POD-6704 series

Socket 370 Pentium® III/Celeron™ CPU Card with VGA, Ethernet x 4 and CompactFlash Type II card

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This manual is for the POD-6704 Series Rev. A1

Part No. 200K670411 3rd· Edition
May, 2004

Packing List

Before installing your board, ensure that the following materials have been received:

- 1 ea. POD-6704 SBC
- 1 ea. Keyboard/Mouse cable (1700000190)
- 1 ea. COM port cable (1700100250)
- 1 ea. EIDE HDD cable (1701400452)
- 1 ea. Power cable (1703080101)
- 1 ea. Startup Manual
- 1 ea. CD-ROM or disks for utilities, drivers and manual (PDF format)
- 1 ea. VGA cable (1701160101)
- 1 ea. Printer cable (1700260250)
- 1 ea. FDD cable (1701340603)

Note 1: For detailed contents of the POD-6704 series, please refer to the enclosed CD-ROM or disk (in PDF format).

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Optional Devices

- 1759209100 Fan/Heatsink module
- 9689000042 IrDA adapter
- 1700100170 USB cable adapter
- 1703200100 ATX power cable

Model comparison

- POD-6704F-00A1 Socket370 815E SBC with Fast Ethernet (8139C plus) supports VGA/CFC
- POD-6704F-01A1 Socket370 815E SBC with 4 x Fast Ethernet (82559) supports VGA/CFC
- POD-6704F-02A1 Socket370 815E SBC with 4 x Fast Ethernet (82559ER) supports VGA/CFC

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CHAPTER 1

General Information

This chapter gives background information on the POD-6704.

Sections include:

- Introduction
- Features
- Specifications
- Board layout and dimensions

1.1 Introduction

The POD-6704 all-in-one industrial grade package FC-PGA CPU card uses Intel's highly acclaimed Celeron® processor or Pentium® III processor, together with the Intel 815E PCI chipset.

The CPU provides 128/256 KB (or 256/512 KB for Pentium III) on-CPU L2 cache, eliminating the need for external SRAM chips. It has two PCI EIDE interfaces for up to four devices, a miniPCI socket on solder side, and a floppy disk drive interface for up to two devices. Other features include two RS-232 serial ports (16C550 UARTs with 16-byte FIFO or compatible), one enhanced parallel port (supports SPP/EPP/ECP) and two USB (Universal Serial Bus) ports. The PCI enhanced IDE controller supports Ultra DMA100, Ultra DMA33 and PIO Mode 3 or 4 operation. This provides data transfer rates of over 33 MB/sec. System BIOS supports boot-up from an IDE, CD-ROM, USB devices, and LS-120.

A backup of CMOS data is stored in the Flash memory, which protects data even after a battery failure. Also included a 62-level Watchdog timer which resets the CPU if a program cannot be executed normally. This enables reliable operation in unattended environments.

The POD-6704 offers several impressive industrial features such as VGA (AGP) controller, one DIMM slot for up to 512 MB RAM memory and four 10/100Base-T Ethernet controllers. In addition, the POD-6704 series supports a solid state disk (SSD) using a CompactFlash™ Type II disk that is not as vulnerable to the hazards of an industrial computing environment. These features make it an ideal choice for applications that require both high performance and full functionality.

1.2 Specifications

Standard SBC functions

- **CPU**: Socket 370 supports FCPGA for Intel® Pentium III processors up to 1.26 GHz, and Celeron™ processor up to 1.2 GHz
- **BIOS**: Award 256 KB Flash memory,

  Supports Plug & Play, APM 1.2

  Supports Ethernet Boot ROM

  Supports boot from USB device

  Supports boot from CD-ROM

  Supports boot from LS-120 ZIP™ Drive

  Optional Customer icon
- **Chipset**: Intel® 815E chipset support, FSB 133 MHz
- **2nd level cache**: 512/256 KB on Pentium III or 256/128 KB on Celeron™ Processor
- **System memory**: One 168-pin DIMM socket, supports 64 MB to 512 MB
- **PCI IDE interface**: Two Enhanced IDE interfaces, support 4 IDE devices. Channel One supports up to UltraDMA 100. Channel Two supports PIO mode 3,4 with bus mastering up to 33MB/sec.
- **Floppy disk drive interface**: Supports up to two FDDs (360 KB/ 1.2 MB/720 KB/1.44 MB/2.88 MB)
- **Parallel port**: One parallel port, supports SPP/EPP/ECP
- **Buzzer:** One onboard buzzer
- **IR port:** One 115 kbps IrDA compliant serial infrared port
- **Serial ports**: 2 serial ports

  COM1& COM2: RS-232
- **Watchdog timer**: 1~255S or 1~255min., which is selective

VGA Interface

- **Chipset**: Intel 815E embedded
- **Frame buffer:** Supports 8/16/32 MB frame buffer with system memory
- **Display type**: CRT
- **Interface**: Direct AGP, Accelerator Graphics Ports 1.0 compliant
- **Display mode**: CRT display supports up to 1280 x 1024 @ 16 bpp, 1024 x 768 @ 16 bpp

Ethernet controller functions

- Intel 815E Chipset MAC embedded + 82562ET PHY

  PCI +3 x 8139C Plus/82559/82559ER Ethernet controller, IEEE 802.3 protocol compatible. Supports 10/100 Mbps Base-T. Fast Ethernet compatible.

Solid state disk

- Supports CompactFlash™ Type I/II disks

Mechanical and environmental specifications

- Standard Mode Power Consumption

  Typical 5.23 A @ 5 V with Pentium III 1.26GHz and 256MB DRAM
  Max 6.23A @ +5V, 0.5A @ +12V

- **Operating temperature**:
  0 ~ 60° C (32 ~ 140° F)
- **Size**: 208 mm x 189.62 mm (8.2" x 7.5")
- **Weight**: 0.35kg (weight of total package)

1.3 Features

- Supports Socket 370 Package: FC-PGA for Intel® Pentium® III/ Celeron™ processor
- CPU supports up to 1.26GHz Pentium III with 512K
- Intel 815E quality chipset supports 133MHz FSB
- Supports CompactFlash Type I/II
- Ideal for network security applicances, firewalls, intrusion detection systems
- Supports 4x 10/100 Base-T Ethernet connections with onboard RJ-45 connectors
- Scalable LAN performance with selection of Ethernet controllers: Intel 82559, 82559ER, or RealTek 8139C Plus.

1.4 Board layout: Dimensions

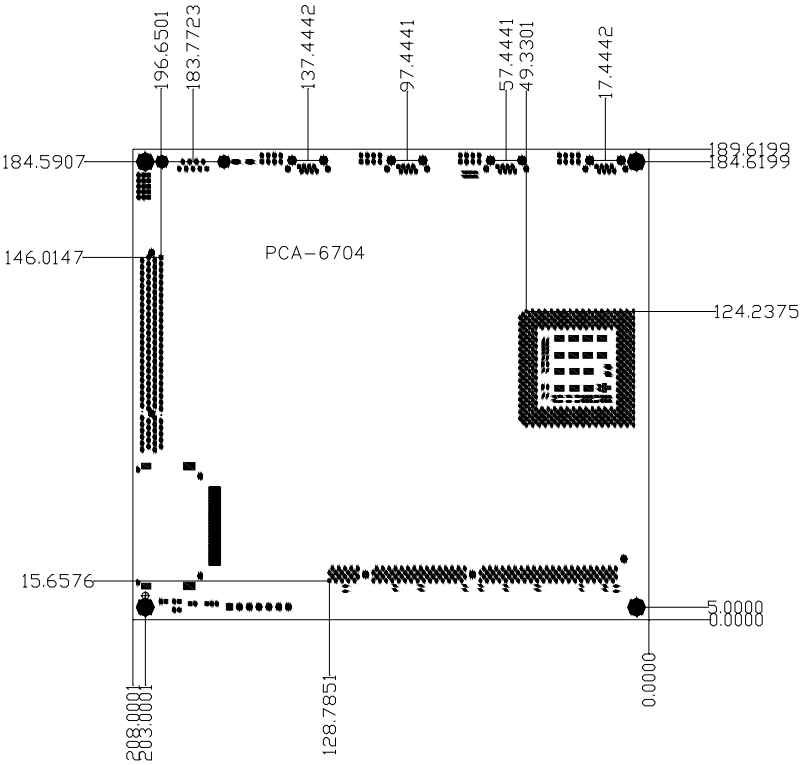


Figure 1-1: POD-6704 (dimensions)

CHAPTER 2

Installation

This chapter tells how to set up the POD-6704 hardware. It includes instructions on setting jumpers, and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedure.

2.1 Safety Precautions

Follow these simple precautions to protect yourself from harm and your PC from damage.

1. To avoid electric shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.
3. Always ground yourself to remove any static charge before you touch your CPU card. Be particularly careful not to touch the chip connectors. Modern integrated electronic devices, especially CPUs and memory chips, are extremely sensitive to static electric discharges and fields. Keep the card in its antistatic packaging when it is not installed in the PC, and place it on a static dissipative mat when you are working with it. Wear a grounding wrist strap for continuous protection.

2.2 Jumpers

The POD-6704 has a number of jumpers that allow you to configure your system to suit your application. The table below lists the function of each of the board's jumpers.

Table 2-1: Jumpers

Label	Function
J1	COM1 RIN Function select
J2	COM1 Extra power select
J3	COM2 RIN Function select
J4	COM2 Extra power select
J5	PCI VIO select
J7	reset button connector
J8	COMS clear jumper
J10	System LED connector
J11	CF master/slave select
J12	HDD LED connector

2.3 Connectors

On-board connectors link the POD-6704 to external devices such as hard disk drives, a keyboard, or floppy drives. The table below lists the function of each of the board's connectors.

Table 2-2: Connectors

Label	Function
CN1	Serial port 1
CN2	LAN1 LED
CN3	LAN4 LED
CN4	LAN3 LED
CN5	LAN2 LED
CN6	LAN1 RJ45
CN7	LAN4 RJ45
CN8	LAN3 RJ45
CN9	LAN2 RJ45
CN10	Serial port 2
CN11	USB
CN12	LAN1 box
CN13	Keyboard and PS2 mouse
CN14	Extra keyboard
CN15	Printer port
CN16	FDD
CN17	IR
CN18	CPU fan
CN19	VGA
CN20	Digital I/O
CN21	IDE1
CN22	IDE2
CN25	CF
CN26	ATX power on/off button
CN27	ATX power suspend 5V & PS_ON signal
CN28	EBX power
CN29	Mini PCI
CN30	System fan

2.3.1 Locating Jumpers

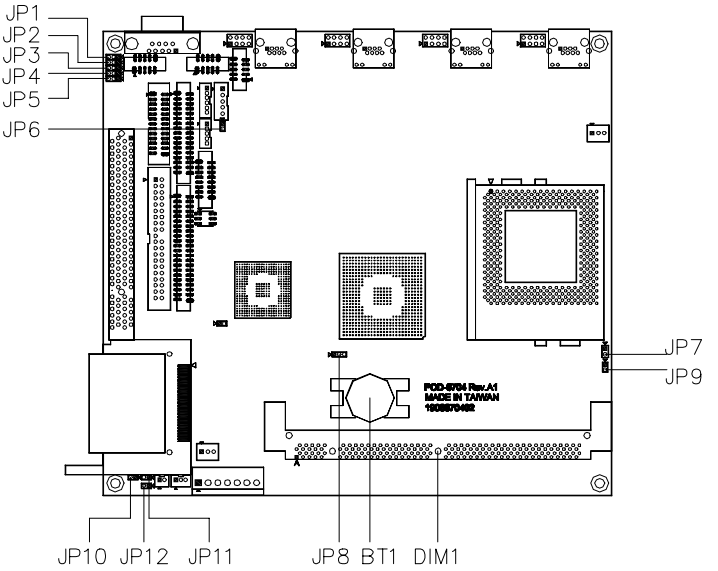


Figure 2-1: Locating jumpers (component side)

2.3.2 Locating Connectors

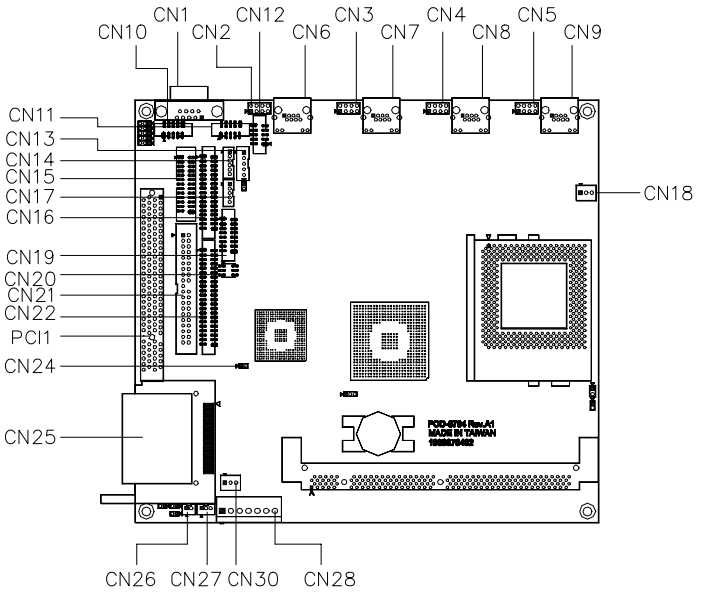
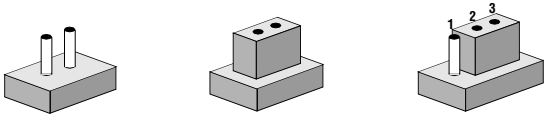


Figure 2-1: Locating connectors

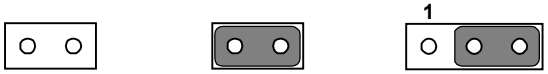
2.4 Setting jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper, connect the pins with the clip. To "open" a jumper, remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either pins 1 and 2 or 2 and 3.



Open *Closed* *Closed 2-3*

The jumper settings are schematically depicted in this manual as follows:



Open *Closed* *Closed 2-3*

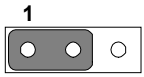
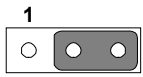
A pair of needle-nose pliers may be helpful when working with jumpers. Setting switches is slightly different but more simple. Simply slide the desired switch to the **on or off** position. In the example below, the 6 element switch would be. 1:off, **2:on**, 3:off, 4:off, 5:off, 6:off.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative.

2.4.1 COM1 RIN Function select (J1)

Short pins 1-2 for RIN; short pins 2-3 for external power.

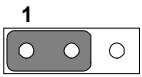
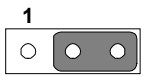
Table 2-3: COM1 RIN Function select (J1)

RIN	external power
	

2.4.2 COM1 External power select (J2)

The J2 jumper can be set for either of two kinds of power supply, +12V, and +5V. Set this jumper with pins 1-2 closed for +12V, and with pins 2-3 closed for +5V.

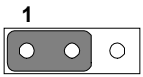
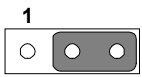
Table 2-4: COM1 extra powerselect (J2)

+12V	+5V
	

2.4.3 COM2 RIN Function select (J3)

POD-6704 has a jumper to select the RIN function for COM2. Set pins 1-2 closed for RIN; set pins 2-3 closed for external power.

