MAT-0671

Socket 370 Full Function POS SBC
With VGA/LCD, Audio, LAN & SSD

User's Manual

Version 1.0

Manual edition 1.0, Jan. 2002

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Chapter 1. General Information

Chapter 2. Installation

Chapter 3. BIOS Setup

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Chapter 1. General Information

1.1 Introduction

The O671 is a full function of LPX format board use Intel FW82443BX and FW82371EB chipset supports 100MHz FSB for Intel® Pentium III/Celeron™ processors up to 850MHz. The O671 supports CRT/LCD, ESS Solo-1 PCI-Bus Audio interface and Intel® 82559ER or Realtek RLT8139C Ethernet chipset with RJ45 jack for 10/100Mbps.

The onboard features include three RS-232 and one RS-232/422/485 serial ports with +5V/+12V power selectable, two bi-directional parallel ports, two USB ports, also with watchdog timer and connector for SMBus LCD interface. In addition, the onboard SSD interface supports M-Systems DiskOnChip 2000 series, memory capacity up to 288MB and CompactFlash™ socket for TypeI/II.

1.2 Specification

Specifications	
General Functions	
CPU	Intel® Celeron™/ Pentium® III up to 850MHz & VIA C3 Ezra Processors
BIOS	Award® 256KB Flash BIOS
Cache	128/256 KB on-chip cache
Chipset	Intel® 440BX+ 82371EB
I/O Chipset	Dual Winbond 83977
Memory	Two 168-pin DIMM sockets support up to 512MB
Enhanced IDE	Support up to two IDE devices(Ultra DMA 33).
FDD interface	Supports 34-pin header connector up to two floppy disk drives
Parallel port	Two bi-directional parallel ports. Support SPP/ECP/EPP
Serial port	Three RS-232 and one RS-232/422/485 serial ports +5v/+12v power selectable
IR interface	Support one IrDA Tx/Rx header
Keyboard connector	6-pin Mini-DIN & internal header
Mouse connector	6-pin Mini-DIN & internal header
USB connectors	Support dual USB ports

Battery	Lithium battery for data retention up to 10 years and CMOS EPROM backup
Watchdog Timer	Support software selectable timeout interval.
EISA connector	One EISA bus connector support ISA/PCI signals
Power Input	Support ATX and AT power supply connectors.
Digital I/O	Eight digital output and eight TTL input.
SMBus connector	6-pin header support SMBus LCD interface

Flat Panel/CRT Interface

Chipset	C&T 69000 VGA chip
Display memory	Built-in 2MB SDRAM
Display type	Display CRT and Flat Panel simultaneously
Resolution	Up to 1024x768@64K colors

PCI Sound Interface

Chipset	ESS Solo-1
Audio controller	SoundBlaster and SoundBlaster Pro compatible and support Microsoft® Windows™ sound system. Meets PC97/PC98 and WHQL specifications
Audio interface	Mic in, Line in, Speaker out and CD audio in
Software Driver	Supports for Windows 95, Windows 98 and windows NT

Ethernet Interface

Chipset	Intel® 82559ER or Realtek® RTL8139C
Ethernet interface	PCI 100/10 Mbps Ethernet controller
SSD Interface	One 50-pin CompactFlash™ socket & one 32-pin DiskOnChip socket

Mechanical and Environmental

Power supply voltage	VCC (4.75V to 5.25V), +12V (11.4V to 12.6V), -12V(-11.4V to –12.6V)
Max. power requirements	7A @ 5 V, 200mA@ +12V, 120mA@-12V
Operating temperature	32 to 140°F (0 to 60°C)
Board size	8.66”(L) x 9.84"(W)(220mm x 250mm)
Weight	1.1 lb. (0.5 Kg) (bare)

1.3 O671 Package

Please make sure that the following items have been included in the package before installation.

1. O671 All-in-One LPX board
2. Quick Installation Guide
3. Cables: Please refer to the Appendix F Optional Cables
4. CD-ROM which contains the following folders:
   (1) Manual (in PDF format)
   (2) LAN Driver
   (3) VGA Driver
   (4) Audio Driver
   (5) BIOS Utility

If any of these items are missing or damaged, please contact your dealer from whom you purchased the board at once. Save the shipping materials and carton in the event that you want to ship or store the board in the future. Inside the carton, the board is sandwiched between sponge pads and packed in an anti-static bag. After you unpack the board, inspect it to assure an intact shipment. Press down all the integrated circuits to make sure they are properly seated in their sockets. Do not apply power to the board if it appears to have been damaged.

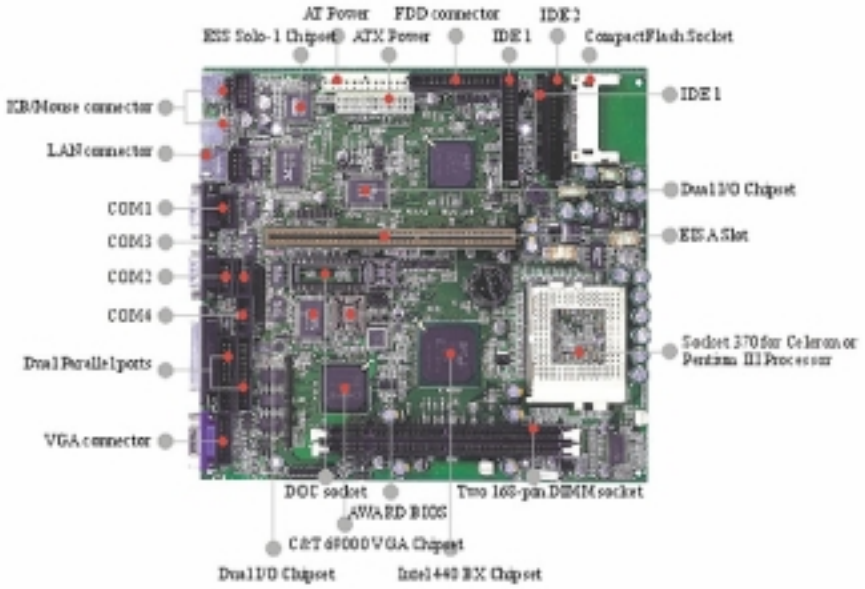
Leave the board in its original packing until you are ready to install

Precautions

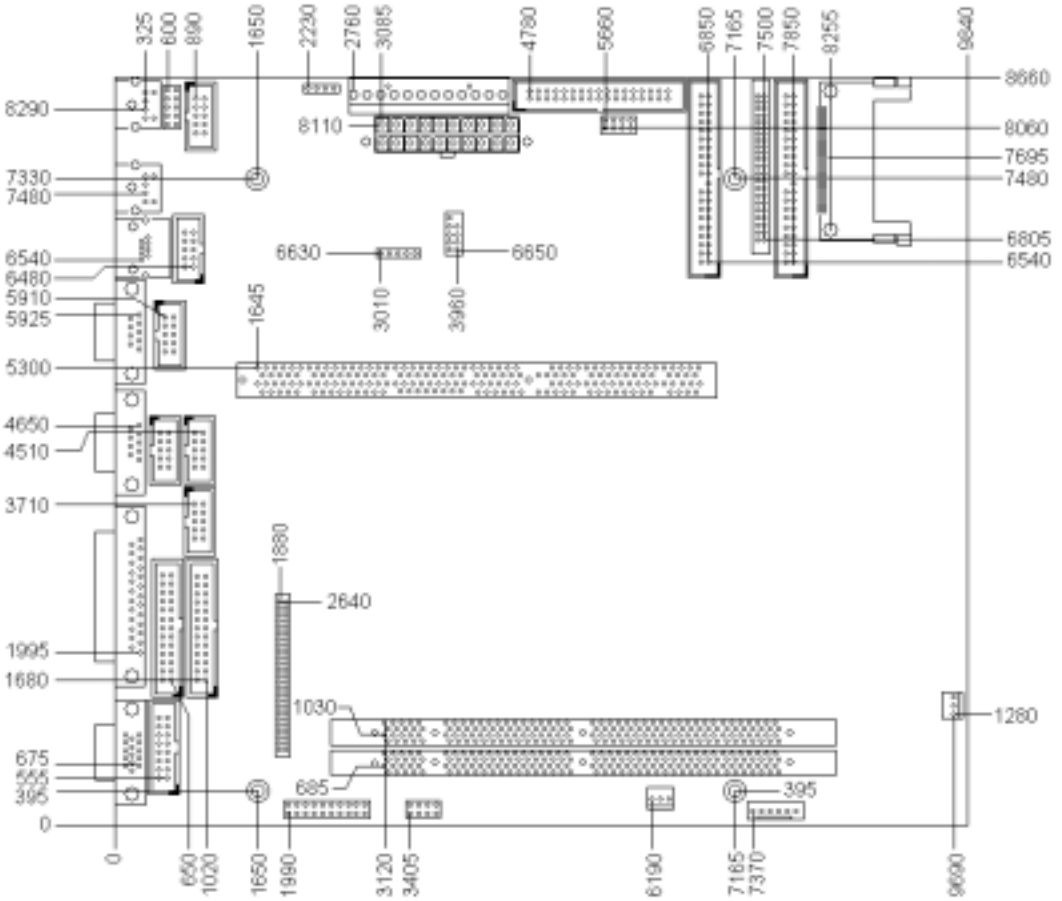
Please make sure you properly ground yourself before handling the O671 board or other system components. Electrostatic discharge can be easily damage the O671 board.

1. Do not remove the anti-static packing until you are ready to install the O671 board.
2. Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.
3. Handle the O671 board by its edges and avoid touching its component.

1.4 Board Layout

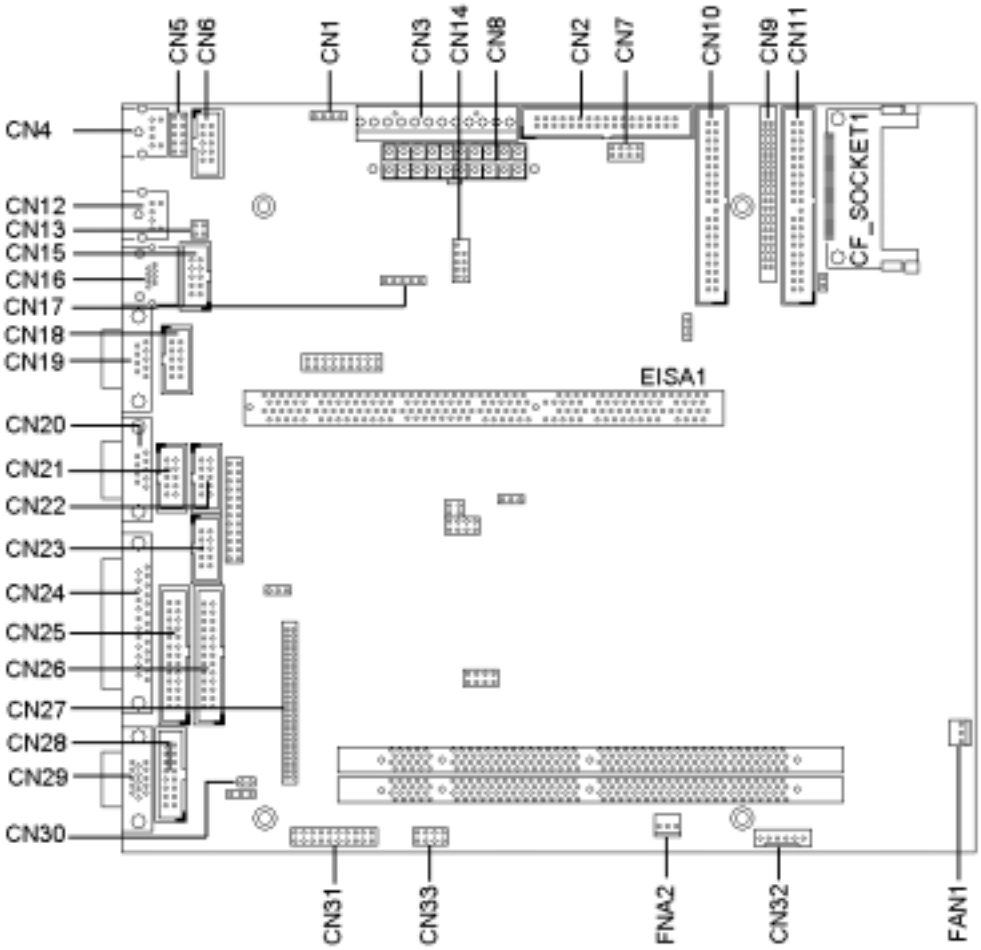


1.5 Board Dimension (mil)



Chapter 2. Installation

2.1 Location of Connectors

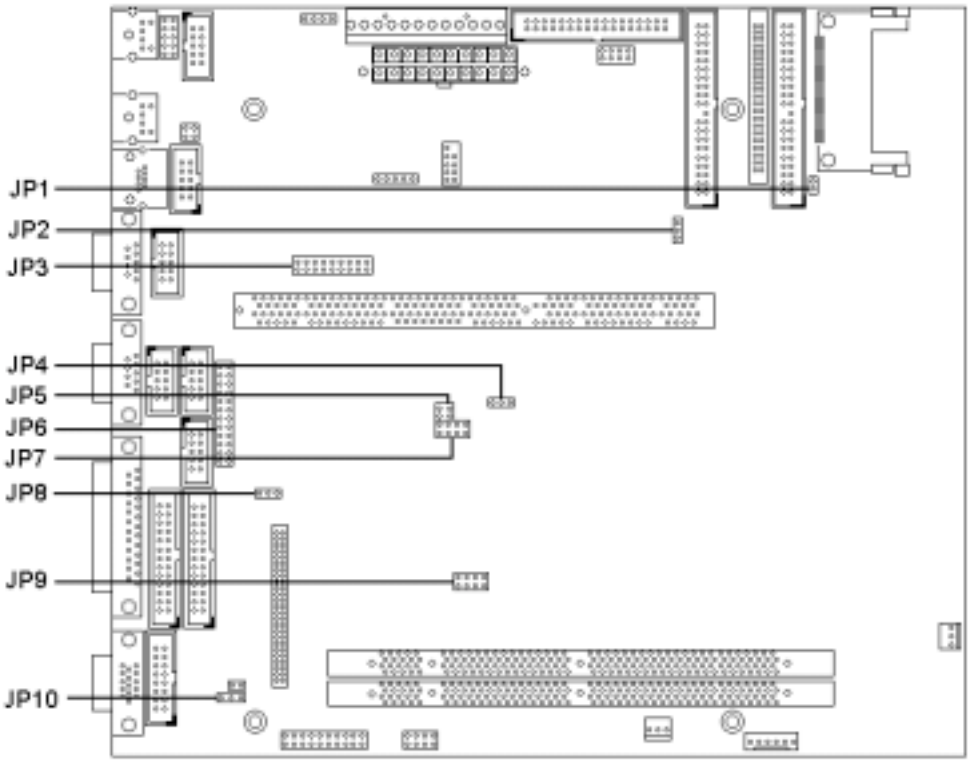


2.2 List of Connectors

Connectors	Description	Connectors	Description
CN1	CD Audio Connector	CN18	COM1 Connector (Pin Header)
CN2	Standard Floppy Connector	CN19	COM1 Connector (D-Sub)
CN3	AT Power Connector	CN20	COM2 Connector (D-Sub)
CN4	PS/2 Keyboard Connector	CN21	COM2 Connector (Pin-Header)
CN5	PS/2 KB/Mouse Header	CN22	COM3 Connector (Pin-Header)
CN6	Audio Signals Connector	CN23	COM4 Connector (Pin-Header)
CN7	Front Panel Connector	CN24	LPT1 Connector (D-Sub)
CN8	ATX Power Connector	CN25	LPT1 Connector (Pin Header)

CN9	IDE1 2.00mm Connector	CN26	LPT2 Connector (Pin Header)
CN10	IDE1 2.54mm Connector	CN27	LCD Display Connector (Pin Header)
CN11	IDE2 2.54mm Connector	CN28	CRT Display Connector (Pin Header)
CN12	PS/2 Mouse Connector	CN29	CRT Display Connector (D-Sub)
CN13	LAN LED Connector	CN30	LCD Backlight Connector
CN14	USB Connector	CN31	GPIO Port Connector
CN15	LAN Connector (Pin Header)	CN32	SMBus Connector
CN16	LAN Connector (RJ45)	CN33	Isolated Output Connector
CN17	IR Connector		

2.3 Location of Jumpers



2.4 List of Jumpers

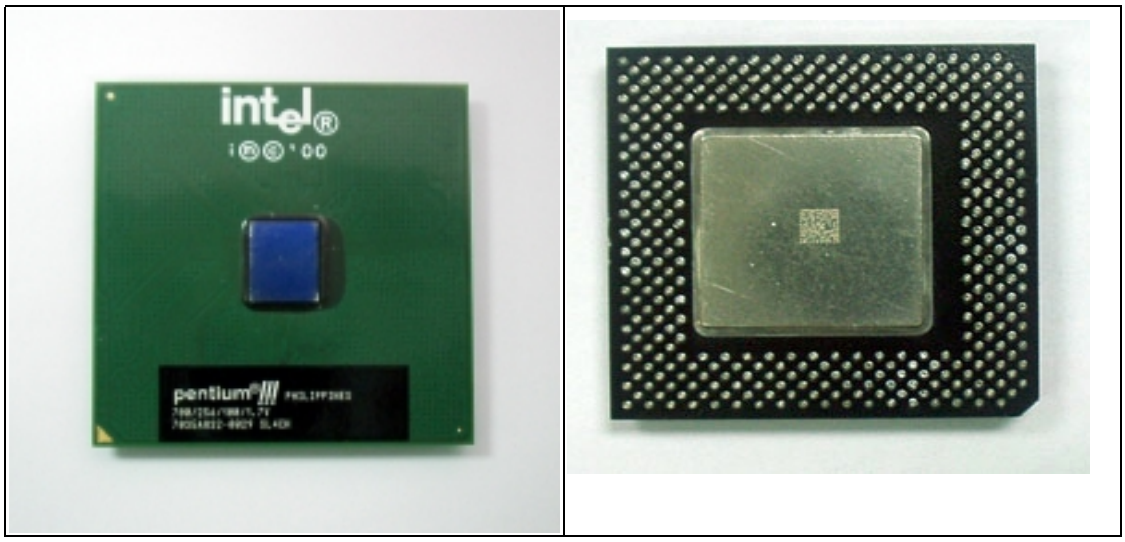
Pin	Define	Pin	Define
JP1	CompactFlash Mode Select	JP6	RI/Voltage Select for COM1-COM4
JP2	Clear CMOS	JP7	DiskOnChip Address Select
JP3	COM2 Mode Select	JP8	LCD Voltage Select
JP4	Watchdog Timer Output Select	JP9	Flat Panel Type Select
JP5	GPIO Base Address Select	JP10	LCD Backlight Voltage Select

2.5 CPU Installation and Upgrading

O671 supports Intel® Pentium III/Celeron™ and compatible processors

About the FC-PGA and PPGA Form Factors

The FC-PGA ("Flip Chip" Pin Grid Array) form factor is a chip packaging designed for Intel® Pentium III/Celeron™ processors up to 100MHz FSB. On the FC-PGA package, the processor's silicon core faces up, and is exposed. This allows the core to have direct contact with a heatsink/fan.



Intel Celeron™ processors are available in the FC-PGA and PPGA (Plastic Pin Grid Array) form factors. Both are compatible with the 370-pin socket on the O671. With the PPGA package, the CPU's silicon core faced don, toward the socket.

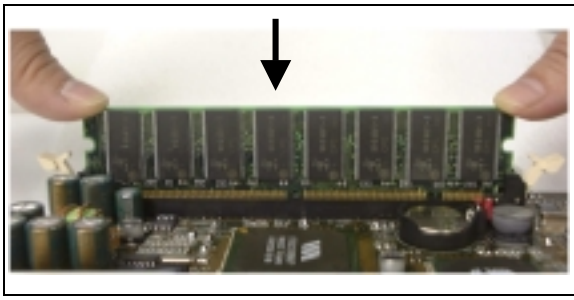
Locating Pin 1 on your CPU and ZIP Socket

All Pentium III and Celeron FC-PGA CPUs use a small orange triangle to indicate the location of pin 1. On the corner to the right of pin 1 is an orange dot. On the PPGA Celeron, pin 1 is indicated by an indented corner. Pin 1 corners are used to properly align the joining of the CPU to the ZIP socket.

2.6 System Memory Installation

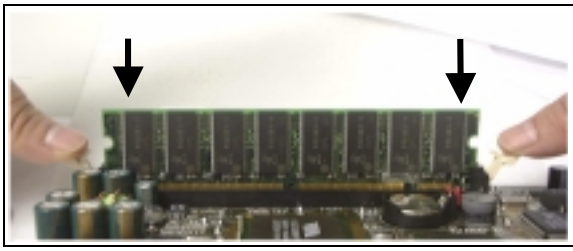
The O671 supports two 168-pin DIMM socket up to 512MB SDRAM.

To insert a DIMM:



To insert a DIMM, align the module with the socket key and press down until the levers at each end of the socket snap close up.

There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

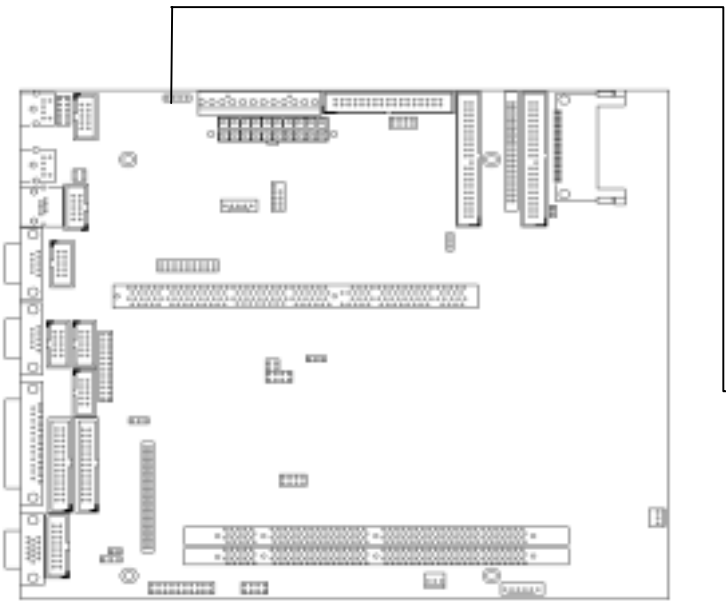


To remove a DIMM, press down on the levers at both end of the module until the module pops out.

