
A770 ENHANCE SERIES NOTEBOOK OPERATOR'S MANUAL

MITAC Technology Corporation

P/N: 799001180012

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Class B Regulations

Federal Communications Commission Radio Frequency Interference Statement

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are design to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Please note:

1. The use of a non-shielded interface cable with this equipment is prohibited.
2. A shielded AC power cord must be used with this equipment.

WARNING

To assure continued compliance, use only shielded interface cables when connecting to a computer or peripheral. Also, any change or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC RF Exposure Warning:

This computer is provided with PC Card skit that could be used with wireless transmitter(s) , which will be specifically recommended, when they become available. Other third-party wireless transmitter(s) have not been RF exposure wvaluated for use with this computer and may not comply with FCC RF exposure requirements.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment must be installed and operated in accordance with provided instructions and minimum 20 cm spacing must be provided between antenna and all person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interface, and
- (2) This device must accept any interface received, including that may cause undesired operation.

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

- ✍ EN50081-1: Electromagnetic compatibility-Generic emission standard
- ✍ EN55022: conducted Emission, Radiated Emission
- ✍ EN61000-3-2: Current Harmonic
- ✍ EN61000-3-3: Voltage Flicker
- ✍ EN50082-2: Electromagnetic compatibility-Generic immunity standard
- ✍ IEC1000-4-2: Electrostatic Discharge
- ✍ IEC1000-4-3: Radiated Susceptibility
- ✍ IEC1000-4-4: Electrical Fast Transients
- ✍ IEC1000-4-5: Surge Test
- ✍ IEC1000-4-6: Conducted Susceptibility
- ✍ IEC1000-4-11: Voltage Dip and Interruption

Record of Changes

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Preface

This is the A770 Series Notebook Operation Guide.

Contents

This manual contains information for personnel using the A770 Series notebook computer. Readers should have a basic understanding of Windows 2000 or Windows XP operating system installed on the computer when reading this document. With the exception of the SETUP configuration program, which is part of the system firmware, this manual does not explain any of the software or devices used with the system. Supplemental manuals or text-based documents on the hard disk supply information about any software included with the system.

Audience

All operators using the notebook in or out of the field should read and become familiar with this manual.

Organization

This manual has four chapters.

Chapter 1 introduces the notebook pointing out its major features.

Chapter 2 explains daily operation.

Chapter 3 gives detailed information about configuring the notebook.

Chapter 4 introduces the notebook Maintenance.

Supplemental Reading

For further information about this computer and computing in general, use these references:

- ? A770 Series Service Manual for detailed troubleshooting and repair instructions for serious hardware problems associated with the A770 Series notebook.

- ? Various software manuals offer detailed instructions about individual programs run on the notebook.

Specifications (reference only)

	Standard	Optional
CPU	Intel Pentium M Processor 1.4/1.6Ghz (? -FCPGA) package	
RAM	256 MB	? 512MB or above
Display	1. 12.1" color LCD, 64K color TFT, XGA 2. 13.3" color LCD, XGA TFT 3. 14.1" color LCD, XGA TFT	? 12.1" for Sun-Light Readable (Transflective)
Keyboard	? 87-key shower proof and dust-proof rubber keyboard ? Embedded two-button Track Pad	LED Backlight Rubber Keyboard
Point Device	? A touch-sensitive control pad with Microsoft Win Mouse function coexist	? support Glove hand Touch Pad
Bay-1 Modules		Swappable for CD-ROM, DVD,DVD-RW,FDD, Battery, 2 nd HDD, COMBO drive
Bay-2 Modules		? 2 nd PCMCIA-Removable Type III x 1 or TYPE II x 2 Module ? COM port Module- Removable Sealed Water Proof RS-232, 422, or 485 Module ? DGPS- DGPS Module ? Bay2 Battery Pack- Removable and Recharge Li-Ion Battery Pack ? Bay2 FDD ? Wireless Modem (GSM/GPRS)

		? Expansion Unit (PCI/ISA) ? Port replicator (SIOx2, PIOx1, USBx4, VGAx1, DC input, Power switch) ? Carrying Bag ? Shock Mount ? External battery charger (2-pcs and 3-pcs) ? 11-32VDC 90W car adapter ? USB external FDD ? 802.11b/g Wireless LAN
Communication ports	? One serial port ? One parallel port, support EPP/ECP ? RJ-11 port ? RJ-45 port ? One VGA monitor port ? Two USB 2.0 ? One Port Replicator port ? One DC input port ? One infrared port ? IEEE 1394 port ? Mic-In and Line-Out	
Battery pack	? Removable & rechargeable main Li-ion battery pack with the functions of on-line charge and hot swap. ? Primary battery pack 97 watts.	? Removable & rechargeable Bay 1 Li-ion battery pack in Bay 1, total 65 watts ? Removable & rechargeable Bay 2 Li-ion battery pack in Bay 2, total 65 watts
Power adapter	? I/P: AC 100-240 V, 50-60 Hz ? O/P: DC 19V, $\pm 5\%$, 4.74A, 90W, CV mode	? 9-12 VDC direct input without charging function ? 12-32 VDC external car adaptor/ charger
Operating system	? Windows 2000 ? Windows XP	
Temperature	? Operating: 0°C to +55°C ? Non-operating: -40°C to 70°C (tested)	? Option: -20°C to +55°C (tested)

Open Size: (With Rubber Bumper)	315mm W 70mm H 260mm D	
Weight	14.3 lbs (6.5 kg)	

Safety Summary

1. Read these instructions before using or working on this computer.
2. Follow all warnings and instructions in this manual or marks on the computer and its components.
3. Avoid submerging the system unit in liquids.
4. avoid stacking papers or other flammable objects on top of, underneath, or next to the system unit.
5. Use only batteries supplied with the system.
6. Make sure any external power source connected to the adapter or system conforms with adaptor or system ratings.
7. The external power adapter has a two-pronged grounding plug. If an adapter is needed to plug the system into a power source, make sure the system is properly grounded.
8. Arrange all cables so that they are out of traffic and unobstructed by personnel or equipment.
9. Avoid using extension cords with this product. If an extension cord is needed, make sure it is rated for at least 10 amperes.
10. Make sure amperage drawn by all items plugged into an outlet with this system does not exceed 15 amperes.
11. Do not put any objects except those designed for use with this system inside the computer.
12. Observe proper electrical safety precautions when performing system maintenance.
13. Replace any cables with identically rated cables as those included with the original equipment.
14. Improper handling of the battery can cause personal injury or fires. Do not attempt to disassemble or replace individual cells in the battery pack. Do not expose the battery to open flames. Do not short the positive and negative ends together even if the battery is fully discharged. Keep the battery away from children.

Table of Contents

Preface

Contents	e
Audience	e
Organization.....	e
Supplemental Reading	e

Specifications

Specifications	f
----------------------	---

Safety Summary

Safety Summary	h
----------------------	---

Chapter 1 System Overview

1-1	Introduction.....	1-1
1-2	System Description	1-1
1-3	System Configuration.....	1-1
	1-3.1 Standard Configuration.....	1-1
	1-3.2 Options and Accessories.....	1-3
	1-3.3 System Identification.....	1-4
1-4	Unpacking	1-4
1-5	Notebook Features.....	1-5
1-5.1	Feature Description.....	1-8

1-5.2	Rear Components	1-9
1-5.3	The Keyboard	1-11
1-5.4	Additional Keyboard Functions	1-16
1-5.5	Battery Pack	1-24
1-5.6	Diskette Drive and CD-ROM/DVD/COMBO/DVD- RW	1-25

Chapter 2 Operation

2-1	Introduction.....	2-1
2-2	Opening and Closing the Notebook.....	2-1
	2-2.1 Opening the Cover	2-2
	2-2.2 Closing the Cover.....	2-2
	2-2.3 Opening the PCMCIA/FDD/CD-ROM/DVD /COMBO/DVD-RW	2-3
	2-2.4 Closing the PCMCIA/FDD/CD-ROM/DVD /COMBO/DVD-RW.....	2-4
2-3	Connecting and Installing Devices	2-4
	2-3.1 Serial and Parallel Port	2-4
	2-3.2 External Power Adapter.....	2-5
	2-3.3 Floppy Disk Drive/CD-ROM/DVD/COMBO /DVD-RW	2-6
	2-3.4 Loading and Remove Diskette	2-8
	2-3.5 PCMCIA Cards	2-8
	2-3.6 Remove the Hard Disk Module	2-9
	2-3.7 IEEE 1394.....	2-10
	2-3.8 EMI Accessory Descriptions	2-11
2-4	First Time Use	2-13
	2-4.1 Installing Software Drivers	2-13
	2-4.2 Install Device for Windows 2000/Windows XP	2-14
	2-4.3 Install Touch Screen Driver for Windows 2000/Windows XP.....	2-16
	2-4.4 Installing Touch PAD Drivers	2-17

2-4.5	Wireless LAN Utility Installation (PROSET)	
		2-18

	Insel SpeedStep Utility.....	2-19
2-5	Daily Operation.....	2-20
2-5.1	Starting the Computer.....	2-20
2-5.2	Turning Off The Notebook	2-21
2-5.3	Using the Notebook in the Car.....	2-21
2-6	Using External Power Sources.....	2-22
2-6.1	Using AC External Adapter.....	2-23
2-6.2	Charging the Batteries.....	2-23
2-7	Running On Battery Power.....	2-24

Chapter 3 The SETUP Program

3-1	Introduction.....	3-1
3-2	Running SETUP and Moving Around	3-1
3-2.1	Main.....	3-2
3-2.2	Moving Around and making Selections	3-3
3-2.3	Security Menu	3-11
3-2.4	Boot Menu.....	3-15
3-2.5	Exit Menu	3-16
3-2.6	How to Release Resource from SCU.....	3-17

Chapter 4 Notebook Maintenance

4-1	Introduction.....	4-1
4-2	Daily Use	4-1
4-3	Battery Maintenance	4-1
4-3.1	Conserving Power.....	4-1
4-3.2	Changing the Battery Pack.....	4-2
4-3.3	The Battery Pack Guidelines.....	4-3
4-3.4	Troubleshooting for Battery Problems	4-5

4-4	Cleaning	4-2
------------	-----------------------	------------

List of Figures

Figure 1-1 Features of A770	1-5
Figure 1-2 Features of A770	1-6
Figure 1-3 I/O Access Door of the A770.....	1-7
Figure 1-4 Keyboard Key Function.....	1-10
Figure 1-5 Keyboard with Embedded Touchpad.....	1-10
Figure 1-6 Cursor Control Keys	1-13
Figure 1-7 Touchpad Point Device	1-14
Figure 1-8 Status Row Lights	1-17
Figure 1-9 Auxiliary Battery Pack.....	1-22
Figure 1-10 Diskette Drive and CD-ROM/DVD/COMBO/DVD- RW.....	1-26
Figure 2-1 Opening the Notebook.....	2-2
Figure 2-2 Opening a Door	2-3
Figure 2-3 Connecting the External Power, Serial & Parallel Ports	2-4
Figure 2-4 Connecting the External Power Adapter.....	2-5
Figure 2-5 Removing a FDD/CD-ROM/DVD/COMBO/DVD- RW Module	2-7
Figure 2-6 Removing a Diskette	2-8
Figure 2-7 Removing a PCMCIA Cards	2-9
Figure 2-8 Removing a Hard Disk Drive Module	2-10
Figure 2-9 Removing IEEE 1394 Port.....	2-11
Figure 2-10 EMI Core & Cable.....	2-13
Figure 2-11 Plug Car Power Cable in Notebook.....	2-33

List of Tables

Table 1-1	Standard A770 Notebook Computer.....	1-2
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Chapter 1

System Overview

1-1 Introduction

A770 notebook computer is a new generation notebook computer. It is a high-end rugged notebook computer which is an industrial notebook with some rugged features such as vibration, shock, drop and drip-proof. It is designed for using in vehicle or in the harsh environment.

The A770 notebook computer implements the new technologies in the industrial market. Large display panel, high capacity hard disk drive, PCI bus and CD-ROM, etc. An Intel Pentium M Processor 1.6GHz/Dothan 1.8GHz CPU is the heart of this notebook computer. This chapter introduces and explains the A770 notebook and its computer parts.

1-2 System Description

The A770 computer is a compact fully portable notebook computer. It operates as a stand alone system for most applications.

It offers superior performance under harsh environmental and operating conditions. It is fully compatible with the IBM PC/AT standard.

1-3 System Configuration

This section presents and explains possible notebook hardware configurations. Refer to the nameplate on the notebook bottom for that system's configuration.

1-3.1 Standard Configuration

Table 1-1 lists the major common features of the standard A770 systems.

The specifications in this table may be different from yours due to the optional items. Please refer to the detailed specifications including the standard and optional configurations on page f.

Table 1-1 Standard A770 Notebook Computer

Feature	Description
CPU	Intel Pentium M Processor Banias 1.6GHz/Doth 1.8GHz in ?-FCPGA package
Storage device	Removable 2.5-inch hard disk drive Removable 3.5-inch 1.44 MB Floppy disk drive
Display	1. 12.1/13.3"/14.1" TFT XGA LCD, Res. 1027X768 2. Optional: 12.1" Touch Screen 12.1" Sunlight Readable (Transflective LCD)
Battery	Primary Li-ion Type , Battery life for 5 hours. Bay1: Li-Ion Smart Battery Bay2: Li-Ion Smart Battery
Keyboard	87key shower proof rubber keyboard, Embedded two button track pad Optional : LED Backlight Rubber Keyboard
Expansion	Two PCMCIA sockets (type II or one type III compatible)
I/O Devices	One RS-232 serial port One Centronics parallel port, support EPP/ECP One VGA monitor port One RJ-11 port One RJ-45 port One Port Replicator port One DC input power supply port One infrared port Two USB2.0 port One 1394 Port One Mic-In and Line Out
Dimensions	315(w) x 260 (D) x 70 (H) mm
Weight	6.5 KG (14.3 lbs)
Software	Support Windows 2000/ Windows XP

1-3.2 Options and Accessories

(A) BAY 1 Options

- ✎ CD-ROM
- ✎ 2nd HDD
- ✎ Bay 1 FDD
- ✎ Bay 1 Battery Pack
- ✎ DVD
- ✎ DVD RW
- ✎ COMBO Drive (DVD+CD-RW)

(B) BAY 2 Options

- ✎ RS-232/RS-422
- ✎ RS-485
- ✎ Wireless Modem (GSM/GPRS or CDMA)+ GPS Module (Optional singly)
- ✎ 2nd PCMCIA- Removable TYPE III x 1 or TYPE II x 2 Module
- ✎ DGPS-DGPS Module
- ✎ Bay2 Battery Pack – Removable and Rechargeable Li-Ion Battery Pack
- ✎ SCSI Module
- ✎ 10/100/1000 Base-T LAN

1-3.2.1 Carrying Bag

The carrying bag makes carrying the notebook and its peripherals easier. It has compartments for up to four diskettes, this manual, the power supply, and all notebook cables.