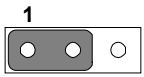
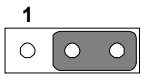
Table 2-5: COM2 RIN function select (J3)

RIN	external power
	

2.4.4 COM2 External power select (J4)

The J4 jumper can be set for either of two kinds of power supply, +12V, and +5V. Set this jumper with pins 1-2 closed for +12V, and with pins 2-3 closed for +5V.

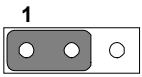
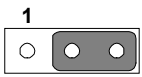
Table 2-6: COM2 external power select (J4)

+12V	+5V
	

2.4.5 PCI VIO power select (J5)

J5 selects the power level for PCI VIO power. Set this jumper with pins 1-2 closed for +5V. Set this jumper with pins 2-3 closed for +3.3V.

Table 2-7: PCI VIO power select (J5)

+5V	+3.3V
	

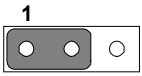
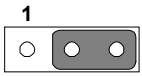
2.4.6 Hardware Reset (J7)

If you install a reset switch, it should be an open single pole switch. Momentarily pressing the switch will activate a reset. The switch should be rated for 10 mA, 5 V.

2.4.7 CMOS clear function (J8)

Warning: To avoid damaging the computer, always turn off the power supply before setting "Clear CMOS". Set the jumper back to normal before turning on the power supply.

Table 2-8: CMOS clear (J8)

*Normal	CMOS data clear
	

* default setting

2.4.8 System LED connector (J10)

J10 is for your basic power on indicator. Connect an LED to J10, and when system power is on, the LED will be on.

2.4.9 CF master/slave select (J11)

J11 is a jumper that can select the state of CompactFlash. When this jumper is open, Compact Flash is slave. When this jumper is shorted, CompactFlash is master.

2.4.10 HDD LED connector (J12)

Basic HDD activity indicator. Connect an LED to J12, and when there is disk activity, the LED lights up.

2.5 Installation Caution

The following sections tell how to make each connection. In most cases, you will simply need to connect a standard cable. All of the connector pin assignments are shown in Appendix C.

Warning! *Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on. Sensitive electronic components can be damaged by a sudden rush of power. Only experienced electronics personnel should open the PC chassis.*

Caution! *Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.*

2.5.1 RS-232 connector (CN1, CN10)

Different devices implement the RS-232 standard in different ways. If you are having problems with a serial device, be sure to check the pin assignments for the connector.

Note: *For CN2,CN3,CN4,CN5,CN6,CN7,CN8,CN9,CN12 see the Ethernet configuration.*

2.5.2 Ethernet Configuration

The POD-6704 is equipped with a high performance 32-bit PCI-bus Fast Ethernet interface which is fully compliant with IEEE 802.3u 10/100Base-T specifications. It is supported by all major network operating systems.

It is designed for Ethernet connectivity. Its four Ethernet ports enable designers to create a broad range of applications including network security systems, firewalls, intrusion detection systems, etc.

The medium type can be configured via the **RSET8139.EXE** program included on the utility disk. (See Chapter 5 for detailed information.)

LAN LED connector (CN2,CN3,CN4,CN5)

The onboard LED will light up to show the status of the Ethernet.

RJ-45 connector (CN6,CN7,CN8,CN9)

Onboard RJ-45 standard jack.

LAN1 box (CN12)

This connector provides power supply. For detailed information see Appendix C.

Network boot

The network boot feature is built into the BIOS. It can be enabled or disabled in the chipset setup of the CMOS configuration. Refer to "BIOS Setting" in Chapter 3 for more information.

2.5.3 USB Connector (CN11)

The POD-6704 board provides two USB (Universal Serial Bus) interfaces, which give complete plug and play and also hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification rev. 1.0 and are fuse protected.

The USB interfaces are accessed through a 10-pin flat-cable connector, CN11. The adapter cable has a 10-pin connector on one end and a USB connector on the bracket.

The USB interfaces can be disabled in the system BIOS setup.

2.5.4 Keyboard & PS/2 Mouse Connector (CN13)

The POD-6704 board provides a keyboard connector. A 6-pin mini-DIN connector (CN13) on the card mounting bracket supports single-board computer applications. The card comes with an adapter to convert from the 6-pin mini-DIN connector to a standard DIN connector and to a PS/2 mouse connector.

2.5.5 Extra keyboard connector (CN14)

In addition to the PS/2 mouse/keyboard connector on the POD-6704's rear plate, there is an additional onboard external keyboard connector, allowing for greater flexibility in system design.

2.5.6 Parallel Port Connector (CN15)

The parallel port is normally used to connect the CPU card to a printer. The POD-6704 includes an on-board parallel port, accessed through a 26-pin flat-cable connector, CN15. The card comes with an adapter cable which lets you use a traditional DB-25 connector. The cable has a 26-pin connector on one end and a DB-25 connector on the other, mounted on a retaining bracket. The bracket installs at the end of an empty slot in your chassis, giving you access to the connector.

The parallel port is designated as LPT1, and can be disabled or changed to LPT2 or LPT3 in the system BIOS setup.

To install the bracket, find an empty slot in your chassis. Unscrew the plate that covers the end of the slot. Screw in the bracket in place of the plate. Next, attach the flat-cable connector to CN15 on the CPU card. Wire 1 of the cable is red or blue, and the other wires are gray. Make sure that wire 1 corresponds to pin 1 of CN15. Pin 1 is on the right side of CN15.

2.5.7 Floppy Drive Connector (CN16)

You can attach up to two floppy disk drives to the POD-6704’s on-board controller. You can use any combination of 5.25" (360 KB/1.2

MB) and/or 3.5" (720 KB/1.44/2.88 MB) drives.

The card uses a Hirose 20 connector (DF13-20DP-1.25V).

2.5.8 IrDA Connector (CN17)

This connector supports the optional wireless infrared transmitting and receiving module. This module mounts on the system case. You must configure the setting through BIOS setup.

2.5.9 CPU Fan Power Supply Connector (CN18)

This provides power supply to the optional CPU cooling fan. This connector is only available when +12 V power is supplied to the board.

Warning! *Before making the connection, make sure the voltage is absolutely correct and matched with the correct connector.*

2.5.10 VGA Display Connector (CN19)

The POD-6704 provides a VGA controller for a high resolution VGA interface. The POD-6704 CN19 is a DB-15 connector for VGA monitor input. Pin assignments for the CRT display are detailed in Appendix C.

2.5.11 Digital I/O (CN20)

The POD-6704 provides a digital I/O connector for expansion interface. Pin assignments are detailed in Appendix C.

2.5.12 Primary EIDE Connector (CN21)

You can attach four IDE (Integrated Device Electronics) drives to the POD-6704's internal controller. The POD-6704 CPU card has an EIDE connector, CN21.

Wire number 1 on the cable is red or blue, and the other wires are gray. Connect one end to connector CN21 on the CPU card. Make sure that the red (or blue) wire corresponds to pin 1 on the connector (on the right side). See Chapter 1 for help in finding the connector.

Unlike floppy drives, IDE hard drives can connect in either position on the cable. If you install two drives, you will need to set one as the master and one as the slave. You do this by setting the jumpers on the drives. If you use just one drive, you should set it as the master. See the documentation that came with your drive for more information.

Connect the first hard drive to the other end of the cable. Wire 1 on the cable should also connect to pin 1 on the hard drive connector, which is labeled on the drive circuit board. Check the documentation that came with the drive for more information.

Connect the second drive, as described above, on CN21.

2.5.13 IDE2 connector (CN22)

The POD-6704 provides 2 IDE channels which you can attach up to four Enhanced Integrated Device Electronics hard disk drives or CDROM to the POD-6704's internal controller. The POD-6704's IDE controller uses a PCI interface. This advanced IDE controller supports faster data transfer, PID mode 3, mode 4 and UDMA/100. The secondary channel supports UDMA/33 only.

Connecting the hard drive

Connecting drives is done in a daisy-chain fashion. It requires one of two cables (not included in this package), depending on the drive size. 1.8" and 2.5" drives need a 1 x 44-pin to 2 x 44-pin flat-cable connector. 3.5" drives use a 1 x 44-pin to 2 x 40-pin connector.

Wire number 1 on the cable is red or blue, and the other wires are gray.

Connect one end of the cable to CN21 or CN22. Make sure that the red (or blue) wire corresponds to pin 1 on the connector, which is labeled on the board (on the right side).

Plug the other end of the cable into the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drive. (See your hard drive's documentation for the location of the connector.)

If desired, connect a second drive as described above.

Unlike floppy drives, IDE hard drives can connect to either end of the cable. If you install two drives, you will need to set one as the master and one as the slave by using jumpers on the drives. If you install only one drive, set it as the master.

2.5.14 CompactFlash Disk (CN25)

The POD-6704 is equipped with a CompactFlash™ disk socket on the component side that supports the IDE interface for CompactFlash cards Type I/II. The on-board CompactFlash socket is designed to prevent incorrect installation. Be sure that the system power is off when installing and removing CompactFlash™ cards.

The CompactFlash card is defaulted as the Secondary channel slave drive on your PC system.

2.5.15 ATX power button (CN26)

The POD-6704 provides an ATX power input connector. When connected with the ATX power switch, the ATX power switch connector (CN26) enables power On/Off from the chassis.

2.5.16 ATX Feature Connector (CN27)

When the POD-6704 is used as a stand alone card, both the 7-pin main power connector (CN28) and the ATX feature connector (CN27) must be connected to the power supply. If the POD-6704 is used with a passive backplane, the main power connector (CN28) should not be connected as the card will be powered from the backplane.

The ATX adapter cable (optional) is used to connect the POD-6704 to the ATX power supply. The ATX adapter cable has different connectors at both ends. On one end is the ATX 20-pin (female type) which connects to the (male) ATX power supply source. The other end has a 3-pin connector (female type) which connects to the ATX feature connector (CN27 on the board itself. This end also has the 7-pin main power connector (CN28).

2.5.17 EBX Power Connector (CN28)

If you prefer not to acquire power through POD-6704's backplane via the gold H-connectors, CN28 also provides power input connectors for +5 V. (see Appendix C)

2.5.18 Mini PCI (CN29 reserved)

The POD-6704 is equipped with a MiniPCI socket on the solder side that supports the interface for MiniPCI cards. The on-board MiniPCI socket is designed to prevent incorrect installation. Be sure that the system power is off when installing and removing MiniPCI cards.

2.5.19 System fan (CN30)

This provides power to the optional system cooling fan. For detailed information see Appendix C.

2.6 Adding System Memory (DIMM)

You can install anywhere from 64 to 512 MB of SDRAM into your POD-6704 series card. The card is provided with a 168-pin DIMM socket, which accepts 32, 64, 128, 256, or 512 MB 3.3 V power level DIMMs.

Note: The POD-6704 card supports SDRAM DIMM modules.

2.6.1 Installing DIMMs

Note: The modules can only fit into the socket one way. Their gold pins must point down into the DIMM socket.

The procedure for installing DIMMs appears below. Please follow these steps carefully.

1. Ensure that all power supplies to the system are switched Off.
2. Install the DIMM card. Install the DIMM so that its gold pins point down into the DIMM socket.
3. Slip the DIMM into the socket at a 45 degree angle and carefully fit the bottom of the card against the connectors.
4. Gently push the DIMM until the clips on the ends of the DIMM sockets snap into place.
5. Check to ensure that the DIMM is correctly seated and all connector contacts touch. The DIMM should not move around in its socket.

2.7 CPU installation and upgrading

1. If you are upgrading the CPU, remove the old CPU from the socket. If it is difficult to remove, you may find chip lubricant (designed for Flip-Chippin-grid-array devices, FCPGAs) and a chip puller helpful. Both are available at electronics hobby supply stores.
2. Plug the new CPU into the empty socket. Follow the instructions that came with the CPU or math coprocessor. If you have no instructions, do the following: Lubricate the CPU pins with lubricant made for FCPGA devices. This will make the new CPU slide in much more easily, and reduce the chance of damaging it. Next, carefully align the CPU so that it is parallel to the socket and the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Gently slide the CPU in. There will probably be a gap between the CPU and the connector when it is fully seated - do not push too hard!

Note: The CPU package for the POD-6704 must be FCPGA/FCPGA2. If it is not, please do not use.

CHAPTER 3

Award BIOS Setup

This chapter describes how to set the card's BIOS configuration data.

3.1 AWARD BIOS Setup

The Award BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

3.1.1 Entering setup

Turn on the computer and immediately press <DEL>. This will allow you to enter Setup.

Figure 3-1: Setup program initial screen

3.1.2 Standard CMOS setup

Choose the "STANDARD CMOS SETUP" option from the INITIAL SETUP SCREEN Menu, and the screen below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive, display, and memory.

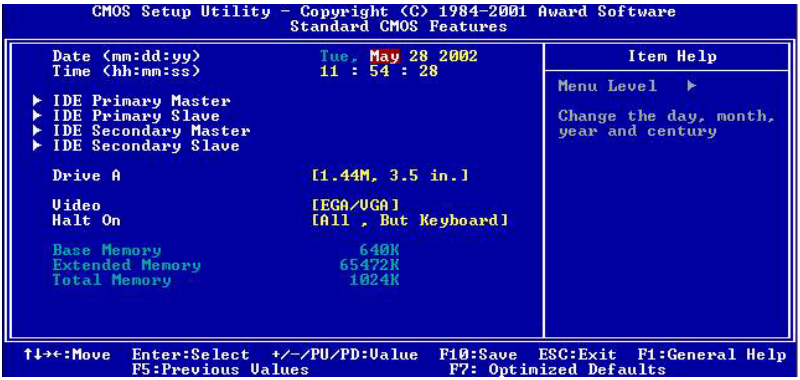


Figure 3-2: CMOS setup screen

3.1.3 Advanced BIOS Features

The ADVANCED BIOS FEATURES is a submenu from the initial BIOS setup screen. It allows the user to configure the POD-6704 according to his particular requirements.

Below are some major items that are provided in the ADVANCED BIOS FEATURES SETUP screen:

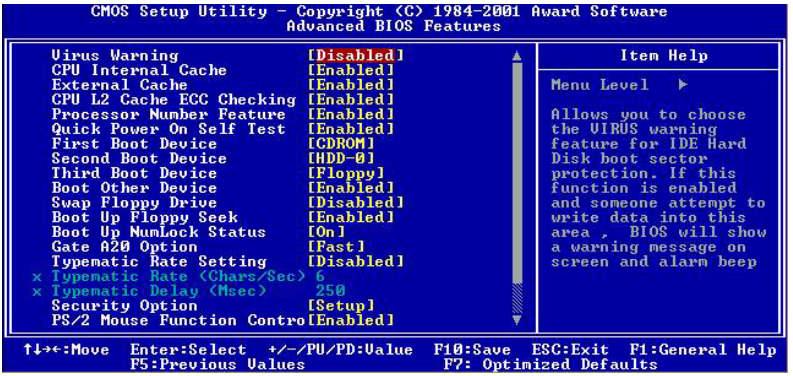


Figure 3-3: Advanced BIOS Features setup screen

Virus Warning

During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system. In this case, a warning message will be displayed. You can run the anti-virus program to locate the problem.

If Virus Warning is Disabled, no warning message will appear if anything attempts to access the boot sector or hard disk partition.

