

PCA-6752 Series

Super7™ Half-size card PC with
VGA/LCD and Ethernet

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This manual is for the PCA-6752F/6752N

Packing List

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

- 1 PCA-6752 all-in-one single board computer
- 1 Ultra ATA (HDD) cable (457 mm) p/n: 1701400453
- 1 floppy disk drive interface cable (700 mm) p/n: 1701340700
- 1 COM port/Parallel port cable p/n: 1701260303
- 1 Y cable for AT-keyboard, PS/2 mouse (190 mm)
p/n: 1700060201
- 1 ATX/AT power cable p/n: 1700040052
- 1 startup manual
- CD-ROM or disks for utility, drivers, and manual (in PDF format)
- Warranty certificate
- Optional devices:
 - IrdA adapter: p/n: 9089000042
 - 1 USB cable: p/n: 1700100177

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

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General Information

This chapter gives background information on the PCA-6752 Series. It then shows you how to configure the card to match your application and prepare it for installation into your PC.

Sections include:

- Card specifications
- Board layout: dimensions
- Board layout: jumper locations
- Board layout: connector locations
- Safety precautions
- Jumper settings

1.1 Introduction

The PCA-6752 Series is a half-size ISA-bus CPU card designed for a Pentium® level CPU. Featuring powerful on-board functions such as VGA, LCD, LAN and SSD, the versatile PCA-6752 Series can meet the needs of different applications.

Well-Rounded Functionality

Advantech continues to expand its product line by integrating new technology into our products and by offering customers multiple combinations of features in a single product. The new PCA-6752 is a perfect example of this. Packed with innovation, the PCA-6752 provides reasonably priced all-in-one functionality and high performance operation. Several models of the PCA-6752 are offered as well as the associated chassis, power supply and backplane to give customers a "best fit" solution for their particular application.

Super7™ adds to Impressive list of features

Leading the list of features is the VIA MVP4 chipset for Super7 provided on the PCA-6752 Series models. The PCA-6752F is comprised of a VIA VT82C686 (Super South Bridge) with a Trident CyberBlade i7 (North Bridge). The PCA-6752N-00A1 is comprised of a VT82C686 (Super South Bridge) with a VT82C501 (North Bridge). This chipset provides an integrated 2D/3D AGP graphics engine with DVD hardware acceleration, Super I/O, advanced sound and hardware monitoring features. This integration is a cost effective way to increase the number of features offered.

All PCA-6752 models support Super7 for Intel P54/P55C, AMD K5/K6/K6-2/K6-3, NS MI/MII and IDT Winchip CPUs. With a 100 MHz bus and AGP support, the Super7 platform offers great performance at a reduced cost compared to Slot 1 solutions. The AGP interface is a dedicated port between the PC's graphics controller and system memory and gives a more robust scalable solution that provides superior video performance without taxing overall system stability and performance. There is a 10/100 Mbps Ethernet interface as well as SIR

IrDA compliant infrared support. Ultra DMA 66 mode up to 66 MB/sec is also supported. This high-speed interface helps designers and integrators improve system performance by retrieving and sending data faster.

1.2 Specifications

Standard SBC functions

- **CPU:** Socket 7 Intel P54C/P55C, AMD K5/K6/K6-2/K6-3, NS MI/MII and IDT Winchip, supports 66/75/83/100 MHz FSB
- **BIOS:** AWARD 256 KB Flash BIOS
- **Chipset: PCA-6752F:** VIA VT82C686 + Trident CyberBlade
PCA-6752N: VIA MVP4 (VIA VT82C686 + VT82C501)
- **2nd level cache:** 512 KB/1 MB PBSRAM (66/100 MHz)
- **System memory:** DIMM x 1 Max. 128 MB
- **IDE interface:** One Enhanced IDE interface, Ultra DMA mode up to 66 MB/sec.
- **Floppy disk drive interface:** Supports up to two FDDs (360 KB/1.2 MB/720 KB/1.44 MB/2.88 MB)
- **Parallel port:** One parallel port, supports EPP/ECP
- **IR port:** 115 Kbps SIR, IrDA 1.0 compliant
- **Serial ports:** One RS-232, One RS-232/422/485
- **Watchdog timer:** 62 level timer interval, generates system reset or IRQ11

AGP SVGA/Flat Panel Interface

PCA-6752F:

- **Controller:** Trident™ CyberBlade i7 VGA/LCD controller, 2 x AGP, Accelerator Graphics port 1.0 compliant
- **Display memory:** UMA structure. 2 ~ 8 MB, shared with system memory.

- **Display type:** Simultaneously supports CRT and flat panel (EL, LCD and gas plasma) displays
- **LCD Interface:** 18 bit resolution
- **Display mode:**
LCD panel supports up to 1024 x 768 @ 24 bpp
CRT display supports up to 1024 x 768 @ 18 bpp

PCA-6752N

- **Controller:** VIA MVP4 Built-in VGA controller, 2 x AGP, Accelerator Graphics port 1.0 compliant
- **Display memory:** 2 ~ 8 MB
- **Resolution:** CRT display supports up to 1024 x 768 @ 24 bpp

Ethernet Interface (6752F/N)

- **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

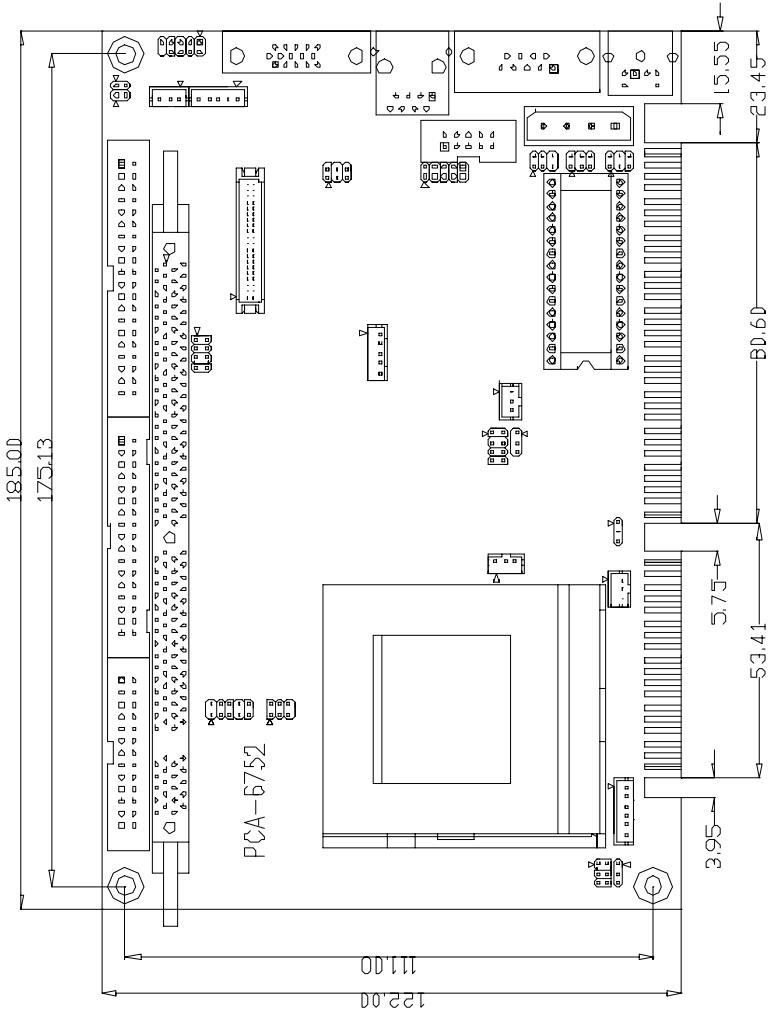
Solid State Disk

- Supports DiskOnChip™ 2000/CompactFlash™ (OEM)

Mechanic and Environmental Specifications

- **Standard Mode Power Consumption:**
6.68 A @ 5 V w/ K6-3 / 450 MHz, 64 MB SDRAM
- **Operating temperature:**
0 ~ 60° C (32 ~ 140° F)
- **Size:** 185 mm x 122 mm (7.3 x 4.8")
- **Weight:** 0.27 kg (.594 lbs)

1.3 Board Layout: Dimensions



Unit: mm

Figure 1-1: PCA-6752 board layout: Dimensions

CHAPTER 2

Installation

This chapter tells how to connect peripherals, switches and indicators to the PCA-6752 Series boards. You can access most of the connectors from the top of the board while it is installed in the chassis. If you have a number of cards installed, or your chassis is very tight, you may need to partially remove the card to make all the connections.

2.1 Safety Precautions

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

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

2.2 Jumpers

The board 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 jumpers.

Table 2-1: Jumper Assignments

Label	Function
JP1	HDD LED connector
JP2	Power LED connector
JP3	LCD/Panel select
JP4	V _{core} (CPU voltage) select
JP5	CPU internal clock select
JP6	Wake On Lan (WOL) select
JP7	Clock select
JP8	AT/ATX power select
JP9	RS-232/485 select (Part 2)
JP10	RS-232/422/485 select (Part 1)
JP11	DOC address select
JP12	Watch Dog function select
JP13	Multi/System functions Jumper
JP15	CMOS clear
JP16	COM2 for RS-232/485 setting (Part 3)

2.3 Connectors

The following table lists the connectors on the PCA-6752 Series

Table 2-2: Connector Assignments

Label	Function
CN1	Parallel port connector
CN2	Floppy drive connector
CN3	IDE hard drive connector
CN4	LCD Inverter Power connector
CN5	Inverter VR connector
CN6	USB connector
CN7	LCD 18-24 bit connector
CN8	VGA connector
CN9	FIR/SIR connector
CN10	Audio Out/AC97 connector
CN11	10/100Base-T Ethernet connector
CN12	ATX feature connector
CN13	COM2 232/422/485 connector
CN14	AT (Big 4P) power connector
CN15	COM1 232 connector
CN16	Keyboard and PS/2 mouse connector
CN18	ISA Bus Gold Finger connector
CN19	CompactFlash™ connector
FAN1	Fan connector

2.4 Board Layout: Connector Locations (Component Side)

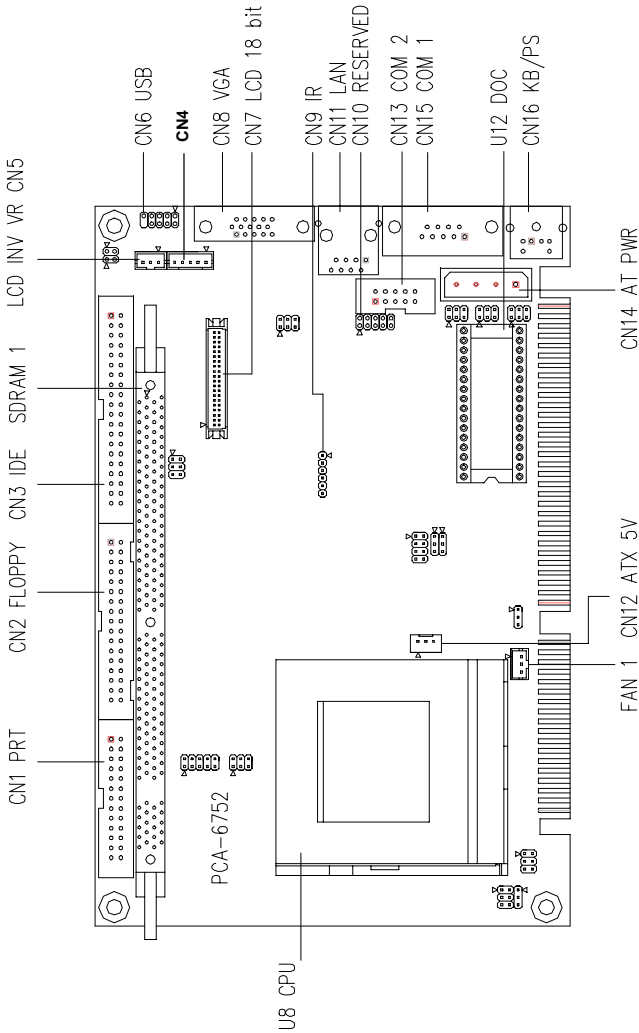


Figure 2-1: PCA-6752 locating Jumpers (component side)

