POS-760F

Socket 370 SBC for POS applications

User's Manual

Copyright notice

Acknowledgements

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Packing list

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

- 1 POS-760F 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/66 80-pin flat cable
- 1 startup manual
- 2 serial port cables
- 1 audio cable (optional)

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-760F.

Sections include:

- Introduction
- Features
- Specifications
- Board layout and dimensions

1.1 Introduction

The POS-760F utilizes an LPX form factor (Socket 370) design that supports Celeron™ processors up to 500 MHz as well as provides 100 MHz FSB bus support for Pentium® III processors. This effective LPX Socket 370 solution gives end users the choice of good, economical performance with the Celeron™ series processors, or the impressive performance of the Pentium III series. Also, compared to Slot 1 solutions, the Socket 370's lower profile allows for a lower board height, critical to embedded systems applications. This processor flexibility combined with all the other on-board features, explains why the POS-760F is the new top-of-the-line POS solution at Advantech.

The POS-760F is loaded with special on-board features that rival full-size systems. It has standard 10/100Base-T PCI Ethernet, 36-bit XGA TFT LCD panel support as well as SSD support for DOC® 2000 and CompactFlash™. There is a Mini PCI socket for optional international version modem, plus optional support for AC97 3D stereo surround sound with speaker-out, CD-input, line-in, line-out and microphone. The POS-760F also includes two 168-pin DIMM sockets for up to 512 MB total on-board memory.

The POS-760F was designed using feedback and knowledge gained from our customers. It has more of the features our customers have requested. It is 100% PC compatible and is ready to handle the most challenging POS environments. Besides the great onboard memory flexibility and capacity, the POS-760F has four on-board serial ports, each with +5/+12 V power, two USB connectors, watchdog timer and tough industrial grade construction. The Award 256 KB Flash BIOS supports Plug & Play, Boot from Ethernet, Boot from CD-ROM, Boot from Zip drive, Wake-on-Lan, Modem and LCD backlight turnoff. All these features make the POS-760F a very "system integrator friendly" solution, perfect for handling POS applications in the harshest unmanned environments.

1.2 Features

- All-in-one design simplifies system integration and increases system stability
- Socket 370 supports Celeron™ and Pentium® III processors, up to 500 MHz or above
- On-board POS features such as 4 x RS-232 with power and 2 x USB interfaces for external peripherals.
- 100/10Base-T with RJ-45 connection for the most demanding networking environment
- Supports Mini PCI interface for optional modem
- Supports wake-on LAN, modem
- 16-bit full-duplex 3D audio optional for quality multimedia sound applications
- Special industrial features not found on conventional motherboards include watchdog timer, SSD and High Drive digital I/O for driving cash drawer
- Standardized layout conforms to Western Digital LPM/LPX format for easy installation within standard sized chassis
- Supports up to 36-bit XGA high resolution LCDs
- Advanced CPU switching power technology for stable and low heat CPU voltage power conversion
- Supports DiskOnChip® Flash modules and CompactFlash™ card

1.3 Specifications

Standard SBC functions

- **CPU**: Socket 370 for Intel® Celeron™/Pentium III processor
- **BIOS**: Award 256 KB Flash memory
- **Chipset**: VIA 82C693/82C686
- **System memory**: Two DIMM sockets accept 32 ~ 512 MB SDRAM
- **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
- **Serial ports**: Four serial RS-232 ports, COM1, 3, 4: RS-232, COM2: RS-232/422/485
- **Parallel port**: Two parallel ports, supports SPP/EPP/ECP mode
- **Infrared port**: Shared with COM2. Transfer rates up to 4 Mbps
- **Keyboard/mouse connector**: Supports standard PC/AT keyboard and a PS/2 mouse
- **Power management**: Supports power saving modes including Normal/Standby/Suspend modes. APM 1.1 compliant
- **Watchdog timer**: 62 level timer intervals
- **USB**: Two universal serial bus ports

Solid state disk

- Supports one 50-pin socket for CompactFlash™ card and one 32-pin socket for a DiskOnChip®

VGA/LCD interface

- **Chipset**: C&T69000 2 MB SDRAM on chip
- **Interface**: AGP 2X 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 8139B
- **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 (optional)

- **Chipset**: VIA 82C686
- **Audio controller**: AC97 version 2.0 compliant interface
- **Audio interface**: Microphone in, Line in, CD audio in, Line out, Speaker L and Speaker R

Mechanical and environmental

- **Max. power requirements**: +5 V ± 5% @ 12 A, +12 V ± 5% @ 3 A, -5 V ± 5% @ 0.5 A, -12 V ± 5 % @ 0.5 A
- **Operating temperature**: 0 ~ 60° C (32 ~ 140° F)
- **Dimensions (L x W)**: 220 x 235 mm (8.7" x 9.25")
- **Weight**: 0.5 kg (1.1 lb)

1.4 Board dimensions

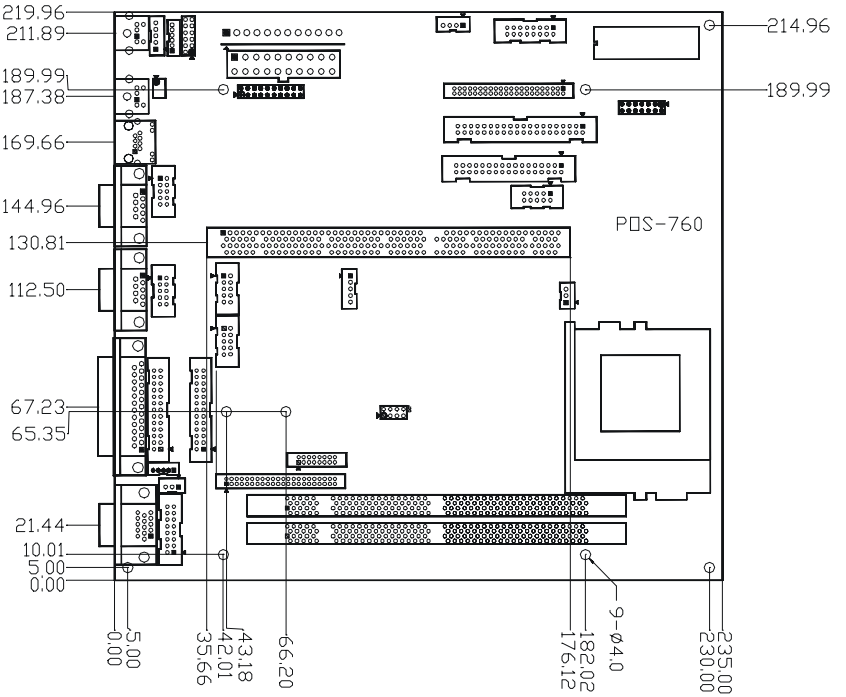


Figure 1-1: Board dimensions (component side)

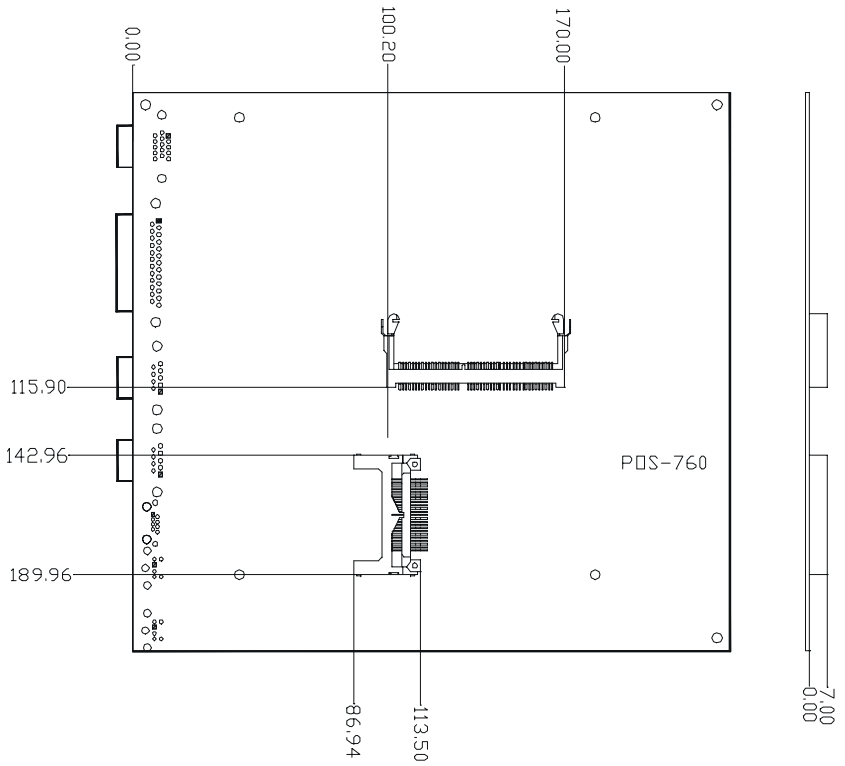


Figure 1-2: Board dimensions (solder side)

CHAPTER 2

Installation

This chapter explains how to set up the POS-760F 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-760F 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	Watchdog function
J4	Keyboard/mouse select
J7	DOC®2000 address select
J10	IRQ12 release
J12	COM1, COM2 RI/power setting
J13	COM2 RS-232/422/485 setting
J14	COM1, COM2 RI/power setting
J15	COM2 RS232/422/485 setting
J16	COM2, RS-232/422/485 setting
J17	CMOS (RTC) clear
J18	COM3, COM4, RI/power setting

J19	COM3, COM4, RI/power setting
J22	LCD power setting

2.2 Connectors

On-board connectors link the POS-760F 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	PS/2 keyboard connector
CN2	Internal KB connector
CN3	Internal mouse/KB connector
CN4	Main power connector
CN7	CD audio-in connector (audio only) (optional)
CN8	Audio connector (audio only) (optional)
CN9	ATX power connector
CN10	PS/2 mouse/KB connector
CN12	Secondary (2.5") IDE connector
CN13	Digital I/O
CN14	Primary IDE (3.5") connector
CN15	Ethernet connector
CN16	FDD connector
CN17	Internal COM2 connector
CN18	USB connector
CN19	COM2 connector
CN20	PISA (PCI/ISA) connector
CN21	COM1 connector
CN22	Internal COM1 connector
CN23	Internal COM4 connector
CN24	FIR connector
CN25	Fan power connector
CN27	Internal COM3 connector
CN28	LPT1 connector

CN29	Internal LPT1 connector
CN30	Internal LPT2 connector
CN31	Flat panel display connector extension
CN32	Contrast adjust connector
CN33	Backlight control
CN34	Brightness adjust connector
CN35	Flat panel display connector
CN36	CRT display connector
CN37	Internal CRT display connector
CN38	Mini PCI connector
CN39	Front panel connector
SK1	Socket for DOC®2000
SK2	Socket for processor
SK3	Socket for CompactFlash™

