POS-563

Geode™ LPX SBC for POS Applications

User's Manual for POS-563

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Packing List

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

- 1 POS-563 all-in-one single board computer
- 1 CD-ROM or disks for utility, drivers, and manual (in PDF format)
- 1 warranty certificate
- 1 FDD cable
- 1 UDMA/33 IDE flat cable
- 1 startup manual

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

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CHAPTER 1

General Information

This chapter gives background information on the POS-563.

Sections include:

- Introduction
- Features
- Specifications
- Board layout and dimensions

1.1 Introduction

The POS-563 is a low cost, fanless Geode GX1-233 board especially designed for POS applications. The POS-563 is made with industrial grade construction that can better withstand constant 24 hour a day use, high vibration, shock, exposure to humidity, moisture and heat. The GX1-233 processor allows for fanless operation that virtually eliminates heat buildup problems that has traditionally been the number one cause of failure in enclosed POS systems.

The POS-563 has one PCI/ISA expansion slot and four digital I/Os and four on-board serial ports each with +5 V/+12 V power. These flexible I/Os have standard OLE interfacing that allow for application hardware independence to be realized. Peripherals ranging from bar code scanners, card readers, printers, cash drawers etc., are all easily supported. The POS-563 uses a standardized layout based on Western Digital's LPM/LPX form factor. It is 100% PC compatible and ready for any existing PC software or hardware.

Other on-board industrial features not found on conventional mother-boards include a watchdog timer for dependability during unmanned operations, and CMOS backup to Flash ROM. The on-board SSD socket can also be used to support DiskOnChip and Flash modules.

1.2 Features

- NS Geode™ GX1-233 processor on board
- Fanless operation
- VGA/LCD controller with Universal Memory Architecture
- Supports 18 bit TFT display
- 10/100 Mbps PCI ethernet interface with wake-on-LAN support
- 4 COM ports with power line support in Pin 9 **NOTE: Shared IRQ function with POS-563FC only**
- Digital I/O (4 in & 4 out)
- 2 parallel ports
- 2 x USB
- 4 Mbps FIR
- Socket for DiskOnChip® and CompactFlash™ card
- Watchdog timer: Software enabled/disabled 1 ~ 62 sec. selectable.
- C&T69000 VGA/LCD controller for supporting DSTN panels & up to 36-bit XGA TFT LCD panels (POS-563FC only)
- AC97 audio interface
- 16 MB onboard DRAM (POS-563F/FC only)

1.3 Specifications

Standard SBC functions

- CPU: Embedded low power NS Geode GX1-233
- BIOS: 2 Mbit Flash BIOS, supports Plug & Play, APM 1.2, Supports Ethernet boot ROM, boot from CD-ROM and boot from LS-120 ZIP Drive, optional customer icon available.
- Chipset: CX 5530A
- System memory: One DIMM socket accepts 8 ~ 128 MB SDRAM (8/16/32/64/128 MB)

  16 MB onboard DRAM (POS-563F/FC only)
- Enhanced IDE interface: Supports up to four EIDE devices. BIOS auto-detect, PIO Mode 3 or Mode 4 transfer, Ultra DMA33 mode (ATA-4) up to 33 MB/sec
- FDD interface: Supports 360K/1.2M/720K/1.44MB/2.88MB up to two FDDs
- Serial ports: Four serial RS-232 ports, COM1,2, 3, 4, all provide power support **NOTE: Shared IRQ function with POS-563FC only**
- Parallel port: Two parallel ports, supports EPP/ECP mode
- Infrared port: Shared with COM4. Transfer rates up to 4 Mbps
- Keyboard/mouse connector: Supports standard PS/2 keyboard and a PS/2 mouse
- Power management: Supports power saving modes including Normal/Standby modes. APM 1.1 compliant
- Watchdog timer: 1 ~ 62 sec. selectable
- USB: Two universal serial bus ports

Compliant with USB Spec. Rev. 1.10

VGA/LCD Interface (POS-563FC only)

- Chipset: C&T69000 2 MB SDRAM on chip
- Interface: PCI interface, 64-bit engine
- Display mode: Flat panel displays up to 800 x 600 @ 24 bpp, 1024 x 768 @ 16 bpp, CRT monitors up to 800 x 600 @ 24 bpp, 1024 x 768 @ 16 bpp

Ethernet Interface

- Chipset: RTL 8139C
- Ethernet interface: PCI 10/100 Mbps Ethernet. IEEE 802.3 U protocol compatible
- Connection: On-board RJ-45 connector
- I/O address switchless setting
- Built-in boot ROM

Audio Function (POS-563F/FC only)

- Audio controller: AC97 version 2.0 compliant interface
- Audio interface: Microphone in, line in, CD audio in, line out, speaker L and Speaker R

Digital I/O

- 4 high-drive digital output; MOSFET output to direct drive relay or solenoid up to 1 A max/24 V_{DC}
- Four digital inputs; TTL compatible

Mechanical and Environmental

- Dimensions (L x W): 220 x 235 mm (8.7" x 9.25")
- Power supply voltage: +5 V ±5 %
- Power requirements: typical 5 V@2.62 A (w/ GX1-233 MHz CPU & 128 MB RAM)
- Operating temperature: 0 ~ 60° C (32 ~ 140° F)
- Weight: 0.5 kg (1.1 lb)

1.4 Board dimensions

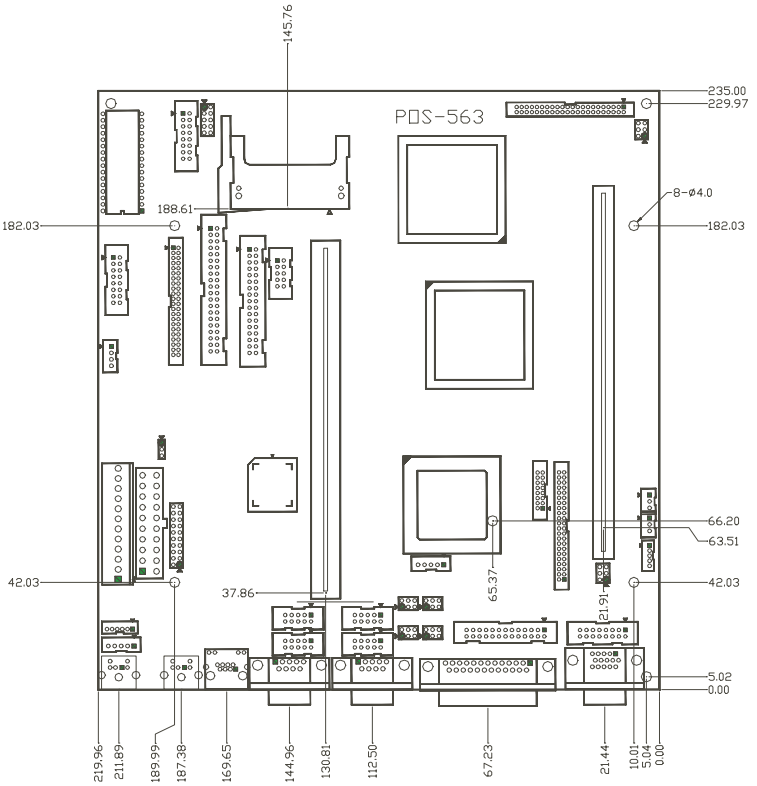


Figure 1-1: Board dimensions (component side)

CHAPTER 2

Installation

This chapter explains how to set up the POS-563 hardware, including 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 Jumpers

The POS-563 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	DOC®2000 and DIO address select
J2	CN1 LCD Voltage select
J5	Clear RTC
J6	CN14 LCD Voltage select
J7	COM3, COM4 Voltage select
J8	COM3, COM4 Ring/Voltage select
J9	COM1, COM2 Voltage select
J10	COM1, COM2 Ring/Voltage select
J11	CN33, Keyboard/Mouse select
SW1	Share IRQ select **(with POS-563FC only)**

2.2 Connectors

On-board connectors link the POS-563 to external devices such as hard disk drives, a keyboard, or floppy drives. The tables below lists the function of each of the board's connectors.

Table 2-2: Connectors

Label	**Function**
CN1	LCD 18 bit connector
CN2	Digital I/O connector
CN3	CompactFlash™ socket
CN4	USB1, USB2 connector

CN5	Audio connector
CN6	Primary IDE connector
CN7	FDD connector
CN8	Secondary slave IDE connector
CN9	CDROM audio-in connector
CN10	PCI/ISA slot
CN11	LCD 36 bit connector (2)
CN12	LCD contrast adjust connector
CN13	LCD brightness adjust connector
CN14	LCD 36 bit connector (1)
CN15	ATX power connector
CN16	AT power connector
CN17	System function connector
CN18	LCD backlight connector
CN19	IR connector
CN20	COM3 connector
CN21	COM4 connector
CN22	Keyboard & PS/2 mouse connector
CN23	CRT connector
CN24	LPT2 connector
CN25	COM1 connector
CN26	COM2 connector
CN27	Keyboard connector
CN28	CRT connector
CN29	LPT1 connector
CN30	COM1 connector
CN31	COM2 connector
CN32	LAN connector
CN33	Keyboard & PS/2 mouse connector
CN34	Keyboard & PS/2 mouse connector
SK1	DOC® 2000

2.3 Locating Jumpers and Connectors

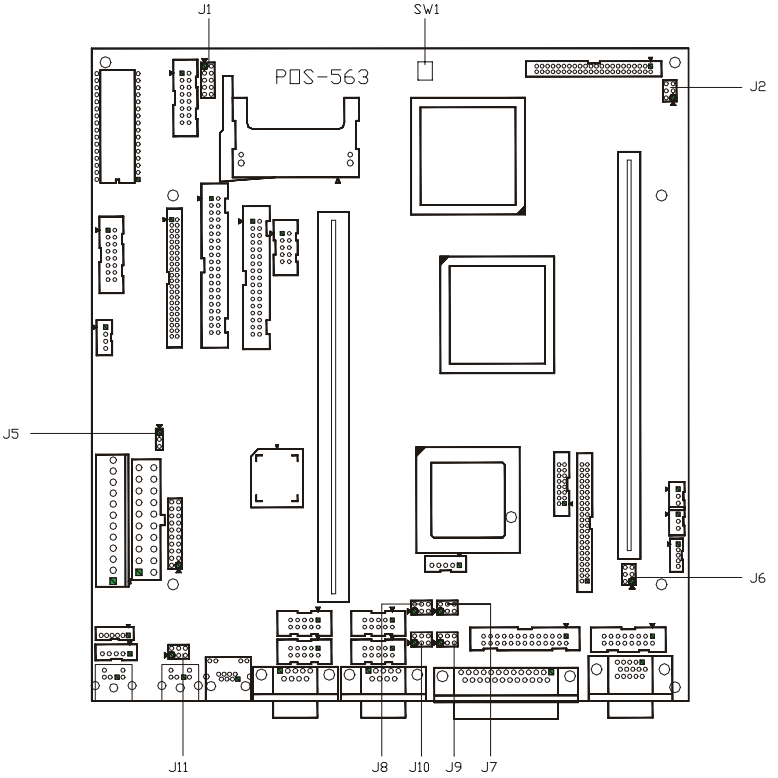


Figure 2-1: Locating jumpers

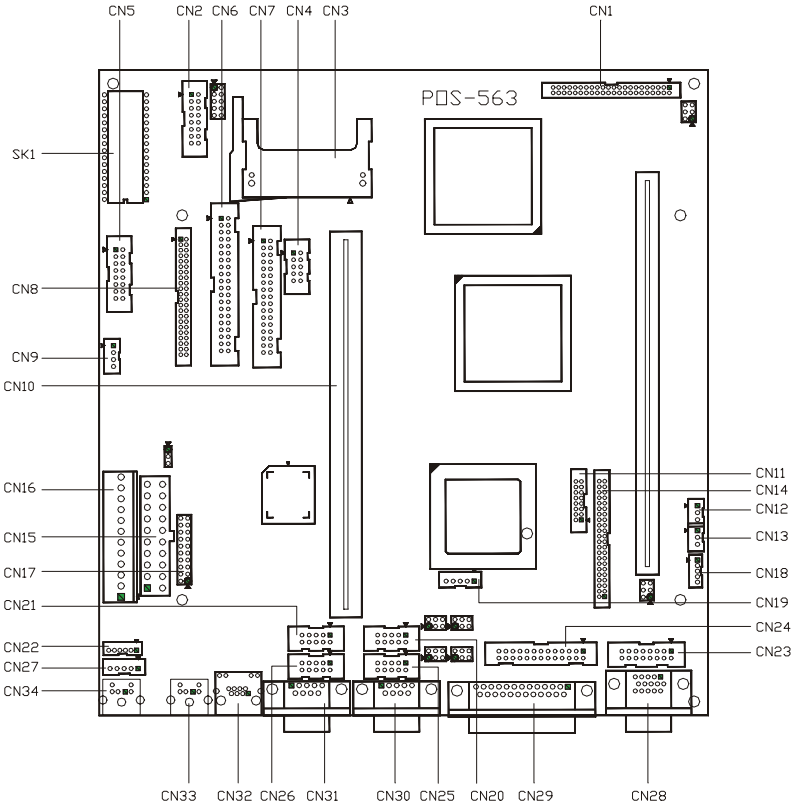


Figure 2-2: Locating connectors

2.4 Safety Precautions

The following sections tell how to make each connection. In most cases, you will simply need to connect a standard cable.