2.7 Connector and Jumper Settings

CN1: CD Audio Connector

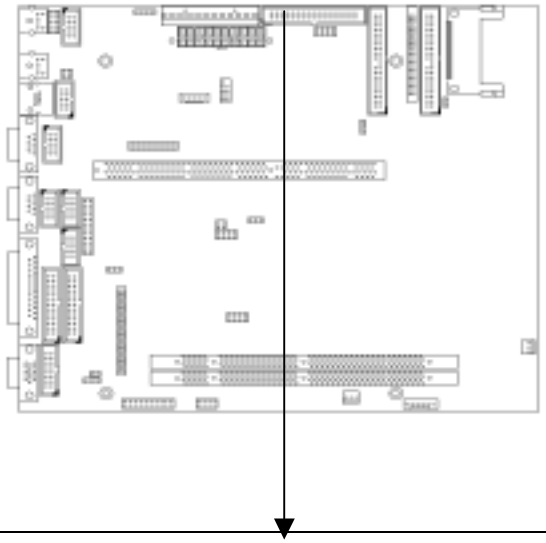
This connector is used to connect to a CD Audio cable. Depending on the type of installed CD-ROM drive, connect the CD-ROM drive cable to one of this 4-pin connector.

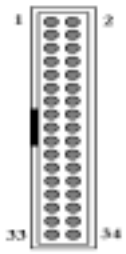


Pin	Assignment
1	L_Input
2	Ground
3	Ground
4	R_Input

CN2: Standard Floppy Connector

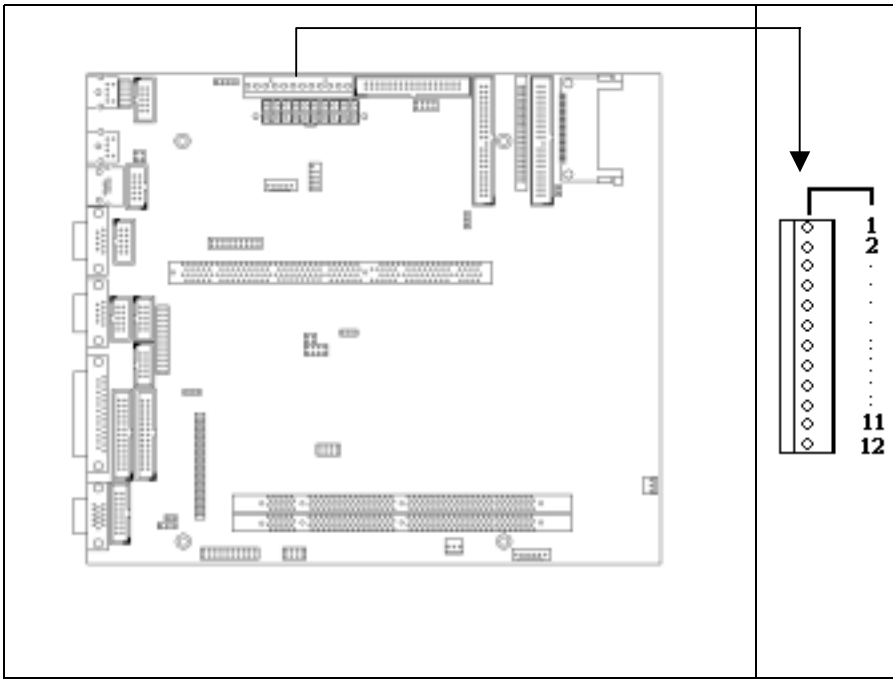
Connect the single end of a floppy disk drive cable to this 34-pin connector block. Connect the other ends of the cable to one or more floppy disk drives. The connector with twisted wires always connects to drive A; the connector without twisted wires connects to drive B.





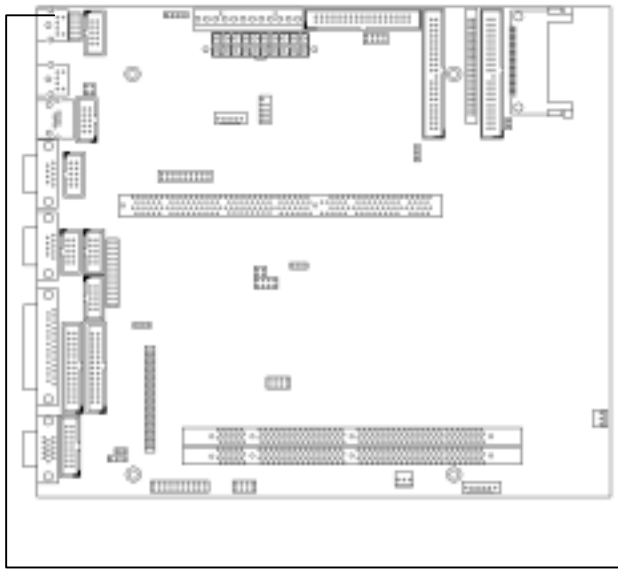
Pin	Signal	Pin	Signal
1	Ground	2	Drvden0
3	Ground	4	NC
5	Ground	6	NC
7	Ground	8	Index
9	Ground	10	Motor enable 0
11	Ground	12	Drive select 1
13	Ground	14	Driver select 0
15	Ground	16	Motor enable 1
17	Ground	18	Direction
19	Ground	20	Step
21	Ground	22	Write data
23	Ground	24	Write gate
25	Ground	26	Track 00
27	Ground	28	Write protect
29	Ground	30	Read data
31	Ground	32	Side 1 select
33	Ground	34	Diskette change

CN3: AT Power Connector

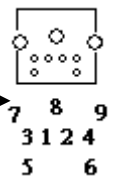


Pin	Assignment
1	PWROK
2	+5V
3	+12V
4	-12V
5	Ground
6	Ground
7	Ground
8	Ground
9	-5V
10	+5V
11	+5V
12	+5V

CN4: PS/2 Keyboard Connector

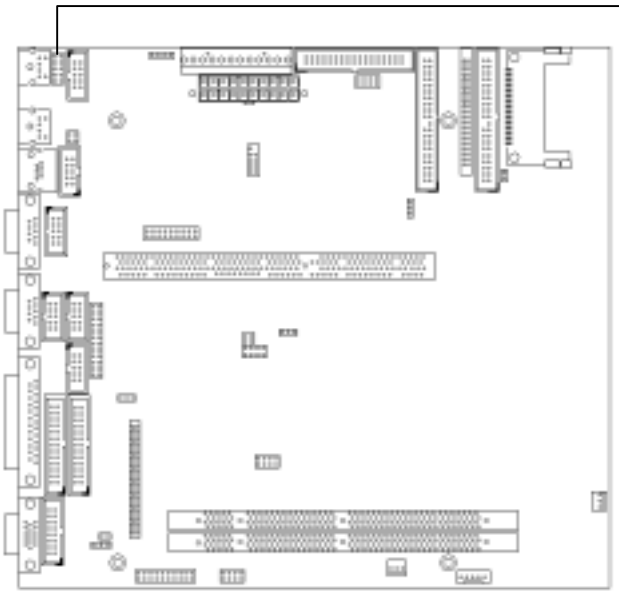


Pin	Assignment
1	KB Data
2	MS Data
3	Ground
4	+5V
5	KB Clock
6	MS Clock
7	Ground
8	Ground
9	Ground

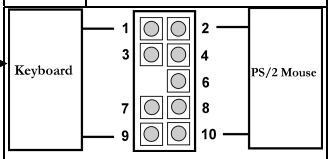


(Top View)

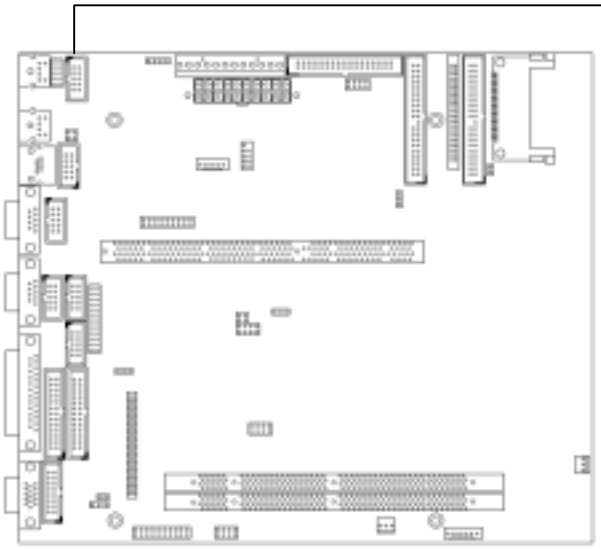
CN5: PS/2 Keyboard/Mouse Connector



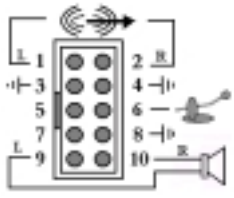
Pin	Assignment
1	KB Clock
2	MS Clock
3	KB Data
4	MS Data
5	Key Pin
6	NC
7	Ground
8	Ground
9	+5V
10	+5V



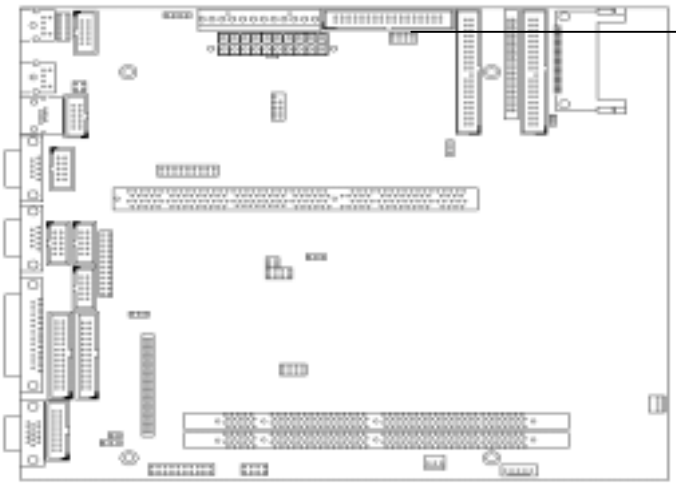
CN6: Audio Signals Connector



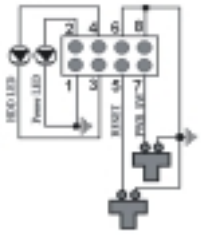
Pin	Assignment
1	Line in left
2	Line in right
3	Ground
4	Ground
5	NC
6	MIC in
7	NC
8	Ground
9	Speaker out left
10	Speaker out right



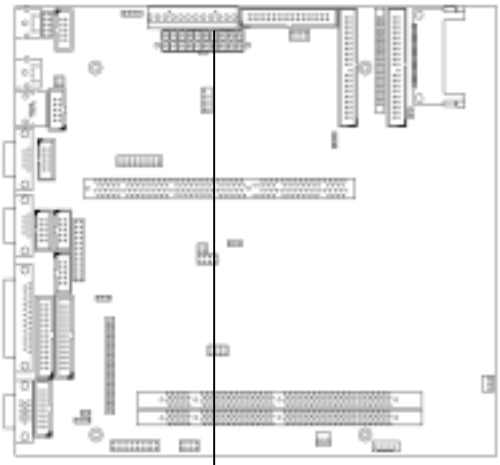
CN7: Front Panel Connector



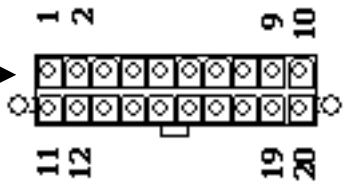
Pin	Assignment
1-2	Power LED
3-4	HDD LED
5-6	Reset Switch
7-8	Soft Switch



CN8: ATX Power Connector

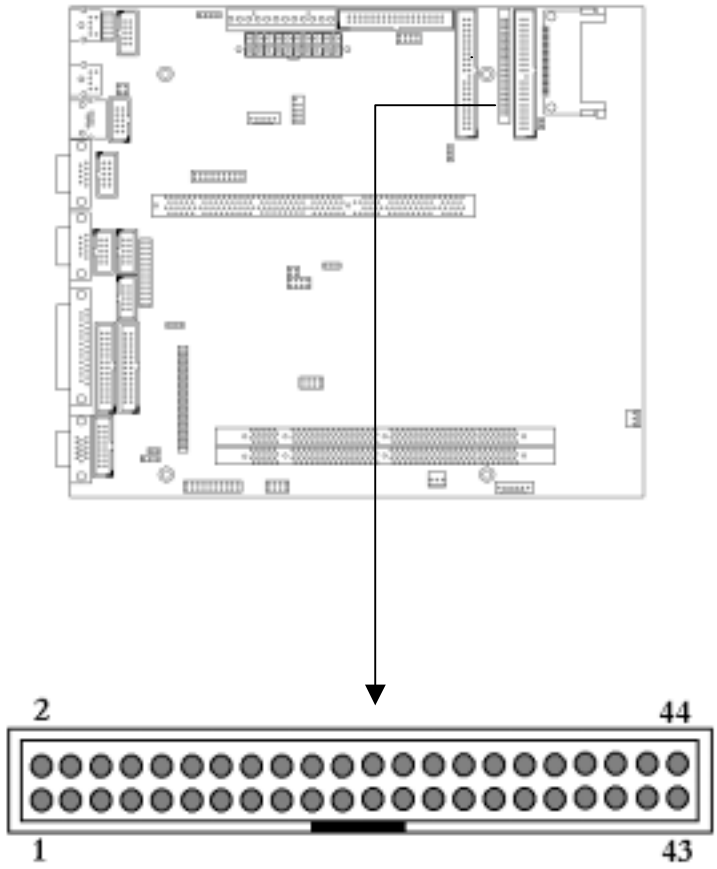


Pin	Assignment	Pin	Assignment
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PSON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PWROK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V



CN9: 44-pin IDE Connector

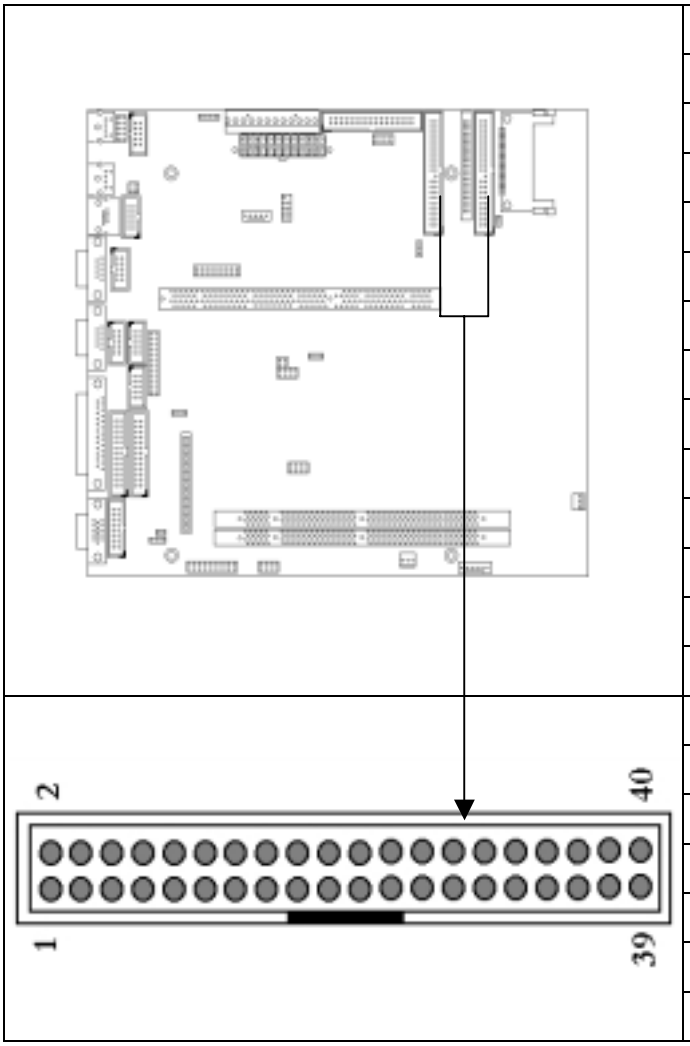
This is a 2.00mm pitch IDE connector supports IDE hard disk and CD-ROM drives. After connecting the single end of the provided IDE ribbon cable to the board, connect the two plugs at the other end to your hard disk or CD-ROM drives. If you install two hard disks from the same connector, you must set the second drive to Slave mode. You can configure two hard disks to Master mode by using one ribbon cable on the primary IDE connector and another on the secondary IDE connector.



Pin	Signal	Pin	Signal
1	Reset	23	IOW#
2	Ground	24	Ground
3	Data7	25	IOR#
4	Data8	26	Ground
5	Data6	27	IRDY
6	Data9	28	Ground
7	Data5	29	DACK#
8	Data10	30	Ground
9	Data4	31	IRQ14
10	Data11	32	NC
11	Data3	33	Address 1
12	Data12	34	Detect
13	Data2	35	Address 0
14	Data13	36	Address 2
15	Data1	37	Select 0
16	Data14	38	Select 1
17	Data0	39	Active
18	Data15	40	Ground
19	Ground	41	+5V
20	NC	42	+5V
21	DREQ	43	Ground
22	Ground	44	NC

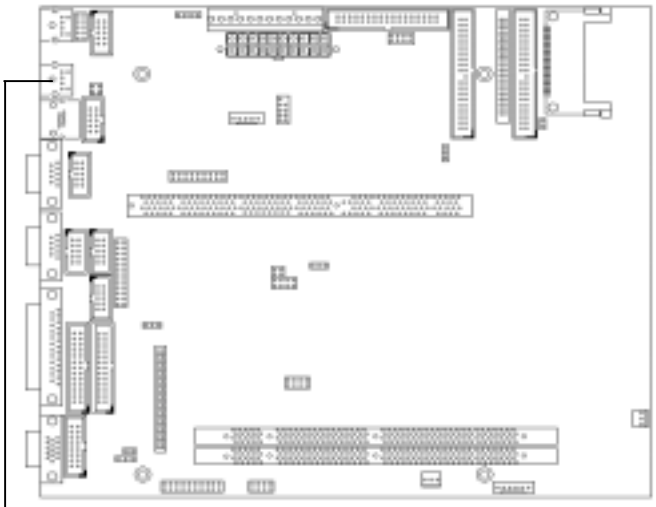
CN10, CN11: 40-pin IDE2 Connector

This is a 2.54mm pitch IDE connector supports IDE hard disks and CD-ROM drives. After connecting the single end of the provided IDE ribbon cable to the board, connect the two plugs at the other end to your hard disks or CD-ROM drives. If you install two hard disks from the same connector, you must set the second drive to Slave mode. You can configure two hard disks to Master mode by using one ribbon cable on the primary IDE connector and another on the secondary IDE connector.

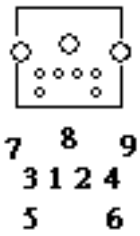


Pin	Signal	Pin	Signal
1	IDE Reset	21	IDE DREQ
2	Ground	22	Ground
3	Data 7	23	IOW
4	Data 8	24	Ground
5	Data 6	25	IOR
6	Data 9	26	Ground
7	Data 5	27	CHRDY
8	Data 10	28	NC
9	Data 4	29	IDE DACK
10	Data 11	30	Ground
11	Data 3	31	IDE IRQ
12	Data 12	32	NC
13	Data 2	33	A1
14	Data 13	34	NC
15	Data 1	35	A0
16	Data 14	36	A2
17	Data 0	37	CS0
18	Data 15	38	CS1
19	Ground	39	Active
20	NC	40	Ground

CN12: PS/2 Mouse Connector

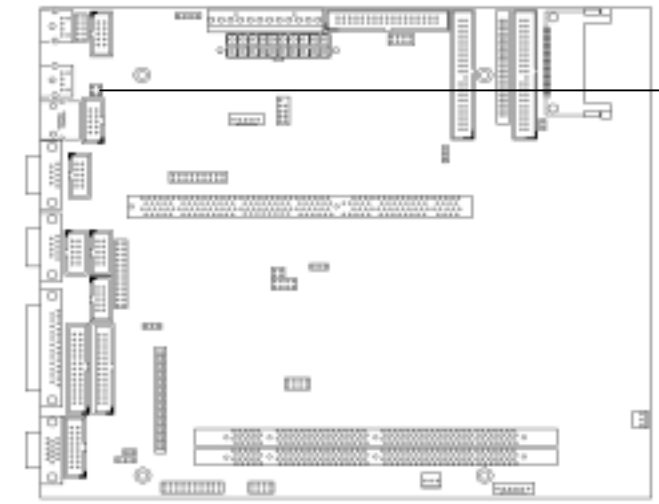


Pin	Assignment
1	MS Data
2	KB Data
3	Ground
4	+5V
5	MS Clock
6	KB Clock
7	Ground
8	Ground
9	Ground



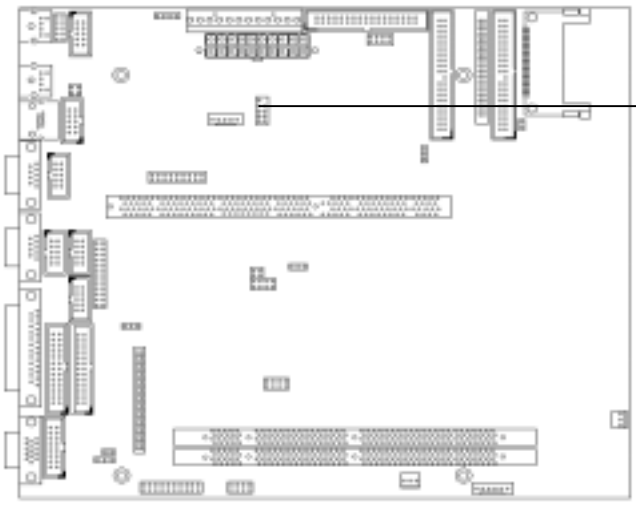
(Top View)

CN13: LAN LED Connector

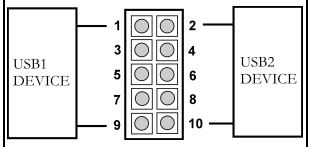


Setting	Define
1-2	Active LED
3-4	10/100M LED

CN14: USB Connector

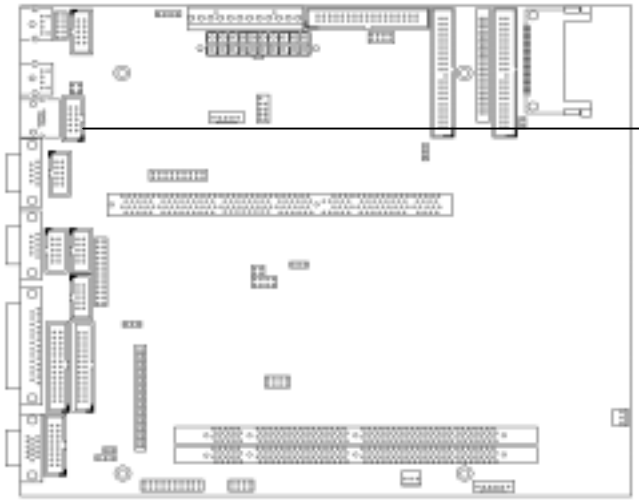


Pin	Assignment
1	+5V
2	+5V
3	USB1DT-
4	USB1DT-
5	USB1DT+
6	USB1DT+
7	Ground
8	Ground
10	Ground

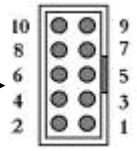


CN15: LAN Connector

The O671 included an onboard Ethernet port accessed through CN15. You need an adapter cable if you use a standard RJ-45 connector. The cable has 10-pin connector on one end and a standard 100Base-TX Ethernet RJ-45 on the other. The onboard Intel® 82559ER or Realtek RTL8139C fast Ethernet controller supports 100Mbps and 10Mbps N-way auto-negotiation operations.