CPU Internal Cache/External Cache

Depending on the CPU/chipset design, these options can speed up memory access when enabled.

Quick Power On Self Test

This option speeds up the Power-On Self Test (POST) conducted as soon as the computer is turned on. When enabled, BIOS shortens or skips some of the items during the test. When disabled, normal POST procedures assumes.

Boot Sequence

This function determines the sequence in which the computer will search the drives for the disk operating system (i.e. DOS). The default value is "C, A".

A,C	System will first search the FDD, then the HDD.
C,A	System will first search the HDD, then the FDD.
C only	System will only search the HDD.
•	•
•	•
•	•

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360 KB type is 40 tracks while 720 KB, 1.2 MB, and 1.44 MB are all 80 tracks.

Enabled	BIOS searches the floppy drive to determine if it is 40 or 80 tracks. Note that BIOS cannot differentiate 720 KB, 1.2 MB, and 1.44 MB type drives as they are all 80 tracks.
Disabled	BIOS will not search for the floppy drive type by track number. Note that there will not be any warning message if the drive installed is 360 KB.

Boot Up NumLock Status

The default is "On".

On	Keypad boots up to number keys.
Off	Keypad boots up to arrow keys.

Boot Up System Speed

High	Sets the speed to high
Low	Sets the speed to low

IDE HDD Block Mode

Enabled	Enable IDE HDD Block Mode. BIOS will detect the block size of the HDD and send a block command automatically.
Disabled	Disable IDE HDD Block Mode

Gate A20 option

Normal	The A20 signal is controlled by the keyboard controller or chipset hardware
Fast	Default: Fast. The A20 signal is controlled by Port 92 or chipset specific method.

Typematic Rate Setting

The typematic rate determines the characters per second accepted by the computer. Typematic Rate setting enables or disables the typematic rate.

Typematic Rate (Char/Sec)

BIOS accepts the following input values (character/second) for Typematic Rate: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (msec)

When holding down a key, the Typematic Delay is the time interval between the appearance of the first and second characters. The input values (msec) for this category are: 250, 500, 750, 1000.

Security Option

This setting determines whether the system will boot if the password is denied, while limiting access to Setup.

System	The system will not boot, and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING in the main menu. At this point, you will be asked to enter a password. Simply hit the <ENTER> key to disable security. When security is disabled, the system will boot, and you can enter Setup freely.

OS Select for DRAM>64 MB

This setting is under OS/2 system.

Video BIOS Shadow

This determines whether video BIOS will be copied to RAM, which is optional according to the chipset design. When enabled, Video Shadow increases the video speed.

C8000 - CFFFF Shadow/DC000-DFFFF Shadow

These determine whether optional ROM will be copied to RAM in blocks of 16 KB.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

3.1.4 Advanced Chipset Features

By choosing the "ADVANCED CHIPSET FEATURES" option from the INITIAL SETUP SCREEN Menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POD-6704.

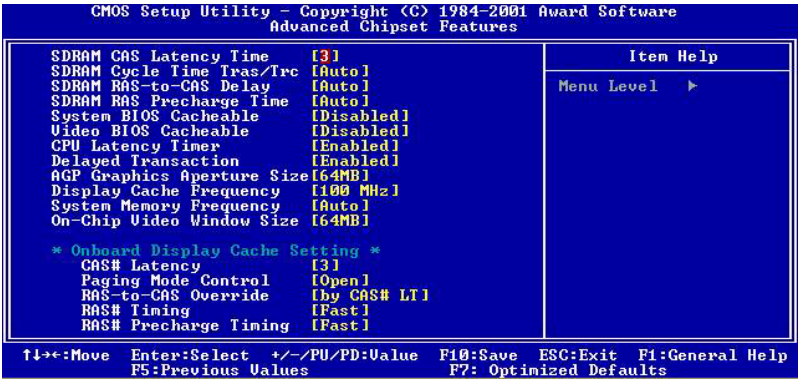


Figure 3-4: Advanced Chipset Features screen

3.1.5 Integrated Peripherals

Choosing the Integrated Peripherals option from the Initial Setup Screen menu should produce the screen below. Here we see the manufacturer's default values for the POD-6704 Series.

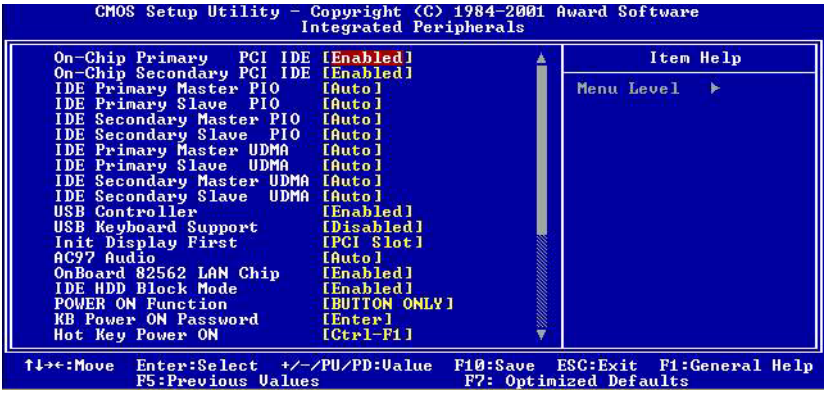


Figure 3-5: Integrated Peripherals

3.1.6 Power management setup

The power management setup controls the CPU cards' "green" features. The following screen shows the manufacturer's defaults.

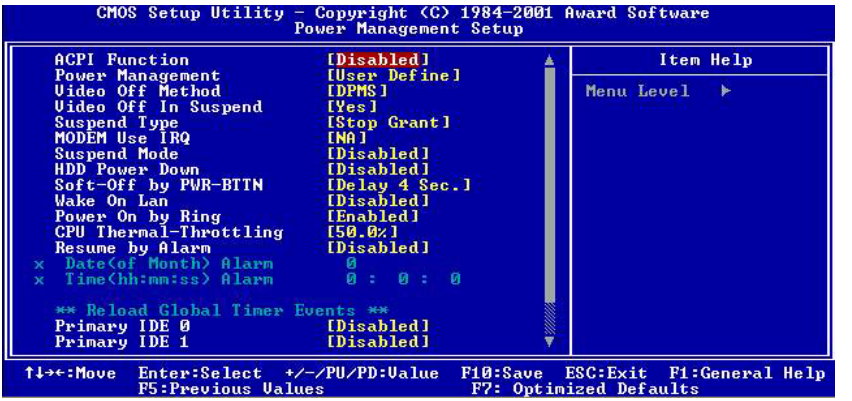


Figure 3-6: Power management setup screen

Power Management

This option allows you to determine if the values in power management are disabled, user-defined, or predefined.

HDD Power Management

You can choose to turn the HDD off after one of the time intervals listed, or when the system is in Suspend mode. If in a power saving mode, any access to the HDD will wake it up.

Note: The HDD will not power down if the Power Management option is disabled.

IRQ Activity

IRQ can be set independently. Activity on any enabled IRQ will wake up the system.

3.1.7 PnP PCI configuration setup

By choosing the PnP/PCI Configurations option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POD-6704 Series.

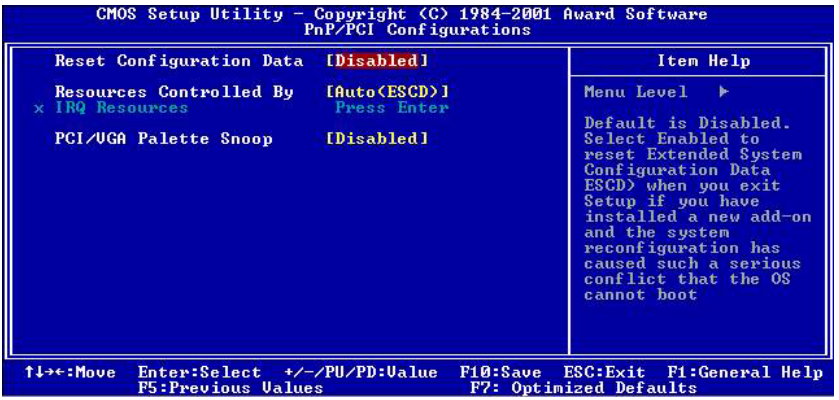


Figure 3-7: PCI configuration screen

3.1.8 PC Health Status

The PC Health Status screen looks like this. It displays information such as CPU and motherboard temperatures, fan speeds, and core voltage.

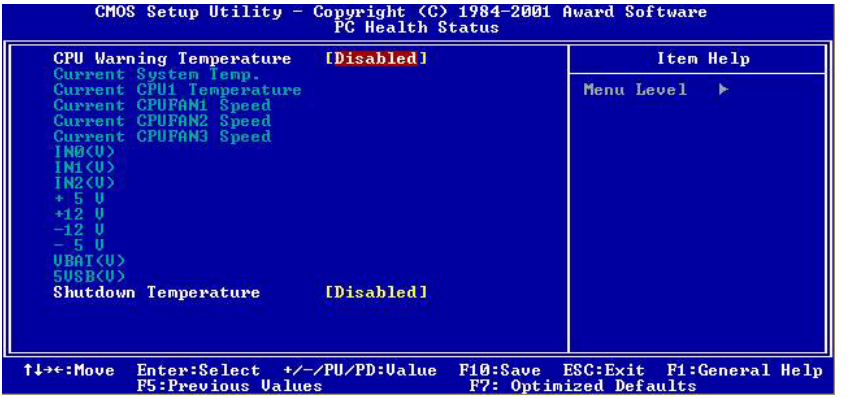


Figure 3-8: PC Health Status

3.1.9 Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POD-6704.

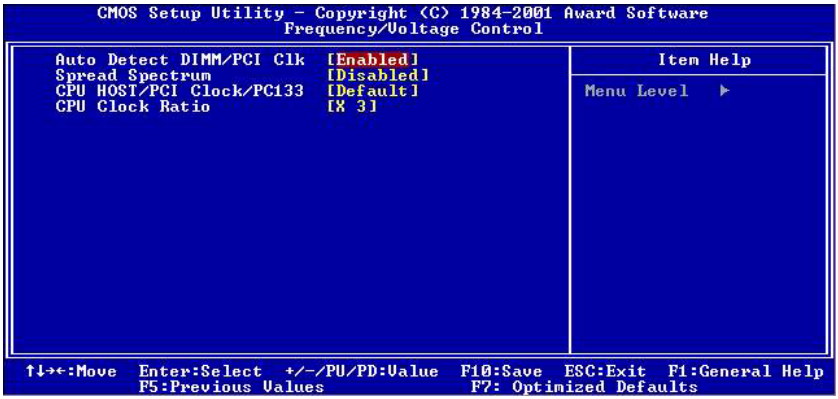


Figure 3-9: Frequency/Voltage Control

Caution *Incorrect settings in Frequency/Voltage Control may damage the system CPU, video adapter, or other hardware.*

3.1.10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from ROM. If the stored record created by the Setup program should ever become corrupted (and therefore unusable), these defaults will load automatically when you turn the POD-6704 Series system on.

3.1.11 Set Password

To establish, change, or disable the password, choose the "SET PASSWORD" option form the Setup main menu and press [Enter]. The password can be at most 8 characters long.

Remember, to enable this feature, you must first select the Security Option in the Advanced BIOS Features Setup to be either "Setup" or "System."

To Establish Password

Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.

When you see "Enter Password," enter the desired password and press <Enter>.

At the "Confirm Password" prompt, retype the desired password, then press <Enter>.

Select Save to CMOS and EXIT, type <Y>, then <Enter>.

To Change Password

Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.

When you see "Enter Password," enter the existing password and press <Enter>.

You will see "Confirm Password." Type it again, and press <Enter>.

Select Set Password again, and at the "Enter Password" prompt, enter the new password and press <Enter>.

At the "Confirm Password" prompt, retype the new password, and press <Enter>.

Select Save to CMOS and EXIT, type <Y>, then <Enter>.

To Disable Password

Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.

When you see “Enter Password,” enter the existing password and press <Enter>.

You will see “Confirm Password.” Type it again, and press <Enter>.

Select Set Password again, and at the “Enter Password” prompt, don’t enter anything; just press <Enter>.

At the “Confirm Password” prompt, again don’t type in anything; just press <Enter>.

Select Save & Exit Setup, type <Y>, then <Enter>.

3.1.12 Save & Exit Setup

If you select this, type <Y>, and press the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the chipset. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.

3.1.13 Exit Without Saving

Selecting this option and pressing the [Enter] key lets you exit the Setup program without recording any new values or changing old ones.

CHAPTER 4

AGP SVGA Setup

- Introduction
- Installation of SVGA driver for
  - Windows 98 and 2000
  - Windows NT

4.1 Introduction

The POD-6704 has an on-board VGA interface. The specifications and features are described as follows:

4.1.1 Chipset

The POD-6704 makes use of the display properties of the Intel 815E AGP/SVGA controller. It supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

4.1.2 Display memory

Display memory is shared with system memory; the POD-6704 supports 8/16/32 MB frame buffer with system memory.

4.1.3 Display types

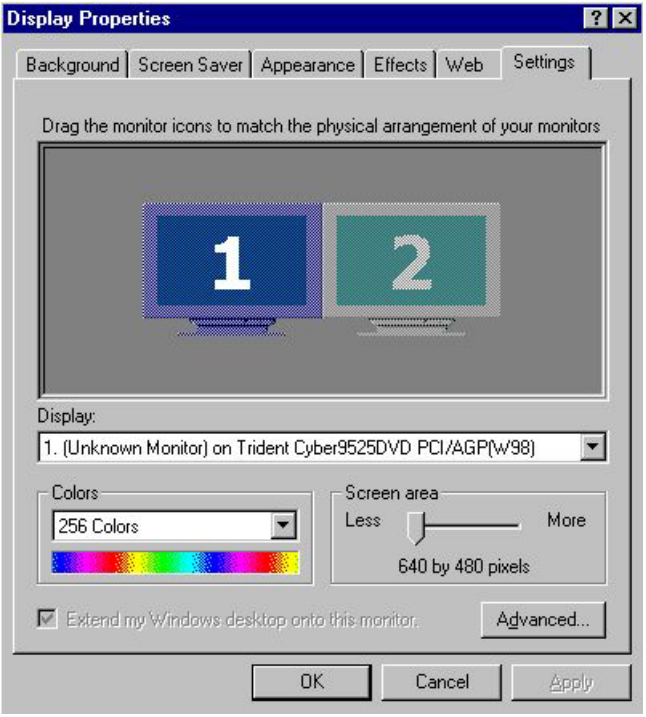
CRT and panel displays can be used simultaneously. The POD-6704 can be set in one of three configurations: on a CRT, on a flat panel display, or on both simultaneously. The system is initially set to simultaneous display mode. The BIOS setup can be used to configure the display. In BIOS, select “Integrated Peripherals”, then “Boot-up display type.” You can then choose one of the following modes: “CRT only”, “Panel only”, or “Simultaneous.”

4.1.4 Dual/simultaneous display

The POD-6704 uses the Intel 815e controller that is capable of providing multiple views and simultaneous display with mixed video and graphics on a flat panel and CRT.