1-3.3 System Identification

The nameplate listing system information is at the bottom of the notebook. It contains:

- ? Factory configuration
- ? Model number
- ? Serial number

1-4 Unpacking

Use this checklist to make sure all items included with the notebook are present in good condition.

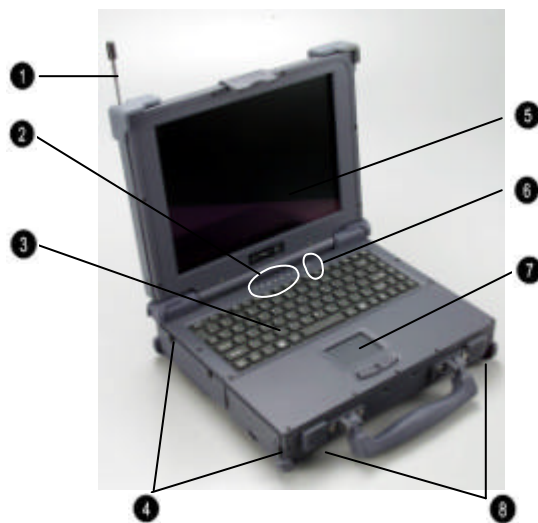
-  Notebook computer
-  Rechargeable battery pack
-  AC adapter
-  Power cord
-  User's Manual
-  CD Driver

If any items are missing or damaged, please contact the supplier.

1-5 Notebook Features

Items 1 through 18 identify the major features designed into the A770 computer. A brief description will accompany each call-out to help you get stated and become familiar with your A770.

Some of the features described in this section might vary from your individual A770 due to the different configuration and optional items available.



1. Wireless modem antenna
2. LED Status Singal
3. Sealed Keyboard
4. Sealed Access Doors
5. Flat-Panel Display
6. On/Off Switch
7. Touchpad/Point Device
8. Stereo Speakers

Figure 1-1 Features of the A770



Figure 1-2 Features of the A770

- 9. Carrying Handle
- 10. Opening Latch
- 11. LCD Rubber Bumpers

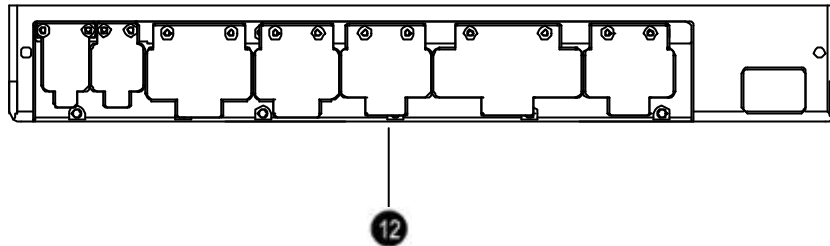
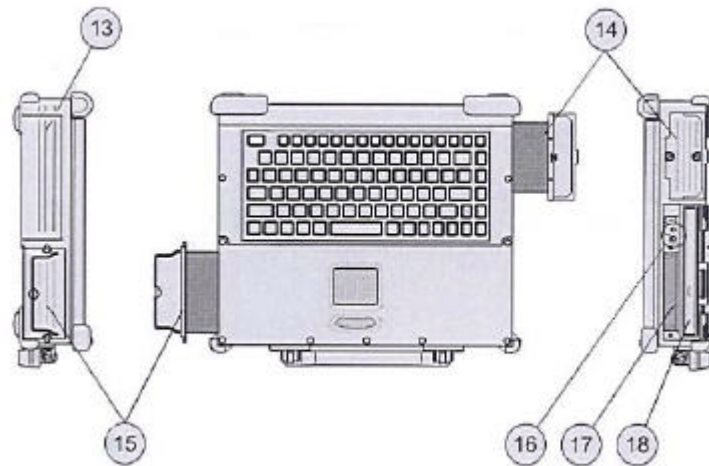


Figure 1-3 I/O Access Door of the A770



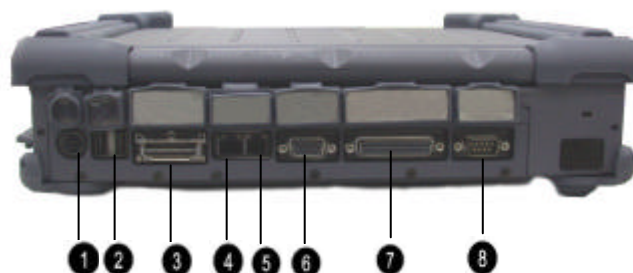
- 12. Sealed I/O Access Door (Rear Panel)
- 13. Bay 2/Access Door
- 14. Removable Hard Disk Drive Module/Access Door
- 15. Removable Primary Battery/Access Door
- 16. Audio Jacks
- 17. PCMCIA/CardBus Slots
- 18. Removable Floppy Disk Drive/Bay 1

1-5.1 Feature Description

- 1. Wireless Modem Antenna-** Serves as the antenna for the Wireless Modem. It is built-in the handle.
- 2. LED Status Singals-** Seven LED singals indicate the current operating conditions of several key components and devices.
- 3. Sealed Keyboard-** The A770 is equipped with 87 key shower/dust-proof sealed rubber keyboard.
- 4. Sealed Access Doors-** Well sealed and secured access doors protect the expansion bays from water and dust intrusion when transporting the A770.
- 5. Flat-Panel Display-** The A770 provides a sealed,non-glare 12.1/14.1" color flat-panel display.
- 6. On/Off Switch-** This switch controls the power to the A770.
- 7. Touchpad/Point Device-** The keyboard is equipped with an embedded two-button touchpad/point device.
- 8. Stereo Speakers-** The A770 is equipped with two stereo speakers for audio sound.
- 9. Carrying Handle-**The durable carrying handle makes transportation of the A770.
- 10. Opening Latch-** The A770 is equipped with a shock-proof, drop resistant opening latch.
- 11. LCD Rubber Bumpers-** The shock absorbing cornor bumpers protect the A770 during transport and prevents slippage when operating in an upright open position.
- 12. Sealed I/O Access Doors-** The sealed access doors on the rear panel protect the I/O ports from water and dust intruction during transport of the A770.

- 13. Bay 2** – An optional peripheral device of your choice can be installed in bay 2.
- 14. Removable Hard Disk Drive Module-** The A770 is equipped with standard removable shock-proof hard disk drive module.
- 15. Removable Primary Battery-** The A770 is equipped with rechargeable and removable 97 Whr primary battery.
- 16. Audio jacks** – Two audio jacks (line-out and mic-in) are provided on the A770.
- 17. PCMCIA/CardBus slots** – The A770 provides two Type II or one Type III PCMCIA/CardBus slots for added expansion.
- 18. Removable Floppy Disk Drive Module** – The A770 is equipped with removable 3.5", 1.44 MB floppy disk drive module.

1-5.2 Rear Components



Ref	Component	Description
1	Power Connector	Connects the AC adapter.
2	USB2.0 Ports	Each the ports connects a USB device, such as a floppy disk drive, printer, digital camera, joystick, and more.
3	PortReplicator Port	The Port Replicator Port is an 80 pin interface, expand two USB2.0, PIO, VGA port.
4	RJ-45 Port	Connects the LAN cable.
5	RJ-11 Port	Connects the telephone line.
6	VGA Port	Connects the External monitor.
7	Printer Port	Connects a parallel device, such as a printer.
8	Serial Port	Connects a serial device, such as a serial modem, mouse, etc.

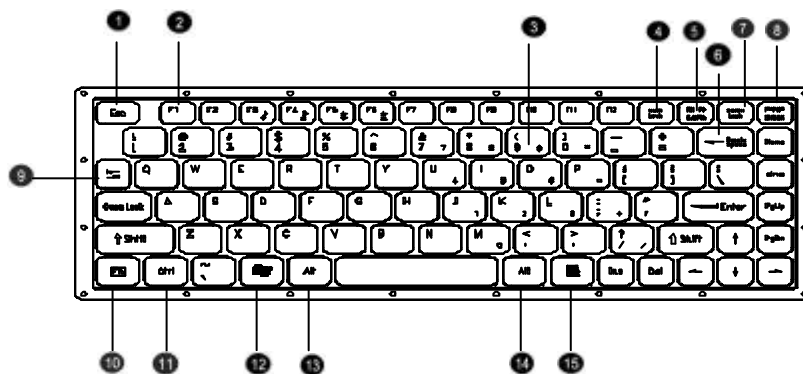


Figure 1-4 Keyboard Key Function

1-5.3 The Keyboard

The A770 is equipped with a completely sealed, 87-key rubber keyboard with twelve function keys and dedicated cursor keys. An embedded touchpad with two mouse buttons is centered below the keys. It eliminates the need for external mouse device. The touchpad is pressure sensitive and works by the touch and movement of your fingertip. Smoothly move your fingertip over the pad in the direction in which you want the cursor to move. Refer to the tables on the following pages for the main functions of the keyboard keys and helpful tips on use of the embedded touchpad.

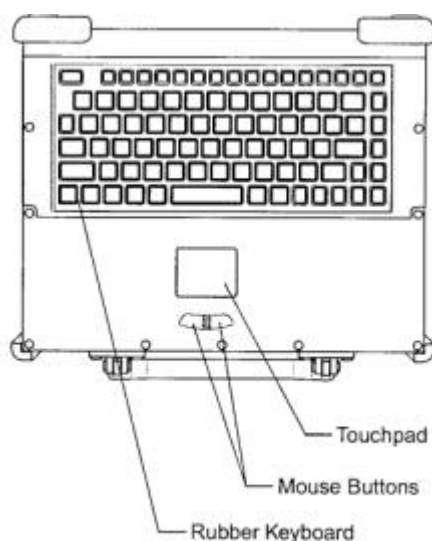


Figure 1-5 Keyboard with Embedded Touchpad Functions

1-5.3.1 Keyboard Keys

Item	Key	Function
1	ESC	Cancels or escapes from a command or a fuction.
2	F1-F12	The keys on the top row of the keyboard labeled F1 through F12 are called “function keys.” Special commands are defined for each key. Refer to the user’s manual, for a particular application program, to determine the function of each of three keys. The A770 Bios also uses function keys to set some configuration par ameters.
4	Numeric Lock	This key switches the number pad between acting as unmeric keys or editing keys. When the keyboard “Num Lock” indicator is lit, the number pad is active.
5	Prt SC Sys Req	Sends the information currently showing on the display to a connected printer. Pressing this key in conjunction with the <Ctrl> key sends all output to a connected printer. Press this key combination again to stop the function.
6	Back Space	Deletes characters as it moves the cursor to the left. Use it to correct typing mistakes.
7	Scroll Lock	In some applications, information will move across the screen differently when this key is engaged. It can change the text scroll up and down feature.

Item	Key	Function
8	Pause Break	Temporarily halts a running program. To continue using the program again, press any key. Pressing the “Pause” key in conjunction with the <Ctrl> key breaks the program.
9	Tab	Moves the cursor horizontally to the next tab stop.
	Numeric Keypad	These keys function as calculator keys when the “Num Lock” indicator is lit. When the numeric keypad is active, the A770 disables the alphabet keys doubling as numeric keypad keys.
10	Fn	An additional “Function Key”.
11	Ctrl	Works in combination with other keys to provide shortcuts or to modify actions. Refer to the user’s manual, for a particular application program, to determine the function of each of these keys. To use a <Ctrl> key combination, hold down the <Ctrl> key and the other key simultaneously.
12	Windows	One of two “Windows” key provided on the A770. The “Windows” logo key is used in conjunction with other keys to perform software specific functions.
13,14	Alt	The A770 provides two “Alt” keys. Works in conjunction with other keys to perform various commands or functions. Refer to the user’s manual, for a particular application program, to determine the function of each of these keys. To use an “Alt” key combination, hold down the <Alt> key along with the other key.
15	Application	One of two “Windows” keys provided on the A770. The “Application” key is used in conjunction with other keys to perform software specific functions.

1-5.3.2 Cursor Control Keys

Item	Key	Function
16	Home	Moves the cursor to the first character position on the top line of the screen.
17	End	Moves the cursor to the last character position on the bottom of the screen.
18	PgUp	If this key is operable in the application program you are using, it lets you scroll to the previous page.
19	PgDn	If this key is operable in the application program you are using, it lets you scroll to the next page.
20	Arrows	The four direction arrow keys control the movement of the cursor on the screen. They do not affect the displayed character keys.
21	Del	Deletes the character to the right of the cursor. All remaining characters to the right move one space to the left.
22	Ins	Places the keyboard into the “insert mode”. While in the “insert mode”, data entries are made at the current cursor position and all data to the right of the cursor position moves to the right. The keyboard stays in the insert mode until you press the “Insert” key again.

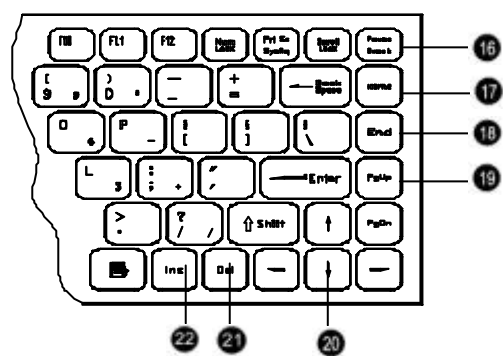


Figure 1-6 Cursor Control Keys

1-5.3.3 Keyboard Touchpad

The built-in touchpad is a convenient substitute for a mouse device. It's function is similar to that of a two-button mouse. The left button is equivalent to the left button on a mouse and the right button is equivalent to the right button on a mouse. The touchpad is capacitive, and needs to be in contact with your skin to operate.

