POS-7671

Socket 370 FIO Biscuit SBC for
POS Applications

User's Manual for 7671

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Packing List

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

- 1 POS-7671 all-in-one single board computer

- Startup manual (part no. 2006767100)

- CD-ROM or disks for utility, drivers and manual (in pdf)

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

Ordering Information

- **POS-7671 - 00A2**
  Socket 370 SBC for POS Applications

- **POS-10586-1000 (Optional)**
  Wiring & I/O fit for POS-7671
  *1 FDD cable   1701340600
  *1 HDD cable   1701440500
  *1 TV-out cable   1703050409
  *2 64-pin I/O cables   1701640200
  *POS-7105 I/O board   9697710500

Contents

General Information

This chapter gives background information on the POS-7671.

Sections include:

- Introduction

- Features

- Specifications

- Board layout and dimensions

1.1 Introduction

The POS-7671 is a flexible I/O arrangement connectors and EBX form factor Intel Socket 370 based Pentium III & Celeron processor control board designed for high-end multimedia POS applications as well as other field markets.

It supports Pentium III 133/100/66 MHz FSB support as well as Intel Celeron processors.

The POS-7671 is packed with special on-board features like 10/100Base-T PCI Ethernet, AC97 3D stereo, TV Out, 48-bit XGA TFT LCD panel support as well as SSD support for DOC2000. One PCI expansion interface is provided.

The POS-7671 uses an EBX form factor dimension and two 64-pin flexible I/Os, including Ethernet, Audio, USB, D I/O, serial and parallel ports to become a cableless SBC. It is 100% PC compatible and readily connectable to any existing PC hardware and software. Two USB connectors accommodate a wide array of POS peripherals.

The POS-7671 includes one 168-pin DIMM for up to 256 MB total on-board memory.

The POS-7671's industrial grade construction allows it to withstand continuous operation in a harsh environment where reliability is essential. Other on-board industrial features not found on conventional motherboards include a watchdog timer for dependability during unmanned operations. An on-board SSD socket can support DiskOn-Chip flash modules.

1.2 Features

- Two 64-pin flexible I/O arrangement connectors replace the many I/O ports

- Socket 370 for Intel PIII/Celeron utilize 133/100/66 MHz front side bus speeds

- Supports up to 48-bit XGA LCD. CRT at 4 MB display memory

- 10/100 Base-T RJ-45 Ethernet with wake-on-LAN support

- AC 97 audio interface

- 4 COM ports with power support

- AC 97 audio interface

- TV Out interface

- 1 parallel port

- 2 x USB

- Digital I/O (8 in & 8 out)

- Watchdog timer

- One 168-pin DIMM

- 32 pin Socket for DiskOn Chip

1.3   Specifications

Standard SBC functions

- **Processor**: Socket 370 for Pentium® III support (133/100/66 MHz FSB) and Intel® Celeron.

- **BIOS**: Award 256 KB Flash Bios supports Plug & Play, Ethernet boot ROM, boot from CD-ROM, boot from LS-120 ZIP Drive. Wake-on-Lan, modem and LCD back light turn-off also supported. Optional customer icon available.

- **System chipset**: VIA 82C694X, VIA 82C686B

- **Second level cache**: 256 KB on Pentium III processor, 128 KB on Celeron processor

- **8 TTL digital in and out**

- **System Memory**: One 168-pin DIMM sockets, supports 32 MB to 256 MB, accepts 32/64/128/256 MB.

- **Enhanced IDE interface:** Supports up to four EIDE devices. BIOS auto-detect, PIO Mode 3 or Mode 4, UDMA/33 transfer, UDMA/66 transfer

- **FDD interface**: Supports up to two FDDs

- **Parallel port**: One parallel ports, supporting EPP/ECP parallel mode

- **Serial port**: Four serial ports

  COM 1, 2, 3, 4: RS-232

- **Watchdog timer**: Software enabled/disabled. 1 ~ 62 sec. selectable

- **Keyboard connector**: Mini-DIN PS/2 keyboard connector and internal 5-pin header connector

- **Mouse connector**: Mini-DIN PS/2 mouse connector, jumper select-able to keyboard

- **USB interface**: Two USB connectors with fuse protection. Complies with USB Spec. Rev. 1.0

- **Power inputs:** ATX power connection (conforms to ATX power supply specification)
- **PCI Interface:** PCI bus (opitonal)

VGA/LCD Interface

- **Chipset:** SMI Lynx721 with 4MB on chip
- **Interface:** 2x AGP interface, 128-bit engine
- **Display mode:** Flat panel displays up to 800 x 600 @ 24 bpp, 1024 x 786 @ 24 bpp. CRT monitors up to 1024 x 768 @ 24 bpp, 1280 x 1024 @ 24 bpp

Audio Function

- **Chipset**: VIA 82C686B
- **Audio Controller:** AC97 version 2.0 compliant interface, Sound Blaster Pro compatible
- **Sound Quality:** Full-duplex
- **Audio interface:** Mic-in, Line-in, CD-in, Line-out 200MW)
- **TV Out interface:** SMI Lynx 721 Chipset. Supports NTSC, NTSC-EIA (Japan) and PAL TV formats. Provides composite video, S-video.

Ethernet Interface

- **Chipset**: Realtek RTL 8139C
- **Ethernet interface**: PCI 10/100 Mbps Ethernet controller. IEEE 802.3 U protocol compatible. Includes software drivers and boot ROM (RJ-45 connection)

Mechanical and Environmental

- **Dimensions (L x W):** EBX form factor, 203 x 146 mm (8" x 5.75")
- **Power supply voltage:** +5 V ±5%
- **Power requirements:** Max 4.5 A @ +5 V, typical 3.8 A @ 5 V, (with 64 MB DRAM, Pentium® III 500 MHz CPU)

    3.2 A @ 5 V (with 64 MB DRAM, Celeron 400 MHz CPU)
- **Operating temperature:** 0 ~ 60° C
- **Weight:** 0.85 kg (weight of total package)
- **Solid State Disks:** One 32-pin socket supports DiskOnChip®

1.4 Board dimensions
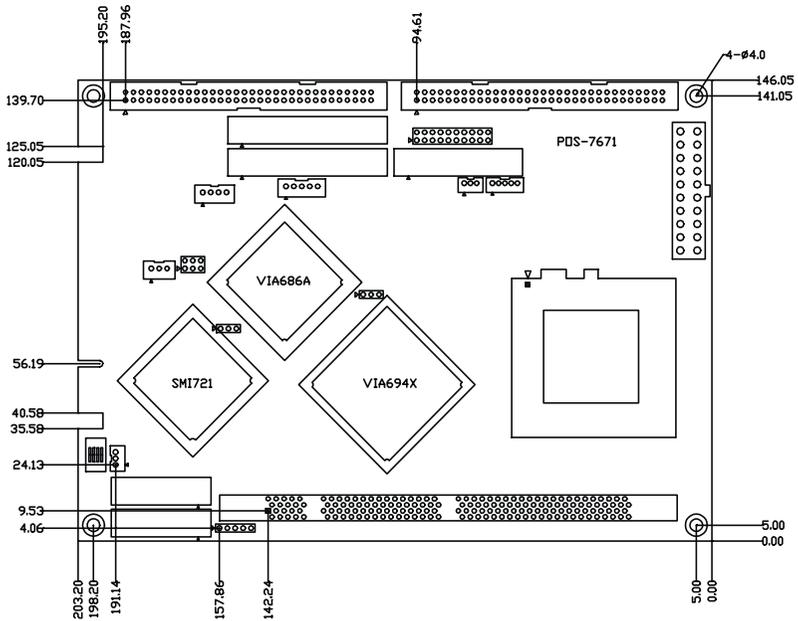
Figure 1-1: Board dimensions (component side)

Installation

This chapter explains how to set up the POS-7671 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-7671 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: J1, J2

J:1	Front Panel		
PWR+	1	ESP+	2
PWR+	3	GND	4
PWR-	5	IBZ-	6
NC	7	ESP-	8
GND	9	NC	10
GND	11	HD-	12
PWBN	13	HD+	14
Rev.	15	NC	16
Rev.	17	RST+	18
GND	19	RST-	20

J:2	DOC address select		
Memory Address Sel0(5~6pin)	**Sel2(1~2pin)**	**Sel1(3~4)pin**	
C800	0	0	0
CC00	0	0	1
C000	0	1	0
D400	0	1	1
D800	1	0	0
DC00	1	0	1

2.2 Connectors

On-board connectors link the POS-7671 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:	LAN Audio KB Mouse USB DIO VGA
CN2:	COM 1 ~ COM 4 LPT1
CN3:	second HDD connect
CN4:	first HDD connect
CN5:	FDD connect
CN6:	CD connect
CN7:	IR connect
CN8:	Brightness adj. connect
CN9:	LCD backlight connect
CN10:	ATX Power connect
CN11:	CPU Fan Connect
CN12:	LCD Contrast adj. Connect
CN13:	Second (36 ~ 48 Bits) LCD connect
CN14:	First (18~24 Bits) LCD connect
SW1:	LCD Hardware Type Setting
DIMM1:	SDRAM module socket
U10:	BIOS socket
U11:	CPU socket
SK1:	DOC 2000 socket
BT1:	Battery socket