2.5 Board Layout: Connector Locations (Solder Side)

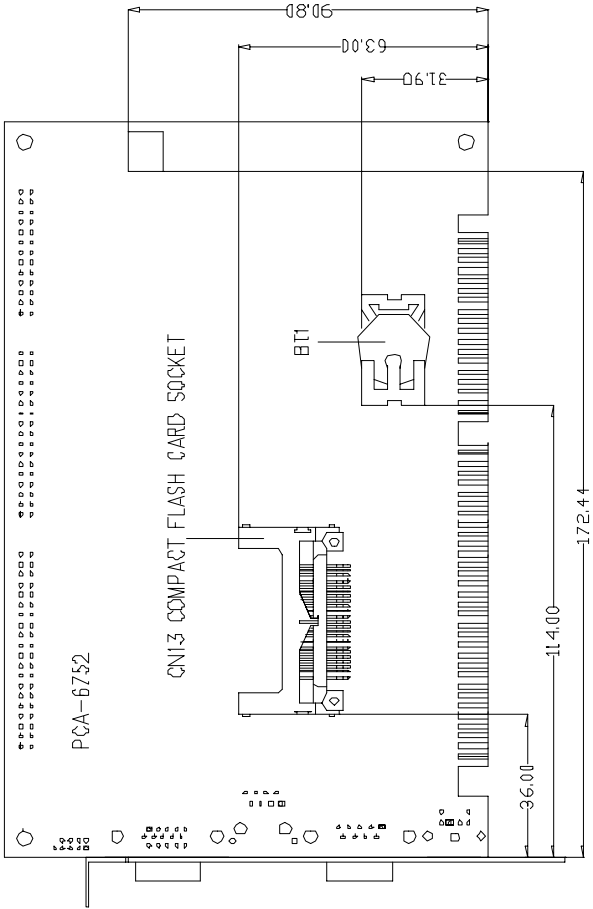


Figure 2-2: PCA-6752 locating Connectors (Solder side)

2.6 Board Layout: Jumper Locations (Component Side)

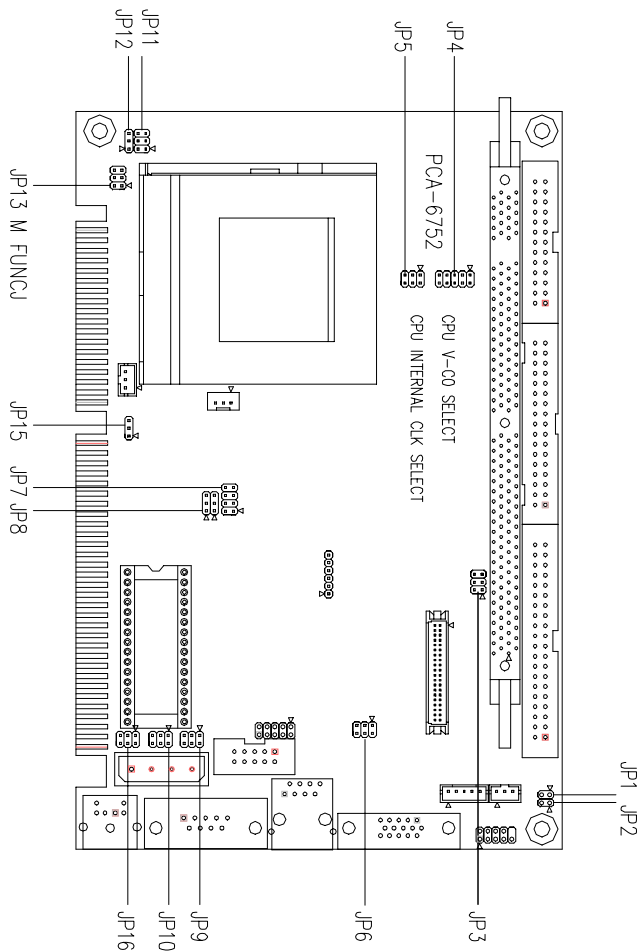
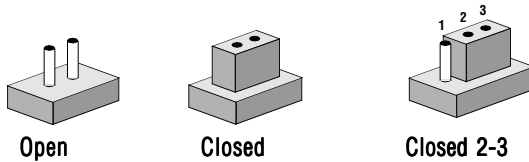


Figure 2-3: PCA-6752 locating Jumpers (component side)

2.7 Jumper Settings

This section tells how to set the jumpers to configure your card. It gives the card default configuration and your options for each jumper. After you set the jumpers and install the card, you will also need to run the BIOS Setup program (discussed in Chapter 3) to configure the serial port addresses, floppy/hard disk drive types and system operating parameters. Connections, such as hard disk cables, appear in Chapter 2. For the locations of each jumper, see the board layout diagram depicted earlier in this chapter.

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



You may find a pair of needle-nose pliers useful for setting the 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.

JP1: HDD LED connector

Pin	Result
-----	--------

1	LED +
---	-------

2	LED -
---	-------



JP2: Power LED connector

Pin	Result
-----	--------

1	LED +
---	-------

2	LED -
---	-------



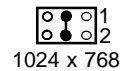
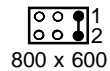
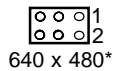
JP3: LCD/Panel Select

Pin	Result
-----	--------

None	640 x 480 TFT*
------	----------------

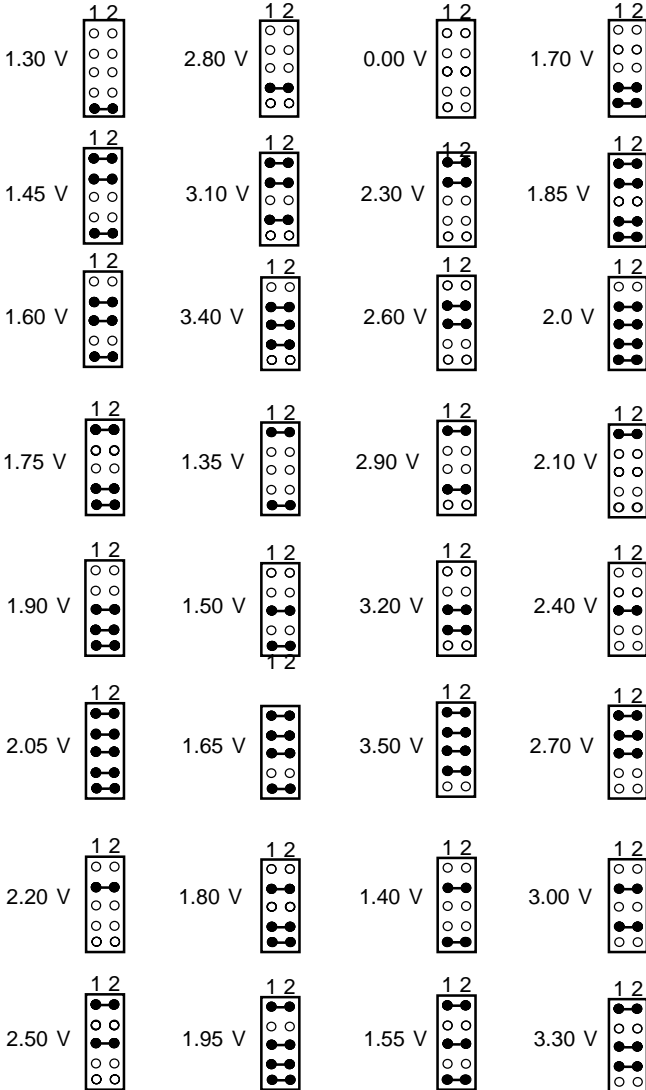
1-2	800 x 600 TFT
-----	---------------

3-4	1024 x 768 TFT
-----	----------------



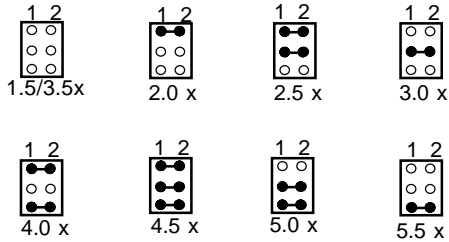
* Default Setting

JP4: Vcore (CPU voltage) select



JP5: CPU Internal Clock Select

Pin	Result
None	1.5X/3.5X
1-2	2.0X
1-2, 3-4	2.5X
3-4	3.0X
1-2, 5-6	4.0X
1-2, 3-4, 5-6	4.5X
3-4, 5-6	5.0X
5-6	5.5X



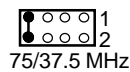
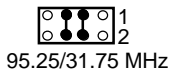
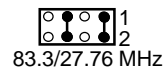
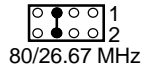
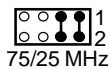
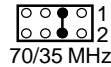
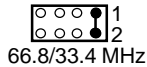
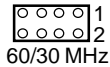
JP6: Wake On LAN Select

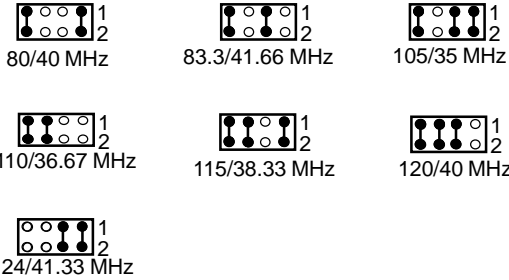
Pin	Result
1-3, 2-4	Normal (AT, ATX)*
3-5, 4-6	WOL Enable (ATX Only)



JP7: Clock Select

Pin	CPU	PCI
None	60 MHz	30 MHz
1-2	66.8 MHz	33.4 MHz
3-4	70 MHz	35 MHz
1-2, 3-4	75 MHz	25 MHz
5-6	80 MHz	26.67 MHz
1-2, 5-6	83.3 MHz	27.76 MHz
3-4, 5-6	95.25 MHz	31.75 MHz
1-2, 3-4, 5-6	100 MHz	33.33 MHz
7-8	75 MHz	37.5 MHz
1-2, 7-8	80 MHz	40 MHz
3-4, 7-8	83.3 MHz	41.66 MHz
1-2, 3-4, 7-8	105 MHz	35 MHz
5-6, 7-8	110 MHz	36.67 MHz
1-2, 5-6, 7-8	115 MHz	38.33 MHz
3-4, 5-6, 7-8	120 MHz	40 MHz
1-2, 3-4, 5-6, 7-8	124 MHz	41.33 MHz



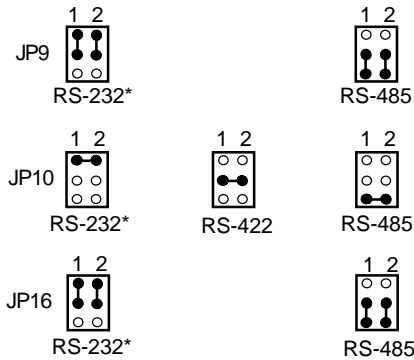


JP8: AT/ATX Power Select

Pin	Result
1-3, 2-4	Use ATX power
3-5, 4-6	Use AT power*



JP9, JP10, JP16: RS-232/422/485 Select for COM2



JP11: DOC Address Select

1-2, 3-4	DOC address at CC000h
1-2, 5-6	DOC address at D0000h*
1-2	DOC address at D4000h
3-4, 5-6	DOC address at D8000h
3-4	DOC address at DC000h



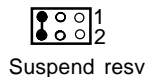
JP12: Watch Dog Function Select

Pin	Result
1-2	Select Reset System*
2-3	Select IRQ-11



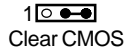
JP13: System Function Switch Connector

Pin	Result
1,2	System Reset Switch
3,4	System Power Switch (ATX)
5,6	Suspend Switch (reserve)



JP15: CMOS Clear

Pin	Result
1-2	Normal*
3-4	Clear CMOS



2.8 Watchdog timer configuration (JP12)

An on-board 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 two jumpers and running the control software. (Refer to Appendix A.)

When the watchdog timer is enabled and the CPU shuts down, the watchdog timer will automatically either reset the system or generate an interrupt on IRQ 11, depending on the setting of jumper JP12, as shown below:

2.9 Parallel Port Connector (CN1)

The parallel port is normally used to connect the CPU card to a printer. The PCA-6752 Series include an on-board parallel port, accessed through a 26-pin flat-cable connector, CN1. The card comes with an adapter cable which lets you use a traditional DB-25 connector. The cable has a 26-pin connector on one end and a DB-25 connector on the other, mounted on a retaining bracket. The bracket installs at the end of an empty slot in your chassis, giving you access to the connector.