2.3 Locating jumpers and connectors

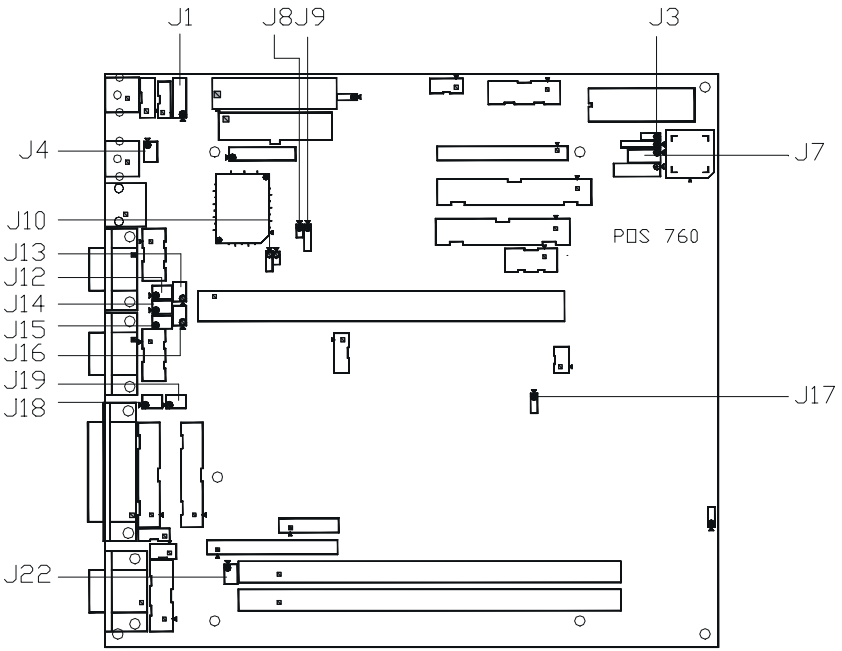


Figure 2-1: Locating jumpers

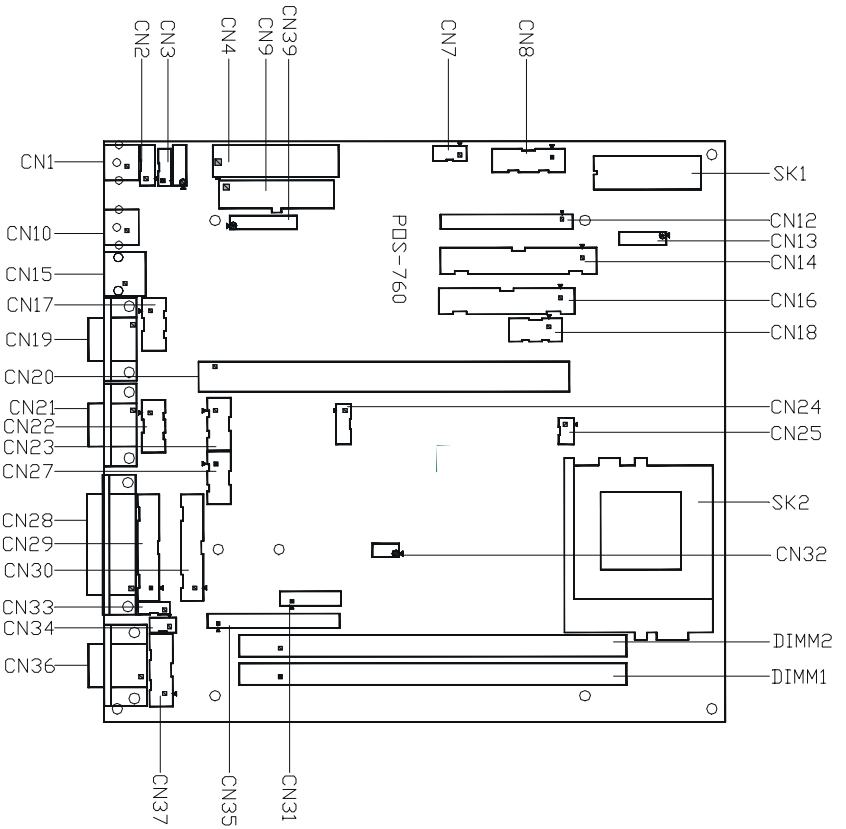
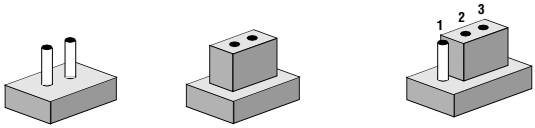


Figure 2-2: Locating connectors (component side)

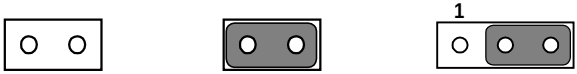
2.4 Setting jumpers

You configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper 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 CPU installation and upgrading

You can upgrade to a higher power Pentium® processor at any time. Simply remove the old CPU, install the new one, and the BIOS will auto detect the new CPU type and speed.

Warning! *Always disconnect the power cord from your chassis before you begin working on it. Do not make connections while the power is on because sensitive electronic components can be damaged by the 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 board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.*

2.5.1 Installing a CPU in the ZIF socket

POS-760F provides a Zero Insertion Force (ZIF) socket for easy CPU installation.

1. Make sure the ZIF socket lever is in the upright position. To raise the lever, pull it out to the side a little and raise it as far as it will go.
2. Place the CPU in the empty socket. Follow the instructions that came with the CPU. If you have no instructions, do the following: Carefully align the CPU so it is parallel to the socket and the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Gently slide the CPU in. It should insert easily. If it does not, pull the lever up a little more.
3. Press the lever down. The plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and will not damage the CPU.

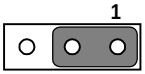
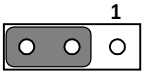
When the CPU is installed, the lever should snap into place at the side of the socket.

NOTE: *To remove a CPU, pull the lever out to the side a little and raise it as far as it will go. Lift out the CPU chip.*

2.5.2 CMOS clear (J17)

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

Table 2-3: CMOS clear (J17)

	*Battery on	Clear CMOS
J17		

*default setting

2.6 DRAM installation

There are two on-board 168-pin DIMM sockets.

2.6.1 DIMM DRAM (DIMM 1 and DIMM 2)

You can install one DiMM (up to 256 MB) or two 168-pin DIMM (up to 512 MB DRAM) in the DIMM sockets.

Caution: When installing DIMM, make sure the module is oriented properly. Do not use excess force during installation.

2.7 Primary (3.5") IDE connector (CN14)

The 40-pin IDE connector 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 of the device's connector.

The built-in Enhanced IDE (Integrated Device Electronics) controller supports up to two IDE devices, 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.

2.7.1 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.

2.8 Secondary (2.5") IDE connector (CN12)

The on-board 44-pin mini-pitched IDE interface is used to let user support either a 2.5" HDD.

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.

Note: You cannot use a DMA-66 HDD, due to the cable's limitation.

2.9 FDD connector (CN16)

You can attach up to two floppy disks to the POS-760F'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 CN16. 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 LPT1 (primary parallel port) connectors (CN28/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, CN29, also available.

2.11 LPT2 (secondary parallel port) connector (CN30)

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).

2.12 Keyboard/mouse connectors (CN1, CN2, CN3, CN10)

The POS-760F 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 (CN1)
- Internal 5-pin header for KB (CN2)
- Internal 6-pin KB/Mouse connector (CN3)
- External mini-DIN PS/2 mouse/keyboard jack (CN10) selected by J4

Table 2-4: Keyboard/mouse select (J4)

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

2.13 Power connectors (CN4, CN9, CN25)

2.13.1 Main power connector (CN4)

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.

2.13.2 ATX power input connector (CN9)

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

2.13.3 Fan power supply connector (CN25)

Provides power supply to optional CPU cooling fan. Only present when +5 V and +12 V power is supplied to the board.

2.14 Audio interfaces (CN7, CN8)

The POS-760FA 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.

2.14.1 Audio connector (CN8)

The POS-760FA provides all major audio signals on a 16-pin flat-cable connector, CN8. 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.

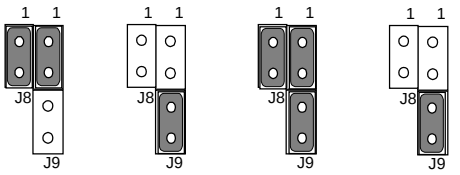
2.14.2 CD audio-in connector (CN7)

All CD-ROM drives can provide analog audio signal output when used as a music CD player. The CN7 on POS-760FA 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 CN7.

Table 2-5: Audio function select (J8 & J9)

J8 & J9: Audio function select (Select On-board 97)		
	J8	**J9**
AC97*	**1-2**	**1-2**
Reserved	**Open**	**3-4**
Reserved	**1-2**	**1-2 & 3-4**
Reserved	**Open**	**3-4**

*default setting



2.15 Serial ports (COM1 - 4) (CN21/22, CN19/17, CN27, CN23)

The POS-760F has a total of four on-board RS-232 serial ports, COM1-4. They are differentiated by COM1 and COM2 (RS-232/422/485) as primary serial ports and COM3 and COM4 as secondary ports. All four serial ports have +5 V and +12 V power capabilities on both pin #1 and pin #9, depending on the jumper setting. Pin assignments for both internal and external COM ports can be found in the appendix.

2.15.1 Primary serial ports (COM1: CN21/CN22, COM2: CN19/CN17)

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 fixed with COM1 on IRQ4 and COM2 on IRQ3. COM1 and COM2 can be enabled or disabled via BIOS (see Chapter 4).

2.15.2 Secondary serial ports (COM3: CN27, COM4: CN23)

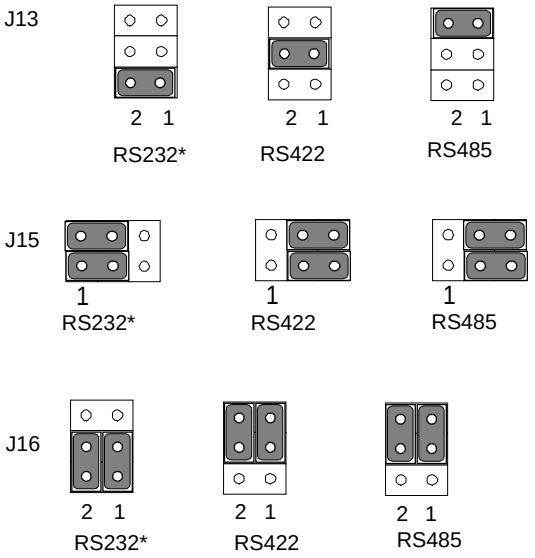
The secondary serial ports each have one 10-pin, internally positioned header connection. The IRQ for COM3 is fixed at IRQ10 and COM4 is fixed at IRQ5. COM3 and COM4 can be enabled/disabled via BIOS (see Chapter 4).

2.16 COM2 RS-232/422/485 setting (J13, J15 and J16)

Follow the jumper chart below to set the desired mode for COM2

Table 2-6: COM2 RS-232/422/485 select (J13, J15 & J16)

J13	**J15**	**J16**	
Closed pins	**Closed pins**	**Closed pins**	**Result**
1-2	1-3, 2-4	1-3, 2-4	RS-232*
3-4	3-5, 4-6	3-5, 4-6	RS-422
5-6	3-5, 4-6	3-5, 4-6	RS-485



2.17 COM1 - COM4 RI pin +5/+12 V power setting (J14, J12, J19, J18)

COM1 - COM4 can supply +5 V or +12 V power to the serial devices via RI pin of the COM port connector. The Pin 9 outputs of COM1 - COM4 can be connected to either RI or power by setting J14 & J19. If you select power, you can choose +5 V or +12 V by setting J12 & J18.

Table 2-7: COM1, COM2 RI/power select (J14)

Closed pins	Result
2-4	COM1 Power
4-6	COM1 RI*
1-3	COM2 Power
3-5	COM2 RI*

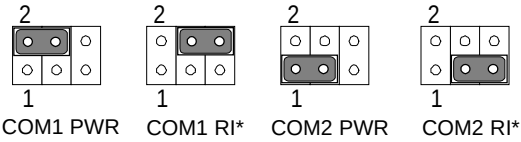


Table 2-8: COM1, COM2 RI/power select (J12)

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

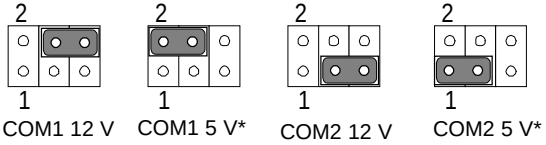


Table 2-9: COM3, COM4 R1/power select (J19)

Closed pins	Result
2-4	COM3 Power
4-6	COM3 RI*
1-3	COM4 Power
3-5	COM4 RI*

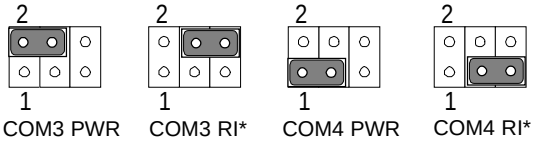
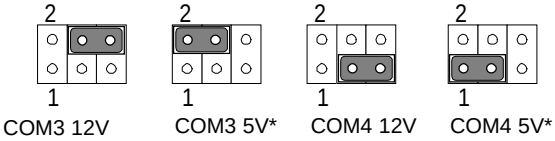


Table 2-10: COM3, COM4 R1/power select (J18)

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



2.18 VGA interface connections

The POS-760F 's AGP 2X 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.