2.3 Locating Jumpers and Connectors
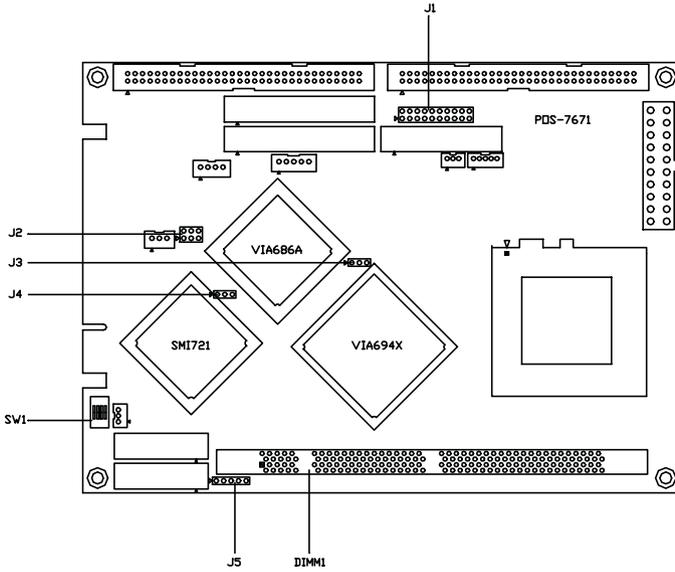
Figure 2-1: Locating jumpers
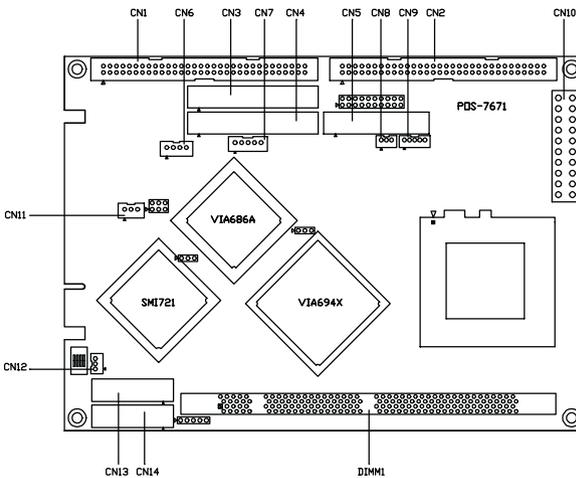
Figure 2-2: Locating connectors

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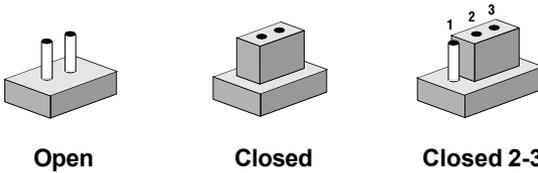
The jumper settings are schematically depicted in this manual as follows:

Open   **Closed**   **Closed 2-3**
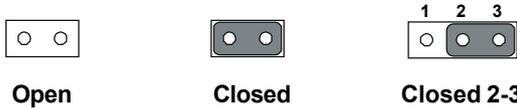
A pair of needle-nose pliers may be helpful when working with jumpers.

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

J:3	Watch Dog Setting
Closed pins	**Result**
1-2	Watch Dog Reset
2-3	IRQ11

Watch Dog Reset

IRQ11
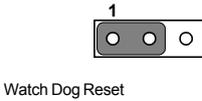
J:4	Clear RTC
Closed pins	**Result**
1-2	Active
2-3	Clear RTC
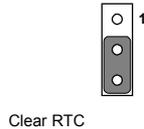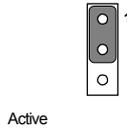
Active   Clear RTC

SW:1	LCD Hardware Type Setting (0=On, 1=off)
Setting	**Result**
ID=0000	640 x 480 (TFT)
ID=0001	640 x 480 (DSTN)
ID=0010	800 x 600 (TFT)
ID=0011	800 x 600 (DSTN)
ID=0100	1024 x 768 (18-bit TFT)
ID=0101	1024 x 768 (DSTN)
ID=1111	Software setting (default setting)

4 3 2 1
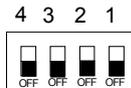
Default setting
(ID=1111 - Off, Off,Off, Off)

2.6　1st and 2nd Flexible I/O Connectors (CN1, CN2)

2.6.1 First Flexible I/O Connector (CN1)

The first flexible I/O connector has 64 pins and includes 6 interface connections.

2.6.1.1 LAN Interface

The POS-7671 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).

2.6.1.2 Audio Interface

The POS-7671 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.

2.6.1.3 USB Connector

The POS-7671 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 can be disabled in the system BIOS setup.

2.6.1.4 Digital I/O Connector (8 Outputs, 8 Inputs)

The POS-7671 has 8 TTL level digital I/Os. The I/O address is 400h. 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.

2.6.1.5 CRT/VGA Interface Connector

The POS-7671 's VGA 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.

2.6.1.6 Keyboard/mouse Connector

The POS-7671 is uniquely designed for keyboard and mouse input.

2.6.2 Second Flexible Flexible I/O Connector (CN2)

2.6.2.1 Serial Ports

The POS-7671 has a total of four on-board RS-232 serial ports, COM1-4.

2.6.2.2 Parallel Ports

The parallel printer port is on CN2This 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.

2.7 44-pin secondary mini-pitched IDE connector (CN3)

The on-board 44-pin mini-pitched IDE interface allows users to support either a 2.5" HDD or an IDE Flash module.

Follow the same connection arrangement as the 44-pin mini-pitched IDE if you want to connect to a 3.5" IDE device.

2.8 44-pin primary mini-pitched IDE connecotr (CN4)

The 44-pin IDE connector (CN4) supports up to two 44-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.

2.9   FDD connector (CN5)

You can attach up to two floppy disks to the POS-7671'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).

2.9.1 Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN5. 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.

2.10 IR connector (CN7)

The POS-7671 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.

2.11 Power connectors (CN6, CN10, CN11)

• CD power connector (CN6)
• ATX power connector (CN10)
• CPU Fan connector (CN11)

2.12 LCD property connectors (CN8, CN9, CN12)

• Brightness adjust connector (CN8)
• LCD backlight connector (CN9)
• LCD contrast connector (CN12)

2.13 LCD interface connectors (CN13, CN14)

The POS7671's PCI SVGA 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.

2.13.1 CRT display connector (CN1)

One of the interfaces for CN1 is a 16-pin, dual-inline header used for conventional CRT displays. A simple one-to-one adapter can be used to match CN1 to a standard 15-pin D-SUB connector commonly used for VGA.

2.13.2 Flat panel display connector (CN14)

CN14 consists of a 40-pin connector which can support a 24-bit LCD panel. It is Hirose's product no. DF13A-40DP-1.25 V

The POS-7671 provides a bias control signal on CN14 that 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-7671's power is applied, the control signal is low until just after the relevant flat panel signals are present. CN14 can connect up to 24 bit TFT LCD.

2.13.3 Extension flat panel connector (CN13)

CN13 consists of a 40-pin connecotr which is Hirose's product no. DF13A-40DP-1.25V. The POS-7671 supports a 48-bit LCD panel which must be connected to both the CN14 (40-pin) and the CN13 (40-pin). The pin assignments for both CN14 and the CN13 can be found in Appendix B. (See B.13, B.14.)

2.13.4 Dual TFT LCD panel connection

The POS-7671 uses the SMI 721 VGA/LCD chip that supports dual TFT LCD display. These two TFT LCD displays operate under Windows® 98.

2.14 DOC 2000 Socket (SK1)

The POS-7671 supports a 32-pin Socket (SK 1) for M-system Disk On Chip.

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-7671 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-7671 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:

```
┌───── AWDFLASH.EXE
├───── CBROM.EXE
├───── RSET8139.EXE
└───── 7671V111.BIN
```

Figure 3-1: Contents of the POS-7671 Series utility disk

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

PxxxBIN
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:
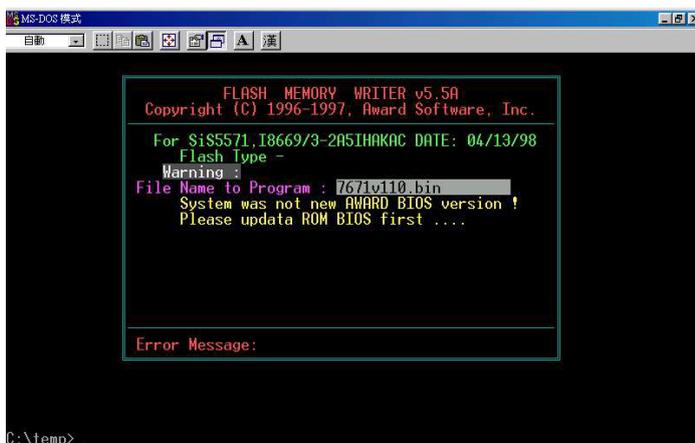
Figure 3-2: BIOS program setup screen

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 LCD connection pin assignments

Pin	Output	Pin	Output
1	VCC5	2	VCC5
3	GND	4	GND
5	VCC3	6	VCC3
7	Rev.	8	GND
9	P24	10	P25
11	P26	12	P27
13	P28	14	P29
15	P30	16	P31
17	P32	18	P33
19	P34	20	P35
21	P36	22	P37
23	P38	24	P39
25	P40	26	P41
27	P42	28	P43
29	P44	30	P45
31	P46	32	P47
33	GND	34	GND
35	SCKL2	36	FLM2
37	M_DE2	38	LP2
39	ENABKL	40	ENAVEE

3.5 Ethernet interface configuration

The POS-7671'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-7671 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.