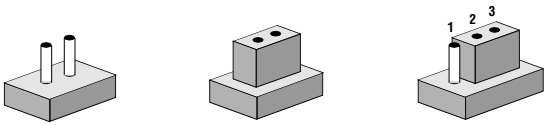
Warning! *Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on. Sensitive electronic components can be damaged by a sudden rush of power. Only experienced electronics personnel should open the PC chassis.*

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 Setting jumpers

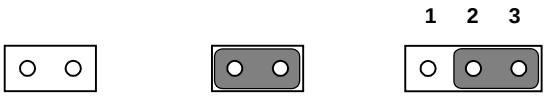
2.5.1 Introduction

You may configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electrical 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, you connect the pins with the clip. To "open" a jumper you 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.

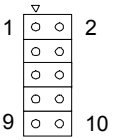
If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Generally, you simply need a standard cable to make most connections.

2.5.2 Settings details

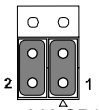
J1: DOC®2000 and DIO address select

DOC® 2000 address select			
DOC 2000	5-6	3-4	1-2
C800	Short	Short	Short
CA00	Short	Short	Open
CC00	Short	Open	Short
CE00	Short	Open	Open
D000	Open	Short	Short
D200	Open	Short	Open
D400	Open	Open	Short
D600*	Open	Open	Open
DIO		9-10	7-8
200		Open	Open
210		Open	Short
220		Short	Open
230*		Short	Short

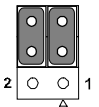


J2: CN1 LCD voltage select

Closed pins	Result
1-3, 2-4	+5 V LCD panel*
3-5, 4-6	+3.3 V LCD panel



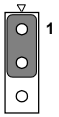
+5 V LCD*



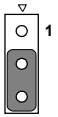
+3.3 V LCD

J5: Clear RTC

Closed pins	Result
1-2	Clear RTC
2-3	RTC*



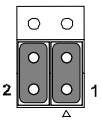
Clear RTC



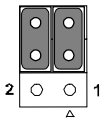
RTC*

J6: CN14 LCD voltage select

Closed pins	Result
1-3, 2-4	+5 V LCD panel*
3-5, 4-6	+3.3 V LCD panel



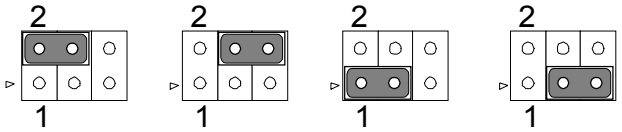
+5 V LCD*



+3.3 V LCD

J7: COM3, COM4 Voltage select

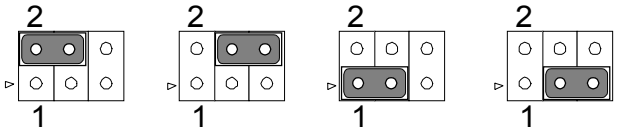
Closed pins	Result
2-4	COM3 (+5 V)*
4-6	COM3 (+12 V)
1-3	COM4 (+5 V)*
3-5	COM4 (+12 V)



COM3 5V* COM3 12V COM4 5V* COM4 12V

J8: COM3, COM4 Ring/Voltage select

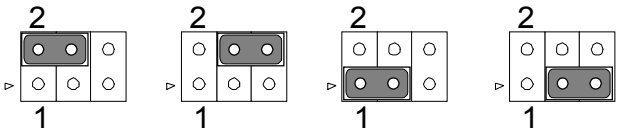
Closed pins	Result
2-4	COM3 Voltage
4-6	COM3 Ring*
1-3	COM4 Voltage
3-5	COM4 Ring*



COM3 Volt COM3 Ring* COM4 Volt COM4 Ring*

J9: COM1, COM2 Voltage select

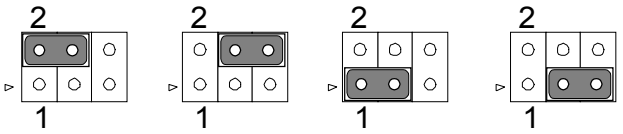
Closed pins	Result
2-4	COM1 (+5 V)*
4-6	COM1 (+12 V)
1-3	COM2 (+5 V)*
3-5	COM2 (+12 V)



COM1 5 V* COM1 12 V COM2 5 V COM2 12 V

J10: COM1, COM2 Ring/Voltage select

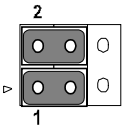
Closed pins	Result
2-4	COM1 Voltage
4-6	COM1 Ring*
1-3	COM2 Voltage
3-5	COM2 Ring*



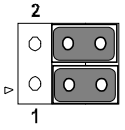
COM1 Volt COM1 Ring* COM2 Volt COM2 Ring*

J11: CN33 Keyboard/mouse select

Closed pins	Result
1-3, 2-4	Keyboard and mouse
3-5, 4-6	mouse only*



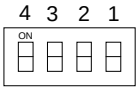
Keyboard



Mouse only*

SW1: Share IRQ select **POS-563FC Only**

ON	Result
1,2,3	IRQ4:COM1, IRQ3:COM2, IRQ10:COM3, IRQ5:COM4
2,3	IRQ10: COM1, COM2, COM3, COM4
1,3	IRQ5: COM1, COM2, COM3, COM4
3	IRQ3: COM1, COM2, COM3, COM4
1,2	IRQ4: COM1, COM2, COM3, COM4
2	IRQ4: COM1, COM3; IRQ3: COM2, COM4
1	IRQ4: COM1; IRQ3: COM2; IRQ10: COM3, COM4
None	IRQ4: COM1; IRQ3: COM2, COM3, COM4



2.6 Flat panel display connector (CN1)

CN1 consists of a 44-pin, dual-in-line header.

The power supply (+12 V) for CN1 is dependant on the supply connected to the board. Therefore make sure that CN15 or CN16 is connected to a +12 V power supply.

The POS-563 provides a bias control signal on CN1 which can be used to control the LCD bias voltage. It is recommended that the LCD bias voltage not be applied to the panel until the logic supply voltage (+5 V or +3.3 V) and panel video signals are stable. Under normal operation the control signal (ENAVEE) is active high. When the POS-563 board's power is applied, the control signal is low until just after the relevant flat panel signals are present.

2.7 Digital I/O (CN2: 4 Outputs, 4 Inputs)

The POS-563 has two high drive digital outputs, "OUT0, OUT1" (24 V_{DC}, 1 A max), two TTL level digital outputs, "OUT2, OUT3" and four digital inputs (TTL level). You can configure the digital I/O to control the opening of the cash drawer and to sense the closing of the cash drawer. The following explains how the digital I/O is controlled via software programming and how a 12 V solenoid or relay can be triggered:

Digital I/O Connector			
IN0	1	2	+5 V
IN1	3	4	OUT0
IN2	5	6	GND
IN3	7	8	OUT1
GND	9	10	+ 12 V
NC	11	12	NC
OUT3	13	14	GND
OUT2	15	16	+ 12 V

Note that the POS-563 series and the POS-560 series have different digital I/O outputs. If needed, users can re-program the Xilinx U9 XC9536 chipset by using the "watchdog.jed" program to make these two series boards output at the same digital I/O.

The "watchdog.jed" program is available from your distributor and re-program assistance is available from Xilinx.

Note: If there is an I/O address conflict in your system, try changing the I/O address through the BIOS.

2.7.1 Digital output programming

Output is CMOS MOSFET (high drive) type, capable of handling 24 V_{DC} / 1 A loading. It is meant to drive relays or a solenoid.

Table 2-3: Digital output programming

Output	Address	Bit
Out 1	220	0
Out 2	220	1

Example: ("0" = off "1" = on)

Data 00 = Out 0 and Out 1 = "0"
Data 01 = Out 0 = "1"
Data 02 = Out 1 = "1"
Data 03 = Out 0 and Out 1 = "1"

2.7.2 Digital output solenoid wiring examples

The POS-563 CN2 digital I/O connector contains a power pin for +5 and +12 V. +5 V is on pin 2 and +12 V is on pin 10/16.

Example:

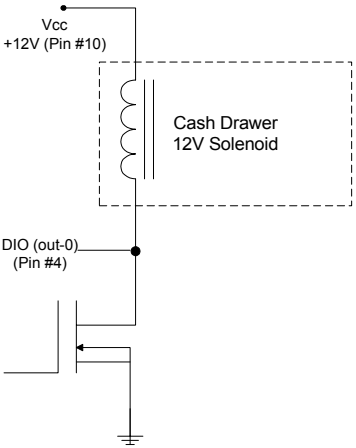


Figure 2-3: POS-563 digital output solenoid wiring example

2.8 CompactFlash™ I/II connector (CN3)

The POS-563 Series is equipped with a CompactFlash disk socket that supports an IDE interface CompactFlash disk card. The socket itself is especially designed to prevent any incorrect installation of the CompactFlash disk card. When installing or removing the Compact-Flash disk card, please make sure that the system power is off.

The CompactFlash disk card is defaulted as the Secondary IDE Master HDD in your PC system.

2.9 USB connector (CN4)

The POS-563 board provides two USB (Universal Serial Bus) interfaces which support plug and play and 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 10-pin (5x2) flat-cable connectors, CN4. You will need an adapter cable if you use a standard USB connector. The adapter cable has a 5 x 2 pin connector on one end and two USB connectors on the other.

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

2.10 Audio interfaces (CN5, CN9)

The POS-563 is equipped with a high quality audio interface, which provides 16-bit CD-quality recording and playback as well as OPL3 compatible FM music. It is supported by all major operating systems and is 100% Sound Blaster Pro compatible.

2.10.1 Audio connector (CN5)

The POS-563 provides all major audio signals on a 16-pin flat-cable connector, CN5. These audio signals include Microphone in (mono), Line in (stereo), Line out (stereo), and Speaker out (stereo). You will need an adapter cable if you use traditional telephone jack connectors for these audio signals.

2.10.2 CD audio-in connector (CN9)

All CD-ROM drives can provide analog audio signal output when used as a music CD player. The CN9 on POS-563 is a connector to input CD audio signal into the audio controller. The audio cable of your CD-ROM drive will be used to connect to CN9.

2.11 40-pin Primary IDE (3.5" HDD) Connector (CN6)

The 40-pin IDE connector (CN6) supports up to two 40-pin IDE interface devices, including CD-ROM drives, tape-backup drives, HDDs, etc. When connecting, make sure pin 1 of the connector is matched with pin 1 of the device's connector.

The built-in Enhanced IDE (Integrated Device Electronics) controller supports up to two IDE channels, including CD-ROM drives, tape backup drives, a large hard disk drive and other IDE devices. It also supports faster data transfer rates and allows IDE hard disk drives with capacities in excess of 528 MB.

Connecting the hard drive

Connecting drives is done in a daisy-chain fashion. Wire number 1 on the cable is red or blue, while the other wires are gray.

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 just one drive, set it as the master.

2.12 FDD connector (CN7)

You can attach up to two floppy disks to the POS-563's on-board controller. You can use any combination of 5¼" (360 KB and 1.2 MB) and/or 3½" (720 KB, 1.44 MB, and 2.88 MB) drives.

A 34-pin daisy-chain drive connector cable is required for a dual-drive system. On one end of the cable is a 34-pin flat-cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3½" drives) and a printed-circuit board connector (usually used for 5¼" drives).

2.12.1 Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN7. Make sure that the red wire corresponds to pin one on the connector.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.
3. If you are connecting a 5¼" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.
   If you are connecting a 3½" floppy drive, you may have trouble determining which pin is pin number one. Look for a number printed on the circuit board indicating pin number one. Also, the connector on the floppy drive connector may have a slot. When the slot is up, pin number one should be on the right. Check the documentation that came with the drive for more information.

   The B: drive can be attached to the connectors in the middle of the cable as described above.

2.13 44-pin Secondary Mini-pitched IDE Interface (2.5" HDD or SSD) (CN8)

The on-board 44-pin mini-pitched IDE interface allows users to support either a 2.5" HDD or a Sandisk IDE Flash module (P/N: PCD-1230-2M/4M) that is available in both 2 and 4 MB versions.

Follow the same connection arrangement as the 3.5" HDD if you want to connect to a 2.5" IDE device. Read the BIOS setup section for more information regarding system settings.

2.14 VGA interface connections

The POS-563 's PCI interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD and active LCD displays. The board has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

2.14.1 CRT display connector (CN23 and CN28)

CN23 is a standard 15-pin D-SUB connector commonly used for the CRT VGA monitor only. CN28 is a 16-pin header connector allowing users to extend the VGA connector and keyboard interface elsewhere via a customized cable. Pin assignments appear in the appendix.

2.14.2 Flat panel display connector (CN11, CN14)

CN14 consists of a 44-pin, dual inline header. It can connect to a 24-bit TFT LCD panel. CN11 consists of a 16-pin dual inline header which with CN14 can connect to a 36-bit TFT LCD panel. Pin assignments appear in the appendix.

