internal 5pin header with CN5.

CN5 : 5pin Keyboard Connector

PIN NO.	Description
1	Keyboard Clock
2	Keyboard Data
3	N/C
4	GND
5	+5V

CN28 : 6pin Mini Din Keyboard Connector

PIN NO.	Description
1	Keyboard Data
2	N/C
3	GND
4	+5V
5	Keyboard Clock
6	N/C

The HS-6301 provides an external PS/2 mouse connector, CN26 with following pin information and 4pin header for CN23.

CN26 : PS/2 6pin Mini Din Mouse Connector

PIN NO.	Description
1	MS Data
2	N/C
3	GND
4	+5V
5	MS Clock
6	N/C

✍ **CN23 : 4pin Mouse Connector**

PIN NO.	Description
1	MS Clock
2	MS Data
3	VCC
4	GND

3.8 VGA Connector

The HS-6301 offers two methods for VGA connections. One standard DB15 external VGA connector, CN24 and a 10pin internal CRT connector, CN21

✍ **CN24 : 15pin Female VGA Connector**

PIN NO.	Description	PIN NO.	Description
1	Red	2	Green
3	Blue	4	N/C
5	Ground	6	Ground
7	Ground	8	Ground
9	N/C	10	Ground
11	N/C	12	N/C
13	HSYNC	14	VSYNC
15	N/C		

✍ **CN21: 10pin Internal CRT Connector**

PIN NO.	Description	PIN NO.	Description
1	Red	2	GND
3	Green	4	GND
5	Blue	6	GND
7	HSYNC	8	GND
9	VSYNC	10	GND

The HS-6301 has a built-in SMI 721 VGA controller with 8MB memory, and supports resolutions of up to 1280x1024 65535 colors.

The HS-6301 provides a 50-pin 2.0mm pitch header connector, CN11 for 3.3V Flat Panel connection.

+12V	1	2	+12V
GND	3	4	GND
+3V PVcc	5	6	ENAVdd
FPVee	7	8	GND
P_0	9	10	P_1
P_2	11	12	P_3
P_4	13	14	P_5
P_6	15	16	P_7
P_8	17	18	P_9
P_{10}	19	20	P_{11}
P_{12}	21	22	P_{13}
P_{14}	23	24	P_{15}
P_{16}	25	26	P_{17}
P_{18}	27	28	P_{19}
P_{20}	29	30	P_{21}
P_{22}	31	32	P_{23}
P_{24}	33	34	P_{25}
SHFCLK	35	36	FLM
DE	37	38	LP
GND	39	40	ENABKL
P26	41	42	P27
P28	43	44	P29
P30	45	46	P31
P32	47	48	P33
P34	49	50	P35

JP2：LCD Panel Vcore Select

PIN NO.	Description
*1-2	3.3V
2-3	5V

JP3：LCD Inverter Voltage Support 12V

PIN NO.	Description
1-2	+12V

CN14：Support 48bit TFT LCD

PIN NO.	Description	PIN NO.	Description
1	FDATA36	2	FDATA37
3	FDATA38	4	FDATA39
5	FDATA40	6	FDATA41
7	FDATA42	8	FDATA43
9	FDATA44	10	FDATA45
11	FDATA46	12	FDATA47

CN16：Composite & S-Video Output

PIN NO.	Description	PIN NO.	Description
1	CHROMA	2	GND
3	GND	4	LUMA
5	CVBS	6	GND

3.9 IR Connector

The HS-6301 has a 5-pin internal IR communication connector, CN9. The CN9 features IrDA 1.0 compliance.

✍ **CN9 : 5-pin IR Connector**

PIN NO.	Description
1	VCC
2	FIRRX
3	IRRX
4	GND
5	IRTX

3.10 Fast Ethernet Connector

The Fast Ethernet controller features 32bit performance, PCI Bus master capability, and full compliance with IEEE 802.3 10/100 Based-T specifications.

For 10/100 Base-T operation, connect the network connection by plugging one end of the cable into the 9pin RJ45 CN22 connector.

✍ **CN22 : RJ45 Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX+	2	TX-
3	RX+	4	LAN C1
5	LAN C1	6	RX-
7	LAN C2	8	LAN C2

✍ **JP9/JP8 : LAN1/LAN2 Enable/Disable Select**

PIN NO.	DESCRIPTION
***1-2**	**Enable**
2-3	Disable

CN19/CN20 : LAN1/LAN2 10pin header

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	5VSB	2	LILED
3	RRX+	4	RRX-
5	ACTLED	6	LANC1
7	SPEDLED	8	LANC2
9	TTX+	10	TTX-

3.11 Ultra III SCSI Interface Connector

The HS-6301 comes one 68-pin female D-Sub connector for 16 bits Ultra III SCSI port.

