
**User's Manual**

# 3301380/3303833

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# Contents

# *Chapter-1*

## General Information

The 3301380/3303833 is a PISA/ISA Bus Industrial Single Board (I.S.B.) The board design combine together with all necessary input and output effects interfaces which makes it an ideal all-in-one industrial single board computer. The board design with 100 MHz internal bus clock rate architecture.

The advance PISA/ISA Bus add-on connection of 3301380/3303833 allows user could easily obtain both ISA's 16bit PISA slot for suitable plug into a small size system with 8/16/32 bit operating. One set of PC/104 bus connector for industrial PC/104 board add-in. The board also design with an ESS® Solo1 3D sound interface which provides an ideas sound adapter in any sound application. The IDE interface with DMA33/66 access of mode 4 to IDE drive interface architecture, supports with maximum 66 MB/sec in data transfer rating to 2 pieces IDE drive connection. The board also provides an on-board 10/100-based LAN for easy network connection.

A single Flash chip holds the system BIOS, and you can change the Flash BIOS by the Utility Update. Advanced IR port also provide a faster data transmission. You can also use the DOS version of the "DiskOnChip" socket by issuing commands from the DOS prompt without the necessity of other software supports up to 144MB.

The board design with 69000 VGA provides internal connections to VGA Monitor and-or Flat Panel. The VGA supports up to 1280x1024 256 colors resolution.

The 3301380/3303833 support SDRAM memory at one DIMM socket. This gives you the flexibility of configuring your system from 8 to 256MB DRAM by using the most economical DIMM memory modules for its on board system SDRAM.

If a non-expect program cause halts, the on board Watch-Dog Timer (WDT) will automatically reset the CPU or generate an interrupt. The WDT is designed with pure 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

- 75~500MHz CPU for Intel® Pentium® MMX™, Tillamook, AMD K5/K6, Cyrix 6x86
- ALi M1541, M1543 chipsets
- One DIMM socket provides up to 256MB
- Fast PCI DMA33/66 controller support two IDE disk drives
- 100MHz system clock support
- Four RS-232 serial ports include 16C550 UART with 16byte FIFO
- One enhanced bi-directional parallel port supports SPP/ECP/EPP
- On board PS/2 Keyboard and PS/2 Mouse connector
- On board SMC 37C669 super I/O chipset
- On board 69000 CRT/Panel display controller
- On board ESS Solo1 3D Sound
- DiskOnChip memory size up to 144MB
- Single +5V support
- PC/104 Bus support
- ATX Power Function support
- CPU Temperature Alarm support

## 1.2 Specifications

- **CPU** 75~500MHz CPU for Intel® Pentium® MMX™, Tillmook, AMD K5/K6, Cyrix 6x86
- **Bus Interface** 3301380 is PISA Bus, 3303833 is ISA Bus
- **Memory** One DIMM socket provides up to 256MB
- **Cache Memory** 512KB pipeline burst
- **Chipset** ALi M1541/M1543
- **I/O Chipset** SMC 37C669
- **VGA** 69000 with 2MB memory support CRT/Panel display up to 1280x1024, 256 colors
- **IDE** Two IDE disk drives support DMA33/66 transfer rate up to 33/66MB/sec
- **Floppy** Support up to two floppy disk drives
- **Parallel Port** Support SPP/ECP/EPP
- **LAN** Intel® 82559 10/100 Based LAN
- **Sound** ESS Solo1 3D Sound
- **Serial Port** Four 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
- **Keyboard** PS/2 6pin Mini Din or 5pin connector
- **Mouse** PS/2 6pin Mini Din
- **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
- **Extra Power** One 5pin connector

- Power Voltage +5V(4.75V to 5.25V)
- Maximum Power Consumption +5V@3.9A
- Operating Temperature 0~60°C
- Board Size 7.3”(L) x 4.8”(W)

## 1.3 Delivery Package

The delivery package of 3301380/3303833 includes all following items:

- 3301380/3303833 Industrial Single Board
- One Printer
- One IDE port Flat Cable
- One FDD port Flat Cable
- Two RS232 port Flat Cable
- One Sound interface Cable
- Utility CD Disk
- User’s Manual

Please contact with your dealer if any of these items are missing or damaged when purchasing. And please keep all parts of the delivery package with packing materials in case of you want to ship or store the product in feature.

# *Chapter-2*

# Hardware Installation

This chapter provides the information on how to install the hardware of 3301380/3303833. At first, please follow up sections 1.3, 2.1 and 2.2 in check the delivery package and carefully unpacking. Following after, the jumpers setting of switch, watchdog timer, and the DiskOnChip address selection etc.

## 2.1 Caution of Static Electricity

The 3301380/3303833 has been well package with an anti-static bag in protect its sensitive computer components and circuitry from the damage of static electric discharge.

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

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

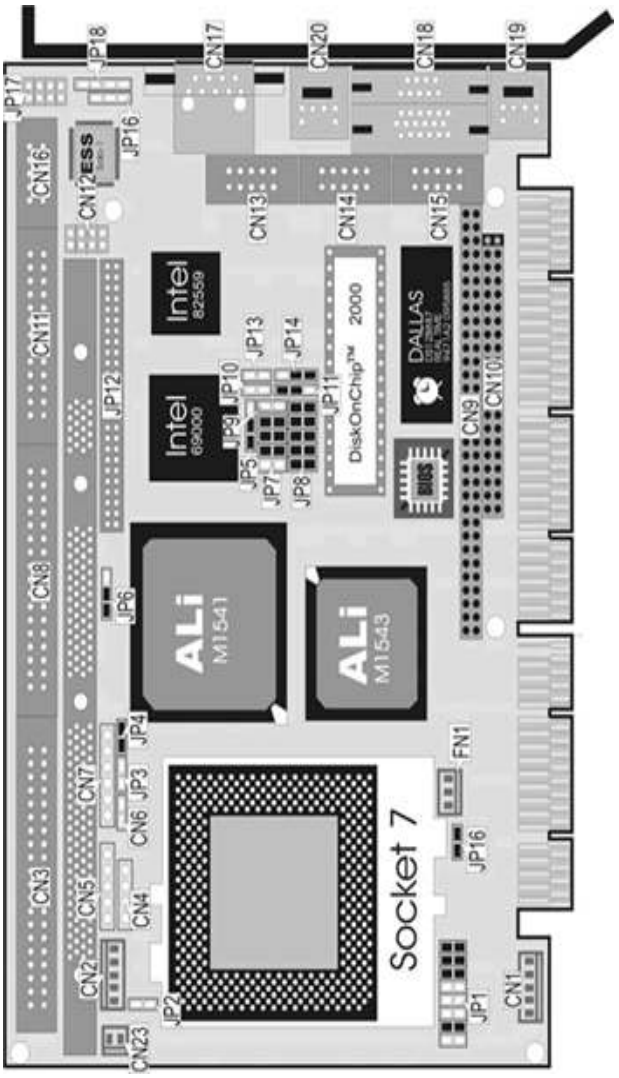
1. Please use a grounding wrist strap on whoever needs to handle the 3301380/3303833. Well clip the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please put on and connect the strap before handle the 3301380/3303833 for harmlessly discharge any static electricity through the strap.
2. Please use anti-static pad for put any components or parts or tools on the pad whenever you work on them outside the computer. You may also in use the anti-static bag instead the pad. Please ask from your local supplier in help up your necessary parts on anti-static requirement.