To set up dual display under Windows 98, follow these steps:

1. Select “Windows98”, “Control panel”, “Display”, “Settings”.
2. Select “1” for current display, or “2” for second display.
3. Enable “Extend my Windows desktop onto this monitor”.
4. Click “OK”.



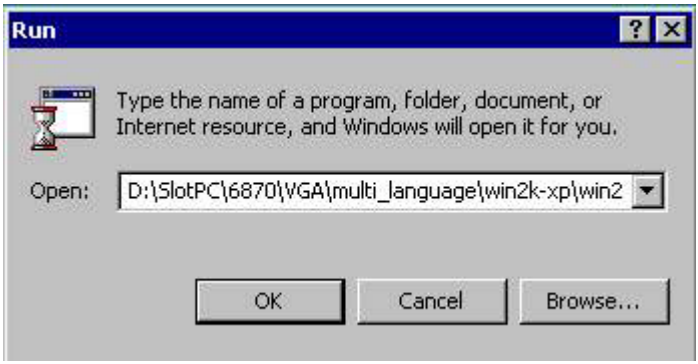
4.2 Installation of SVGA driver

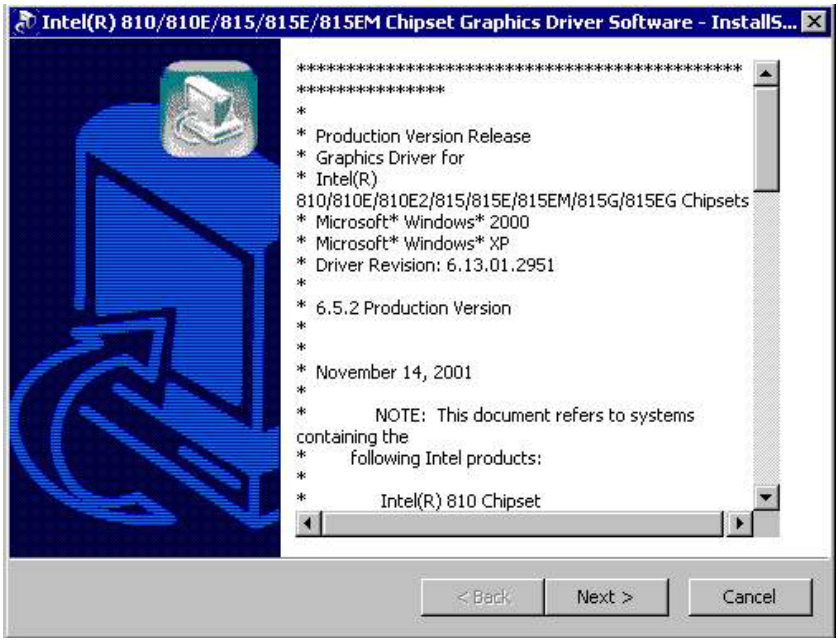
Complete the following steps to install the SVGA driver. Follow the procedures that apply to the operating system that you are using within your POD-6704.

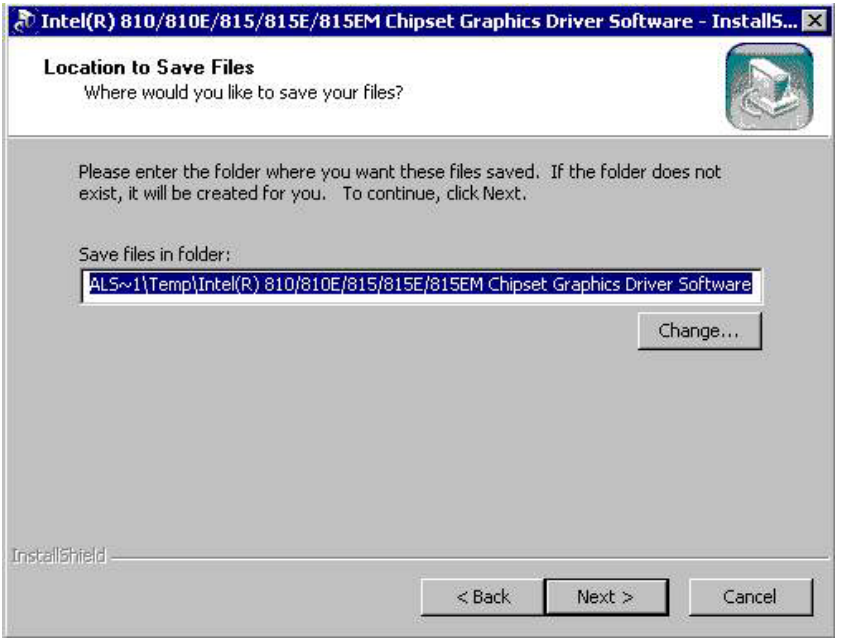
Important: The following windows illustrations are examples only. You must follow the instructions which appear on your screen.

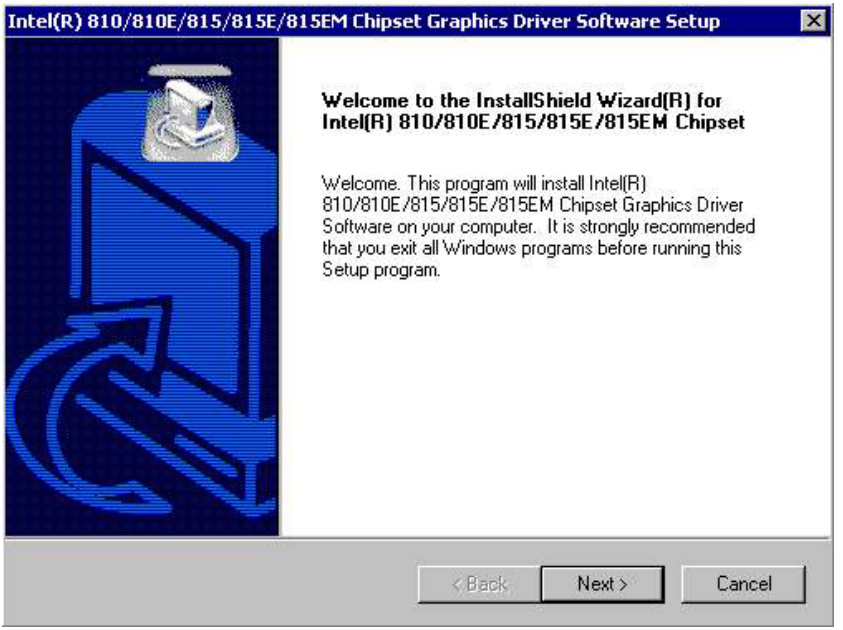
4.2.1 Installation for Windows 98 and 2000

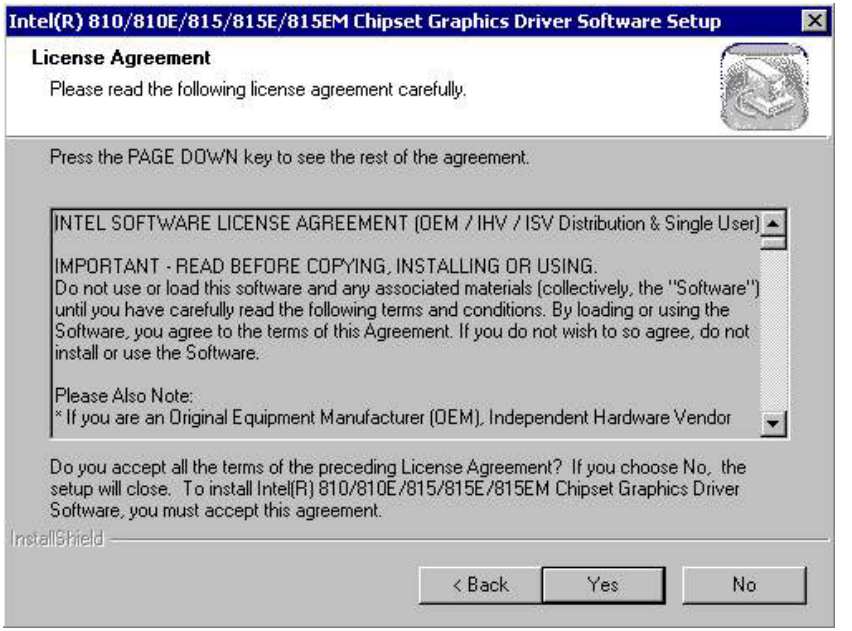
Insert the disk, or otherwise make the files available to the system, and run setup. Then proceed as directed by the prompts.

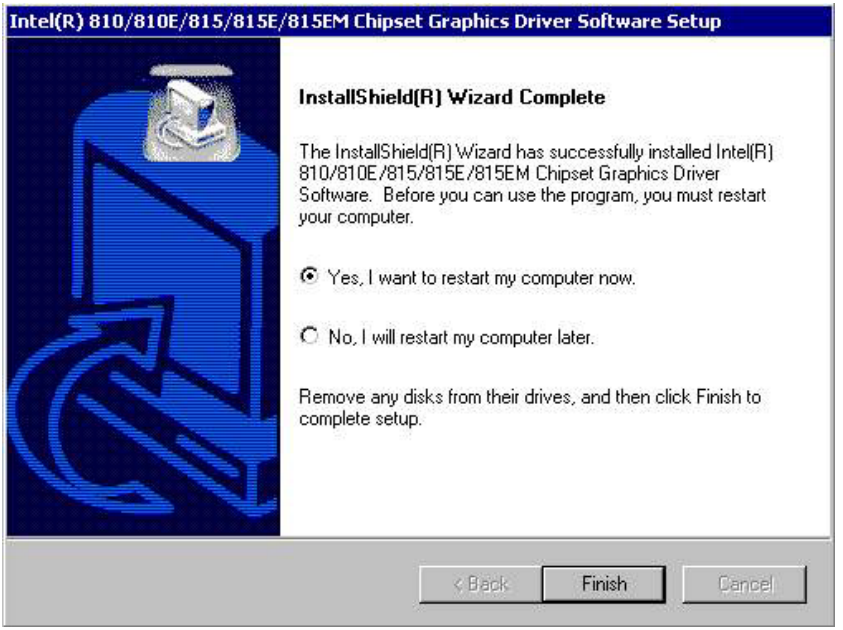





Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software - InstallS...
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
ALS~1\Temp\Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software
Change...
InstallShield
< Back
Next >
Cancel

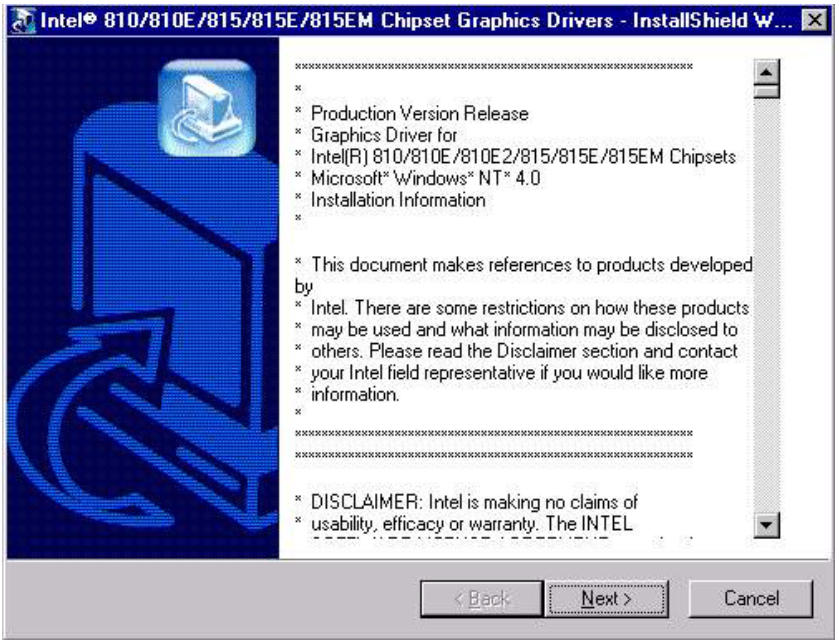

Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
Welcome to the InstallShield Wizard(R) for Intel(R) 810/810E/815/815E/815EM Chipset
Welcome. This program will install Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software on your computer. It is strongly recommended that you exit all Windows programs before running this Setup program.
< Back
Next >
Cancel

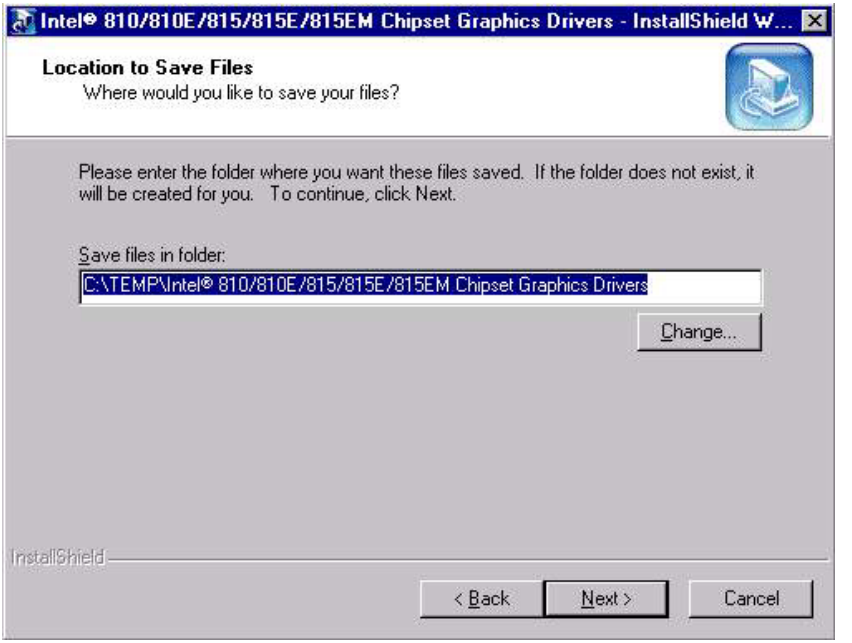

Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software, you must accept this agreement.
InstallShield
< Back
Yes
No

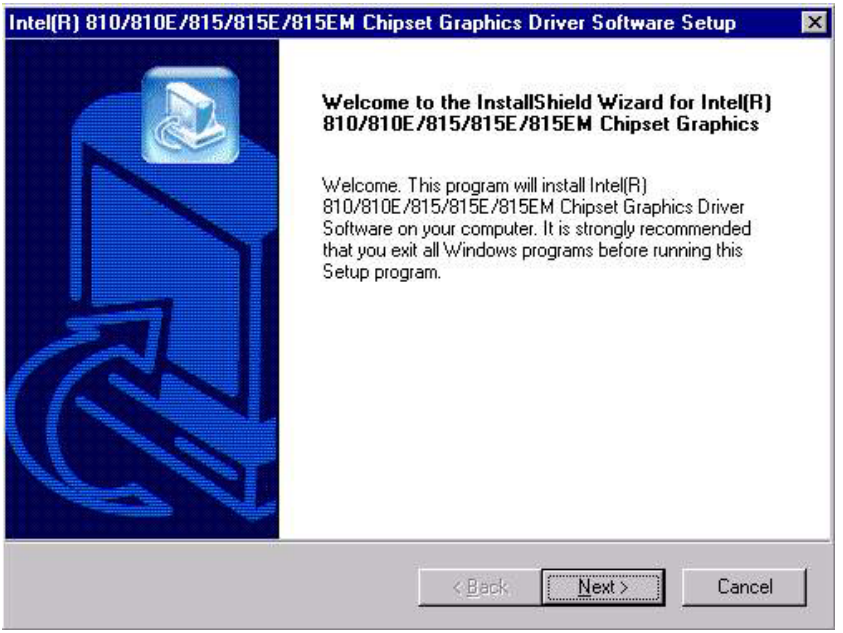

Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
InstallShield(R) Wizard Complete
The InstallShield(R) Wizard has successfully installed Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