Pin	CN8 pin assignment	Pin	CN8 pin assignment
1	+SD12	35	-SD12
2	+SD13	36	-SD13
3	+SD14	37	-SD14
4	+SD15	38	-SD15
5	+SDP1	39	-SDP1
6	+SD0	40	-SD0
7	+SD1	41	-SD1
8	+SD2	42	-SD2
9	+SD3	43	-SD3
10	+SD4	44	-SD4
11	+SD5	45	-SD5
12	+SD6	46	-SD6
13	+SD7	47	-SD7
14	+SDP0	48	-SDP0
15	GROUND	49	GROUND
16	DIFFSEN	50	NC
17	TPW-EX	51	TPW-EX
18	TPW-EX	52	TPW-EX
19	NC.	53	NC.
20	GROUND	54	GROUND
21	+SATN	55	-SATN
22	GROUND	56	GROUND
23	+SBSY	57	-SBSY
24	+SACK	58	-SACK
25	+SRST	59	-SRST
26	+SMSG	60	-SMSG
27	+SSEL	61	-SSEL
28	+SCD	62	-SCD
29	+SREQ	63	-SREQ
30	+SIO	64	-SIO
31	+SD8	65	-SD8
32	+SD9	66	-SD9
33	+SD10	67	-SD10

34	+SD11	68	-SD11

✍✍

✍✍

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✍✍ **JP4 : SCSI Enable/Disable Select**

PIN NO.	DESCRIPTION
***1-2**	**Enable**
2-3	Disable

3.12 Hardware Monitor

The HS-6301 comes with the Hardware Monitor function. Users can view information of voltages, fan speeds and temperatures through the BIOS.

3.13 PC/104 Bus Connection

The HS-6301' s PC/104 expansion supports all kinds of PC/104 modules. The PC/104 bus is now an industrial embedded 16bit PC standard bus and supports thousands of PC/104 modules from hundreds of vendors around the world. The detailed pin assignment of the PC/104 expansion bus connectors CN12 and CN13 are specified in the following table.

Note : The PC/104 connector allows direct plug-in Stack-thru PC/104 modules without the PC/104 mounting kit.

✍ CN12&CN13 : PC/104 Expansion Bus

(CN12 = 64-pin female connector; CN13 = 40-pin female connector.)

Pin No.	CN12 Row A	Pin No.	CN12 Row B
1	IOCHECK*	33	GND
2	SD7	34	RESETDRV
3	SD6	35	+5V
4	SD5	36	IRQ9
5	SD4	37	-5V
6	SD3	38	DRQ2
7	SD2	39	-12V
8	SD1	40	ROW*
9	SD0	41	+12V
10	IOCHRDY	42	GND
11	AEN	43	SMEMW*
12	SA19	44	SMEMR*
13	SA18	45	IOW*
14	SA17	46	IOR*
15	SA16	47	DACK3*
16	SA15	48	DRQ3
17	SA14	49	DACK1*
18	SA13	50	DRQ1
19	SA12	51	REFRESH*
20	SA11	52	SYSCLK
21	SA10	53	IRQ7
22	SA9	54	IRQ6
23	SA8	55	IRQ5
24	SA7	56	IRQ4
25	SA6	57	IRQ3
26	SA5	58	DACK2*
27	SA4	59	TC
28	SA3	60	BALE
29	SA2	61	+5V
30	SA1	62	OSC

Pin No.	CN13 Row D	Pin No.	CN13 Row C
1	0V	21	GND
2	MEMCS16*	22	SBHE*
3	IOSC16*	23	LA23
4	IRQ10	24	LA22
5	IRQ11	25	LA21
6	IRQ12	26	LA20
7	IRQ15	27	LA19
8	IRQ14	28	LA18
9	DACK0*	29	LA17
10	DRQ0	30	MEMR*
11	DACK5*	31	MEMW*
12	DRQ5	32	SD8
13	DACK6*	33	SD9
14	DRQ6	34	SD10
15	DACK7*	35	SD11
16	DRQ7	36	SD12
17	+5V	37	SD13
18	MASTER*	38	SD14
19	GND	39	SD15
20	GND	40	N/C

31	SA0	63	GND
32	GND	64	GND

Chapter-4

AWARD BIOS Setup

The HS-6301 uses the Award PCI/ISA BIOS for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access the Award PCI/ISA BIOS setup program, press the <Del> key at the startup and the main menu will be displayed.

4.1 Main Menu

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

ROM PCI/ISA BIOS (2A69KD2A)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	✍✍✍✍ : Select Item
F10 : Save & Exit	(Shift)F2 : Change Color

Note that a brief description of each highlighted selection appears at the bottom of the screen.

4.2 Standard CMOS Setup

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Floppy/Hard Disk Drive settings. Please refer to the following screen for the setup. When the IDE hard disk drive you are using is larger than 528MB, please set the HDD mode to LBA mode. Please use the IDE Setup Utility in BIOS Setup to install the HDD correctly.

ROM PCI/ISA BIOS (2A69KD2A)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Data (mm:dd:yy) : Web, Jan 3 2001

Time (hh:mm:ss) : 00:00:00

		TYPE	Size	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	?	AUTO	0M	0	0	0	0	0	AUTO
Primary Slave	?	AUTO	0M	0	0	0	0	0	AUTO
Secondary Master	?	AUTO	0M	0	0	0	0	0	AUTO
Secondary Slave	?	AUTO	0M	0	0	0	0	0	AUTO

Drive A	:	1.44M, 3.5in
Drive B	:	None
Video	:	EGA/VGA
Halt On	:	All, But Keyboard

Base Memory	:	640K
Extended Memory	:	1047552K
Other Memory	:	384K
Total Memory	:	1048576K

ESC : Quit ↑↓←→ : Select Item PU/PD/ + / - : Modify
F1 : Help (Shift) F2: Change Color

4.3 BIOS Features Setup

This section allows you to configure your system for basic operations. Items that can configured include the system' s default speed, boot up sequence, keyboard operation, shadowing and security.