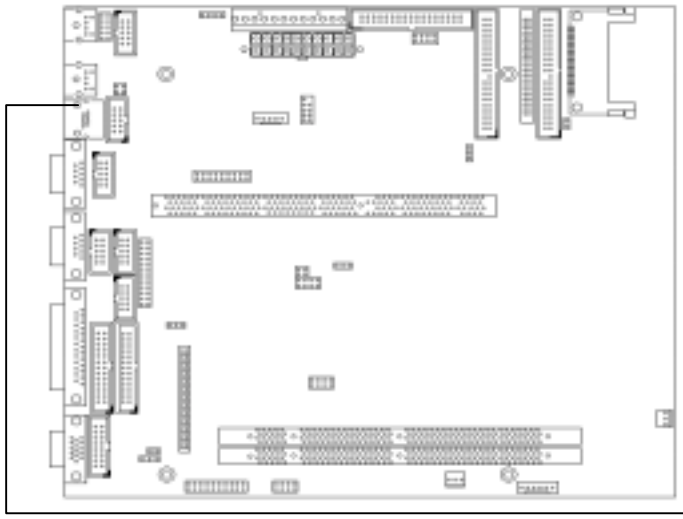


Pin	Assignment
1	TX+
2	TX-
3	RX+
4	Chassis Ground
5	Chassis Ground
6	RX-
7	Chassis Ground
8	Chassis Ground
9	Ground
10	Ground

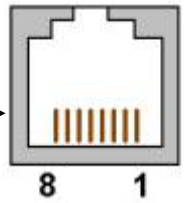


CN16: LAN Connector (RJ45)

The O671 supports one Ethernet RJ-45 connector onboard.

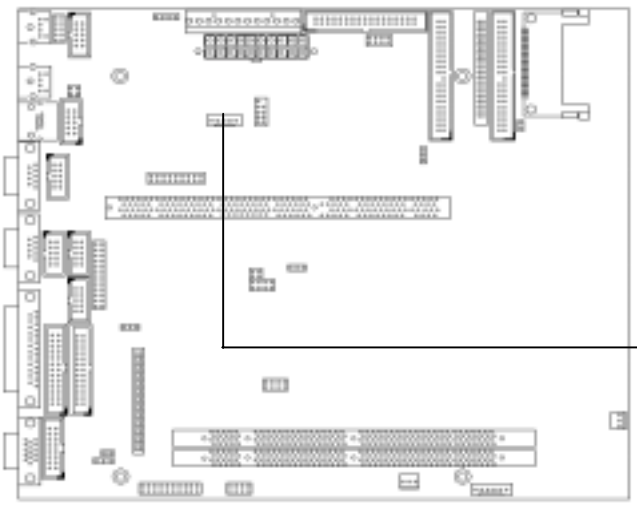


Pin	Assignment
1	TX+
2	TX-
3	RX+
4	Chassis Ground
5	Chassis Ground
6	RX-
7	Chassis Ground
8	Chassis Ground

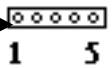


CN17: IR Connector

This 5-pin connector supports an optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. Connect a ribbon cable from the module to the connector according to the pin definitions.

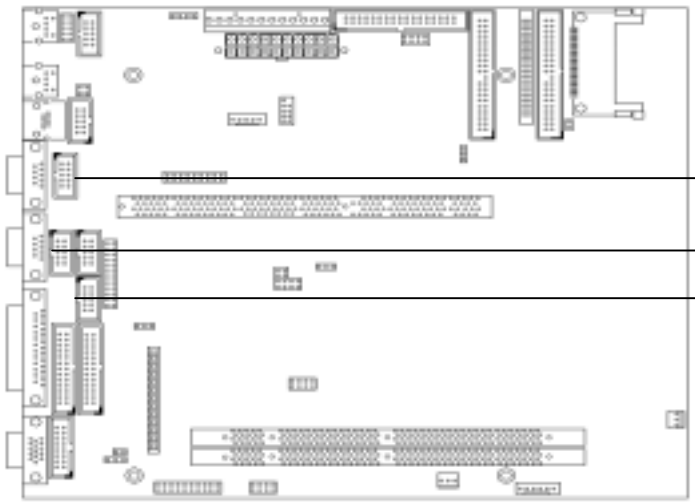


Pin	Assignment
1	+5V
2	NC
3	SIRIN
4	Ground
5	SIROUT

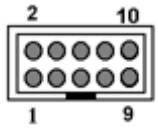


CN18, CN21, CN22, CN23: COM1/COM2/COM3/COM4 Pin Header Connector

The O671 supports COM1, COM2, COM3 and COM4 pin header for various using.

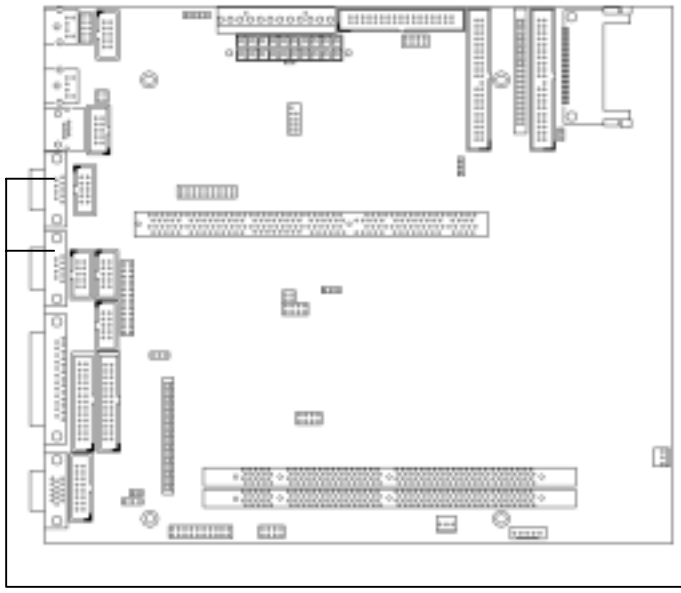


Pin	Signal
1	CD
2	DSR
3	RX
4	RTS
5	TX
6	CTS
7	DTR
8	RI
9	Ground
10	NC

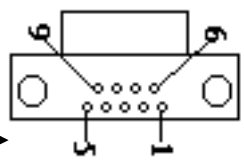


CN19, CN20: COM1/COM2 9-pin D-SUB Connector

The O671 supports COM1/COM2 D-Sub connectors onboard for directly inserting your device into the D-Sub.



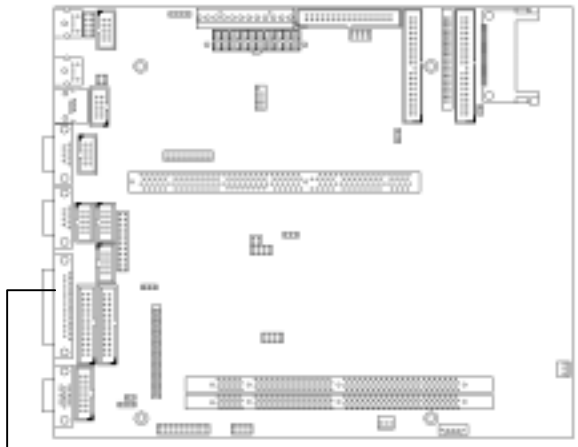
Pin	Assignment
1	CD
2	DSR
3	RX
4	RTS
5	TX
6	CTS
7	DTR
8	RI
9	Ground



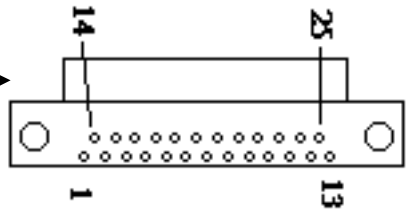
(Top View)

CN24: LPT1 25-pin D-Sub Connector

The O671 supports one D-Sub LPT connector to connect the LPT device directly.



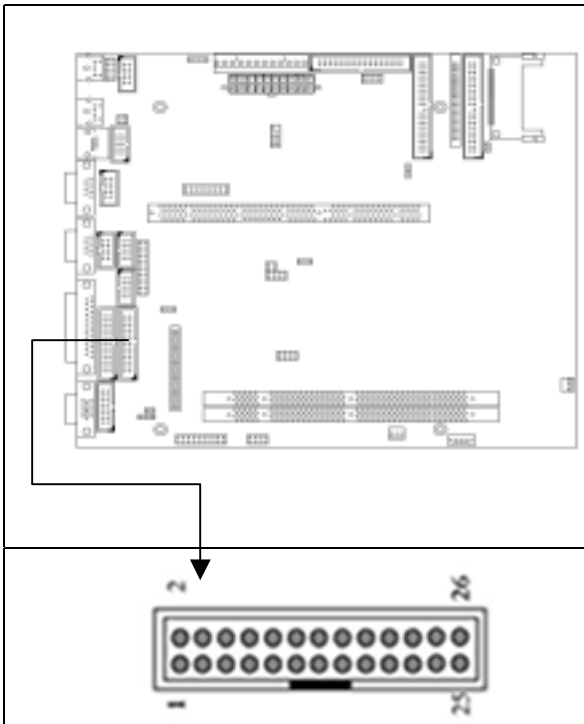
Pin	Assignment	Pin	Assignment
1	STROBE	14	AUTO FEED
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SELECT IN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SELECT		



(Top View)

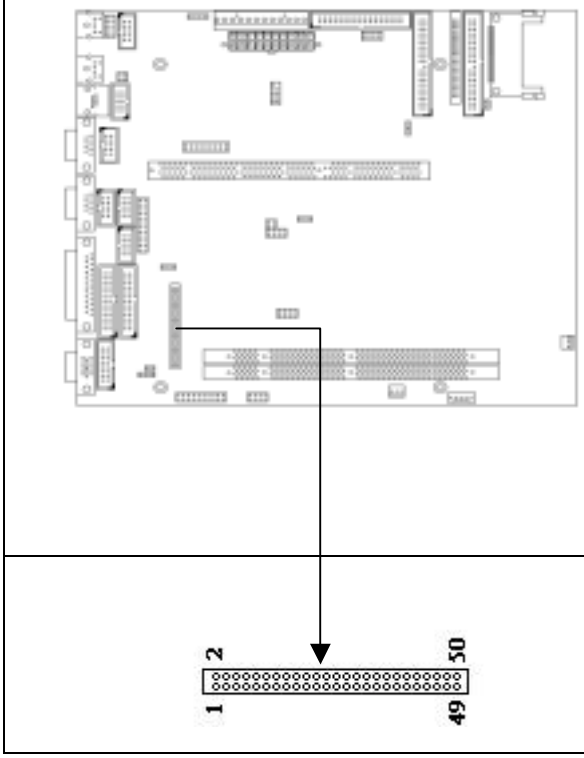
CN25, CN26: LPT1/LPT2 26-pin Header Connector

The O671 supports 26-pin connectors through CN25 and CN26



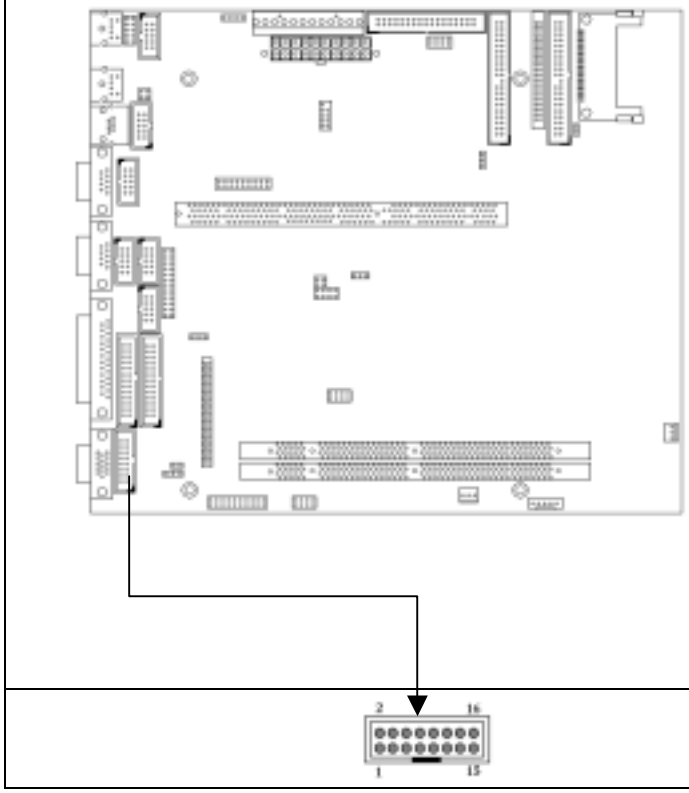
Pin	Assignment	Pin	Assignment
1	STROBE	2	AUTO FEED
3	PD0	4	ERROR
5	PD1	6	INIT
7	PD2	8	SELECT IN
9	PD3	10	Ground
11	PD4	12	Ground
13	PD5	14	Ground
15	PD6	16	Ground
17	PD7	18	Ground
19	ACK	20	Ground
21	BUSY	22	Ground
23	PE	24	Ground
25	SELECT	26	Ground

CN27: LCD Panel Connector



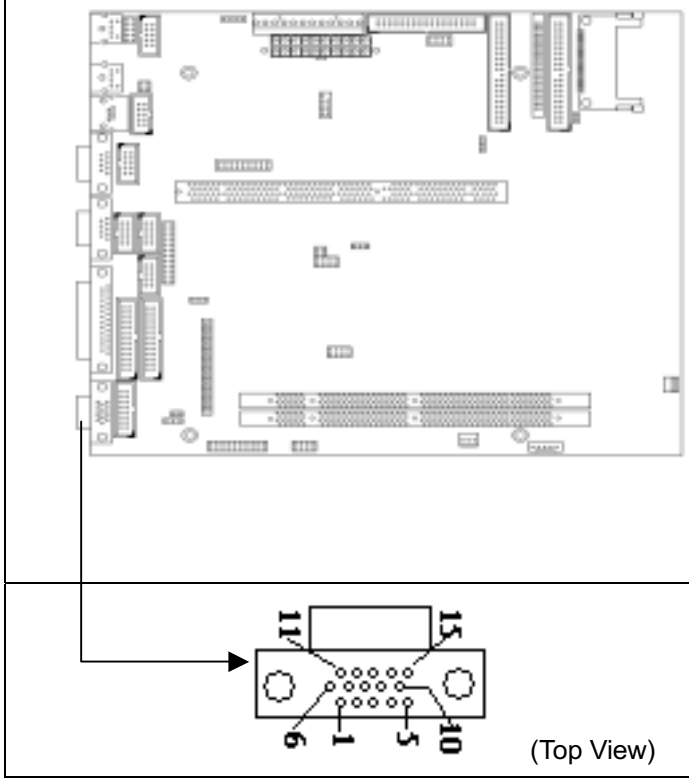
Pin	Signal	Pin	Signal	Pin	Signal
1	+12V	17	P8	33	P24
2	+12V	18	P9	34	P25
3	Ground	19	P10	35	SHFCLK
4	Ground	20	P11	36	FLM
5	+5V	21	P12	37	M
6	+5V	22	P13	38	LP
7	ENAVEE	23	P14	39	Ground
8	Ground	24	P15	40	ENABKL
9	P0	25	P16	43	P28
10	P1	26	P17	44	P29
11	P2	27	P18	45	P30
12	P3	28	P19	46	P31
13	P4	29	P20	47	P32
14	P5	30	P21	48	P33
15	P6	31	P22	49	P34
16	P7	32	P23	50	P35

CN28: 16-pin Header CRT Display Connector



Pin	Signal
1	RED
2	GREEN
3	BLUE
4	NC
5	Signal Ground
6	Chassis Ground
7	Chassis Ground
8	Chassis Ground
9	NC
10	Signal Ground
11	NC
12	DDC Data
13	H-SYNC
14	V-SYNC
15	DDC Clock
16	NC

CN29: CRT Display D-Sub Connector

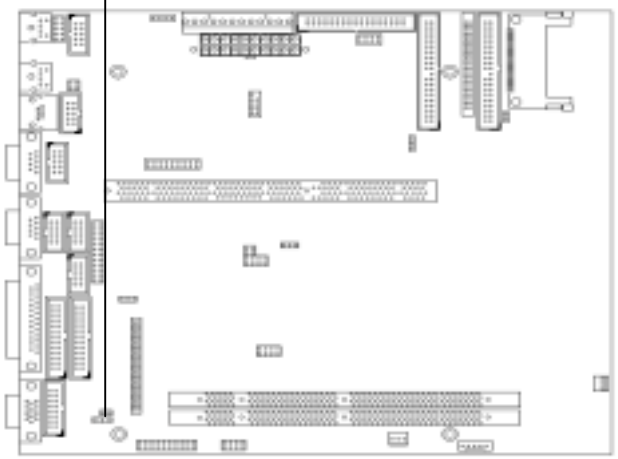


(Top View)

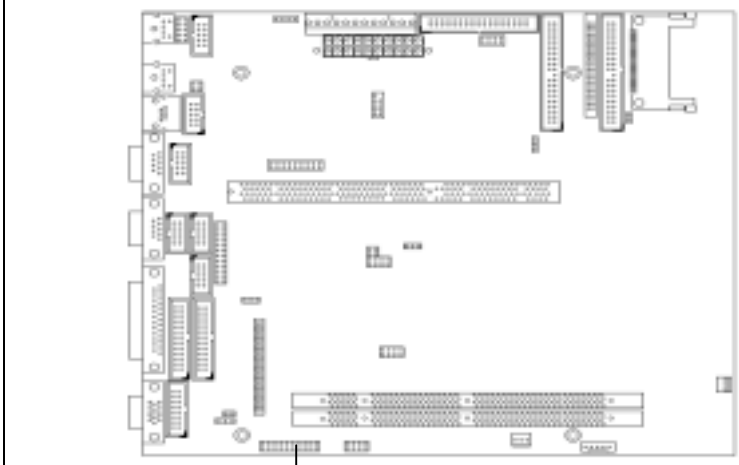
Pin	Signal
1	RED
2	GREEN
3	BLUE
4	NC
5	Ground
6	Ground
7	Ground
8	Ground
9	NC
10	Ground
11	NC
12	DDC Data
13	H-SYNC
14	V-SYNC
15	DDC Clock

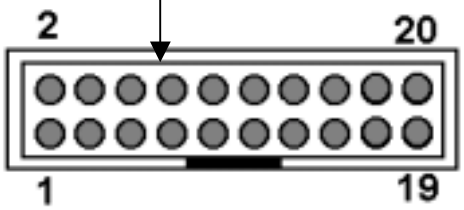
CN30: LCD Backlight Connector

Pin	Assignment
1	Power Pin (5/12V)
2	Ground



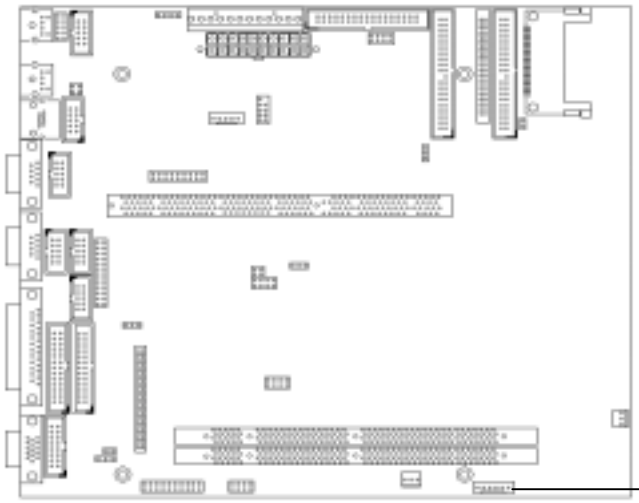
CN31: GPIO Port



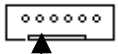


Pin	Assignment
1	+5V
2	+3.3V
3	GPI0
4	GPI1
5	GPI2
6	GPI3
7	GPI4
8	GPI5
9	GPI6
10	GPI7
11	Ground
12	Ground
13	GPO0
14	GPO1
15	GPO2
16	GPO3
17	GPO4
18	GPO5
19	GPO6
20	GPO7