2.18.1 CRT display connector (CN36 and CN37)

CN30 is a standard 15-pin D-SUB connector commonly used for the CRT VGA monitor only. CN31 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.

2.18.2 Flat panel display connector (CN35, CN31)

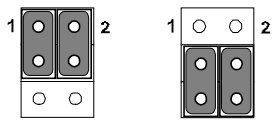
CN35 consists of a 44-pin, dual inline header. It can connect to a 24-bit TFT LCD panel. CN31 consists of a 16-pin dual inline header which with CN35 can connect to a 36-bit TFT LCD panel. Pin assignments appear in the appendix. (For more information on LCD connection information between CN35/CN31 and an LCD, refer to Chapter 3.)

2.18.3 LCD power setting (J22)

The POS-760F's AGP 2X interface supports 5 V and 3.3 V LCD displays. By changing the setting of J22, you can select the panel video signal level to be 5 V or 3.3 V.

Table 2-11: LCD power (J22)

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

Configuration of the VGA interface is done completely via the software utility. You do not have to set any jumpers. Refer to Chapter 3 for software setup details.

Refer to Chapter 3 for details on connecting the five standard LCDs: Sharp LM64183P, LM64P89, Toshiba LTM10C209A, Kyocera KCB6448BSTT-X5, and Planar EL640.480-AM1 displays.

2.19 Ethernet configuration

The POS-760F 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).

2.19.1 RJ-45 connector (CN15)

100/10Base-T connects to the POS-760F via an RJ-45 standard jack.

2.19.2 Network boot

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 on the included utility disk.

2.20 Watchdog timer configuration

An onboard watchdog timer reduces the chance of disruptions which EMP (electro-magnetic pulse) interference can cause. This is an invaluable protective device for standalone or unmanned applications. Setup involves one jumper and running the control software (refer to Appendix A).

2.20.1 Watchdog timer action (J3)

When the watchdog timer activates (CPU processing has come to a halt), it can reset the system or generate an interrupt on IRQ11. This can be set via setting J3 as shown below:

Table 2-12: Watchdog function (J3)

Closed pins	Result
1-2	Reset*
2-3	IRQ11

IRQ11 Reset*

2.21 USB connector (CN18)

The POS-760F 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.

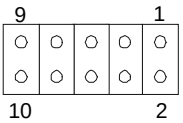
The USB interfaces are accessed through 10-pin (5x2) flat-cable connectors, CN18. You will need an adapter cable if you use a standard USB connector. The adapter cable has a 5-pin connector on one end and a USB connector on the other.

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

2.22 DOC® 2000 address select (J7)

Table 2-13: DOC® 2000 address setting (J7)

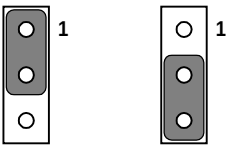
DOC® 2000 address select			
DOC 2000	5-6	3-4	1-2
C800	Short	Short	Short
CA00	Short	Short	Open
CC00	Short	Open	Short
CE00	Short	Open	Open
D000*	Open	Short	Short
D200	Open	Short	Open
D400	Open	Open	Short
D600	Open	Open	Open
DIO		9-10	7-8
200		Open	Open
210		Open	Short
220		Short	Open
230*		Short	Short



2.23 IRQ12 release (J10)

Table 2-14: IRQ12 release (J10)

Closed pins	Result
1-2	MS_DATA*
2-3	IRQ12



2.24 Digital I/O (CN13: 4 Outputs, 4 Inputs)

The POS-760 has two high drive digital outputs (24 V_{DC}, 1 A max) 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

2.24.1 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 2-15: 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"

2.24.2 Digital output solenoid wiring examples

The POS-760F's CN13 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.

Example:

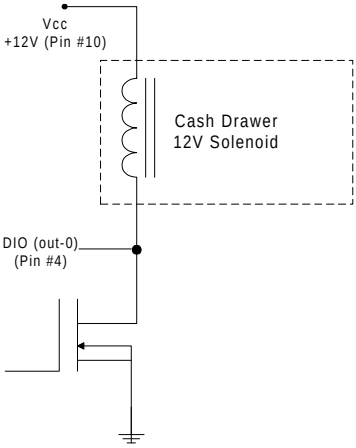


Figure 2-3: POS-760F digital output solenoid wiring example

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:

- Introduction
- VGA display software configuration
- LCD display configuration
- Connections for four standard LCDs
- Ethernet interface configuration

3.1 Introduction

The POS-760F system BIOS and custom drivers are located in a 256 KB, 32-pin (JEDEC spec.) Flash ROM device, designated U10. A single Flash chip holds the system BIOS, VGA BIOS, and network Boot ROM image. The display can be configured via software. This method minimizes the number of chips and eases configuration. You can change the display BIOS simply by reprogramming the Flash chip.

3.2 VGA display firmware configuration

The POS-760F's on-board VGA interface supports a wide range of popular LCD, EL, gas plasma flat panel displays and traditional analog CRT monitors. With onboard 2 MB of display memory to provide resolutions of 1024 x 768 @ 16 bpp, the interface can drive CRT displays with resolutions up to 1024 x 768 @ 16 bpp and 800 x 600 @ 24 bpp.

The VGA interface is configured completely via the software utility, so you do not have to set any jumpers. Configure the VGA display as follows:

1. Apply power to the POS-760F with a color TFT display attached. This is the default setting for the POS-760F. Ensure that the AWDFLASH.EXE and *.BIN files are located in the working drive.

   NOTE: Ensure that you do not run AWDFLASH.EXE while your system is operating in EMM386 mode.

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

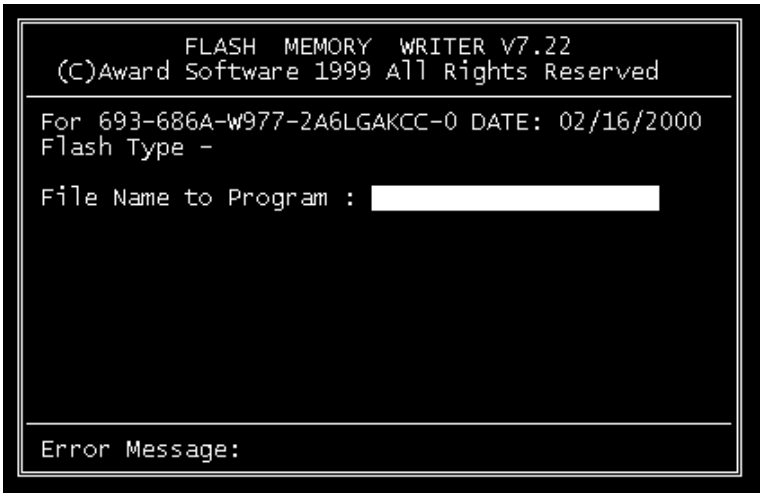


Figure 3-1: VGA setup screen

3. At the prompt, enter the new BIN file which supports your display. When you are sure that you have entered the file name correctly press <Enter>.
4. The screen will ask “Do you want to save BIOS?”. If you change your mind or have made a mistake, press N to abort and end the setup procedure. Press Y if you wish to save the existing configuration before changing it. Then type the name under which you want to save the current configuration.
5. The prompt will then ask “Are you sure to program?”. Press Y if you want the new file to be written into the BIOS. 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.

3.3 Connections for four standard LCDs

Connections to Sharp LM64183P (640 x 480 DSTN MONO LCD)

Table 3-1: POS-760F connection for Sharp LM64183P LCD (CN35)

LM64183P		**POS-760F (CN35)**	
Pin	**Name**	**Pin**	**Name**
CN1-1	S	36	FLM
CN1-2	CP1	38	LP
CN1-3	CP2	35	SHFCLK
CN1-4	DISP	5	+5 V
CN1-5	VDD	6	+5 V
CN1-6	VSS	3	GND
CN1-7	VEE	-	-17 V (external power)
CN1-8	DU0	12	P3
CN1-9	DU1	11	P2
CN1-10	DU2	10	P1
CN1-11	DU3	9	P0
CN1-12	DL0	16	P7
CN1-13	DL1	15	P6
CN1-14	DL2	14	P5
CN1-15	DL3	13	P4

* LM64183P requires -17 V for VEE

Connections to PLANAR EL640.480-AM1 (640 x 480 EL LCD)

Table 3-2: POS-760F connection for PLANAR EL LCD (CN35)

PLANAR 640.480-AM1		POS-760F (CN35)	
Pin	**Name**	**Pin**	**Name**
1	UD1	11	P2
2	UDO	12	P3
3	UD3	9	P0
4	UD2	10	P1
5	LD1	15	P6
6	LD0	16	P7
7	LD3	13	P4
8	LD2	14	P5
9	CP2	35	SHFCLK
10	GND	33	GND
11	CP1	38	LP
12	GND	33	GND
13	S	36	FLM
14	GND	34	GND
15	GND	3	GND
16	GND	4	GND
17	VL	5	VCC
18	VL	6	VCC
19	VH	1	+12 V
20	VH	2	+12 V

Connections to Toshiba LTM10C209A (640 x 480 TFT color LCD)

Table 3-3: POS-760F connection for Toshiba LTM10C209A LCD (CN35)

LTM10C209A		POS-760F (CN35)	
Pin	**Name**	**Pin**	**Name**
1	GND	3	GND
2	CLK	35	SHFCLK
3	GND	4	GND
4	R0	27	P18
5	R1	28	P19
6	R2	29	P20
7	GND	8	GND
8	R3	30	P21
9	R4	31	P22
10	R5	32	P23
11	GND	33	GND
12	G0	19	P10
13	G1	20	P11
14	G2	21	P12
15	GND	33	GND
16	G3	22	P13
17	G4	23	P14
18	G5	24	P15
19	GND	34	GND
20	ENAB	37	M
21	GND	34	GND
22	B0	11	P2
23	B1	12	P3
24	B2	13	P4
25	GND	39	GND
26	B3	14	P5
27	B4	15	P6
28	B5	16	P7
29	GND	39	GND
30	VDD	5	+5 V
31	VDD	6	+5 V

Connections to Kyocera KCB6446BSTT-X5 (640 x 480 DSTN color LCD)

Table 3-4: POS-760F connection for Kyocera KCB6446BSTT-X5 LCD (CN35)

KCB6446BSTT-X5		POS-760F (CN35)	
Pin	**Name**	**Pin**	**Name**
CN1-1	FRM	36	FLM
CN1-2	DF	-	-
CN1-3	DISP	40	ENABKL
CN1-4	LOAD	38	LP
CN1-5	VSS	33	GND
CN1-6	CP	35	SHFCLK
CN1-7	VSS	34	GND
CN1-8	HD0	20	P11
CN1-9	HD1	19	P10
CN1-10	HD2	18	P9
CN1-11	HD3	17	P8
CN1-12	HD4	12	P3
CN1-13	HD5	11	P2
CN1-14	HD6	10	P1
CN1-15	HD7	9	P0
CN2-1	LD0	24	P15
CN2-2	LD1	23	P14
CN2-3	LD2	22	P13
CN2-4	LD3	21	P12
CN2-5	LD4	16	P7
CN2-6	LD5	15	P6
CN2-7	LD6	14	P5
CN2-8	LD7	13	P4
CN2-9	VDD	5	VCC
CN2-10	VSS	3	GND
CN2-11	NC	-	-
CN2-12	NC	-	-
CN2-13	NC	-	-
CN2-14	VCONT	*7	*VEESAFE

3.4 Ethernet software configuration

The POS-760F'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-760F on. Ensure 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 your are sure that 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 which 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-760F'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.