ROM PCI/ISA BIOS (2A69KD2A)
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
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF	Shadow	:	Disabled
Processor Number Feature	: Enabled	D4000-D7FFF	Shadow	:	Disabled
Quick Power On Self Test	: Disabled	D8000-DBFFF	Shadow	:	Disabled
		DC000-DFFFF	Shadow	:	Disabled
Boot Sequence	: A, C, SCSI				
Swap Floppy Drive	: Disabled				
Boot Up Floppy Seek	: Enabled				
Boot Up NumLock Status	: On				
Gate A20 Option	: Fast				
Typematic Rate Setting	: Disabled				
Typematic Rate (Chars/Sec)	: 6				
Typematic Delay (Msec)	: 250				
Security Option	: Setup				
PCI/VGA Palette Snoop	: Disabled				
MPS Version Control For OS	: 1.1	ESC	: Quit	↑↓→←: Select Item	
OS Select For DRAM > 64MB	: Non-OS2	F1	: Help	PU/PD/+/-: Modify	
Report No FDD For WIN95	Yes	F5	: Old Values	(Shift) F2 : Color	
		G6	: Load BIOS Defaults		
		G7	: Load Setup Defaults		

4.4 Chipset Features Setup

This section allows you to configure the system based on specific features of the installed chipset. This chipset manages bus speeds and the access to the system memory resources, such as DRAM and the external cache. It also coordinates the communications between the conventional ISA and PCI buses. It must be stated that these items should never be altered. The default settings have been chosen because they provide the best operating conditions for your system. You might consider and make any changes only if you discover that the data has been lost while using your system.

ROM PCI/ISA BIOS (2A69KD2A)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	:	Enabled	Power-Supply Type	: Auto
EDO DRAM Speed Selection	:	60ns	Auto Detect DIMM/PCI Clk	: Enabled
EDO CASx# MA Wait State	:	2	CPU Clock/Spread Spectrum	: Default
EDO RASx# Wait State	:	2	CPU Warning Temperature	: Disabled
SDRAM RAS-to-CAS Delay	:	3	Current CPU2 Temperature	: °C / °F
SDRAM RAS Precharge Time	:	3	Current CPU1 Temperature	: °C / °F
SDRAM CAS latency Time	:	3	Current CPUFAN2 Speed	: RPM
SDRAM Precharge Control	:	Enabled	Current CPUFAN1 Speed	: RPM
DRAM Date Integrity Mode	:	Non-ECC	Vcore1 : 1.74V	Vcore2 : 1.61V
System BIOS Cacheable	:	Enabled	+5V : 4.56V	+12V : 11.85V
Video BIOS Cacheable	:	Enabled	-12V : -12.44V	
Video RAM Cacheable	:	Enabled	Shutdown Temperature	: Disabled
8 Bit I/O Recovery Time	:	3		
16 Bit I/O Recovery Time	:	2		
Memory Hole At 15M-16M	:	Disabled		
Passive Release	:	Enabled	ESC : Quit	↑↓→←: Select Item
Delayed Transation	:	Disabled	F1 : Help	PU/PD/+/-: Modify
AGP Aperture Size (MB)	:	64	F5 : Old Values	(Shift) F2 : Color
			F6 : Load BIOS Defaults	
			F7 : Load Setup Defaults	

4.5 Integrated Peripherals

The IDE hard drive controllers support up to two separate hard drives. These drives have a master/slave relationship determined by the cabling configuration. Your system supports two IDE controllers--a primary and a secondary—so you can install up to four separate hard disks.

PIO means Programmed Input /Output. Rather than having the BIOS issue a series of commands to affect the transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is much simpler and more efficient (also faster).

ROM PCI/ISA BIOS (2A69KD2A)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	Onboard Serial Port 2	: 2F8/IRQ3
IDE Primary Master PIO	: Auto	UART Mode Select	: Normal
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto	Onboard Parallel Port	: 378/IRQ7
IDE Secondary Slave PIO	: Auto	Parallel Port Mode	: SPP
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDMA	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
USB Keyboard Support	: Enabled		
Init Display First	: PCI Slot		
Power On Function	: BUTTOM Only		
		ESC : Quit	↑↓→←: Select Item
		F1 : Help	PU/PD/+/-: Modify
KBC input clock	: 8 MHz	F5 : Old Values	(Shift) F2 : Color
On board FDC Controller	: Enabled	F6 : Load BIOS Defaults	
Onboard Serial Port1	: 3F8/IRQ4	F7 : Load Setup Defaults	

4.6 Power Management Setup

The Power Management Setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his own style of computer use.

ROM PCI/ISA BIOS (2A69KD2A)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI function	:	Enabled	** Reload Global Timer Events **		
Power Management	:	User Define	IRQ3 [3-7, 9-15], NMI	:	Disabled
PM Control by APM	:	Yes	Primary IDE0	:	Disabled
Video Off Method	:	V/H Sync + Blank	Primary IDE1	:	Disabled
Video Off After	:	Standby	Secondary IDE0	:	Disabled
Modem Use IRQ	:	3	Secondary IDE1	:	Disabled
Doze Mode	:	Disabled	Floppy Disk	:	Disabled
Standby Mode	:	Disabled	Serial Port	:	Enabled
Suspend Mode	:	Disabled	Parallel Port	:	Disabled
HDD Power Down	:	Disabled			
Throttle Duty Cycle	:	62.5%			
PCI/VGA Act-Monitor	:	Disabled			
Soft-Off by PWR-BTTN	:	Instant-Off			
CPUFAN Off In Suspend	:	Disabled			
Power On by Ring	:	Enabled	ESC : Quit		↑↓←→: Select Item
Resume by Alarm		Disabled	F1 : Help		PU/PD/+/-: Modify
IRQ 8 Break Suspend	:	Enabled	F5 : Old Values		(Shift) F2 : Color
			F6 : Load BIOS Defaults		
			F7 : Load Setup Defaults		

Chapter-5

Software Utilities

This chapter provides the detailed information of VGA and LAN function. How to install the configuration is also included.