## 2.2 Caution on Unpacking and Before Installation

First of all, please follow with all necessary steps of section 2.1 in protection the 3301380/3303833 from electricity discharge. With refer to section 1.3, please check the delivery package again with following steps:

1. Unpacking the 3301380/3303833, keep well storage of all packing material, manual and diskette etc. if has.
2. Is there any components lose or drop from the board? DO NOT INSTALL IF HAPPENED.
3. Is there any visual damaged of the board? DO NOT INSTALL IF HAPPENED.
4. Well check from your optional parts (i.e. CPU, SRAM, DRAM, ROM-Disk etc.) for completed setting all necessary jumpers setting to jumper pin-set and CMOS setup correctly. Please also reference to all information of jumpers setting in this manual.
5. Well check from your external devices (i.e. Add-On-Card, Driver Type etc.) for completed add-in or connection and CMOS setup correctly. Please also reference to all information of connector connection in this manual.
6. Please keep all necessary manual and diskette in a good condition for your necessary re-installation if you change your Operating System or whatever needs.

## 2.3 3301380/3303833's Layout



## 2.4 Quick Listing of Jumpers

| | | |
|---|---|---|
| JP1 ( 1-6 ) | ¾ | CPU‘s Core / Bus Clock-Ratio setting |
| JP1 (7-16) | ¾ | CPU‘s Vcore Voltage level selection setting |
| JP2 | ¾ | ATX power switch |
| JP3 | ¾ | Hard Drive Active LED connector |
| JP4 | ¾ | CPU Temperature Alarm Enabled/Disabled |
| JP5 | ¾ | 69000 Active Select. |
| JP6 | ¾ | Panel Voltage Select |
| JP7 | ¾ | CPU clock in Select |
| JP8 | ¾ | DiskOnChip™ Address & Time of Watch-Dog |
| JP9 | ¾ | LAN speed LED |
| JP10 | ¾ | LAN Link Integrity LED |
| JP11 | ¾ | LAN Enabled/Disabled Select |
| JP12 | ¾ | LCD Panel connector |
| JP13 | ¾ | LAN Activity LED |
| JP14 | ¾ | Watch-Dog Timer Active Select |
| JP15 | ¾ | Clear CMOS |
| JP16 | ¾ | Sound Connector |
| JP17 | ¾ | Audio out & Mic in connector |
| JP18 | ¾ | Audio Line In connector |
| JP19 | ¾ | Dual/Single Voltage Select |

## 2.5 Quick Listing of Connectors

CN1 ATX Power Connector
CN2 5pin Keyboard Connector
CN3 IDE Connector
CN4 Speaker Connector
CN5 KEYLOCK Connector
CN6 RESET
CN7 IR Connector
CN8 FDD Connector
CN9 PC/104 64pin Connector
CN10 PC/104 40pin Connector
CN11 Parallel Port CN12 USB
CN13 COM3 Connector (HEADER 5X2)
CN14 COM4 Connector (HEADER 5X2)
CN15 COM2 Connector (HEADER 5X2)
CN16 COM1 Connector (HEADER 5X2)
CN17 RJ-45 Connector
CN18 CRT Connector (DB15)
CN19 PS/2 6pin Mini Din Keyboard Connector
CN20 PS/2 6pin Mini Din Mouse Connector
CN21 COM2 (DB9 For 3301380P/3303833P)
CN22 COM1 (DB9 For 3301380P/3303833P)

## 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 a open circuit with a plastic cap inserted over one or no pin(s) between pins. The below figure 2.2 shows the examples of different jumper pin-set setting as **ON** or **OFF** in this manual.

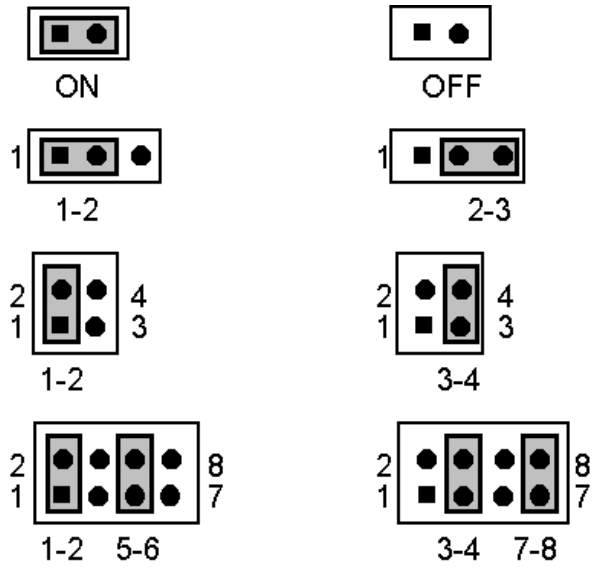



Figure 2.2

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 may reference in this manual with a " * " symbol in front of the selected item.

## 2.7 VGA Controller

The on board 69000 chipset provides with up to 1280x1024 256 colors resolution. The board provides the user to auto disable VGA if another PCI-bus display card is plugged in into the PCI-slot.

There is no need to set any jumper to disable the on board VGA if any 2nd PCI-bus VGA card is plugged-in into the PCI-slot.

If you want to disable VGA by Hardware, you can select JP5.

**JP5 : VGA Controller**

| | |
|---|---|
| *1-2 | **ON** |
| **2-3** | OFF |

## 2.8 DiskOnChip Address Setting

The 3301380/3303833 provides an U8 socket to install the DiskOnChip□ module.

A JP8 may select the starting memory address of the DiskOnChip□ (D.O.C.) for avoid the mapping area with any other memory devices. If you have other memory devices in the system, please set both at different memory address mapping.

**JP8 : DiskOnChip Address**

| PIN NO. | Address |
|---|---|
| ***1-2** | **D000** |
| 3-4 | D800 |

The D.O.C. function allows the system in using without FDD nor HDD. The D.O.C. may be format as driver C: or driver A:. User may also uses the DOS's commands such as FORMAT, SYS, COPY, XCOPY, DISCOPY and DISKCOMP etc. This means that the D.O.C. may be used as driver-A if the system works without FDD-A for ambient application. Please contact with your supplier for different size D.O.C. module.