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

To install the bracket, find an empty slot in your chassis. Unscrew the plate that covers the end of the slot. Screw in the bracket in place of the plate. Next, attach the flat-cable connector to CN1 on the CPU card. Wire 1 of the cable is red or blue, and the other wires are gray. Make sure that wire 1 corresponds to pin 1 of CN1. Pin 1 is on the right side of CN1.

2.10 Floppy Drive Connector (CN2)

You can attach up to two floppy disk drives to the PCA-6752 Series' on-board controller. You can use any combination of 5.25" (360 KB/1.2 MB) and/or 3.5" (720 KB/1.44/2.88 MB) drives.

The card comes with a 34-pin daisy-chain drive connector cable. 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 3.5" drives) and a printed-circuit-board connector (usually used for 5.25" drives). You can use only one connector in each set. The set on the end (after the twist in the cable) connects to the A: floppy. The set in the middle connects to the B: floppy.

2.11 Enhanced IDE Connector (CN3)

You can attach two IDE (Integrated Device Electronics) drives to the PCA-6752 Series internal controller. The PCA-6752 Series CPU card has an EIDE connector, CN3.

Wire number 1 on the cable is red or blue, and the other wires are gray. Connect one end to connector CN3 on the CPU card. Make sure that the red (or blue) wire corresponds to pin 1 on the connector (on the right side). See Chapter 1 for help in finding the connector.

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

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

Connect the second drive, as described above, on CN3.

2.12 LCD Inverter Connector (CN4)

The LCD inverter is connected to CN4 via a 5-pin connector to provide +12 V power to the LCD display. Pin 4 of CN4 provides LCD brightness control and can be adjusted via the VR1 (located on the upper right corner of CN4)

2.13 Inverter VR Connector (CN5)

The inverter VR connector allows integrators to apply an external resistive circuit to this connector to obtain a variable Voltage supply.

2.14 USB Connector (CN6)

The PCA-6752 Series board provides two USB (Universal Serial Bus) interfaces, which give complete plug and play and also hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification rev. 1.0 and are fuse protected.

The USB interfaces are accessed through a 10-pin flat-cable connector, CN6. The adapter cable has a 10-pin connector on one end and a USB connector on the bracket.

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

2.15 18/24-bit LCD Display Connector (CN7)

CN7 is a 40-pin dual-in-line header and is used to connect an LCD display to the PCA-6752 Series. The PCA-6752 Series has bias control which can be used to control the LCD signal voltage. Pin 7 of CN7 is for LCD contrast adjustments, the LCD contrast can be adjusted via the VR (located on the upper right corner of CN5).

The LCD interface is done completely with the software utility provided, please refer to Chapter 4 for details.

2.16 VGA Display Connector (CN8)

The PCA-6752 Series provide a VGA controller for a high resolution VGA interface. The PCA-6752 Series CN8 is a DB-15 connector for VGA monitor input. Pin assignments for the CRT display are detailed in Appendix C.

2.17 IR Connector (CN9)

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

2.18 Audio Out/AC' 97 Connector (CN10)

AC' 97 is a audio codec specification which creates a strong foundation for modular digital acceleration of audio and communication functions on the SBC. AC '97 permits a more rapid transition to PCI audio by enabling designs which support both PCI and ISA. AC' 97 uses two separate chips, one primarily analog, the other digital.

This "chip-level" partitioning provides benefits at many levels. The first benefit is that it helps eliminate interference between analog and digital signals, which reduces on-chip noise, which increases the quality of the audio output through speakers or other devices users prefer. Another important benefit is a realized cost savings by only having to design and tune the analog portion of an entire line of products once. The analog component is also less expensive to manufacturer, which is one of the common benefits with single chip designs.

2.19 Ethernet Configuration (CN11)

The PCA-6752 Series is equipped with a high performance 32-bit PCI-bus Fast Ethernet interface which is fully compliant with IEEE 802.3u 100/10Base-T specifications. 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 5 for detailed information.)

Network boot

The network boot feature is built into the BIOS. It can be enabled or disabled in the chipset setup of the CMOS configu-

2.20 ATX Feature Connector (CN12)

If the PCA-6752 Series are used as a stand alone card both the 4-pin main power connector (CN14) and the ATX power connector (CN12) must be connected to the power supply. If the PCA-6752 Series is used with a passive backplane, the main power connector (CN14) should not be connected as the card will be powered from the backplane.

Use the ATX adapter cable (provided) to connect the PCA-6752 Series with the ATX power supply. The ATX adapter cable has two different connectors at either end. The ATX 20-pin (female

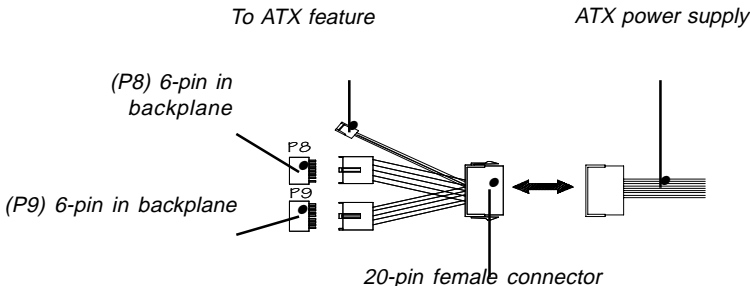


Figure 2-4: ATX Adapter cable

2.21 Serial Ports COM1/RS- 232 (CN15) COM2/RS-232/422/485 (CN13)

The PCA-6752 Series offer two serial ports: COM1 in RS-232 and COM2 (CN13: RS-232/422/485). These ports let you connect to serial devices (a mouse, printers, etc.) or a communication network.

You can select the address for each port (for example, 3F8H [COM1], 2F8H [COM2]) or disable each port. Use the BIOS Advanced Setup program, which is covered in Chapter 4.

The card mounting bracket holds the serial port connector for the one port. The parallel port and serial port adapter kit (supplied with the card) holds the connector for the other port. This lets you connect and disconnect cables after you install the card. The DB-9 connector on the bottom of the bracket is the first RS-232 port, COM1. The DB-9 connector on the adapter kit is the second serial port, COM2.

Table 2-3: Serial port connections (COM1, COM2)

Connector	Function
COM1	RS-232
COM2	RS-232/422/485

2.21.1 RS-232 connection (COM1-CN15)

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.

2.22 AT Power Connector (CN14)

If you prefer not to acquire power through PCA-6752 Series backplane via the gold H-connectors, CN14 also provides power input connectors for +5 V and +12 V. Pin 8 of the PS/2 power supply can be used, too.

2.23 Keyboard & PS/2 Mouse Connector (CN16)

The PCA-6752 Series board provides a keyboard connector. A 6-pin mini-DIN connector (CN16) on the card mounting bracket supports single-board computer applications. The card comes with an adapter to convert from the 6-pin mini-DIN connector to a standard DIN connector and to a PS/2 mouse connector.

2.24 ISA Goldfinger (CN18)

The 16-bit ISA goldfingers are used for connecting the PCA-6752 Series to an ISA passive backplane.

2.25 CompactFlash Disk(CN19)(optional)

The PCA-6752 Series are equipped with a CompactFlash disk socket on the solder side that supports the IDE interface for CompactFlash cards. The on-board CompactFlash socket is designed to prevent incorrect installation. Be sure that the system power is off when installing and removing CompactFlash cards.

The CompactFlash card is defaulted as the E drive on your PC system.

CHAPTER 3

Award BIOS Setup

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

3.1 AWARD BIOS Setup

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 PCA-6752 Series 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.

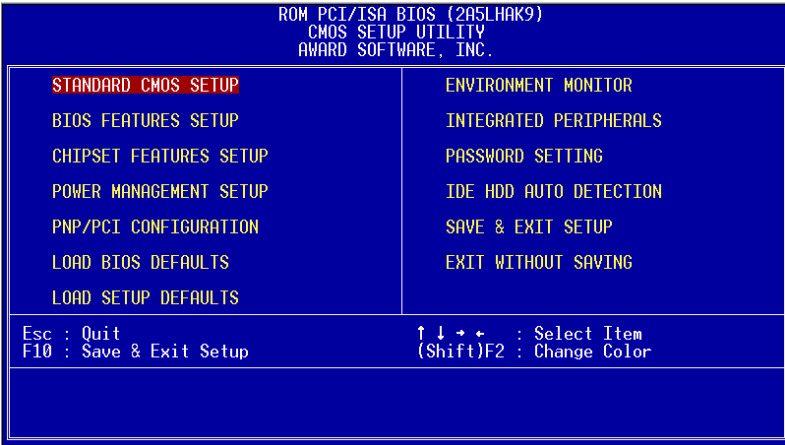


Figure 3-1: Setup program initial screen

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 RAM so that it retains the Setup information when the power is turned off.

3.1.1 Entering setup

Turning on the computer and pressing immediately will allow you to enter Setup.

3.1.2 Standard CMOS setup

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

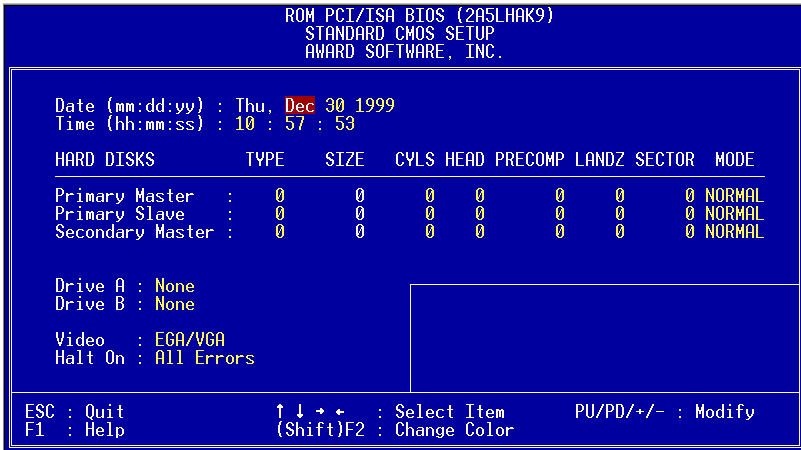


Figure 3-2: CMOS setup screen

3.1.3 BIOS features setup

The “BIOS FEATURES SETUP” screen appears when choosing the BIOS FEATURES SETUP item from the CMOS SETUP UTILITY Menu. It allows the user to configure the PCA-6752 according to his particular requirements.

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

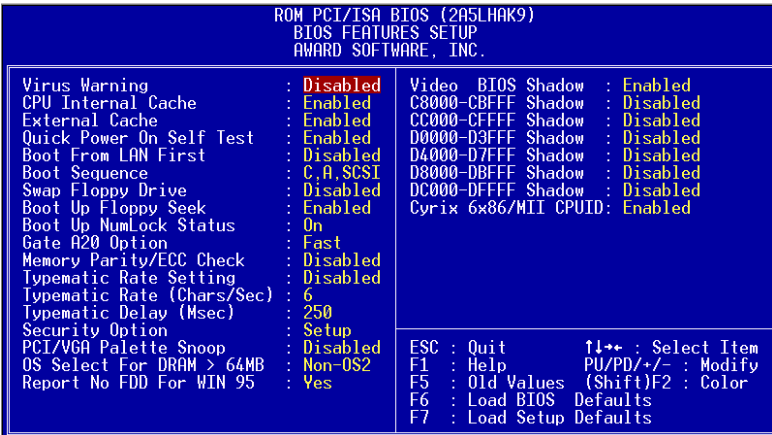


Figure 3-3: BIOS features setup screen

Virus Warning

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

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

CPU Internal Cache/External Cache

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

Quick Power On Self Test

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

Boot Sequence

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

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

Boot Up Floppy Seek

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

Enabled	BIOS searches the floppy drive to determine if it is 40 or 80 tracks. Note that BIOS cannot differentiate 720 KB, 1.2 MB, and 1.44 MB type drives as they are all 80 tracks.
---------	--

Disabled	BIOS will not search for the floppy drive type by track number. Note that there will not be any warning message if the drive installed is 360 KB.
----------	---

Boot Up NumLock Status

The default is "On".

On	Keypad boots up to number keys.
----	---------------------------------

Off	Keypad boots up to arrow keys.
-----	--------------------------------

Gate A20 option

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

Typematic Rate Setting

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

Typematic Rate (Char/Sec)

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

Typematic Delay (msec)

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

Security Option

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

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

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

OS Select for DRAM>64 MB

This setting is under OS/2 system.

Video BIOS Shadow

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

C8000 - CFFFF Shadow/DC000-DFFFF Shadow

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

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

3.1.4 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 PCA-6752.