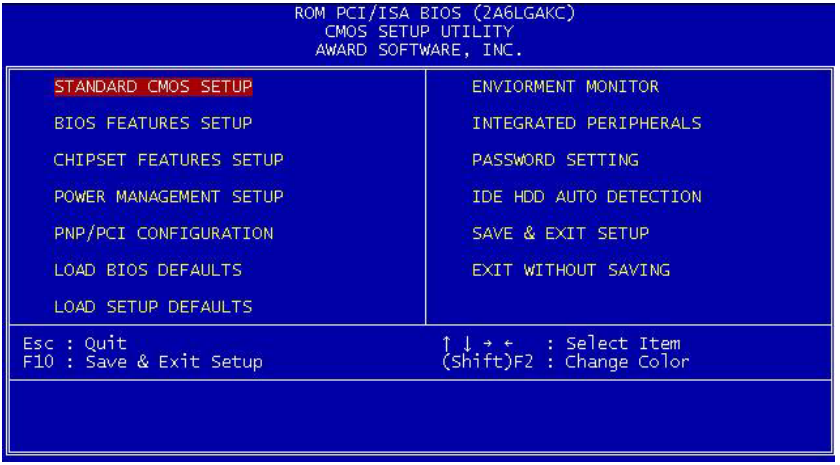


Figure 4-1: Setup program initial screen

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.

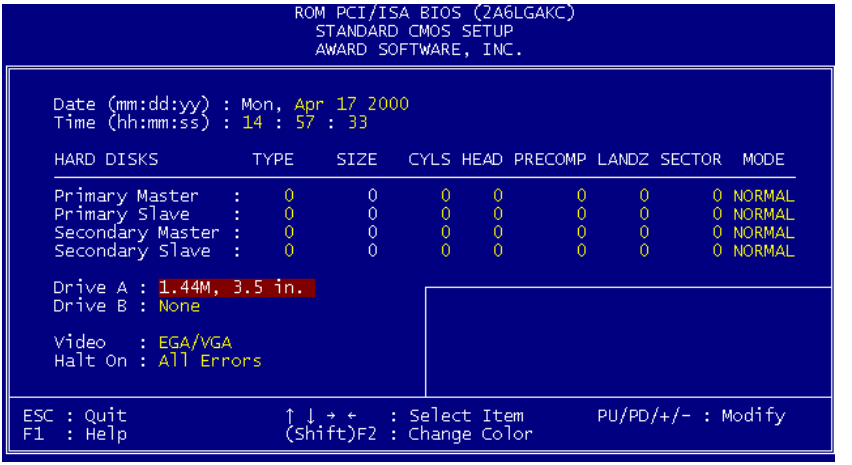


Figure 4-2: CMOS setup screen

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-760F.

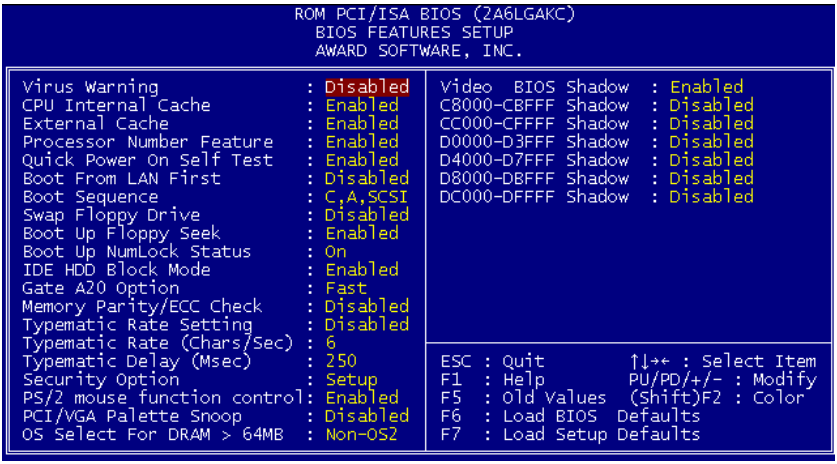


Figure 4-3: BIOS features setup screen

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-760F.

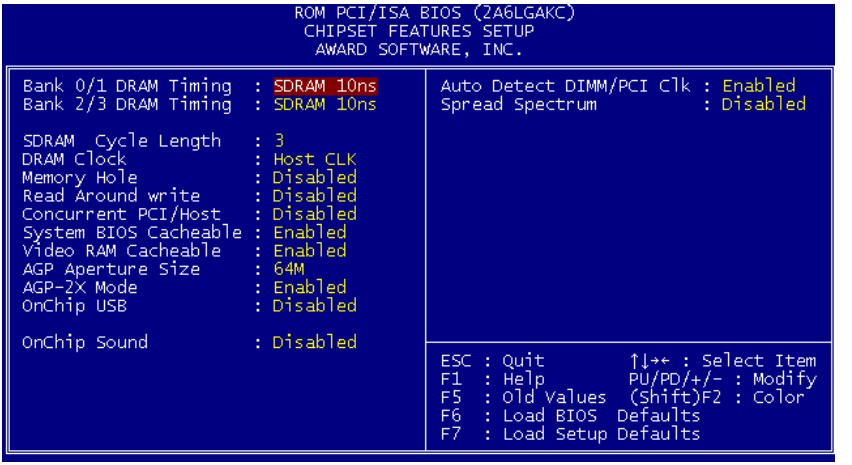


Figure 4-4: Chipset features setup screen

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-760F.

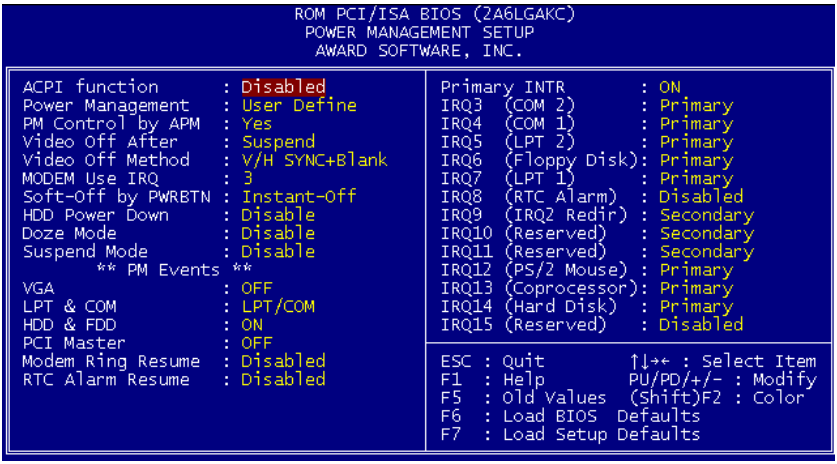


Figure 4-5: Power management setup screen

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-760F.

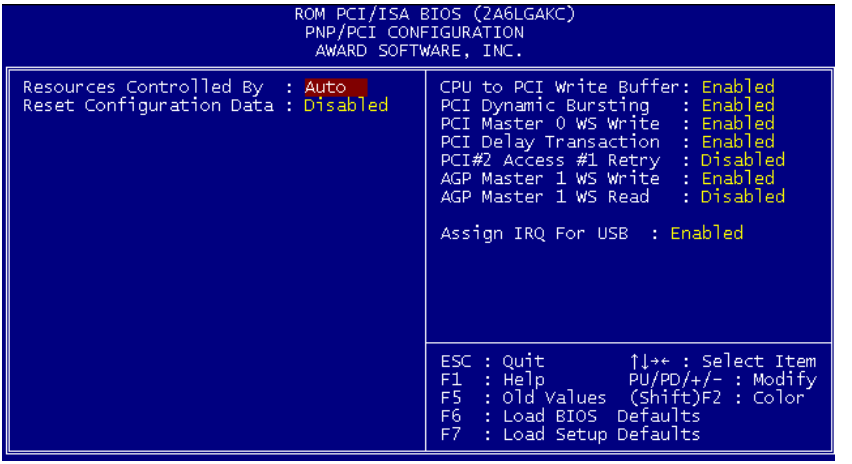


Figure 4-6: PCI configuration setup screen

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-760F.

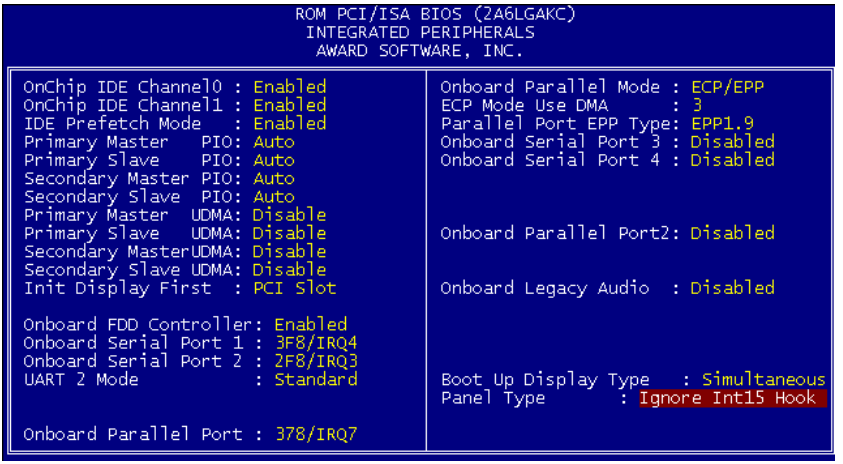


Figure 4-7: Integrated peripherals setup screen

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-760F on.

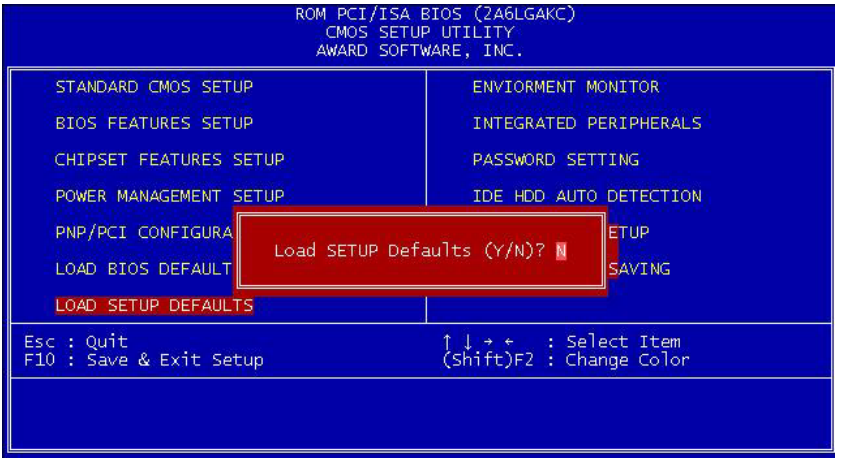


Figure 4-8: Load BIOS defaults screen

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.

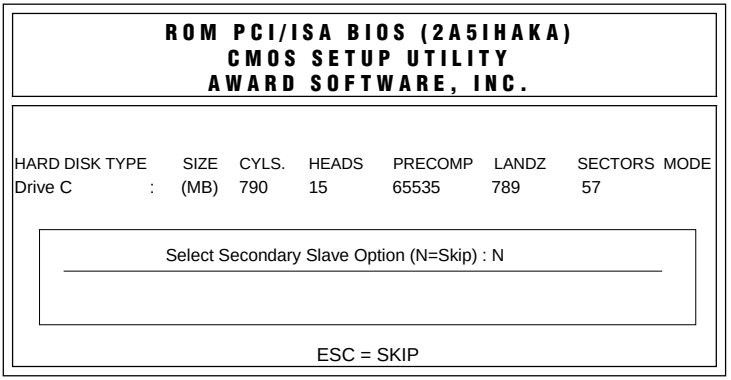


Figure 4-9: IDE HDD auto detection screen

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.