## 2.9 Setting the CPU of 3301380/3303833

The 3301380/3303833 provides all possibility in jumper setting for types of CPU with JP1 ( 7-16 ) for CPU Vcore Voltage, JP7 ( 1-8 ) for internal Host Bus Clock Rate and JP1 ( 1-6 ) for CPU Clock-in Multiplex Weighted Value setting as following. For Dual Voltage and Tillamook CPU, JP19 ON. **Please contact with your CPU's supplier in getting those information for correctly setting. Any wrong setting may cause CPU defect.**

**CPU Vcore Voltage Selection ( *ÆON )**

| CPU Type | System Clock JP7 (1-8) | | | | CPU Click-in JP1 (1-6) | | | CPU Vcore Voltage JP1 (7-16) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pin NO. | 1-2 | 3-4 | 5-6 | 7-8 | 1-2 | 3-4 | 5-6 | 17-8 | 9-10 | 11-12 | 13-14 | 15-16 |
| AMD K6-II/300 | | | | * | | * | | | * | | | |
| AMD K6-II/333 | | * | * | * | | * | * | | * | | | |
| AMD K6-II/366 | | * | * | * | | | * | | * | | | |
| AMD K6-II/400 | | | | * | * | | * | | * | | | |
| AMD K6-II/450 | | | | * | | * | | | | | | |
| AMD K6-II/500 | | | | * | * | * | * | | * | | | |
| AMD K6-II/550 | | | | * | | | * | | * | | | |
| Intel MMX-200 | | * | * | * | | * | | | | | * | |
| Intel MMX-233 | | * | * | * | | | * | | | | * | |
| Cyrix-266 | | * | * | * | * | | * | | * | | | |
| Cyrix-300 | | * | * | * | * | * | * | | * | | | |
| Cyrix-333 | | * | * | * | | * | * | | * | | | |
| Tillamook233 | | * | * | * | | | * | | | * | * | * |
| Tillamook266 | | * | * | * | | * | | | | * | * | * |

**JP9 Dual/Single Voltage Select**

| JP19 | DESCRIPTION |
|---|---|
| ON | Dual Voltage |
| OFF | Single Voltage |

## 2.10 Watch-Dog Timer

There are three access cycles of Watch-Dog Timer as Enable, Refresh and Disable. The Enable cycle should proceed by READ PORT 443H. The Disable cycle should proceed by READ PORT 045H. A continue Enable cycle after a first Enable cycle means Refresh.

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

The JP14 is using 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 presetting the watch-dog timer activity at the NMI trigger.

**JP14 : Watch-Dog Active Type Setting**

| JP14 | DESCRIPTION |
|---|---|
| ***2-3** | **Sy et** |
| 1-2 | Active NMI |
| OFF | disable Watch-dog timer |

**JP8(5-10) : WDT Time - Out Period**

| 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 |

The Watch-dog timer is disabled after the system Power-On. The watch-dog timer can be enabled by an 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 a 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 ( Please reference to the selection table of JP8 for WDT Time-Out period setting ). 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 is showing how to Enable, Disable and Refresh the Watch-dog timer:

```
WDT_EN_RF       EQU     0433H
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
```

## 2.11 System Memory SDRAM

The 3301380/3303833 provides SDRAM memory on board with one DIMM socket for maximum 256MB capacity,.

# Chapter-3

## Connection

This chapter gives all necessary information of the peripheral's connections, switches and indicators.

### 3.1 VGA Connectors

The 3301380/3303833 provides one external connector for the VGA monitor connection.

**CN18 : 15pin CRT connector**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | RED | 2 | GREEN |
| 3 | BLUE | 4 | NC |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | NC | 10 | GND |
| 11 | NC | 12 | NC |
| 13 | HSYNC | 14 | VSYNC |
| 15 | NC | | |

## 3.2 Serial Ports Connectors

The 3301380/3303833 offer four high speed NSIGC550 compatible UARTS with Read/ Receive 16 byte FIFO serial ports with two DB-9 external connector (3301380P/3303833P only) and four internal 10-pin header connector.

**CN13,14,15,16: 10Pin Serial Port Header**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | DCD | 2 | DSR |
| 3 | RXD | 4 | RTX |
| 5 | TXD | 6 | CTX |
| 7 | DTR | 8 | RI |
| 9 | GND | 10 | NC |

**CN21,22: For 3301380P/3303833P only**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | DCD | 2 | RXD |
| 3 | TXD | 4 | DTR |
| 5 | GND | 6 | DSR |
| 7 | RTX | 8 | CTX |
| 9 | RI | | |

## 3.3 Keyboard Connector

The 3301380/3303833 offers two possibilities for Keyboard connections to external PS/2 keyboard at CN19 or an internal 5 pin header at CN2.

**CN19 : PS/2 6pin Mini Din Keyboard Connector**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | Keyboard data |
| 2 | N/C |
| 3 | GND |
| 4 | +5V |
| 5 | Keyboard clock |
| 6 | N/O |

**CN2 : 5pin Keyboard Connector**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | Keyboard clock |
| 2 | Keyboard data |
| 3 | N/C |
| 4 | GND |
| 5 | +5V |

## 3.4 PS/2 Mini DIN 6-pin Mouse Connector

The 3301380 provides an external PS/2 mouse connector at CN20 with following pin information.

**CN20 : PS/2 6pin Mini Din Mouse Connector**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | Data |
| 2 | NC |
| 3 | GND |
| 4 | +5V |
| 5 | CLK |
| 6 | NC |

## 3.5 PCI E-IDE Drive Connector

One standard 40pin header daisy-chain driver connector provides as CN3 with following pin assignment. Total two IDE (Integrated Device Electronics) drivers may connect.

**CN3 : IDE Connector**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | RESET | 2 | GROUND |
| 3 | DATA 7 | 4 | DATA 8 |
| 5 | DATA 6 | 6 | DATA 9 |
| 7 | DATA 5 | 8 | DATA 10 |
| 9 | DATA 4 | 10 | DATA 11 |
| 11 | DATA 3 | 12 | DATA 12 |
| 13 | DATA 2 | 14 | DATA 13 |
| 15 | DATA 1 | 16 | DATA 14 |
| 17 | DATA 0 | 18 | DATA 15 |
| 19 | GROUND | 20 | N/C |
| 21 | N/C | 22 | GROUND |
| 23 | IOW# | 24 | GROUND |
| 25 | IOR# | 26 | GROUND |
| 27 | N/C | 28 | BALE - DEFAULT |
| 29 | N/C | 30 | GROUND# -DEFAULT |
| 31 | INTERRUPT | 32 | IOCS16#-DEFAULT |
| 33 | SA1 | 34 | N/C |
| 35 | SA0 | 36 | SA2 |
| 37 | HDC CS0 | 38 | HDC CS1# |
| 39 | HDD ACTIVE | 40 | GROUND |

## 3.6 Parallel Port Connector

A standard 26pin flat cable driver connector provides as CN11 with following pin assignment for connection to parallel printer.