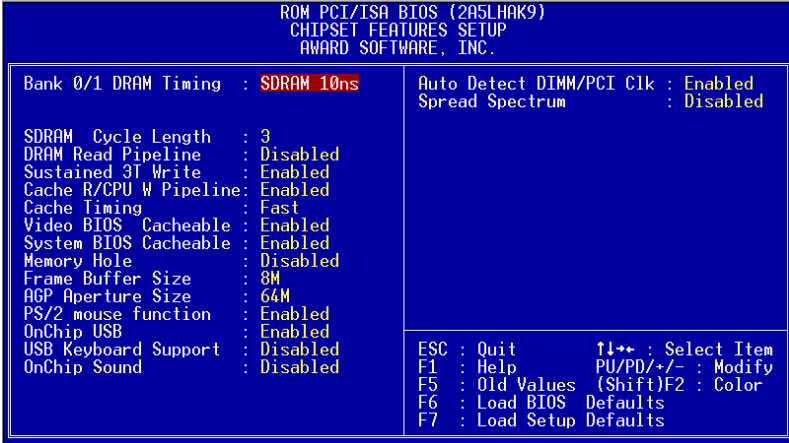


Figure 3-4: CHIPSET features setup screen

3.1.5 Power management setup

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

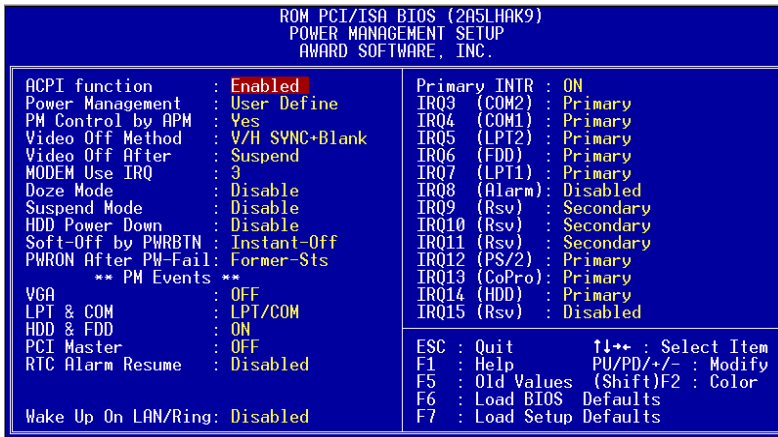


Figure 3-5: Power management setup screen

Power Management

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

HDD Power Management

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

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

IRQ Activity

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

3.1.6 PnP PCI configuration setup

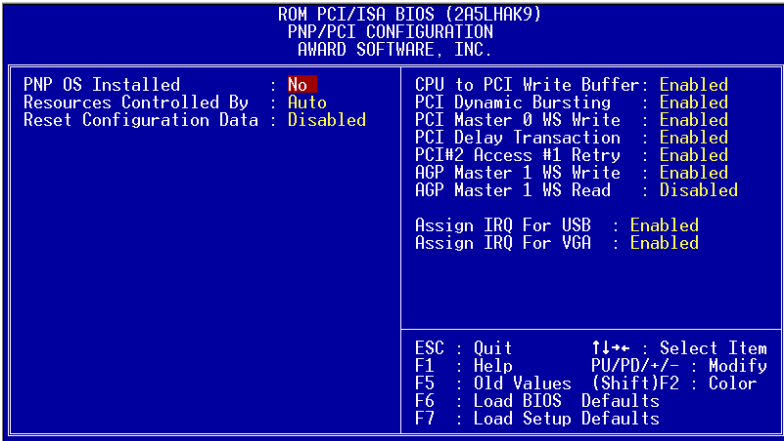


Figure 3-6: PCI configuration screen

3.1.7 Load BIOS defaults

“LOAD BIOS DEFAULTS” indicates the most appropriate values for the system parameters for minimum performance. These default values are loaded automatically if the stored record created by the Setup program becomes corrupted (and therefore unusable).

3.1.8 Load setup defaults

“LOAD SETUP DEFAULTS” loads the values required by the system for maximum performance.

3.1.9 Integrated Peripherals

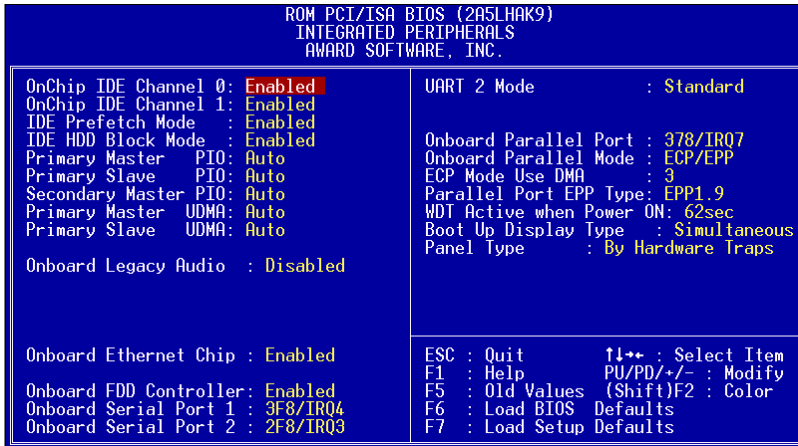


Figure 3-7: Integrated peripherals

Note: If you enable the IDE HDD block mode, the enhanced IDE driver will be enabled.

3.1.10 Password setting

To change, confirm, or disable the password, choose the “PASSWORD SETTING” option from the Setup main menu and press [Enter]. The password can be at most 8 characters long.

Remember, to enable this feature. You must first select the Security Option in the BIOS FEATURES SETUP to be either “Setup” or “System.” Pressing [Enter] again without typing any characters can disable the password setting function.

3.1.11 IDE HDD auto detection

“IDE HDD AUTO DETECTION” automatically self-detect for the correct hard disk type.

3.1.12 Save & exit setup

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

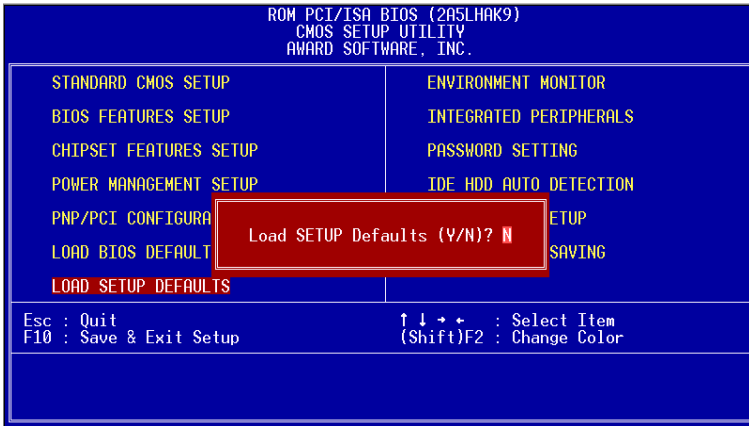


Figure 3-8: Load and Save

3.1.13 Exit without saving

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

CHAPTER 4

AGP SVGA Setup (for PCA-6752F only)

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

4.1 Introduction

The PCA-6752F has an on-board AGP flat panel/VGA interface. The specifications and features are described as follows:

4.1.1 Chipset

The PCA-6752F uses a Trident Cyber i7 chipset for its AGP/SVGA controller. It is AGP 1.0 compliant with 2x AGP speed. It supports many popular LCD and gas plasma flat panel displays and conventional analog CRT monitors. The Cyber i7 VGA BIOS supports monochrome LCD, color TFT and DSTN LCD flat panel displays. In addition, it also supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MGA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

4.1.2 Display memory

With UMA 2 - 8 MB shared with system memory on chip, the VGA controller can drive CRT displays with resolutions up to 1024 x 768 @ 18 bpp or color panel displays with resolutions up to 1024 x 768 at 24 bpp. (With an option of 8 MB display memory on chip). This yields true-color resolution of 1280 x 1024.

4.1.3 Display types

CRT and panel displays can be used simultaneously. The PCA-6752F can be set in one of three configurations: on a CRT, on a flat panel display, or on both simultaneously. The system is initially set to simultaneous display mode. The BIOS setup can be used to configure the display. In BIOS, select "Integrated Peripherals", then "Boot-up display type." You can then choose one of the following modes: "CRT only", "Panel only", or "Simultaneous."

4.1.4 Dual/Simultaneous display

The PCA-6752F uses a Trident Cyber i7 VGA/LCD controller that is capable of providing multiple views and simultaneous display with mixed video and graphics on a flat panel and CRT. The setup for choosing the display you want to use will be shown later in this chapter. In the next section of this chapter, instructions and illustrations are given to help with the PCI SVGA setup for the PCA-6752F for Windows 95/98 and Win NT..

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

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

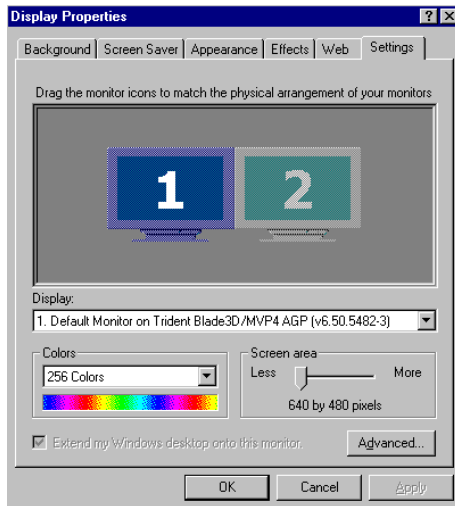


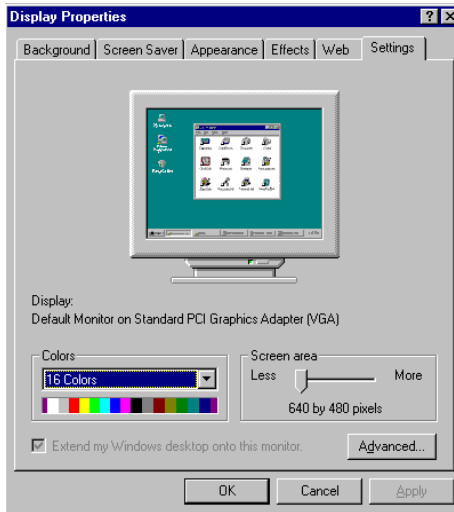
Figure 4-1: Selecting display settings

4.2 Installation

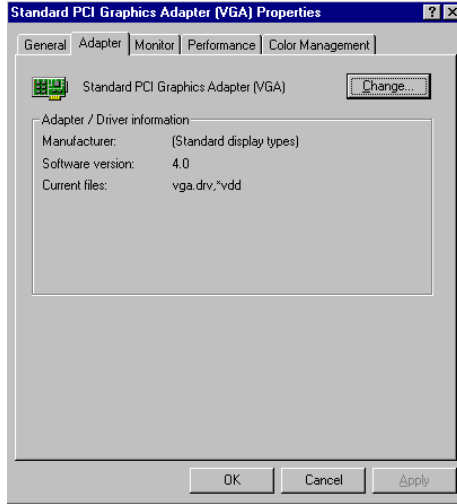
4.2.1 Installation for Windows 95/98

- 1.a. Select “Start”, “Settings”, “Control Panel”
- b. Double click “Display”

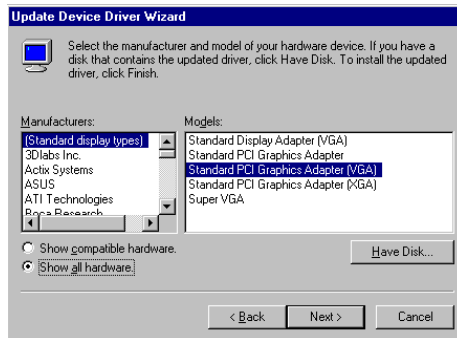
- 2.a. Click “Settings”
- b. Click “Advanced”



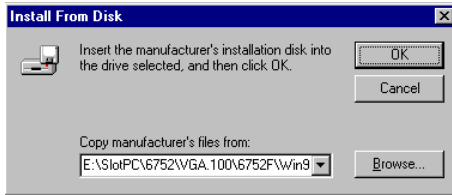
- 3.a. Choose the “Adaptor” tab
- b. Click “Change”



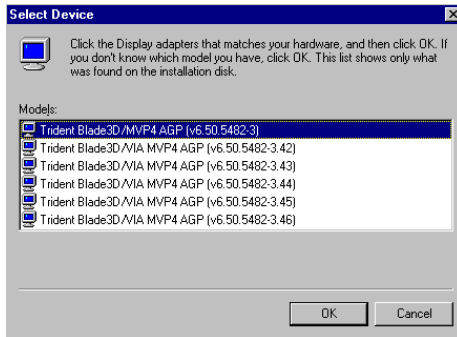
- 4.a. Click “Have Disk” to install the Driver.