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-7671'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.
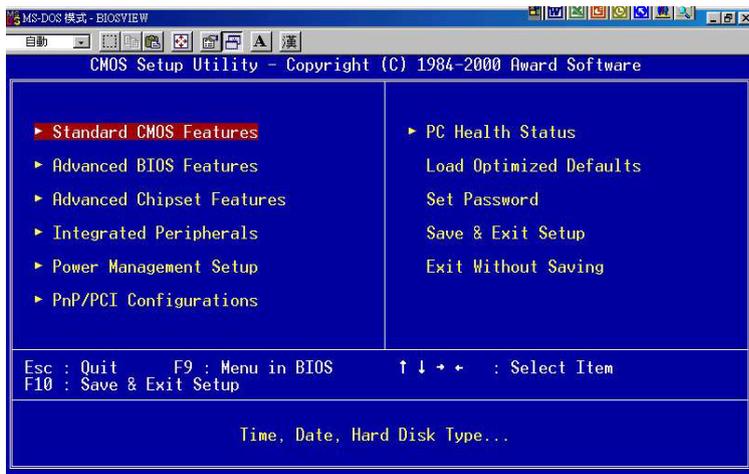
Figure 4-1: Setup program initial screen

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.
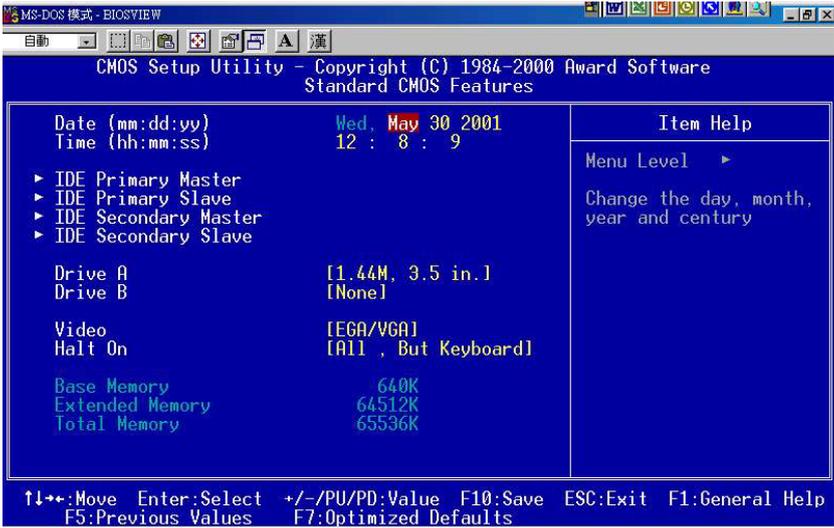
Figure 4-2: CMOS setup screen

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-7671.
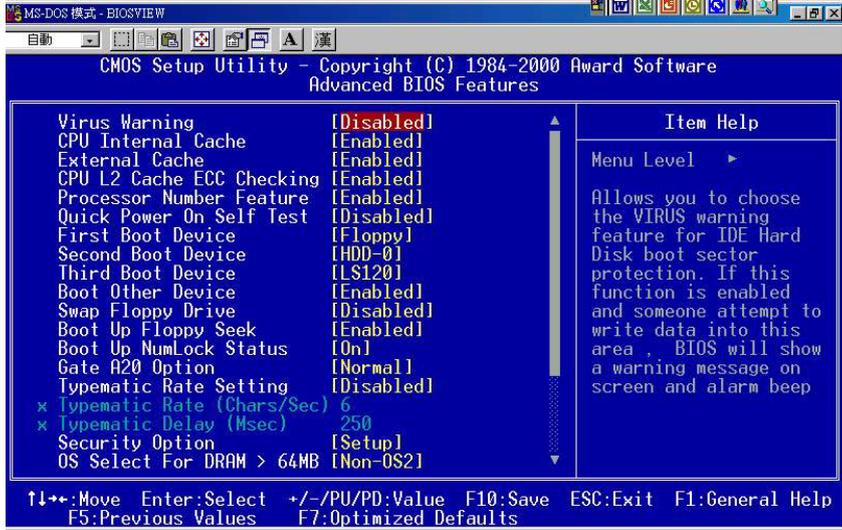
Figure 4-3: BIOS features setup screen

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-7671.
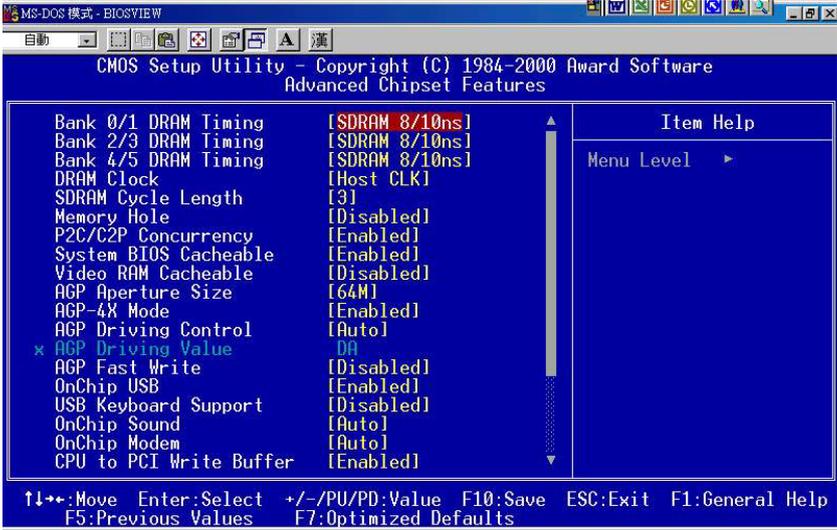
Figure 4-4: Chipset features setup screen

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-7671.
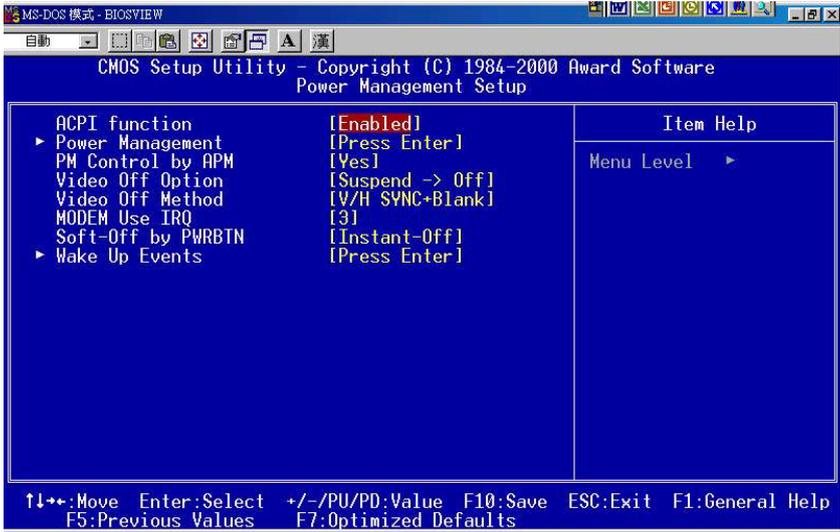
Figure 4-5: Power management setup screen

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-7671.
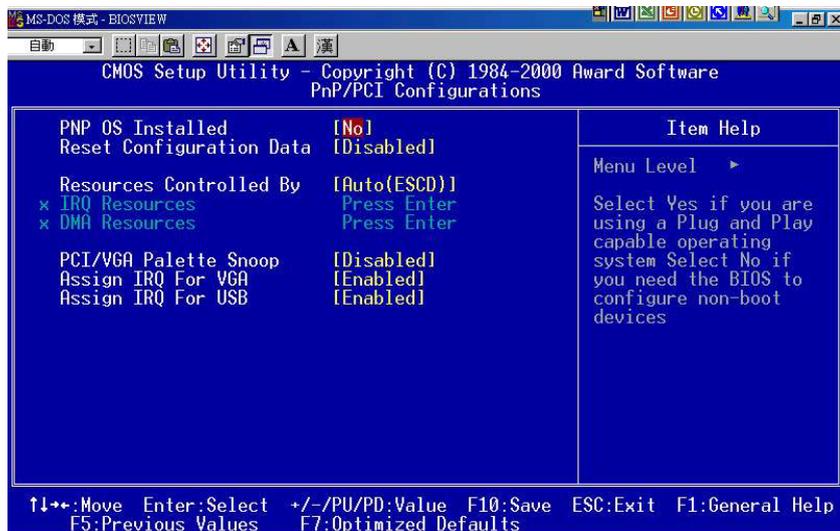
Figure 4-6: PCI configuration setup screen