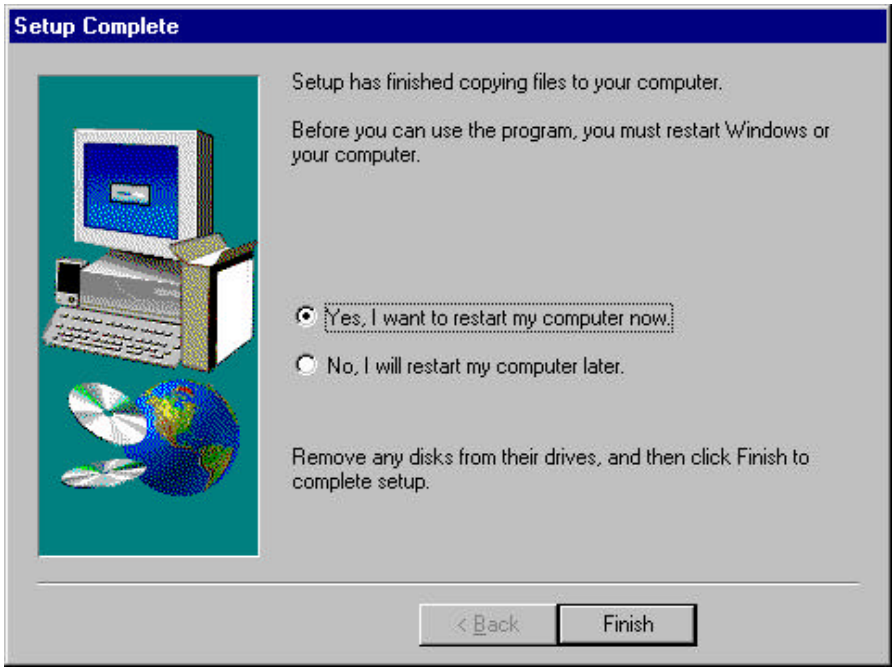
Section include:

- VGA DRIVER INSTALLATION
- LAN DRIVER INSTALLATION
- SCSI DRIVER INSTALLATION

5.1 VGA INSTALL FOR WIN98 & NT4.0

1. Please insert Driver CD to CD-ROM device.
2. Execute My computer.
3. Enter CD-ROM directory and select the OS under CD-ROM Driver, like VGA\SMI\NT.
4. Run Set up.
5. Reboot.


Silicon Motion Setup.exe
Silicon Motion Setup.exe
Welcome
Welcome to the Silicon Motion Control Programs Setup program. This program will install Silicon Motion Control Programs on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel
Start
Sm721
Silicon Motion S...
untitled - Paint
3:13 PM


Setup Complete
Setup has finished copying files to your computer.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