CHAPTER 5

AGP 2X Setup

The POS-760F features an onboard AGP 2X flat panel/VGA interface. This chapter provides instructions for installing and operating the software drivers on the included display driver diskette.

5.1 Before you begin

To facilitate the installation of the enhanced display device drivers and utility software, you should read the instructions in this chapter carefully.before you attempt installation. The enhanced display drivers for the POS-760F board are located on the software installation diskette. You must install the drivers and utility software by using the supplied SETUP program for DOS drivers.

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.

Before you begin, it is important to note that most display drivers need to have the relevant software application already installed in the system prior to installing the enhanced display drivers. In addition, many of the installation procedures assume you are familiar with both the relevant software applications and operating system commands. Review the relevant operating system commands and the pertinent sections of you application software's user's manual before performing the installation.

5.2 Installation

Disk 1: Windows 3.1, Windows 95 and Windows NT drivers

Disk 2: OS/2 drivers

5.3 Driver installation

5.3.1 Necessary prerequisites

The instructions in this manual assume that you understand elementary concepts of MS-DOS and the IBM Personal Computer. Before you attempt to install any driver or utility you should: know how to copy files from a floppy disk to a directory on the hard disk, understand the MS-DOS directory structure, and know how to format a floppy disk. If you are uncertain about any of these concepts, please refer to the DOS or Windows user reference guides for more information before you proceed with the installation.

5.3.2 Before you begin

Before you begin installing software drivers, you should make a backup copy of the display driver diskette and store the original in a safe place. The display driver diskette contains drivers for several versions of certain applications. You must install the correct version in order for the driver to work properly so make sure you know which version of the application you have.

5.3.3 Windows setup

These drivers are designed to work with Microsoft Windows 3.1. You may install these drivers through Windows or in DOS.

Step 1: Install Windows as you normally would for a VGA display. Run Windows to make sure that it is working correctly.

Step 2: Place the display driver diskette in drive A. In Windows Program Manager, choose ***File*** from the Options Menu. Then from the pull-down menu, choose ***Run . . . .*** At the command line prompt, type **A:\SETUP**. Press the <ENTER> key or click ***OK*** to begin the installation. At this point the setup program locates the directory where Windows is installed. For proper operation, the drivers must be installed in the Windows subdirectory. Press <ENTER> to complete the installation. Once completed, the Display Driver Control Panel appears on the screen. This Control Panel allows you to select and load the installed drivers.

Another method of installing these drivers is through the File Manager. Click on ***Drive A:***. Then double-click on ***SETUP.EXE*** to begin installation.

Changing display drivers in Windows

To change display drivers in Windows, select the ***Windows Setup*** icon from the Main window. You will be shown the current setup configuration. Select ***Change System Settings*** from the Option menu. Click on the arrow at the end of the Display line. You will be shown a list of display drivers. Click on the driver you want. Then click on the ***OK*** button. Follow the directions to complete the setup.

Changing color schemes

After you change display drivers, you may notice that the color scheme used by Windows looks strange. This is because different drivers have different default colors. To change the color scheme, select the ***Control Panel*** from the Main window. Select the ***Color*** icon. You will be shown the current color scheme. Choose a new color scheme and click the ***OK*** button.

5.3.4 DOS setup

Step 1: Install Windows as you normally would for a VGA display. Run Windows to make sure that it is working correctly. Then exit Windows.

Step 2: Place the display driver diskette in drive A. Type **A:** <ENTER> to make this the default drive. Type **SETUP** <ENTER> to run the driver SETUP program. Press any key to get to the applications list. Using the arrow keys, select ***Windows Version 3.1*** and press the <ENTER> key. Press the <ENTER> key to select ***All Resolutions***, and then press <END> to begin the installation. At this point you will be asked for the path to your Windows System directory (default C:\WINDOWS). When the installation is complete, press any key to continue. Press <ESC> followed by Y to exit to DOS.

Step 3: Change to the directory where you installed Windows (usually C:\WINDOWS).

Step 4: Type **SETUP** <ENTER> to run the Windows Setup program. It will show the current Windows configuration. Use the up arrow key to move to the Display line and press <ENTER>. A list of display drivers will be shown. Use the arrow keys to select one of the drivers starting with an asterisk (*) and press <ENTER>.

Step 5: Follow the directions on the screen to complete the setup. In most cases, you may press <ENTER> to accept the suggested option. When Setup is done, it will return to DOS. Type **WIN** <ENTER> to start Windows with the new display driver.

Changing display drivers in DOS

To change display drivers from DOS, change to the Windows directory and run Setup, repeating steps 4 and 5 from the previous page. Besides the special display drivers marked by an asterisk (*), you should be able to use the following standard drivers:

VGA	640 x 480, 16 colors
Super VGA	800 x 600, 16 colors

Panning drivers

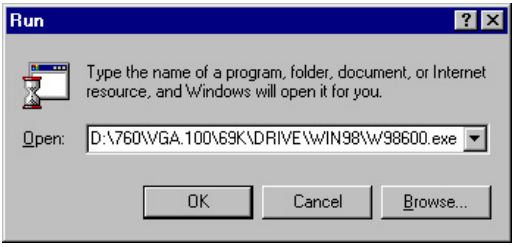
Special panning drivers are provided to allow high-resolution modes to be displayed on a flat panel or CRT. These drivers will show a section of a larger screen and will automatically pan, or scroll, the screen horizontally and vertically when the mouse reaches the edge of the display.

Linear acceleration drivers

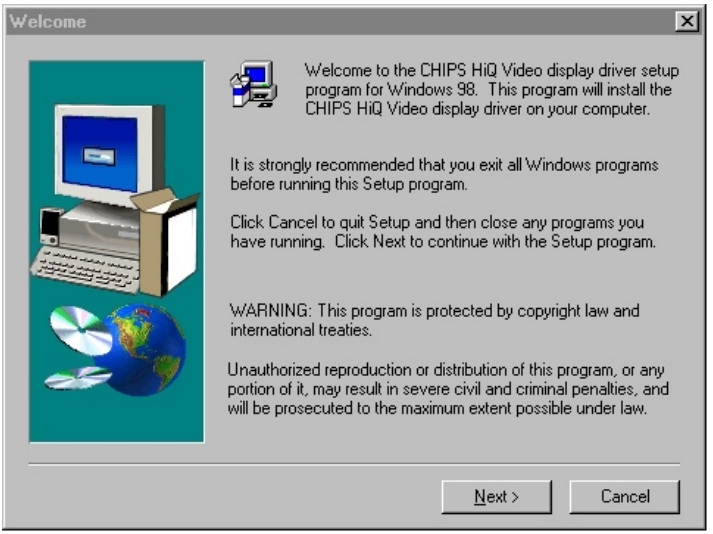
A special high-performance linear acceleration driver is provided for 256-color modes. This driver may require special hardware and may not be supported on all systems. It is only available for Windows 3.1.

5.4 Windows 95/98 drivers setup procedure

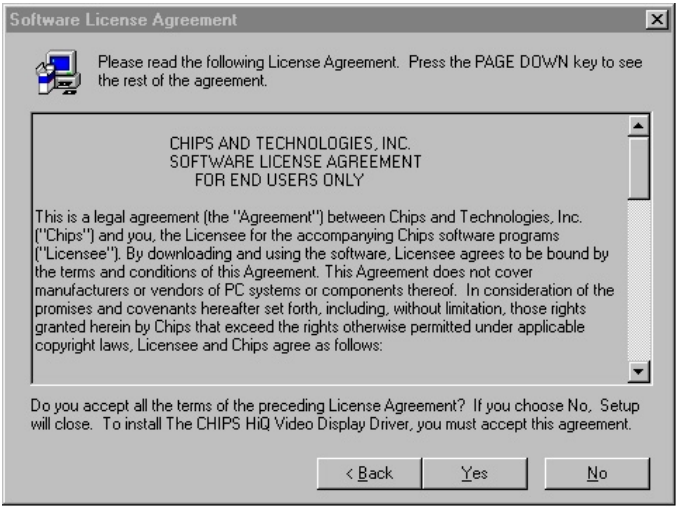
1. Click "Start", and select "Run" to find the driver in the correct directory. The driver for Win 95 is W95500.exe. The driver for Win98 is W98600.exe.



2. In the Welcome window, click "OK".



3. In the Software License Agreement window, carefully read the "Software License Agreement". If you accept all the terms of this Agreement, click "Yes".



4. In the Setup Complete window, select "Yes, I want to ...". The system will then reboot.

5.5 Windows NT drivers setup procedure

Step 1

1. Install Windows NT as you normally would for a VGA display.
2. Click the Start button, choose Settings and click on Control Panel.
3. Choose the Display icon and click on the icon.
4. In the Display Properties window, click on the Settings tab.
5. Click on Change Display Type. In the Change Display Type window, click on the Change button under Adapter Type. This will bring up the Select Device window.

Step 2

1. In the Select Device window, click on the Other button. Enter source directory where the Windows NT driver files are located.
2. Press <ENTER> and the name of the Chips and Technologies Video Accelerator driver will appear at the end of the Models list box. Scroll to the end of the list box and double click on the driver.
3. Once the installation is complete, the system must be restarted.

Step 3

1. Upon restarting your computer, select the desired display settings from the Display property dialog box.
2. Click on Test to test the newly selected graphics mode. A color test screen should appear, followed by the Testing Mode window.
3. Click on Yes to continue. The Display Settings Change window will appear.
4. Click on Restart Now for the new settings to take effect.

5.6 OS/2 drivers setup procedure

5.6.1 Preliminary steps

The following steps must be performed before you install the 69000 display driver:

1. OS/2 DOS Support must be installed.
2. If you previously installed SVGA support, you must reset the system to VGA mode. VGA is the default video mode enabled when OS/2 is installed.

To restore VGA mode, use Selective Install and select VGA for Primary Display. For more information on this procedure, see the section on Changing Display Adapter Support in the OS/2 User's Guide.

5.6.2 Installing from diskette

To install this driver, do the following steps:

1. Open an OS/2 full screen or windowed session.
2. Place the 69000 PCI Display Driver Diskette in drive A.
3. At the OS/2 command prompt, type the following commands to copy the files to the OS/2 drive:

   Type:

   ```
   A: <ENTER> to make this the default drive.

   SETUP A: C: <ENTER>
   ```

   where A: is the floppy disk drive and
   C: is the hard disk partition containing \OS2

When the Setup Program is completed, you will need to perform a shutdown and then restart the system in order for changes to take effect.

A log of the information output during the installation can be found in <root>:\OS2\INSTALL\DISPLAY.LOG

4. After restarting the system, perform the following steps:

a. Open the OS/2 System folder.

b. Open the System Setup folder.

c. Open the Display Driver Install Object.

This step will execute the Display Driver Installation (DSPINSTL) utility program to finish installation of the new drivers.

5. When the Display Driver Install window appears, select Primary Display and then select OK.
6. When The Primary Display Driver List window appears, select "Chips and Technologies 69000" from the list of adapter types, then select OK to install the video driver.
7. When the installation is complete, you will need to shut down and then restart the system for the changes to take effect. Make sure to remove the install diskette before restarting the system.

When the system has restarted, the display driver will be initialized for 640 x 480 at 256 colors, 60 Hz refresh. To switch to a different video resolution color depth, or refresh rate, follow the steps below.

5.6.3 Selecting monitor type

Monitor type is initially set to DEFAULT. This DEFAULT setting may not allow you to select all resolution/refresh combinations that are available for your monitor. The following steps can be done to select monitor type. This section applies only after installation, or when a different monitor is used.

1. Open the OS/2 System folder.
2. Open the System Setup folder.
3. Open the System object.
4. When the System - Settings notebook appears, select the Screen tab. This will take you to page 2 of the settings.
5. On Screen page 2, select your monitor type from the Display Name list. If your monitor is not listed, select DEFAULT. Return to Screen page 1.