2.14.3 LCD power setting (J2, J6)

The POS-563's PCI interface supports 5 V and 3.3 V LCD displays. By changing the setting of J2 and J6, you can select the panel video signal level to be 5 V or 3.3 V.

2.15 Power connectors (CN15, CN16)

2.15.1 Main power connector (CN16)

The power connection is a 12-pin connector (PS/2 or AT power standard) requiring ±5 V and ±12 V power. Always keep the ground wires (black color) toward the middle when connecting the power wire from the power supply.

2.15.2 ATX power input connector (CN15)

The power connection is a 20-pin connector requiring ±5 V and ±12 V and 5VSB single.

2.16 IR connector (CN19)

The POS-563 provides an IrDA port. This connector supports the optional wireless infrared transmitting and receiving module, which is mounted on the system case. Configuration of the module is done through BIOS setup.

2.17 Serial ports (COM1 - 4) (CN30/25, CN31/26, CN20, CN21)

The POS-563 has a total of four on-board RS-232 serial ports, COM1-4. All four serial ports have +5 V and +12 V power capabilities on pin #9, (CN30, CN31) pin # 8 (CN25/26/20/21) depending on the jumper setting. Pin assignments for both internal and external COM ports can be found in the appendix.

2.17.1 Primary serial ports (COM1: CN30/CN25, COM2: CN31/CN26)

Each primary serial port has two connections, one external DB-9 and one internal 10-pin header giving the user the flexibility to adapt the board to many different systems. IRQ for COM1 and COM2 is default with COM1 on IRQ4 and COM2 on IRQ3. COM1 and COM2 can be enabled or disabled via BIOS (see Chapter 4).

2.17.2 Secondary serial ports (COM3: CN20, COM4: CN21)

The secondary serial ports each have one 10-pin, internally positioned header connection. The IRQ for COM3 is fixed at IRQ10 and COM4 is fixed at IRQ5. COM3 and COM4 can be enabled/disabled via BIOS (see Chapter 4).

2.18 Keyboard/mouse connectors (CN22, CN27, CN33, CN34)

The POS-563 is uniquely designed to allow 4 ways for keyboard and mouse input. Please note that only one keyboard and one mouse can be connected at one time.

- External mini-DIN PS/2 keyboard/mouse jack (CN34)
- Internal 5-pin header for KB (CN27)
- Internal 6-pin KB/Mouse connector (CN22)
- External mini-DIN PS/2 mouse/keyboard jack (CN33) selected by J11

Please see J11 (jumper settings) on page 18 of chapter 2.

2.19 LPT1 (primary parallel port) connectors (CN29)

The primary parallel printer port is located at the rear edge of the board, and has a DB-25 connector. This printer port is typically used to connect a printer via an adapter cable. LPT1's IRQ setting is defined as IRQ7. You can select Normal/EPP/ECP for LPT1, and enable/disable it in BIOS (see Chapter 4). There is another internal parallel port connector, CN24, also available.

2.20 LPT2 (secondary parallel port) connector (CN24)

The secondary parallel port is located next to and on the inner side of the primary parallel port. This secondary port has a 26-pin box header. LPT2's IRQ setting is defined as IRQ9. You can select Printer/EPP/ECP/SPP for LPT2, and enable/disable it in BIOS (see Chapter 4).

2.21 Ethernet configuration

The POS-563 is equipped with a high performance 32-bit PCI-bus Ethernet interface which is fully compliant with IEEE 802.3 u 10/100Mbps CSMA/CD standards. It is supported by all major network operating systems.

The medium type can be configured via the RSET8139.EXE program included on the utility disk (see Chapter 3 for detailed information).

2.21.1 RJ-45 connector (CN32)

100/10Base-T connects to the POS-563 via an RJ-45 standard jack.

2.21.2 Network boot

The Network Boot feature can be utilized by incorporating the Boot ROM image files for the appropriate network operating system. You can enable or disable it in BIOS.

CHAPTER 3

Software Configuration

This chapter details the software configuration information. It shows you how to configure the card to match your application requirements. Award system BIOS is covered in Chapter 4.

Sections include:

- Connections for two standard LCDs

3.1 Introduction

The POS-563 system BIOS and custom drivers are located in a 256 KB, 32-pin Flash ROM device, designated U21. A single Flash chip holds the system BIOS and VGA BIOS.

3.2 Utility CD disk

The POS-563 is supplied with a software utility on CD-ROM. This disk contains the necessary file for setting up the VGA display. Directories and files on the disk are as follows:

Figure 3-1: Contents of the POS-563 Series utility disk

AWDFLASH.EXE
This program allows you to update the BIOS Flash ROM.

Vxxx.BIN
This binary file contains the system BIOS.

CBROM.EXE
This program allows you to combine your own VGA BIOS with system BIOS.

RSET8139.EXE

This program enables you to view the current Ethernet configuration, reconfigure the Ethernet interface (medium type, etc.), and execute useful diagnostic functions.

3.3 BIOS Program Setup

Note: Make sure that you do not run AWDFLASH.EXE while your system is operating in EMM386 mode.

1. At the prompt, type AWDFLASH.EXE and press <Enter>. The VGA configuration program will then display the following:

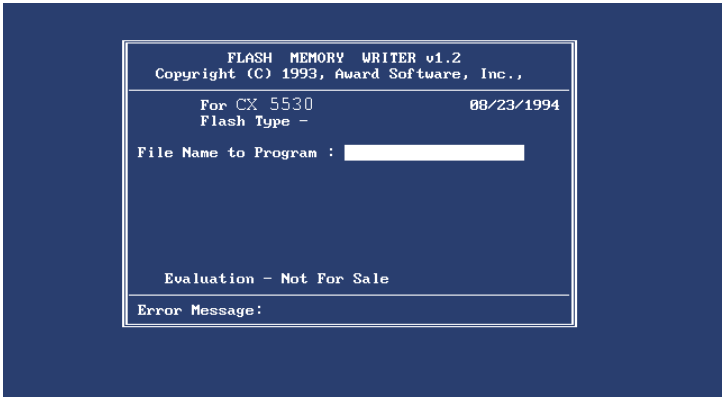


Figure 3-2: BIOS program setup screen

2. At the prompt, type in the BIN file which supports your display. When you are sure that you have entered the file name correctly press <Enter>. The screen will ask “Do you want to save?” If you wish to continue press Y. If you change your mind or have made a mistake press N.
3. If you decide to continue, the screen will issue a prompt which will then ask “Are you sure to program (Y/N)?” If you wish to continue, press Y. Press N to exit the program.

The new VGA configuration will then write to the ROM BIOS chip. This configuration will remain the same until you run the AWDFLASH.EXE program and change the settings.

3.4 Connections for two standard LCDs

3.4.1 Connections for Toshiba LTM10C042 (640 x 480 TFT color LCD)

Table 3-1: Connections for Toshiba LTM10C042

LTM10C042		POS-563 CN1	
Pin	**Name**	**Pin**	**Name**
1	GND	3	GND
2	CLK	35	SHFCLK
3	GND	4	GND
4	R0	27	PD12
5	R1	28	PD13
6	R2	29	PD14
7	GND	8	GND
8	R3	30	PD15
9	R4	31	PD16
10	R5	32	PD17
11	GND	33	GND
12	G0	19	PD6
13	G1	20	PD7
14	G2	21	PD8
15	GND	33	GND
16	G3	22	PD9
17	G4	23	PD10
18	G5	24	PD11
19	GND	34	GND
20	ENAB	37	M
21	GND	34	GND
22	B0	11	PD0
23	B1	12	PD1
24	B2	13	PD2
25	GND	39	GND
26	B3	14	PD3
27	B4	15	PD4
28	B5	16	PD5
29	GND	39	GND
30	VDD	5	+5 V
31	VDD	6	+5 V

3.4.2 Connections for Toshiba LTM12C275A (800 x 600 TFT color LCD)

Table 3-2: Connections for Toshiba LTM12C275A

LTM12C275A		POS-563 **CN1**	
Pin	**Name**	**Pin**	**Name**
1	GND	3	GND
2	NCLK	35	SHFCLK
3	NC	-	NC
4	NC	-	NC
5	GND	4	GND
6	R0	27	PD12
7	R1	28	PD13
8	R2	29	PD14
9	R3	30	PD15
10	R4	31	PD16
11	R5	32	PD17
12	GND	8	GND
13	G0	19	PD6
14	G1	20	PD7
15	G2	21	PD8
16	G3	22	PD9
17	G4	23	PD10
18	G5	24	PD11
19	GND	33	GND
20	B0	11	PD0
21	B1	12	PD1
22	B2	13	PD2
23	B3	14	PD3
24	B4	15	PD4
25	B5	16	PD5
26	ENAB	37	M/DE
27	GND	34	GND
28	VCC	5	+5 V
29	VCC	6	+5 V
30	GND	39	GND

3.5 Ethernet interface configuration

The POS-563's on-board Ethernet interface supports all major network operating systems. To configure the medium type, to view the current configuration, or to run diagnostics, do the following:

1. Power the POS-563 on. Make sure that the RSET8139.EXE file is located in the working drive.
2. At the prompt, type RSET8139.EXE and press <Enter>. The Ethernet configuration program will then be displayed.
3. This simple screen shows all the available options for the Ethernet interface. Just highlight the option you wish to change by using the Up and Down keys. To change a selected item, press <Enter>, and a screen will appear with the available options. Highlight your option and press <Enter>. Each highlighted option has a helpful message guide displayed at the bottom of the screen for additional information.
4. After you have made your selections and are sure this is the configuration you want, press ESC. A prompt will appear asking if you want to save the configuration. Press Y if you want to save.

The Ethernet Setup Menu also offers three very useful diagnostic functions. These are:

1. Run EEPROM test
2. Run Diagnostics on Board
3. Run Diagnostics on Network

Each option has its own display screen that shows the format and result of any diagnostic tests undertaken.

CHAPTER 4

Award BIOS Setup

This chapter describes how to set BIOS configuration data.

4.1 System test and initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

```
press <F1> to RESUME
```

Write down the message and press the F1 key to continue the bootup sequence.

4.1.1 System configuration verification

These routines check the current system configuration against the values stored in the card's CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time.
2. You have changed the hardware attached to your system.
3. The CMOS memory has lost power and the configuration information has been erased.

The POS-563's CMOS memory has an integral lithium battery backup. The battery backup should last ten years in normal service, but when it finally runs down, you will need to replace the complete unit.

4.2 Award BIOS setup

Award's 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 CMOS RAM so that it retains the Setup information when the power is turned off.

4.2.1 Entering setup

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

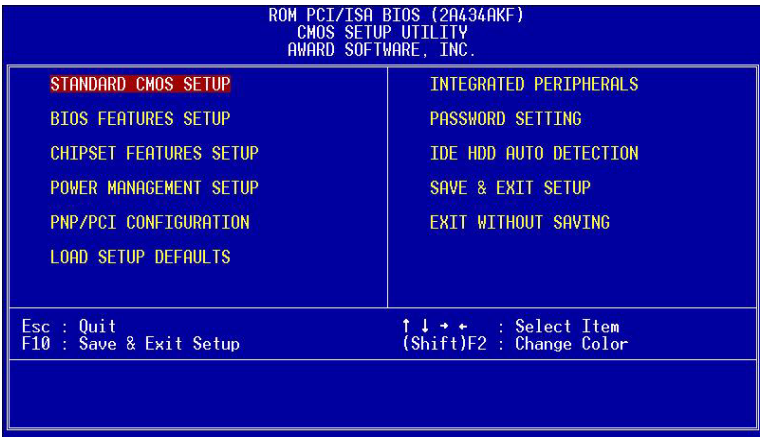


Figure 4-1: Setup program initial screen

4.2.2 Standard CMOS setup

When you choose the STANDARD CMOS SETUP option from the INITIAL SETUP SCREEN menu**,** the screen shown 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. Once a field is highlighted, online help information is displayed in the left bottom of the Menu screen.

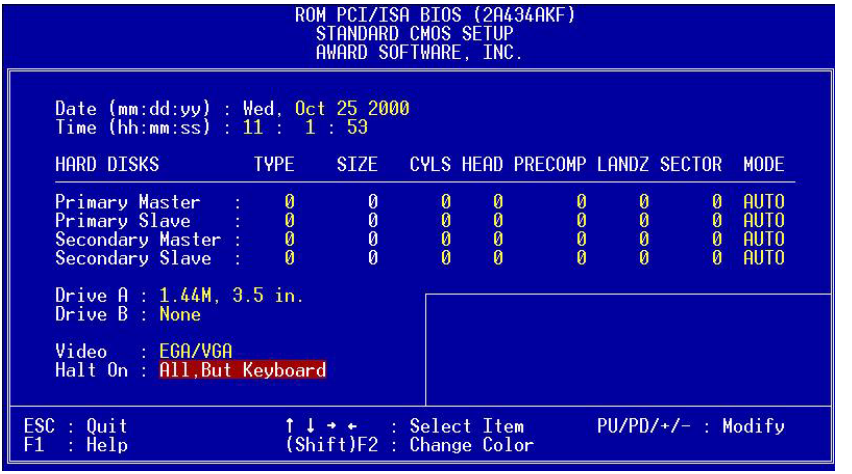


Figure 4-2: CMOS setup screen

4.2.3 BIOS features setup

By choosing the BIOS FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POS-563.