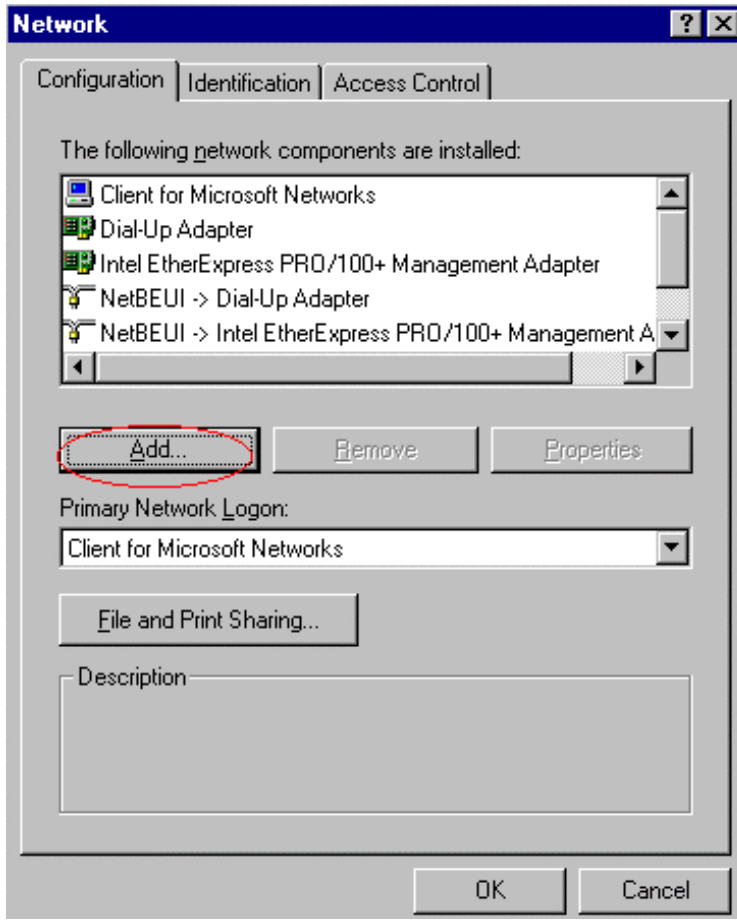
5.2 LAN INSTALL FOR WIN98 & NT4.0

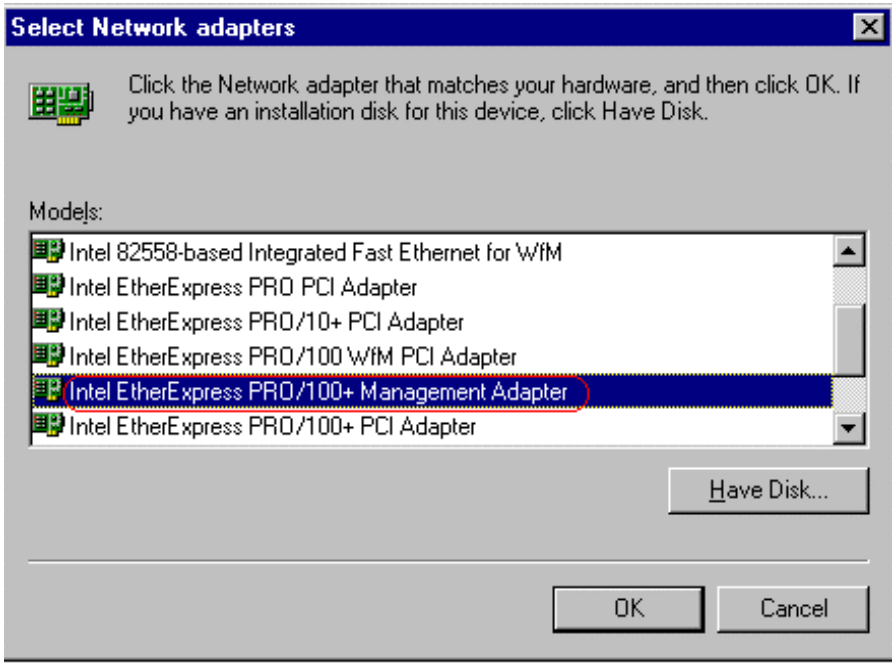
1. Click Start, then Setting, in the "Setting" select Control panel.
2. Start the network applet program.
3. In the Network window, click "Add".
4. In the Select Network Component Type, select Adapter then click "Add".
5. When the Select Network Component Type, Select Adapter, then click "Add".
6. Specify the path the new driver and press <ENTER> key.(If in driver a:, type a:\)

   (If you're not sure exactly where the drivers are, choose the "Browse" button and find it)

Select Intel EtherExpress PRO/100+ Management Adapter

7. Click OK.
8. Windows 98 will copy the network drivers to the proper directories on your system.
9. Continue choosing "OK", util asked to restart your system.
10. After restart, checking on the network driver , the Properties of the driver should look similar to the following figure.


Network
Configuration
Identification
Access Control
The following network components are installed:
Client for Microsoft Networks
Dial-Up Adapter
Intel EtherExpress PRO/100+ Management Adapter
NetBEUI -> Dial-Up Adapter
NetBEUI -> Intel EtherExpress PRO/100+ Management A
Add...
Remove
Properties
Primary Network Logon:
Client for Microsoft Networks
File and Print Sharing...
Description
OK
Cancel

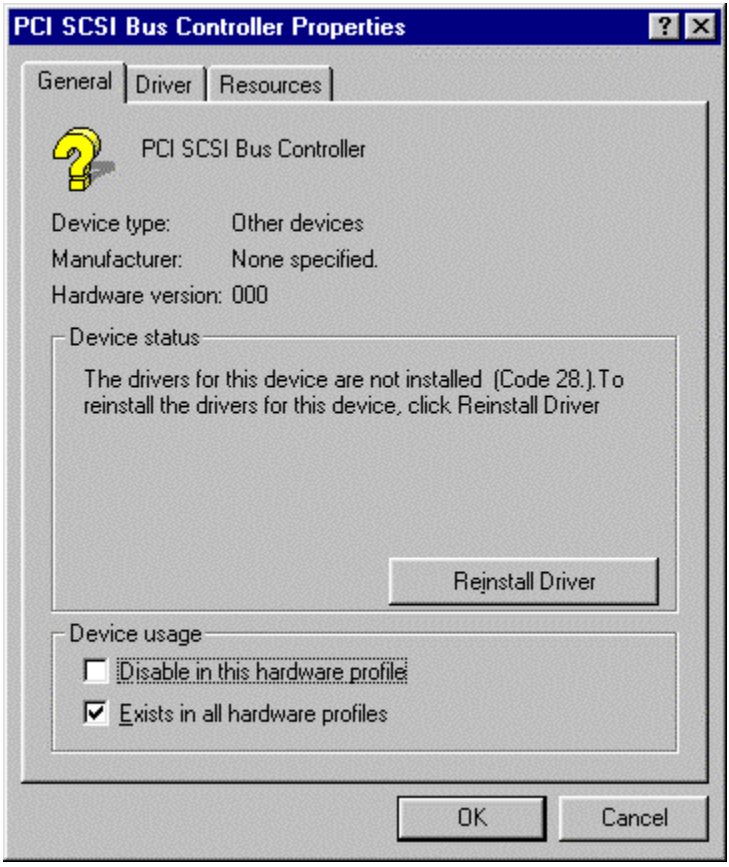

Select Network adapters
Click the Network adapter that matches your hardware, and then click OK. If you have an installation disk for this device, click Have Disk.
Models:
Intel 82558-based Integrated Fast Ethernet for WfM
Intel EtherExpress PRO PCI Adapter
Intel EtherExpress PRO/10+ PCI Adapter
Intel EtherExpress PRO/100 WfM PCI Adapter
Intel EtherExpress PRO/100+ Management Adapter
Intel EtherExpress PRO/100+ PCI Adapter
Have Disk...
OK
Cancel