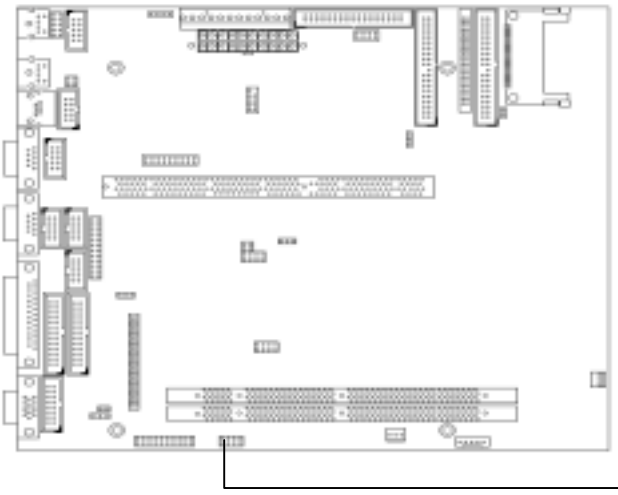
CN32: SMBus Connector



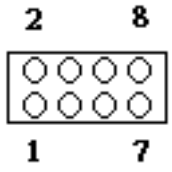
Pin	Assignment
1	Ground
2	+5V
3	SMBus CLK
4	SMBus Data
5	+12V
6	NC



CN33: Isolated Output Connector



Pin	Assignment
1	+5V
2	+5V
3	OUT0
4	OUT1
5	+12V
6	+5V
7	Ground
8	Ground



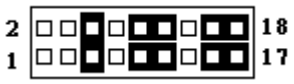
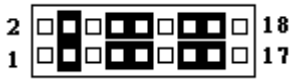
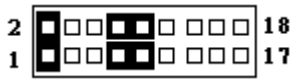
JP1: CompactFlash Mode Select

Setting		Define
	Closed	Closed for Master
	Open	Opened for Slave

JP2: Clear CMOS

Setting		Define
	1-2	Hold Data
	2-3	Clear CMOS

JP3: COM2 Mode Select

Setting		Function
	5-6, 9-11, 10-12, 15-17, 16-18	RS-232 (Default)
	3-4, 7-9, 8-10, 13-15, 14-16	RS-422
	1-2, 7-9, 8-10	RS-485

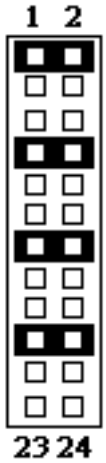
JP4: Watch Dog Output Select

Setting		Define
	1-2	Reset
	3-4	IRQ11

JP5: GPIO Port Base Address Select

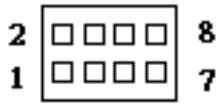
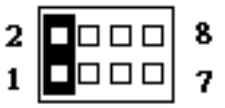
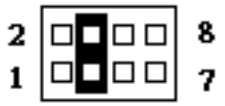
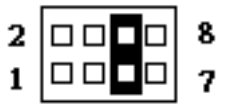
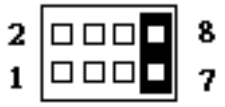
Setting	Setting	Address
	Open	2E0h
	Close Open	300h

JP6: RI/Voltage Select for COM1/COM2/COM3/COM4

Setting	Setting	COM Port	RI/Voltage
	1-2	COM1	RI (Default)
	3-4	COM1	+5V
	5-6	COM1	+12V
	7-8	COM2	RI (Default)
	9-10	COM2	+5V
	11-12	COM2	+12V
	13-14	COM3	RI (Default)
	15-16	COM3	+5V
	17-18	COM3	+12V
	19-20	COM4	RI (Default)
	21-22	COM4	+5V
	23-24	COM4	+12V

JP7: DiskOnChip Address Select

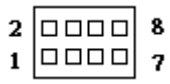
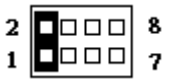
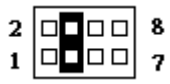
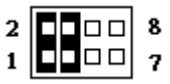
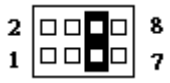
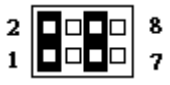
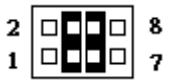
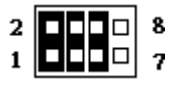
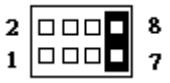
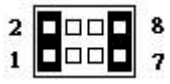
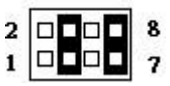
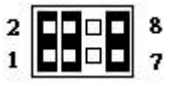
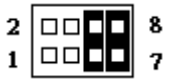
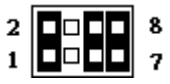
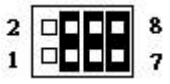
You can select the DiskOnChip address by setting JP7. The DOC occupies an 8Kbyte window in the upper memory address range of D0000 to EFFFF. These addresses might be already occupied by the ROM BIOS of other peripheral. Please select the appropriate memory address to avoid memory conflicts.

Setting		DOC Address
	All open	Disable
	1-2 close	D0000h-D3FFFh
	3-4 close	D4000h-D7FFFh
	5-6 close	D8000h-DBFFFh
	7-8 close	DC000h-DFFFFh

JP8: LCD Voltage Select

Setting		Define
	1-2	+5V
	2-3	+3.3V(Default)

JP9: Flat Panel Type Select

Setting		Resolution/Type	
	All Open	1024 x 768	TFT
	1-2 Close	1024 x 600	DSTN
	3-4 Close	1280 x 1024	DSTN
	1-2, 3-4 Close	1024 x 768	TFT
	5-6 Close	800 x 600	DSTN
	1-2, 5-6 Close	800 x 600	DSTN
	3-4, 5-6 Close	800 x 600	TFT
	1-2, 3-4, 5-6 Close	800 x 600	TFT
	7-8 Close	800 x 600	TFT
	1-2, 7-8 Close	1024 x 768	TFT
	3-4, 7-8 Close	640 x 480	TFT 18-bit
	1-2, 3-4, 7-8 Close	640 x 480	TFT Sharp
	5-6, 7-8 Close	1024 x 768	DSTN
	1-2, 5-6, 7-8 Close	1024 x 768	DSTN
	3-4, 5-6, 7-8 Close	1280 x 1024	TFT
	All Close	1024 x 768	DSTN

JP10: LCD Backlight Voltage Select

Setting		Define
	1-2	+5Vt
	2-3	+12V

Chapter 3. BIOS Setup

The ROM chip of your O671 board is configured with a customized Basic Input/Output System (BIOS) from Phoenix-Award BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup programs, so no disk-based setup program is required CMOS RAM stores information for:

- Date and time
- Memory capacity of the main board
- Type of display adapter installed
- Number and type of disk drives installed

The CMOS memory is maintained by battery installed on the O671 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery or the battery power lose.

3.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "LOAD OPTIMIZED DEFAULT" from the main menu. This loads the Optimized Default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose "STANDARD CMOS FEATURES" from the main menu. This option lets you configure the date and time, hard disk drive type, floppy disk drive type, primary display, and more.
3. In the main menu, press F10 ("Save & Exit Setup") to save your changes and reboot the system.

3-2 Entering the CMOS Setup Program

Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run he Setup program after you:

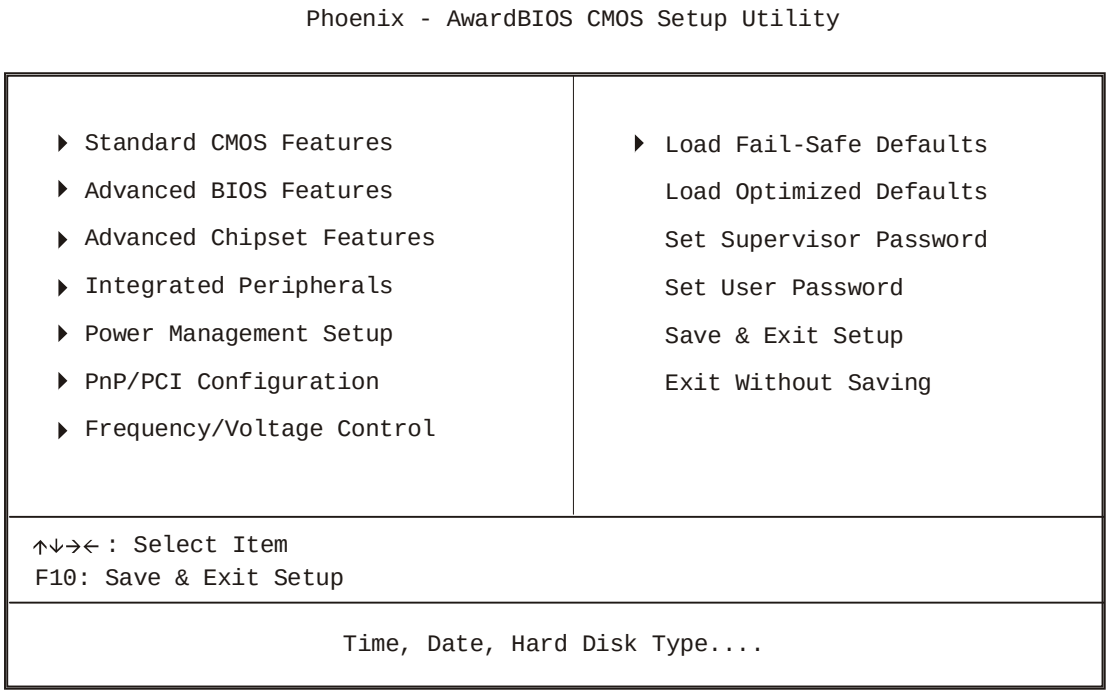
- Receive an error code at startup

- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Phoenix-Award Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

⇩ **Enter the CMOS Setup program's main menu as follows:**

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter the CMOS Setup program. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

In the main menu, press F10 ("Save & EXIT SETUP") to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

3.3 Menu Options

The main menu options of the CMOS Setup program are described in the table below and in the following sections of this chapter.

Option	Function
STANDARD CMOS FEATURES	Configure the date & time, hard disk drive type, floppy disk drive type, primary display type and more
ADVANCED BIOS FEATURES	Configure advanced system options such as enabling/disabling cache memory and shadow RAM
ADVANCED CHIPSET FEATURES	Configure advanced chipset register options such as DRAM timing
INTEGRATED PERIPHERALS	Configure onboard I/O functions
POWER MANAGEMENT SETUP	Configure power management features such as timer selects
PNP/PCI CONFIGURATION	Configure Plug & Play IRQ assignments and PCI slots
PC HEALTH STATUS	Configure the CPU temperature
FREQUENCY/VOLTAGE CONTROL	Change CPU Clock
LOAD FAIL-SAFE DEFAULT	Loads Fail-Sale default values. Use this option as a diagnostic aid if your system behaves erratically.
LOAD OPTIMIZED DEFAULTS	Loads optimized BIOS settings
SET SUPERVISOR/USER PASSWORD	Configure the system so that a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter the CMOS Setup main menu, but you can not enter other menus in the CMOS Setup program
SAVE & EXIT SETUP	Save changes of values to CMOS and exit the CMOS setup program
EXIT WITHOUT SAVING	Abandon all CMOS changes and exit the CMOS setup program

3.3.1 Standard CMOS Setup

Use the Standard CMOS Setup option as follows:

1. Choose "STANDARD CMOS Features" from the main menu. The following screen appears:

```
                Phoenix - Award BIOS CMOS Setup Utility
                        Standard CMOS Features

  Date (mm:dd:yy)      Mon, Jan 21 2002          |
  Time (hh:mm:ss)      10 : 40 : 23              |        Item Help
                                                 |
▸ IDE Primary Master   <NONE>                    |  Menu Level ▸
▸ IDE Primary Slave    <NONE>                    |  Change the day, month,
▸ IDE Secondary Master <NONE>                    |  Year and Century
▸ IDE Secondary Slave  <NONE>                    |
                                                 |
  Drive A              <1.44M, 3.5 in.>          |
  Drive B              <None>                    |
                                                 |
  Video                <EGA/VGA>                 |
  Halt On              <All, But Keyboard>       |
  Base Memory          640K                      |
  Extend Memory        261120K                   |
  Total Memory         262144K                   |

↑↓→← Move  Enter:Select +/-/PU/PD:Value  F10:Save ESC:Exit  F1:General Help
 F5:Previous Value      F6:Fail-Safe Default          F7:Optimized Defaults
```

2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDn/+/- keys. Some fields let you enter numeric values directly.

Option	Description
Date (mm:dd:yy)	Type the current date
Time (hour:min:sec)	Type the current time (24-hour clock)
Hard Disks	Choose from "Auto", "User", or "None" If your drive is not one of the predefined types, choose "User" and enter the following drive specifications: Cylinders, heads, Wpcom, L-Zone, sectors, and mode. Consult the documentation received with the drive for the values that will give you optimum performance.
Drive A Drive B	Choose: None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5" 2.88M 3.5"
Video	Choose: EGA/VGA CGA 40

	CGA 80 Mono
Halt On	Controls whether the system stops in case of an error detected during power up. Choose: All Errors No Errors All, But Keyboard (Default) All, But Diskette All, But Disk/Key

3. After you have finished with the Standard CMOS Features program, press the <ESC> key to return to the main menu.

3.3.2 Advanced BIOS Features

⇩Use the Advanced BIOS Features Setup option as follows:

1. Choose "ADVANCED BIOS FEATURES SETUP" from the main menu. The following screen appears:

```
                Phoenix - Award BIOS CMOS Setup Utility
                        Advanced BIOS Features

   Virus Warning                 <Disabled>            Item Help
   CPU Internal Cache            <Enabled>
   External Cache                <Enabled>      Menu Level  ▶
   CPU L2 Cache ECC Checking     <Enabled>      Allows you to choose
   Quick Power On Self Test      <Enabled>      the VIRUS warning
   First Boot Device             <Floppy>       feature for IDE Hard
   Second Boot Device            <HDD-0>        Disk boot sector
   Third Boot Device             <Ls120>        protection.  If this
   Boot Other Device             <Enabled>      function is enabled
   Swap Floppy Drive             <Disabled>     and someone attempt to
   Boot Up Floppy Seek           <Enabled>      write data into this area,
   Floppy Disk Access Control    <R/W>          BIOS will show
   Boot Up NumLock Status        <On>           a waring message on
   Gate A20 Option               <Fast>         screen and alarm beep
   Typematic Rate Setting        <Disabled>
 X Typematic Rate (Chars/Sec)    <6>
 X Typematic Delay (Msec)        <250>
   Security Option               <Setup>
   OS Select For DRAM > 64MB     <Non-OS2>
   Report No FDD For WIN 95      <No>
   Video BIOS Shadow             <Enabled>
   C8000 - CBFFF Shadow          <Disabled>
   CC000 - CFFFF Shadow          <Disabled>
   D0000 - D3FFF Shadow          <Disabled>
   D4000 - D7FFF Shadow          <Disabled>
   D8000 - DBFFF Shadow          <Disabled>
   DC000 - DFFFF Shadow          <Disabled>
   Small Logo (EPA) Show         <Disabled>

 ↑↓→← Move  Enter:Select +/-/PU/PD:Value  F10:Save ESC: Exit F1: General Help
  F5:Previous Value      F6:Fail-Safe Default          F7:Optimized Defaults
```

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDn keys. Press the <F1> "Help" key for information on the available options:

Option	Description
Virus Warning	When enabled, any attempt to write to 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 disk to reboot and clean your system. The default setting is Disabled.
CPU Internal Cache	Enable the CPU internal cache. The default setting is Enabled
External Cache	Enable the external cache. The default setting is Enabled
CPU L2 Cache ECC Checking	Enables/Disables checking of the CPU L2 cache ECC function
Quick Power On Self Test	Speeds up POST after turning on the computer. When enabled, this setting will shorten or skip some check items during POST.
Swap Floppy Drive	Swaps the drive designation for A: and B: floppy disk drives
Boot Up Floppy Seek	When enabled, the BIOS will check whether there is a floppy disk drive installed. The default setting is Enabled
Boot Up NumLock Status	Choose On or Off. On puts the numeric keypad in Num Lock mode at boot-up. Off puts the numeric keypad in arrow key mode at boot-up
Gate A20 Option	Choose Enabled or Disabled. Enable this option to allow RAM accesses above 1MB using the fast gate A20 line. This option makes accesses faster than normal, and is useful in networking operating systems.
Typematic Rate Setting	Choose Enabled or Disabled. Enable this option to adjust the keystroke repeat rate. Adjust the rate via Typematic Rate Delay and Typematic Rate
Boot Seq & Floppy Setup	By default, the BIOS attempts to first boot from drive A: and then, if unsuccessful, from drive C: You can change this sequence from A, C, D~F, CD-ROM, SCSI, LS120, ZIP or USB_Devices
Typematic Rate(Chars/Sec)	Choose the rate at which character keeps repeating
Typematic Delay (Msec)	Choose the delay between holding down a key and when the character begins repeating
Security Option	Choose Setup or System. This lets you specify whether a

	password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program. "Setup" – The password prompt only appears if you attempt to enter the CMOS Setup program. "System" – The password prompt appears each time the system is booted. Note: The password function is disabled by default. For a description of enabling the password function, refer to the section :Supervisor Password & User Password" later in this chapter.
OS Select for DRAM>64MB	Set to OS/2 if your system is using OS/2 and has a memory size of more than 64MB
Video BIOS Shadow	When enabled, the ROM BIOS on the video display card is copied into system DRAM to enhance performance. The default setting is Enabled

3. After you have finished with the Advanced BIOS Features Setup, press the <ESC> key to return to the main menu.

3.3.3 Advanced Chipset Features Setup

Use this option to enable/disable features of the main board's chipset registers. The chipset manages bus speed and access to system memory resources such as DRAM. It also coordinates the communications between the conventional ISA bus and the PCI bus. These items should never need to be changed. The default settings have been chosen because they provide the best operating conditions for your system.

The first chipset setting deals with CPU access to DRAM. The default timings have been carefully chosen and should only be altered if data is lost. Such a scenario might occur if your system has mixed-speed DRAM chips installed, so that greater delays may be required to preserve the integrity of data held in the slower memory chips.

Change these settings only if you are thoroughly familiar with the chipset

⇩ Use the Advanced Chipset Features Setup option as follows:

1. Choose "ADVANCED CHIPSET FEATURES SETUP" from the main menu. The following screen appears:

```
Phoenix - Award BIOS CMOS Setup Utility
Advanced Chipset Features

Auto Configuration              <Enabled>      |
EDO DRAM Speed Selection        <60ns>         |        Item Help
EDO CASx# MA Wait State          1             |
EDO RASx# Wait State             2             |  Menu Level▸
SDRAM RAS-to-CAS Delay          <3>            |
SDRAM RAS Precharge Time        <3>            |
SDRAM CAS latency Time          <3>            |
SDRAM Precharge Control         <Disabled>     |
DRAM Data Integrity Mode        <Non-ECC>      |
System BIOS Cacheable           <Disabled>     |
Video BIOS Cacheable            <Disabled>     |
Video RAM Cacheable             <Disabled>     |
8 Bit I/O Recovery Time         <1>            |
16 Bit I/O Recovery Time        <1>            |
Memory Hole AT 15M-16M          <Disabled>     |
Passive Release                 <Enabled>      |
Delayed Transaction             <Disabled>     |

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC: Exit F1: General Help
 F5:Previous Value      F6:Fail-Safe Default          F7:Optimized Defaults
```

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUp/PgDn keys. For information on the various options, press the <F1> key.

Option	Description
Auto Configuration	Choose Enabled/Disabled. When enabled, selects predetermined optimal values for DRAM. When disabled, chipset parameters revert to setup information stored in CMOS. ***Note: When this item is enabled, the predefined items will become SHOW-ONLY.***
EDO DRAM Speed Select	Choose 50ns or 60ns. The value is this field must correspond to the speed of the DRAM installed in your system. This value is access speed, where a lower value means a faster system.
EDO CASx# MA Wait State	Lets you select the timing control type of the EDO DRAM CAS memory address bus. Choose 1 or 2.
EDO RASx# Wait State	Lets you select the timing control type of the EDO DRAM RAS memory address bus. Choose RAS# to CAS#.
SDRAM RAS-to-CAS Delay	Determines the timing of the transition from RAS# to CAS#
SDRAM RAS Precharge Time	Determines the number of the CPU clocks allocated for the

	RAS# to accumulate its charge before DRAM is refreshed.
SDRAM CAS Latency Time	The values in this field were set according to the specification of the installed SDRAM type. If your SDRAM has the SPD IC installed, the BIOS will read the data and instruct you to set the latency to 2 for better performance when your SDRAM meets this timing specification.
SDRAM Precharge Control	Choose Enabled/Disabled. When enabled, the SDRAM RAS Precharge function is enabled.
DRAM Data Integrity Mode	When choose ECC, the system BIOS will automatically check your DIMM if it supports ECC or Non-ECC and will show this message on boot up screen. Choose Non-ECC when your DIMM does not support it.
System BIOS Cacheable	Choose Enabled/Disabled. When enabled, caching of the system BIOS at F0000h-FFFFFh is allowed, enhancing system performance. However, if any program writes to this memory area, a system error may occur.
Video RAM Cacheable	Choose Enabled/Disabled. When enable, caching of the video RAM at C0000h-F7FFFh is allowed, enhancing system performance. However, if any program writes to this memory area, a system error may occur.
8 Bit I/O Recovery Time	Choose NA or 1 to 8 CPU clocks. This option lets you determine the recovery time of 8-bit I/O. The I/O recovery mechanism adds bus cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is much faster than the ISA bus.
16 Bit I.O Recovery Time	Choose NA or 1 to 4 CPU clocks. This option lets you determine the recovery time of 16-bit I/O. The I/O recovery mechanism adds bus cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is much faster than the ISA bus.
Memory Hole	Choose Disabled/15M-16M. When enabled, lets you reserve a system memory area of 15M-16M for special ISA cards. The chipset accesses code/data of these areas from the ISA bus directly. Normally, these areas are reserved for memory-mapped I/O cards.
Passive Release	Choose Enabled/Disabled if you have an ISA card compatibility problem. When enabled, this option lets you control the Passive Release function of the chipset. This

	function is used to meet the latency of the ISA bus master.
Delayed Transaction	Choose Enabled/Disabled if you have an ISA card compatibility problem. When enabled, this option lets you control the Delayed Transaction function of the chipset. This function is used to meet the latency of the PCI cycles to or from the ISA bus.