**CN11 : Parallel Port Connector**

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

## 3.7 Keylock Connector and POWER LED

The following provides the pin information for Keylock with Power's LED indicator connection from CN5.

**CN5 : KEYLOCK and POWER LED Connector**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | POWER LED ANODE |
| 2 | N.C. |
| 3 | GROUND |
| 4 | KEYLOCK |
| 5 | GROUND |

## 3.8 ATX Power Connector

The 3301380/3303833 reserved a CN1 for ATX Power funtion CN1 can control the 5 pin ATX via the extension cable from the Backplane.

## 3.9 The Floppy Disk Drive Connector

A standard 34-pin header daisy-chain driver connector provides as CN8 with following pin assignment. Total two FDD drivers may connect.

**CN8 : FDD CONNECTOR**

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

## 3.10 Connectors of the on board Sound Adapter

The 3301380/3303833 has an on board ESS® Solo1 3D sound interface. The following are the connectors of LINE IN, AUXB and MIC/SPEAKER connectors.

The LINE IN and AUXB connectors are for audio sound input. The LINE IN provides for 4pin connection, and AUXB provides for 3pin connection.

**JP18 : LINE IN Connector**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | LINE L |
| 2 | GND |
| 3 | LINE R |
| 4 | GND |

**JP16 : AUXB Connector**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | AUXAL |
| 2 | GND |
| 3 | AUXAR |

**JP17 : MIC/SPEAKER Connector**

| PIN NO. | DESCRIPTION | | PIN NO. | DESCRIPTION | |
|---|---|---|---|---|---|
| 1 | AOUTL | Red | 2 | AOUTR | White |
| 3 | GND | Black | 4 | GND | Key |
| 5 | MIC | Red | 6 | N.C. | White |
| 7 | GND | Black | 8 | GND | Key |

With MIC/SPEAKER cable, user may connect R/L Speaker to the AOUTL and AOUTR pins of JP18, and connect Microphone to the MIC pin of JP17.

## 3.11 Fast Ethernet Connector

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

For 10/100Base-T operation, please connect the network connection by plugging one end of the cable into the RJ-45 of the CN17 Connector.

**CN17 : RJ-45 Connector**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | TX+ | 2 | TX- |
| 3 | RX+ | 4 | NC |
| 5 | NC | 6 | RX- |
| 7 | NC | 8 | NC |

## 3.12 PC/104 Bus Connection

The 3301380/3303833's PC/104 expansion bus provides you to connect all kind of PC/104 modules. The PC/104 bus has been already become the industrial embedded 16bit PC standard bus. You can easily install over thousands type of PC/104 modules from hundreds of venders in the world. The detailed pin assignment of the PC/104 expansion bus connectors CN9 and CN10 are specified as following tables:

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

## CN9&CN10 : PC/104 Expansion Bus

**(CN9 = 64pin female connector; CN10 = 40pin female connector.)**

| Pin No. | CN9 Row A | Pin No. | CN9 Row B |
|---|---|---|---|
| 1 | IOCHECK* | 33 | 0V |
| 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 | NOW* |
| 9 | SD0 | 41 | +12V |
| 10 | IOCHRDY | 42 | (KEY) |
| 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 |
| 31 | SA0 | 63 | 0V |
| 32 | 0V | 64 | 0V |

| Pin No. | CN10 Row D | Pin No. | CN10 Row C |
|---|---|---|---|
| 1 | 0V | 21 | 0V |
| 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 | 0V | 39 | SD15 |
| 20 | 0V | 40 | (KEY) |

## 3.13 Flat-Panel Connector

The 3301380/3303833 provides a 50pin 2.0 mm pitch header connector (JP12) for 3.3V Flat panel connection with following pin-assignment.

| | | | |
|---|---|---|---|
| +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 |
| M | 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 |

**JP6 : Panel Power Selection**

| JP6 | DESCRIPTION |
|---|---|
| *** 1-2** | **3.3V Power** |
| 2-3 | 5V Power |

## 3.14 USB Ports Connector

The 3301380/3303833 provides one 8pin connector for USB-0 & USB-1 ports. Please refer to the following default pin information.

**CN12 : USB Ports Connector**

| PIN NO. | USB-0 | PIN NO. | USB-1 |
|---|---|---|---|
| 1 | VCC | 2 | VCC |
| 3 | USB PO- | 4 | USB P1- |
| 5 | USB PO+ | 6 | USB P1+ |
| 7 | GND | 8 | GND |

## 3.15 CMOS Setup

**JP15 : Clean CMOS (only for DS12B887)**

| JP15 | Description |
|---|---|
| ON | Clean CMOS |
| OFF | Normal |

# *Chapter-4*

## AWARD BIOS Setup

The 3301380/3303833 uses 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 which could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access AWARD PCI/ISA BIOS Setup program, press <Del> key during memory testing when first power on. The Main Menu will be displayed at this time.

## 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 (2A5KKD2B)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

| | |
|---|---|
| STANDARD CMOS SETUP BIOS | INTEGRATED PERIPHERALS |
| FEATURES SETUP CHIPSET | SUPERVISOR PASSWORD |
| FEATURES SETUP POWER | USER PASSWORD |
| MANGEMENT SETUP PNP/PCI | IDE HDD AUTO DETECTION |
| CONFIGURATION LOAD BIOS | HDD LOW LEVEL FORMAT |
| DEFAULTS | SAVE & EXIT SETUP |
| LOAD SETUP DEFAULTS | EXIT WITHOUT SAVING |
| Esc : Quit<br>F10 : Save & Exit | ÇÈÆÅ : Select Item<br>(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 (2A5KKD2B)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Data (mm:dd:yy) : Fri, Oct 19 1999

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

| | | CYLS | HEAD | PRECOMP | LANDZ | SECTOR | MODE |
|---|---|---|---|---|---|---|---|
| Driver C | : Auto ( 0Mb) | 0 | 0 | 0 | 0 | 0 | Auto |
| Driver D | : Auto ( 0Mb) | 0 | 0 | 0 | 0 | 0 | Auto |

Drive A : 1.44M , 3.5in.