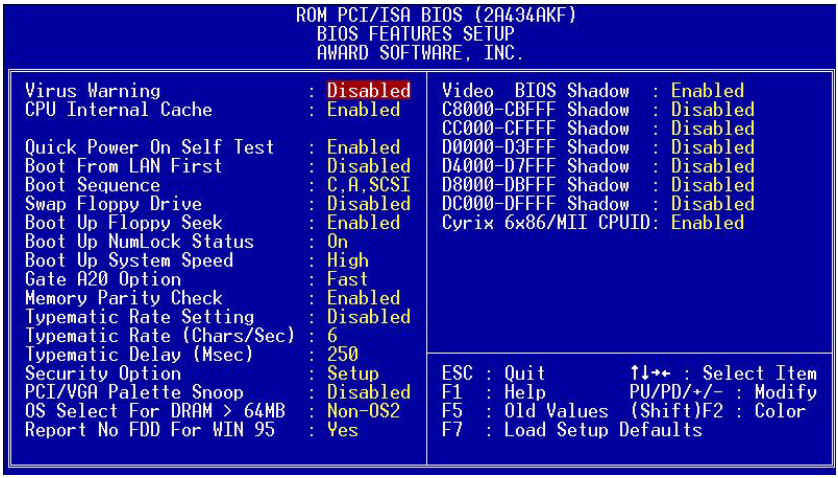


Figure 4-3: BIOS features setup screen

4.2.4 Chipset features setup

By choosing the CHIPSET FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POS-563.

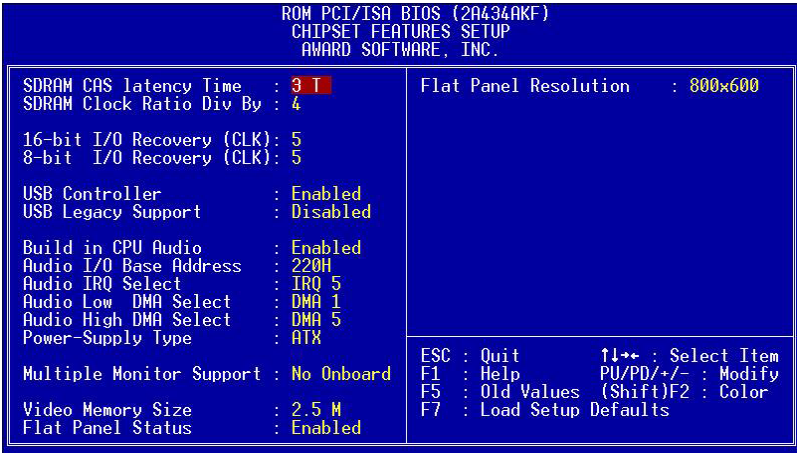


Figure 4-4: Chipset features setup screen

4.2.5 Power management setup

By choosing the POWER MANAGEMENT SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POS-563.

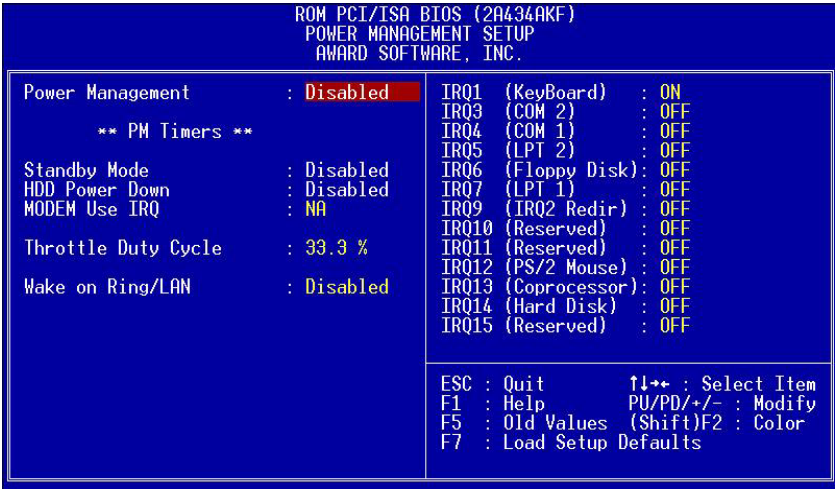


Figure 4-5: Power management setup screen

4.2.6 PnP/PCI configuration setup

By choosing the PNP/PCI CONFIGURATION option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POS-563.

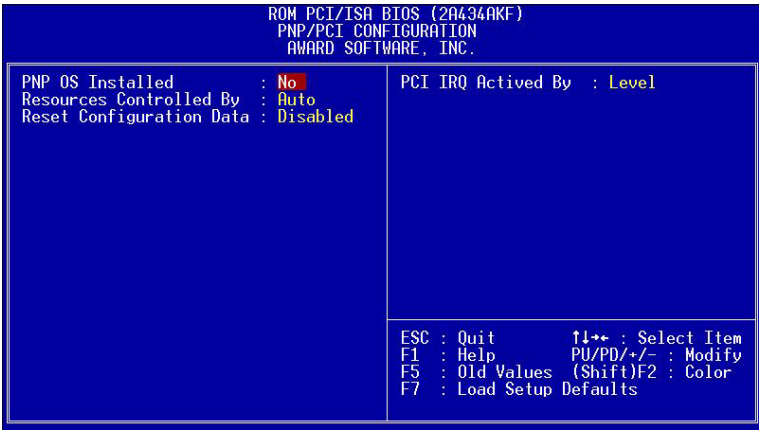


Figure 4-6: PCI configuration setup screen

4.2.7 Integrated peripherals

By choosing the INTEGRATED PERIPHERALS option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the POS-563.

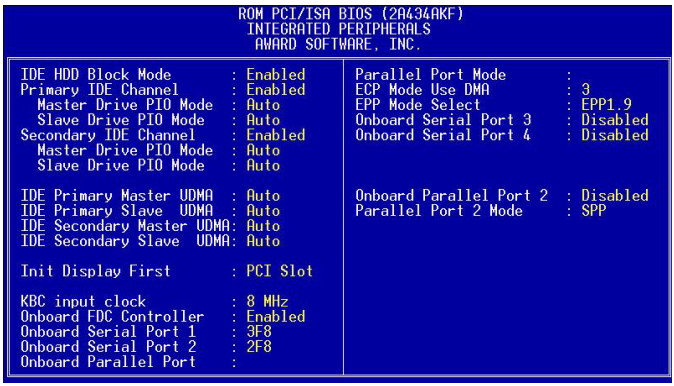


Figure 4-7: Integrated peripherals setup screen

4.2.8 Load BIOS defaults

LOAD BIOS DEFAULTS loads the default system values directly from ROM. If the stored record created by the Setup program becomes corrupted (and therefore unusable), these defaults will load automatically when you turn the POS-563 on.

4.2.9 Change password

To change the password, choose the PASSWORD SETTING option form the Setup main menu and press <Enter>.

1. If the CMOS is bad or this option has never been used, there is default password which is stored in the ROM. The screen will display the following messages:

Enter Password:

Press <Enter>.

2. If the CMOS is good or this option has been used to change the default password, the user is asked for the password stored in the CMOS. The screen will display the following message:

Confirm Password:

Enter the current password and press <Enter>.

3. After pressing <Enter> (ROM password) or the current password (user-defined), you can change the password stored in the CMOS. The password can be at most 8 characters long.

Remember - to enable this feature, you must first select either Setup or System in the BIOS FEATURES SETUP.

4.2.10 Auto detect hard disk

The IDE HDD AUTO DETECTION utility can automatically detect the IDE hard disk installed in your system. You can use it to self-detect and/or correct the hard disk type configuration.

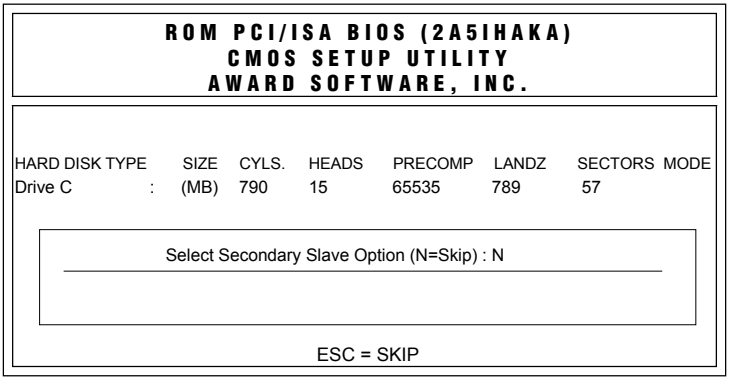


Figure 4-8: IDE HDD auto detection screen

4.2.11 Save & exit setup

If you select this option and press <Enter>, the values entered in the setup utilities will be recorded in the chipset's CMOS memory. 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.

4.2.12 Exit without saving

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

CHAPTER 5

VGA and Audio Setup (5530A chipset)

- Introduction
- Installation of SVGA driver for Windows 3.1/9x/NT

5.1 Introduction

The POS-563 has an on-board LCD/VGA interface. The specifications and features are described as follows:

5.1.1 Chipset (NS CX5530A) (POS-563)

The POS-563 uses a NS CX5530A chipset for its SVGA controller. It supports many popular 18-bit LCD displays and conventional analog CRT monitors. The VGA BIOS supports LCD. In addition, it also 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.

5.1.2 Display memory

With 1.5 ~ 2.5 MB shared memory, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1280 x 1024 at 256 colors. The display memory can be expanded to 2.5 MB in BIOS for 64K color resolution of 1024 x 768.

5.2 Installation of CX5530A chipset VGA and Audion driver

Complete the following steps to install the SVGA driver. Follow the procedures in the flow chart that apply to the operating system that you are using within your POS-563.

Important: The following windows illustrations are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.

Note 1: The CD-ROM drive is designated as "D:" throughout this chapter.

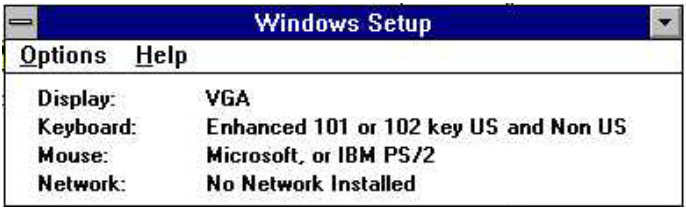
Note 2: <Enter> means pressing the “Enter” key on the keyboard.

Note 3: When you are using a CRT display, please make sure that your flat panel resolution settings (in the BIOS setup) are the same as your VGA resolution settings (in Windows). Otherwise your display may behave strangely.

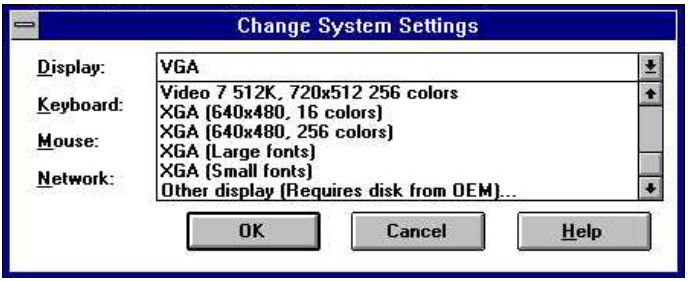
5.2.1 Installation for Windows 3.1 (VGA only)

1. In the Windows 3.1 Main screen, click on the "Windows Setup" icon.

2. In the "Windows Setup" window, choose "Options", then select "Change System Settings".



3. In the "Change System Settings" window, select the "Display" item. In the dropdown selection, select "Other display {Requires disk from OEM}" .



4. Type in the correct path like the window below, where drive "D" is the CD ROM drive. For example,
D:\POS\563\VGA\WIN31

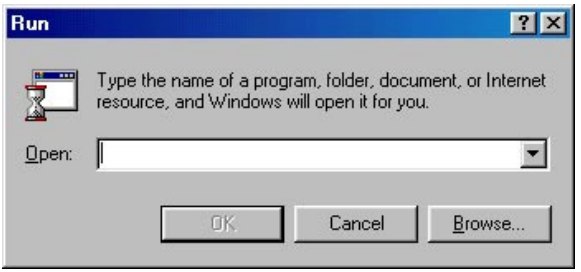
5. Select the display type and preferred resolution, then click "OK".