3. After you finished with the Advanced Chipset Features Setup, press the <ESC> key to return to the main menu.

Integrated Peripherals

Use this setup to configure onboard I/O functions.

⇩ **Use the Integrated Peripherals Setup option as follows:**

1. Choose "Integrated Peripherals Setup" from the main menu. The following screen appears:

```
                    Phoenix - Award BIOS CMOS Setup Utility
                            Integrated Peripherals

 ▶ IDE Primary Master PIO          <Auto>
   IDE Primary Slave PIO           <Auto>          Item Help
   IDE Secondary Master PIO        <Auto>
   IDE Secondary Slave PIO         <Auto>       Menu Level ▶
   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>
   IDE HDD Block Mode              <Enabled>
   KBC input clock                 <8 MHz>
   Onboard FDC Controller          <Enabled>
   Onboard Serial Port 1           <3F8/IRQ4>
   Onboard Serial Port 2           <2F8/IRQ3>
   UART Mode Select                <Normal>
 X UART2 Duplex Mode                Half
 X RxD, TxD Active                  Hi, Lo
 X IR Transmission delay            Enabled
   Onboard Parallel Port           <378/IRQ7>
   Parallel Port Mode              <SPP>
 X ECP Mode Use DMA                 3
 X EPP Mode Select                  EPP1.7
   Onboard Serial Port 3           <3E8>
   Serial Port 3 Use IRQ           <IRQ10>
   Onboard Serial Port 4           <2E8>
   Serial Port 4 Use IRQ           <IRQ11>
   Onboard Parallel Port 2 Use IRQ <IRQ9>
   Parallel Port 2 Mode            <SPP>
 X LPT2 ECP Mode Use DMA            0

↑↓→← Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC: Exit  F1: General Help
 F5:Previous Value      F6:Fail-Safe Default          F7:Optimized Defaults
```

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDn keys. Please press the <F1> key for information on the various options.

Option	Description
IDE Primary Master/Slave PIO	Lets you select a PIO mode for the onboard PCI IDE
IDE Secondary Master/Slave PIO	Lets you select a PIO mode for the onboard PCI IDE
On-Chip Primary PCI IDE	Enables/Disables the first/second onboard PCI IDE
USB Keyboard Support	Enables/Disables USB keyboard support
Init Display First	Lets you choose the priority of AGP and PCI VGA cards
IDE HDD Block Mode	Enables/Disables the IDE HDD Block Mode function Note: Not all drives support this function
KBC Input Clock	
Onboard FDC Controller	Enables/Disables the onboard FDD controller
Onboard Serial Port 1 and 2	Enables/Disables the onboard serial port 1 and 2 respectively
UART Mode Select	Choose Normal for general use or IrDA ASKIK for infrared use.
Onboard Parallel Port	Enables/Disables the onboard parallel port
Parallel Port Mode	Lets you select the parallel port mode
ECP Mode Use DMA	Select a DMA channel for the port
Onboard Serial Port 3 and 4	Enables/Disables the onboard serial port 3 and 4 respectively
IR Function Duplex	

3. After you finished with the Integrated Peripherals Setup, press the <ESC> key to return to the main menu.

3.3.4 Power Management Setup

The Power Management Setup controls the board's "green" features. To save energy, these features shut down the video display and hard disk drive.

⇩ **Use the Power Management Setup option as follows:**

1. Choose "Power Management Setup" from the main menu. The following screen appears:

```
                    Phoenix - Award BIOS CMOS Setup Utility
                              Power Management Setup

  ACPI Function                <Disabled>
  Power Managerment            <User Define>        Item Help
  PM Control by APM            <Yes>
  Video Off Method             <V/H SYNC+Blank>     Menu Level ▸
  Video Off After              <Standby>
  MODEM Use IRQ                <3>
  Doze Mode                    <Disable>
  Standby Mode                 <Disable>
  Suspend Mode                 <Disable>
  HDD Power Down               <Disable>
  Throttle Duty Cycle          <62.5%>
  VGA Active Monitor           <Disabled>
  Soft-Off by PWR-BTTN         <Instant-Off>
  PowerOn by Ring              <Enabled>
  Resume by Alarm              <Disabled>
X Date (of Month) Alarm         0
X Time (Hour) Alarm             7
X Time (Min.) Alarm             0
X Time (Sec.) Alarm             0
  Wake Up On LAN               <Enabled>
  IRQ8 Break Suspend           <Disabled>
  ** Reload Global Timer Events **
  IRQ <3-7, 9-15>, NMI         <Disabled>
  Primary IDE 0                <Disabled>
  Primary IDE 1                <Disabled>
  Secondary IDE 0              <Disabled>
  Secondary IDE 1              <Disabled>
  Floppy Disk                  <Disabled>
  Serial Port                  <Enabled>
  Parallel Port                <Disabled>
  Power On on PCI card         <Disabled>

↑↓→← Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC: Exit  F1: General Help
 F5:Previous Value      F6:Fail-Safe Default          F7:Optimized Defaults
```

2. Move between items and select values by using the arrow keys. Modify the selected field using the PgUP/PgDn keys. For information on the various options, press <F1> key.

Options	Description
ACPI Function	Enables/disables the ACPI function
Power Management	Choose Disable, User Define, Min Saving, or Max Saving User Define: Lets you specify when the HDD and system will shut down. Min Saving: Predefine timer value of 1 hour Max Saving: Predefined timer value of 1 minute
PM Control by APM	Choose Yes/No for Advanced Power Management. If APM is used,

	you must run POWER.EXE under DOS v6.0 or higher
Video Off Method	This determines the manner in which the monitor is blanked. V/H SYNC+Blank: This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer. Blank screen: This option only writes blanks to the video buffer. If you don't have a "green monitor", use this item. DPMS: This option allows the BIOS to control the video card if it has the DPMS features.
Video Off After	Choose the video off condition: NA/Suspend/Doze
MODEM Use IRQ	Choose the IRQ used by the modem. Default is 3.
Doze Mode	Sets the time for Doze mode or disables it
Standby Mode	Sets the time for Standby mode or disables it
Suspend Mode	Sets the time for Suspend mode or disables it
HDD Power Down	Sets the time for the HDD power down mode or disables it
Soft-Off by PWR-BTTN	Choose Instant-Off or Delay 4 Sec. Instant-Off: Causes the power to turn off immediately when you press the power button Delay 4 Sec: Causes the system to go to Suspend mode when you press the power button for less than 4 seconds. When you hold the button down for more than 4 seconds, the power goes off
PowerOn By Ring	Choose Enable or Disable. When enabled, the system will turn on when the modem rings.
Resume by Alarm	Choose Enable or Disable. When enabled, the system will turn on by an instruction from a network server. ***Note: For this function to operate, your LAN card must support the function.***

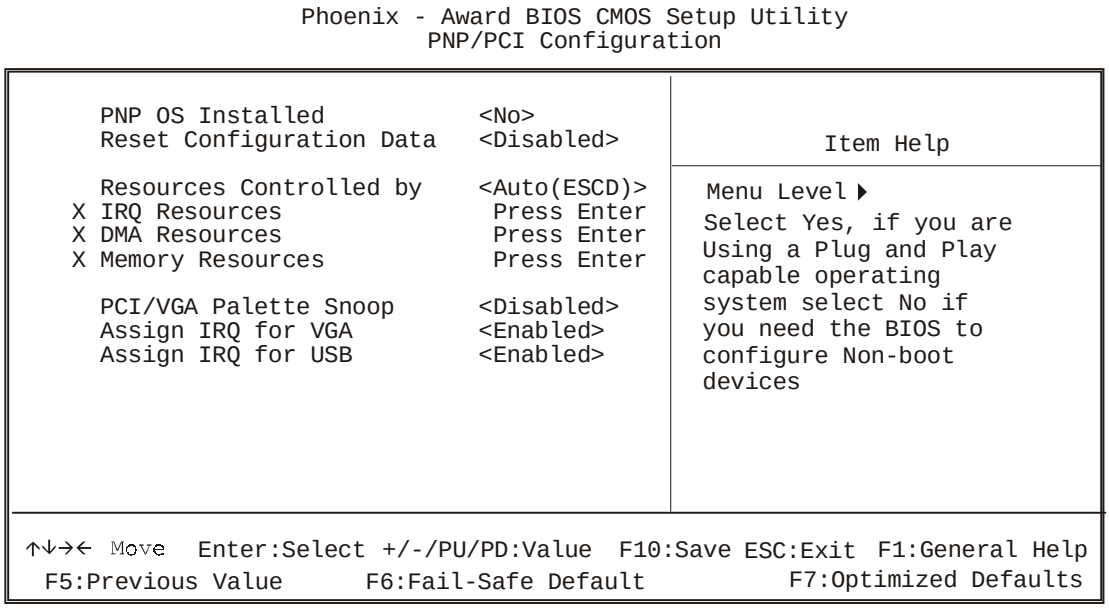
3. After you have finished with the Power Management Setup, press the <ESC> key to return to the main menu.

3.3.5 PNP/PCI Configuration

This option is used to configure Plug and Play assignments and route PCI interrupts to designated ISA interrupts.

⇩ **Use the PNP/PCI Configuration Setup option as follows:**

1. Choose "PNP/PCI Configuration Setup" from the main menu, the following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDn keys. For information on the various options, please press <F1> key.

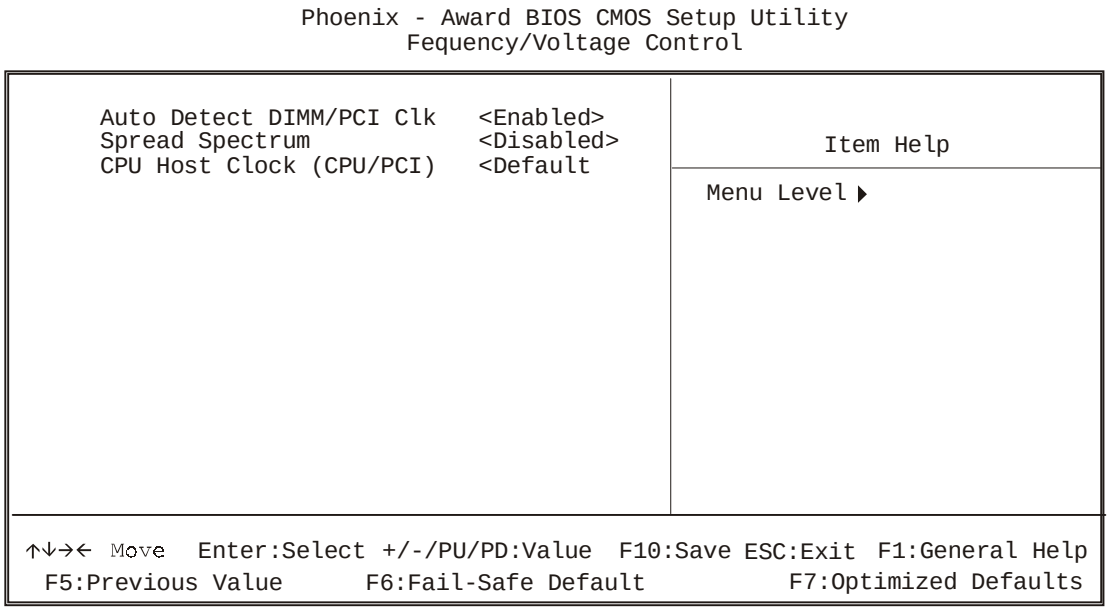
Option	Description
PNP OS Installed	Choose Yes or No. When Yes is selected, the OS will assign an IRQ
Reset Configuration Data	Choose Enable or Disable "Enable" – PNP configuration data is reset in BIOS "Disable" – PNP configuration data is retained in BIOS
Resources Controlled By	Choose Auto or Manual. This option specifies whether resources are controlled by automatic or manual configuration
IRQ Resources	Choose Legacy ISA or PCI/ISA PnP. Determines whether the IRQ is assigned to the ISA bus and thus is not available to any PCI slot
DMA Resources	Choose Legacy ISA or PCI/ISA PnP. Determines whether the DMA is assigned to the ISA bus and thus is not available to any PCI slot.
Assign IRQ for USB	Choose Enable or Disable. Specifies whether the USB used an

	IRQ or not
Assign IRQ for VGA	Choose Enable or Disable. Specifies whether the VGA uses an IRQ or not

3. Please press the <ESC> key to return to the main menu after finishing with the PNP/PCI Configuration Setup.

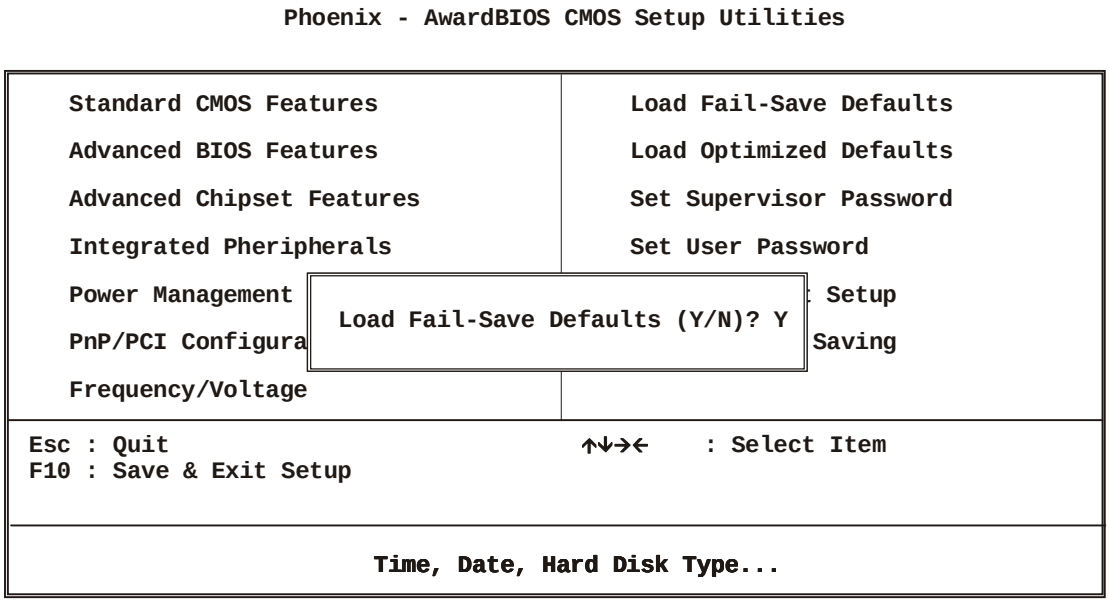
Frequency/Voltage Configuration

⇩**Use the Frequency/Voltage Control option as follows:**



3.3.6 Load Fail-Save Defaults

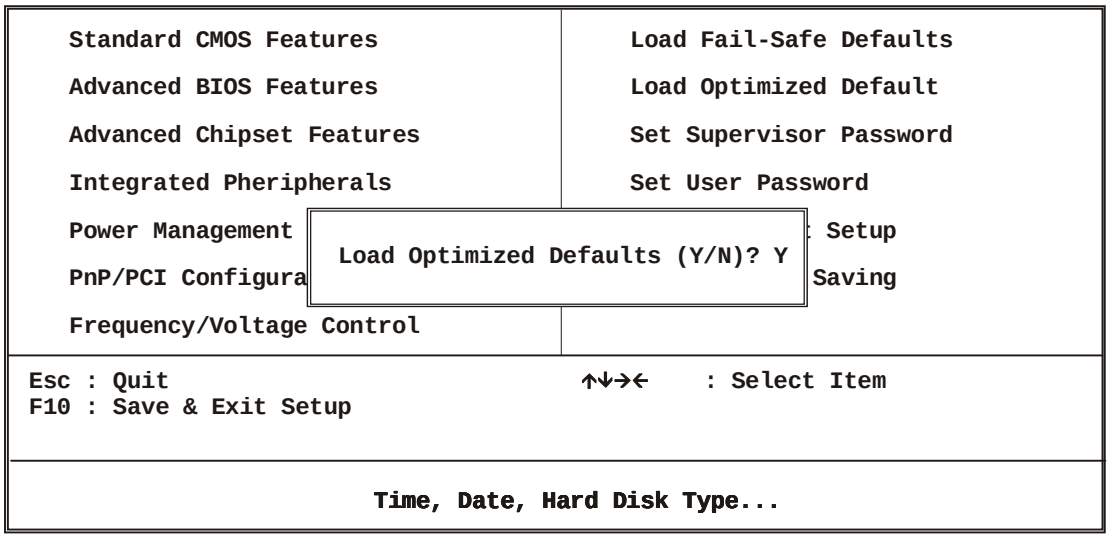
This option loads the troubleshooting default values permanently stored in the BIOS ROM. This is useful if you are having problems with the main board and need to debug or troubleshoot the system. The loaded default settings do not affect the Standard CMOS Setup screen.



To Use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the BIOS default values. Press the <Y> key and then press <Enter> if you want to load the BIOS default.

Load Setup Default

This option loads optimized settings stored in the BIOS ROM. The auto-configured settings do not affect the Standard CMOS Setup screen.



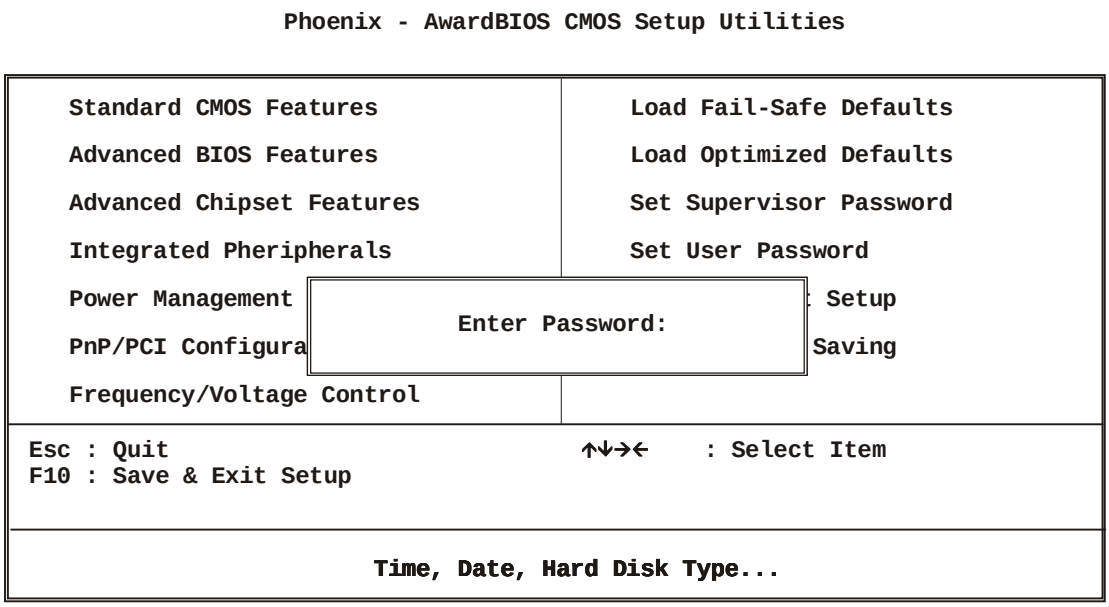
To Use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the SETUP default values. Press the <Y> key and then press <Enter> if you want to load the SETUP default

3.3.7 Supervise/User Password

The password options let you prevent unauthorized system boot-up or unauthorized use of CMOS setup. The Supervisor Password allows both system and CMOS Setup program access; the User Password allows access to the system and the CMOS Setup Utility main menu.

The password functions are disabled by default. You can use these options to enable a password function or, if a password function is already enabled, change the password.

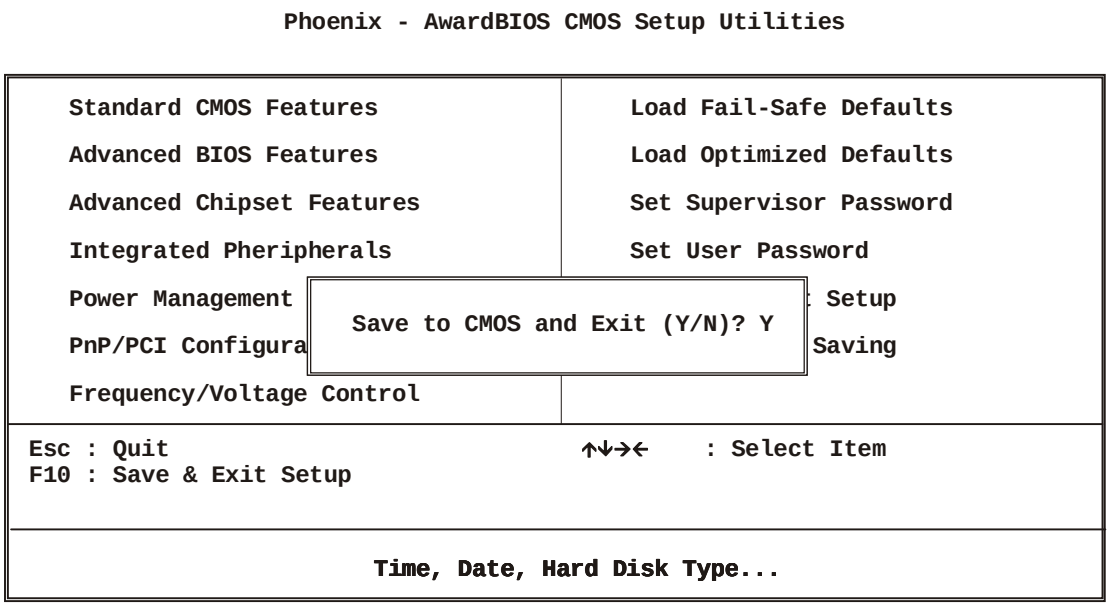
To change a password, first choose a password option from the main menu and enter the current password. Then type your new password at the prompt. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after entering the password. At the Next Prompt, confirm the new password by typing it and pressing <Enter> again.