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-7671.
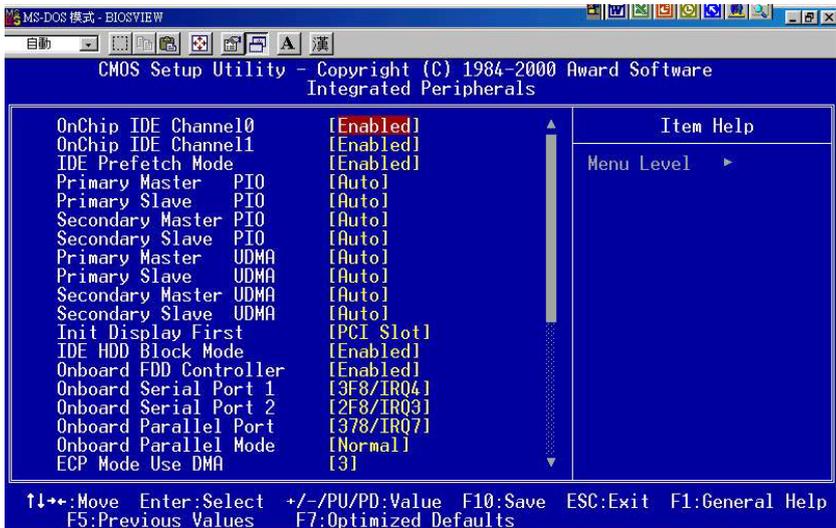
Figure 4-7: Integrated peripherals setup screen

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-7671 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.

```
        R O M   P C I / I S A   B I O S   ( 2 A 5 I H A K A )
                    C M O S   S E T U P   U T I L I T Y
                A W A R D   S O F T W A R E ,   I N C .


HARD DISK TYPE      SIZE  CYLS.   HEADS    PRECOMP   LANDZ    SECTORS MODE
Drive  C       :    (MB)  790     15       65535     789      57


        Select  Secondary  Slave  Option (N=Skip)  :
                            N



                         ESC = SKIP
```
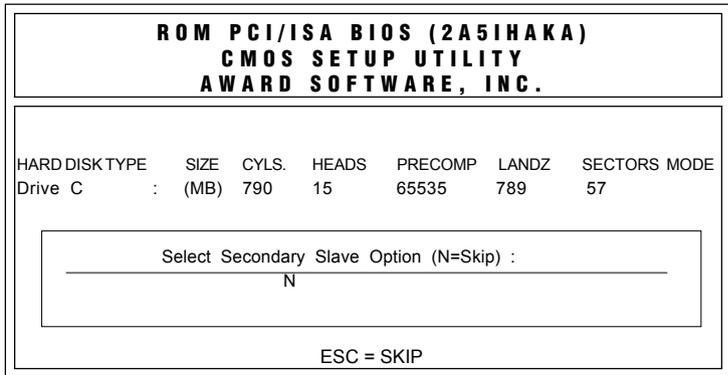
Figure 4-9: IDE HDD auto detection screen

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.

PCI SVGA Setup

- Introduction
- Installation of SVGA Driver
    - for Windows 98/ME
    - for Windows NT/2000
- Further Information

5.1 Introduction

The POS-7671 has an onboard AGP flat panel/VGA interface. The specifications and features are described as follows:

5.1.1 Chipset

The POS-7671 uses a LynxEM SMI 721 chipset from Silicon Motion Inc. for its AGP/SVGA controller. It supports many popular LCD, EL, and gas plasma flat panel displays and conventional analog CRT monitors. The SMI 721 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.

5.1.2 Display memory

With onboard 4 MB or 8 MB (optional) display memory, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1024 x 768 at 16 M colors.

5.1.3 Display types

CRT and panel displays can be used simultaneously. The POS-7671 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. If you want to enable the CRT display only or the flat panel display only, please contact Silicon Motion Inc. or our sales representative for detailed information.

5.1.4 Dual/simultaneous display

The POS-7671 uses a SMI Lynx 721 LCD 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, Windows ME, Windows NT, 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".
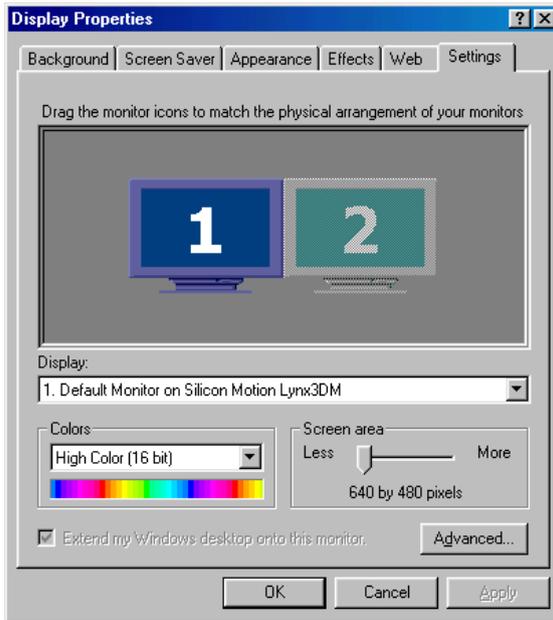
5.2 Installation of SVGA Driver

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-7671.

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.

5.2.1 Installation for Windows 98/ME

1. a. Select "Start," "Settings," "Control Panel," "Display,"
   "Settings."
   b. Press the "Advanced Properties" button

2. a. Choose the "Adapter" label.
   b. Press the "Change..." button.
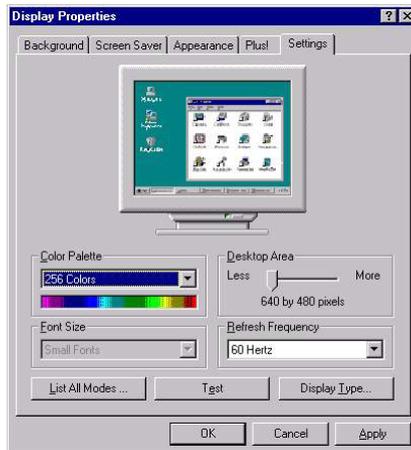
3. a. Press "Next."
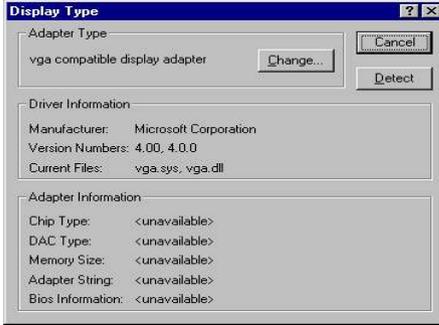
4. a. Choose the second option: "Display...."
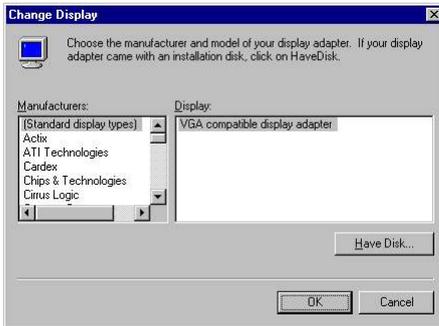
5. a. Press the "Have Disk..." button.

6. a. Insert the disc into the CD-ROM drive.
   b. Type the path "D:\POS\7671\VGA\WIN98&ME"
   c. Press "OK".

7. a. Select the higlighted item
   b. Click the "OK" button.

8. a. Press "Next"

9. a. Press "Finish"

10. a. "Silicon Motion LynxEM" appears in the adapter label.
    b. Click the "Apply" button.

11. a. Press "Close"

12. a. Press "Yes" to re-boot.

5.2.2 Installation for Windows NT/2000

*Note: Service Pack X (X = 3, 4, 5, 6, ...) must be installed
            first before you install the Windows NT VGA driver.*

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

2. a. Choose the "Settings" label.
    b. Press the "Display Type" button.
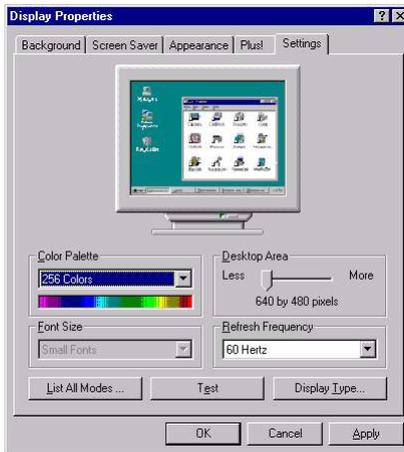
3.   a. Press the "Change..." button.
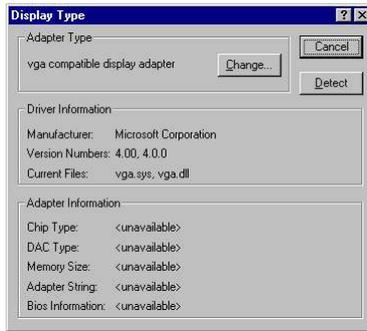
4.   a. Click the "Have Disk..." button.
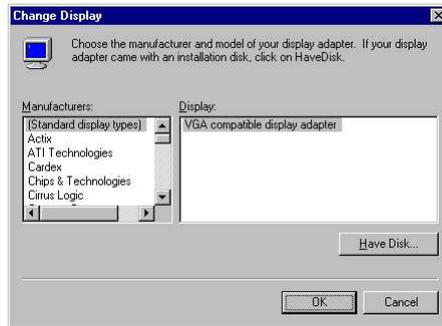
5.   a. Type the path "D:\POS\7671\VGA\SMI721\WinNT40
      b. Press the "OK" button

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

Change Display

Choose the manufacturer and model of your display adapter. If your display adapter came with an installation disk, click on HaveDisk.