6. Choose "Restart Windows".

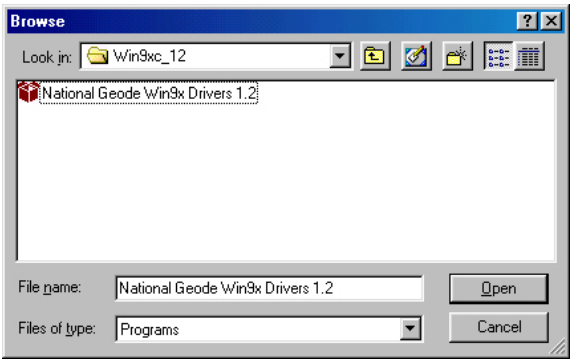
5.2.2 Installation for Windows 95/98 VGA and Audio

Please note: when you setup VGA for 95/98, it installs audio at the same time)

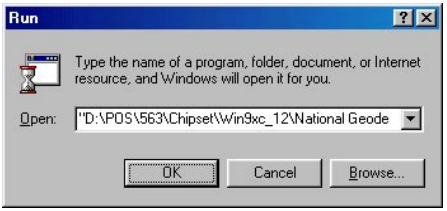
1. a. Browse



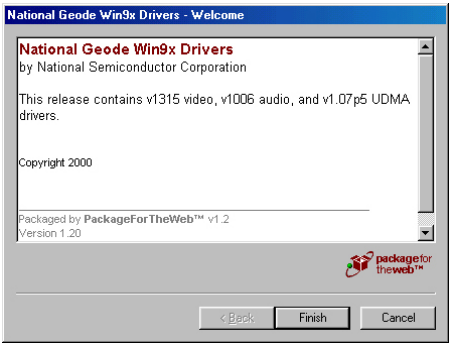
2. Choose "Open".



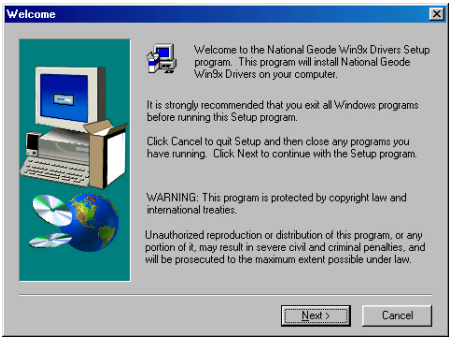
3. Type in the correct path like the window below, where drive "D" is the CD ROM drive. For example, **D:\POS\563\Chipset\Win9xc_12\National Geode"**



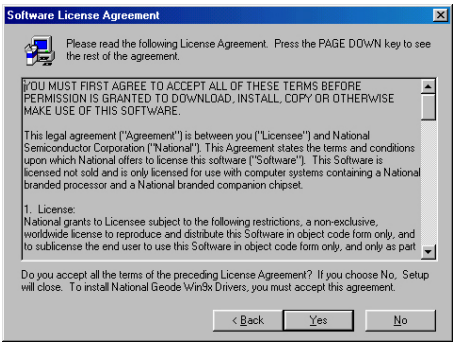
4. Cick "Finish".



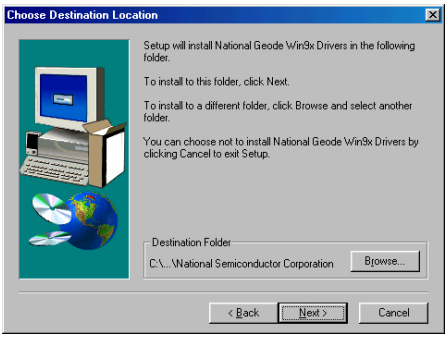
5. Click "Next" to proceed to the next step.



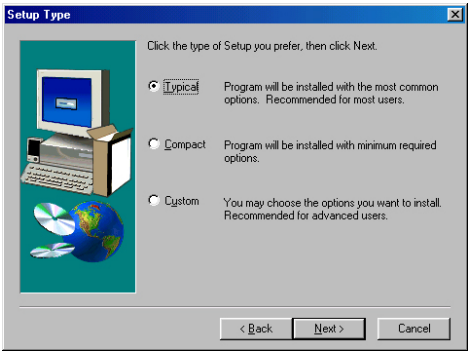
6. Click "yes" after you read and accept the license agreement.



7. Click "next" after choosing the proper location.

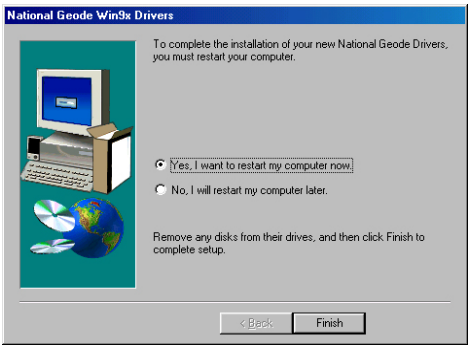


8. Select typical, press next



9. Insert the Windows 98 CD-ROM, then click OK.

10. Choose "Yes", then click "Finish" to restart the computer.



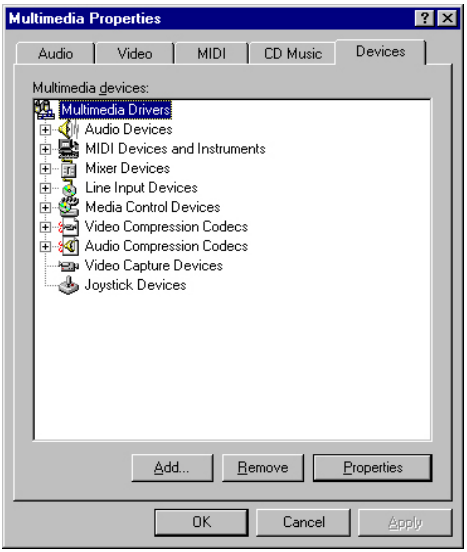
5.3 Installation for Windows NT Audio (CX5530A)

1. a. Select "Start", "Settings", "Control panel".

   b. Double click "Multimedia".

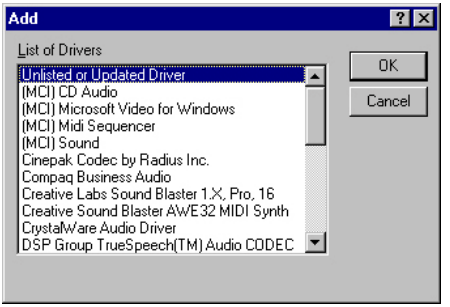
2. a. Select the "Devices" item.

   b. Click "add".

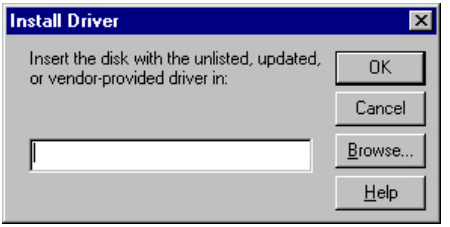


3. a. Select the "unlisted.." item.

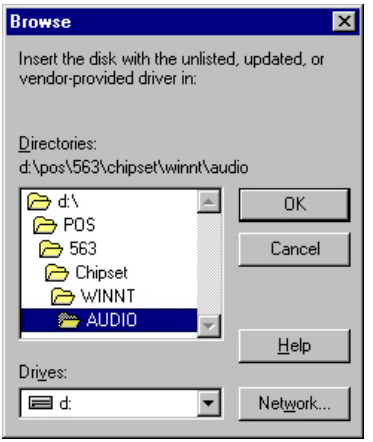
   b. Click "OK".



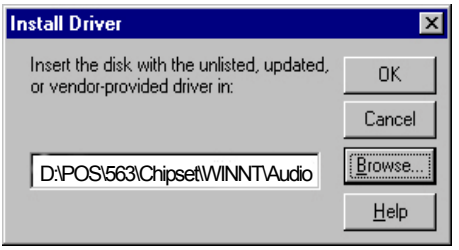
4. a. Click "Browse".



5. Cick "OK".

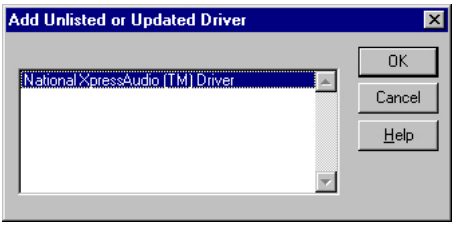


6. Type D:\POS\563\Chipset\WINNT\Audio



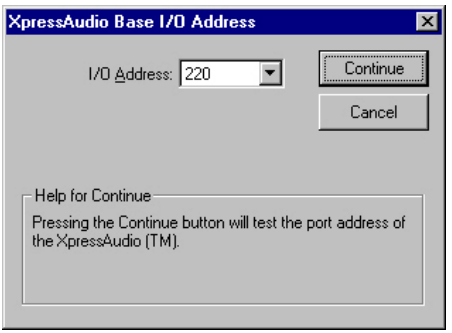
7. a. Choose the highlighted item.

   b. Click the "OK" button.



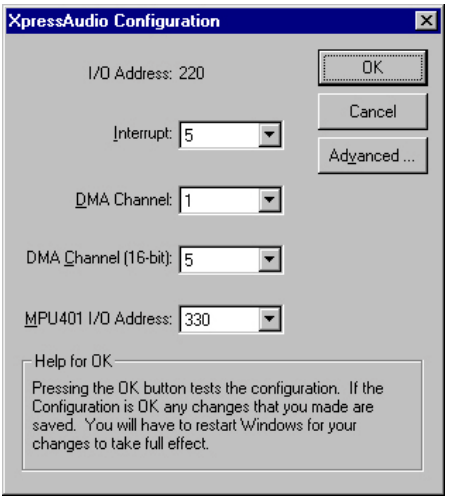
8. a. Set the I/O address.

   b. Click "Continue".



9. a. Set Xpress Audio configuration.

   b. Click "OK".

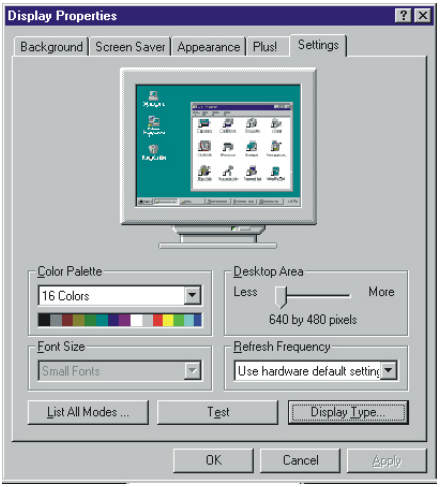


4. Cick "Restart Now".

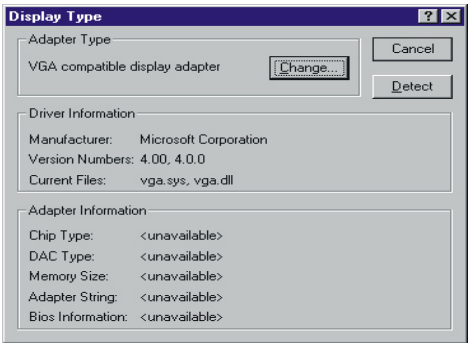
5.4 Installation for Windows NT VGA for CX5530A

1. a. Select "Start", "Settings", "Control Panel".
   b. Double click the "Display" icon.

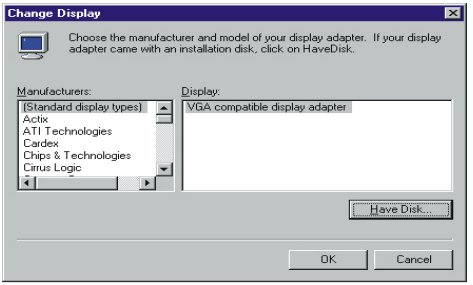
2. a. Choose the "Settings" label.
   b. Press the "Display Type" button.



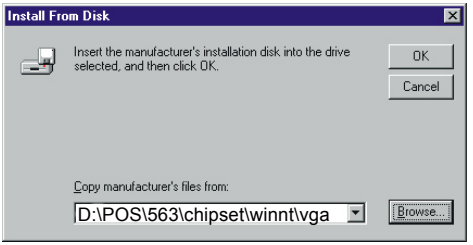
3 a. Press the "Change..." button.



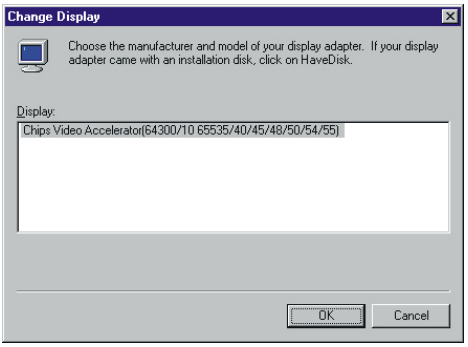
4. Click the "Have Disk" button.



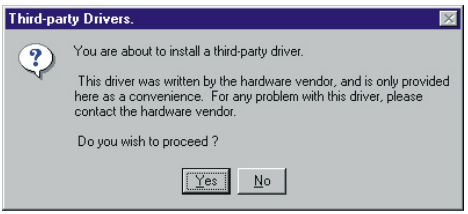
5. a. Insert the utility disc into the CD-ROM drive.
   b. Type **D:\POS\563\chipset\winnt\vga**
   c. Press the "OK' button.



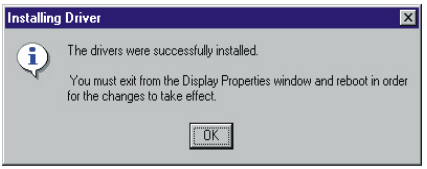
6 a. Select the highlighted item.
b. Press the "OK" button.