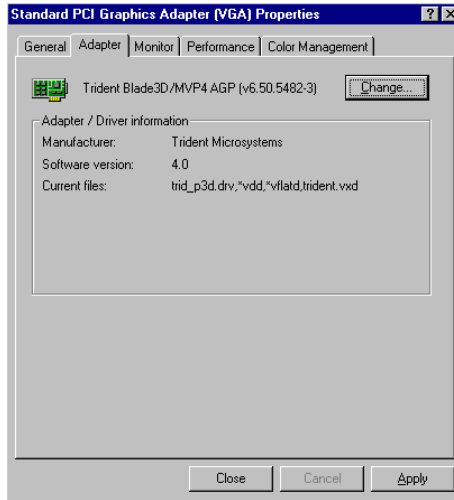
- 5.a. Insert the utility CD ROM.
- b. Fill in the correct path.
- c. Click “OK”



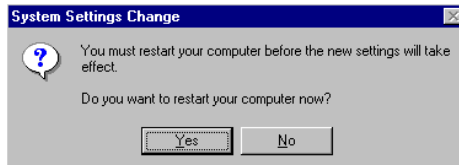
- 6.a. Select the “Trident Blade 3D/MVP4 AGP {v6.50.5482-3}”
- b. Click “OK”



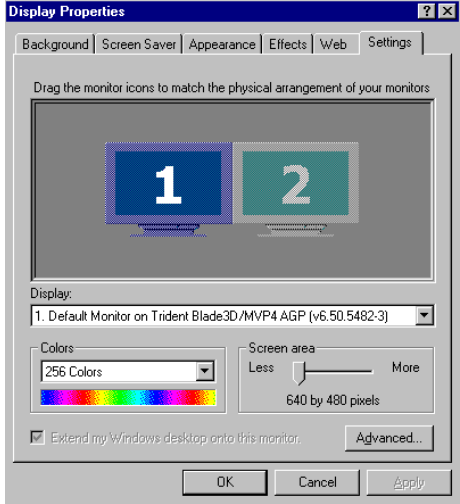
- 7.a. Trident Blade 3D/MVP4 AGP appears in the adaptor label.
- b. Click “Apply”



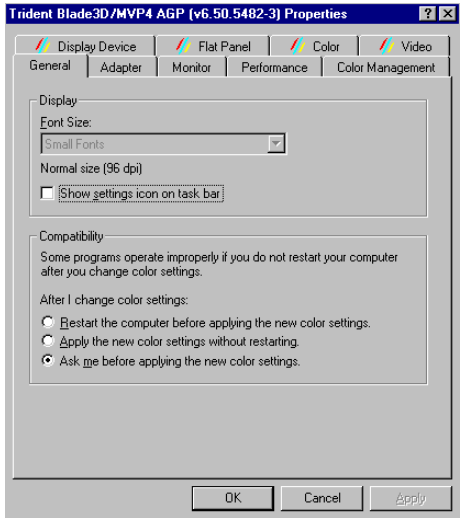
- 8. Click “Yes” to reboot.



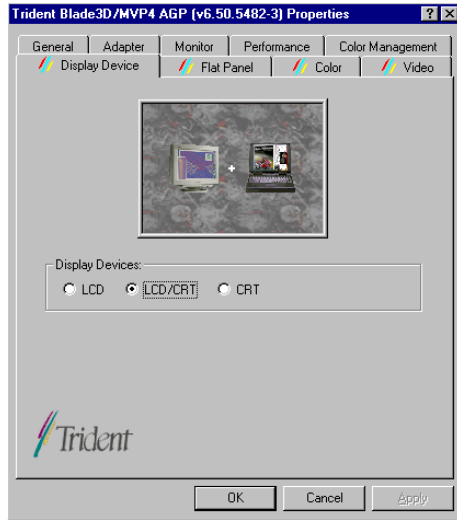
- 9.a. Repeat Step 1
- b. Adjust resolution and color
- c. Click “Advanced”



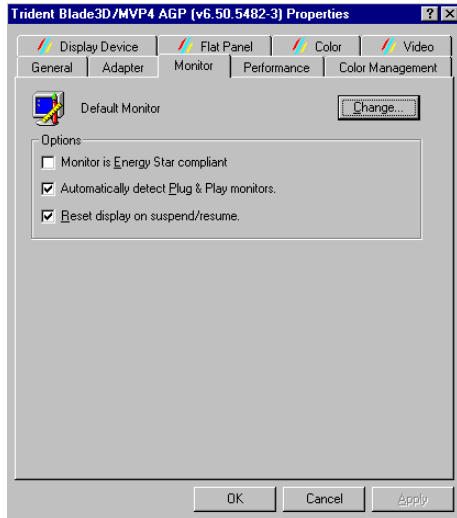
- 10. Click “Display Device” to set CRT and Flat Panel.



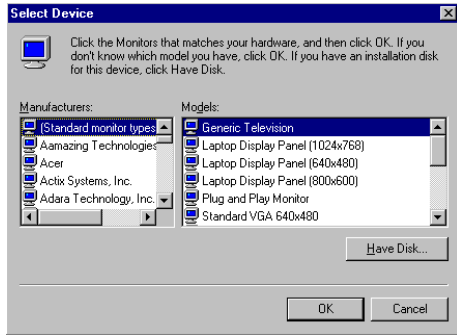
- 11.a. Choose the Display device you have.
- b. Click “OK”



- 12.a. Click “Monitor”
- b. Click “Change” to set your monitor.

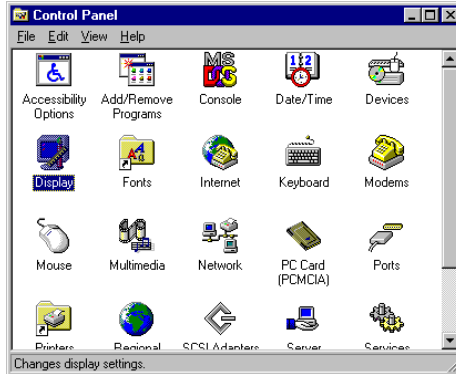


- 13.a. Select “Standard”, “Super VGA 800 x 600”, or “XGA”
b. Click “OK”

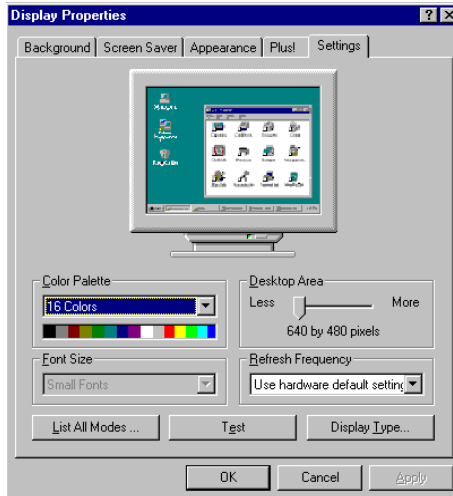


4.2.2 Installation for Windows NT

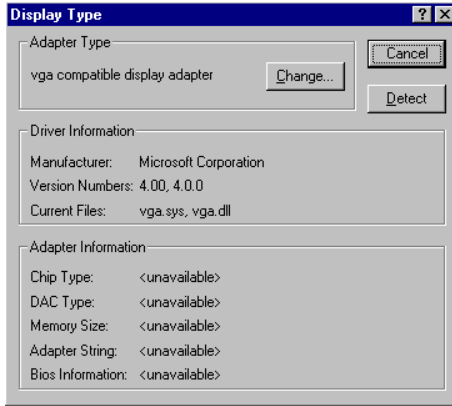
- 1.a. Select “Start”, “Settings”, “Control Panel”
- b. Double click “Display”



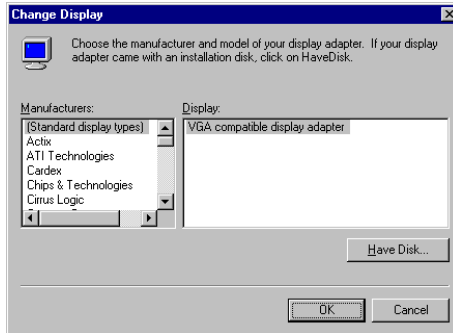
- 2.a. Choose the “Settings” label
- b. Click the “Display Type”



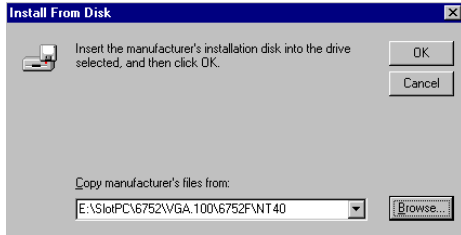
3. Click “Change....”



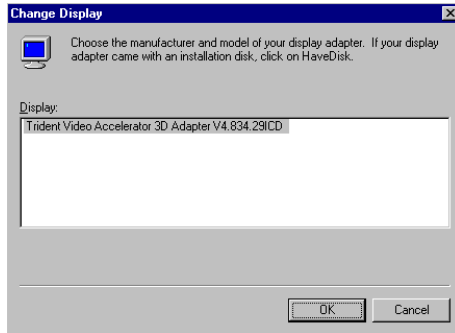
4. Click “Have Disk”



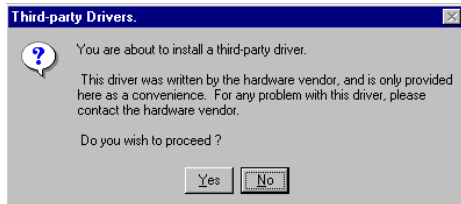
- 5.a. Insert the Utility CD-ROM
- b. Fill in the correct path
- c. Click “OK”



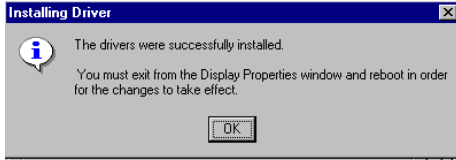
- 6.a. Select the highlighted item
- b. Click “OK”



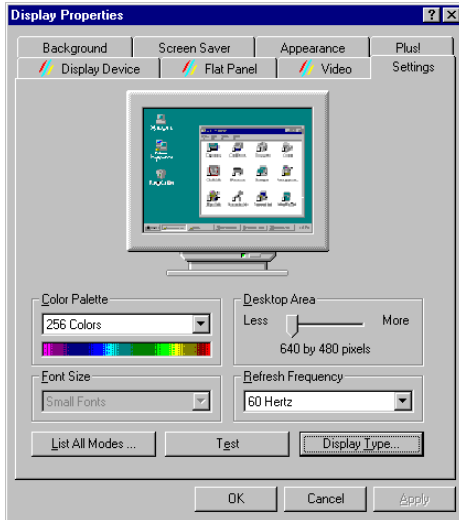
7. Click “Yes” to proceed.



8. Click “OK” to reboot.



- 9.a. Repeat step 1
b. Adjust resolution and color
c. Click “Test” to see the result
d. Click “OK” to save the settings



4.3 Further information

For further information about the AGP/SVGA installation in your PCA-6752F, including driver updates, troubleshooting guides and FAQ lists, visit the following web resources:

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

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

CHAPTER 5

AGP VGA Setup (for PCA-6752N only)

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

5.1 Introduction

The PCA-6752N has an on-board AGP VGA interface. The specifications and features are described as follows:

5.1.1 Chipset

The PCA-6752N uses a built-in VIA MVP4 for its AGP VGA controller. It is AGP 1.0 compliant with 2x AGP speed provide support for analog CRT monitors. The VIA MVP4 VGA BIOS supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

5.1.2 Display memory

With 2 - 8 MB shared with system memory, the VGA controller can drive CRT displays with resolutions up to 1024 x 768 @ 24 bpp. (With an option of 8 MB display memory on chip). This yields true-color resolution of 1280 x 1024.