- ✍ **To move the cursor:** Place your thumb or finger on the surface of the touchpad and move it in the direction you wish the cursor to go.
- ✍ **To Click:** Press the touchpad's left or right button or lightly tap on the touchpad.
- ✍ **To double click:** Either press the button twice or lightly tap the touchpad twice in quick succession.
- ✍ There are two ways to drag:

Move the cursor to the desired location, then press down the left button. While still holding down the left button, move the cursor to the desired location. Then, release the button.

Move the cursor to the desired location. Quickly tap the touchpad as if you were double clicking however, do not move your finger after the second tap. While maintaining contact with the touchpad, move the pointer to the desired location. Lift your finger to complete the

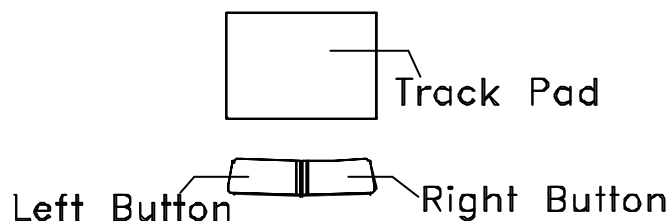


Figure 1-7 Track Pad Pointing Device

move.

1-5.4 Additional Keyboard Functions

The A770 offers “Hot Key” commands that provide easy access to system features. The use of the “Fn” key along with several specific keys (F1-F12) controls various functions of the A770.

Volume Control

The volume control is adjusted by use of a combination of function keys. To increase the volume, press the **Fn+F4** keys. To decrease the volume, press the **Fn+F3** keys. The “Hot Key Beep” function of these keys will not be supported to avoid interface with the normal sound effect.

NOTE

The system does not support the **Fn+F3** and the **Fn+F4** volume control function when using the DOS program.

Brightness Control

The brightness control is adjusted by use of a combination of function keys. Press the **Fn+F5** keys to darken the screen image. Press the **Fn+F6** keys to brighten the screen image. To further adjust the screen image, press and hold down the “Fn” key and continue to repeatedly press either the “**F5**” key or the “**F6**” key until you obtain the desired brightness.

If you press the **Fn+F5** or the **Fn+F6** keys to adjust the LCD brightness and continue to adjust the screen image when it is already set to either the minimum or the maximum setting, the system will keep on beeping each time the “**F5**” or the “**F6**” key is pressed.

Toggle Key (Option for RS485)

The Hot Key is **Fn +F7** to toggle the RX/TX direction.

Keyboard Backlight (Option)

To turn the keyboard backlight “On” and “Off” press the **Fn+F8** keys.

CRT/LCD/Simulscan Toggle

The switch between the CRT/LCD/Simulscan display modes, press the Fn+F9 keys.

Panel On/Off

The turn the panel “On” and “Off”, press the Fn+F10 keys.

Toggle LCD Backlight On/Off (Option)

The Toggle LCD backlight selected pressing the function keys Fn+F11. Usually use Fn +F11 function key for transfective LCD panel.

NOTE

Fn + F11 function only can use on system working status. If system resume from S1(idle), S2 (idle), S3 (Suspend to RAM), S4 (Suspend to Disk) then the LCD Backlight always on.

1-5.4.1 Hot Key Function

Keys	Feature	Description
Fn+F3	Volume Down	Decrease the volume.
Fn+F4	Volume Up	Increase the volume.
Fn+F5	Brightness Down	Decreases the LCD brightness.
Fn+F6	Brightness Up	Increases the LCD brightness.
Fn+F8	Keyboard Backlight	Switches the keyboard backlight On/Off.
Fn+F9	LCD/External CRT Switching	Switches the display mode to LCD only, CRT only or simultaneously display (LCD/CRT).
Fn+F10	LCD panel toggle on/off	Switches the flat-panel On/Off.
Fn+F11	LCD Backlight On/Off	Toggle Backlight On/Off.
Fn+F12	System Sleep	System sleep button function. (For user define)

1-5.4.2 Status Row Indicators

The “Status Row Indicators” keeps you informed of the computer’s operating status. The LED’s light up to show the current operating condition of several key A770 devices and features.

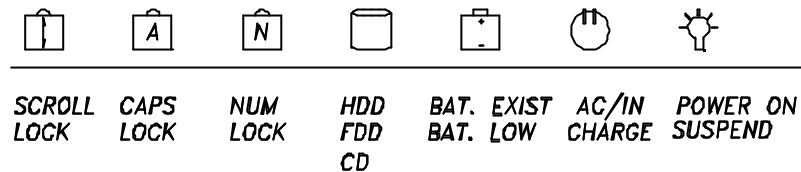


Figure 1-8 Status Low Lights

Status Row Descriptions

Scroll Lock	This light indicates that the keyboard is in the “Scroll Lock” mode. The “Scroll Lock” key works with some program to freeze the display.
Caps Lock	This light indicates that the keyboard is in the “Caps Lock” mode. In this mode, the keyboard produces only upper case text when you press the keys.
Num Lock	This light indicates that the keyboard is in the “Num Lock” mode. This key activates and de-activates the embedded numeric keypad provided on the keyboard.
HDD FDD CD	The Orange “HDD” light indicates that the system is accessing the hard disk drive. The orange “FDD” light indicates that the system is accessing the floppy disk drive. And the orange “CD” light indicates that the system is accessing the CD-ROM drive.
Batt Exist Batt Low	The green “Batt Exist” light indicates that the battery pack is installed. The orange “Batt Low” light indicates that the installed battery pack is entering a low battery status mode.

AC/IN Charge	The green “AC/IN light indicates that the system is “On” and the AC adapter is connected. Charging is in progress when the orange “Charge” light is lit. When the battery is fully charged, the orange “Charge” light goes off.
Power On Suspend	The green “Power On” light indicates that the system is power “On”. The orange “Suspend” blinks indicates that the system is in a suspend mode.

The AC Power Adapter

The AC power adapter is the primary power source for the A770. In order to reduce the power of the battery pack and keep it at full capacity, connect the AC power adapter to the system as frequency as possible.

1-5.4.3 Status Row

The “Status Row” (Figure 1-8) keeps you informed of the computer’s operating status. The LEDs light up show the current operating condition of several key A770 devices and features (See Fig 1-8).

1. When the power is on, then Power LED (Green) is on.
2. ? .When the AC power adaptor is connected, then the AC IN LED (Green) is on in power stage.
- ? .When charging is in progress, then the CHARGE LED (Orange) is on in power on and off stage. When the battery is fully charged, the CHARGED LED (Orange) goes out.
- ? .When any battery pack is present, then the BATTERY LED (Green) is on in power stage.
- ? .When the optional battery pack (Bay 1 or Bay 2) enters battery low status, then the BATTERY LOW LED (Orange) is on. When if only the primary battery and battery low status then speaker will beep and blinks.

3. When the HDD, FDD or CD-ROM/DVD/COMBO/DVD RW drive is active, then the HDD/FDD/CD/DVD/COMBO/DVD RW LED (Orange) is on.
4. The “Num Lock” key activates and deactivates the embedded numeric keypad. When the numeric keypad is active, the “Num Lock” indicator come on and the alphabetic of the embedded numeric keypad are disabled.
5. Press “Caps Lock” key will Change the state of “Caps Lock” indicator between on and off, if the Caps Lock indicator goes on, represents the all English alphabet keys work in Upper Case state, otherwise the keys work in Lower Case state.
6. The “Scroll Lock” key works with some software to freeze the display. Then the cursor can move about the screen without the top bottom or any lines in between moving.

Battery Pack

The removable battery pack, with on-line charge capability, comes standard with the A770. The battery pack provides power to the system when the AC power is “Off” or not connected. It has a 97whr capacity operate. The primary battery type is Li-ion.

At 4.2V, the battery pack consists of twelve cells. The capacity of each cell is 2200 mAH or more. The output voltage of the battery pack is 11.1V. The A770 can be fitted with up to two batteries. The primary battery (97whr) and an auxiliary battery (65whr). The batteries can be hot-swapped.

Low Battery Indication

When the battery voltage falls under the low battery status, the system will beep or the orange “Battery Low” LED status indicator will come on.

- ✍ When the optional battery pack (in Bay 1 or 2) enters into low battery status, the orange “Battery Low” LED will come on.

- ✍ When the primary battery pack enters into low battery status, the system will beep and blinks in DOS mode.
- ✍ If Bay 1 or Bay 2 battery is in battery low status system just only have battery low LED indicate in orange, if primary battery is in battery low status system will have battery low beep indication.

Battery Charger

The battery charger controls the current to the battery pack to charge batteries when necessary. The necessity for a charge cycle is usually determined each time the AC power is applied or the battery pack is inserted and connected to the system. The battery pack in the A770 can be charged during both the power "On" and "Off" stages.

Two charge mode are provided when the AC power adapter is connected to the system. When the power is "Off", a fast charge mode is activated with a constant current for the primary battery pack. The charge time for the primary battery pack is about 3.5 ~ 4 hours. When the power is "On", an alternate charge mode is activated for the primary battery pack with fluctuating current according to the system load. The alternative charge time for the primary battery pack is about 5.5 ~ 6.5 hours. As for the auxiliary battery pack, the charge current is 1.4 ~ 1.6A and the charge time is about 3 ~ 4 hours whether the power is "On" and "Off".

NOTE

In some high temperature situation, battery charging may be suspended. This is intentional designed.

1-5.4.4 CHARGE LED Indicator Status

1. When you insert the battery pack into the system and the AC power adapter is already connected, the CHARGE LED (Orange) flashes three seconds or more and then stays “On” during the charge period.
2. When no battery pack is installed or the AC power adapter is not connected, the orange CHARGE LED remains “Off”.

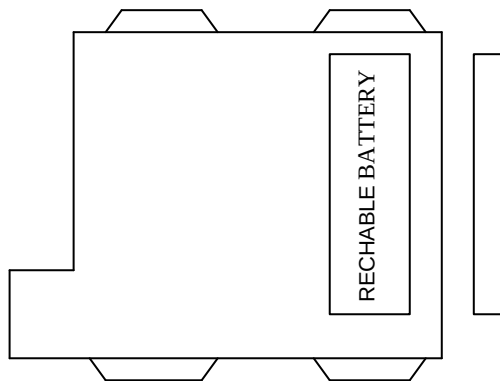


Figure 1-9 Auxiliary Battery Pack



Connections

To expand your computing capabilities, the A770 is equipped with several interface ports and connection receptacles. These connectors support a variety of external peripheral devices.

Serial Port

The A770 includes one standard 9 pin D-type, RS-232C serial port for connecting a serial mouse or other external serial devices. The D-type connector is dedicated to the COM1 address. The serial port is located on the rear panel of the A770.

Parallel Port

The A770 includes a 25-pin, D-type parallel port for connecting a parallel printer or another external parallel device, such as an external floppy disk drive. The parallel port supports both EPP/ECP functions. The parallel port is located on the rear panel of the A770.

VGA Port

The A770 includes one 15-pin, sub-D VGA analog port for connecting an external monitor. It is accessible on the rear panel of the A770. It is not necessary to connect an external monitor to the A770, but by using an external, you can achieve higher resolutions than on the internal flat-panel display.

USB2.0 Port

The A770 provides a USB2.0 (Universal Serial Bus) port for connecting USB compliant devices. Most peripheral devices require the user to shutdown the system, plug in the device and restart the system in order to use the new device. USB devices can be conveniently connected and disconnected while the system is running. The USB port transfers data at 480 MB/sec. Please refer to the device-specific documentation for information on connecting and using USB devices. The USB port is located on the rear panel of the A770.

IrDA Port

The A770 provides an IrDA port, on the rear panel, for connecting an IrDA-compliant device port provides wireless support for your system. You can use this port to quickly transfer large amounts of data to another IrDA-compliant system or device. This port complies with all IrDA standards.

Replicator Port

An 80-pin replicator port is provided on the rear panel of the A770. This port expends two SIO, two USB2.0, PIO and a VGA port. Use the replicator port to connect your A770 into docking station. The docking station controls the power and provides connections to all of the external devices for your A770 in one easy hook-up.

Power Port

If the A770 is to be in use for an long continuous period, connect the external power adater into the power port. Then plug the power cord into a 3-prong grounded wall socket to provide external power to the A770. The power port is located on the rear panel of the A770.

IEEE 1394 Port

The A770 provides a standard IEEE 1394 port for high speed connections. The “High Speed Serial Bus” is located on the right side panel, next to the audio jacks.

Audio Connecitons

The A770 comes standard with two speakers and two audio hook-up jacks. The jacks are located on the right side of the A770, adjacent to the PCMCIA slots.

1-5.5 Battery Pack

The primary battery is Li-Ion type. The capacity of each cell is 2200mAH or more. 3.7V, 12 cells are used in one pack. The output voltage of the battery pack is 11.1VDC, so the battery pack provides 97 watts or more to the notebook computer.

The battery pack connector board provides the interface between the battery cells and DC/DC board.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

The removable battery pack, with on-line charge capability, comes standard with A770. The battery pack provides power to the system when the AC power (AC adapter) is "Off" or not connected. It has a 97whr capability and will operate the unit for up to two hours. The primary battery type is Li-ion. At 3.7V, the battery pack consists of twelve cells. The capacity of each cell is 2200mAH or more. The output voltage of the battery pack is 11.1VDC. The A770 can be fitted with up to two battery. The primary (97whr) and an auxiliary battery (65whr). The batteries can be hot-swapped.

CAUTION

Use only the battery pack indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

NOTES:

- Recommend always charge the battery pack with the computer powered off.
- Do not charge the battery repeatedly before it is discharged completely.
- Recharge the battery pack when the remaining battery capacity is less than 95% to avoid overcharging.