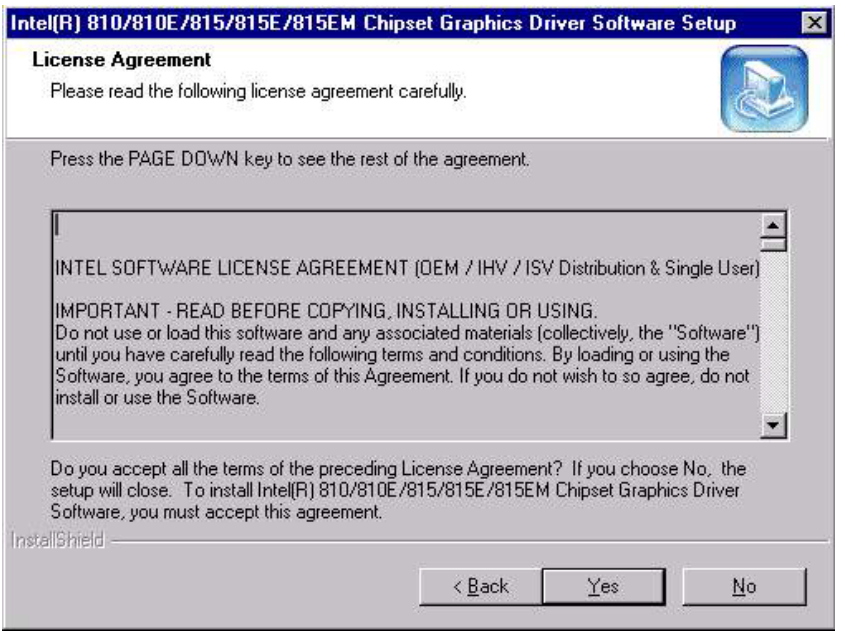
4.2.2 Installation for Windows NT

Insert the disk, or otherwise make the files available to the system, and run setup. Then proceed as directed by the prompts.


Intel® 810/810E/815/815E/815EM Chipset Graphics Drivers - InstallShield W...
* Production Version Release
* Graphics Driver for
* Intel(R) 810/810E/810E2/815/815E/815EM Chipsets
* Microsoft® Windows® NT® 4.0
* Installation Information
* This document makes references to products developed by
* Intel. There are some restrictions on how these products
* may be used and what information may be disclosed to
* others. Please read the Disclaimer section and contact
* your Intel field representative if you would like more
* information.
* DISCLAIMER: Intel is making no claims of
* usability, efficacy or warranty. The INTEL
< Back
Next >
Cancel


Intel® 810/810E/815/815E/815EM Chipset Graphics Drivers - InstallShield W...
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
C:\TEMP\Intel® 810/810E/815/815E/815EM Chipset Graphics Drivers
Change...
InstallShield
< Back
Next >
Cancel


Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
Welcome to the InstallShield Wizard for Intel(R) 810/810E/815/815E/815EM Chipset Graphics
Welcome. This program will install Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software on your computer. It is strongly recommended that you exit all Windows programs before running this Setup program.
< Back
Next >
Cancel



4.3 Further information

For further information about the AGP/SVGA installation in your POD-6704, including driver updates, troubleshooting guides and FAQ lists, visit the following web resources:

Trident website: **www.trid.com**

Advantech websites: **www.advantech.com**
www.advantech.com.tw

CHAPTER 5

PCI Bus Ethernet Interface

This chapter provides information on Ethernet configuration.

- Introduction
- Installation of Ethernet driver for Windows 98 & 2000
- Installation of Ethernet driver for Windows NT
- Further information

5.1 Introduction

The POD-6704 is equipped with a high performance Intel 82562ET

32-bit Ethernet chipset. This is a highly integrated Platform LAN Connect (ICH2/3/4) device combining 10BASE-T and 100BASE-TX physical layer capabilities. It is fully compliant with the IEEE 802.3/ 802.3u standard. The IEEE 802.3u standard for 100BASE-TX defines networking over two pairs of Category 5 unshielded twisted pair cable. The 82562ET complies with the IEEE 802.3u Auto-Negotiation (and 100BASE-TX) standard and the IEEE 802.3x Full-Duplex Flow Control standard.

The Ethernet port provides a standard RJ-45 jack on board. The network boot feature can be utilized by incorporating the boot ROM image files for the appropriate network operating system. The boot ROM BIOS files are combined with system BIOS, which can be enabled/disabled in the BIOS setup.

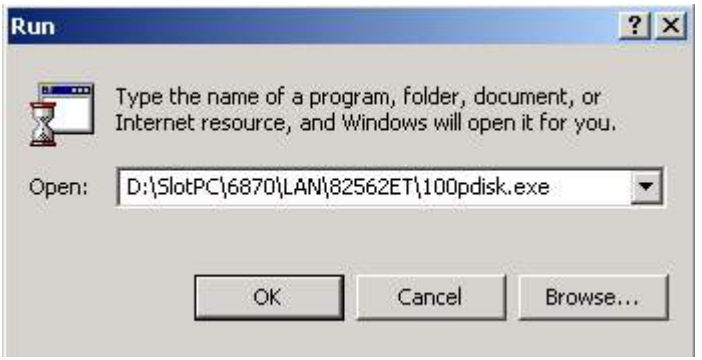
5.2 Installation of Ethernet driver

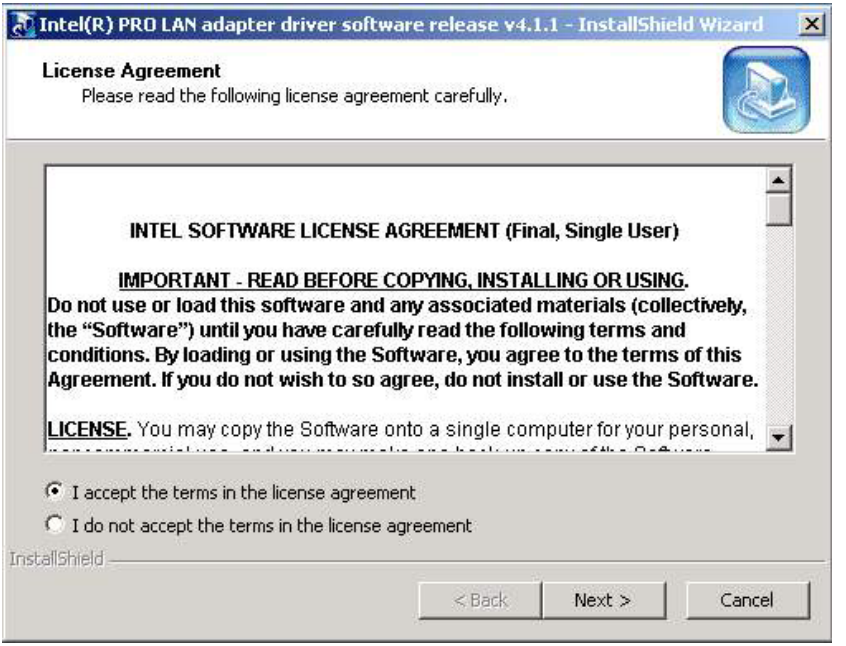
Before installing the Ethernet driver, note the procedures below. Select the operating system you are using in your POD-6704, and then refer to the corresponding installation illustrations.

Note: *The windows illustrations in this chapter are examples only. You must follow the instructions which appear on your screen.*

5.2.1 Installation for Windows 98 and 2000

Insert the disk, or otherwise make the files available to the system, and run the executable. Then proceed as directed by the prompts.




Intel(R) PRO LAN adapter driver software release v4.1.1 - InstallShield Wizard
License Agreement
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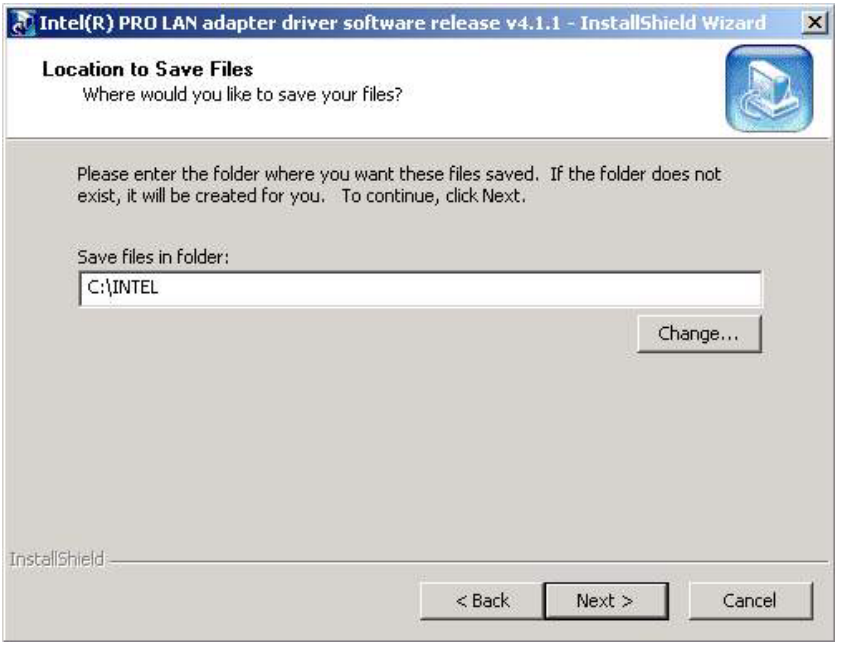
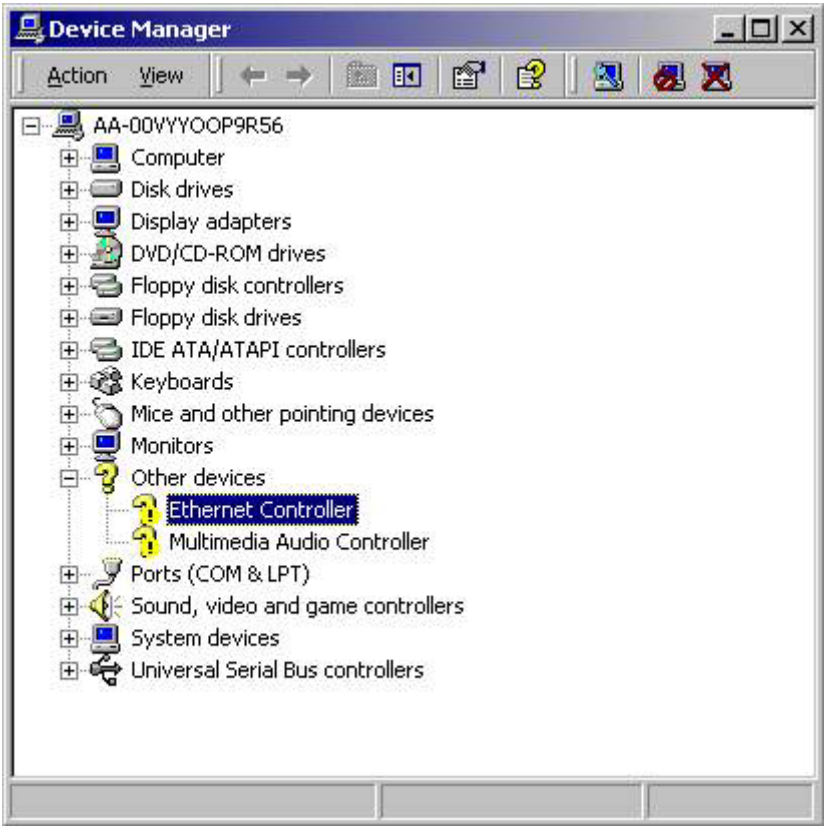
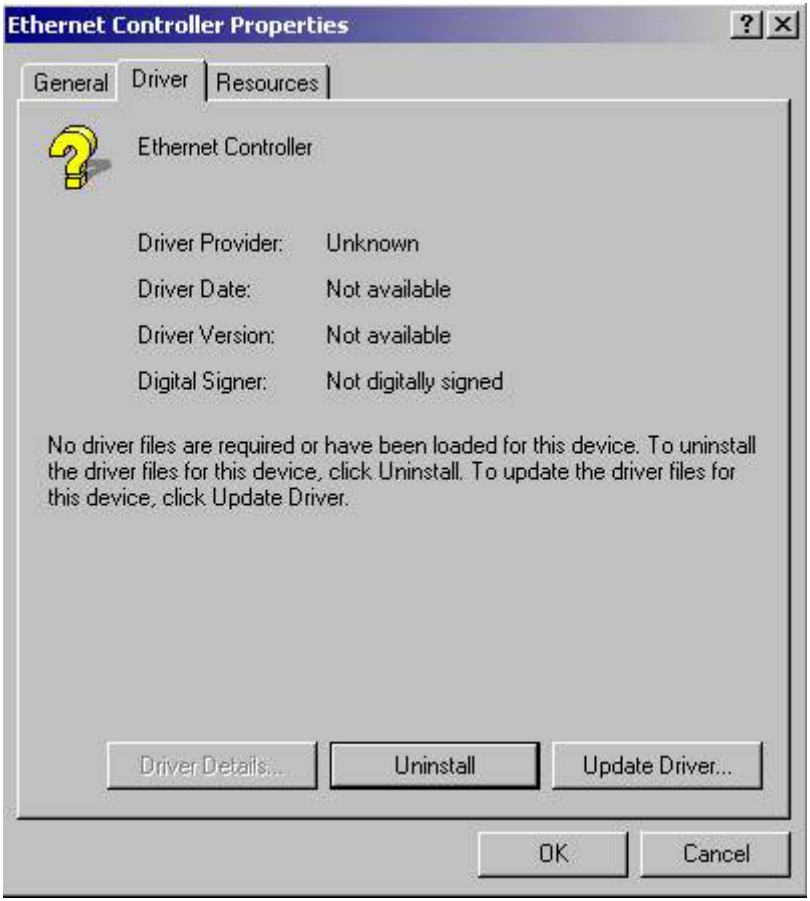
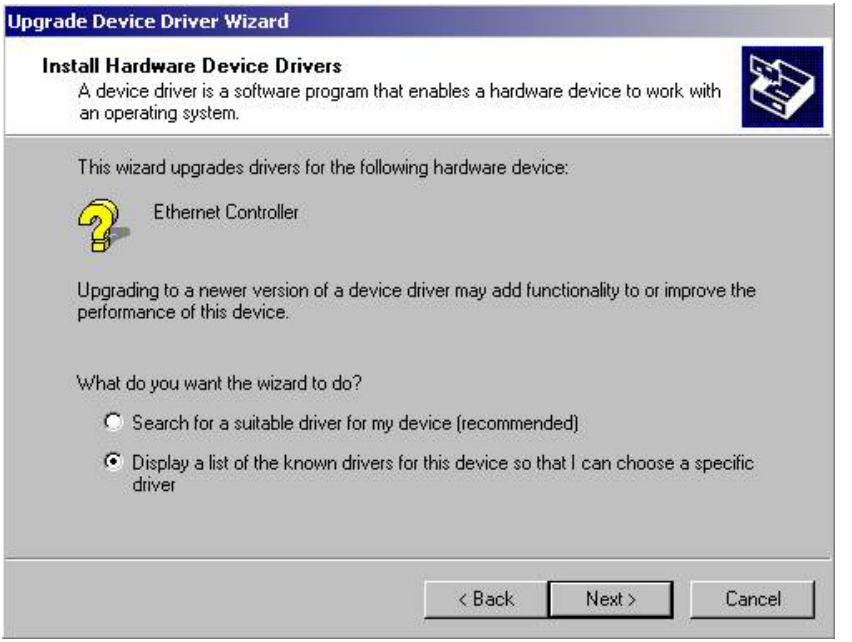
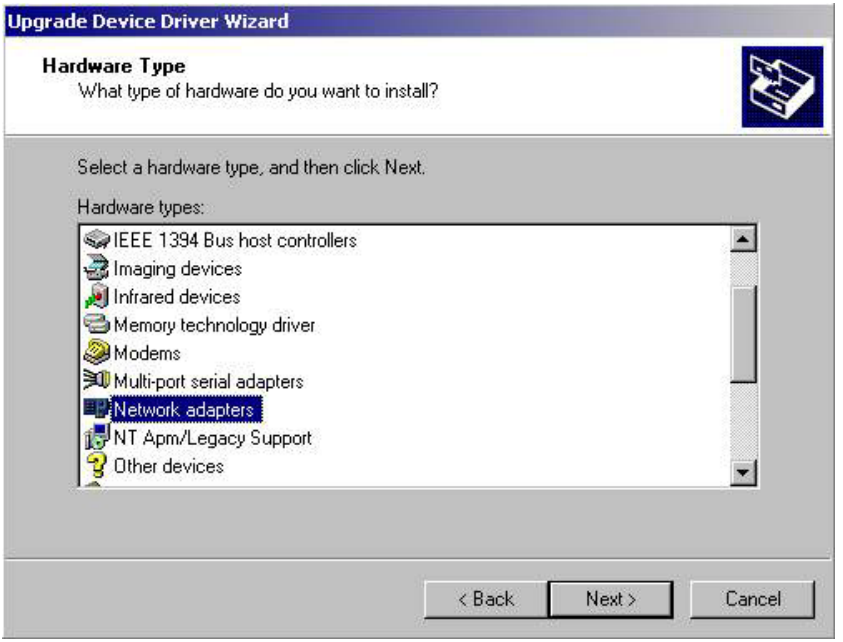
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSE. You may copy the Software onto a single computer for your personal,
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