Drive B : None

LCD&CRT : CRT

Halt On : No Errors

| | | |
|---|---|---|
| Base Memory | : | 640K |
| Extended Memory | : | 130048K |
| Other Memory | : | 384K |
| Total Memory | : | 131072K |

ESC : Quit ÇÈÆÅ : 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 the basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

ROM PCI/ISA BIOS (2A5KKD2B)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

| | | | | |
|---|---|---|---|---|
| Virus Warning | : Disabled | Video BIOS Shadow | : Enabled | |
| CPU Internal Cache | : Enabled | C8000-CBFFF Shadow | : Disabled | |
| External Cache | : Enabled | CC000-CFFFF Shadow | : Disabled | |
| Quick Power On Self Test | : Disabled | D0000-D3FFF Shadow | : Disabled | |
| Boot Sequence | : A,C,SCSI | D4000-D7FFF Shadow | : Disabled | |
| Swap Floppy Drive | : Disabled | D8000-DBFFF Shadow | : Disabled | |
| Boot Up Floppy Seek | : Enabled | DC000-DFFFF Shadow | : Disabled | |
| Boot Up NumLock Status | : On | Cyrix 6x86/MII CPUID | : Enabled | |
| Boot Up System Speed | : High | | | |
| Gate A20 Option | : Fast | | | |
| Typematic Rate Setting | : Disabled | | | |
| Typematic Rate (Chars/Sec) | : 6 | | | |
| Typematic Delay (Msec) | : 250 | | | |
| Security Option | : Setup | | | |
| PCI/VGA Palette Snoop | : Disabled | | | |
| Assign IRQ For VGA | : Enabled | ESC | : Quit | ÇÈÆÅ: Select Item |
| OS Select For DRAM > 64MB | : Non-OS2 | F1 | : Help | PU/PD/+/-: Modify |
| Report No FDD For WIN 95 | : 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 the 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 (2A5KKD2B)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

| | | | | |
|---|---|---|---|---|
| Auto Configuration | : | Enabled | | |
| AT Bus Clock | : | CLK2/4 | | |
| L2 TA RAM Size | : | 8 | | |
| DRAM Timing | : | Nomal | | |
| SDRAM CAS Latency | : | 3 | | |
| Pipilined Function | : | Enabled | | |
| Graphics Aperture Size | : | 64 MB | | |
| DRAM Date Integrity Mode | : | Disabled | | |
| Memory Hole At 15M-16M | : | Disabled | | |
| Host Read DRAM Command Mode | : | Syn. | | |
| AGP Read Burst | : | Enabled | | |
| ISA Line Buffer | : | Enabled | | |
| Passive Release | : | Enabled | | |
| Delay Transaction | : | Disabled | | |
| Primary Frame Buffer | : | All | | |
| VGA Frame Buffer | : | Enabled | ESC : Quit | ÇÈÆÅ: Select Item |
| Data Merge | : | Disabled | F1 : Help | PU/PD/+/-: Modify |
| IO Recovery Period | : | 1 us | F5 : Old Values | (Shift) F2 : Color |
| Auto Detect DIMM/PCI Slk | | Enable | F6 : Load BIOS Defaults | |
| Spread Spectrum | | Disable | F7 : Load Setup Defaults | |

## 4.5 Integrated Peripherals

The IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship which is determined by the cabling configuration used to attach them to the controller. 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 (2A5KKD2B)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

| | | | |
|---|---|---|---|
| On-Chip Primary IDE | : Enabled | | |
| Master PIO | : Auto | | |
| Slave PIO | : Auto | KBC clock source | : 8 MHz |
| Master Ultra DMA | : Auto | Onboard FDC Controller | : Enabled |
| Slave Ultra DMA | : Auto | Onboard UART Port 1 | : 3F8/IRQ4 |
| | | Onboard UART Port 2 | : 2F8/IRQ3 |
| IDE HDD Block Mode | : Enabled | Onboard Parallel Port | : 378/IRQ7 |
| On-Chip USB Controller | : Disabled | Parallel Port Mode | : ECCEPP 1.9 |
| | | ECP Mode Use DMA | : 3 |
| Init Display First | : PCI Slot | Onboard IrDA Port | : Disabled |
| Ring/Wake On LAN Control | : Disabled | | |
| RTC Alarm Controller | : Disabled | Onboard Serial Port 3 | : 3E8 |
| | | Serial Part 3 Use IRQ | : IRQ10 |
| | | Onboard Serial Port 4 | : 2E8 |
| | | Serial Port 4 Use IRQ | : IRQ11 |
| Power On Function | : Button Only | LCD Panel Type | : Panel 5 |

| Panel# | Panel Type |
|---|---|
| 0 | 1024*768 Dual Scan STN Color Panel |
| 1 | 128*1024 TFT Color Panel |
| 2 | 640*480 Dual Scan STN Color Panel |
| 3 | 800*600 Dual Scan STN Color Panel |
| 4 | 640*480 Sharp TFT Color Panel |
| 5 | 640*480 18-bit TFT Color Panel |
| 6 | 1024*768 TFT Color Panel |
| 7 | 800*600 TFT Color Panel |
| 8 | 800*600 TFT Color Panel (Large BIOS ONLY) |
| 9 | 800*600 TFT Color Panel (Large BIOS ONLY) |
| 10 | 800*600 Dual Scan STN Color Panel (Large BIOS ONLY) |
| 11 | 800*600 Dual Scan STN Color Panel (Large BIOS ONLY) |
| 12 | 1024*768 TFT Color Panel (Large BIOS ONLY) |
| 13 | 1280*1024 Dual Scan STN Color Panel (Large BIOS ONLY) |
| 14 | 1024*600 Dual Scan STN Color Panel (Lange BIOS ONLY) |
| 15 | 1024*600 TFT Color Panel (Lange BIOS ONLY) |

## 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 (2A5KKD2B)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

| | | | | | |
|---|---|---|---|---|---|
| Power Management | : | User Define | ** External Switch ** | | |
| PM Control by APM | : | Yes | Power Button Mode | : | Instant-off |
| MODEM Use IRQ | : | 3 | DOCK I/O SMI | : | Disabled |
| Video Off Option | : | Susp, stby ->Off | AC Power SMI | : | Disabled |
| Video Off Method | : | DPMS Support | Thermal SMI mode | : | Disabled |
| ** PM Times ** | | | | | |
| HDD Off After | : | Disabled | | | |
| Doze Mode | : | Disabled | | | |
| Standby Mode | : | Disabled | | | |
| Suspend Mode | : | Disabled | | | |
| FAN Off Option | : | Suspend-> Off | | | |
| Wake on LAN Use | : | NA | | | |
| ** PM Events ** | | | | | |
| Primary HDD | : | Disabled | ESC : Quit | ÇÈÆÅ: Select Item | |
| Floppy | : | Disabled | F1 : Help | PU/PD/+/-: Modify | |
| COM Ports | : | Enabled | F5 : Old Values | (Shift) F2 : Color | |
| Keyboard | : | Enabled | F6 : Load BIOS Defaults | | |
| LPT Ports Activity | ; | Disable | F7 : Load Setup Defaults | | |

# Chapter-5

## Software Utilities

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

Section include:

- VGA DRIVER INSTALLATION
- NETWORK DRIVER INSTALLATION

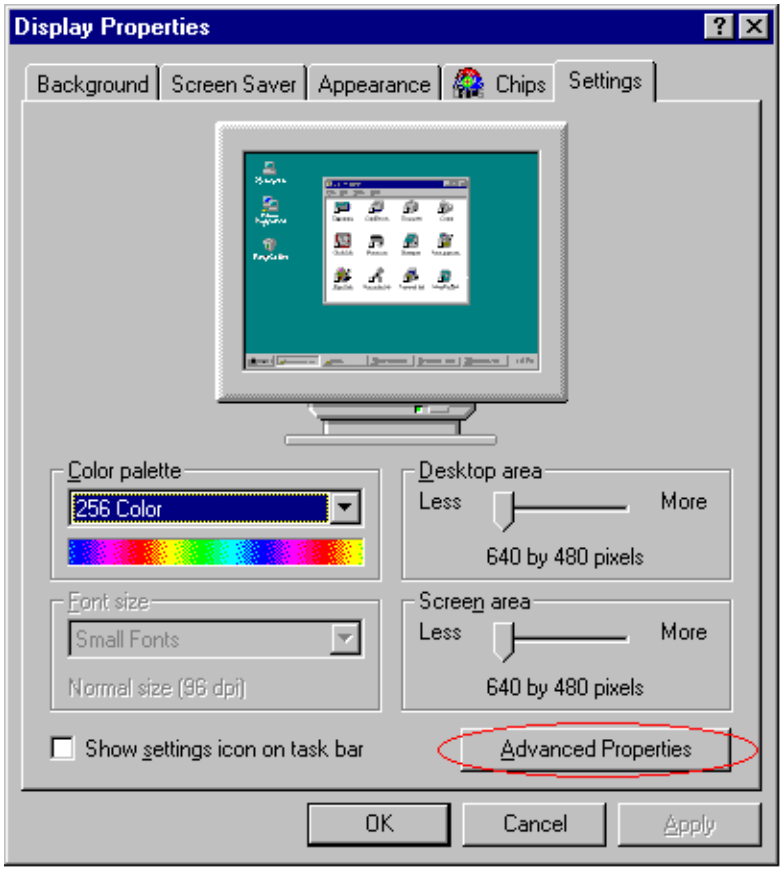
## 5.1 VGA DRIVER INSTALL FOR WIN95&98

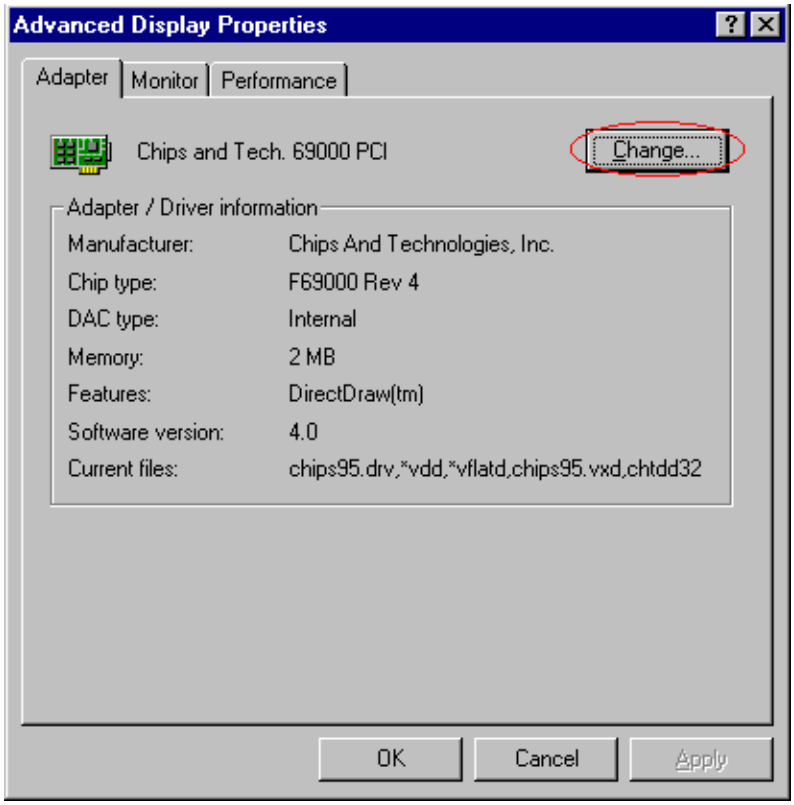
1. Click Start, then Setting, then Control Panel. Start the Display applet program.
2. Select the setting page, push the advanced properties button. Push the change button in the adapter area.
3. Continue to click “Next”. Select Display a list of all drivers in specific location, So you can select the drivers you want. Click “Next”.
4. Select the Specify a location checkbox and click “Browse”. Specify the path to the new driver and press the <ENTER> key.

   (if in driver A:, select a:\win95)
5. The Select device dialog box will appear.

   Select Chips and Tech. 69000 PCI
6. Continue choosing close until asked to restart machine.
7. After the system has restarted, you can go back into the display applet and select alternate screen resolutions and color depths.

Note: Installation procedure for Windows 98 is similar to Windows95.


Display Properties
Background
Screen Saver
Appearance
Chips
Settings
Color palette
256 Color
Desktop area
Less
More
640 by 480 pixels
Font size
Small Fonts
Normal size (96 dpi)
Screen area
Less
More
640 by 480 pixels
Show settings icon on task bar
Advanced Properties
OK
Cancel
Apply

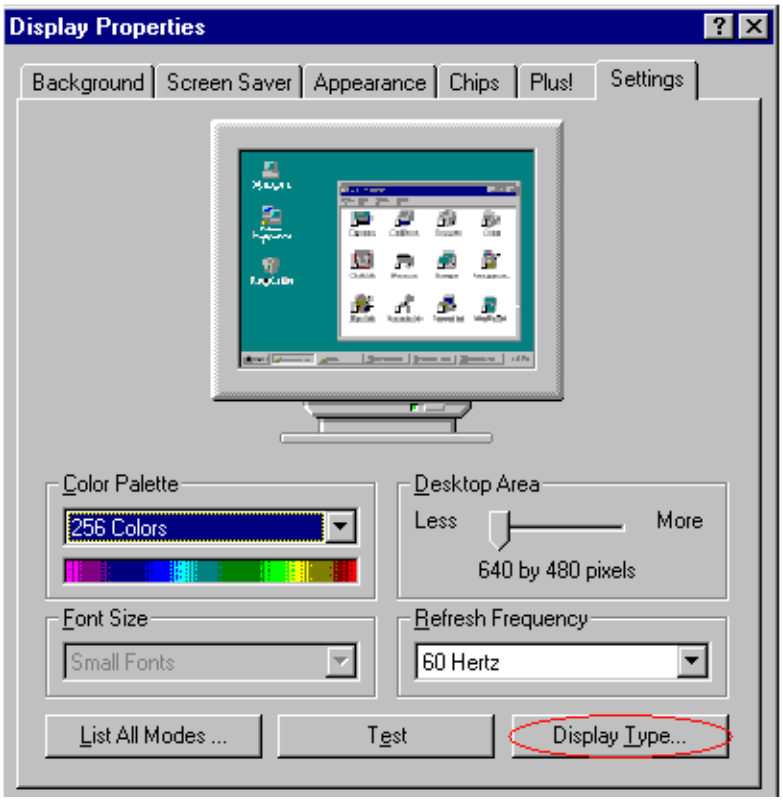

Advanced Display Properties
Adapter
Monitor
Performance
Chips and Tech. 69000 PCI
Change...
Adapter / Driver information
Manufacturer:
Chips And Technologies, Inc.
Chip type:
F69000 Rev 4
DAC type:
Internal
Memory:
2 MB
Features:
DirectDraw(tm)
Software version:
4.0
Current files:
chips95.drv,*vdd,*vflatd,chips95.vxd,chtdd32
OK
Cancel
Apply