Display:

Silicon Motion Lynx Family

[OK] [Cancel]

7. a. Press "Yes" to proceed.

Third-party Drivers.

You are about to install a third-party driver.

This driver was written by the hardware vendor, and is only provided here as a convenience. For any problem with this driver, please contact the hardware vendor.

Do you wish to proceed ?

[Yes] [No]

8. a. Press "OK" to re-boot.

Installing Driver

The drivers were successfully installed.

You must exit from the Display Properties window and reboot in order for the changes to take effect.

[OK]

5.3 Further Information

For further information about the AGP/SVGA installation in your POS-7671, including driver updates, troubleshooting guides and FAQ lists, visit the following web resources:

Silicon Motion Website: **www.siliconmotion.com**

Advantech websites: **www.advantech.com**
www. advantech.com/support

Audio Setup

The POS-7671 is equipped with an audio interface that records and plays back CD-quality audio. This chapter provides instructions for installing the software drivers on the included audio driver diskettes.

6.1 Introduction

The POS-7671's on-board audio interface provides high-quality stereo sound and FM music synthesis (ESFM) by using the VIA VT82C686B audio controller from VIA. The audio interface can record, compress, and play back voice, sound, and music with built-in mixer control.

The POS-7671 on board audio interface also supports the Plug and Play (PnP) standard and provides PnP configuration for the audio, FM, and MPU-104 logical devices. It is compatible with Sound Blaster™; Sound Blaster Pro™ version 3.01, voice and music functions. The ESFM synthesizer is register compatible with the OPL3 and has extended capabilities.

6.2 DOS utilities

6.2.1 VIA Sound Blaster Pro compatible set up program

Please "Enabled" the Sound Blaster setting on the BIOS first before you want to play the Sound Blaster compatible DOS games. You could follow the selecting to enable the setting on the BIOS:

INTEGRATED PERIPHERALS -> Onboard Legacy Audio

-> Sound Blaster (Disable -> Enabled)

Chipset Feature Setup->On Chip Sound (Disable-> Enabled)

The Sound Blaster Pro compatible sound chip is integrated into the VIA PCI audio device in order to have Sound Blaster compatible DOS games running on the system.

If you want to play those Sound Blaster compatible DOS games under the real mode MS-DOS or the "Restart in MS-DOS" from Win9x. Then you should run this setup program to enable the OPL3 MIDI music.

Otherwise, the music will not be heard but the sound still could be heard. If you want to play the legacy games on the Windows DOS Box then you need then you don't need to install this program.

6.2.2 VIA Sound Blaster Installation

You can enable the Sound Blaster Pro compatible function by using this function.

1. Enable the Sound Blaster first on the BIOS setting of the "Onboard Legacy Audio" and "On Chip Sound".

2. Run the "Install.exe".

   A> INSTALL

3. The program will copy the relative files into the directory which you assign. Next, the program will insert the following new line into the AUTOEXEC.BAT and copy the original AUTOEXEC.BAT to AUTOEXEC.VIA.

   C:\VIAUDIO\VIAUDIO.COM

4. Reboot the system when the installation is complete.

5. Uninstall by deleting the line from the AUTOEXEC.BAT>.

6.3   Driver installation

6.3.1 Before you begin

To facilitate the installation of the audio drivers, you should read the instructions in this chapter carefully before you attempt installation. The audio drivers for the POS-7671 board are located on the audio driver CD. You must install the drivers by using the supplied SETUP program.

Note: *The files on the software installation diskette are*
              compressed. Do not attempt to install the drivers by
              copying the files manually. You must use the
              supplied SETUP program to install the drivers.

6.3.4 Windows 95/98 drivers

1. Click "Start" and select "Settings". Click "Control Panel" and double-click "Add New Hardware".
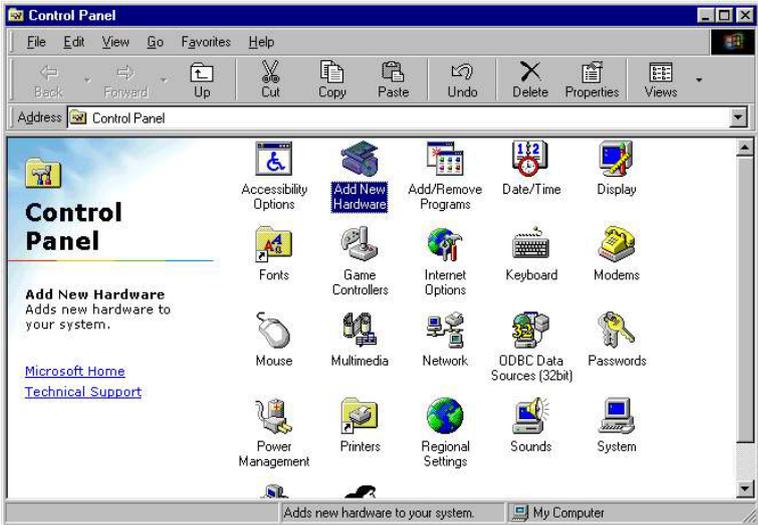
2. In the Add New Hardware Wizard window, click "Next".

3. In the following Add New Hardware Wizard window, click "Next" for Windows to search for Plug and Play devices.

Add New Hardware Wizard

Windows will now search for any new Plug and Play devices on your system.

Your screen may go blank during this process. This is normal.

To continue, click Next.

< Back   Next >   Cancel

4. In the following Add New Hardware Wizard window, select "No, the device isn't ..."and click "Next".

Add New Hardware Wizard

Is the device that you want to install listed below?

⊙ No, the device isn't in the list.

○ Yes, the device is in the list.

Select the device that you want to install, and then click Next.

Devices:

PCI Ethernet Controller
PCI Multimedia Audio Device

< Back   Next >   Cancel

5. In the following Add New Hardware Wizard window, select "No, I want to select ..." and click "Next"..

Add New Hardware Wizard

Windows can now search for hardware that is not Plug and Play compatible, or you can select your hardware from a list.

When Windows detects new hardware, it automatically determines the current settings for the device and installs the correct driver. For this reason it is strongly recommended that you have Windows search for your new hardware.

Do you want Windows to search for your new hardware?

○ Yes (Recommended)

● No, I want to select the hardware from a list.

< Back   Next >   Cancel

6. In the following Add New Hardware Wizard window, select "Sound, video and game controllers" and click "Next".

Add New Hardware Wizard

Select the type of hardware you want to install.

Hardware types:

- Other devices
- PCMCIA socket
- Ports (COM & LPT)
- Printer
- SBP2
- SCSI controllers
- Sound, video and game controllers
- Storage device
- System devices
- Universal Serial Bus controllers

< Back   Next >   Cancel

7. In the following Add New Hardware Wizard window, click "Have Disk...".

8. In the Install From Disk window, click "Browse".

9. In the Open window, select
"D:\760\audio.100\via686a\drive\win98se\viaudio.inf" and click
"OK".

Open			? X

File name:
viaudio.inf
 	
viaudio.inf
	Folders:
	D:\760\Audio.10...\WIN98SE
	
	📁 d:\
	  📁 760
	    📁 Audio.100
	      📁 via686a
	        📁 drive
	          📁 win98se
	
	Drives:
	🖳 d:
			OK
			
			Cancel

10. In the Install From DIsk window, click" OK".

Install From Disk		×
🖴	Insert the manufacturer's installation disk into the drive selected, and then click OK.	OK Cancel
	Copy manufacturer's files from: D:\760\Audio.100\VIA686A\DRIVE\W ▼	Browse...
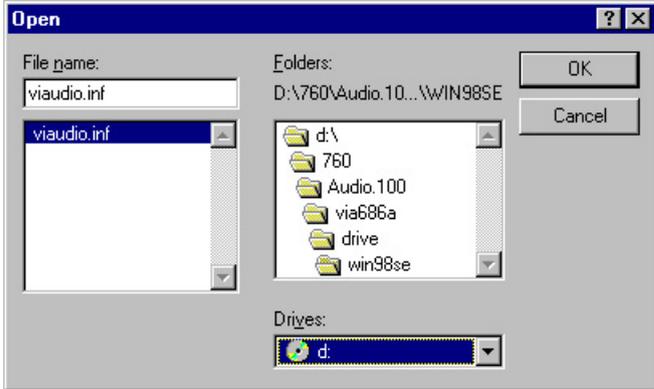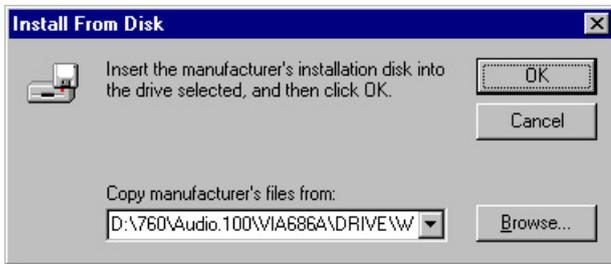
Note: For Windows 95, the path is:

D:\760\audio.100\via686a\drive\win9x\viaudio.inf.