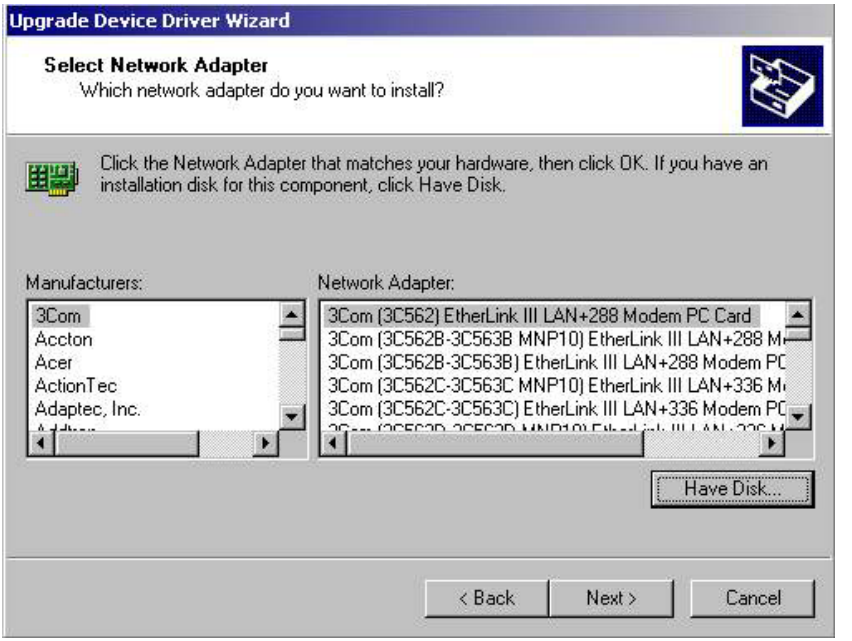

Intel(R) PRO LAN adapter driver software release v4.1.1 - InstallShield Wizard
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
C:\INTEL
Change...
InstallShield
< Back
Next >
Cancel

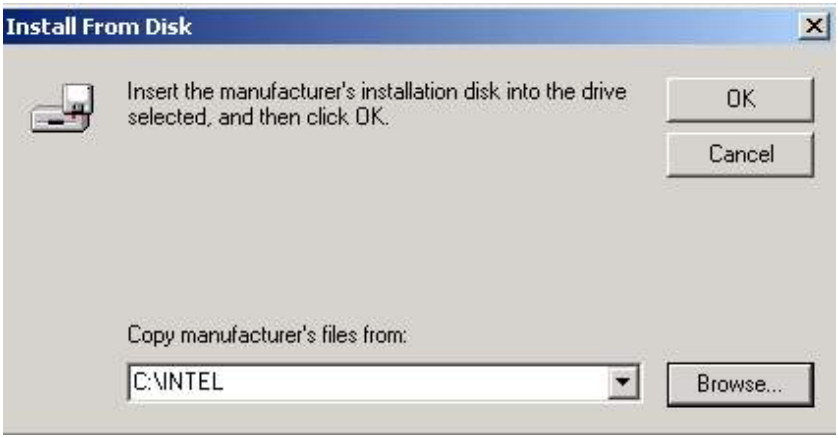

Device Manager
Action
View
AA-00VYYOOP9R56
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Monitors
Other devices
Ethernet Controller
Multimedia Audio Controller
Ports (COM & LPT)
Sound, video and game controllers
System devices
Universal Serial Bus controllers

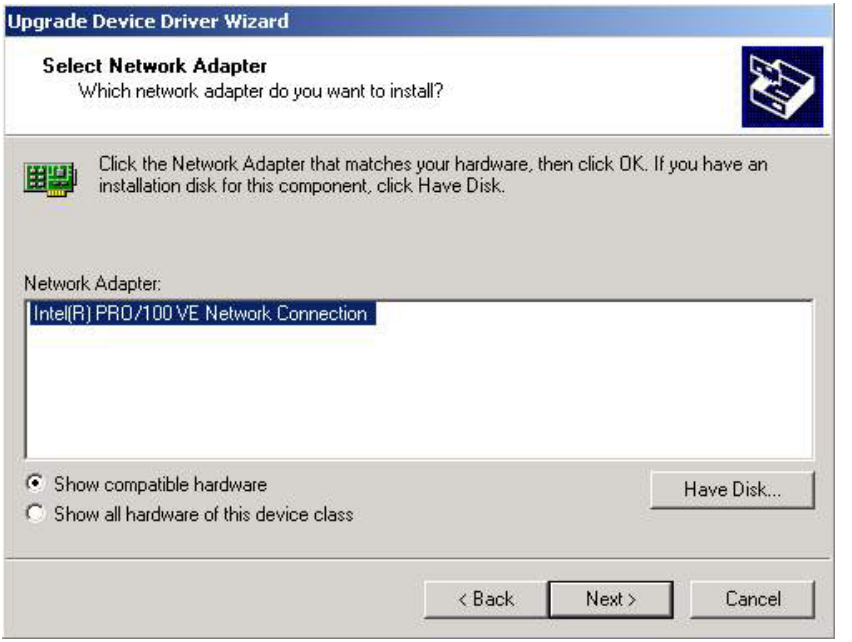

Ethernet Controller Properties
General
Driver
Resources
Ethernet Controller
Driver Provider:
Unknown
Driver Date:
Not available
Driver Version:
Not available
Digital Signer:
Not digitally signed
No driver files are required or have been loaded for this device. To uninstall the driver files for this device, click Uninstall. To update the driver files for this device, click Update Driver.
Driver Details...
Uninstall
Update Driver...
OK
Cancel

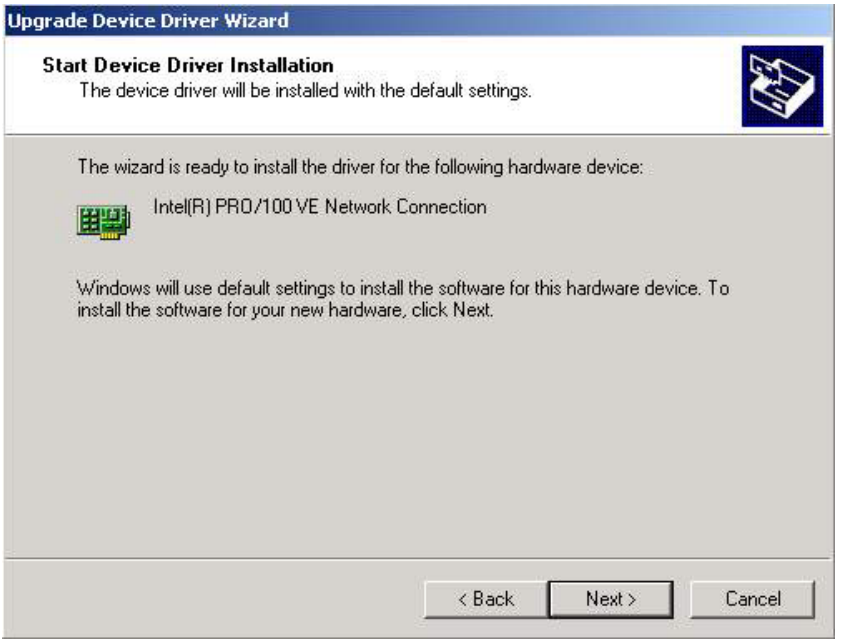

Upgrade Device Driver Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard upgrades drivers for the following hardware device:
Ethernet Controller
Upgrading to a newer version of a device driver may add functionality to or improve the performance of this device.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel


Upgrade Device Driver Wizard
Hardware Type
What type of hardware do you want to install?
Select a hardware type, and then click Next.
Hardware types:
IEEE 1394 Bus host controllers
Imaging devices
Infrared devices
Memory technology driver
Modems
Multi-port serial adapters
Network adapters
NT Apm/Legacy Support
Other devices
< Back
Next >
Cancel


Upgrade Device Driver Wizard
Select Network Adapter
Which network adapter do you want to install?
Click the Network Adapter that matches your hardware, then click OK. If you have an installation disk for this component, click Have Disk.
Manufacturers:
3Com
Accton
Acer
ActionTec
Adaptec, Inc.
Network Adapter:
3Com (3C562) EtherLink III LAN+288 Modem PC Card
3Com (3C562B-3C563B MNP10) EtherLink III LAN+288 M
3Com (3C562B-3C563B) EtherLink III LAN+288 Modem PC
3Com (3C562C-3C563C MNP10) EtherLink III LAN+336 M
3Com (3C562C-3C563C) EtherLink III LAN+336 Modem PC
Have Disk...
< Back
Next >
Cancel


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

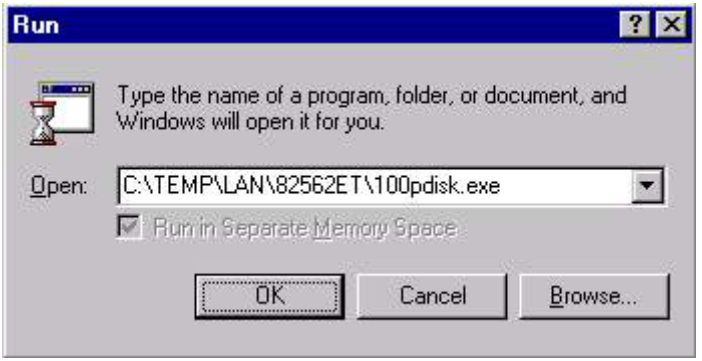

Upgrade Device Driver Wizard
Select Network Adapter
Which network adapter do you want to install?
Click the Network Adapter that matches your hardware, then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
Intel(R) PRO/100 VE Network Connection
Show compatible hardware
Show all hardware of this device class
Have Disk...
< Back
Next >
Cancel

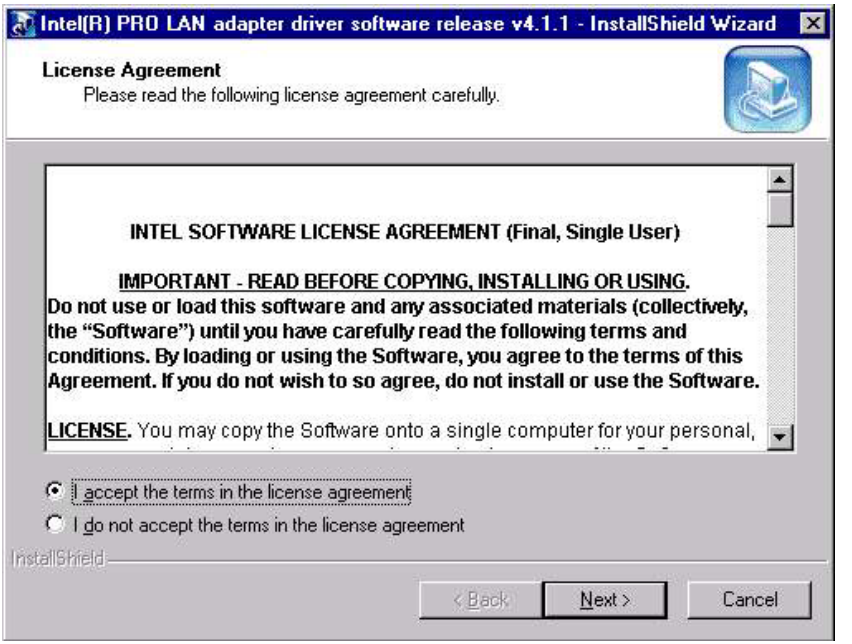

Upgrade Device Driver Wizard
Start Device Driver Installation
The device driver will be installed with the default settings.
The wizard is ready to install the driver for the following hardware device:
Intel(R) PRO/100 VE Network Connection
Windows will use default settings to install the software for this hardware device. To install the software for your new hardware, click Next.
< Back
Next >
Cancel

Upgrade Device Driver Wizard
Completing the Upgrade Device Driver Wizard
Intel(R) PRO/100 VE Network Connection
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

5.2.2 Installation for Windows NT

Insert the disk, or otherwise make the files available to the system, and run the appropriate executable. Then proceed as directed by the prompts.