After you use this option to enable a password function, use the "Security Option" in "BIOS Feature Setup" to specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program.

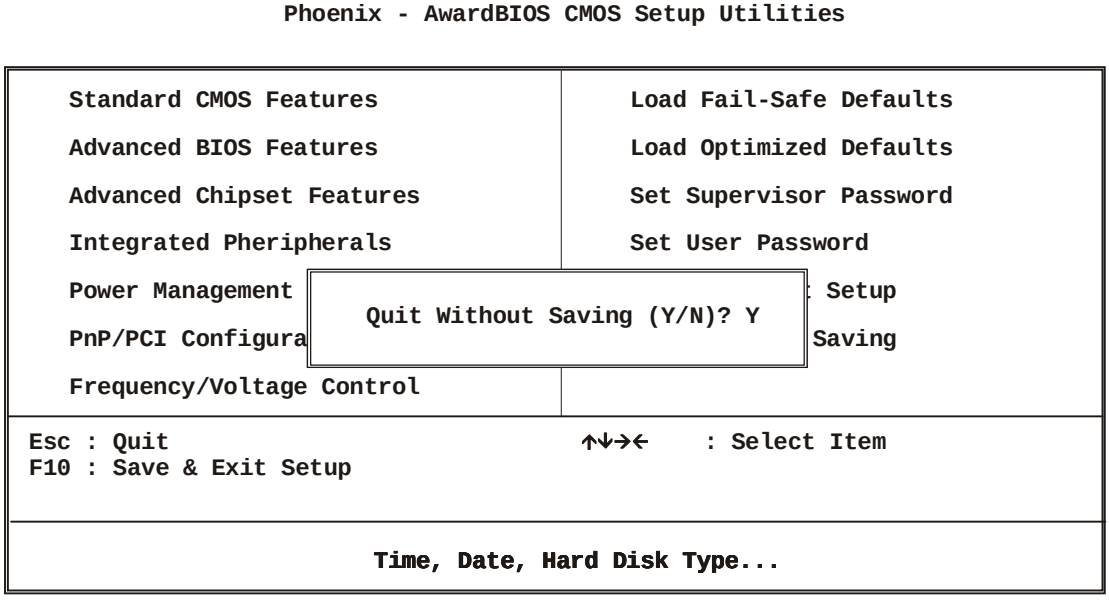
3.3.8 Save and Exit Setup

This function automatically saves all CMOS values before exiting Setup.



3.3.9 Exit Without Saving

Use this function to exit Setup without saving the CMOS value.



Chapter 4. Drivers and Utilities Setup

The AW-O671 Drivers and Utilities CD-ROM contains the following folders:

1. VGA: VGA drivers
2. Audio: Sound drivers
3. LAN: Realtek and Intel Ethernet drivers
4. Tools: BIOS Flash Utility
5. Manual: User's Manual for O671
6. Quicksetup: Quick Setup procedures of O671
7. Readme: User's Guide for O671

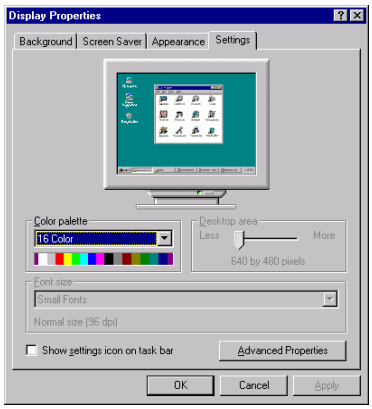
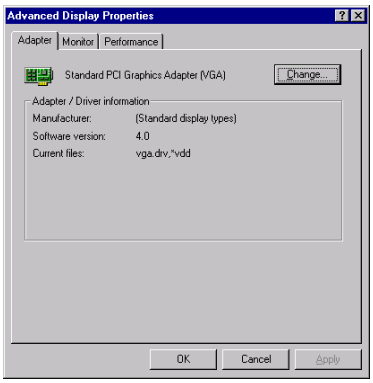
This chapter describes installing software from the Drivers and Utilities CD-ROM.

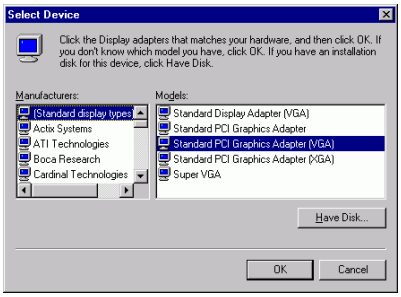
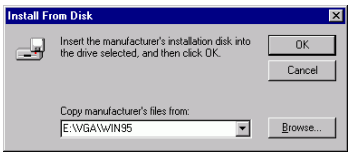
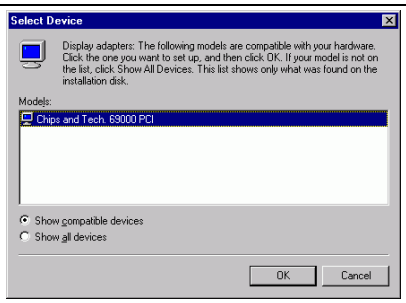
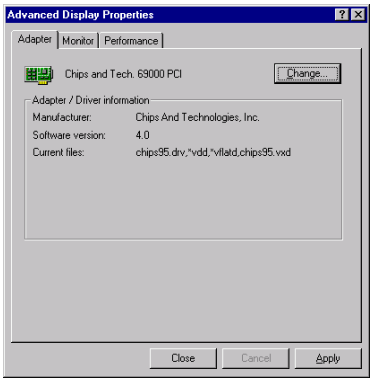
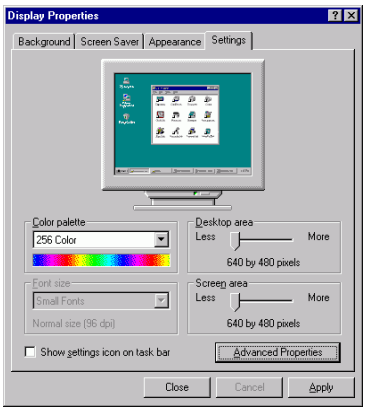
4.1 Installing the VGA Drivers

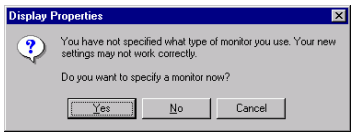
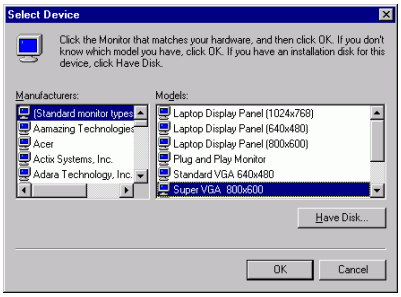
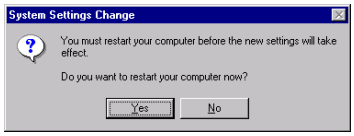
The O671 uses a C&T69000 series VGA chipset. It supports many popular flat panel and CRT display. With a C&T69000 series VGA chipset, 2MB of memory can drive the display with resolutions up to 1024 x 768 with 64K colors.

Installation for Windows 95/98

Please install the drivers for Windows 95/98 as follows:

1. Click **"Start"**, go to **"Settings"** and click **"Control Panel"**. Choose the **"Display"** icon and double-click the icon. Select the **"Settings"** tab, then click **"Advanced Properties".** The ***Advanced Display Properties*** screen appears.	
2. Select the "Adapter" tab and click "Change" to continue.	

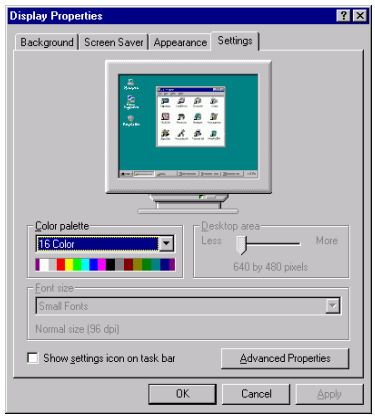
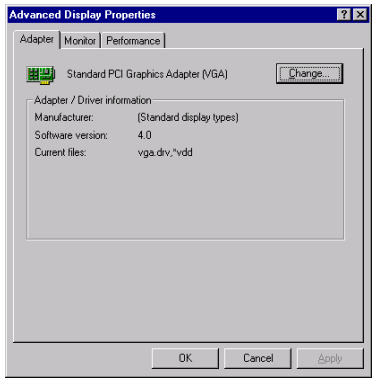
3. In the ***Select Device*** dialog box, click **"Have Disk".**	
4. Insert the Drivers and Utilities CD into the CD-ROM drive (example E:). Click **Browse** to find the INF file. For Windows 95, the "chips95.inf" file is located at **E:\vga\win95;** for Windows 98, the "chips98.inf" file is located at **E:\vga\win98.**	
5. Select the highlighted item and click **"OK"**.	
6. Click the **"Apply"** button.	
7. In the **Display Properties** dialog box, click **"Apply".**	

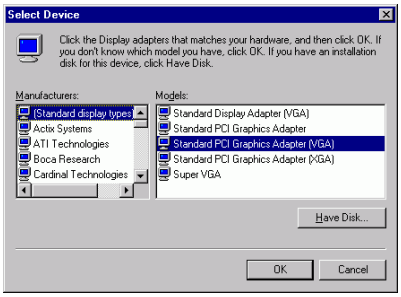
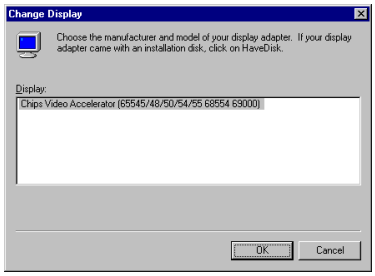
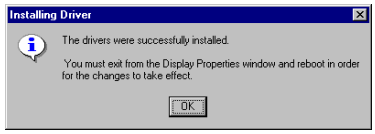
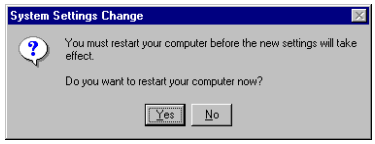
8. Click **"Yes"** to specify a monitor. You also select **"No"** to specify a monitor later after the setup is complete and you have rebooted.	
9. Choose the display type that you have and click **"OK".**	
10. Click **"Yes"** to restart the system for the new settings to take effect.	

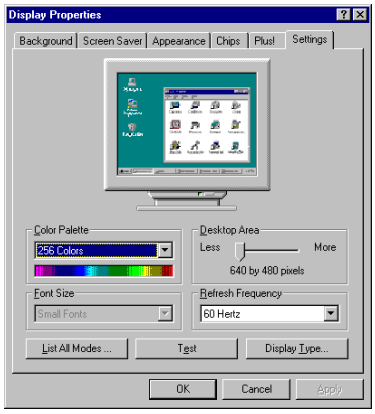
Installation for Windows NT

Please install the Windows NT 4.0 Server Pack 3 or later before you starting to install the drivers for Windows NT 4.0. Please contact your software vendor or download it from Microsoft's Web Site if you don't have the Windows NT 4.0 Server Pack 3 or later.

Please install the drivers for Windows NT as follows:

1. Click **"Start"**, go to **"Settings"** and click **"Control Panel"**. Choose the **"Display"** icon and double-click the icon. Select the **"Settings"** tab, then click **"Advanced Properties".** The ***Advanced Display Properties*** screen appears.	
2. Select the "Adapter" tab and click "Change" to continue.	

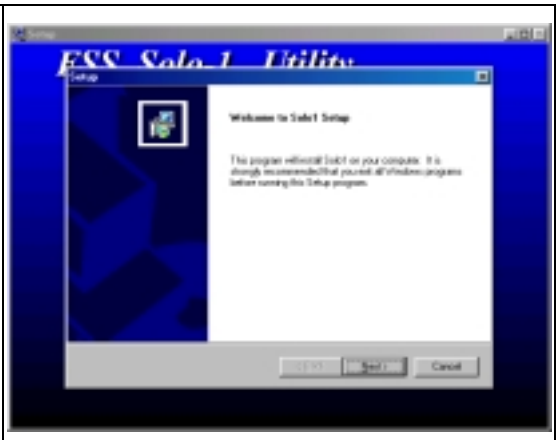
3. In the ***Select Device*** dialog box, click **"Have Disk".**	
4. Insert the Drivers and Utilities CD into the CD-ROM drive (example E:). Click **Browse** to find the INF file. For Windows NT, the "oemsetup.inf" file is located at **E:\vga\winNT4.0.**	
5. Select the highlighted item and click **"OK"**.	
6. Click **"Yes"** to proceed.	
7. Click **"OK"** to complete the installation.	
8. Click **"Yes"** to restart the system for the new settings to take effect.	

9. After the system has restarted, repeat step 1. Adjust the display resolution and color. Click **"Test"** to see the result. If the setting is correct, then click **"OK"** to save the setting.	

4.2 Installing the Sound Drivers

The O671 uses ESS Solo-1, please exit all Windows programs before running this Setup program.

Install the drivers for Windows95 as follows:

1. Please insert the CD-ROM into your CD-ROM drive bay. Please click "**setup"** to start the Sound driver installation. The configuration screen will appear, click "Next>" to the next step of installation. Path: \Audio\Win95\Setup.exe	
2. Choose One Function to Process and press "Next>" to next step of installation.	

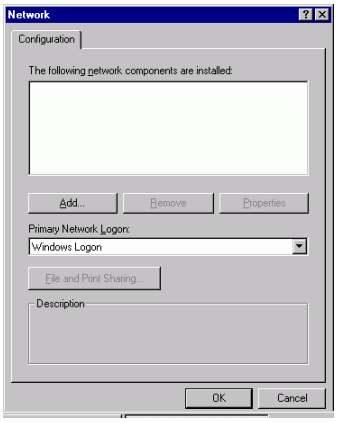
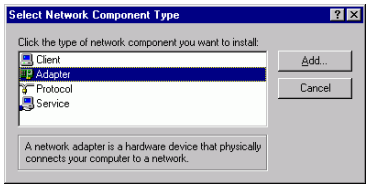
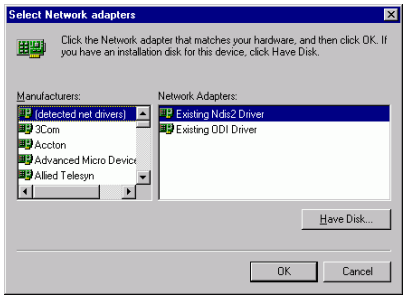
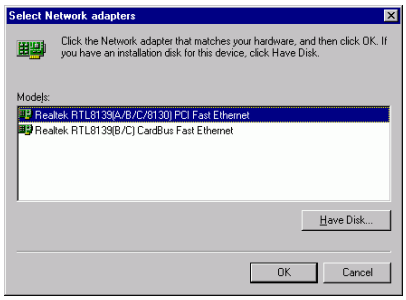
3. Choose One Function to Process and press "Next>" to the next step of installation.	
4. **Setup Complete**. Before you can use the program, you must restart your computer.	

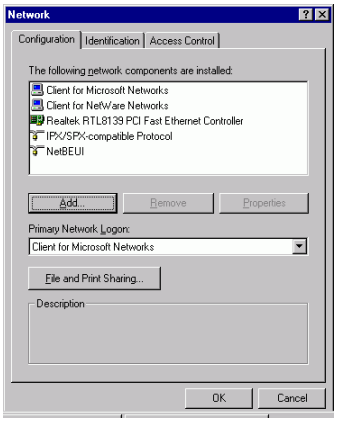
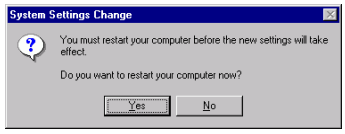
4.3 Installing the Ethernet Drivers

The O671 has a high-performance Ethernet chipset Intel® 82559xx or Realtek RTL8139C that provide 32-bit performance, PCI Bus master capability, fully compliance with the IEEE 802.3u 100Base-T specification, and IEEE 802.3x Full Duplex Flow Control. It supports the Advanced Configuration Power Management Interface (ACPI), PCI power management for modern operating systems that is capable of Operating System Directed Power Management (OSPM) to achieve the most efficient power management. It also supports remote wake-up in both ACPI and APM environments.

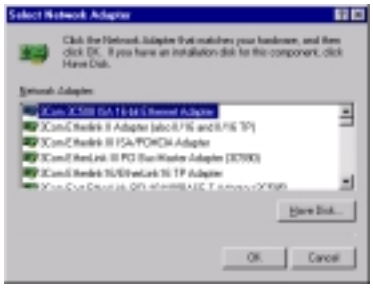
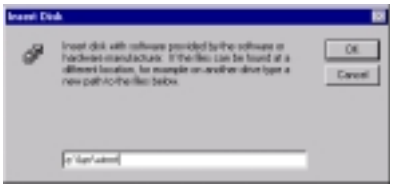
The Ethernet ports provide a standard RJ-45 jack. The O671 system BIOS incorporates network boot ROM image files for the network boot feature. It can be enabled or disabl*ed by* setting the option in BIOS setup.

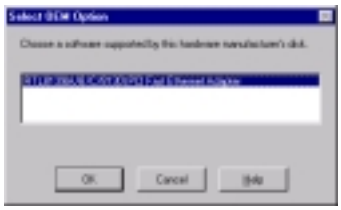
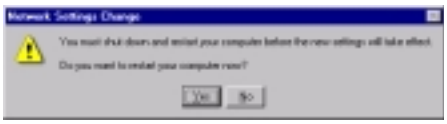
1. Installation for Windows 95/98 (Realtek RTL8139C)

1. Click **"Start"**, go to **"Settings"** and click **"Control Panel"**. Choose the **"Network"** icon and double-click the icon. The Configuration screen will appear. Click **"OK"** to continue.	
2. Select **"Adapter"** and click **"Add"**.	
3. Click **"Have Disk"** to continue.	
4. Insert the Drivers and Utilities CD into the CD-ROM drive (example E:). Click **Browse** to find the INF file. The file is located at **E:\8139C\win95(98).**	
5. Select **"Realtek RTL8139C (A/B/C/8130) PCI Fast Ethernet"** and click **"OK"**.	

6. Set the configuration of the related items and click **"OK"**.	
7. Click **"Yes"** to restart the system for the new settings to take effect.	

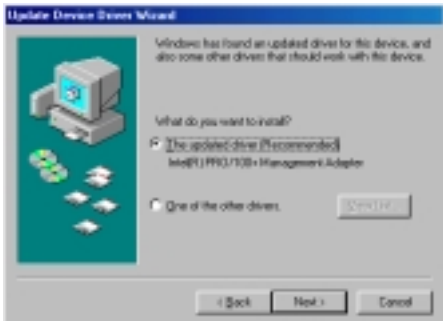
Installation for Windows NT

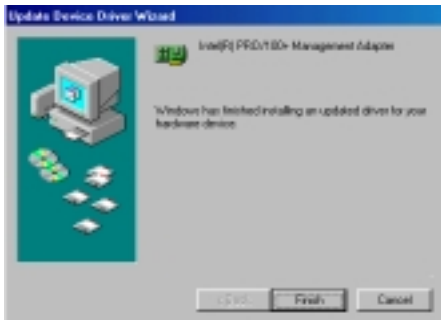
1. Click **"Start"**, go to **"Settings"** and click **"Control Panel"**. Choose the **"Network"** icon and double-click the icon. The Configuration screen will appear. Click **"Add"** to continue.	
2. Click **"Have Disk"** to continue.	
3. Insert the Drivers and Utilities CD into the CD-ROM drive (example E:). Click **Browse** to find the INF file. The file is located at **E:\8139C\winnt**	

4. Select **"Realtek RTL8139 (A/B/C/8130) PCI Fast Ethernet"** and click **"OK"**.	
5. Select **"(1) Auto"** for the Duplex Mode and click **"OK".**	
6. Setting the configuration of the related items and click **"OK"**.	
7. Click **"Yes"** to restart the system for the new settings to take effect.	

2. Installation for Windows95/98 (Intel 82559)

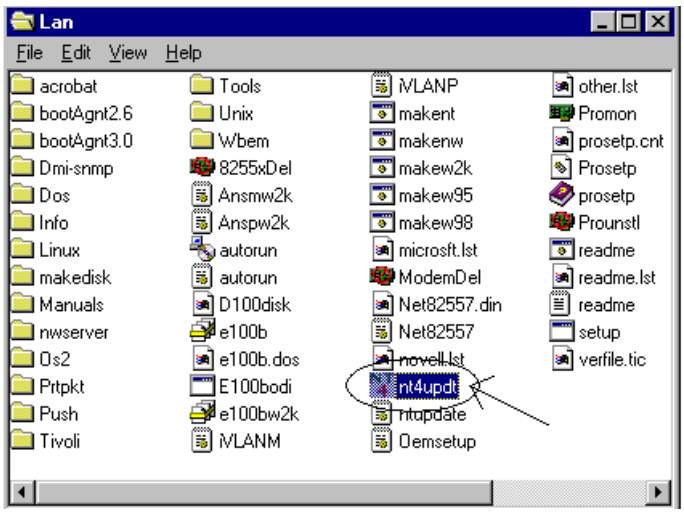
⇩ **Please install the drivers for Windows 95/98 as follows:**

1. Click "Start", go to "Settings" and click "Control Panel". Choose the "System" icon and double-click the icon. The System Properties screen will appear. Click "Network Adapters" to show the components found. Intel® Pro/100+Management Adapter is already found by your Windows System. Click to the Adapter bar to start driver setup .	
2. Next screen turns up to prompt to update the adapter driver. Click the "Update driver" button to set up the Intel® Pro/100+Management Adapter driver. You must follow the instructions shown in the subsequence screen until the "Finish" screen appears to instruct you to re-start system.	