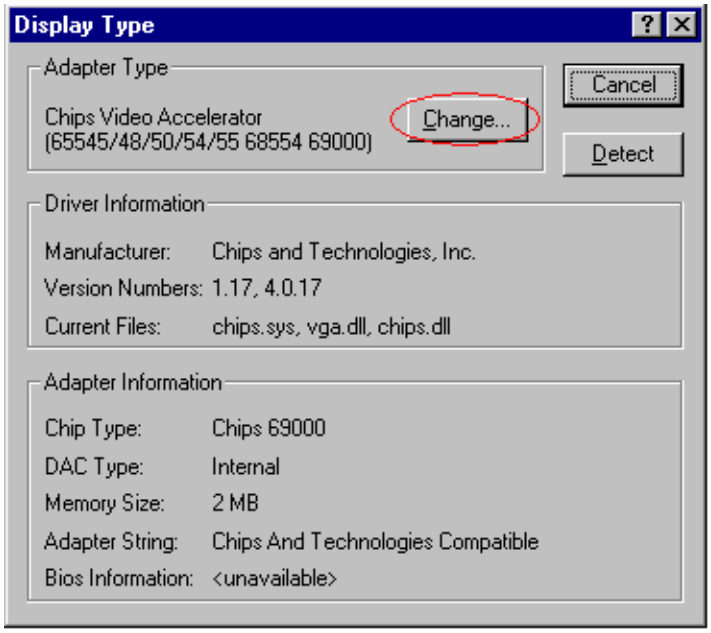
## 5.2 VGA DRIVER INSTALL FOR WIN NT4.0

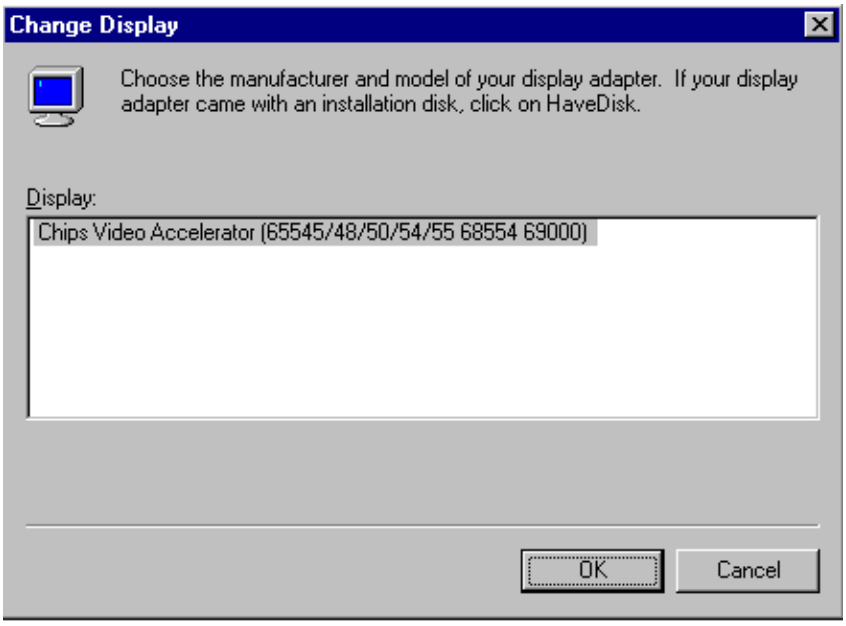
1. Click the Start button, then go to Setting and click on Control Panel. Click on Display icon to start the Display Properties Window.
2. Click on the Settings tab, and then click on Display Type. In the Change Display Type window, click on “Have Disk”.
3. Specify the path to the new driver and press the <ENTER>key.

   (if in driver A:, type a:\nt40)

   Select Chips Video Accelerator (655545/48/50/54/55/68554 69000)
4. Click OK or press Enter. You will see warning panel about Third Party Drivers. Click on Yes to finish the installation.
5. Once the installation is completed, the system must shut down and restart for the new driver to take effect.
6. After restart, checking on the VGA driver, the properties of the driver should look similar to the following figure.


Display Properties
Background
Screen Saver
Appearance
Chips
Plus!
Settings
Color Palette
256 Colors
Desktop Area
Less
More
640 by 480 pixels
Font Size
Small Fonts
Refresh Frequency
60 Hertz
List All Modes ...
Test
Display Type...


Display Type
Adapter Type
Chips Video Accelerator
(65545/48/50/54/55 68554 69000)
Change...
Cancel
Detect
Driver Information
Manufacturer: Chips and Technologies, Inc.
Version Numbers: 1.17, 4.0.17
Current Files: chips.sys, vga.dll, chips.dll
Adapter Information
Chip Type: Chips 69000
DAC Type: Internal
Memory Size: 2 MB
Adapter String: Chips And Technologies Compatible
Bios Information: <unavailable>


Change Display
Choose the manufacturer and model of your display adapter. If your display adapter came with an installation disk, click on HaveDisk.
Display:
Chips Video Accelerator (65545/48/50/54/55 68554 69000)
OK
Cancel

## 5.3 NETWORK DRIVER INSTALL FOR WIN98&95

### Win98

Windows 98 will detect the network driver automatically.