11. In the Select Device window, select "VIA PCI Audio Controller (WDM)" and click "OK".

12. In the Add New Hardware Wizard window, click "Next".

13. In the Add New Hardware Wizard window, click "Finish". Then reboot the system.

6.3.5 Windows NT drivers

1. Click "Start" and select "Settings". Click "Control Panel" and double-click "Multimedia".

2. In the Multimedia Properties window, select the "Devices" tab. Then select the "Audio Devices" item, and click "Add...".

3. In the Add window, select the "Unlisted ..." item and click "OK".

Add

List of Drivers

> Unlisted or Updated Driver
> (MCI) CD Audio
> (MCI) Microsoft Video for Windows
> (MCI) Midi Sequencer
> (MCI) Sound
> Cinepak Codec by Radius Inc.
> Compaq Business Audio
> Creative Labs Sound Blaster 1.X, Pro, 16
> Creative Sound Blaster AWE32 MIDI Synth
> CrystalWare Audio Driver
> DSP Group TrueSpeech(TM) Audio CODEC

OK

Cancel

4. When the Install Driver window appears, insert the utility disc into the CD-ROM drive. Type: D:\POS\7671\audio.100\via686a\drive\... Then click "OK".

Install Driver

Insert the disk with the unlisted, updated, or vendor-provided driver in:

D:\POS\7671\audio.100\via686a\drive\...

OK

Cancel

Browse...

Help
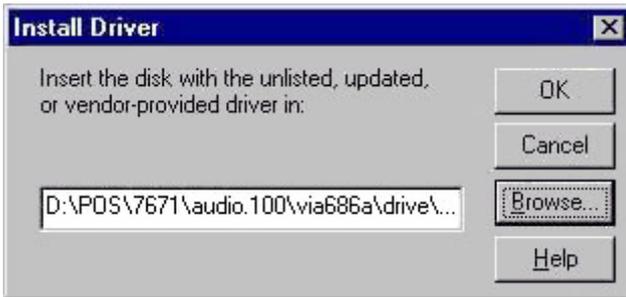
5. In the Add Unlisted or Updated Driver window, select the "VIA PCI Audio controller" item. Then click "OK".

6. In the System Setting Change window, click "Restart Now".

PCI Bus Ethernet Interface

This chapter provides information on AGP SVGA Setup.

• Introduction

• Installation of SVGA Driver
  - for Windows 98
  - for Windows NT
  - for Windows 2000
  - for Window ME

• Further information

7.1   Introduction

The POS-7671 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-7671, 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.*

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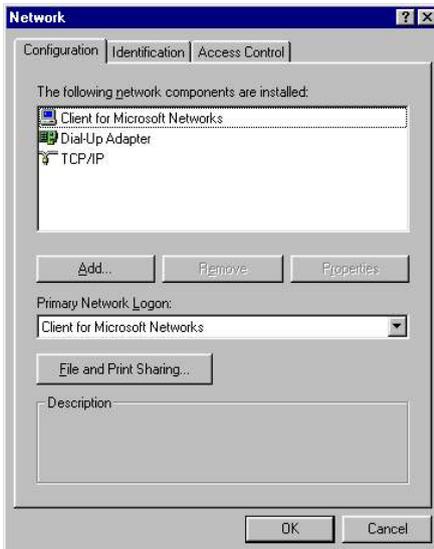
3. a. Select the "Adaptor" item to add the ethernet card.

Select Network Component Type

Click the type of network component you want to install:

- Client
- Adapter
- Protocol
- Service

A network adapter is a hardware device that physically connects your computer to a network.

[Add...] [Cancel]
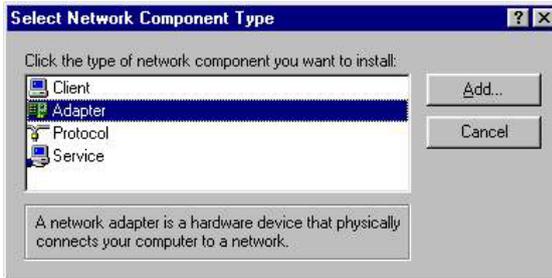
4. Cick "Have Disk" to install the driver.".

Select Network adapters

Click the Network adapter that matches your hardware, and then click OK. If you have an installation disk for this device, click Have Disk.

Manufacturers:
- (detected net drivers)
- (Infrared COM port or do
- 3Com
- Accton
- Adaptec

Network Adapters:
- Existing Ndis2 Driver
- Existing ODI Driver

[Have Disk...]

[OK] [Cancel]
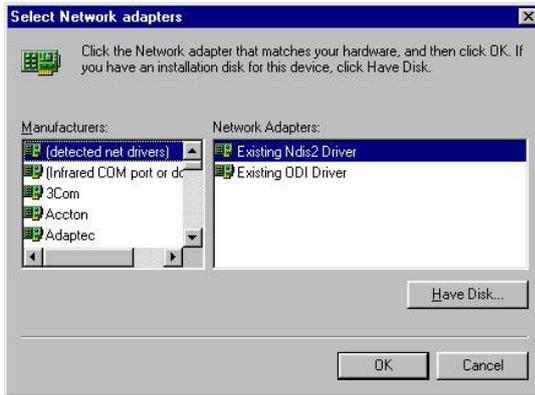
5. Click "Browse"

6. Select correct directory then click "OK".
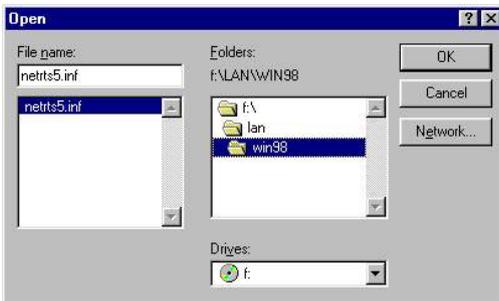
7. a. Insert the CD into the D:\drive.

   b. Fill in "D:\POS\7671\LAN\WIN9x

   c. Click "OK".

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

   b. Click "OK".

9. Cick "OK".
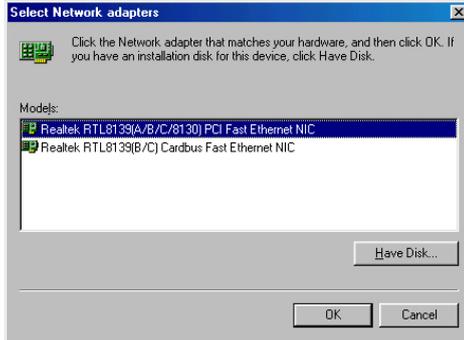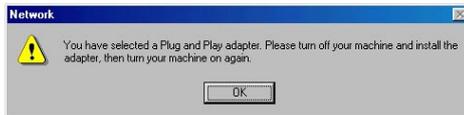
10. Cick "OK".

5. a. Click '

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
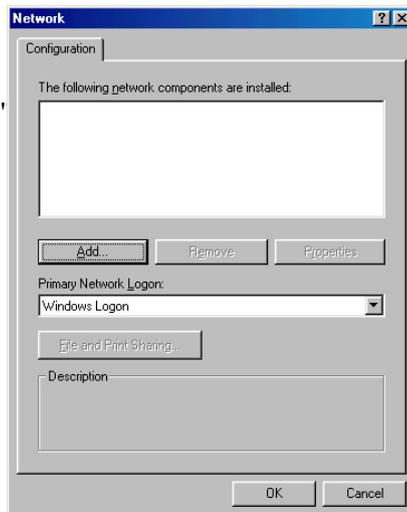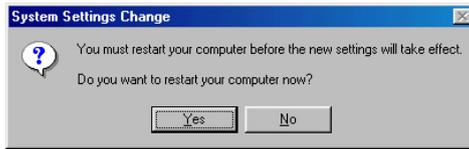
7.2.2 Installation for Windows NT

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".

Select Network Component Type

Click the type of network component you want to install:

- 🖥️ Client
- 📇 Adapter
- 🔧 Protocol
- 🖥️ Service

Add...