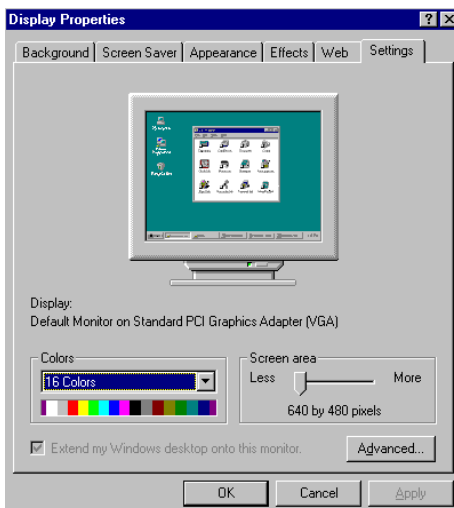
5.2 Installation

5.2.1 Installation for Windows 95/98

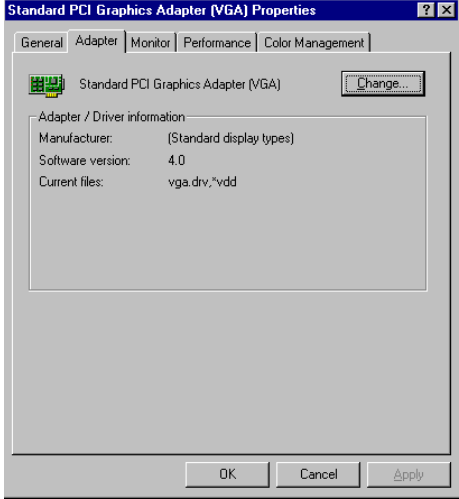
- 1.a. Select “Start”, “Settings”, “Control Panel”
- b. Double click “Display”



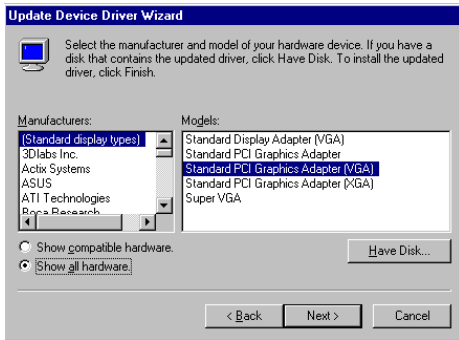
- 2.a. Click “Settings”
- b. Click “Advanced”



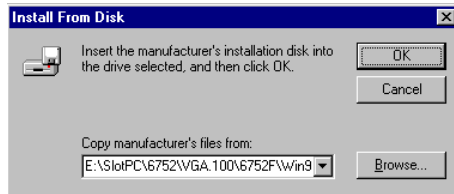
- 3.a. Choose the “Adapter” tab
- b. Click “Change”



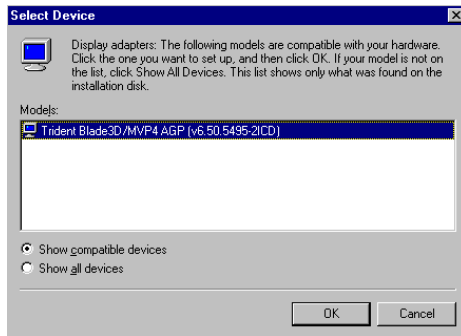
- 4. Click “Have Disk” to install the Driver.



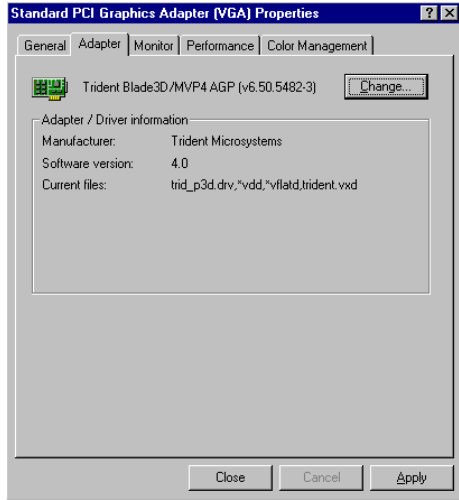
- 5.a. Insert the utility CD ROM.
- b. Fill in the correct path.
- c. Click “OK”



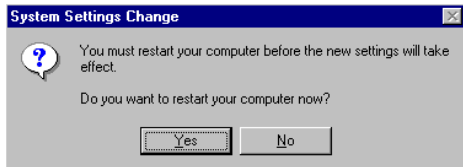
- 6.a. Select the “Trident Blade 3D/MVP4 AGP {v6.50.5495-2ICD}”.
- b. Click “OK”



- 7.a. Trident Blade 3D/MVP4 AGP appears in the adapter label.
- b. Click “Apply”

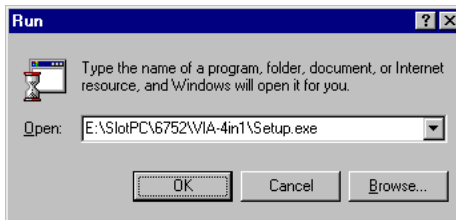


- 8. Click “Yes” to reboot.

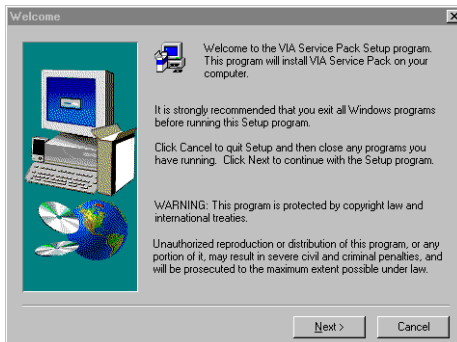


5.2.2 Installation Of VIA 4 In 1 Service Pack

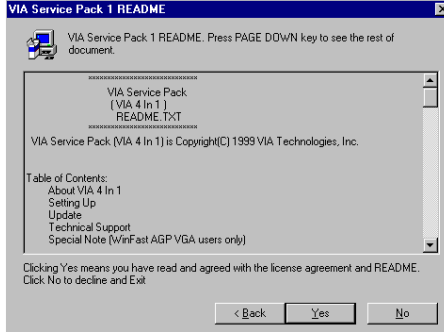
- 1.a. Select “Start”, “Run”
- b. Insert Utility CD ROM
- c. Fill in correct path
- d. Click “OK”



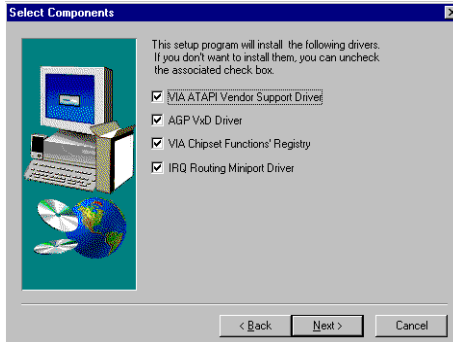
2. Click “Next” to continue the Setup



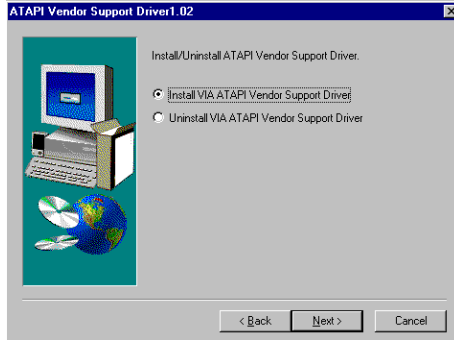
3. Click “Yes” to continue the process.



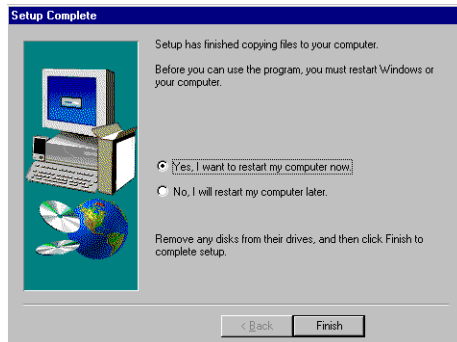
- 4.a. Choose the drivers you need
b. Click “Next” to continue



- 5.a. Choose “Install”
- b. Click “Next”



- 6.a. Choose “Yes” to restart
- b. Click “Finish” to reboot

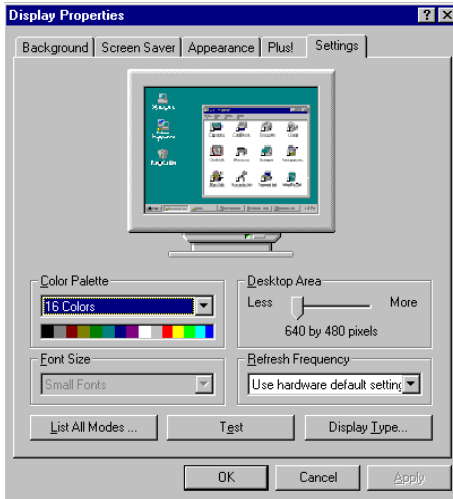


5.2.3 Installation for Windows NT

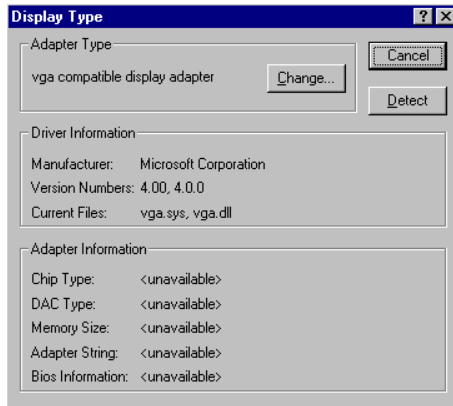
- 1.a. Select “Start”, “Settings”, “Control Panel”
- b. Double click “Display”



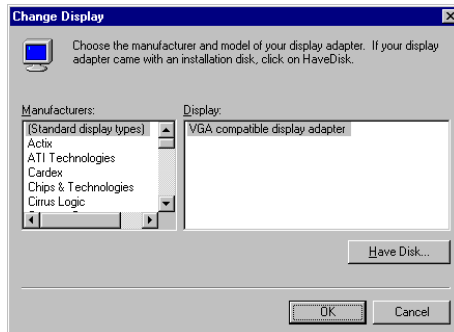
- 2.a. Choose the “Settings” label
- b. Click the “Display Type”



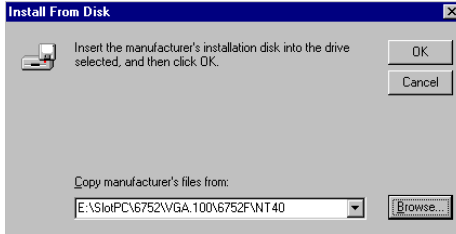
3. Click “Change....”



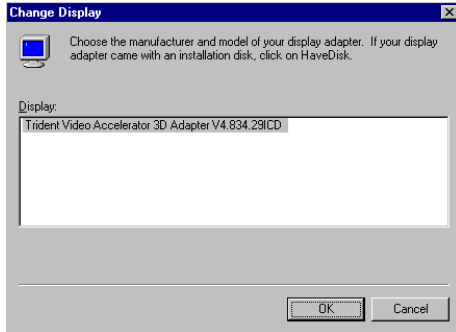
4. Click “Have Disk”



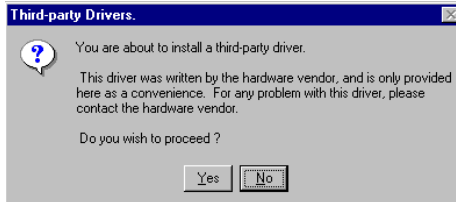
- 5.a. Insert the Utility CD-ROM
- b. Fill in the correct path
- c. Click “OK”



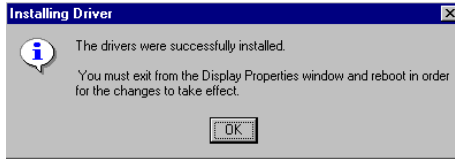
- 6.a. Select the highlighted item
- b. Click “OK”



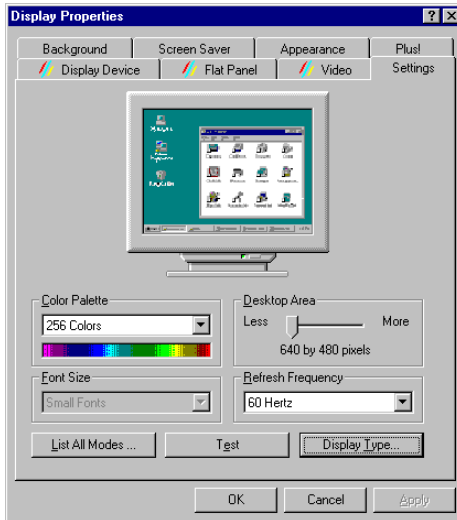
- 7. Click “Yes” to proceed.