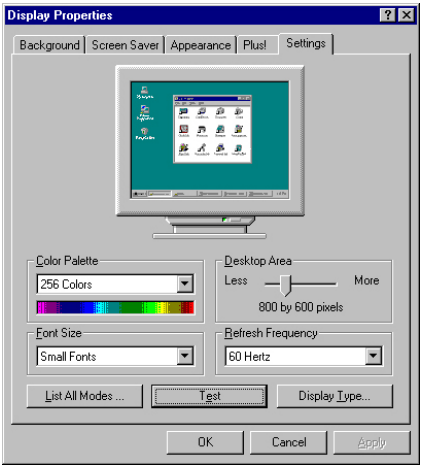
7. Press "Yes" to proceed.



8. a. Press "OK" to reboot.



9 a. Repeat Step 1 in this manual, to select the "Settings" label.
b. Adjust resolution and color.
c. Click "Test" to see the result.
d. Click "OK" to save the setting.



CHAPTER 6

SVGA for C&T 69000

This chapter provides information on Ethernet configuration.

- Introduction
- Installation of Ethernet driver for Windows 9x and Win NT

6.1 C&T 69000 SVGA Setup

6.1.1 Chipset C&T 69000 (POS-563FC)

The POS-563FC use a C&T 69000 chipset for its PCI/SVGA controller. It supports many popular LCD, EL, and gas plasma flat panel displays and conventional analog CRT monitors. The 69000 VGA BIOS supports monochrome LCD, EL, color TFT and STN LCD flat panel displays. In addition, it also 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.

6.1.2 Display memory

With on-board 2 MB display memory, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1024 x 768 at 64 K colors. The display memory can be expanded to 4 MB for true-color resolution of 1024 x 768 with C&T 69000.

6.1.3 Display types

CRT and panel displays can be used simultaneously. The POS-563FC 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 utility disks includes three *.COM files in the subdirectory `Utility\vga\` which can be used to configure the display. In order to use these configuration programs, type the file name and path at the DOS prompt.

CT.COM: Enables CRT display only

FP.COM: Enables panel display only

SM.COM: Enables both displays simultaneously

Installation of SVGA driver

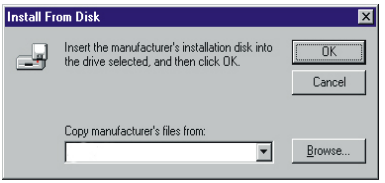
Complete the following steps to install the SVGA driver. Follow the procedures in the flow chart that apply to the operating system that you you are using within your POS-563FC.

Important: The following windows illustrations are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.

Note: <Enter> means pressing the "Enter" key on the keyboard.

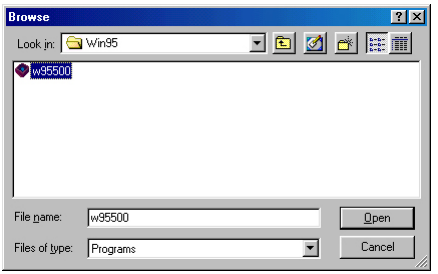
6.2 Installation for Windows 95/98

1. a. Type: D:\POS\563\VGA\Win95 or D:\POS\563\VGA\Win98
   b. Click "OK"

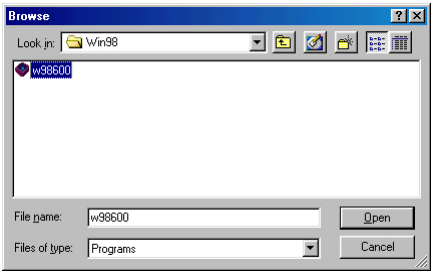


2. a. Open the correct file name

For Win 95

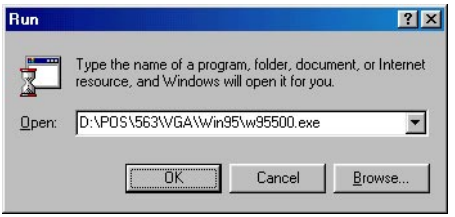


For Win 98

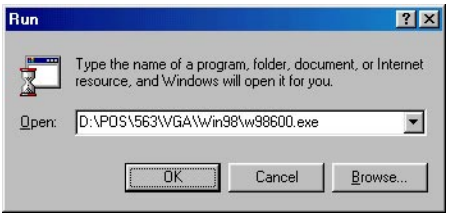


3 a. Type the correct path of the program.
b. Hit "OK".

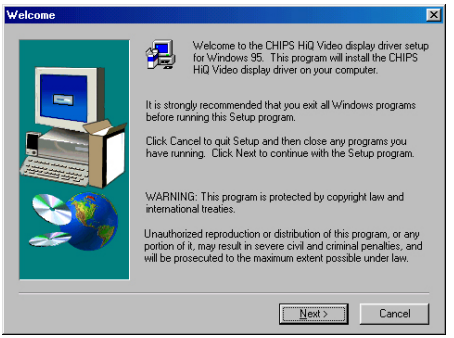
For Win 95



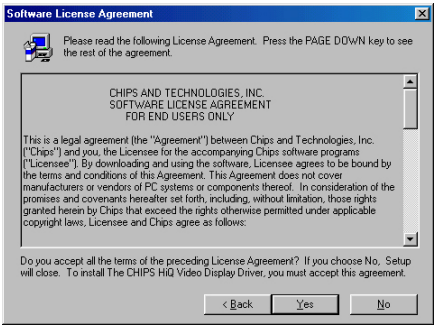
For Win 98



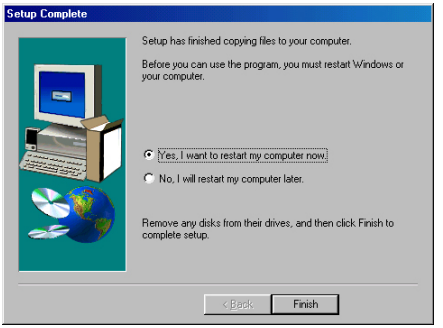
4 a. Click "Next".



5 a. Click "Next"



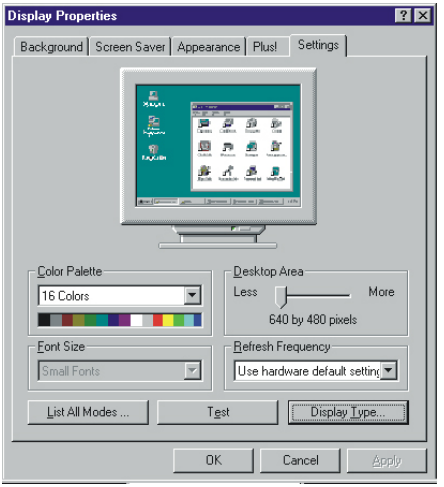
6. a. Click "Finish".



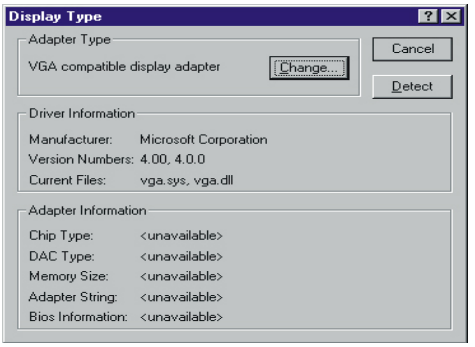
6.3 Installation for Windows NT VGA for C&T 69000

1. a. Select "Start", "Settings", "Control Panel".
   b. Double click the "Display" icon.

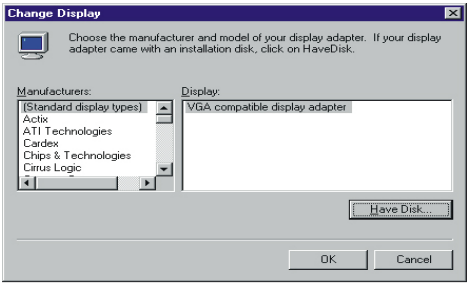
2. a. Choose the "Settings" label.
   b. Press the "Display Type" button.



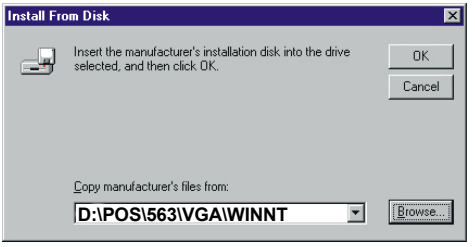
3 a. Press the "Change..." button.



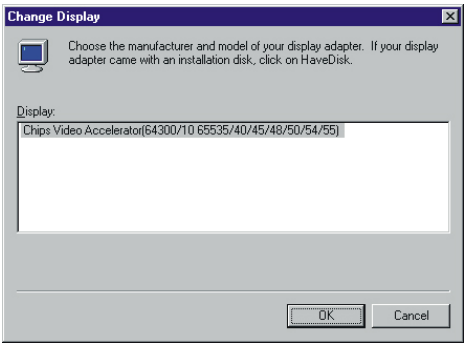
4. Click the "Have Disk" button.



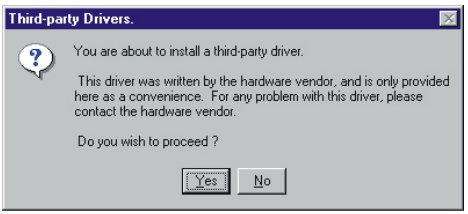
5. a. Insert the utility disc into the CD-ROM drive.
   b. Type **D:\POS\563\VGA\WINNT**
   c. Press the "OK' button.



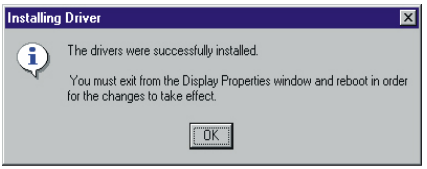
6 a. Select the highlighted item.
b. Press the "OK" button.



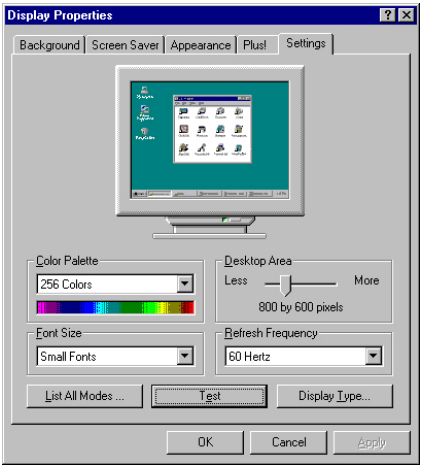
7. Press "Yes" to proceed.



8. a. Press "OK" to reboot.



9 a. Repeat Step 1 in this manual, to select the "Settings" label.
b. Adjust resolution and color.
c. Click "Test" to see the result.
d. Click "OK" to save the setting.



CHAPTER 7

PCI Bus Ethernet Interface

This chapter provides information on Ethernet configuration.

- Introduction
- Installation of Ethernet driver for Windows 95/98/NT
- Further information

7.1 Introduction

The POS-563 is equipped with a high performance 32-bit Ethernet chipset which is fully compliant with IEEE 802.3 100 Mbps CSMA/CD standards. It is supported by major network operating systems. It is also both 100Base-T and 10Base-T compatible. The medium type can be configured via the RSET8139.exe program included on the utility disk.

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.

7.2 Installation of Ethernet driver

Before installing the Ethernet driver, note the procedures below. You must know which operating system you are using in your POS-563, and then refer to the corresponding installation flow chart. Then just follow the steps described in the flow chart. You will quickly and successfully complete the installation, even if you are not familiar with instructions for MS-DOS or Windows.

Note: The windows illustrations in this chapter are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.

7.2.1 Installation for MS-DOS and Windows

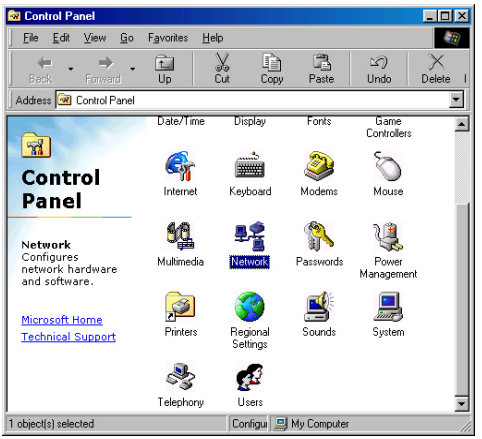
If you want to set up your Ethernet connection under the MS-DOS or Windows environment, you should first check your server system model. For example, MS-NT, IBM-LAN server, and so on.

Then choose the correct driver to install in your panel PC.