NOTE: The battery level may drop automatically due to the self-discharge process (0.21% per day), even when the battery pack is fully charged (100%). This happens either with the battery pack installed in the computer or stored separately.

The battery pack is not charged when the computer is first bought. Make sure to charge it for at least 8 hours before using it for the first time. Charging starts automatically when the AC adapter is plugged in to the computer.

1-5.6 Diskette Drive and CD-ROM/DVD/COMBO /DVD-RW

(Item 2, Figure 1-10) The notebook has space for a 1.44 MB, 3.5" diskette drive and CD-ROM/DVD/COMBO/DVD RW drive. The space can put removable FDD drive or CD-ROM/DVD/COMBO/DVD RW drives.

The diskette drive allows permanent data storage in a compact, transferable media. Data stored on diskettes can be easily passed from one machine to another.

The A770 Series diskette drive accepts 3.5" double-density (720 KB) and high density (1.44 MB) diskettes.



Figure 1-10 Diskette Drive and CD-ROM/DVD/COMBO /DVD RW

PCMCIA Slot and Diskette Drive and CD-ROM/DVD /COMBO/DVD RW Door

The PCMCIA slot and diskette drive and CD-ROM/DVD/COMBO /DVD RW door (Item 1, Figure 1-10) protects the PCMCIA interfaces and diskette drive from damage in harsh environments.

Chapter 2

Operation

2-1 Introduction

The rugged A770 is a high-end, industrial notebook with lots of features and options. It is designed for harsh outdoor use as well in-vehicle use. This all-metal, portable system performs in ever-changing environments and in high-vibration, industrial areas. The A770 can be powered by the A770 adapter or by the rechargeable battery pack.

This chapter will cover the operation of the A770. The A770 supports a wide range of external peripheral devices. Installation instructions and procedures for these devices will also be covered in this chapter. The A770 provides two compartment bays for optional removable device modules and PCMCIA CardBus slots for add-in expansion.

2-2 Opening and Closing the Notebook

This section provides instructions for opening up and closing the A770. Instructions for removing and replacing all of the access doors and covers around the A770 will also be covered in this section.

2-2.1 Opening the Cover

To open the notebook, press hook outward and tilt the cover up to a comfortable viewing angle. (Usually about 110°) See Figure 2-1.



Figure 2-1 Opening the Notebook

2-2.2 Closing the Cover

Be sure to turn the system “Off” and disconnect the power before closing the cover. If not, the system will stay “On” when you close the cover. Push the cover down until it clicks shut. Push in on the latch to secure it.

2-2.3 Opening the PCMCIA/FDD/CD ROM/DVD/COMBO /DVD RW Door

Open doors only when it is required to access components behind them.

To open a door:

1. Insert a small flat edged object (a small sized screwdriver or the edge of a small coin) into the slot of one of the captive screws securing the access door.
2. Turn the screw counter-clockwise until it comes loose from its socket.
3. Repeat steps 1 and 2 for each screw securing the access door.
4. Use the handle to open the access door. If the access door does not have a handle, use one of the loosened screws to pull open the door.



Figure 2-2 Opening a Door

2-2.4 Closing the PCMCIA/FDD/CD-ROM/DVD/COMBO /DVD RW Door

Be sure to close and secure the access doors before transporting the A770.

1. Shut the door or put the PCMCIA/FDD/CD-ROM/DVD/COMBO/DVD RW back in place.
2. Align the door or cover securing screws with their sockets.
3. Use your finger to hold the screw in place. Insert a small flat-edged object (a small sized screwdriver or the edge of a small coin) into the slot of one of the securing screws and turn clockwise until tight.
4. Repeat step 2 and 3 for each securing screw.

2-3 Connecting and Installing Devices

This section gives instructions for installing, removing, changing, or connecting devices via the notebook external ports or sockets.

2-3.1 Serial and Parallel Port

Use the “Serial” port to connect a serial device and the “Parallel” port to connect a parallel device (usually a printer or an external floppy disk drive) into the A770. Item 1, Item 2, Figure 2-3 shows how to connect serial and parallel cables. Make sure the mating connector is tightly secured by pushing it to the end and lock the screws.

1. Insert the connector into the appropriate port, being careful not to bend the pins.
2. Secure the two thumb screws one each side of the connector.

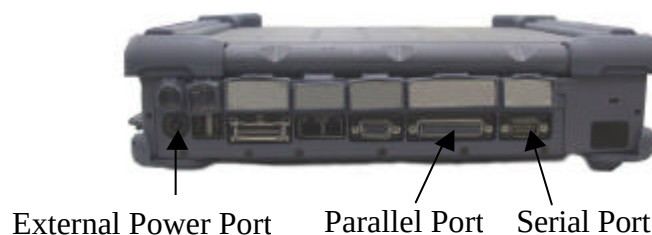


Figure 2-3 Connecting the External Power, Serial , and Parallel ports

2-3.2 External Power Adapter

Use the provided AC adapter to supply your A770 with power from an external source. The A770 can either be “On” or “Off” when connecting or disconnecting the AC adapter. Item 3, Figure 2-3 shows how to connect the power adapter. Make sure the mating connector is tightly secured by pushing it to the end.

1. Plug the connector from the AC adapter into external power port on the rear panel of the A770. (See Fig 2-4)
2. Now, plug the power cord into the adapter.
3. Plug the other end the power cord into a 3 prong wall outlet or power strip.



Figure 2-4 Connecting the External Power Adapter

2-3.3 Floppy Disk Drive/CD-ROM/DVD/COMBO/DVD RW

Bay 1 on the A770 can contain either a removable floppy disk drive, a removable CD-ROM, a removable DVD module or an auxiliary battery pack.

1. Turn the A770 "Off".
2. Open the Bay 1 access door. (See Fig 2-5)
3. Push down on the "Eject" handle at the bottom of the FDD/CD-ROM /DVD/COMBO/DVD RW compartment. Then FDD/CD-ROM/DVD /COMBO/DVD RW module will spring back about 0.4 cm.
4. Pull the handle outwards about 3 cm. Do not force it out any further as it might damage the unit.
5. Using both hands, gently slide the entire FDD/CD-ROM/DVD/COMBO /DVD RW module out from the bay 1 compartment.

2-3.3.1 Replace the FDD/CD-ROM/DVD/COMBO/DVD RW:

Using both hands, gently insert the FDD/CD-ROM/DVD/COMBO /DVD RW module back into the bay 1 compartment. Continue to slide it in until it seats firmly in place. Be sure to close and secure the bay 1 access door when not in use.

7. Turn the power back "On" to the A770.

NOTE

Do not "Hot Swap" the FDD/CD-ROM/DVD/COMBO /DVD RW module. The A770 is not PnP (Plug and Play) ready.



**Figure 2-5 Removing a FDD/CD-ROM/DVD/COMBO
/DVD RW Module**

2-3.4 Loading and Remove Diskettes

To install a diskette,

1. Open the PCMCIA slot/ diskette drive access door.
2. Slide the diskette into the drive with the printed label facing up until it clicks in place.
3. Press the “Eject” button, on the right side of the floppy drive to remove the diskette. See Figure 2-6.



Figure 2-6 Removing a Diskette

2-3.5 PCMCIA Cards

The A770 comes standard with PCMCIA CardBus slots for added expansion. The PCMCIA CardBus slots support two type-II or one type-III PC card. Since both type II slots are co-located in the same opening, one type III PC card can be inserted instead of two type II PC cards. The type III PC card occupies both slots. The A770 supports “hot insertion”. You can insert the PC card into the slot while the system is powered “On”.

1. Open the PCMCIA slot/diskette drive door.
2. Slide the card into the slot with the insert marking facing up until it seats.
3. To remove the upper card, press the eject button on the left. To remove the lower card, press the button on the right. (See Figure 2-7).



PCMCIA Card

Figure 2-7 Removing a PCMCIA Cards

2-3.7 Hard Disk Drive Module

To remove and replace the HDD module.

NOTE

Installing or removing a hard disk when the computer is “On” can destroy the system board and hard disk.

1. Turn the A770 “Off”.
2. Loosen the captive screws securing the access door.
3. Use the handle on the access door to carefully pull the HDD module out and away from the A770 (See Fig 2-8).
4. Insert the new Hard module into the slot. Gently push the HDD module in, until it seats firmly in place. Secure the captive screws on the access door. Turn the power back “On” to the A770.

5. If necessary, run the system configuration utility, to set up or make any changes to the HDD drive parameters. See Chapter 3 for details.



Figure 2-8 Removing a Hard Disk Drive Module

2-3.7 IEEE 1394

The A770 provides a standard IEEE 1394 Fire Wire port for high speed connections. The “High Speed Serial Bus” is located on the right side panel, next to the audio jacks.

- ✍ IEEE 1394-1995 COmpliant and Compatible with Proposal 1394A
- ✍ 3.3V Core Logic with Universal PCI Interface Compatible With 3.3V and 5V PCI Signaling Environments Compliant to Latest PCI Specification ,PCI 2.2
- ✍ PCI Power Management Compliant c
- ✍ Cable Power Presence Monitoring
- ✍ Low Cost 24.576MHz Crystal Provides Transmit, Receive Data at 100/200/400 Megabits per Second, and Link-Layer Controller Clock at 49.152 MHz
- ✍ Fully Interoperable with FireWire Implementation of IEEE Standard 1394
- ✍✍ Provides 6-Pin IEEE1394 Standard Connector*1

NOTE

The length of the cable for IEEE 1394 port must be less than 4.5m or the system will not support it. The system supports 15W power for the cable.



Figure 2-9 Removing IEEE 1394 Port

2-3.8 EMI Accessory Descriptions

The user can use the following EMI Accessories for better EMI protection.

- 1.EMI Core ? There are one same EMI cores. One is used to directly wrap around the 1394 cable of the user near the 1394 port side.

NOTE

The cores should be put close to the computer side for best performance.

- 2.EMI Cable ? There are two same EMI cables. One is for the microphone port and the other is for the speaker port.

The male connectors are connected to the microphone and speaker ports, and the female connectors are connected to the microphone and speaker(s).

3.Modem Cable ? One modem cable together with the EMI core is used for the modem port.

NOTE

The connector close to the EMI core should be connected to the modem port of the computer for best performance.

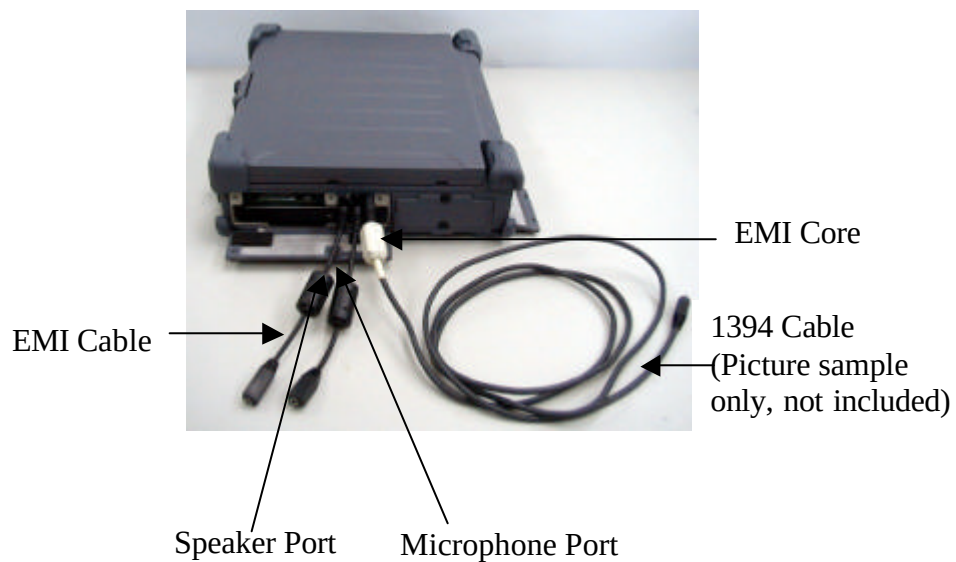


Figure 2-10 EMI Core & Cable

2-4 First Time Use

The A770 comes from the manufacturer with a dead battery. The first time you power “On” the A770, you must use the AC adapter along with an outside power source. Once the main battery pack receive a full charge, you can use it to power the A770. For more information about the battery, refer ot “Charging the Battery” later in this chapter.

1. Insert the rechargeable battery pack into the battery compartment.
2. Plug the connector from the AC adapter into the external power port on the rear panel of the A770. Now, plug the power cord into the adapter.
3. Plug the other end of the power cord into grounded 3-prong wall outlet of power strip.
4. Turn “On” the A770.

2-4.1 Installing Software Drivers

To take full advantage of the unique features of your computer, some operating systems require custom software, known as drivers, to be installed.

If you purchased the computer with Windows pre-installed, your dealer may have already installed the drivers. If not, you need to install the drivers using the driver CD supplied with your computer.

This section describes how to install the drivers.

How to Use the CD

NOTES:

- ? The drivers may have been updated after this manual was published. For driver's upgrade, please contact your dealer.
- ? You can always find README or document files on the CD. These files contain the latest information from the software supplier. Please read the files together with this chapter.
- ? This driver CD supports Windows 2000 and Windows XP only.
- ? The available items may differ according to your computer model and Operating System.

Note: If driver CD version is not the same as the one shown on the Operation Manual, please refer to the UserGuide file on the driver CD for the latest driver installation action steps and sequence.

2-4.2 Install Device Driver for Windows 2000/Windows XP

To install the necessary driver, just click on the particular option and follow the onscreen instructions to continue and complete installation.



Device Driver Press the “Device driver” button, the system will auto install include VGA, Audio, Modem, LAN , Wireless LAN, USB 2.0, DirectX 8.1, Chipset driver.

VGA Allows you to select high-resolution displays with richer colors. It can drive CD displays as well as CRT displays.

Audio Allows you to take full advantage of the audio subsystem.

Modem The modem driver allows you to transmit information over a standard telephone line through RJ-11 port.

Speedstep Press the Speedstep button, the system will auto install for Window 2000.

LAN/Wireless

LAN Allows you to use the network function of the computer.