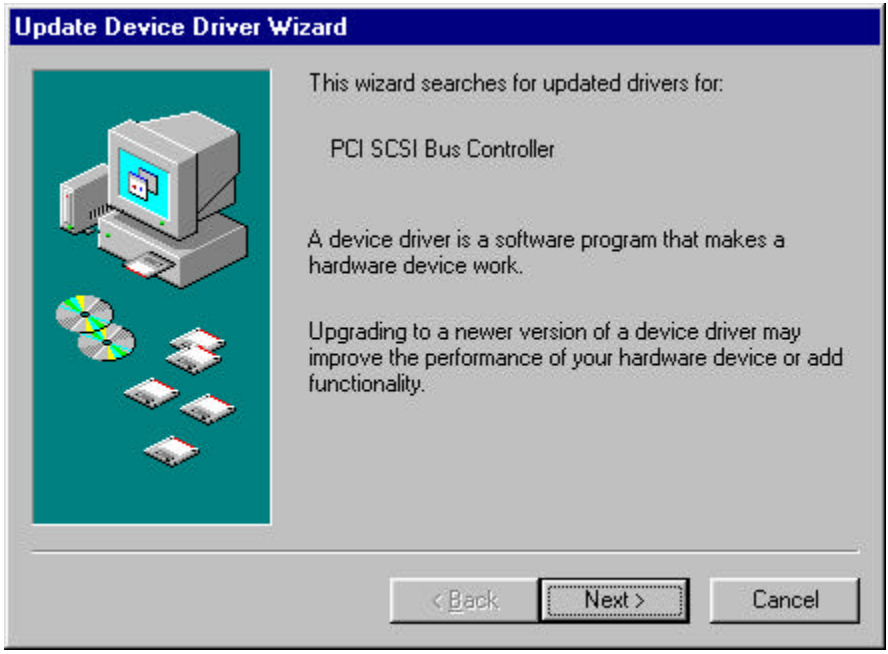
5.3 SCSI INSTALL FOR WIN98 & WIN2000

1. Click Start, then Setting, in the "Setting" select Control panel.
2. Start the System applet program.
3. Select Device Manager page.
4. In the "Other Device" double click left button, select PCI SCSI Bus Controller, then click Properties.
5. In the PCI SCSI Bus Controller Window, select Driver page.
6. Click Update Driver.
7. In Update Driver Wizard select YES, then click NEXT.
8. Specify the path to the new driver and press <ENTER>

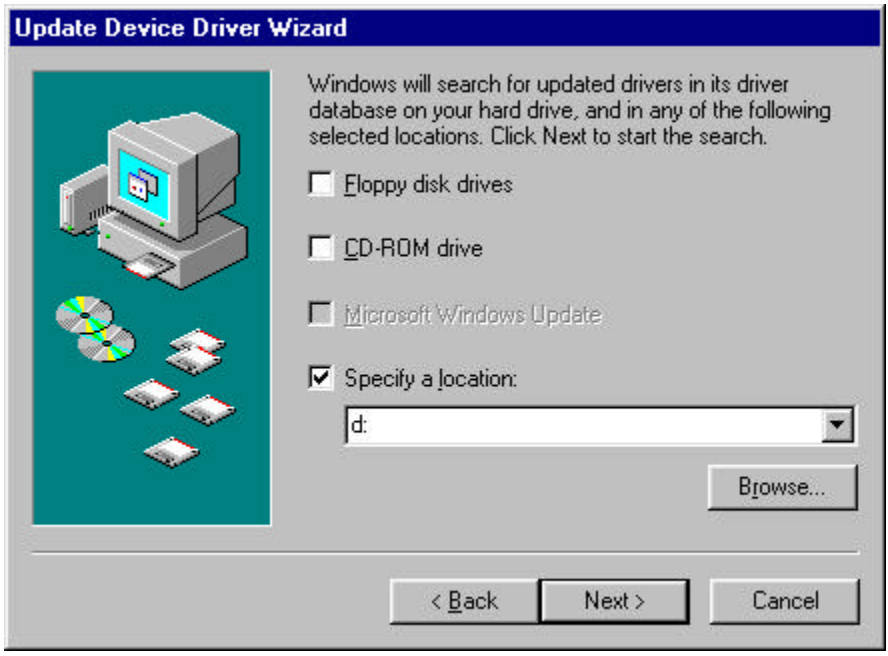
   (If in driver a: , click Finish.)