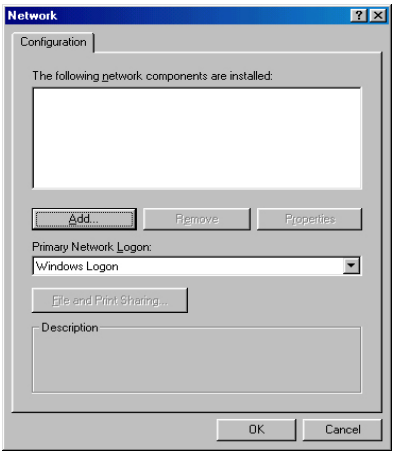
7.2.1 Installation for Windows 95/98

1. a. Select "Start", "Settings", "Control Panel"

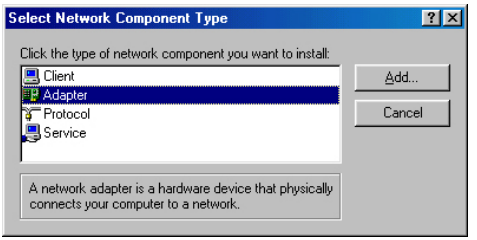
   b. Double click "Network"



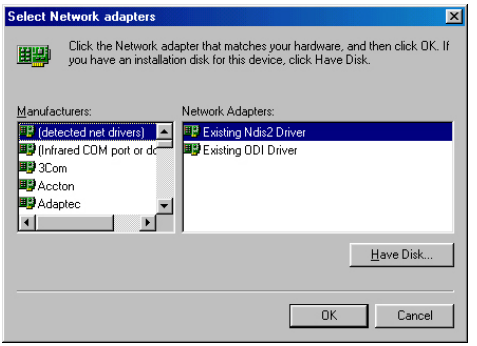
2. a. Click "add" and prepare to install network functions.



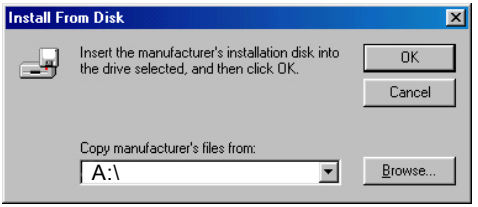
3. a. Select the "Adaptor" item to add the ethernet card.



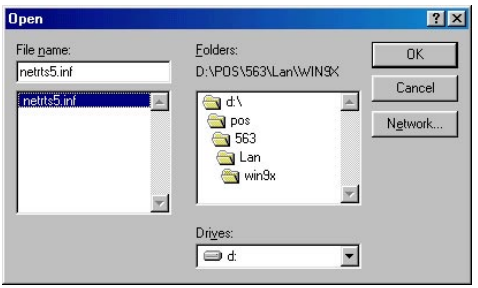
4. Cick "Have Disk" to install the driver.".



5. Click "Browse"



6. Select correct directory then click "OK".



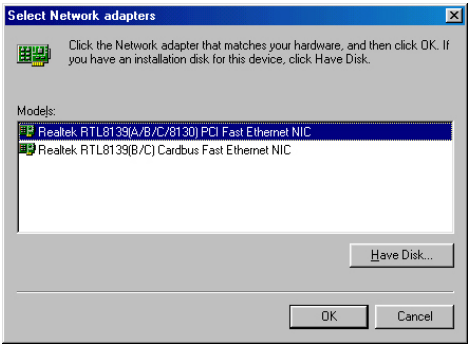
7. a. Insert the CD into the D:\drive.

   b. Fill in "D:\POS\563\LAN\WIN9x

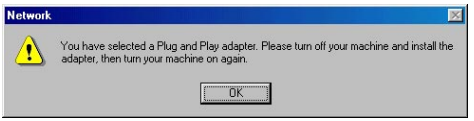
   c. Click "OK".

8. a. Choose the "Realtek" PCI item.

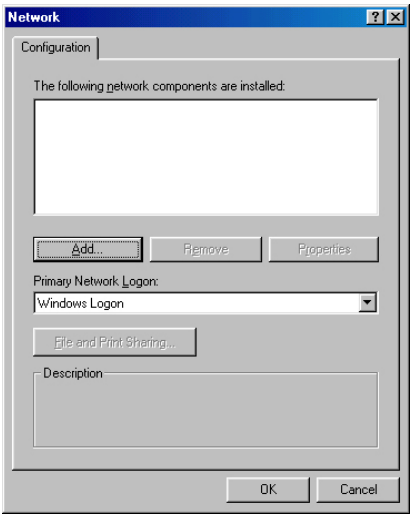
   b. Click "OK".



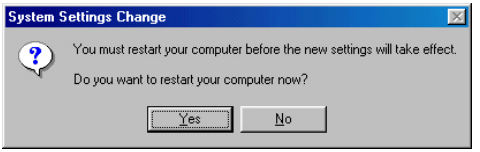
9. Cick "OK".



10. Cick "OK".



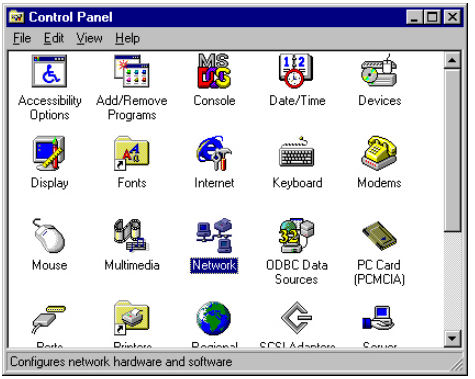
11. Click "Yes".


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

7.2.2 Installation for Windows NT

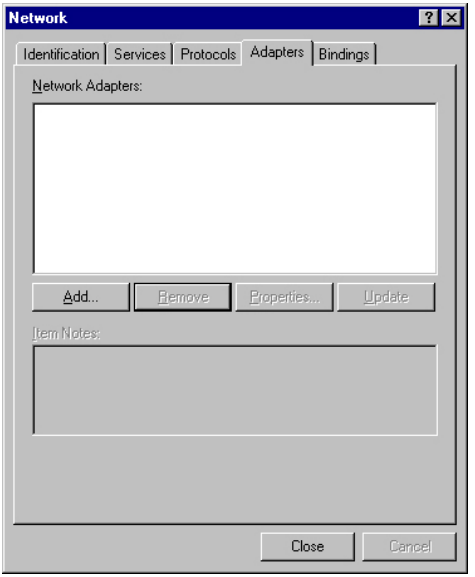
1. a. Select "Start", "Settings", "Control Panel".

   b. Double click, "Network".

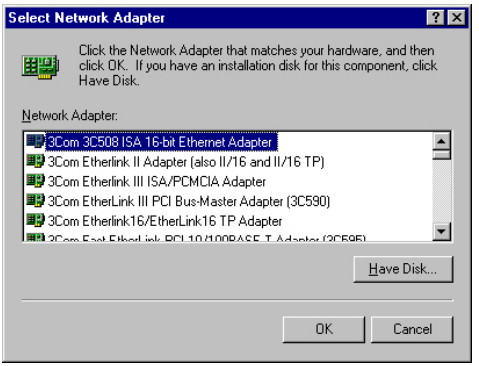


2. a. Choose the "Adaptors" label.

   b. Click the "add" button.



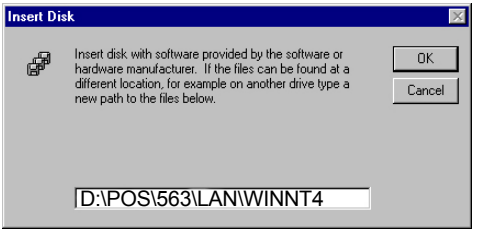
3. Press "Have Disk".



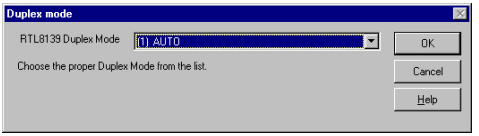
4. a. Insert the CD into the D: \drive.

   b. Fill in "D:\POS\563\LAN\WINNT4"

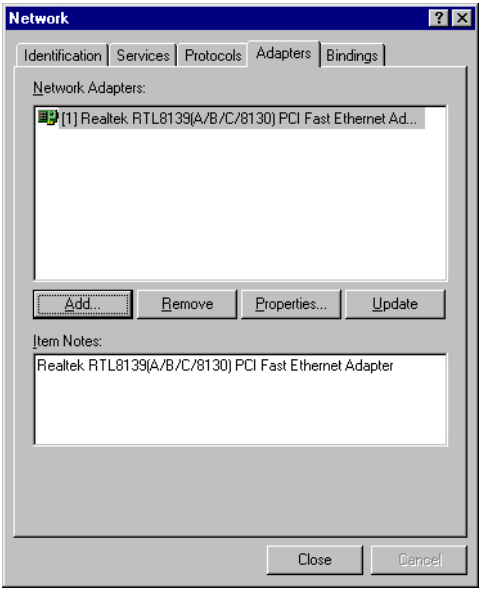
   c. Click "OK".



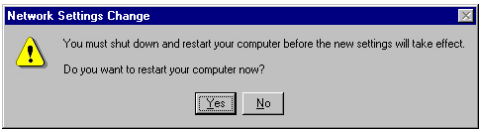
5. a. Click "OK"



6. a. Click "add".



6. a. Click "yes".



APPENDIX A

DOC® 2000 Installation Guide

This appendix contains information on the DiskOnChip® 2000 quick installation guide. It includes:

- DiskOnChip® 2000 installation instructions
- Additional information and assistance

A.1 DiskOnChip®2000 Quick Installation Guide

A.1.1 DiskOnChip® 2000 installation instructions

1. Make sure the target platform is powered OFF.
2. Plug the DiskOnChip® 2000 device into its socket. Verify the direction is correct (pin 1 of the DiskOnChip 2000 is aligned with pin 1 of the socket).
3. Power up the system.
4. During power up you may observe the messages displayed by the DiskOnChip 2000 when its drivers are automatically loaded into the system's memory.
5. At this stage the DiskOnChip 2000 can be accessed as any disk in the system.
6. If the DiskOnChip 2000 is the only disk in the system, it will appear as the first disk (drive C: in DOS).
7. If there are more disks besides the DiskOnChip 2000, the DiskOnChip 2000 will appear by default as the last drive, unless it was programmed as the first drive. (Please refer to the DiskOnChip 2000 utilities user manual.)
8. If you want the DiskOnChip 2000 to be bootable:
   a. Copy the operating system files into the DiskOnChip by using the standard DOS command (for example: sys d:).
   b. The DiskOnChip 2000 should be the only disk in the systems or would be configured as the first disk in the system (c:) using the DUPDATE utility.

```
DUPDATE D /S: DOC121.EXB /FIRST   (set as c:)
DUPDATE C /S: DOC121.EXB          (set as d:)
```

A.1.2 Additional information and assistance

1. Visit M-Systems' website at **www.m-sys.com** where you can find Utilities Manuals, Data Sheets and Application Notes. In addition, you can find the latest DiskOnChip 2000 S/W utilities.
2. Contact your dealer for technical support if you need additional assistance, and have the following information ready:
   - Product name and serial number.
   - Description of your computer hardware (manufacturer, model, attached devices, etc.)
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem.
   - The exact wording of any error messages.

APPENDIX B

Pin Assignments

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

- PS/2 keyboard connector
- Internal KB connector
- Internal mouse/KB connector
- Main power connector
- CD audio-in connector
- Audio connector
- ATX power connector
- PS/2 mouse/KB connector
- Primary (3.5") and secondary (2.5") IDE connectors
- Digital I/O
- Ethernet connector
- FDD connector
- Universal serial bus (USB) connector
- PISA (PCI/ISA) connector
- COM1 ~ COM4 RS-232 connections
- FIR connector
- LPT1/2 connectors (parallel port)
- Flat panel display connector extension
- Contrast adjust connector
- Backlight control
- Brightness adjust connector
- Flat panel display connector
- CRT display connector
- Internal CRT display connector
- System I/O ports
- IRQ mapping chart

B.1 LCD 18 bit connectorFor Cyrix chipsets (CN1)

Type: Pin-Header 44-Pin 2.0 mm

TableB-1: LCD 24Bit Connector ():Color bits for 18-bit TFT LCD

Pin	Pin name	Pin	Pin name
1	+12V	2	+12V
3	GND	4	GND
5	VDD(set by J2)	6	VDD(set by J2)
7	NC	8	GND
9	NC	10	NC
11	P2(B0)	12	P3(B1)
13	P4(B2)	14	P5(B3)
15	P6(B5)	16	P7(B5)
17	NC	18	NC
19	P10(G0)	20	P11(G1)
21	P12(G2)	22	P13(G3)
23	P14(G4)	24	P15(G5)
25	NC	26	NC
27	P18(R0)	28	P19(R1)
29	P20(R2)	30	P21(R3)
31	P22(R4)	32	P23(R5)
33	GND	34	GND
35	SHFCLK	36	FLM(V-SYNC)
37	M(DE)	38	LP(H-SYNC)
39	GND	40	ENABLE BACK-LIGHT
41	NC	42	LCD CLK EVEN
43	ENAVDD	44	NC

* low active

B.2 Digital I/O (CN2)

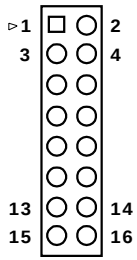


Table B-2: Digital I/O (CN2)

Pin	Pin name	Pin	Pin name
1	DIOIN0	2	+5V
3	DIOIN1	4	DIOOUT0
5	DIOIN2	6	DIOGND
7	DIOIN3	8	DIOOUT1
9	GND	10	+12V
11	NC	12	NC
13	DIOOUT3	14	DIOGND
15	DIOOUT2	16	+12V

B.3 USB (CN4)