USB 2.0 Allows your system to connect to USB 2.0 devices.

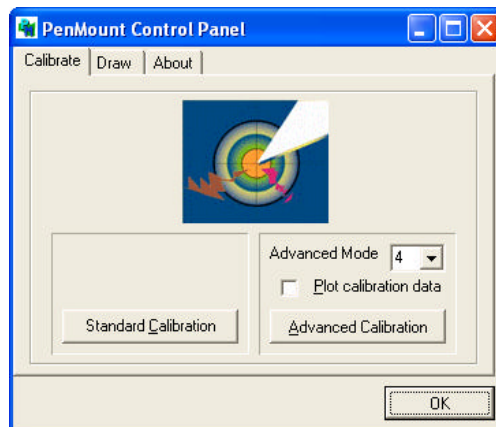
DirectX 8.1 Allows you to take full advantage of the multimedia applications.

Chipset Ensures the full function of the following drivers. Install this main chipset driver installing the device drivers.

Touchscreen Allows you to use your fingers as a pointing device on the LCD screen (refer to the next section for further instructions).

2-4.3 Install Touch Screen Driver for Windows 2000 /Windows XP

1. Insert the driver CD into the drive.
2. Click on “TOUCH SCREEN” then “WIN2000”, and follow the onscreen instructions to continue.
3. When finished installing, select “Yes” to reboot your system. The driver should now be loaded.
4. After the system has finished rebooting, click on the “PenMount Monitor” icon located on the taskbar to bring up the “PenMount Control Panel.”
5. Select the “ Standard Calibration” folder and click on “OK” button.



6. If you need 4,9,16,25 dot of the calibrate, we suggest select “Advanced Calibration” button to calibrate.
7. Click on the four sides (points) and the plus-sign “+” on the screen to calibrate your touchscreen pen for use on the computer.

2-4.4 Installing Touch PAD Driver

1. Insert the driver CD into the drive.
2. Upon clicking on the **“TouchPAD”** link on the main screen, the Installation Wizard appears on screen. Upon clicking on “Next”, the following screen appears as shown next.



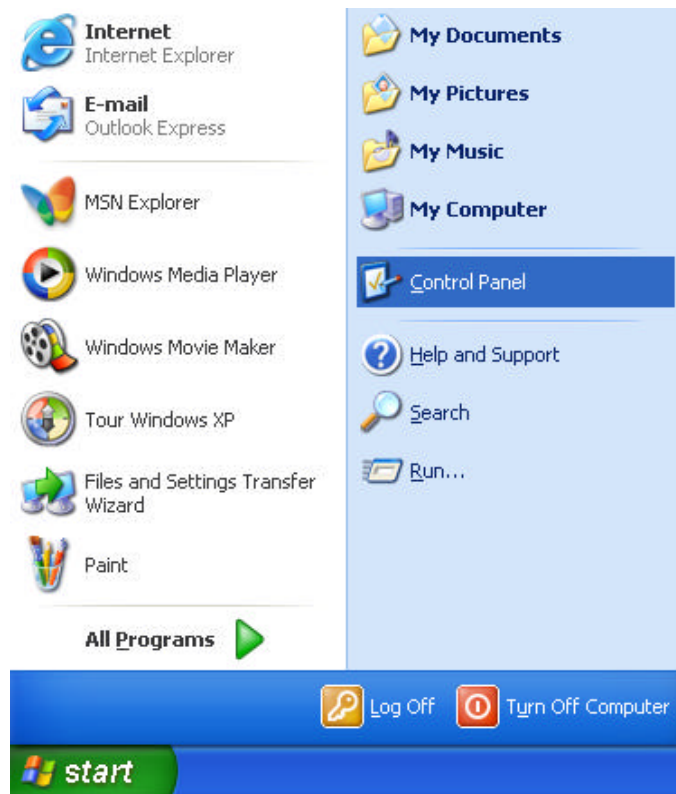
2-4.5 Install Touch Screen Driver for Windows XP

Hardware Install:

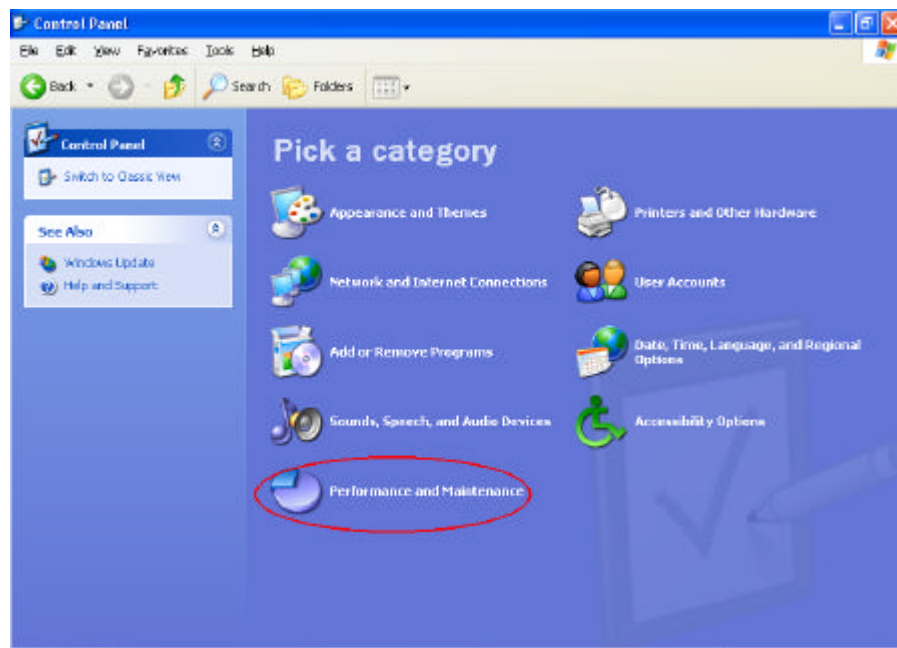
- (1) Insert the driver CD to the CD drive, to bring up the following screen. Select "WINXP".



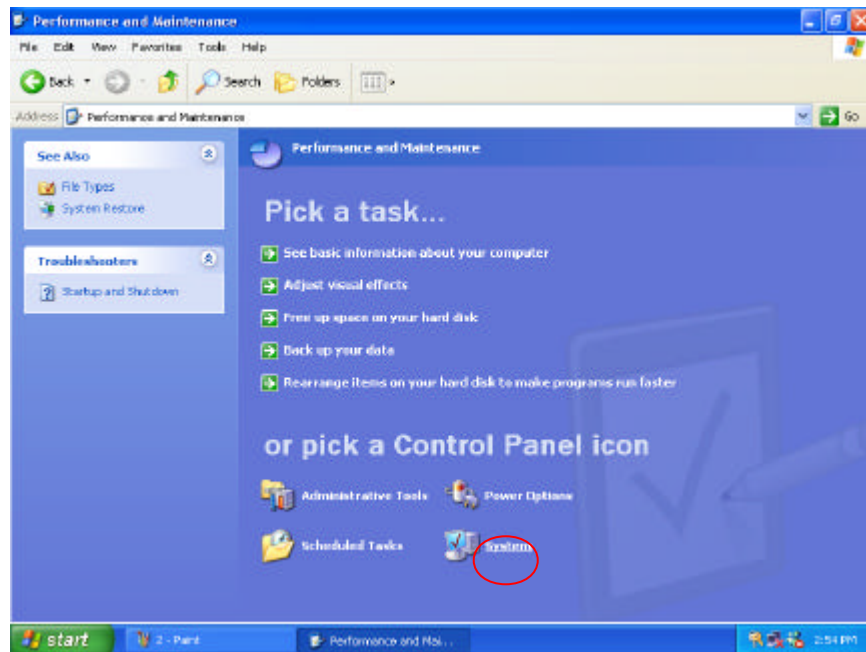
(2) When the TSRC-XP.htm file appear, then select "START" -> "Control Panel" button.



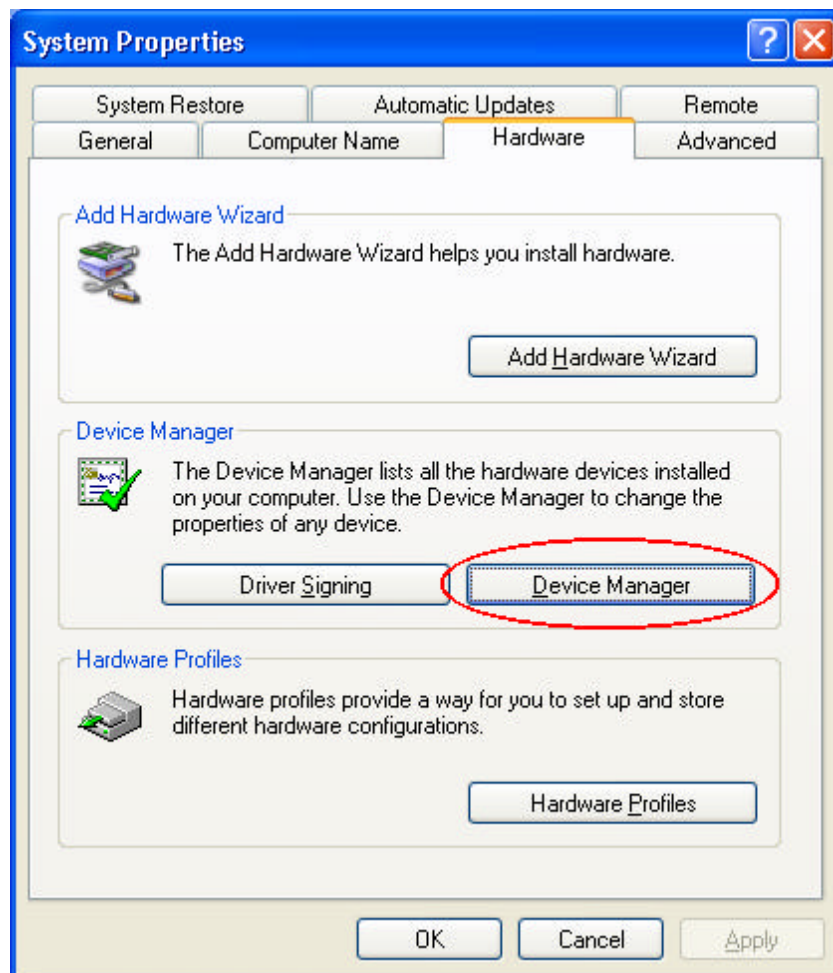
- (3) When the “Control Panel “ screen appear, then click on “ performance and Maintenance” button.



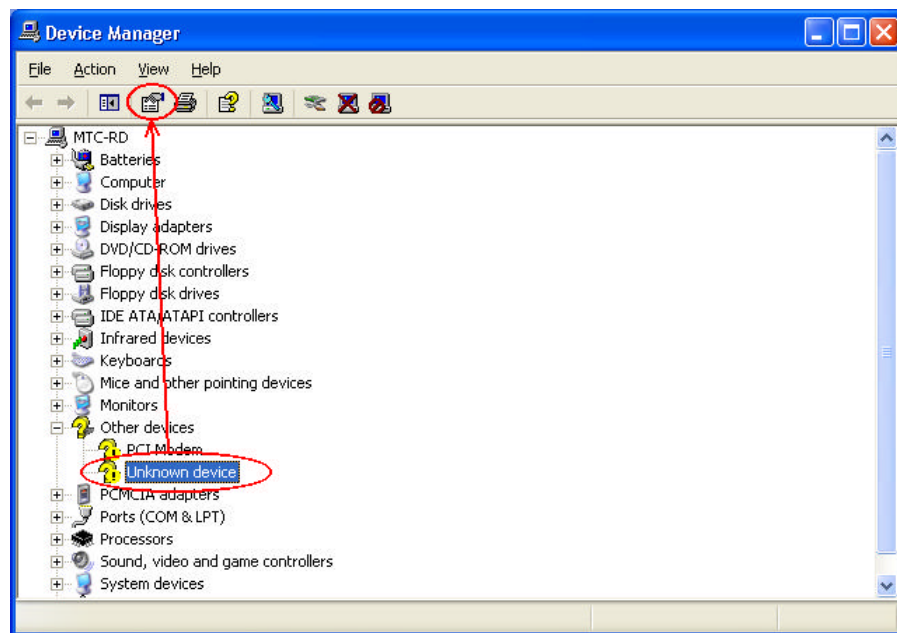
- (4) When the “Performance and Maintenance” screen appear, and then click on “System” button.



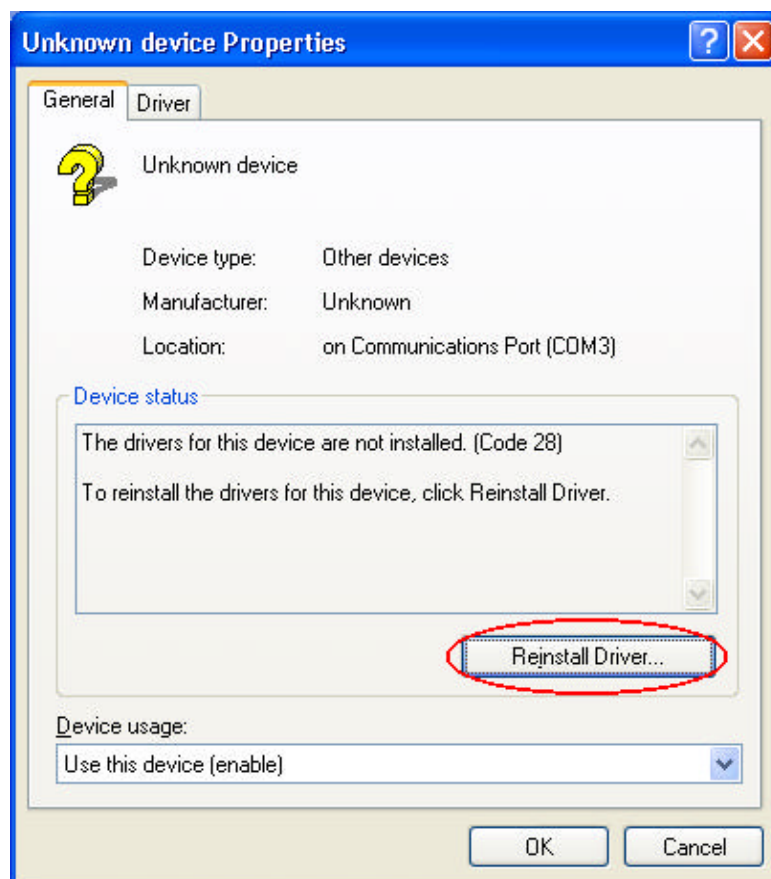
- (5) When the “System Properties” screen appear, and then click on “Hardware” and “Device Manager “ button.