Cancel
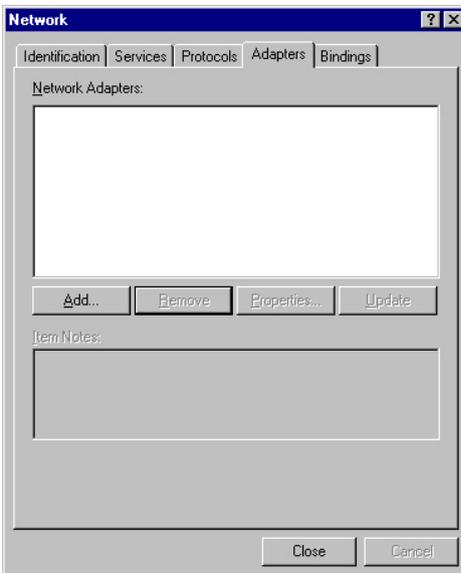
A network adapter is a hardware device that physically connects your computer to a network.
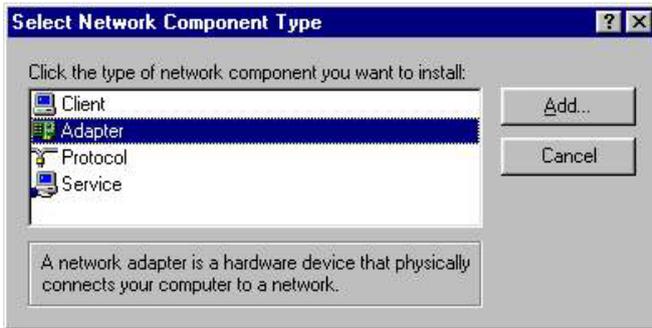
4. a. Insert the CD into the D: \drive.

   b. Fill in "D:\POS\7671\LAN\WINNT4"

   c. Click "OK".

Select Network adapters

Click the Network adapter that matches your hardware, and then click OK. If you have an installation disk for this device, click Have Disk.

Manufacturers:

- (detected net drivers)
- (Infrared COM port or do
- 3Com
- Accton
- Adaptec

Network Adapters:

- Existing Ndis2 Driver
- Existing ODI Driver

Have Disk...

OK   Cancel

5. a. Click "OK"

Install From Disk

Insert the manufacturer's installation disk into the drive selected, and then click OK.

OK

Cancel

Copy manufacturer's files from:

A:\   Browse...

6. a. Click "close"

7. a. Click "Close".
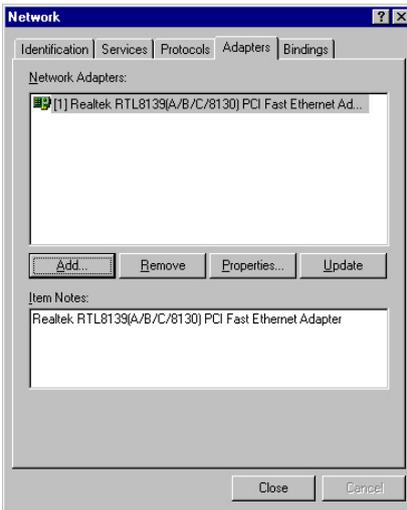
8. a. Click "yes".

Programming the Watchdog Timer

The POS-7671 is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for whatever reason. This feature ensures system reliability in industrial standalone or unmanned environments.

A.1 Programming the watchdog timer

In order 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
```

Pin Assignments

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

B.1 LAN Audio KB Mouse USB DIO VGA connector (CN 1)

Table B.1 LAN Audio KB Mouse USB DIO VGA connector (CN1)

Function	Pin	Pin	Function	Function	Pin	Pin	Function
TX-	1	2	TX+	USB2-	33	34	USB2+
LANG	3	4	LANG	USB3-	35	36	USB3+
RX-	5	6	RX+	VCC	37	38	VCC
LED0	7	8	LED1	DO0	39	40	DI7
SGND	9	10	SGND	DO1	41	42	DI6
MICL	11	12	MICR	DO2	43	44	DI5
LINEL	13	14	LINER	DO3	45	46	DI4
SPKL	15	16	SPKR	DO4	47	48	DI3
SGND	17	18	SGND	DO5	49	50	DI2
KVCC	19	20	KVCC	DO6	51	52	DI1
KCLK	21	22	MCLK	DO7	53	54	DI0
KDAT	23	24	MDAT	GND	55	56	GND
GND	25	26	GND	GND	57	58	I2D
GND	27	28	GND	R	59	60	HSYC
USB0-	29	30	USB0+	G	61	62	VSYC
USB1-	31	32	USB1+	B	63	64	I2C

B.2 COM1~COM4 LPT1 connector (CN2)

Table B.2 COM1 ~ COM4 LPT1 connector (CN2)

Function	Pin	Pin	Function	Function	Pin	Pin	Function
Rev.	1	2	Rev.	SOUTA	33	34	CTSA
Rev.	3	4	Rev.	DTRA	35	36	RIA
Rev.	5	6	Rev.	DCDB	37	38	DSRB
Rev.	7	8	Rev.	SINB	39	40	RTSB
STB	9	10	AFD	SOUTB	41	42	CTSB
PD0	11	12	ERR	DTRB	43	44	RIB
PD1	13	14	INIT	GND	45	46	GND
PD2	15	16	SLCIN	DCDC	47	48	DSRC
PD3	17	18	PD4	SINC	49	50	RTSC
PD5	19	20	PD6	SOUTC	51	52	CTSC
PD7	21	22	ACK	DTRC	53	54	RIC
BUSY	23	24	PE	DCDD	55	56	DSRD
SLCT	25	26	GND	SIND	57	58	RTSD
GND	27	28	GND	SOUTD	59	60	CTSD
DCDA	29	30	DSRA	DTRS	61	62	RID
SINA	31	32	RTSA	GND	63	64	GND

B.3 Secondary (2.5") IDE connector (CN3)

Table B-3: Secondary (2.5") IDE connector (CN3)

Pin	Signal	Pin	Signal
1	IDE RESET*	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	SIGNAL GND	20	N/C
21	HDD 0	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	HD READY	28	N/C
29	HDACK 0*	30	GND
31	IRQ14	32	N/C
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HDD SELECT 0*	38	HDD SELECT 1*
39	IDE ACTIVE 0*	40	GND
41	VCC (CN12 only)	42	VCC (CN12 only)
43	GND (CN12 only)	44	N/C (CN12 only)

* low active

B.4 Primary (3.5") IDE connector (CN4)

Table B-4: Primary (3.5") IDE connector (CN4)

Pin	Signal	Pin	Signal
1	IDE RESET*	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	SIGNAL GND	20	N/C
21	HDD 0	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	HD READY	28	N/C
29	HDACK 0*	30	GND
31	IRQ14	32	N/C
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HDD SELECT 0*	38	HDD SELECT 1*
39	IDE ACTIVE 0*	40	GND
41	VCC (CN12 only)	42	VCC (CN12 only)
43	GND (CN12 only)	44	N/C (CN12 only)

* low active

B.5 FDD connector (CN5)

Table B-5: FDD connector (CN5)

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 2*
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*
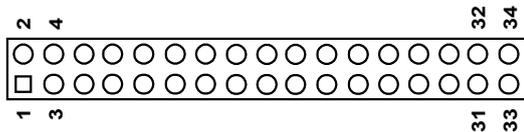
*Active low

B.6 CD audio-in connector (audio only) (CN6)

```
4
3
2
1
```

Table B-1: CD audio-in connector (audio only) (CN6)

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

B.7 FIR connector (CN7)

```
5  4  3  2  1
```
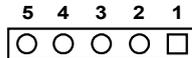
Table B-7: FIR connector (CN7)

Pin	Signal
1	V_{CC}
2	FIRX (Reserve)
3	RX
4	GND
5	TX

B.8 Brightness adjust connector (CN8)

```
3   2   1
○   ○   □
```
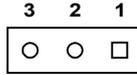
Table B-8: Brightness adjust connector (CN8)

Pin	Signal
1	+5 V
2	GND
3	ENABKL

B.9 Backlight control (CN9)

```
5   4   3   2   1
○   ○   ○   ○   □
```
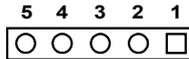
Table B-9: Backlight control (CN9)

Pin	Signal
1	+12 V
2	GND
3	ENABKL
4	BRIG
5	+5 V

B.10 ATX power connector (CN10)
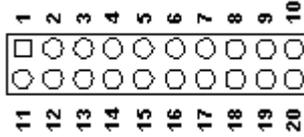
Table B-10: ATX power connector (CN10)

Pin	Function	Pin	Function
1	3.3 V	11	3.3 V
2	3.3 V	12	-12 V
3	GND	13	GND
4	+5 V	14	PS ON
5	GND	15	GND
6	+5 V	16	GND
7	GND	17	GND
8	POWER OK	18	-5 V
9	5 V SB	19	+5 V
10	+12 V	20	+5 V

B.11 CPU Fan power connector (CN11)

```
1   2   3
□   ○   ○
```
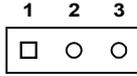
Table B-11: Fan power connector (CN11)

Pin	Signal
1	GND
2	+12 V
3	NC

B.12 Contrast adjust connector (CN12)