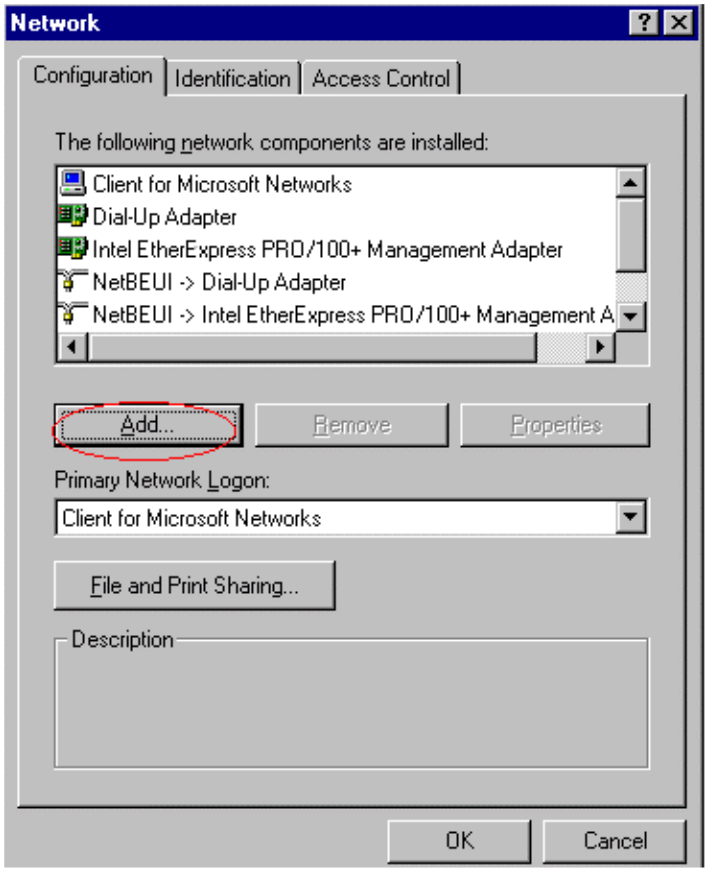
### Win95

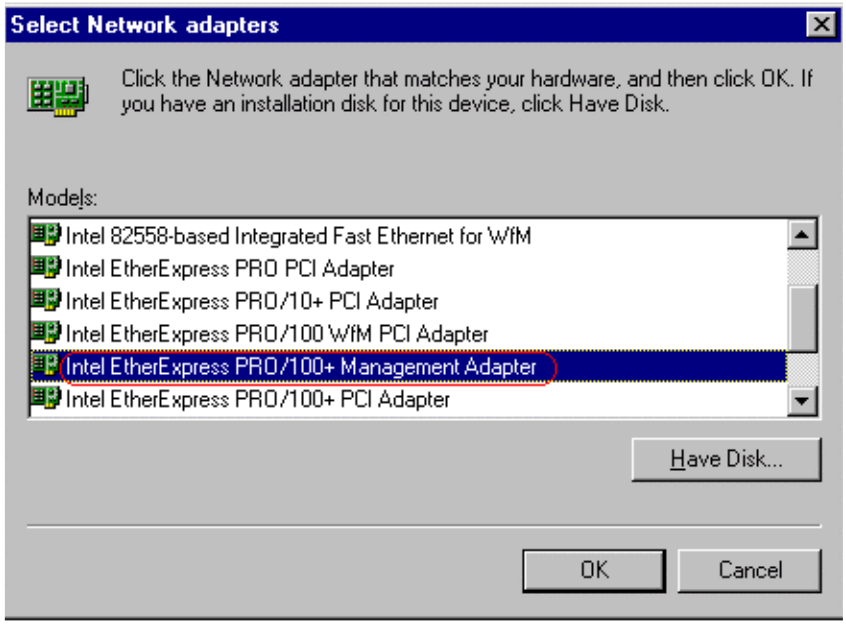
1. Click Start, then Setting, in the “Setting” select Control panel. Start the network applet program.
2. In the Network window, click “Add”. In the Select Network Component Type, select Adapter then click “Add”.
3. When the Select Network Component Type, Select Adapter, then click “Add”. Specify the 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**

4. Click OK.
5. Windows 95 will copy the network drivers to the proper directories on your system.
6. Continue choosing “OK”, until asked to restart your system.
7. 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

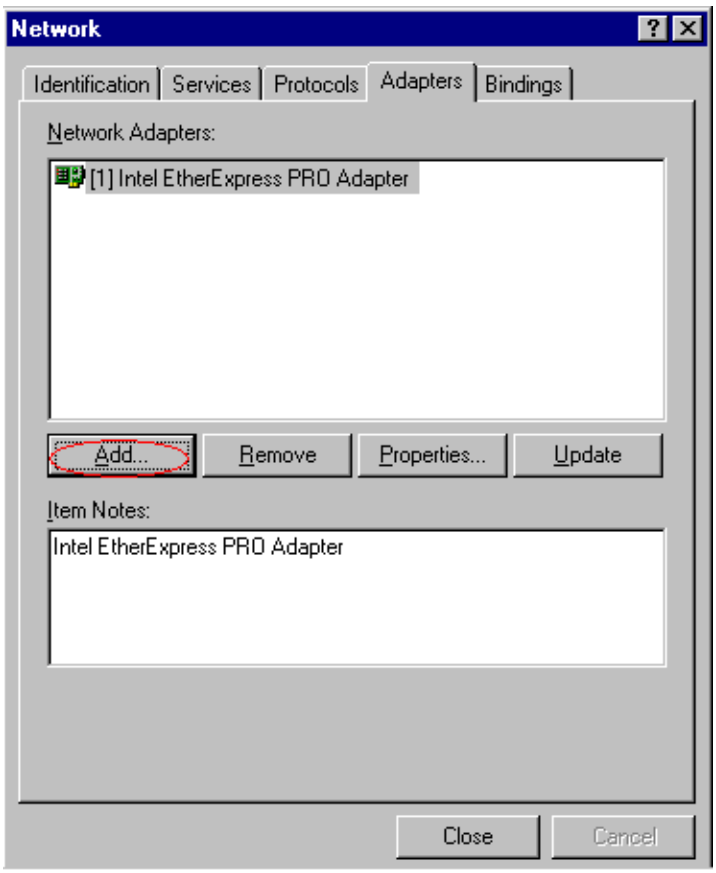

Select Network adapters
Click the Network adapter that matches your hardware, and then click OK. If you have an installation disk for this device, click Have Disk.
Models:
Intel 82558-based Integrated Fast Ethernet for WfM
Intel EtherExpress PRO PCI Adapter
Intel EtherExpress PRO/10+ PCI Adapter
Intel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

## 5.4 NETWORK DRIVER INSTALL FOR WIN NT4.0

1. Click the Start button, then go to Setting and click on Control Panel. Click on the Network icon to start the Network Window.
2. Click on the Adapters tab, and then click “Add”. In the Select Network Adapter window, click “Have Disk”.
3. This will bring up the Insert Disk window.
4. Supply the directory where the Windows NT driver files are located. (If in driver a: , type a:\)
5. The Select OEM Option window will show up.

**Select Intel EtherExpress PRO Adapter**

6. Click OK to finish the installation.
7. Once the installation is completed, the system must be shut down and restarted for the new driver to take effect.
8. After restart, checking on the Network driver, the Properties of the driver should look similar to the following figure.


Network
Identification
Services
Protocols
Adapters
Bindings
Network Adapters:
[1] Intel EtherExpress PRO Adapter
Add...
Remove
Properties...
Update
Item Notes:
Intel EtherExpress PRO Adapter
Close
Cancel

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.


**Global American Inc.**

| | |
|---|---|
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