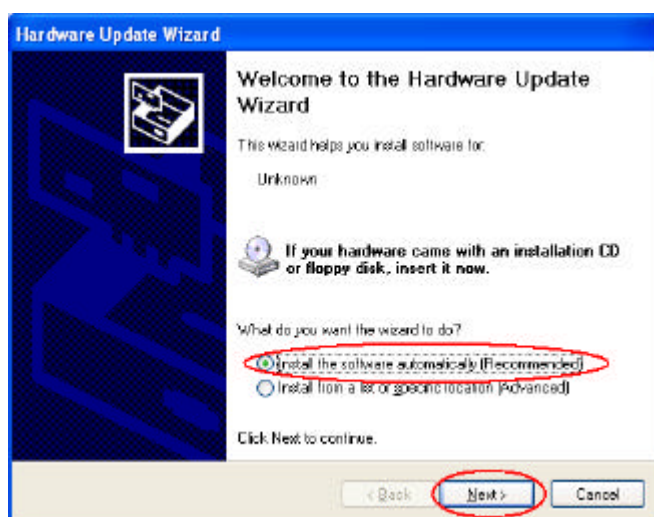
(6) When the “Device Manager” screen appear, then click on “ ?Unknown device” and then click on the “Properties” icon.



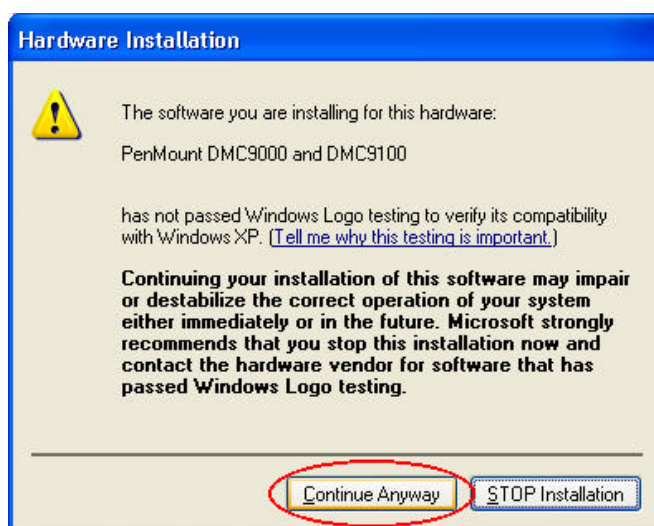
(7)When the “Unknown Device Properties” screen appear, and then click on “ Reinstall Driver” button.



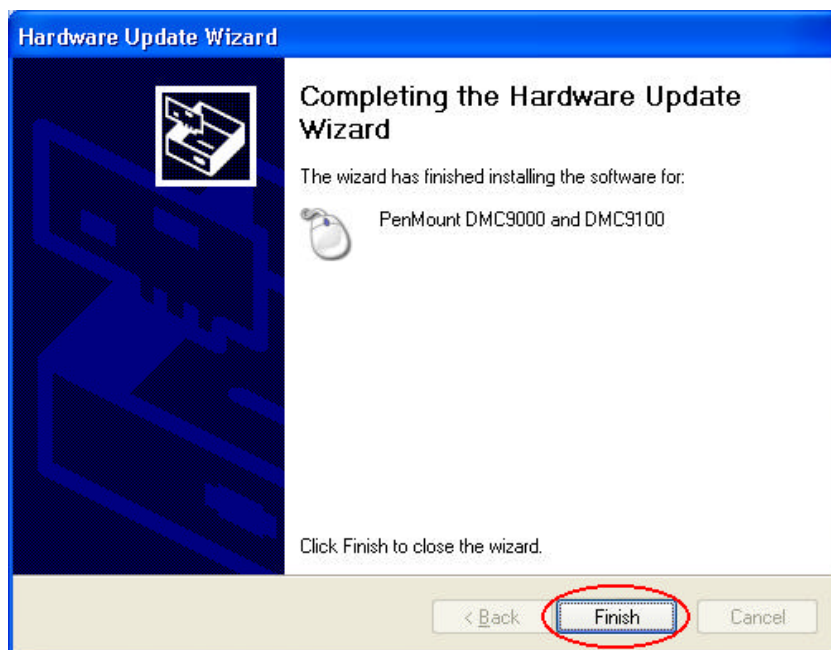
- (8) When the “Hardware Update Wizard” appears, click on “ Install the software automatically [Recommand], then click on ”Next”.



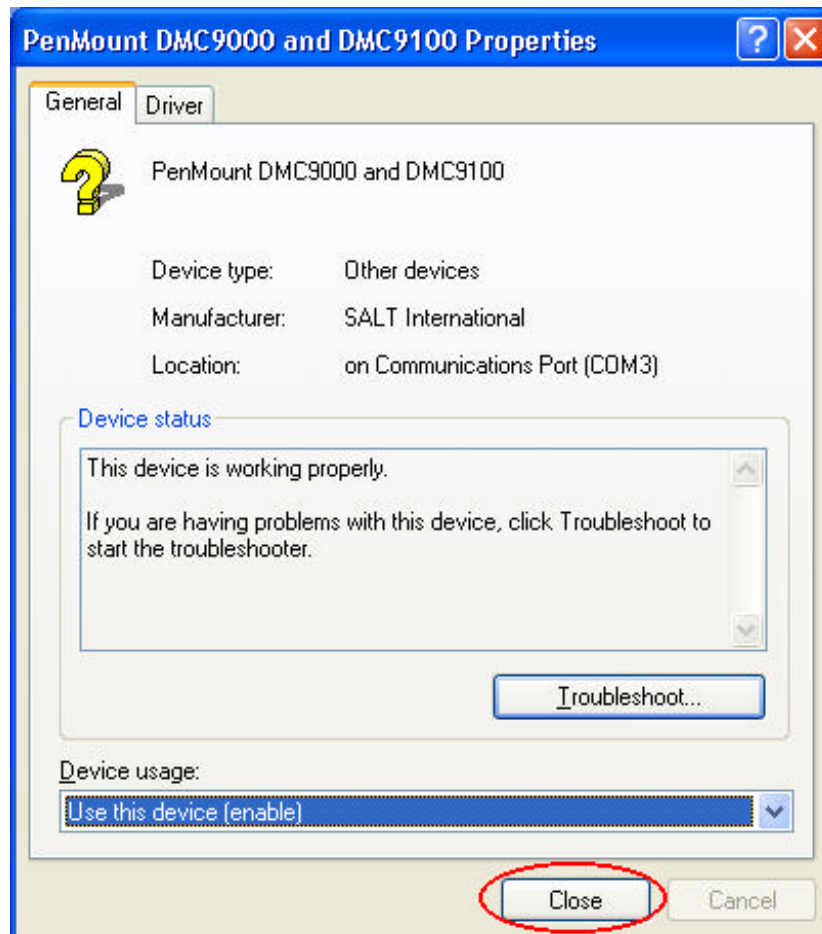
- (9) When the “Hardware Installation” screen appears, click on ”Continue Anyway”.



- (10) When the “Hardware Update Wizard” screen appears, click on “Finish” button.



- (11) When the “PenMount DMC9000 and DMC9100 Properties” screen appears, click on ”Close” button to exit the driver installation..

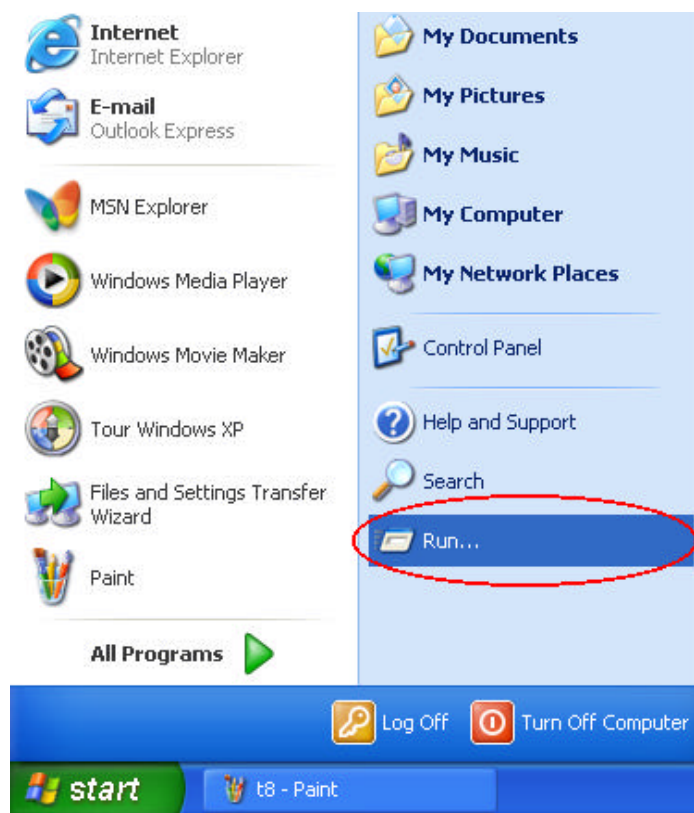


Touchscreen Utility

To install the touchscreen utility, perform the following:

(1) Insert the driver CD to the CD drive, to bring up the following screen.

(2) Click on “Start” then “Run”.

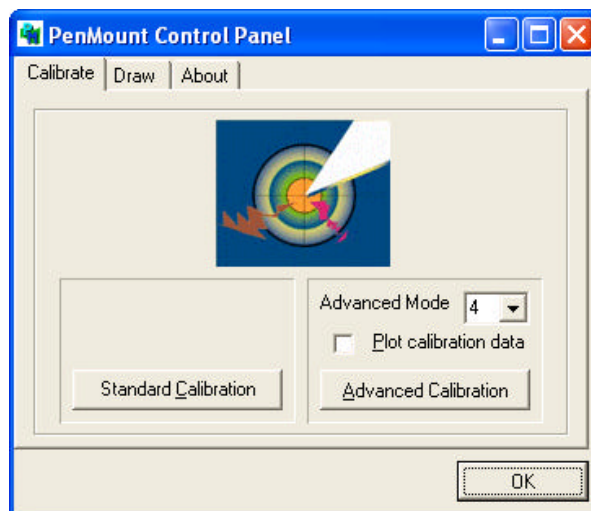


(3) Enter the following directory on the driver CD:

\TOUCHSCREEN\Setup.exe, then click on “OK”.

(4) Select “Yes” to the question if this is the first time to run this setup.

- (5) When the “InstallShield Wizard” appears, click on “Next” to continue.
- (6) Select “ I accept the terms in the license agreement,” then click on “Next”.
- (7) When the “Ready to Install the Program” screen appears, click on “Install” to continue.
- (8) Reboot the system.
- (9) After the system has restarted, click on the “PM” icon located on the lower-right portion of your taskbar to bring up the “PENMOUNT Control Panel”.
- (10) When the “PENMOUNT Control Panel” dialog box appears, click on the “Calibrate” folder and click on the “Standard Calibration” button.



- (11) If you need 4,9,16,25 dot of the calibrate, we suggest select “Advanced Calibration” button to calibrate.
- (12) Click on the four sides red points and plus sign on the screen to calibrate your “PENMOUNT” pen to start using your A770’s Touchscreen.

2-5 Daily Operation

This section discusses expected daily notebook activity.

2-5.1 Starting the Computer

To start the computer :

1. Make sure all peripherals are properly connected.
2. If using the AC adapter or external power, make sure it is connected.
3. Open the cover.
4. Press the Power button. The power on indicator lights up. The computer performs a Power On Self Test (POST) and checks configuration settings. Depending on the configuration, items tested include :
 - ✍ system board
 - ✍ system DRAM
 - ✍ video controller
 - ✍ keyboard controller
 - ✍ I/O controllers
 - ✍ hard disk
 - ✍ diskette drive
5. If the POST finds an inconsistency between expected and actual system configuration it will display an error message.
6. If the cause is known and will not cause other difficulties, press F1. To correct the discrepancy, press F2 and change configuration settings accordingly. See chapter 3 for details about SETUP.

7. After the POST, the system checks for a system password. If one is present, the computer prompts for its entry before continuing. Carefully type it in.

NOTE

The password characters do not appear on the screen.

8. After password confirmation, the system tries to boot from O/S.
9. Adjust brightness, and viewing angle for best appearance and comfort.

2-5.2 Turning Off The Notebook

To turn off the notebook

1. Save all data and close all open programs.
2. Press the Power button to turn off power.
3. Swing the cover closed until it clicks shut.
4. Turn off and disconnect all peripheral devices.
5. Close and tighten all access doors and covers.

2-5.3 Using the Notebook in the Car

When you using the notebook in the car, you must carefully follow as:

1. Start engine wait five to ten minutes and then plug car power cable into car cigarette. (See Figure 2-11).
2. Before have notebook connected with car power cable be sure the notebook is off.
3. Once you have the notebook connected car power cable.
4. Turn on of the notebook.



Figure 2-11 Plug Car Power Cable in Notebook

2.6 Using External Power Sources

CAUTION

The external power adapter is rated for input sources within the following constraints:

A-Series:

AC: 100-240 V, 50-60 Hz

DC: 9-19.5 VDC direct input without charging function
(option) 12-32 VDC external car adapter/charger (option)

Connecting to sources outside this range may damage the external power adapter

2-6.1 Using AC External Adapter

A-Series provides an AC external adapter for standard configuration. Use the nearby AC power source.