8. Click “OK” to reboot.



- 9.a. Repeat step 1
b. Adjust resolution and color
c. Click “Test” to see the result
d. Click “OK” to save the settings



5.3 Further information

For further information about the AGP/VGA installation in your PCA-6752N, including driver updates, troubleshooting guides and FAQ lists, visit the following web resources:

Via website: **www.via.com.tw**

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

PCI Bus Ethernet Interface (for PCA-6752F/N only)

This chapter provides information on Ethernet configuration.

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

6.1 Introduction

The PCA-6752F/N is equipped with a high performance 32-bit Ethernet chipset which is fully compliant with IEEE 802.3 100 Mbps CSMA/CD standards. It is supported by major network operating systems. It is also both 100Base-T and 10Base-T compatible. The medium type can be configured via the RSET8139.exe program included on the utility disk.

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

6.2 Installation of Ethernet driver

Before installing the Ethernet driver, note the procedures below. You must know which operating system you are using in your PCA-6752, 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.

6.2.1 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 correct path being:

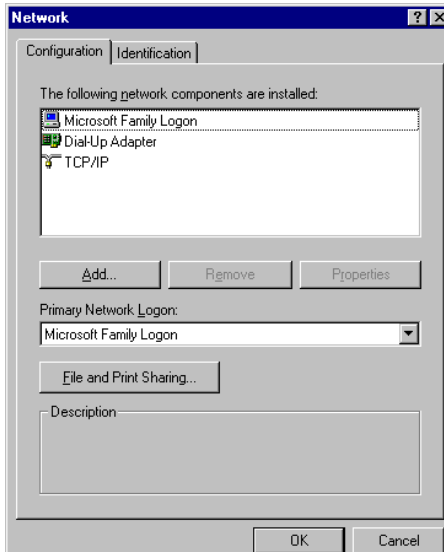
D:\slotpc\6752\Lan.100\8139B\wfw311

6.2.2 Installation for Windows 95/98

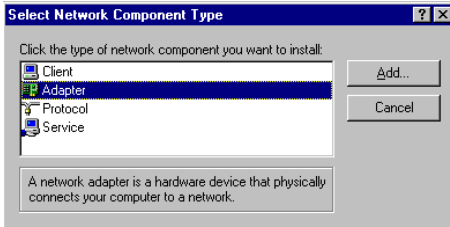
- 1.a. Select “Start”, “Settings”, “Control Panel”
- b. Double click “Network”



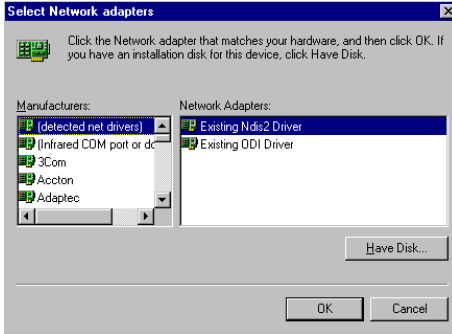
2. Click "Add" and prepare to install network functions



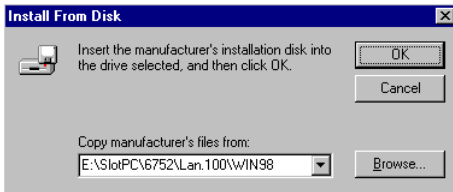
3. Select the "Adapter" item to add the Ethernet card.



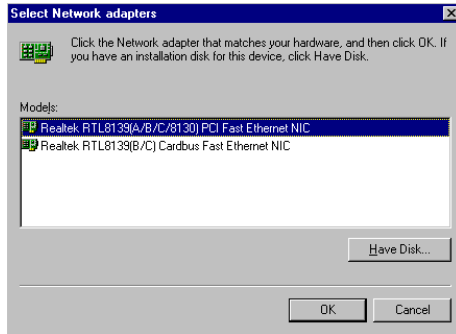
4. Click "Have Disk" to install the driver.



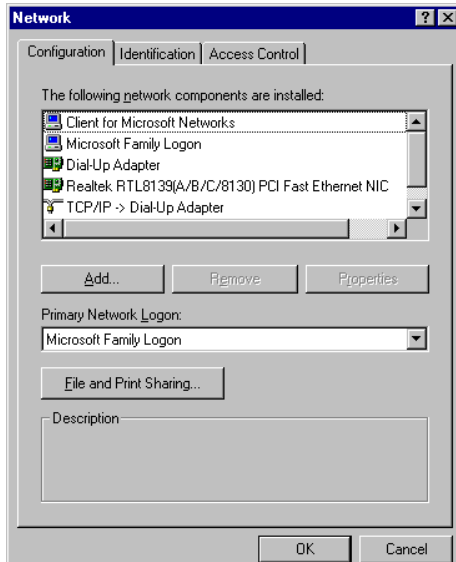
- 5.a. Insert the Utility CD ROM
- b. Fill in the correct path
- c. Click "OK"



- 6.a. Choose the "Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet".
- b. Click "OK"



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

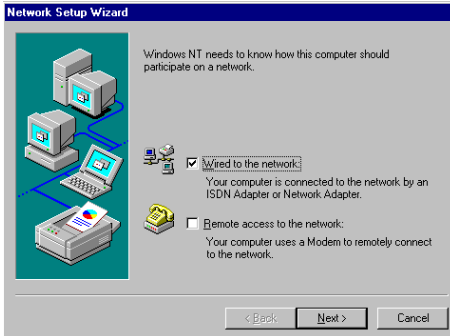


6.2.3 Installation for Windows NT

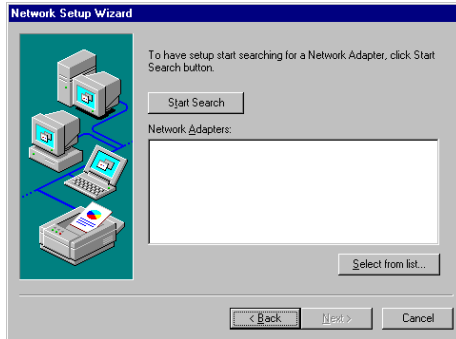
- 1.a. Select “Start”, “Settings”, “Control Panel”
- b. Double click “Network”



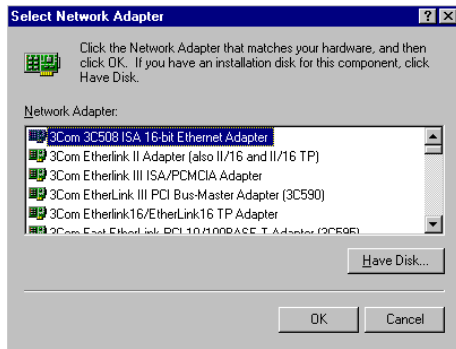
- 2.a. Choose the type of network
- b. Click "next"



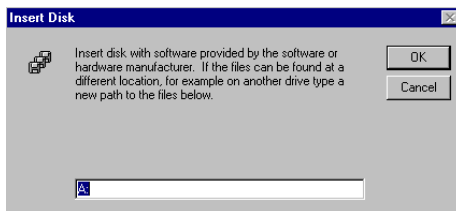
3. Click "Select from list..."



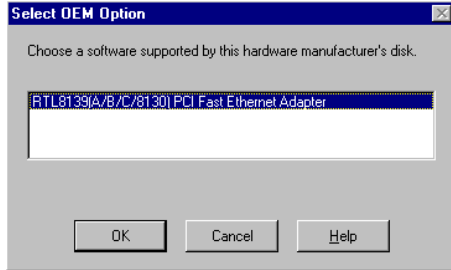
4. Click "Have Disk"



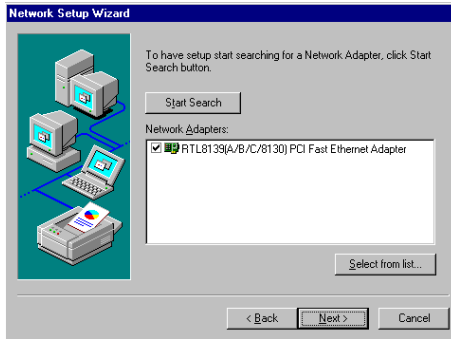
- 5.a. Insert the Utility CD ROM
b. Fill in the correct path
c. Click "OK"



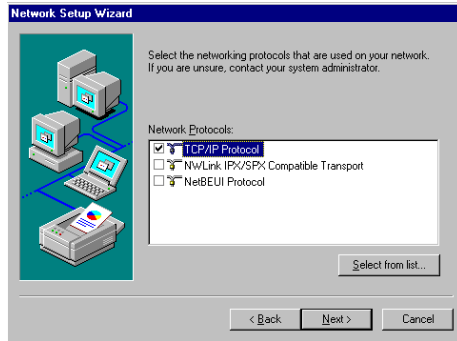
- 6.a. Choose the highlighted item
- b. Click "OK"



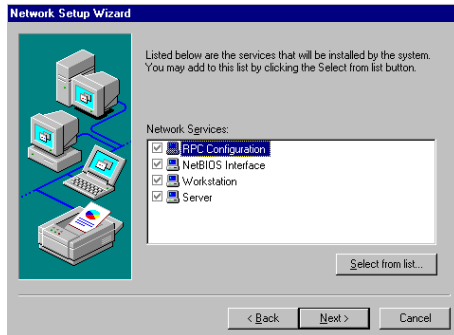
- 7. Click "Next" to continue setup



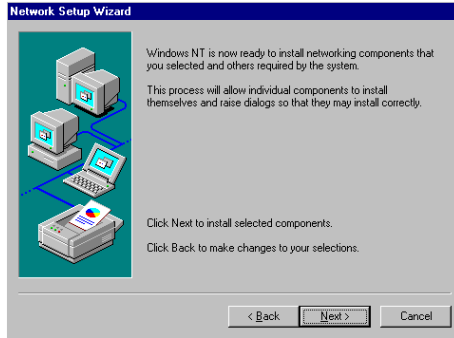
- 8.a. Choose the networking protocols
- b. Click "Next"



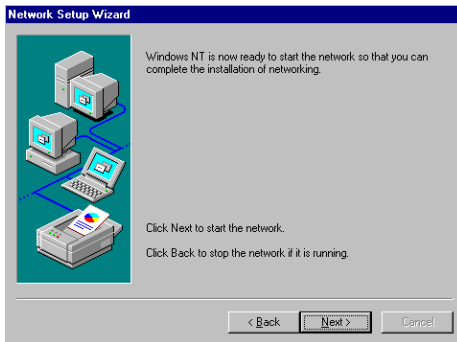
- 9.a. Choose the Network Services
- b. Click "Next"



10. Click "Next" to continue setup



11. Click "Next" to start the network



6.3 Further information

Realtek website: www.realtek.com.tw

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

APPENDIX **A**

Programming the Watchdog Timer

The PCA-6752F is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

A.1 Programming the Watchdog Timer

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

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

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

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

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

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


APPENDIX

B

System Assignments

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

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

B.1 System I/O Ports

Table B-1: System I/O ports

Addr. range (Hex)	Device
000-01F	DMA controller
020-021	Interrupt controller 1, master
022-023	Chipset address
040-43	8254 timer
060-64	8042 (keyboard controller)
070-07F	Real-time clock, non-maskable interrupt (NMI) mask
080-08F	DMA page register
0A0-A1	Interrupt controller 2
0C0-0DF	DMA controller
0F8-0FF	Math co-processor
1F0-1F7	Fixed disk
200-207	Game I/O
278-27F	Parallel printer port 2 (LPT 3)
2F8-2FF	Serial port 2
300-31F	Prototype card
360-36F	Reserved
378-37F	Parallel printer port 1 (LPT 2)
380-38F	SDLC, bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome display
3C0-3CF	Reserved
3D0-3DF	Color/graphics monitor adapter
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1

B.2 DMA Channel Assignments

Table B-2: DMA channel assignments

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

* Audio DMA select 0, 1 or 3

B.3 Interrupt Assignments

Table B-3: Interrupt assignments

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

* PNP audio IRQ select: 5, 7, 9 or 10

* Ethernet function is auto-sensing

B.4 1st MB Memory Map

Table B-4: 1st MB memory map

Addr. range (Hex)	Device
F000h - FFFFh	System ROM
CB00h - EFFFh	available
C000h - CAFF	Expansion ROM
B800h - BFFFh	CGA/EGA/VGA text
B000h - B7FFh	Unused
A000h - AFFFh	EGA/VGA graphics
0000h - 9FFFh	Base memory