It may be necessary to restart your system to have all refresh rate options available.

5.6.4 Selecting screen resolution / refresh rate

To switch to a different video resolution, color depth or refresh rate, follow the steps below.

1. Open the OS/2 System folder.
2. Open the System Setup folder.
3. Open the System object.
4. From the selection windows provided, select a new Screen Resolution and Screen refresh rate.

   Please note, Refresh rates, other than 60 Hz, are only valid when the display is switched to CRT only display mode.
5. Close the System-Settings notebook.
6. Perform a shutdown and restart for the changes to take effect.

5.6.5 Installation notes

1. During the installation of this driver, DISPLAY.LOG and DSPINSTL.LOG files are created in \OS2\INSTALL directory. These files identify the OS/2 system files that were updated, and indicate whether the installation was successful. The DISPLAY.LOG file also contains a string that identifies the version of driver that was installed. This information may be important when reporting an installation problem.
2. During installation, DSPINSTL will invoke the SVGA Configuration program SVGA.EXE to determine the hardware configuration, and create the file: \OS2\INSTALL\SVGADATA.PMI. If this file is not created, the adapter will not be supported. When this step is done, the display will be blanked, and you may see a series of flashes on the display and/or what appears to be a “corrupted” display. This is normal, as the configuration process is doing Video BIOS mode sets to determine which screen resolutions BIOS supports. This configuration information is then used to provide the System-Settings Resolution and Refresh selections.

CHAPTER 6

Audio Setup

The POS-760FA is equipped with an audio interface that records and playback CD-quality audio. This chapter provides instructions for installing the software drivers on the included audio driver diskettes.

6.1 Introduction

The POS-760FA's on-board audio interface provides high-quality stereo sound and FM music synthesis (ESFM) by using the VIA VT82C6860 audio controller from VIA. The audio interface can record, compress, and play back voice, sound, and music with built-in mixer control.

The POS-760FA 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

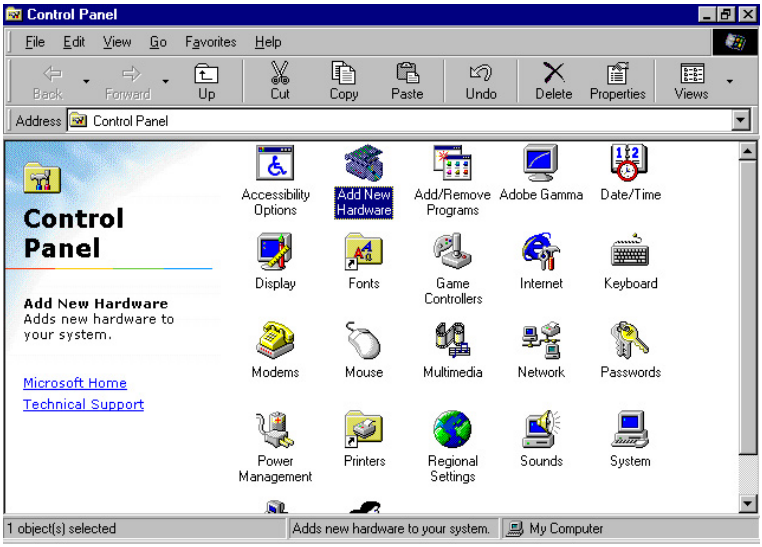
6.3.1 Before you begin

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-760FA 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

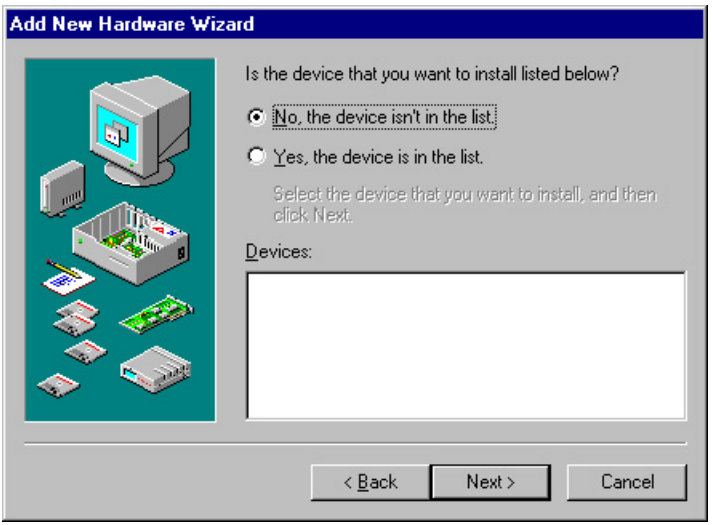
1. Click "Start" and select "Settings". Click "Control Panel" and double-click "Add New Hardware".



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

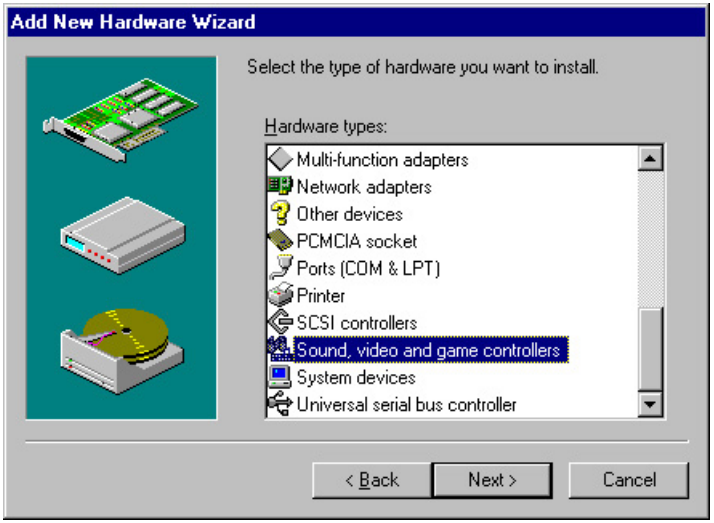
3. In the following Add New Hardware Wizard window, click "Next" for Windows to search for Plug and Play devices.

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

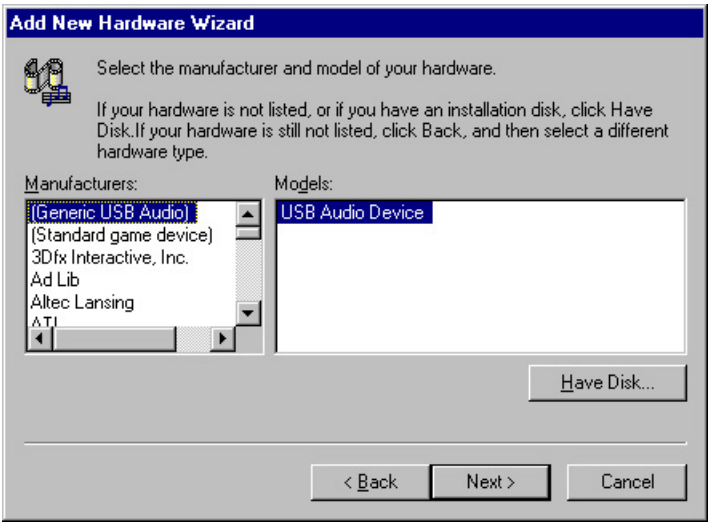


5. In the following Add New Hardware Wizard window, select "No, I want to select ..." and click "Next"..

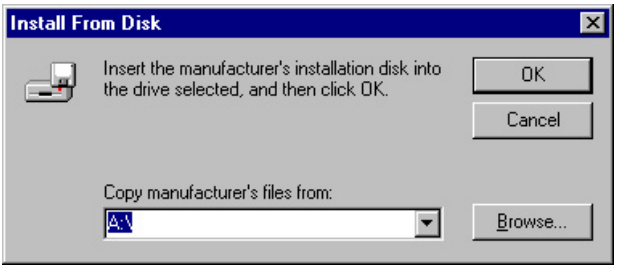
6. In the following Add New Hardware Wizard window, select "Sound, video and game controllers" and click "Next".



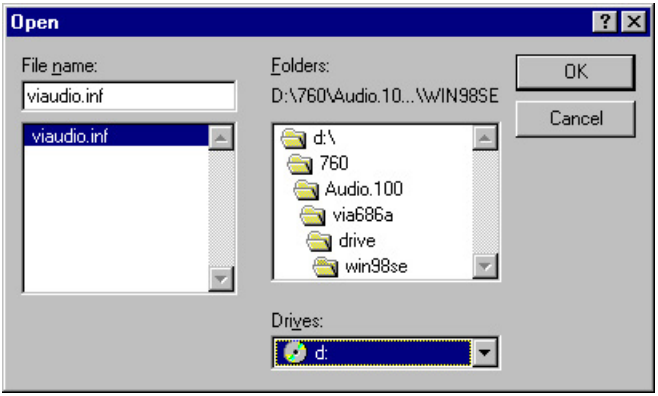
7. In the following Add New Hardware Wizard window, click "Have Disk...".



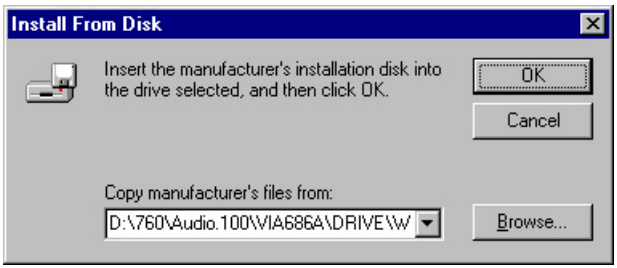
8. In the Install From Disk window, click "Browse".



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



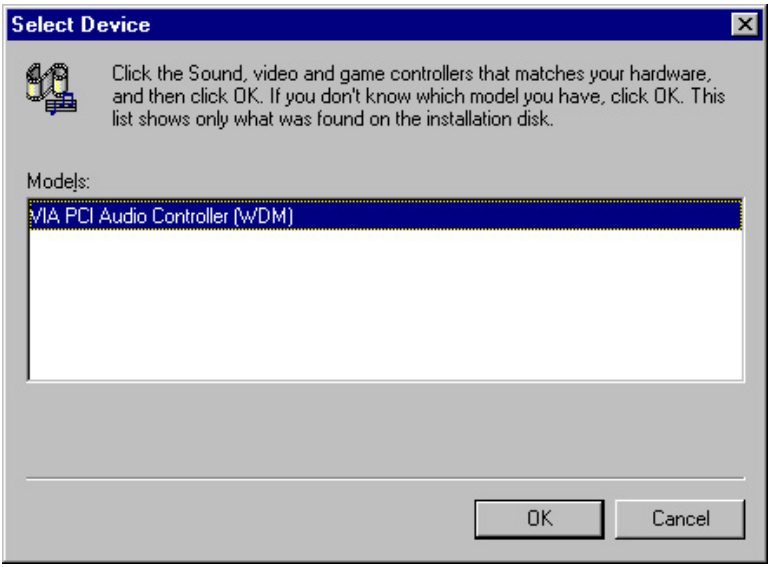
10. In the Install From DIsk window, click" OK".



Note: For Windows 95, the path is:

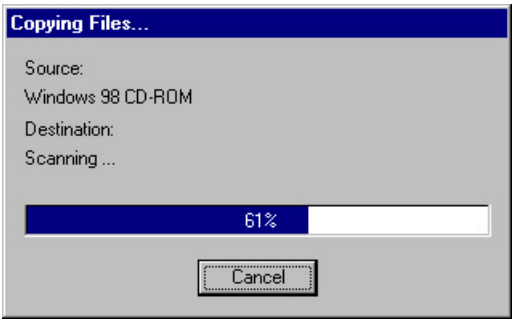
D:\760\audio.100\via686a\drive\win9x\viaudio.inf.

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. A Copying Files... window will appear.