To save battery power, use power adapter with an external power source whenever possible.

Tips for using the external power adapter.

1. Connect the external adapter to the computer as the main power source no matter when the computer is in use or not.
2. If the external adapter is not connected while the computer is in operation and the power indicator is blinking, which shows the batteries are running out of energy, please connect the adapter to the computer and plug in the power cord to the outlet immediately.

2-6.2 Charging the Batteries

Make sure the external adapter is connected to the computer. It has two charging rates depending on notebook operating or power off.

Section 2-6.1 gives detailed instructions on connecting an external power source and charging the batteries.

CAUTION

The battery pack in your notebook has been charged before shipment, it gradually loses its battery power during transit and storage.

Step 1: Please charge battery for six hours before turn on the computer.

Step 2: If the computer has not been operated for last six months.

Please repeat step 1.

2-7 Running On Battery Power

The notebook has several power management features to prolong continuous operation on battery power.

This section describes the power saving modes and tells how to take best advantage of them. It includes default settings for each mode. For instructions about changing them, see chapter 3.

Chapter 3

Setup Configuration Utility

3-1 Introduction

This chapter tells you how to configure your system using the SCU (Setup Configuration Utility).

The SCU allows you to enter the system configuration information. This information is needed by the system to identify the type of devices installed and to set up special features. Typical configuration information includes the date and time, the type of disk drives, and the amount of memory; special features include Power Saving and Security.

The configuration information is stored in a special kind of memory called CMOS (Complementary Metal Oxide Semiconductor) RAM. A RTC backup battery backs up CMOS RAM data.

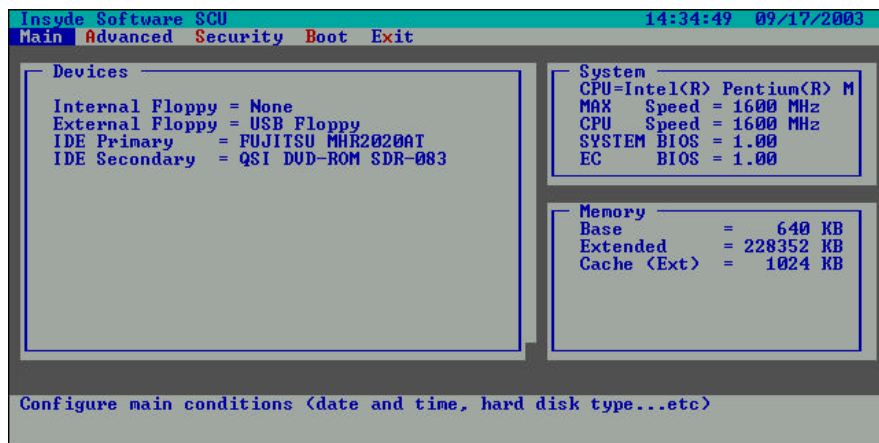
You may need to run SCU when:

- ✍ You see an error message on the screen requesting you to run SETUP.
- ✍ You change factory default settings for some special features.
- ✍ You want to modify some specific setting to optimize system performance.
- ✍ You want to release resource if when you inadequate resources if conflict, then you reference section 3-2.6 How to Release Resource from SCU.

3-2 Running SETUP and Moving Around

NOTE

1. All the SCU screens shown in this chapter are examples.
Your actual settings may vary from those shown here.
2. The SCU program may have been updated after this manual was published.



To run SCU, press **F2** when the prompt appears in the left corner of the screen during system startup. The prompt shows up on the screen for only a few seconds. You must press **F2** quickly. The SCU menu appears as shown next.

3-2.1 Main

This section describes the main items of the SETUP program.

The SCU screen can be divided into four areas:

- ✍ On the **top line** of the screen is the menu bar, which lists the titles of the available menus. Each menu title contains a pull-down menu, which displays items for setting.
- ✍ The **left column** of the screen displays the current configuration information of the system. If an item in the pull-down menu is selected which contains multiple choices, the left column displays the submenu where you can make your selections.

- ✍ The **right column** of the screen gives help information of the selected item.
- ✍ The **bottom lines** of the screen give keyboard instructions for moving around and making selections.

3-2.2 Moving Around and Making Selections

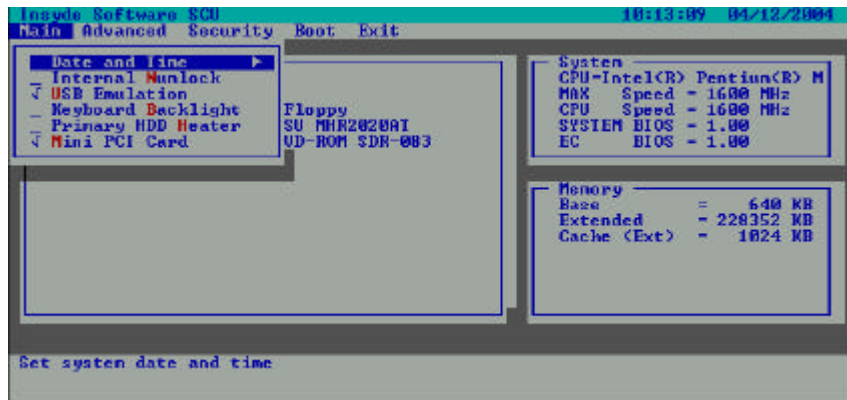
A brief description of keyboard usage is listed next:

Key	Function
? , ?	Selects a menu title.
? , ?	Selects an item or option.
Enter	Opens or closes the options window when an item is selected.
Space bar, -	Cycles through the pre-defined value for the selected item. Pressing the space bar brings up the next value; pressing the minus (-) key does the contrary.
Esc	1) Exits the SCU program. 2) Returns to the previous menu if in a submenu. 3) Closes the options window if one is open.

NOTE: You are advised to use the touchpad or mouse (if installed), as it is more straightforward than using the keyboard.

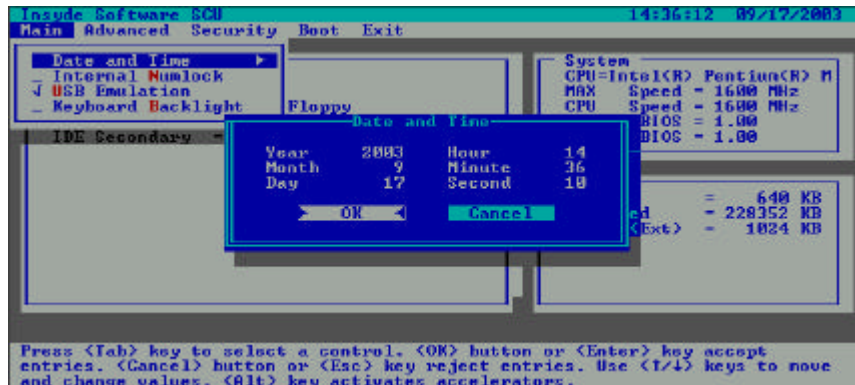
Main Menu

The Main pull-down menu, as shown below, contains the basic configuration settings of the system. Select the “Main” category from the menu bar, if you wish to change these settings. A description is provided for each option listed on the pull down menu.



Date and Time

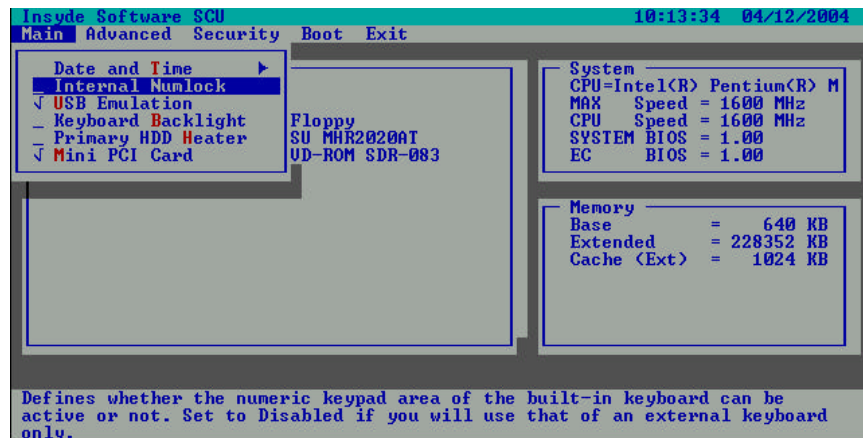
The “Date and Time” option allows you to reset the current date and time for your system. When this option is selected, the submenu will displayed as show below.



Build-In Numlock

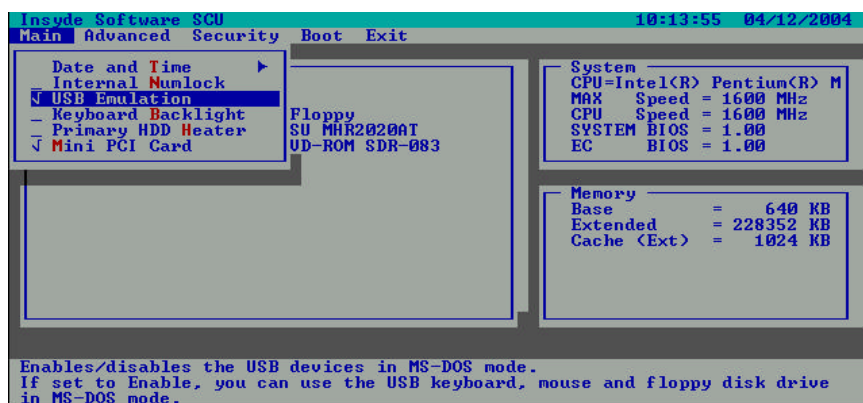
Num Lock Indicator—When enabled the “Internal Numlock” of the BIOS setup and then turn on the Num lock on keyboard, you can enter a numemc key without “Fn” pressed. When disabled the “Internal Numlock” of the BIOS setup, then turn on the Num lock on keyboard, internal keyboard is not available for entering, but external ones.

A check mark (✓) indicates *Enabled*; an underline (_) indicates *Disabled*. The default setting is *Disabled*.



USB Emulation

Enables or disables the USB devices in DOS mode. The default setting is Enabled.



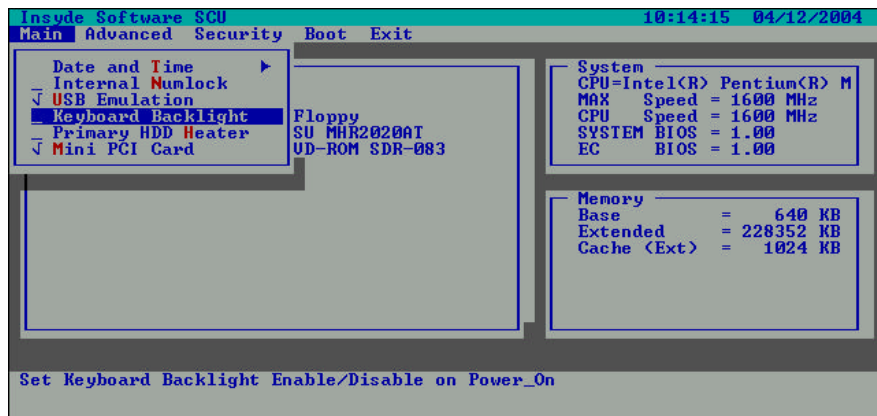
Keyboard Backlight

When the LED Keyboard Backlight need light at power on status, then select the “Keyboard Backlight “ setting is Enable.

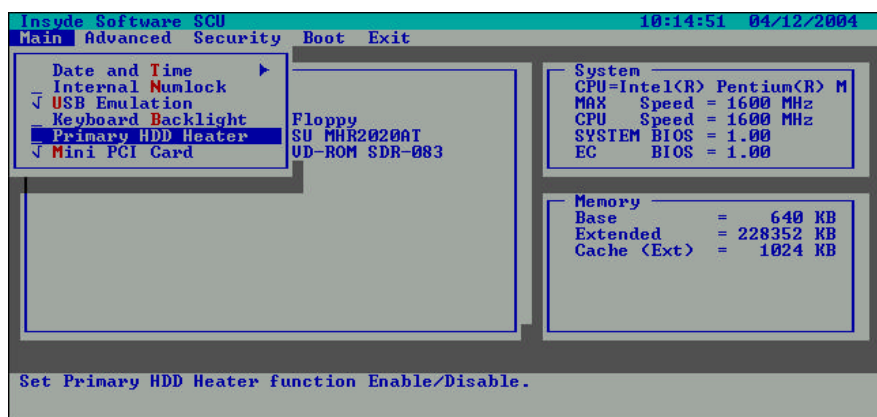
When the LED Keyboard Backlight need dark at power on status, then select the “Keyboard Backlight “ setting is Disable.

The Fn+ F8 function can toggle Backlight of the keyboard light or dark, but Fn+F8 can’t effect the CMOS Setup of the “Keyboard Backlight” item.

Primary HDD Heater

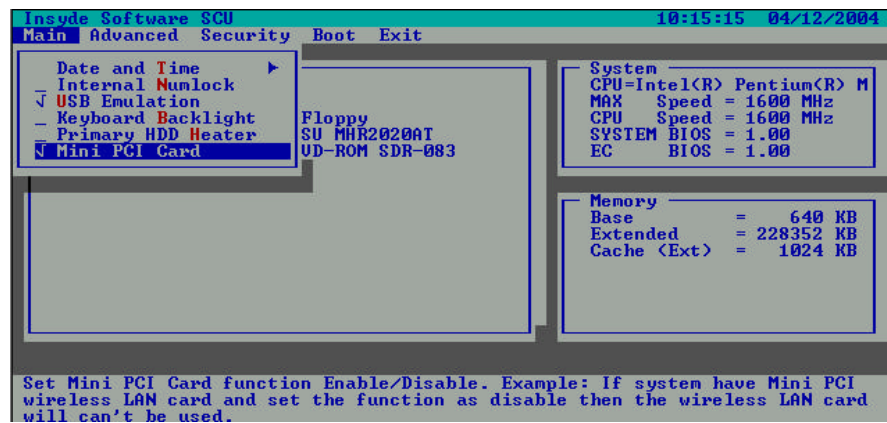


Set “Primary HDD Heater” function Enable/Disable, detail information see the HDD Heater User Guide.