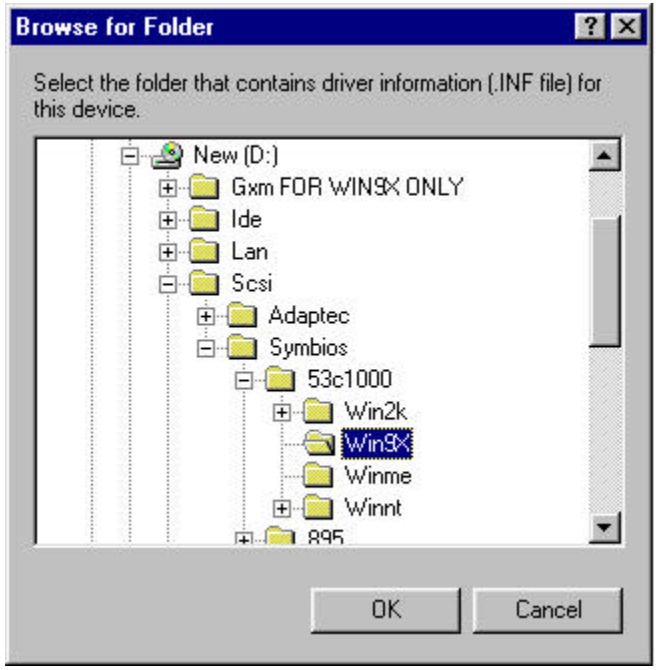
   (If you want to search for a different driver manually, click "Other Location" and click "Browse".)
9. Windows 98 will copy the SCSI drivers to the proper directories on your system.
10. Continue choosing "OK", util asked to restart your system.
11. After restart, checking on the SCSI driver, the properties of the driver should look similar to the following figure.


PCI SCSI Bus Controller Properties
General
Driver
Resources
PCI SCSI Bus Controller
Device type: Other devices
Manufacturer: None specified.
Hardware version: 000
Device status
The drivers for this device are not installed (Code 28.).To reinstall the drivers for this device, click Reinstall Driver
Reinstall Driver
Device usage
Disable in this hardware profile
Exists in all hardware profiles
OK
Cancel

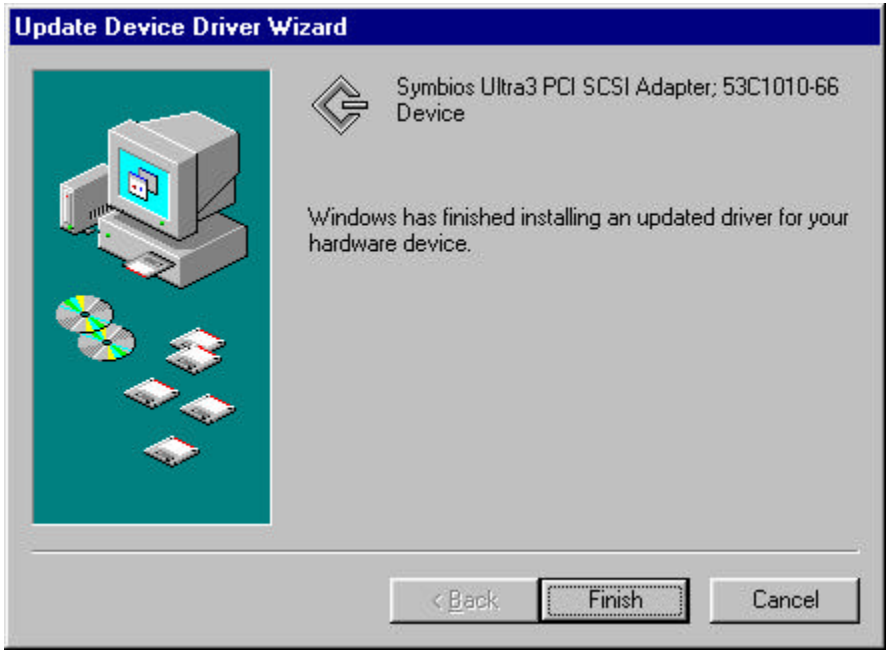

Update Device Driver Wizard
This wizard searches for updated drivers for:
PCI SCSI Bus Controller
A device driver is a software program that makes a hardware device work.
Upgrading to a newer version of a device driver may improve the performance of your hardware device or add functionality.
< Back
Next >
Cancel


Update Device Driver Wizard
What do you want Windows to do?
Search for a better driver than the one your device is using now. (Recommended)
Display a list of all the drivers in a specific location. so you can select the driver you want.
< Back
Next >
Cancel


Update Device Driver Wizard
Windows will search for updated drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
Floppy disk drives
CD-ROM drive
Microsoft Windows Update
Specify a location:
d:
Browse...
< Back
Next >
Cancel


Browse for Folder
Select the folder that contains driver information (.INF file) for this device.
New (D:)
Gxm FOR WIN9X ONLY
Ide
Lan
Scsi
Adaptec
Symbios
53c1000
Win2k
Win9X
Winme
Winnt
OK
Cancel


Update Device Driver Wizard
Windows driver file search for the device:
Symbios Ultra3 PCI SCSI Adapter; 53C1010-66 Device
Windows is now ready to install the best driver for this device. Click Back to select a different driver. or click Next to continue.
Location of driver:
D:\SCSI\SYMBIOS\53C1000\WIN9X\SYM_L
< Back
Next >
Cancel