Intel(R) PRO LAN adapter driver software release v4.1.1 - InstallShield Wizard
License Agreement
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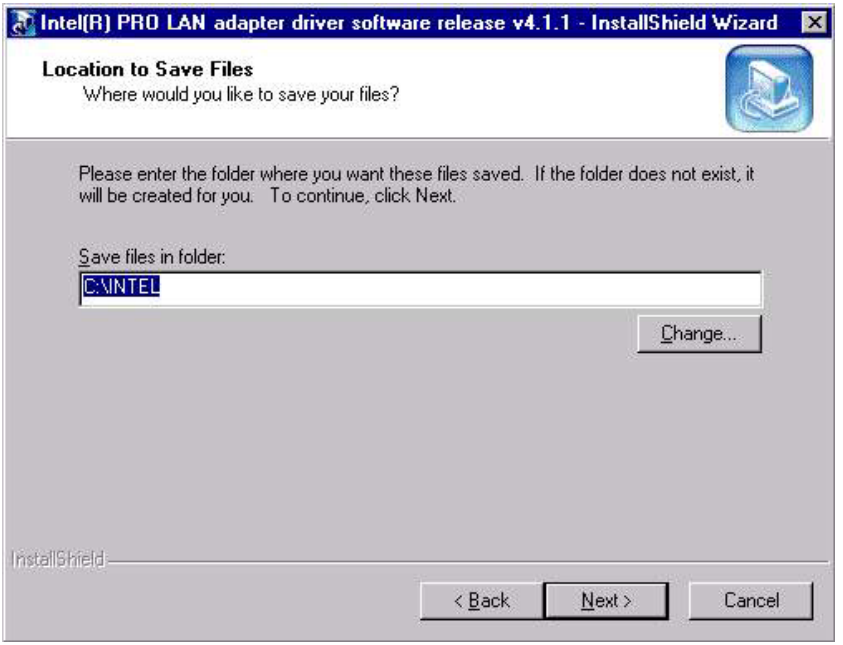
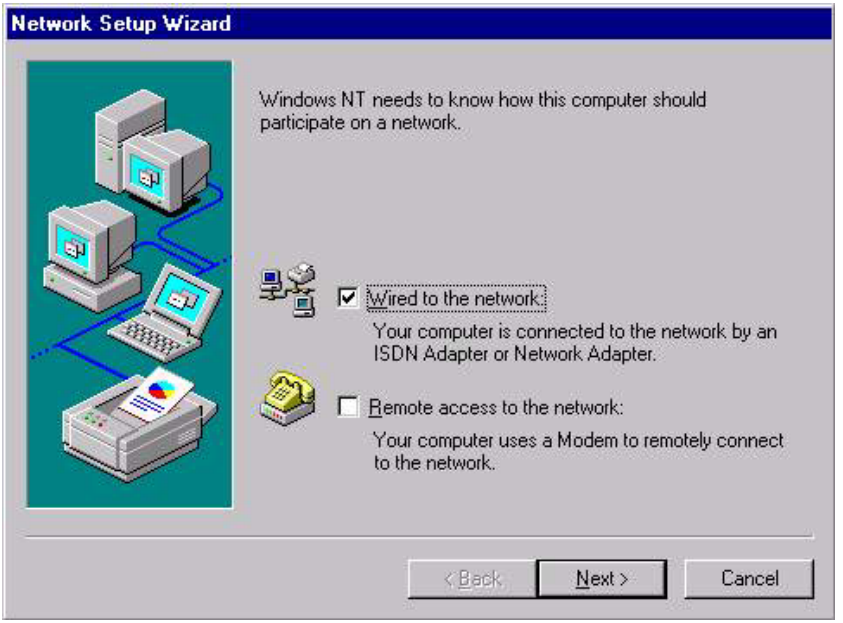
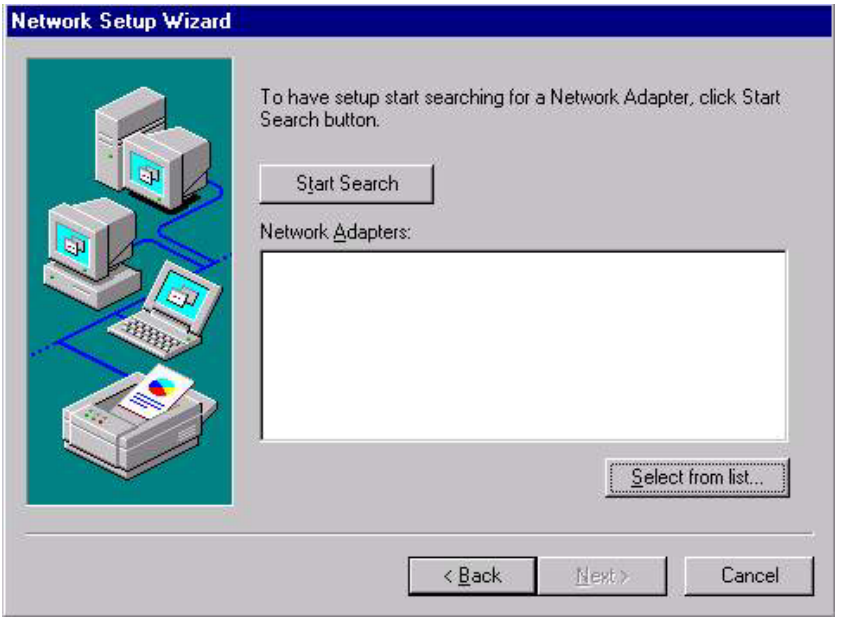
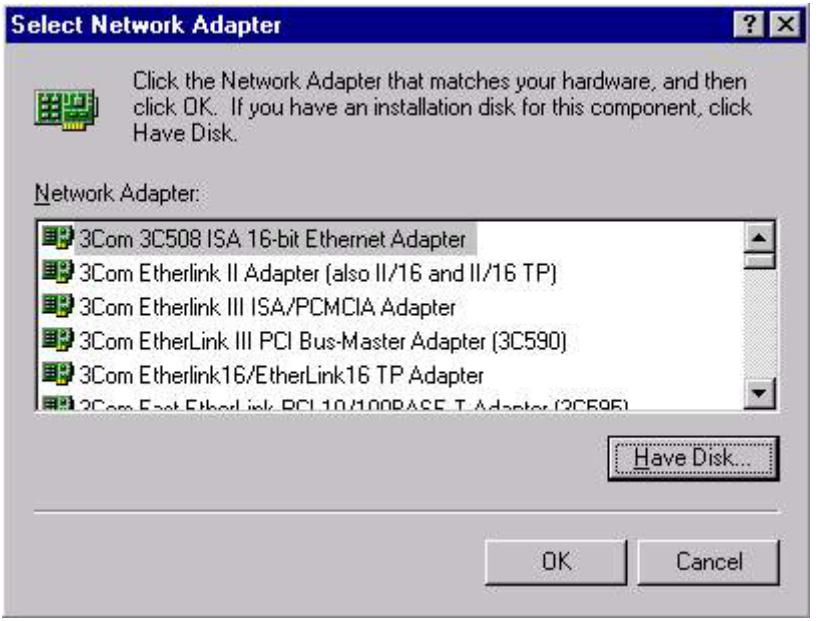
LICENSE. You may copy the Software onto a single computer for your personal,
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

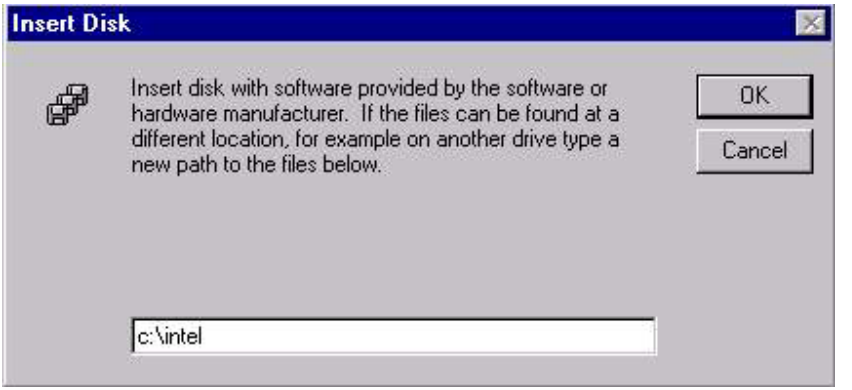

Intel(R) PRO LAN adapter driver software release v4.1.1 - InstallShield Wizard
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
C:\INTEL
Change...
InstallShield
< Back
Next >
Cancel

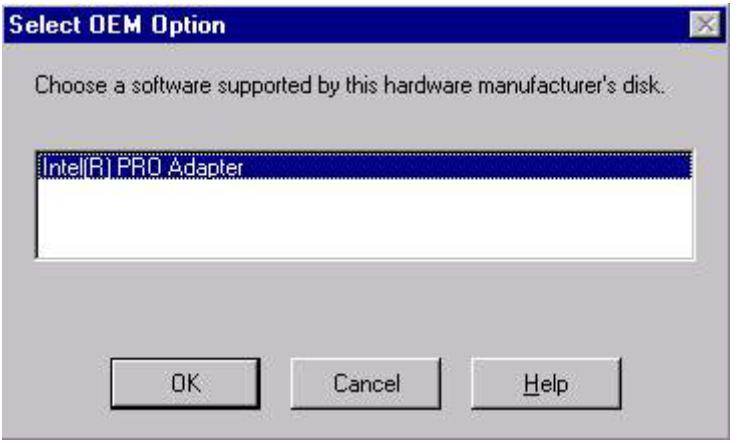
Control Panel
File Edit View Help
Accessibility Options
Add/Remove Programs
Console
Date/Time
Devices
Display
Fonts
Intel® Graphics ...
Internet
Keyboard
Modems
Mouse
Multimedia
Network
ODBC
PC Card (PCMCIA)
Ports
Printers
Regional Settings
SCSI Adapters
Server
Services
Sounds
System
Configures network hardware and software


Network Setup Wizard
Windows NT needs to know how this computer should participate on a network.
Wired to the network:
Your computer is connected to the network by an ISDN Adapter or Network Adapter.
Remote access to the network:
Your computer uses a Modem to remotely connect to the network.
< Back
Next >
Cancel

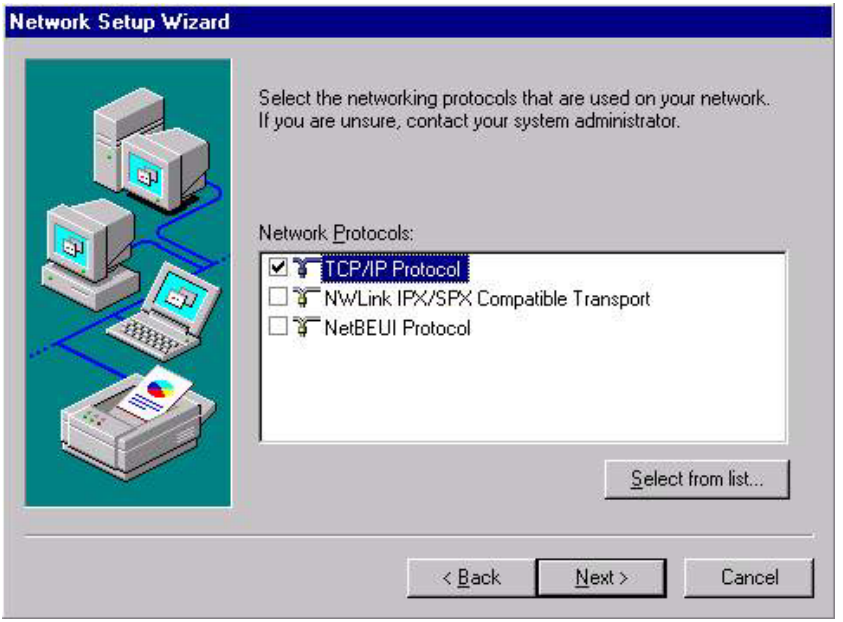

Network Setup Wizard
To have setup start searching for a Network Adapter, click Start Search button.
Start Search
Network Adapters:
Select from list...
< Back
Next >
Cancel

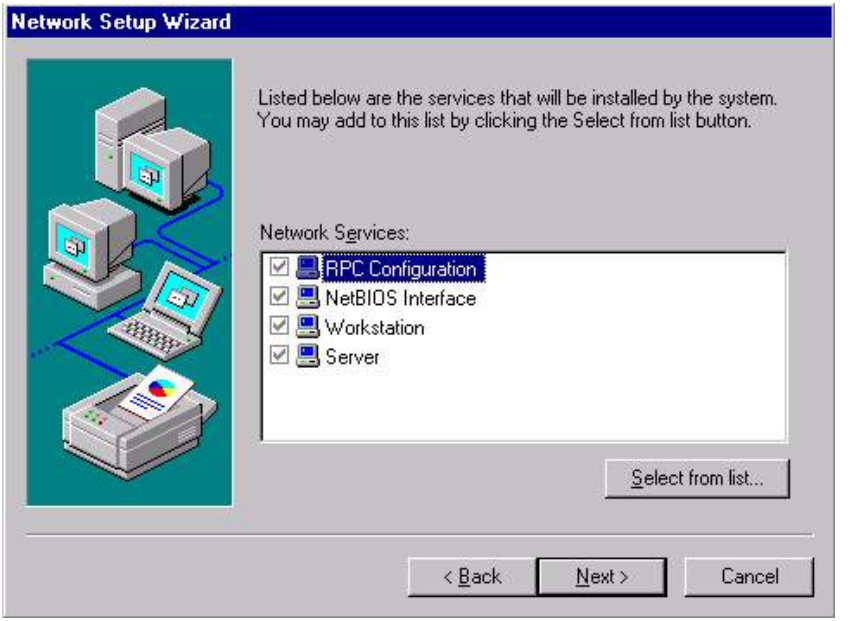

Select Network Adapter
Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
3Com 3C508 ISA 16-bit Ethernet Adapter
3Com Etherlink II Adapter (also II/16 and II/16 TP)
3Com Etherlink III ISA/PCMCIA Adapter
3Com EtherLink III PCI Bus-Master Adapter (3C590)
3Com Etherlink16/EtherLink16 TP Adapter
Have Disk...
OK
Cancel

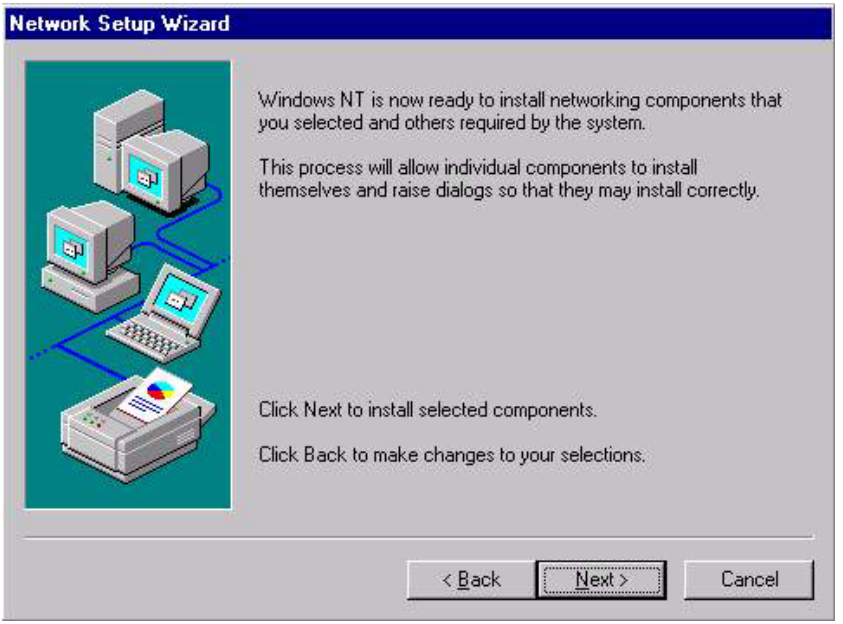

Insert Disk
Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.
OK
Cancel
c:\intel