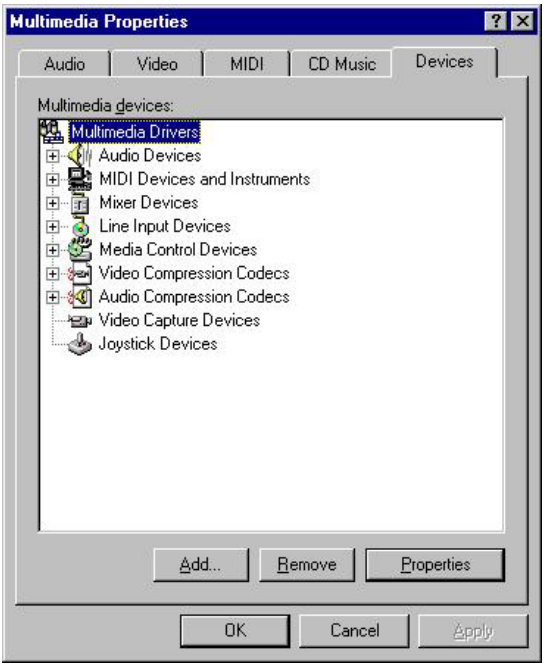


14. In the Add New Hardware Wizard window, click "Finish". Then reboot the system.

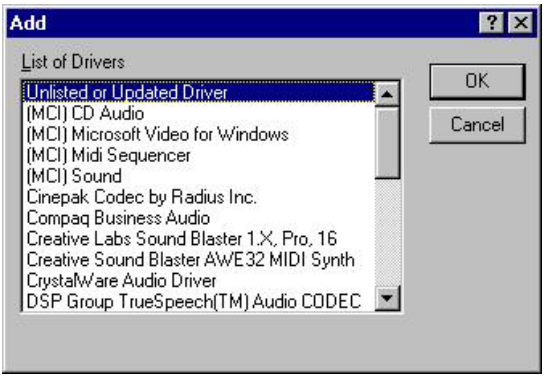
6.3.5 Windows NT drivers

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".



4. When the Install Driver window appears, insert the utility disc into the CD-ROM drive. Type: D:\760\audio.100\via686a\drive\winnt40 Then click "OK".

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

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

CHAPTER 7

PCI Bus Ethernet Interface

This chapter provides information on Ethernet configuration.

- Introduction
- Installation of Ethernet driver for
  - MS-DOS
  - Windows 3.1
  - Windows 95
  - Windows 98
  - Windows NT
- Further information

7.1 Introduction

The POS-760F 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 PQ8139.exe program included on the utility disk.

The Ethernet port provides a standard RJ-45 jack. 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-760F, 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 3.1

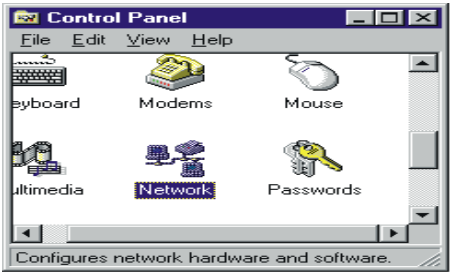
If you want to set up your Ethernet connection under the MS-DOS or Windows 3.1 environment, you should first check your server system model. For example, MS-NT, IBM-LAN server, and so on.

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

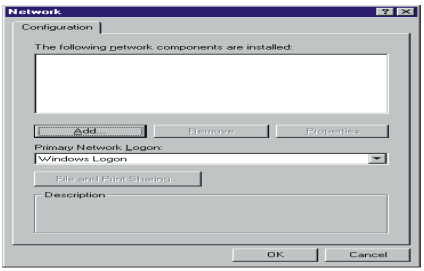
The installation procedures for various servers can be found on CD-ROM. The file path begins as:
D:\POS\760\Lan\8139B\drive\wfw311

7.2.2 Installation for Windows 95

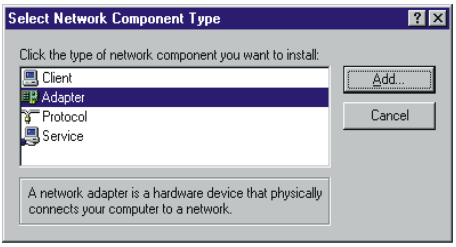
1. a. Select "Start", "Settings", "Control Panel".
   b. Double click "Network".



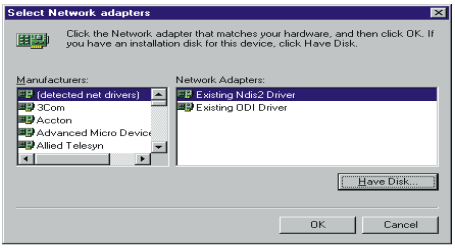
2. a. Click "Add" and prepare to install network functions.



3. a. Select the "Adapter" item to add the Ethernet card.



4. a. Click "Have Disk" to install the driver.

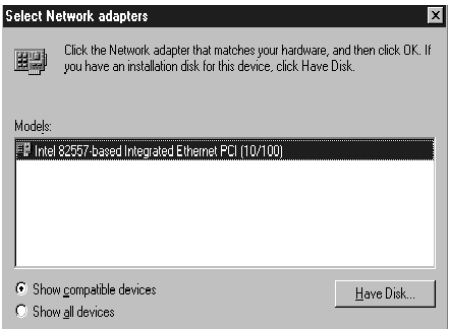


5.

a. Insert the CD into the D: drive.
b. Fill in: D:\POS\760\Lan.100\8139B\drive\Win95a
c. Click "OK".

6.

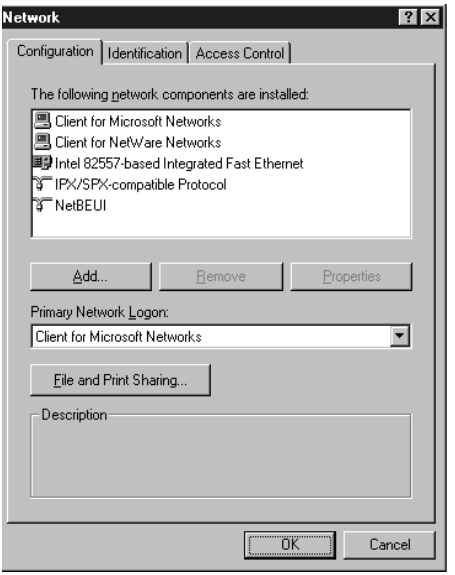
a. Choose the "Realtek" item.
b. Click "OK".



7.

a. Make sure the configurations of relative items are set correctly.
b. Click "OK" to reboot.

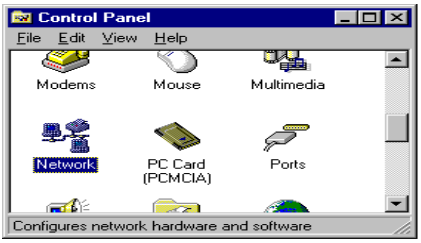
END



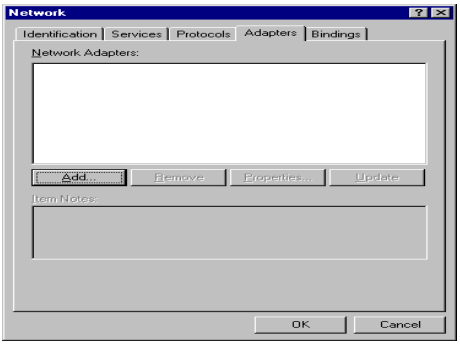
Note: The correct file path for Windows 98 is:
D:\POS\760\Lan.100\8139B\driver\Win98

7.2.3 Installation for Windows NT

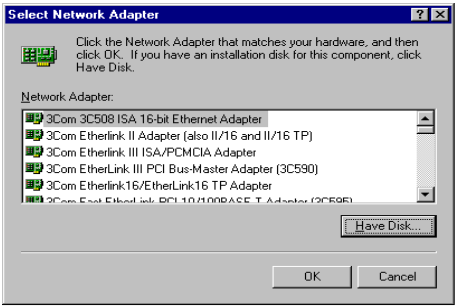
1. a. Select "Start", "Settings", "Control Panel".
   b. Double click "Network".



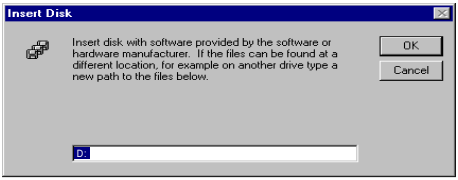
2. a. Choose the "Adapters" label.
   b. Click the "Add" button.



3. a. Press "Have Disk".



4. a. Type "D:".
   b. Press "OK".

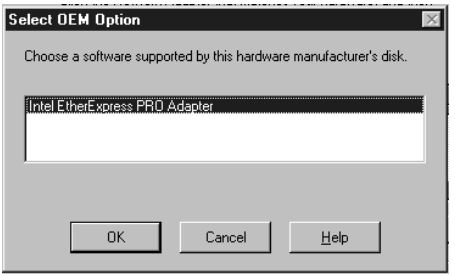


5.

a. Insert the CD into the D: drive.
b. Fill in: D:\POS\760\Lan.100\8139B\drive\Winnt
c. Press the "OK" button.

6.

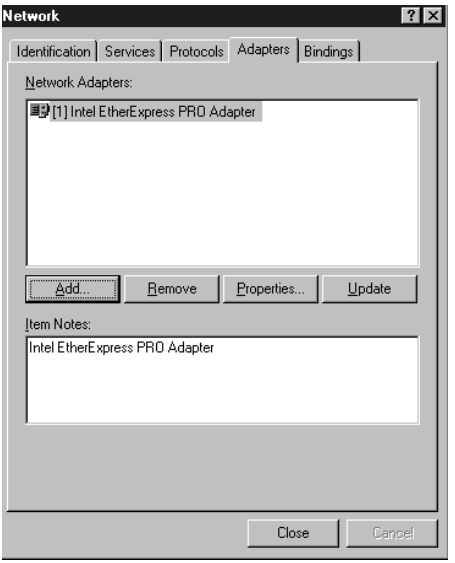
a. Choose the "Realtek" item.
b. Press the "OK" button.



7.

a. Make sure the configurations of relevant items are set correctly.
b. Press the "OK" button to reboot.