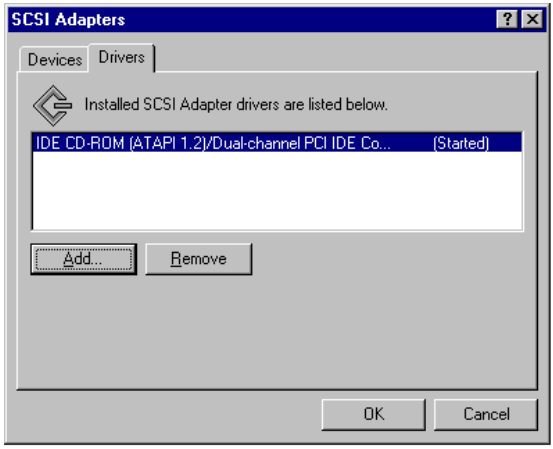

Update Device Driver Wizard
Symbios Ultra3 PCI SCSI Adapter; 53C1010-66 Device
Windows has finished installing an updated driver for your hardware device.
< Back
Finish
Cancel

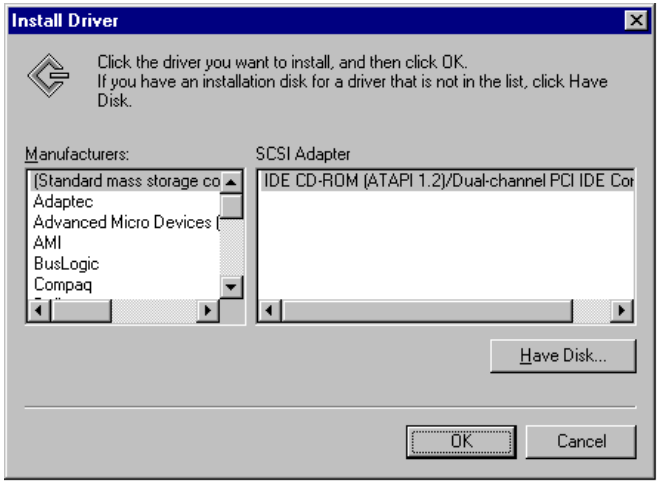
5.4 SCSI INSTALL FOR NT4.0

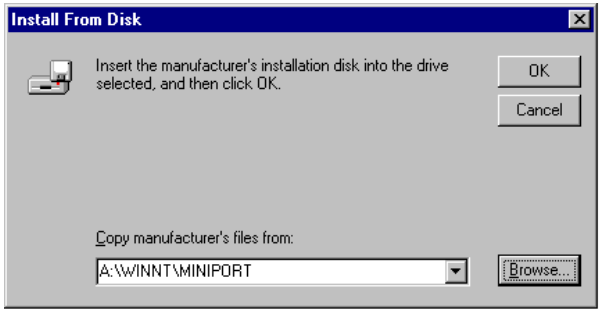
1. Click Start, then Setting, in the "Setting" select Control panel.
2. Start the System applet program.
3. Select Device Manager page.
4. In the "Other Device" double click left button, select PCI SCSI Bus Controller, then click Properties.
5. In the PCI SCSI Bus Controller Window, select Driver page.
6. Click Update Driver.
7. In Update Driver Wizard select YES, then click NEXT.
8. Specify the path to the new driver and press <ENTER>

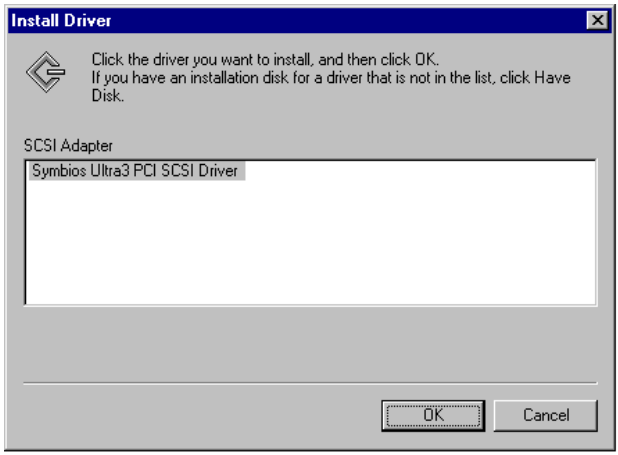
   (If in driver a: , click Finish.)

   (If you want to search for a different driver manually, click "Other Location" and click "Browse".)
9. Win NT4.0 will copy the SCSI drivers to the proper directories on your system.
10. Continue choosing "OK", util asked to restart your system.
11. After restart, checking on the SCSI driver, the properties of the driver should look similar to the following figure.


SCSI Adapters
Devices
Drivers
Installed SCSI Adapter drivers are listed below.
IDE CD-ROM (ATAPI 1.2)/Dual-channel PCI IDE Co... (Started)
Add...
Remove
OK
Cancel


Install Driver
Click the driver you want to install, and then click OK.
If you have an installation disk for a driver that is not in the list, click Have Disk.
Manufacturers:
SCSI Adapter
(Standard mass storage co
Adaptec
Advanced Micro Devices (
AMI
BusLogic
Compaq
IDE CD-ROM (ATAPI 1.2)/Dual-channel PCI IDE Cor
Have Disk...
OK
Cancel


Install From Disk
Insert the manufacturer's installation disk into the drive selected, and then click OK.
OK
Cancel
Copy manufacturer's files from:
A:\WINNT\MINIPORT
Browse...


Install Driver
Click the driver you want to install, and then click OK.
If you have an installation disk for a driver that is not in the list, click Have Disk.
SCSI Adapter
Symbios Ultra3 PCI SCSI Driver
OK
Cancel