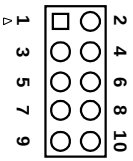


Table B-3: USB1, USB2 Connector (CN4)

Pin	Pin name	Pin	Pin name
1	USBVCC	2	USBVCC
3	DATA1-	4	DATA2--
5	DATA1+	6	DATA2+
7	USBGND	8	USBGND
9	USBGND	10	USBGND

B.4 Audio connector (CN5)

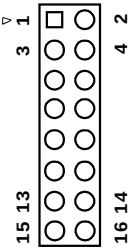


Table B-4: Audio connector (CN5)

Pin	Signal	Pin	Signal
1	SPEAKER OUT R	2	GND
3	SPEAKER OUT L	4	GND
5	LINE OUT R	6	LINE OUT L
7	GND	8	GND
9	LINE IN R	10	LINE IN L
11	GND	12	GND
13	N/A	14	MIC in L
15	MIC IN R	16	GND

B.5 Primary IDE connector (CN6)

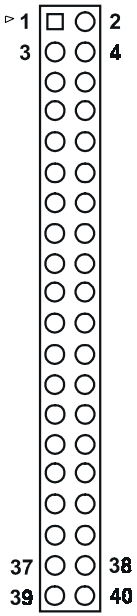


Table B-5: Primary IDE Connector (CN6)

Pin	Pin name	Pin	Pin nme
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	IDE DREQ	22	GND
23	IOW*	24	GND
25	IOR*	26	GND
27	CHRDY	28	NC
29	IDE DACK*	30	GND
31	IDE IRQ	32	NC
33	A1	34	NC
35	A0	36	A2
37	CS0*	38	CS1*
39	ACTIVE*	40	GND

B.6 FDD connector (CN7)

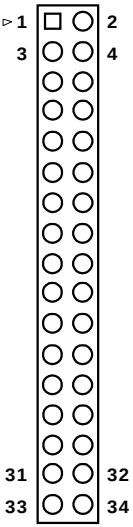


Table B-6: FDD connector (CN7)

Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT*
3	GND	4	N/C
5	GND	6	DRIVE TYPE
7	GND	8	INDEX*
9	GND	10	MOTOR 0*
11	GND	12	DRIVE SELECT 1*
13	GND	14	DRIVE SELECT 0*
15	GND	16	MOTOR 1*
17	GND	18	DIRECTION*
19	GND	20	STEP*
21	GND	22	WRITE DATA*
23	GND	24	WRITE GATE*
25	GND	26	TRACK 0*
27	GND	28	WRITE PROTECT*
29	GND	30	READ DATA*
31	GND	32	HEAD SELECT*
33	GND	34	DISK CHANGE*

B.7 Secondary slave IDE connector (CN8)

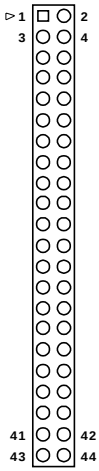


Table B-7: Secondary slave Connector (CN8)

Pin	Pin name	Pin	Pin name
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	IDE DREQ	22	GND
23	IOW*	24	GND
25	IOR*	26	GND
27	CHRDY	28	NC
29	IDE DACK*	30	GND
31	IDE IRQ	32	NC
33	A1	34	NC
35	A0	36	A2
37	CS0*	38	CS1*
39	ACTIVE*	40	GND
41	+5V	42	+5V
43	GND	44	NC

B.8 CD audio-in connector (CN9)

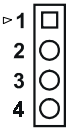


Table B-8: CD audio-in connector (CN9)

Pin	Signal
1	CD ROM L
2	GND
3	GND
4	CD ROM R

B.9 PCI/ISA slot (CN10)

Table B-9: PCI/ISA slot (CN10)

Pin	Pin name	Pin	Pin name
A1	IOCHK*	B1	GND
A2	SD7	B2	RST
A3	SD6	B3	VCC
A4	SDD5	B4	IRQ9
A5	SD4	B5	-5V
A6	SD3	B6	DRQ2
A7	SD2	B7	-12V
A8	SD1	B8	OWS
A9	SD0	B9	+12V
A10	IORDY	B10	GND
A11	AEN	B11	SMW*
A12	SA19	B12	SMR*
A13	SA18	B13	IOW*
A14	SA17	B14	IOR*
A15	SA16	B15	DACK3
A16	SA15	B16	DRQ3
A17	SA14	B17	DACK1
A18	SA13	B18	DRQ1
A19	SA12	B19	REF*
A20	SA11	B20	SCLK
A21	SA10	B21	IRQ7
A22	SA9	B22	IQO6
A23	SA8	B23	IRQ5

A24	SA7	B24	IRQ4
A25	SA6	B25	IRQ3
A26	SA5	B26	DACK2
A27	SA4	B27	TC
A28	SA3	B28	ALE
A29	SA2	B29	VCC
A30	SA1	B30	OSC
A31	SA0	B31	GND
C1	SBHE*	D1	MEM16*
C2	LA23	D2	IO16*
C3	LA22	D3	IRQ10
C4	LA21	D4	IRQ11
C5	LA20	D5	IRQ12
C6	LA19	D6	IRQ15
C7	LA18	D7	IRQ14
C8	LA17	D8	DACK0
C9	MEMR*	D9	DRQ0
C10	MEMW*	D10	DACK5
C11	SD8	D11	DRQ5
C12	SD9	D12	DACK6
C13	SD10	D13	DRQ6
C14	SD11	D14	DACK7
C15	SD12	D15	DRQ7
C16	SD13	D16	VCC
C17	SD14	D17	MASTER*
C18	SD15	D18	GND
E1	GND	F1	GND
E2	GND	F2	GND

E3	INTA	F3	INTC
E4	INTB	F4	INTD
E5	VCC	F5	VCC
E6	NC	F6	NC
E7	VCC	F7	VCC
E8	RST	F8	PCLKF
E9	GNTA	F9	GND
E10	REQA	F10	GNTB
E11	GND	F11	GND
E12	PCLKE	F12	REQB
E13	GND	F13	AD31
E14	AD30	F14	AD29
E15	NC	F15	SYNC
E16	NC	F16	NC
E17	SDATIN	F17	SDATOUT
E18	AD28	F18	AD27
E19	AD26	F19	AD25
E20	AD24	F20	CBE3
E21	AD22	F21	AD23
E22	AD20	F22	AD21
E23	AD18	F23	AD19
E24	CLKBIT	F24	PCIRST
E25	NC	F25	NC
E26	NC	F26	NC
E27	AD16	F27	AD17
E28	FRAME	F28	IRDY
E29	CBE2	F29	DEVSEL
E30	TRDY	F30	LOCK

E31	STOP	F31	PERR
G1	NC	H1	SERR
G2	NC	H2	AD15
G3	CBE1	H3	AD14
G4	PAR	H4	AD12
G5	GND	H5	GND
G6	NC	H6	NC
G7	GND	H7	GND
G8	AD13	H8	AD10
G9	AD11	H9	AD8
G10	AD9	H10	AD7
G11	CBE0	H11	AD5
G12	AD6	H12	AD3
G13	AD4	H13	AD1
G14	AD2	H14	AD0
G15	NC	H15	NC
G16	VCC	H16	VCC
G17	VCC	H17	VCC
G18	GND	H18	GND
G19	GND	H19	GND

B.10 LCD 36 bit connector (CN11)

Table B-10: LCD 36 bit Connector (CN11)

Pin	Pin name	Pin	Pin name
1	LCD VDD(set by J6)	2	LCD VDD(set by J6)
3	P24	4	P25
5	P26	6	P27
7	P28	8	P29
9	P30	10	P31
11	P32	12	P33
13	P34	14	P35
15	GND	16	GND

B.11 LCD contrast adjust connector (CN12)

Table B-11: LCD contrast adjust Connector (CN12)

Pin	Pin Name
1	CONHI
2	CONTRAST ADJ.
3	CONLOW

B.12 LCD brightness adjust connector (CN13)

Table B-12: LCD brightness adjust Connector (CN13)

Pin	Pin Name
1	BRHI
2	BRIGHTNESS ADJ.
3	BRLOW

B.13 LCD 36-bit connector (CN14)

Table B-13: LCD 36-bit connector (CN14)

Pin	Pin name	Pin	Pin name
1	+12V	2	+12V
3	GND	4	GND
5	LCD VDD(set by J6)	6	LCD VDD(set by J6)
7	ENVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	GND	34	GND
35	SHFCLK	36	FLM(V-SYNC)
37	M(DE)	38	LP(H-SYNC)
39	GND	40	ENABLE BACKLIGHT
41	NC	42	NC
43	ENAVDD	44	NC

* low active

B.14 ATX power connector (CN15)

Table B-14: ATX power connector (CN15)

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

B.15 AT power connector (CN16)

Table B-15: AT power Connector (CN16)

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

B.16 System function connector (CN17)

Table B-16: System function connector (CN17)

Pin	Pin name	Pin	Pin name
1	PW LED	2	+5V
3	PW LED	4	GND
5	GND	6	SPKB
7	KBLOCK*	8	SPKA
9	GND	10	NC
11	GND	12	HDDLED
13	PANSW*	14	GND
15	NC	16	NC
17	NC	18	FPRST
19	GND	20	GND

B.17 LCD backlight connector (CN18)

Table B-17: LCD backlight Connector (CN18)

Pin	Pin name
1	+12V
2	GND
3	ENABLE BACKLIGHT
4	BRIGHTNESS ADJ.
5	+5V

B.18 IR connector (CN19)

Table B-18: IR Connector (CN19)

Pin	Pin name
1	+5V
2	FIRIN
3	SIRIN
4	GND
5	SIROUT

B.19 COM3 connector (CN20)

Table B-19: COM3 connector (CN20)

Pin	Pin name	Pin	Pin name
1	CD	2	DSR
3	RX	4	RTS
5	TX	6	CTS
7	DTR	8	RI(set by J7,J8)
9	GND	10	GND

B.20 COM4 connector (CN21)

Table B-20: COM4 connector (CN21)

Pin	Pin name	Pin	Pin name
1	CD	2	DSR
3	RX	4	RTS
5	TX	6	CTS
7	DTR	8	RI(set by J7,J8)
9	GND	10	GND

B.21 KB & PS/2 mouse connector (CN22)

Table B-21: KB & PS/2 mouse Connector (CN22)

Pin	Pin name
1	KB CLOCK
2	KB DATA
3	MS CLOCK
4	GND
5	+5V
6	MS DATA

B.22 CRT connector (CN23)

Table B-22: CRT connector (CN23)

Pin	Pin name	Pin	Pin name
1	RED	2	DDC DATA
3	GREEN	4	GND
5	BLUE	6	DDC CLOCK
7	NC	8	NC
9	GND	10	H-SYNC
11	GND	12	V-SYNC
13	GND	14	NC
15	GND	16	NC

B.23 LPT2 connector (CN24)

Table B-23: LPT2 connector (CN23)

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

B.24 COM1 connector (CN25)

Table B-24: COM1 connector (CN25)

Pin	Pin name	Pin	Pin name
1	CD	2	DSR
3	RX	4	RTS
5	TX	6	CTS
7	DTR	8	RI (set by J9,J10)
9	GND	10	GND

B.25 COM2 connector (CN26)

Table B-25: COM2 connector (CN26)

Pin	Pin name	Pin	Pin name
1	CD	2	DSR
3	RX	4	RTS
5	TX	6	CTS
7	DTR	8	RI (set by J9,J10)
9	GND	10	GND

B.26 PS/2 keyboard connector (CN27)

Table B-26: PS/2 keyboard Connector (CN27)

Pin	Pin name
1	KB CLOCK
2	KB DATA
3	NC
4	GND
5	+5V

B.27 CRT connector (CN28)

Table B-27: CRT connector (CN28)

Pin	Pin name	Pin	Pin name
1	RED	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DDC Data
13	H-SYNC	14	V-SYNC
15	DDC Clock		

B.28 LPT1 connector (CN29)

Table B-28: LPT1 connector (CN29)

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

B.29 COM1 connector (CN30)

Table B-29: CRT connector (CN30)

Pin	Pin name	Pin	Pin name
1	CD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI(set by J9,J10)
5	GND		

B.30 COM2 connector (CN31)

Table B-30: COM2 connector (CN31)

Pin	Pin name	Pin	Pin name
1	**CD**	**6**	**DSR**
2	**RX**	**7**	**RTS**
3	**TX**	**8**	**CTS**
4	**DTR**	**9**	**RI(set by J9,J10)**
5	GND		

B.31 LAN connector (CN32)

Table B-31: LAN Connector (CN32)

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

B.32 Keyboard & PS/2 mouse connector (CN33)

Table B-32: LCD backlight Connector (CN33)

Pin	Pin name
1	KB/MS DATA(set by J11)
2	MS DATA
3	GND
4	+5V
5	KB/MS CLOCK(set by J11)
6	MS CLOCK

B.30 Keyboard & PS/2 mouse connector (CN34)

Table B-33: Keyboard & PS/2 mouse Connector (CN34)

Pin	Pin name
1	KB DATA
2	MS DATA
3	GND
4	+5V
5	KB CLOCK
7	MS CLOCK