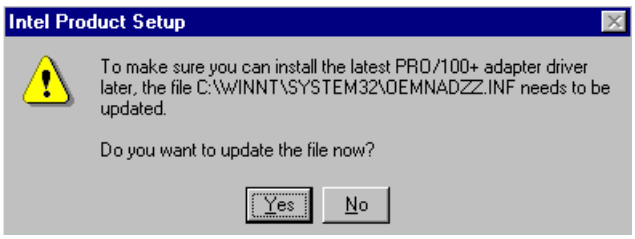
3. Insert the drivers and utilities CD into the CD-ROM drive (example E). Click "Browse" to find the INF file. The file is located at **E:\lan** Click "OK" to start setup	

Installing LAN Driver for Windows NT

Before setting up Intel Pro LAN Adaptor in your Windows NT, you must update your system. Please insert your O671 CD-ROM into your CD-ROM drive and open the folder for LAN Setup. Look for the program:"nt4updt" and click to it to update your system:

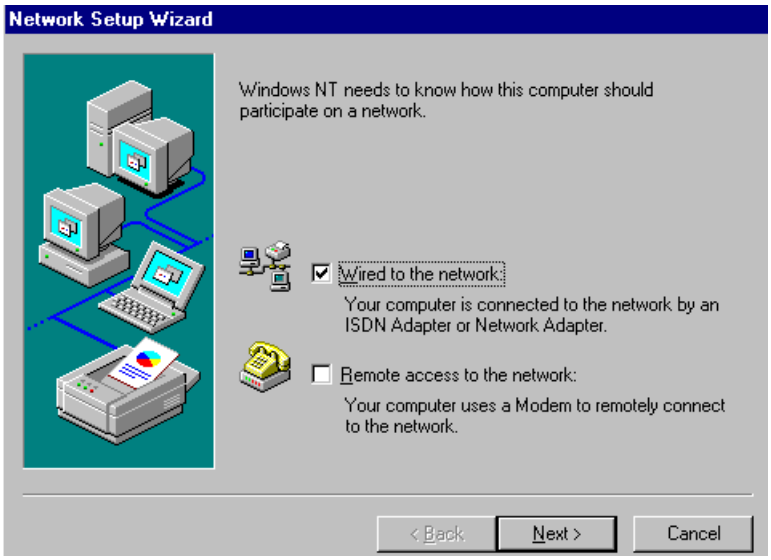


As soon as you click to the program "nt4updt", next screen will raise to ask you to update your System32. Click "Yes" to finish update and go on to set up Intel Pro LAN Adaptor and driver.

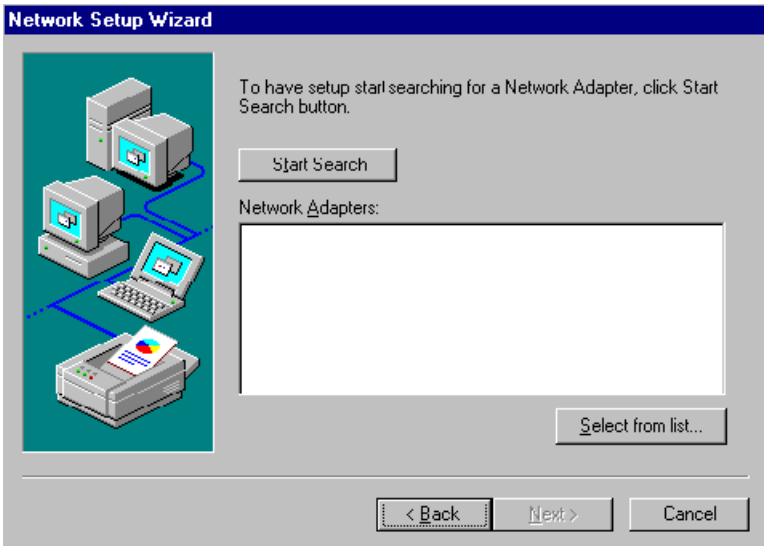


(1) To setup LAN Adaptor and Driver during WinNT Installation:

1. During WinNT installation, the setup program will ask you to install Windows NT Networking. Click "Next" to continue.
2. In the next screen, choose "Wired to the network" and click "Next" to continue



3. In the subsequent screen, select "Select from list" (do not select "Start Search") to setup Intel Pro LAN adapter and driver. Please remember to insert the O671 drivers CD-ROM into your CD-ROM drive now.

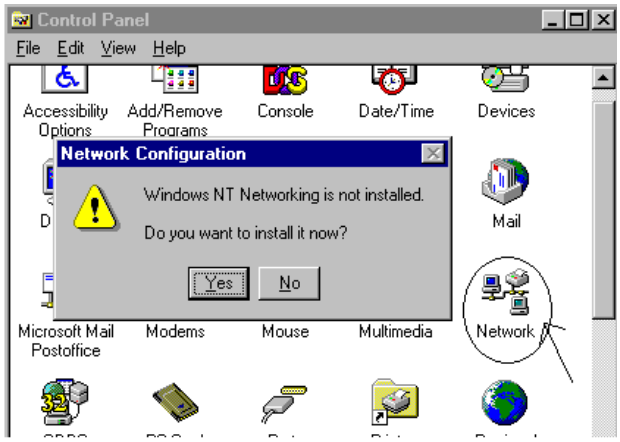


4. In next screen, click to "Have Disk", and the setup program will ask you to enter the correct path to locate the LAN driver. Please key in :\LAN under your CD-ROM drive and click "OK" to continue.
5. In a few seconds, the correct Adapter "Intel® PRO Adapter" is shown on next screen. Click "OK" to continue Adapter driver setup together with other network components till Setup program asks you to restart system.

.

(2) To setup LAN Adaptor and Driver on Existing WinNT system:

1. If you are running WinNT system without LAN driver completely installed , you should set up the LAN adaptor and driver from the "Network" of your system. Enter the "Control Panel" and click to "Network" to start setup.



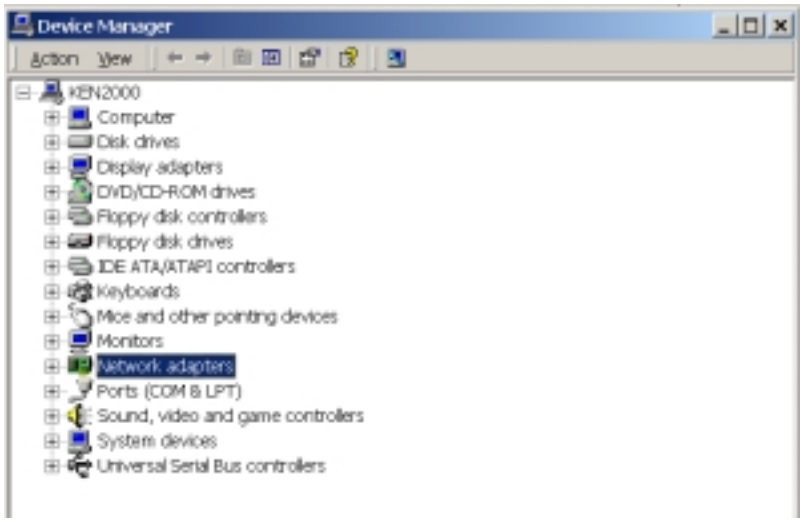
2. The subsequent screen will ask you to install the Windows NT Networking. Click "Yes" to setup.
3. The subsequent screens will guide you through the whole LAN Adaptor and Driver setup, which is similar to the LAN Driver Setup during WinNT installation.

Install LAN Driver for Windows 2000

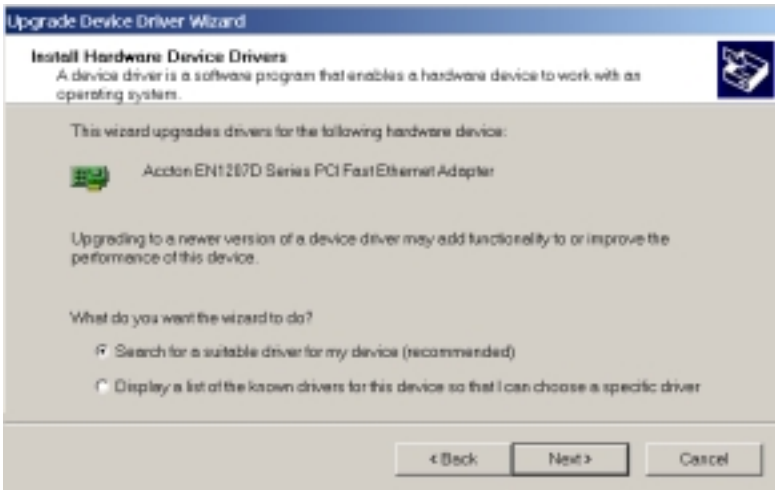
To install the Network Driver from Drivers CD:

Intel 82559 Chip for LAN is already mounted on board. To install the driver for this LAN controller, please take the following steps:

1. Insert the Intel adapter CD in the CD-ROM drive.
2. From the Control Panel, double-click the System icon, select the Hardware tab, and click the "Device Manager" button.
3. Select "Network Adapters" and right-click on the adapter listing to display its menu. Then click the Properties menu option.



4. From the Properties dialog box, click the "Driver" tab and click the "Update Driver" button. The Update Device Driver Wizard appears, click Next.
5. At the prompt "What do you want the wizard to do?", select the radio button "Search for a suitable driver for my device" and click Next.



6 Select the CD-ROM drives check box and click Next.

7 Select the "Install one of the other drivers" check box and click Next.

8 Restart your computer.

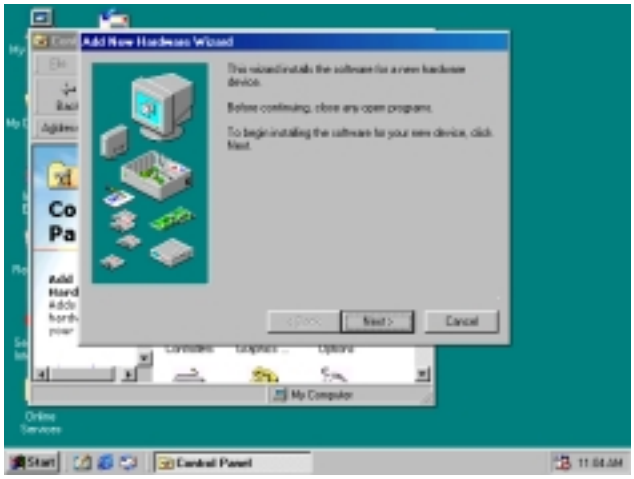
After restarting your computer, connect to your network by double-clicking the My Network Places icon on the desktop.

Installation for Windows95/98 (Intel 82559ER)

Please install Ethernet drivers as follows:

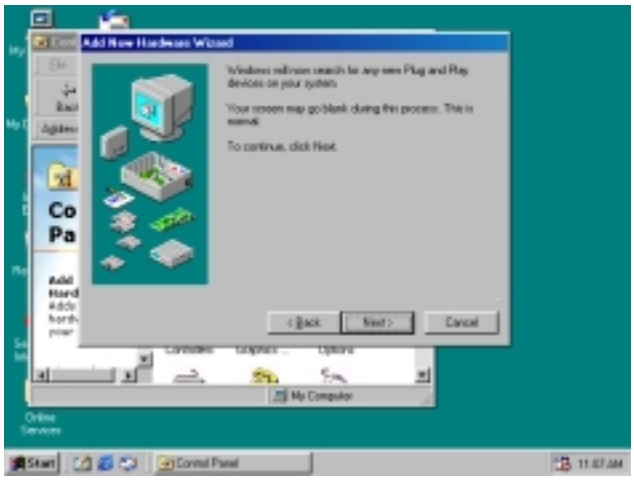
1. Click **"Start"**, go to **"Setting"** and click **"Control Panel"**. Choose the **"Add New Hardware"** icon and double-click the icon, the next configuration screen will appear.

2. **"Add New Hardware Wizard"** shown this wizard installs the software for a new hardware device. Before continuing, close any open programs. To begin installing the software for your new device, click "Next>", go to the next step of installation.

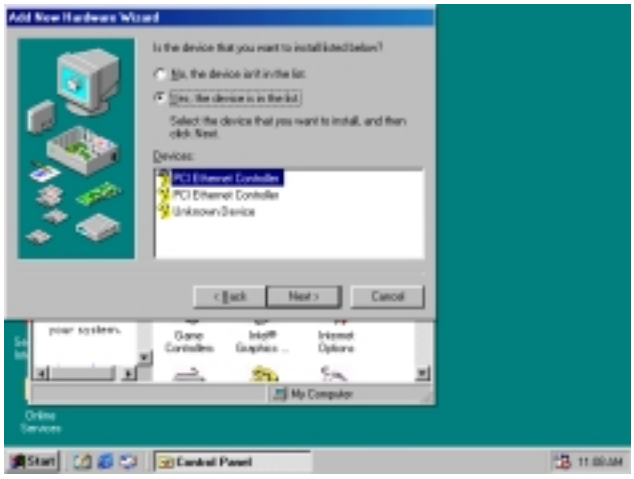


3. **"Add New Hardware Wizard"** shown Windows will no search for any new Plug and Play devices on your system. Your screen may go black during this process. This is normal.

   To continue, click "Next>" to the next step of installation.

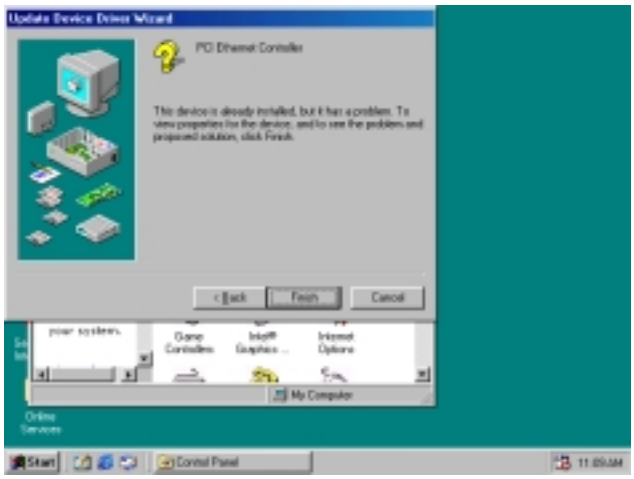


4. Please select the device that you want to install, and then click "Next>" to the next step of installation.



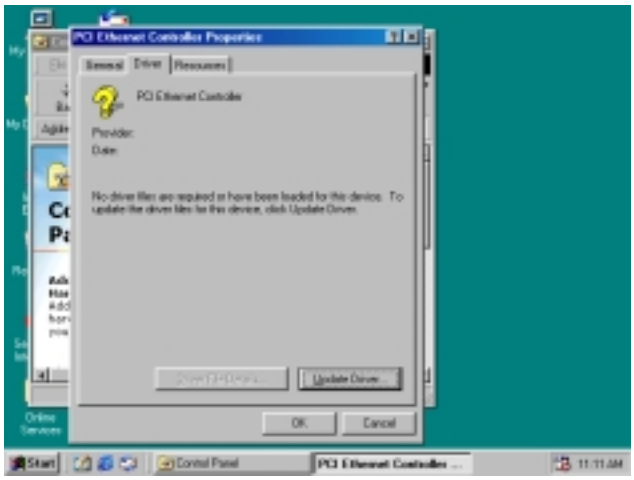
5. This is Update Device Driver Wizard.

   This device is already installed, but it has a problem. To view properties for the device, and to see the problem and proposed solution, please click "Finish" to the next step of installation



6. This is PCI Ethernet Controller Properties screen.

   No driver files are required or have been loaded for this device. To update the driver files for this device, please click "Update Driver" to the next step of installation

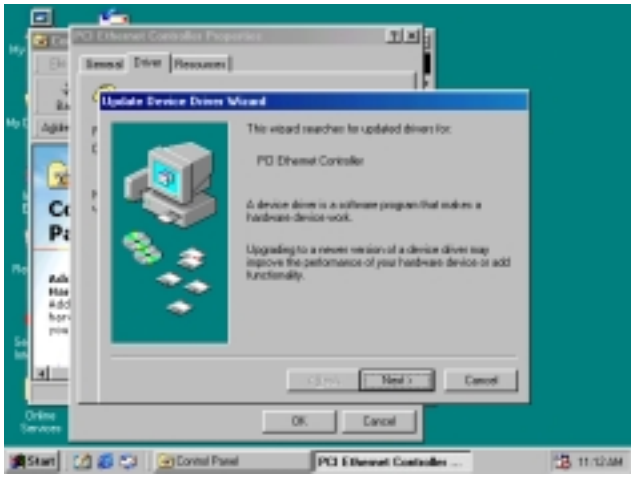


7. This Wizard searches for update drivers for:

   PCI Ethernet Controller

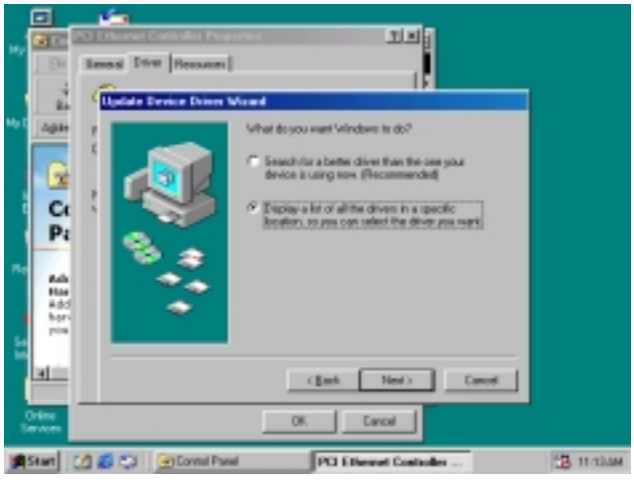
   A device driver is a software program that makes a hardware device work.

   Updating to a newer version of a device driver may improve the performance of your hardware device or add functionality, please click "Next>" to the next step of installation

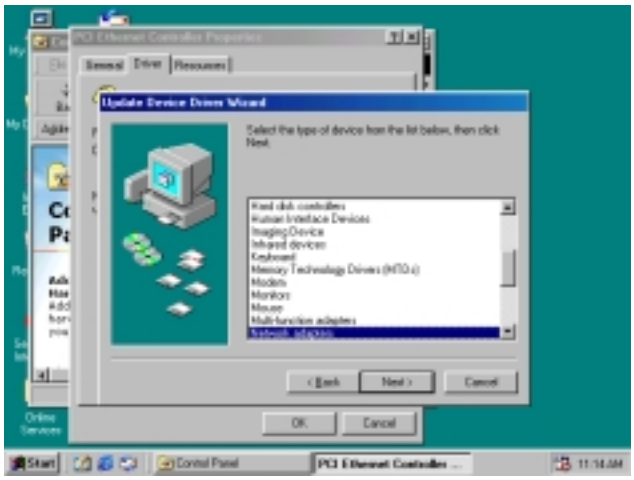


8. This is Update Device Driver Wizard. What do you want Windows to do? Please choose "Display a list of all the drivers in a specific location, so you can select the driver you want.

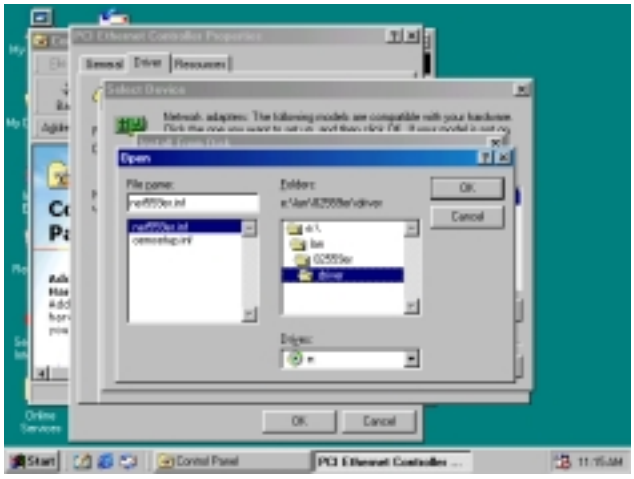
   Please click "Next>" to the next step of installation



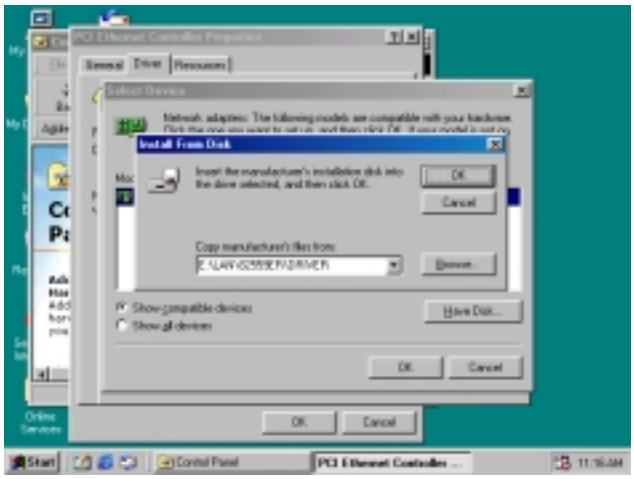
9. This s screen for selecting the type of device from the list, then click "Next>" to next step of installation



10. This is to show the "Folders", please click "OK" to the next step of installation.

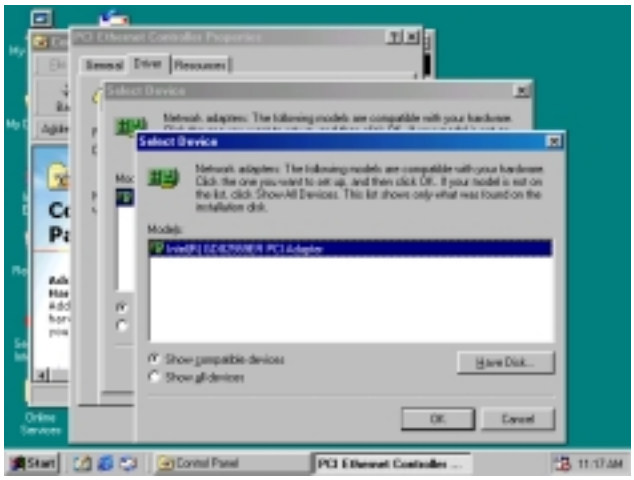


11. This is Install from Disk. Please insert the manufacturer's installation disk into the drive selected, and then please click "OK" to next step of installation.