END



7.3 Further information

Realtek website: **www.realtek.com**

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

APPENDIX A

Programming the Watchdog Timer

The POS-760F 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
```

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 only) (optional)
- Audio connector (audio only) (optional)
- ATX power connector
- PS/2 mouse/KB connector
- Primary (3.5") and secondary (2.5") IDE connectors
- Digital I/O
- Ethernet connector
- FDD connector
- Internal COM2 connector (RS-232/422/485 serial port)
- COM2 connector (RS-232/422/485 serial port)
- Universal serial bus (USB) connector
- PISA (PCI/ISA) connector
- COM1, COM3, COM4 RS-232 connections
- FIR connector
- Fan power 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
- Front panel connector
- System I/O ports
- 1st MB memory map
- DMA channel assignments
- IRQ mapping chart

B.1 PS/2 keyboard connector (CN1)

Table B-1: PS/2 keyboard connector (CN1)

Pin	Signal
1	KB DAT
2	PM DAT
3	GND
4	VCC
5	KB CLK
6	PM CLK

B.2 Internal KB connector (CN2)

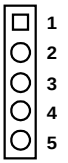


Table B-2: Internal KB connector (CN2)

Pin	Signal
1	KB CLK
2	KB DAT
3	NC
4	GND
5	VCC

B.3 Internal mouse/KB connector (CN3)

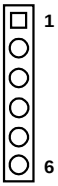


Table B-3: Internal mouse/KB connector (CN3)

Pin	Signal
1	KB CLK
2	KB DAT
3	PM CLK
4	GND
5	VCC
6	PM DAT

B.4 Main power connector (CN4)

Table B-4: Main power connector (CN4)

Pin	Signal	Pin	Signal
1	N/A	7	GND
2	+5 V	8	GND
3	+12 V	9	-5 V
4	-12 V	10	+5 V
5	GND	11	+5 V
6	GND	12	+5 V

B.5 CD audio-in connector (audio only) (optional) (CN7)

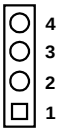


Table B-5: CD audio-in connector (audio only) (optional) (CN7)

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

B.6 Audio connector (audio only) (optional) (CN8)

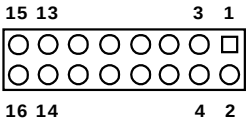


Table B-6: Audio connector (audio only) (optional) (CN8)

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	N/A
15	MIC IN	16	GND

B.7 ATX power connector (CN9)

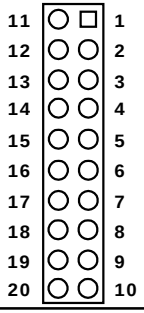


Table B-7: ATX power connector (CN9)

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.8 PS/2 mouse/KB connector (CN10)

Table B-8: PS/2 mouse/keyboard connector (CN10)

Pin	Signal
1	*PM DAT / KB DAT
2	PM DAT
3	GND
4	VCC
5	*PM CLK / KB CLK
6	PM CLK

* Selectable via J4.

B.9 Primary (3.5") and secondary (2.5") IDE connectors (CN14, CN12)

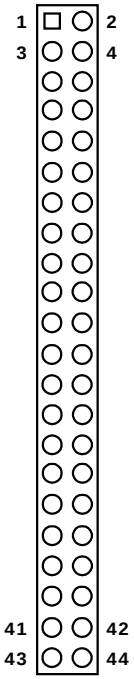


Table B-9: Primary (3.5") and secondary (2.5") IDE connectors (CN14, CN12)

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.10 Digital I/O (CN13)

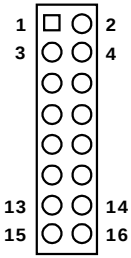


Table B-10: Digital I/O (CN13)

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

B.11 Ethernet connector (CN15)

Table B-11: Ethernet connector (CN15)

Pin	Function	Pin	Function
1	TD+	5	NC
2	TD-	6	RD-
3	RD+	7	NC
4	NC	8	NC

B.12 FDD connector (CN16)

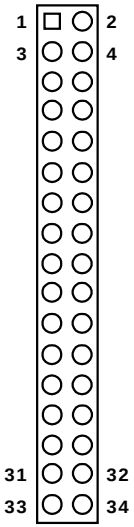


Table B-12: FDD connector (CN16)

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*

B.13 Internal COM2 connector (RS-232/422/485 serial port) (CN17)

Table B-13: Internal COM2 connector (RS-232/422/485 serial port) (CN17)

Pin	RS-232 port	RS-422 port	RS-485 port
1	DCD	TXD-	DATA-
3	RX	TXD+	DATA+
5	TX	RXD+	N/A
7	DTR	RXD-	N/A
9	GND	GND	GND
2	DSR	NC	NC
4	RTS	N/A	Direction controls
6	CTS	NC	NC
8	RI / +5 V / +12 V	NC	NC
10	NC	NC	NC

B.14 COM2 connector (RS-232/422/485 serial port) (CN19)

Table B-14: COM2 connector (RS-232/422/485 serial port) (CN19)

Pin	RS-232 port	RS-422 port	RS-485 port
1	DCD	TX-	DATA-
2	RxD	TX+	DATA+
3	TxD	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

B.15 Universal serial bus (USB) connector (CN18)

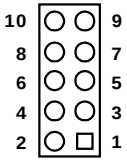


Table B-15: Universal serial bus (USB) connector (CN18)

Pin	Function	Pin	Function
1	+5 V	2	+5 V
3	UV0-	4	UV1-
5	UV0+	6	UV1+
7	GND	8	GND
9	NC	10	NC

B.16 PISA (PCI/ISA) connector (CN20)

side view

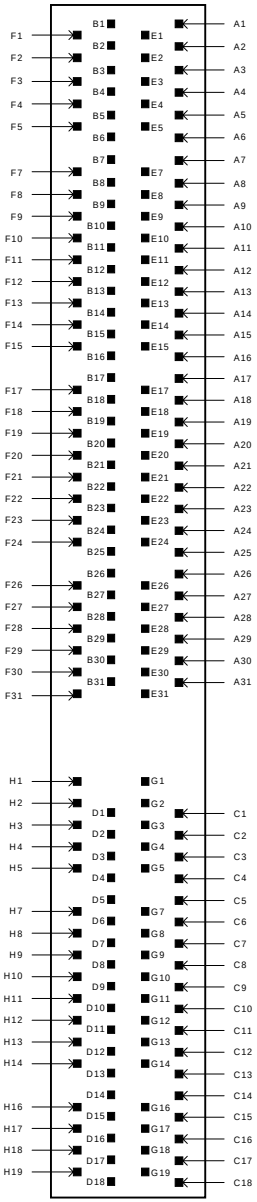


Table B-16: PISA (PCI/ISA) slot pin assignments (pins A and B)

Pin	Signal	Pin	Signal
A1	IOCHK	B1	GND
A2	SD7	B2	RST
A3	SD6	B3	VCC
A4	SD5	B4	IRQ9
A5	SD4	B5	-5 V
A6	SD3	B6	DRQ2
A7	SD2	B7	-12 V
A8	SD1	B8	OWS
A9	SD0	B9	+ 12 V
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	IRQ6
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

Table B-17: PISA (PCI/ISA) slot pin assignments (pins C and D)

Pin	Signal	Pin	Signal
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	DACKO
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

Table B-18: PISA (PCI/ISA) slot pin assignments (pins E and F)

Pin	Signal	Pin	Signal
E1	GND	F1	GND
E2	GND	F2	GND
E3	INT 1	F3	INT3
E4	INT 2	F4	INT4
E5	VCC	F5	VCC
E6	---	F6	---
E7	VCC	F7	VCC
E8	RST	F8	PCLKF
E9	GNTO	F9	GND
E10	REQ0	F10	GND
E11	GND	F11	GNT1
E12	PCLKE	F12	REQ1
E13	GND	F13	AD31
E14	AD30	F14	AD29
E15	NC	F15	NC
E16	---	F16	---
E17	NC	F17	NC
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	NC	F24	NC
E25	---	F25	---
E26	IDSEL1	F26	NC
E27	AD16	F27	AD17
E28	FRAME	F28	IRDY
E29	CBE2	F29	DEVSEL
E30	TRDY	F30	LOCK
E31	STOP	F31	PERR

Table B-19: PISA (PCI/ISA) slot pin assignments (pins G and H)

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

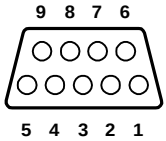
B.17 COM1, COM3, COM4 RS-232 connections (COM1: CN21/CN22; COM3: CN27; COM4: CN23)

Different devices implement the RS-232 standard in different ways. If you are having problems with a serial device, be sure to check the pin assignments for the connector. The following table shows the pin assignments for the board's RS-232 port.

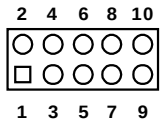
Table B-20: COM1, COM3, COM4 RS-232 connections (COM1: CN21/CN22; COM3: CN27; COM4: CN23)

D-SUB conn. (external) Pin	Signal	Pin header (internal) Pin
1	DCD	1
2	RX	3
3	TX	5
4	DTR	7
5	GND	9
6	DSR	2
7	RTS	4
8	CTS	6
9	RI / +5 V / +12 V	8
10	NC	10

Note: Pin 10 on internal COM1 ~ 4 are all NC.



COM1 - 2



Internal COM1-4

B.18 FIR connector (CN24)

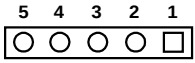


Table B-21: FIR connector (CN24)

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

B.19 Fan power connector (CN25)

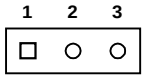
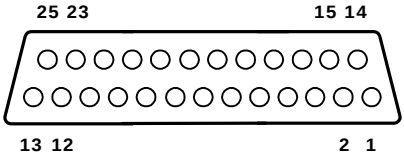


Table B-22: Fan power connector (CN25)

Pin	Signal
1	GND
2	+12 V
3	NC

B.20 LPT1/2 connectors (parallel port) (CN28, CN29/30)

CN28



CN29/30

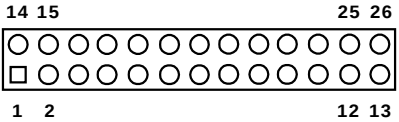


Table B-23: LPT1/2 connectors (parallel port) (CN28, CN29/30)

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

* low active

B.21 Flat panel display connector extension (CN31)

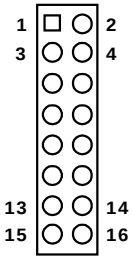


Table B-24: Flat panel display connector extension (CN31)

Pin	Function	Pin	Function
1	3.3/5 V	2	3.3/5 V
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

Note: Pin 1 and Pin 2 "3.3/5 V" can be set via JP22.

B.22 Contrast adjust connector (CN32)

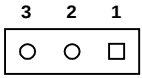


Table B-25: Contrast adjust connector (CN32)

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

B.23 Backlight control (CN33)

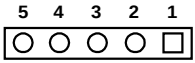


Table B-26: Backlight control (CN33)

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

B.24 Brightness adjust connector (CN34)

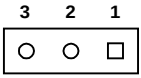


Table B-27: Brightness adjust connector (CN34)

Pin	Signal
1	+5 V
2	GND
3	ENABKL

B.25 Flat panel display connector (CN35)

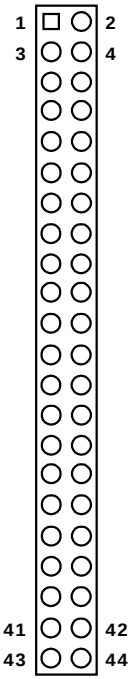


Table B-28: Flat panel display connector (CN35)

Pin	Signal	Pin	Signal
1	+12 V	2	+12 V
3	GND	4	GND
5	V_{CC} (3.3 V / 5 V)	6	V_{CC} (3.3 V / 5 V)
7	ENAVEE*	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	38	LP
39	GND	40	ENABKL*
41	NC	42	NC
43	NC	44	NC

* low active

Note: Pin 5 and Pin 6 "3.3/5 V" can be set via JP22.

B.26 CRT display connector (CN36)

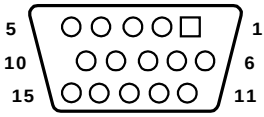


Table B-29: CRT display connector (CN36)

Pin	Signal	Pin	Signal
1	RED	9	N/A
2	GREEN	10	GND
3	BLUE	11	N/A
4	N/A	12	N/A
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	N/A
8	GND		

B.27 Internal CRT display connector (CN37)

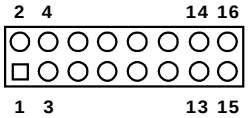


Table B-30: Internal CRT display connector (CN37)

Pin	Signal	Pin	Signal
1	RED	9	GND
2	N/A	10	H-SYNC
3	GREEN	11	GND
4	GND	12	V-SYNC
5	BLUE	13	GND
6	N/A	14	N/A
7	N/A	15	GND
8	N/A	16	N/A

B.28 Front panel connector (CN39)

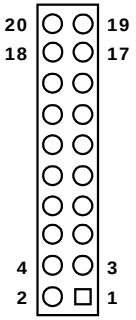


Table B-31: Front panel connector (CN39)

Pin	Signal	Pin	Signal
1	PWR LED+	2	VCC
3	PWR LED+	4	GND
5	GND	6	NC
7	NC	8	SPK+
9	GND	10	NC
11	GND	12	HDD LED
13	PWR ON+	14	VCC
15	REV.	16	NC
17	REV.	18	RESET
19	GND	20	GND

B.29 System I/O ports

Table B-32: 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)

B.30 1st MB memory map

Table B-33: 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

B.31 DMA channel assignments

Table B-34: 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

B.32 IRQ mapping chart

Table B-35: 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: To allocate IR2 properly, one should avoid conflicting.

APPENDIX C

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.