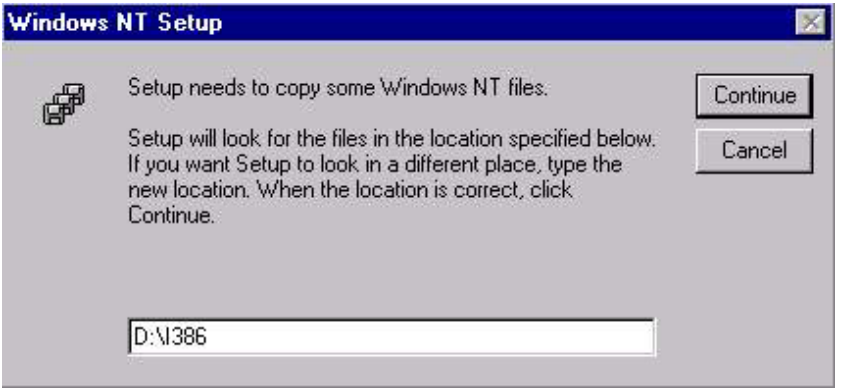

Select OEM Option
Choose a software supported by this hardware manufacturer's disk.
Intel(R) PRO Adapter
OK
Cancel
Help

Network Setup Wizard
To have setup start searching for a Network Adapter, click Start Search button.
Start Search
Network Adapters:
Intel(R) PRO Adapter
Select from list...
< Back
Next >
Cancel


Network Setup Wizard
Select the networking protocols that are used on your network.
If you are unsure, contact your system administrator.
Network Protocols:
TCP/IP Protocol
NWLink IPX/SPX Compatible Transport
NetBEUI Protocol
Select from list...
< Back
Next >
Cancel


Network Setup Wizard
Listed below are the services that will be installed by the system.
You may add to this list by clicking the Select from list button.
Network Services:
RPC Configuration
NetBIOS Interface
Workstation
Server
Select from list...
< Back
Next >
Cancel


Network Setup Wizard
Windows NT is now ready to install networking components that you selected and others required by the system.
This process will allow individual components to install themselves and raise dialogs so that they may install correctly.
Click Next to install selected components.
Click Back to make changes to your selections.
< Back
Next >
Cancel


Windows NT Setup
Setup needs to copy some Windows NT files.
Setup will look for the files in the location specified below. If you want Setup to look in a different place, type the new location. When the location is correct, click Continue.
Continue
Cancel
D:\I386

Network Settings Change
You must shut down and restart your computer before the new settings will take effect.
Do you want to restart your computer now?
Yes
No

5.3 Further information

Intel website:
http://www.intel.com/design/network/products/lan/controllers/82562.htm

Advantech website: **www.advantech.com**
www.advantech.com.tw

APPENDIX A

Programming the Watchdog Timer

The POD-6704 is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

A.1 Programming the Watchdog Timer

To program the watchdog timer, you must write a program which writes I/O port address 443 (hex). The output data is a value of time interval. The value range is from 01 (hex) to 3E (hex), and the related time interval is 1 sec. to 62 sec.

Data	Time Interval
01	1 sec.
02	2 sec.
03	3 sec.
04	4 sec.
•	•
•	•
•	•
3E	62 sec.

After data entry, your program must refresh the watchdog timer by rewriting the I/O port 443 (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should read I/O port 443 (hex).

The following example shows how you might program the watchdog timer in BASIC:

```
10      REM  Watchdog timer example program
20      OUT &H443, data REM  Start and restart the watchdog
30      GOSUB 1000 REM  Your application task #1,
40      OUT &H443, data REM  Reset the timer
50      GOSUB 2000 REM  Your application task #2,
60      OUT &H443, data REM  Reset the timer
70      X=INP (&H443) REM, Disable the watchdog timer
80      END

1000    REM  Subroutine #1, your application task
•         •
•         •
•         •
1070    RETURN
2000    REM  Subroutine #2, your application task
•         •
•         •
•         •
2090    RETURN
```

APPENDIX B

Filler

This appendix is supplied so that we can use the old Appendixes C and D, which are perfectly good, without changing all the references to them that appear in the text. We didn't want anyone to think that we *forgot* Appendix B.

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APPENDIX C

Pin Assignments

This appendix contains information of a detailed or specialized nature. It includes:

- CRT display connector
- Keyboard and mouse connector
- External keyboard connector
- Main power connectors (EBX/ATX)
- IDE connector
- RS-232 serial port connector
- Ethernet RJ-45 connector
- USB connector
- Floppy connector
- Parallel connector
- IR connector
- HDD LED connector
- CompactFlash card connector
- CPU fan connector
- Digital I/O
- System fan connector

C.1 COM1 RS-232 Serial Port (CN1)

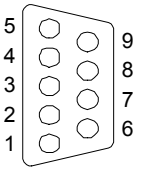

Table C-1: COM1 RS-232 serial port

Pin	Signal
1	DCD
2	SIN
3	SOUT
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

C.2 Serial port2 (CN10)

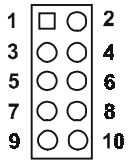

Table C-2: Serial port2

Pin	Signal
1	DCD
2	DSR
3	SIN
4	RTS
5	SOUT
6	CTS
7	DTR
8	RI
9	GND
10	NC

C.3 LAN LED connectors (CN2,CN3,CN4,CN5)

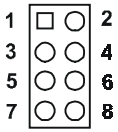

Table C-3: LAN LED connectors

Pin	Signal
1	LINKLED
2	GND
3	ACTLED
4	GND
5	SPLDLE
6	GND
7	USERDEFINEDLED
8	GND

C.4 LAN RJ45 connectors (CN6, CN7, CN8, CN9)

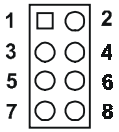

Table C-4: LAN RJ45 connectors

Pin	Signal
1	XMT+
2	XMT-
3	RCV+
4	NC
5	NC
6	RCV-
7	NC
8	NC

C.5 USB1/USB2 Connector (CN11)

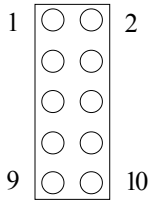

Table C-5: USB1/USB2 connector

	USB1		USB2
1	+5V	2	+5V
3	USBD0-	4	USBD1-
5	USBDO+	6	USBD1+
7	USB_GND	8	USB_GND
9	Chassis GND	10	N/C

C.6 LAN1 box connector (CN12)

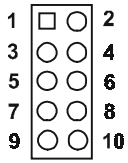

Table C-6: LAN1 box connector

Pin	Signal
1	+3.3V
2	ACT_LED
3	RX+
4	RX-
5	LINK LED
6	TGND
7	USB_GND
8	TGND
9	TX+
10	TX-

C.7 Keyboard and Mouse Connnector (CN13)

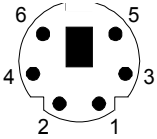

Table C-7: Keyboard and mouse connector

Pin	Signal
1	KBCLK
2	KBDATA
3	MSCLK signal
4	GND
5	+5V
6	MSDATA signal

C.8 Extra keyboard (CN14)

Table C-8: Extra keyboard

Pin	Signal
1	KBCLK
2	KBDATA
3	NC
4	GND
5	+5V

C.9 Printer Port Connector (CN15)

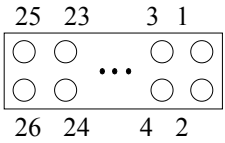

Table C-9: Parallel port connector

Pin	Signal
1	* STROBE
2	* AUTOFD
3	D0
4	* ERR
5	D1
6	* INIT
7	D2
8	SLCTINI
9	D3
10	GND
11	D4
12	GND
13	D5
14	GND
15	D6
16	GND
17	D7
18	GND
19	* ACK
20	GND
21	BUSY
22	GND
23	PE
24	GND
25	SLCT
26	GND

* low active

C.10 Floppy Drive Connector (CN16)

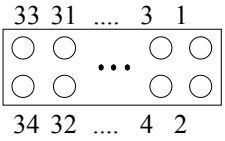

Table C-10: Floppy drive connector

Pin	Signal	Pin	Signal
1	GND	2	RWC#
3	GND	4	N/C
5	GND	6	DS1
7	GND	8	INDEX#
9	GND	10	MOA#
11	GND	12	DSB#
13	GND	14	DSA#
15	GND	16	MOB#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WD#
23	GND	24	WE#
25	GND	26	TRAK0#
27	GND	28	WP#
29	GND	30	RDATA#
31	GND	32	HEAD#
33	GND	34	DSKCHG#

* low active

C.11 IR Connector (CN17)

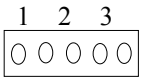

Table C-11: IR connector

Pin	Signal
1	+5 V
2	NC
3	RX
4	GND
5	TX

C.12 CPU Fan Power Connector (CN18)

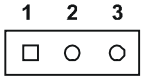

Table C-12: CPU fan power connector

Pin	Signal
1	GND
2	+12 V
3	FAN_DEC

C.13 VGA Display Connector (CN19)

Table C-13: CRT display connector

Pin	Signal	Pin	Signal
1	RED	9	GND
2	+5V	10	HSYNC
3	GREEN	11	GND
4	GND	12	VSYNC
5	BLUE	13	GND
6	NC	14	S-CLK
7	NC	15	GND
8	S-DATA	16	NC

C.14 IDE connector (CN21)

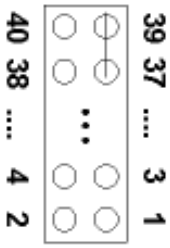

Table C-14: Primary IDE connector (CN15)

pin	signal	pin	signal
1	IDE RESET	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	NC
21	REQ	22	GND
23	IOW	24	GND
25	IOR	26	GND
27	READY	28	Cable Select (Pull-Low)
29	DACK	30	GND
31	IRQ14	32	NC
33	A1	34	Cable check
35	A0	36	A2
37	CS0	38	CS1
39	Active LED	40	GND

C.15 IDE Hard Drive Connector (CN22)

Table C-15: IDE hard drive connector

Pin	Signal	Pin	Signal
1	IDE RESET*	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	N/C
21	DRQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	Cable Select
29	HDACKO*	30	GND
31	IRQ14	32	N/C
33	ADDR 1	34	Reserved
35	ADDR 0	36	ADDR 2
37	CS1#	38	CS3#
39	IDE ACTIVE*	40	GND
41	5 V	42	5 V
43	GND	44	NC

* low active

C.16 CompactFlash Card Connector (CN25)

Table C-16: CompactFlash card connector

Pin	Signal	Pin	Signal
1	GND	2	D03
3	D04	4	D05
5	D06	6	D07
7	*CS0	8	A10[2]
9	*ATA SEL	10	A09[2]
11	A08[2]	12	A07[2]
13	+5 V	14	A06[2]
15	A05[2]	16	A04[2]
17	A03[2]	18	A02
19	A01	20	A00
21	D00	22	D01
23	D02	24	*IOCS16
25	*CD2	26	*CD1
27	D11[1]	28	D12[1]
29	D13[1]	30	D14[1]
31	D15[1]	32	*CS1[1]
33	*VS1	34	*IORD
35	*IOWR	36	*WE[3]
37	INTRQ	38	+5 V
39	*CSEL	40	*VS2
41	* RESER	42	IORDY
43	*INPACK	44	*REG[3]
45	*DASP	46	*PDIAG
47	D08[1]	48	D09[1]
49	D10	50	GND

* low active

C.17 ATX Power On/Off button connector (CN26)

Table C-17:ATX On/Off button connector

Pin	Signal
1	Power on/off signal
2	GND

C.18 ATX Power Connector (CN27)

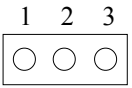

Table C-18: ATX power connector

Pin	Signal
1	5 V SB
2	GND
3	PS_ON

C.19 EBX Power Connector (CN28)

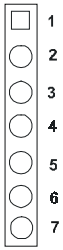

Table C-19:EBX Power Connector

Pin	signal
1	+5V
2	GND
3	GND
4	+12V
5	NC
6	GND
7	+5V

C.20 System fan power connector (CN30)

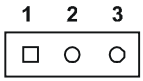

Table C-20: System fan power connector

Pin	Signal
1	+5V
2	GND
3	+12V

C.21 Digital I/O connector (CN20)

Table C.21 Digital I/O connector (CN20)

Pin	Signal
1	DIO0
2	DIO2
3	DIO1
4	DIO3
5	GND
6	GND

APPENDIX D

System Assignments

This appendix contains information of a detailed or specialized nature. It includes:

- System I/O ports
- DMA channel assignments
- Interrupt assignments
- 1st MB memory map

D.1 System I/O Ports

Table D-1: System I/O ports

Addr. range (Hex)	Device
000-01F	DMA controller
020-021	Interrupt controller 1, master
022-023	Chipset address
040-05F	8254 timer
060-06F	8042 (keyboard controller)
070-07F	Real-time clock, non-maskable interrupt (NMI) mask
080-09F	DMA page register
0A0-0BF	Interrupt controller 2
0C0-0DF	DMA controller
0F0	Clear math co-processor
0F1	Reset math co-processor
0F8-0FF	Math co-processor
1F0-1F8	Fixed disk
200-207	Game I/O
278-27F	Parallel printer port 2 (LPT 3)
2F8-2FF	Serial port 2
300-31F	Prototype card
360-36F	Reserved
378-37F	Parallel printer port 1 (LPT 2)
380-38F	SDLC, bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome display and printer adapter (LPT1)
3C0-3CF	Reserved
3D0-3DF	Color/graphics monitor adapter
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1

* PNP audio I/O map range from 220 ~ 250H (16 bytes)
MPU-401 select from 300 ~ 330H (2 bytes)

D.2 DMA Channel Assignments

Table D-2: DMA channel assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

* Audio DMA select 0, 1 or 3

D.3 Interrupt Assignments

Table D-3: Interrupt assignments

Interrupt#	Interrupt source
IRQ 0	Interval timer
IRQ 1	Keyboard
IRQ 2	Interrupt from controller 2 (cascade)
IRQ 8	Real-time clock
IRQ 9	Cascaded to INT 0A (IRQ 2)
IRQ 10	Available
IRQ 11	Watchdog Timer
IRQ 12	PS/2 mouse (non-releasable)
IRQ 13	INT from co-processor
IRQ 14	Fixed disk controller (primary)
IRQ 15	Fixed disk controller (secondary)
IRQ 3	Serial communication port 2
IRQ 4	Serial communication port 1
IRQ 5	Parallel port 2
IRQ 6	Diskette controller (FDC)
IRQ 7	Parallel port 1 (print port)

* PNP audio IRQ select: 5, 7, 9 or 10
* Ethernet function is auto-sensing

D.4 1st MB Memory Map

Table D-4:1st MB memory map

Addr. range (Hex)	Device
F000h - FFFFh	System ROM
C800h - EFFFh	Expansion ROM
C000h - C7FFh	System ROM
B800h - BFFFh	CGA/EGA/VGA text
B000h - B7FFh	Unused
A000h - AFFFh	EGA/VGA graphics
0000h - 9FFFh	Base memory