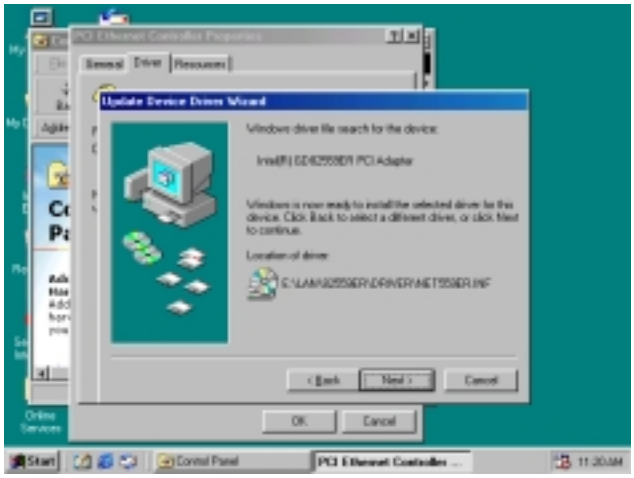
12. This is Select Device screen.

Network adapters: The following models are compatible with your hardware. Click the one you want to set up, and then click "OK". If your model is not on the list, please click Show All Devices. This list shows only what was found on the installation disk

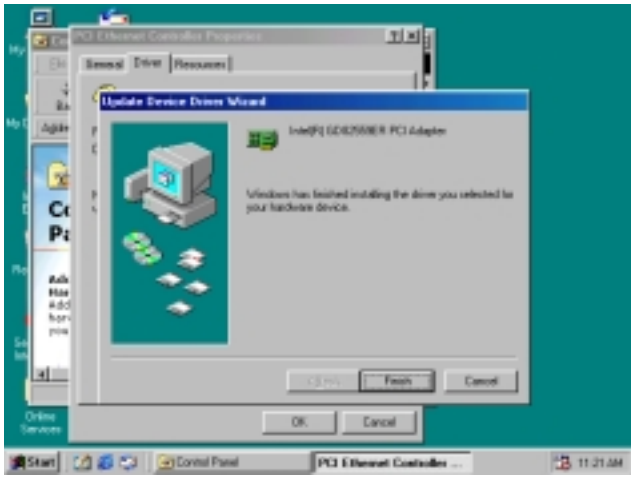


13. This is Update Driver Wizard.

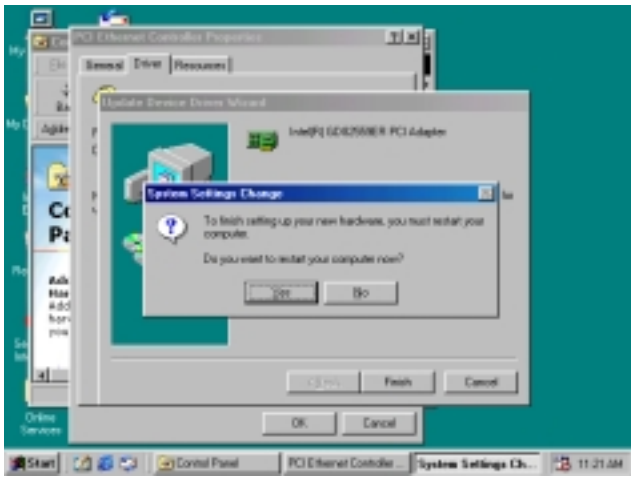
Windows is now ready to install the selected driver for this device. Please click Back to select a different driver, or click Next to continue.



14. This screen shown Windows has finished installing the driver you selected for your hardware device. Please click "Finish" to the next step of installation



15. This screens the System Settings Change. To finish setting up your new hardware, you must restart your computer. Please click "YES" to restart your computer.



Appendix A: Programming the Watchdog Timer

The O671 provides a watchdog timer that resets the CPU or generates an interrupt if processing comes to a stop. This function ensures greater system reliability in industrial stand-alone and unmanned environments.

In order to enable the watchdog timer, you have to output the value of the watchdog timer interval to the controller. The value range is from 01H to FFH, and the related time watchdog timer interval is 1 sec to 255 sec.

Data	Timer interval
00	Disabled
01	1 sec
02	2 sec
*	*
*	*
FF	255 sec

If you want to disable the watchdog timer, just set the timer interval value to 00H.

After setting the timer interval value, the watchdog timer begins to count down. You have to refresh the watchdog timer, so that the watchdog timer will return to its initial value; otherwise, your system will reset after a time-out. The following program shows how to set the watchdog timer:

ASSEMBLY LANGUAGE DOS DEBUG

Program 1: Initializing the watchdog controller

```
MOV DX,3F0                O 3F0 87
MOV AL,87H                O 3F0 87
OUT DX,AL
OUT DX,AL
MOV AL,07H                O 3F0 07
OUT DX,AL                 O 3F1 08
MOV DX,3F1H
MOV AL,08H
OUT DX,AL
```

Program 2: Writing a watchdog timer interval value

```
MOV DX,3F0H     ; Set timer interval value to 16 seconds     O 3F0 F2
MOV AL, 0F2H                                                 O 3F1 XX
OUT DX,AL                                                    O 3F0 AA
MOV DX,3F1H
MOV AL,XXH      ; Timer interval *** see note ***
OUT DX,AL
MOV DX,3F0H
MOV AL,AAH
OUT DX,AL
```

Note: This XX value range is from 01H to FFH, and the related watchdog timer interval is 1 sec. to 255 sec. (as in the previous description).

Using the Demo Program

Update the System BIOS as follows:

1. Run Program 1
2. Run Program 2 (load the timer interval of 1EH, 30 seconds)
3. Run your Application Program #1 (**Be sure your Application Program will finish within 30 seconds)**
4. Run Program 1
5. Run Program 2 (change the timer interval value to 3CH, 60 seconds)
6. Run your Application Program#2 (**Be sure your Application Program will be finished within 60 seconds)**
7. Run Program 1
8. Run Program 2 (reload the timer interval value of 3CH, 60 seconds)
9. Run Program 1
10. Run Program 3 (**Load the timer interval of 00H, and disable the watchdog timer function)**

Appendix B: Programming the GPIO Port

The O671 provides an 8-bit GPIO port that you can use to read and write data through. You can set this port address by jumper settings via JP5. The default address is 300h; this can be changed to 2E0h or 300h by jumper settings.

Reading the GPIO Data

```
MOV DX,300h    ; the GPIO address
IN AL,DX       ; read the data into AL register
```

Writing the GPIO Data

```
MOV DX, 300h ; the GPIO address
MOV AL,XXH     ; output data value "XX"
OUT DX,AL
```

bit0 : GPI(O)0
bit1 : GPI(O)1
bit2 : GPI(O)2
bit3 : GPI(O)3
bit4 : GPI(O)4
bit5 : GPI(O)5
bit6 : GPI(O)6
bit7 : GPI(O)7

Appendix C: DiskOnChip 2000 Installation

When installing or removing the DiskOnChip (DOC), be sure to first touch a grounded surface to discharge any static electricity from your body.

Use the following procedure to install the DiskOnChip:

1. Align pin 1 on the DiskOnChip with pin 1 of the socket
2. Push the DiskOnChip into the socket carefully until it is fully seated
3. Check to make sure the DiskOnChip is installed securely, and there are no bent pin

Caution: The DiskOnChip may be permanently damaged if installed incorrectly!

4. Set the jumper (JP7) for the memory address of the DOC

The memory shadow function sometimes will create conflicts with the memory window. You should disable the memory shadow from the BIOS Setup if the DOC can not be accessed.

5. To install the DiskOnChip as drive C on a system without a hard disk, set the CMOS setup for drive C to "not installed" (indicating that no physical magnetic disk is installed), and reboot the computer. The DiskOnChip 2000 will install as drive C. The DiskOnChip needs to be formatted with the system files in order for it to be a bootable drive. See "Configuring the DiskOnChip as the BOOT device" below.
6. To install DiskOnChip as drive D on a system with a hard disk, just reboot the system and the DiskOnChip will install as drive D.
7. To install the DiskOnChip as Drive C on a system with a hard disk, see below "Configuring the DiskOnChip as the first drive"

Configuring the DiskOnChip 2000 as the Boot Device

In order to configure the DiskOnChip as the boot device, the operating system files need to be copied into it. Copying the operating system files into DiskOnChip should be done like in any other hard disk. The following is an example of a typical initialization process:

1. Set the DiskOnChip as a regular drive in your system (not a boot drive)
2. Install a bootable floppy diskette in drive A and boot the system
3. At the DOS prompt, type SYS C: to transfer the DOS system files to the DiskOnChip is installed as drive C)
4. Copy any files needed into the DiskOnChip
5. Remove the floppy diskette and reboot the system. The system will boot from the DiskOnChip, and will allow you to run and access any files that haven been copied into the DiskOnChip

Configuring the DiskOnChip 2000 as the First Drive

You can configure the DiskOnChip to be installed as the last drive (default), or as the first drive in the system. When configured as the last drive, the DiskOnChip is installed as disk D if there is another hard drive installed, and as drive C if no other hard disk is installed. When configured as the first drive, the DiskOnChip is always installed as drive C. The DiskOnChip is shipped from the factory, configured to install as the last drive.

To configure the DiskOnChip to be installed as the first drive, proceed as follows:

1. Boot the system and make sure the DiskOnChip is installed correctly as drive D
2. At the DOS prompt type:

   DUPDATE D:/FIRST /S:DOC2000.EXB

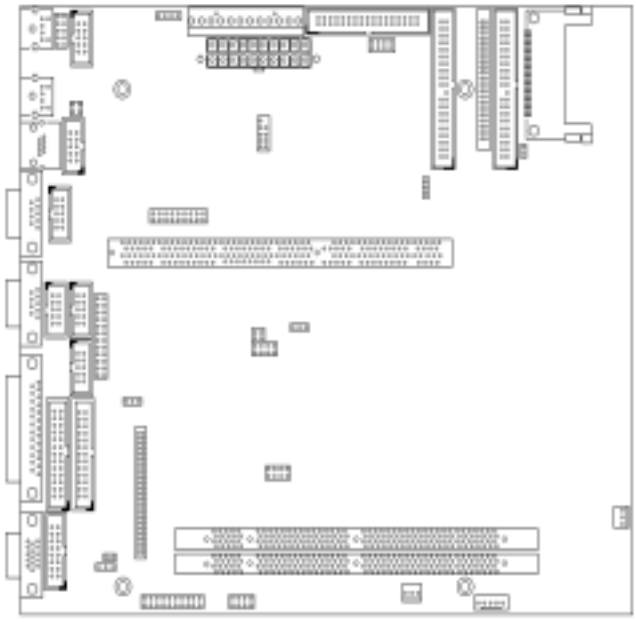
   After re-booting the system, the DiskOnChip will appear as drive C:

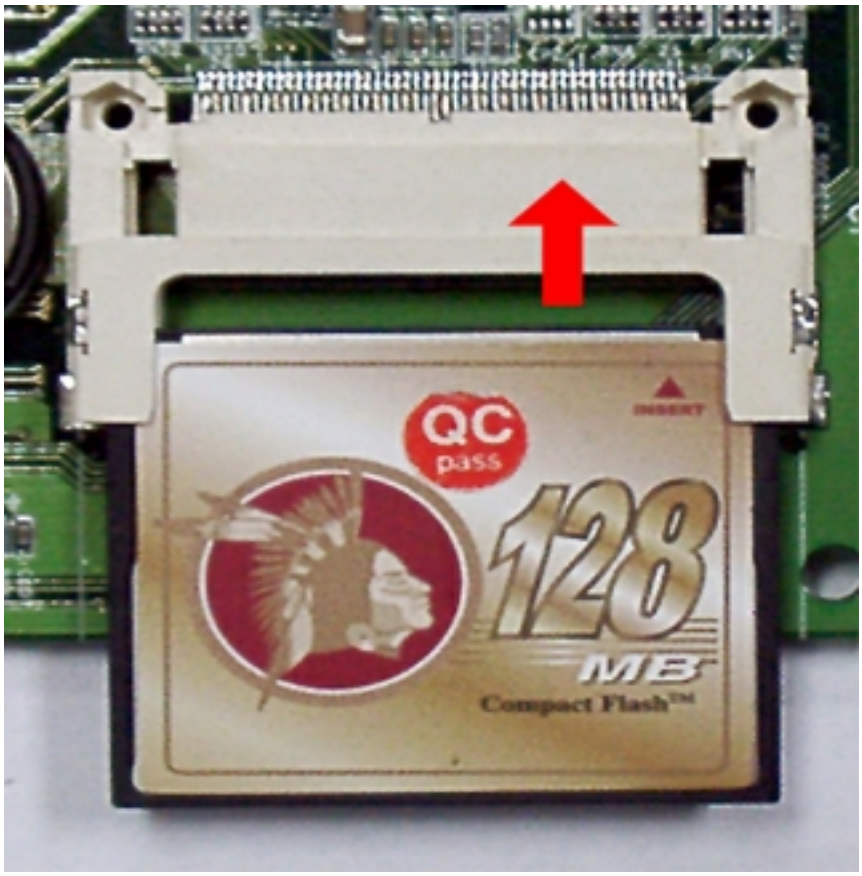
Appendix D: Installing CompactFlash Memory

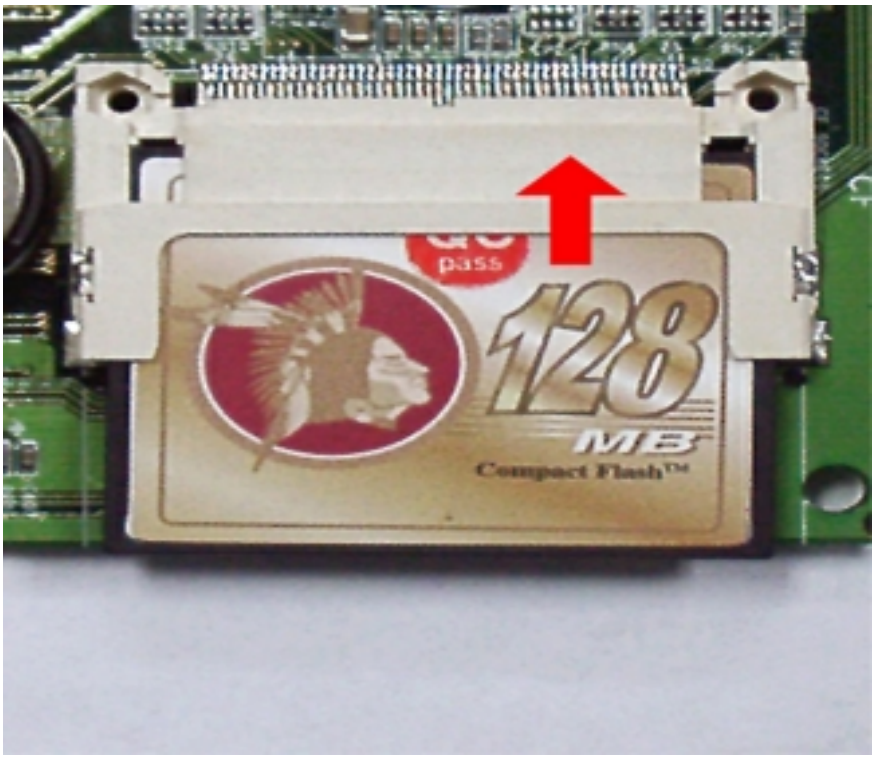
CompactFlash™ is a very small removable mass storage device, it provides complete PCMCIA-ATA functionality and compatibility pluse TrueIDE functionality compatible with ATA/ATAPI-4.

CompactFlash storage products are solid state, meaning they contain no moving parts, and provide users with much greater protection of their data than conventional magnetic disk device.

Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment
1	Ground	11	Ground	21	D00	31	D15	41	RESET
2	D03	12	Ground	22	D01	32	CS	42	ORDY
3	D04	13	VCC	23	D02	33	NC	43	NC
4	D05	14	Ground	24	WP	34	IOR	44	REG
5	D06	15	Ground	25	NC	35	IOW	45	LED
6	D07	16	Ground	26	NC	36	WE	46	BVD
7	CS	17	Ground	27	D11	37	RDY/BSY	47	D08
8	Ground	18	A02	28	D12	38	VCC	48	D09
9	Ground	19	A01	29	D13	39	SCSE;	49	D10
10	Ground	20	A00	30	D14	40	NC	50	Ground







Note: Face-up the CompactFlash Card and slide into the socket till the CF card at the end of socket.

Appendix E: PCI/ISA Slot

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A1	IOCHK	B1	Ground	E1	Ground	F1	Ground
A2	SD7	B2	RST	E2	Ground	F2	Ground
A3	SD6	B3	VCC	E3	INTA	F3	INTC
A4	SD5	B4	IRQ9	E4	INTB	F4	INTD
A5	SD4	B5	-5V	E5	VCC	F5	VCC
A6	SD3	B6	DRQ2	E6	NC	F6	NC
A7	SD2	B7	-12V	E7	VCC	F7	VCC
A8	SD1	B8	OWS	E8	PCIRST	F8	PCLK1
A9	SD0	B9	+12V	E9	GNT0	F9	Ground
A10	IORDY	B10	Ground	E10	REQ0	F10	GNT1
A11	AEN	B11	SMW	E11	Ground	F11	Ground
A12	SA19	B12	SMR	E12	PCLK0	F12	REQ1
A13	SA18	B13	IOW	E13	Ground	F13	AD31
A14	SA17	B14	IOR	E14	AD30	F14	AD29
A15	SA16	B15	DACK3	E15	PCLK2	F15	NC
A16	SA15	B16	DRQ3	E16	NC	F16	NC
A17	SA14	B17	DACK1	E17	GNT2	F17	REQ2
A18	SA13	B18	DRQ1	E18	AD28	F18	AD27
A19	SA12	B19	REF	E19	AD26	F19	AD25
A20	SA11	B20	SCLK	E20	AD24	F20	CBE3
A21	SA10	B21	IRQ7	E21	AD22	F21	AD23
A22	SA9	B22	IRQ6	E22	AD20	F22	AD21
A23	SA8	B23	IRQ5	E23	AD18	F23	AD19
A24	SA7	B24	IRQ4	E24	NC	F24	NC
A25	SA6	B25	IRQ3	E25	NC	F25	NC
A26	SA5	B26	DACK2	E26	NC	F26	NC
A27	SA4	B27	TC	E27	AD16	F27	AD17
A28	SA3	B28	ALE	E28	FRAME	F28	IRDY
A29	SA2	B29	VCC	E29	CBE2	F29	DEVSEL
A30	SA1	B30	OSC	E30	TRDY	F30	LOCK
A31	SA0	B31	Ground	E31	STOP	F31	PERR

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
C1	SBHE	D1	MEM16	G1	NC	H1	SERR
C2	LA23	D2	IO16	G2	NC	H2	AD15
C3	LA22	D3	IRQ10	G3	CBE1	H3	AD14
C4	LA21	D4	IRQ11	G4	PAR	H4	AD12
C5	LA20	D5	IRQ12	G5	Ground	H5	Ground
C6	LA19	D6	IRQ15	G6	NC	H6	NC
C7	LA18	D7	IRQ14	G7	Ground	H7	Ground
C8	LA17	D8	DACK0	G8	AD13	H8	AD10
C9	MEMR	D9	DRQ0	G9	AD11	H9	AD8
C10	MEMW	D10	DACK5	G10	AD9	H10	AD7
C11	SD8	D11	DRQ5	G11	CBE0	H11	AD5
C12	SD9	D12	DACK6	G12	AD6	H12	AD3
C13	SD10	D13	DRQ6	G13	AD4	H13	AD1
C14	SD11	D14	DACK7	G14	AD2	H14	AD0
C15	SD12	D15	DRQ7	G15	NC	H15	NC
C16	SD13	D16	VCC	G16	VCC	H16	VCC
C17	SD14	D17	MASTER	G17	VCC	H17	VCC
C18	SD15	D18	Ground	G18	Ground	H18	Ground
				G19	Ground	H19	Ground

Appendix F: Optional Cables

Part Number	Cable Description	AW-O671 Connector	Terminating Connector
46-I00IDE-00	Notebook Type IDE Cable	CN9	Dual IDE Cable, 45cm
46-ISUB01-00	USB Cable	CN14	USB Cable, 25cm, Block pin9
46-IAUDIO-00	Audio Cable	CN6	Female Phone Jack x 3
46-ICOM00-00	Serial Port Cable	CN18,21,22,23	2x5-pin D-Sub, 20cm
46-IDEFDC-01	Dual 3.5" Floppy + 3.5" IDE Cable	CN2 CN10, CN11	34-pin Dual Floppy+40-pin 2.54mm Dual IDE, 45cm/55cm
46-IPRINT-00	Printer Cable	CN25, CN26	25-pin Female D-Sub, 27cm