Pin Assignments

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

- CRT display connector
- LCD display/inverter connector
- RS-232/422/485 serial port connector
- Keyboard and mouse connector
- External keyboard connector
- Main power connectors (AT/ATX)
- IDE connector
- RS-232 serial port connector
- Ethernet RJ-45 connector
- Floppy connector
- Parallel connector
- IR connector
- HDD LED connector
- CompactFlash card connector
- Fan Connector

C.1 Parallel Port Connector (CN1)

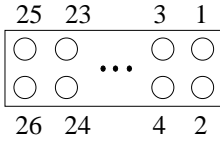


Table C-1: Parallel port connector

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

* low active

C.2 Floppy Drive Connector (CN2)

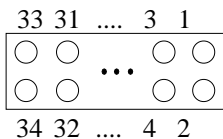


Table C-2: Floppy drive connector

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

* low active

C.3 Enhanced IDE connector (CN3)

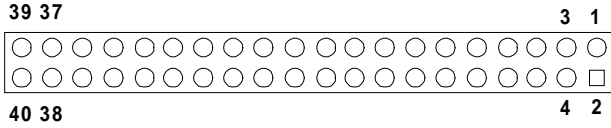


Table C-3: Enhanced IDE connector (CN3)

Pin	Signal	Pin	Signal
1	IDE RESET*	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	SIGNAL GND	20	N/C
21	N/C	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	N/C
29	HACKO*	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0*	38	HARD DISK SELECT 1*
39	IDE ACTIVE*	40	GND

* low active

C.4 LCD inverter connector (CN4)

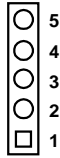


Table C-4: LCD inverter connector (CN4)

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

C.5 Inverter VR connector (CN5)

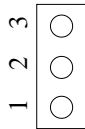


Table C-5: Inverter VR connector (CN5)

Pin	Signal
1	+3.3 V
2	Vcon
3	GND

C.6 USB Connector (CN6)

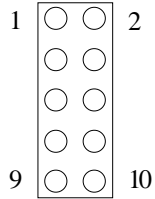


Table C-6: USB1/USB2 connector (CN 6)

	USB1 Pin	Signal	USB2 Pin	Signal
1	+5 V	2	+5 V	
3	UV-	4	UV-	
5	UV+	6	UV+	
7	GND	8	GND	
9	Chassis GND	10	N/C	

C.7 18/24-bit LCD display connector (CN7)

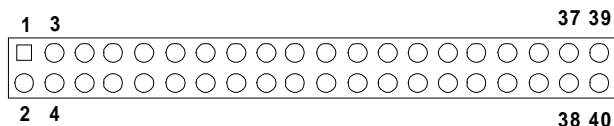


Table C-7: 24-bit LCD display connector (CN7)

Pin	Signal	Pin	Signal
1	VDDSAFE5	2	VDDSAFE5
3	GND	4	GND
5	VDDSAFE3	6	VDDSAFE3
7	Vcon	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	GND	34	GND
35	SHIFT CLOCK	36	FILM
37	M	38	LP
39	N/C	40	ENAVEE

Note: The model number of the CN18 socket is DF13A-40DP-1.25V (Hirose Electric Co., Ltd).

C.8 CRT Display Connector (CN8)

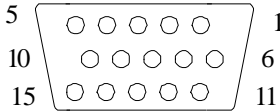


Table C-8: CRT display connector (CN 8)

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

C.9 IR Connector (CN9)

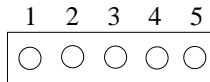


Table C-9: IR connector (CN 9)

Pin	Signal
1	+5 V
2	N/C
3	IR_RX
4	GND
5	IR_TX

C.10 Audio Out/AC97 Connector (CN10)

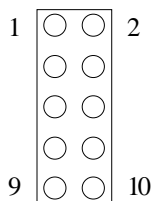


Table C-10: AC97 connector (CN 10)

Pin	Signal	Pin	Signal
1	+5 V	2	CLKBIT
3	SDATIN	4	GND
5	GND	6	SYNC
7	SDATOUT	8	*ACRST
9	+ 5 V	10	N/C

*low active

C.11 ATX Power Connector (CN12)

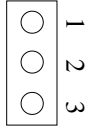


Table C-11: ATX power connector (CN 12)

Pin	Signal
1	5 V SB
2	N/C
3	PS_ON

C.13 COM2 Serial Port (CN13)

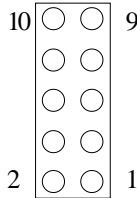


Table C-12: COM2 RS-232/422/485 serial port (CN 13)

Pin port	RS-232 port	RS-422 port	RS-485
1	DCD	TXD-	DATA-
2	DSR	N/C	N/C
3	RxD	TXD+	DATA+
4	RTS	N/C	N/C
5	TxD	RXD+	N/C
6	CTS	N/C	N/C
7	DTR	RXD-	N/C
8	RI	N/C	N/C
9	GND	GND	GND
10	N/C	N/C	N/C

C.14 AT Power Connector (CN14)

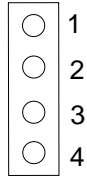


Table C-13: AT power connector (CN 14)

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

C.15 COM1 RS-232 Serial Port (CN15)

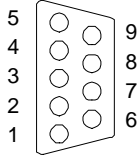


Table C-14: COM1 RS-232 serial port (CN 15)

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

C.16 Keyboard and Mouse Connector (CN16)

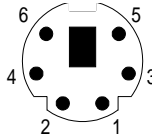


Table C-15: Keyboard and mouse connector (CN16)

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

C.17 CompactFlash Card Connector (CN19)

Table C-16: CompactFlash card connector (CN 19)

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

* low active

C.18 FAN1 Connector

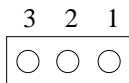


Table C-16: ATX power connector

Pin	Signal
1	GND
2	+ 12 V
3	NC

APPENDIX **D**

LCD Services

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

- Color STN LCD interface information
- DSTN LCD interface information

D.1 LCD Services

LCD screens are very popular on Advantech's CPU cards, Biscuit PCs and POS series products, such as the PCA-6135/6145/6153, and PCA-6751/PCA-6751V. "Lighting" LCDs is virtually impossible without technical expertise. Advantech provides LCD lighting and integration services to assist our customers in setting up their systems. Advantech's LCD lighting guide explains how to make connections between LCD interfaces and LCD panels, as well as how to control contrast, brightness, V_{EE} source, LCD inverter and all other factors that affect the successful installation of LCD panels.

The following information details our LCD lighting services:

- a) This policy is only valid for Advantech products that include LCD support
- b) The customer should **send** the following LCD components for service:
 - DC-AC inverter and cable (i.e. connector with/without wires) and data sheet
 - LCD flat panel and cable (connector with/without wires) and complete data sheet
- c) Advantech will normally charge the customer a deposit. The deposit will be refunded when servicing exceeds a minimum volume
- d) The customer must sign the agreement and fax it to us prior to sending the LCD package. Advantech reserves the right to refuse service if the customer cannot provide the required documents and auxiliary parts
- e) Advantech will supply a BIOS file and connection cable to the customer upon completing the service
- f) A minimum of seven working days is required for completion of service, starting from receipt of the LCD package by Advantech

The table shows the TFT display support list. Please contact our customer service department for more detailed information and service files. See our web site at: **<http://www.advantech.com.tw/support>**

	VGA BIOS Type	Size	Resolution
COLOR STN			
SHARP			
LM32C04P	standard	5.5	320 x 240
LM64C04P	standard	5.5	320 x 240
DSTN			
CITIZEN			
K6483-FF/K6488-FF	standard	7.7	640 x 480
K6484L-FF	standard	8.6	640 x 480
DENSITRON			
LMG8336E-DF2	standard	11.6	640 x 480
LMG8343E-DF2	standard		
HITACHI			
LMG8328E-DF2	standard		
LMG8334E-DF	standard		
LMG9460XUCC	standard	10.4	640 x 480
KYOCERA			
KCS3224ASTT-X6	standard	5.7	320 x 240
KCS6448BSTT-X1	standard	10.5	640 x 480
OPTREX			
DMF-50414NCU-FW	standard	9.6	640 x 480
SAMSUNG			
UG-64L-011A	standard		
UG-64L-011A	standard		
SANYO			
LCM5328-22NK	standard	8	640 x 480
LCM5331-22NK	standard	9.7	640 x 480
LCM5333	standard		
LCM5334/5343	standard		
LCM5365-22NK	800x600	11.6	800 x 640
LM-CH53-22NK	standard	10.4	640 x 480
SHARP			
LM10V33	standard	10.4	640 x 480
LM14X82		13.8	1024 x 768
LM64C08P/C142	standard	9.5	640 x 480
LM64C152	standard	9.5	640 x 480
LM64C21P/C35P	standard	10.5	640 x 480

TFT			
FPD			
LD E052T-12	16BTFT		
LD H102T-10 (24-bit)	LDH102T		
LD H102T-20 (12-bit)	16BTFT		
LD H102T-20 (24-bit)	16BTFT	10.4	640 × 480
HITACHI			
TX24D55VC1CAA	16BTFT	10.4	640 × 480
HLSIDEN			
HLD 1209	18BTFT	12.1	800 × 600
HOSIDEN			
HLD0912	16BTFT		
HLD 1036	18BTFT		
IBM			
ITVS50D	18BTFT		
ITVS50N	18BTFT		
LG			
LC95VA01A	16BTFT		
LC A4SE01A (18-bit)	800×600	10.4	800 × 600
MITSUBISHI			
AA12SB6C-ADFD	18BTFT	12.1	800 × 600
NEC			
NL6443AC20-05	16BTFT	6.4	640 × 480
NL6443AC20-06	18BTFT		
NL6443AC30-06	18BTFT		
NL6443AC30-10			
NL6443AC32-01 (16-bit)	16BTFT	9.4	
NL6443AC32-01 (18-bit)	18BTFT	10.2	
NL6443AC33-10	16BTFT	10.4	640 × 480
NL6443AC33-13		10.4	640 × 480

Model Number	PCM-5862/E.L, 5862/L, 4862, 4825/L PCM-4823/L, 3864, PCA-6153, 6145B, 6145L		
	VGA BIOS Type	Size	Resolution
TFT (cont...)			
NEC (cont...)			
NL6448AC33-18	18BTFT	10.4	640 x 480
NL8060AC26-11	18BTFT	10.4	640 x 480
NL8060AC31-12	18BTFT	12.1	800 x 600
NL8060BC31-01/02	18BTFT	12.1	800 x 600
NL8060BC31-09	18BTFT	12.1	800 x 600
SAMSUNG			
LT104V3-101/102	18BTFT	10.4	800 x 600
LT104V4-101	18BTFT	10.4	800 x 600
LT121S1-103	18BTFT	12.1	800 x 600
SHARP			
LQ10D131	16BTFT	10.4	640 x 480
LQ10D321(15-bit)	16BTFT	10.4	640 x 480
LQ10D321(18-bit)	18BTFT	1.04	640 x 480
LQ10D341(18-bit)	18BTFT	10.4	640 x 480
LQ10D344(18-bit)	18BTFT	10.4	640 x 480
LQ10D361(18-bit)	18BTFT	10.4	640 x 480
LQ10D42	18BTFT	10.4	640 x 480
LQ10DS01/05(18-bit)	18BTFT	10.4	800 x 600
LQ10DS21(18-bit)	18BTFT	10.4	800 x 600
LQ12S31	18BTFT	12.1	800 x 600
LQ12S41	18BTFT	12.1	800 x 600
LQ14X03E		13.8	1024 x 768
LQ64D141	18BTFT	6.4	640 x 480
LQ64D321(18-bit)	18BTFT	6.4	640 x 480
LQ64D341(18-bit)	18BTFT	6.4	640 x 480
LQ94D021	16BTFT		
LQ9D011	16BTFT	9.4	640 x 480
LQ9P341(18-bit)	18BTFT	8.4	
TOSHIBA			
LTM09C015A/016	16BTFT	9.4	640 x 480
LTM10C042(18-bit)	18BTFT	10.4	640 x 480
LTM10C2091(18-bit)	18BTFT	10.4	640 x 480
LTM11C016/062	18BTFT		800 x 600
LTM12C275A	800x600		800 x 600