```
3   2   1
○   ○   □
```
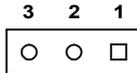
Table B-12: Contrast adjust connector (CN12)

Pin	Signal
1	VR.B1
2	VR.B2
3	VR.B3

B.13 2nd Extended flat panel (36 ~ 48 bit) 24-bit LCD display connector (CN13)

```
 1  3                                              37 39
┌─────────────────────────────────────────────────┐
│ □ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ │
│ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ │
└─────────────────────────────────────────────────┘
 2  4                                              38 40
```
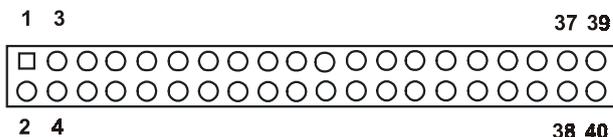
Table B-13: Flat panel display connector (CN13)

Pin	Signal	Pin	Signal
1	VDDSAFE5	2	VDDSAFE5
3	GND	4	GND
5	VDDSAFE3	6	VDDSAFE3
7	Vcon	8	GND
9	P24	10	P25
11	P26	12	P27
13	P28	14	P29
15	P30	16	P31
17	P32	18	P33
19	P34	20	P35
21	P36	22	P37
23	P38	24	P39
25	P40	26	P41
27	P42	28	P43
29	P44	30	P45
31	P46	32	P47
33	GND	34	GND
35	SHFCLK	36	FLM
37	M/DE	38	LP
39	ENABKL	40	ENAVEE

Note: The model number of the CN13 socket is DF13A-20DP-1.25V (Hirose Electric Co., Ltd.)

B.14 1st Extended flat panel (18 ~ 24 bit) 24-bit LCD display connector (CN14)

```
 1   3                                    37 39
┌─────────────────────────────────────────────┐
│ □ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ │
│ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ │
└─────────────────────────────────────────────┘
 2   4                                    38 40
```
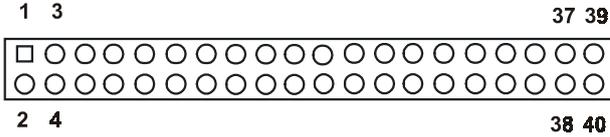
Table B-14: Flat panel display connector (CN14)

Pin	Signal	Pin	Signal
1	VDDSAFE5	2	VDDSAFE5
3	GND	4	GND
5	VDDSAFE3	6	VDDSAFE3
7	Vcon	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
37	M/DE	38	LP
39	ENABKL	40	ENAVEE

Note: The model number of the CN14 socket is DF13A-40DP-1.25V (Hirose Electric Co., Ltd.)

B.15 Front Panel Connector (J1)

Table B-15: Front Panel Connector (J1)

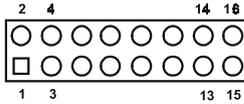| Signal	Pin	Pin	Signal	Signal	Pin	Pin	Signal
PWR+	1	2	ESP+	GND	11	12	HD-
PWR+	3	4	GND	PWBN	13	14	HD+
PWR-	5	6	IBZ-	Rev.	15	16	NC
NC	7	8	ESP-	Rev.	17	18	RST+
GND	9	10	NC	GND	19	20	RST-

B.16 DOC address select (J2)

Table B-16: DOC address select (J2)

Memory Address	Sel2(1~2pin)	Sel1(3~4)pin	Sel0(5~6pin)
C800	0	0	0
CC00	0	0	1
C000	0	1	0
D400	0	1	1
D800	1	0	0
DC00	1	0	1

B.17 Watch dog settings (J3)

J:3	Watch Dog Setting
Closed pins	**Result**
1-2	Watch Dog Reset
2-3	IRQ11

Watch Dog Reset   IRQ11
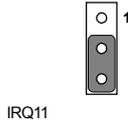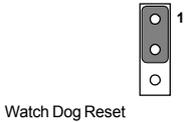
B.18 Clear RTC (J4)

J:4	Clear RTC
Closed pins	**Result**
1-2	Active
2-3	Clear RTC

Active   Clear RTC
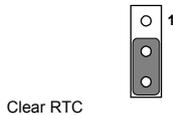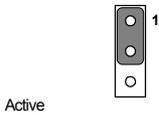
B.19 TV out (J5)

J:5	TV out
Pin	**Function**
Pin 1	YA LUMA
Pin 2	CA CHROMA
Pin 3	GND
Pin 4	GND
Pin 5	COMP

Pins 1,2, and 3 for S-video connect

Pins 4 and 5 for AV connect

B.20 SW1 LCD hardware type setting

SW:1	LCD Hardware Type Setting (0=On, 1=off)
Setting	**Result**
ID=0000	640 x 480 (TFT)
ID=0001	640 x 480 (DSTN)
ID=0010	800 x 600 (TFT)
ID=0011	800 x 600 (DSTN)
ID=0100	1024 x 768 (18-bit TFT)
ID=0101	1024 x 768 (DSTN)
ID=1111	Software setting (default setting)

4 3 2 1

OFF OFF OFF OFF

Default setting
(ID=1111 - Off, Off,Off, Off)

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

C.1 DiskOnChip®2000 Quick Installation Guide

C.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:)
    ```

C.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.

System Assignments

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

• System I/O ports

• 1st MB memory map

• DMA channel assignments

• Interrupt assignments

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)
2E8-2EF	Serial port 4
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
3E8-3EF	Serial port 3
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1
443	Watchdog timer

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

D.2 1st MB memory map

Table D-2: 1st MB memory map

Addr. range (Hex)	Device
F000h - FFFFh	System ROM
DC00h - EFFFh	Unused
* D000h - D400h	DOC® 2000
**CC00h - DBFFh	Ethernet ROM
C000h - CBFFh	Expansion ROM
B800h - BFFFh	CGA/EGA/VGA text
B000h - B7FFh	Unused
A000h - AFFFh	EGA/VGA graphics
0000h - 9FFFh	Base memory

* Default setting

** If Ethernet Boot ROM enabled

D.3 DMA channel assignments

Table D-3: 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.4 IRQ mapping chart

Table D-4: IRQ mapping chart

IRQ	Function
0	Interval timer
1	Keyboard
2	Interrupt from controller 2
3	COM2
4	COM1
5	COM4
6	FDD
7	LPT1
8	RTC
9	LPT2
10	COM3
11	Watchdog timer
12	PS/2 mouse
13	INT from co-processor
14	Primary IDE
15	Secondary IDE

Note: *Allocate IRQs carefully to avoid conflicts.*

Programming the Digital I/O Port

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

• System I/O ports

• 1st MB memory map

• DMA channel assignments

• Interrupt assignments

E.1   Digital I/O (CN1: 8 Inputs, 8 Outputs)

The POS-7671 has eight digital inputs and outputs (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:

E.1.1 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 E-1: 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"

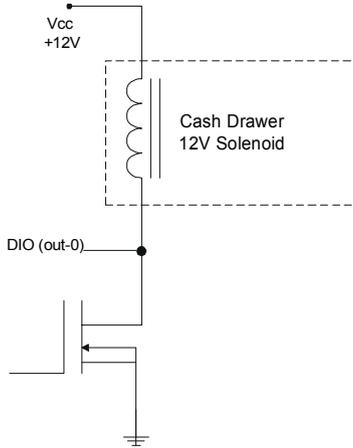## E.1.2 Digital output solenoid wiring examples

Example:

Figure E-1: POS-7671 digital output solenoid wiring example

E.1.2 Digital output programming

Table E-2: Digital output programming

Output	Address	Bit
Out 0	550	0
Out 1	550	1
Out 2	550	2
Out 3	550	3
Out 4	550	4
Out 5	550	5
Out 6	550	6
Out 7	550	7

E.1.3 Digital Input programming

Table E-3: Digital input programming

Input	Address	Bit
In-0	550	0
In-1	550	1
In-2	550	2
In-3	550	3
In-4	550	4
In-5	550	5
In-6	550	6
In-7	550	7

Note: The INPUT signal must be TTL compatible.

Optional Extras for the POS-7671

F.1 POS-10586-1000 (Cable Kit for POS-7671)

The POS-7671 requires several cables for normal operation. You can make them yourself, or purchase the optional cable kit assembly, which includes the following:

POS-10586-1000 Cable Kit for POS-7671			
Part No.	Description	POS-7671 Connector	Terminating Connector
1701340600	Flat FDD Cable 34P 60cm 2.54mm to 2.0mm	CN5	34-pin Dual Floppy
1701440500	Flat HDD Cable 40P IDC40P/IDC40-P/HOUSING44-P 50cm	CN4	40-pin 2.54mm, female IDC
1703050409	Wire 5P 2.54mm 40cm for TV-out	J 5	1*5 pin header, S-video RCA Jack
1701640200	Flat Female Cable IDC 64P/IDC 64P 20cm, I/O cable for POS-7105	CN1, CN2	64-pin housing
POS-7105	POS-7671 I/O Expansion Board	CN1, CN2	64-pin housing