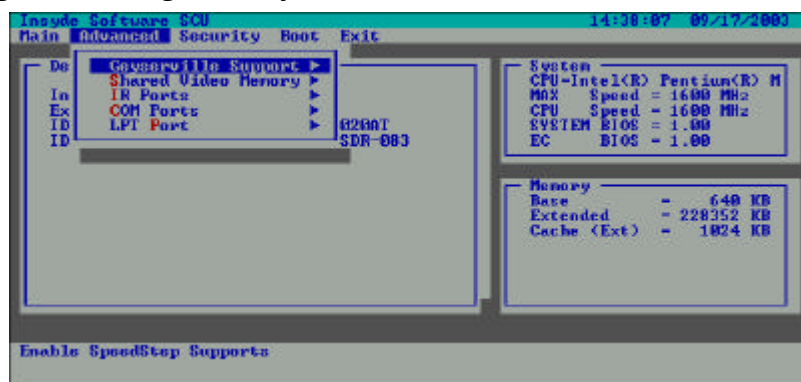
Mini PCI Card

To enable or disable Mini PCI slot function, this function is secure security protection, when this machine enquired with WLAN card on Mini PCI slot.



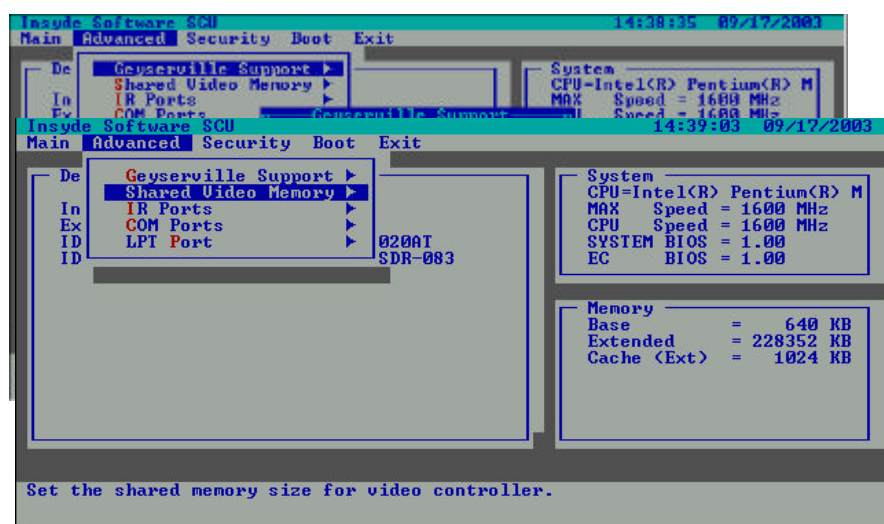
3-2.2.2 Advanced Menu

The Advanced pull-down menu, as shown below, contains the I/O configuration settings of the system.



Geyserville Support

Enables or disables the Geyserville feature of the CPU. The Geyserville feature helps conserve battery life by decreasing the CPU's running speed under certain conditions while still maintaining a high performance. If this item is enabled, the CPU will automatically change its speed whenever necessary based on the "Power Scheme" setting in Windows's Control Panel. If this item is disabled, the CPU will always run in the lowest speed.

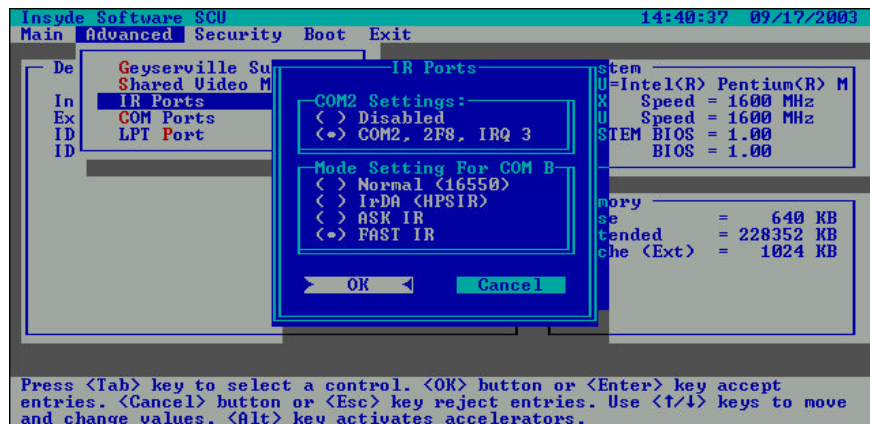


Share Video Memory sets the shared memory size of the video controller. The options are 4M, 8M, 16M and 32M.

NOTE: This shared video memory size of the video controller will depend on your system memory. If you system memory is greater than 256 (512) MB, system will automatically set the above item to 64MB. When WinXP/Win2000 is loaded.

IR Ports

The “IR Mode” item sets the communications compatibility mode for the IR port. When this item is selected, the submenu will display as shown below. Select according to the type of device with which the notebook is to communicate.



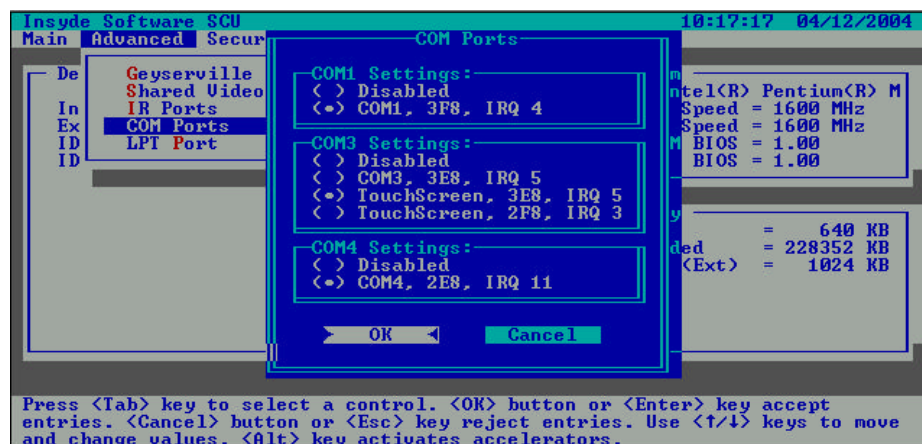
COM Ports

The COM Port item allows you to assign COM1 to specific functions that you wish to use. In general, COM1, 3F8, IRQ4 can be assigned to RS-232 (the serial port) or touch screen.

User select the TouchScreen, 3E8, IRQ5 was assigned COM 3 to Touch Screen.

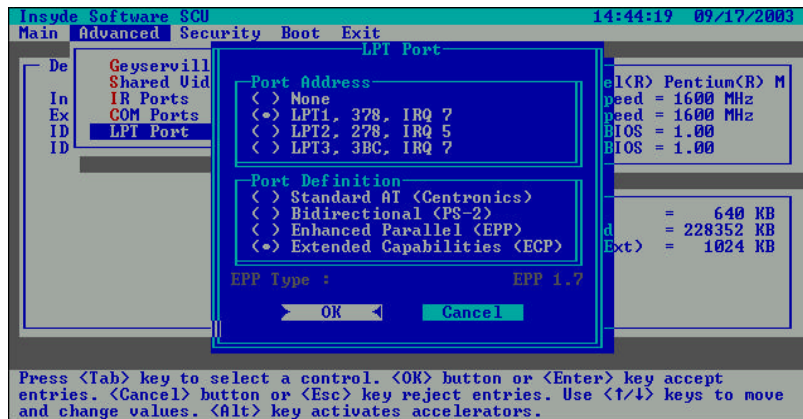
User select the TouchScreen, 2F8, IRQ3 was assigned COM 3 to Touch Screen.

User select the Disabled was assigned COM 4.



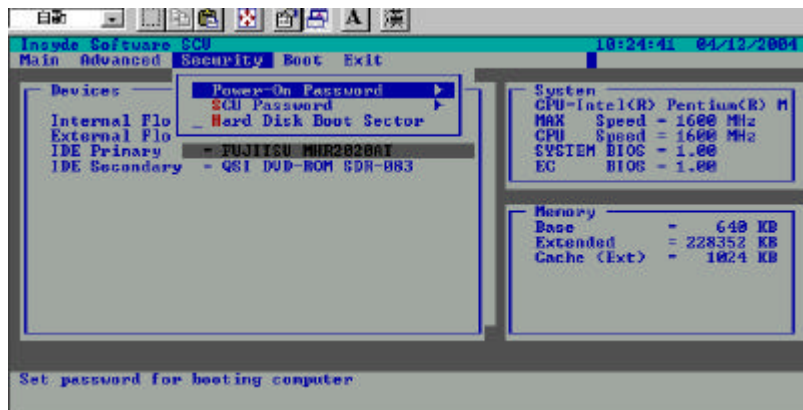
LPT Port

The “LPT Port” item sets the address for the LPT port (parallel port). When this item is selected, the submenu displays as shown below.



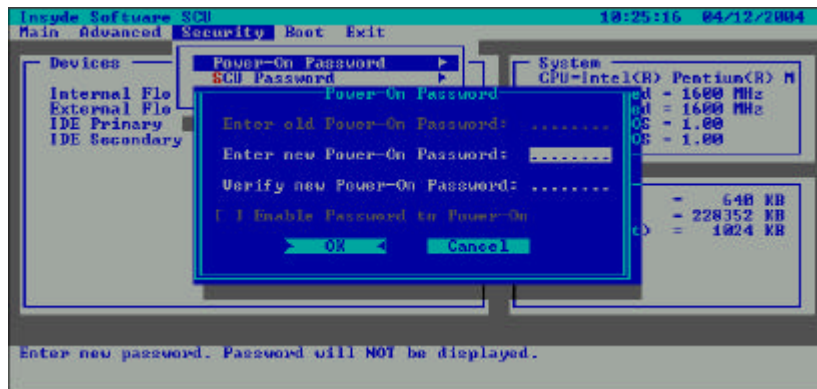
3-2.3 Security Menu

The Security pull-down menu, as shown below, contains the Security settings that safeguard your system against unauthorized use.



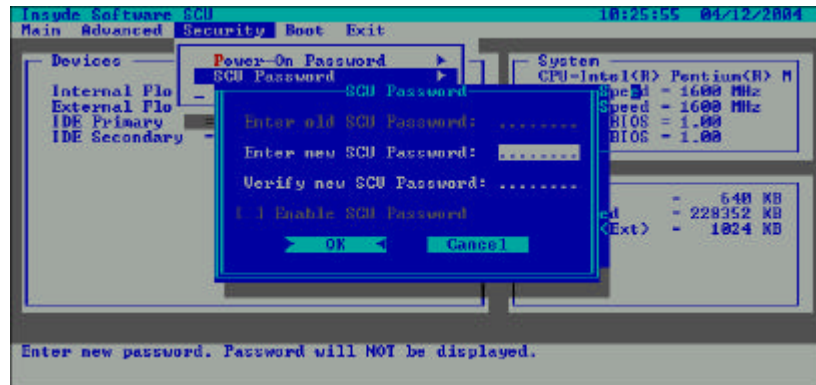
The followings describe in sequence all the items of the Security menu.

Power-on Password allows you to set the password for your system. When typing Power-on password, first make sure that **Num Lock** is off, then type your Power-on password in the entry fields and press **Enter**. Confirm your Power-on password by typing it again and pressing **Enter**. If the **Enable Password to Power-on** sub-item is enabled, the set Power-on password is always required to boot the computer.

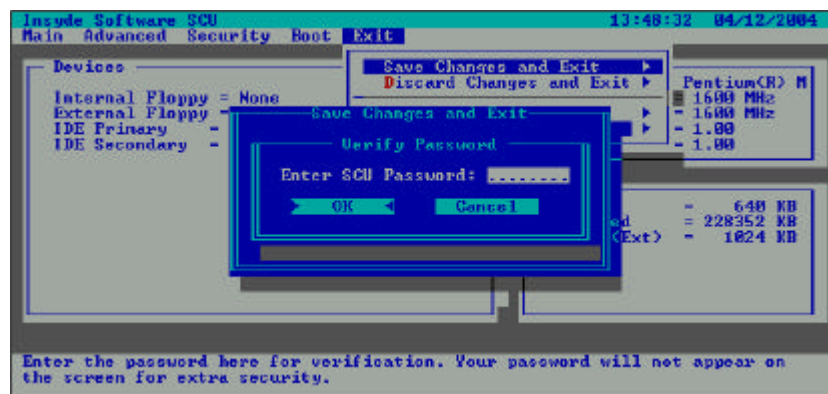


SCU Password allows you to set the SCU Password for your system.

When type your SCU Password in the entry fields and click “OK” button. Confirm your SCU Password by typing again and press Enter.

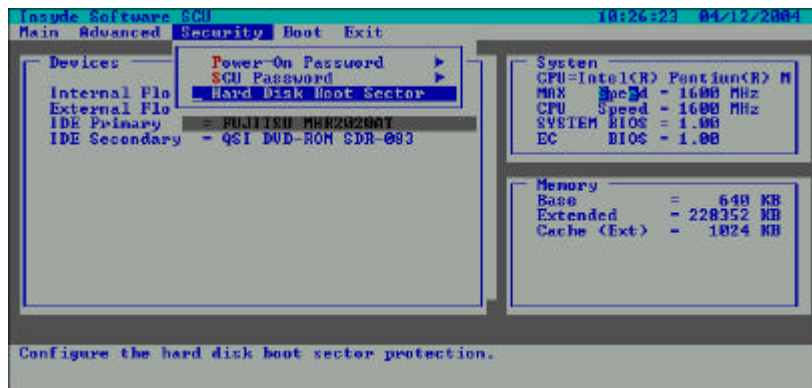


When you set up Scu Password completed, after if your save change and exit. system will let your type again . If the Enable SCU Password sub-item is enabled. When use the SCU Password must in two condition, one is enter “SCU” and the other in “Exit”/ “Save changes and Exit”.



Hard Disk Boot Sector sets if a warning message will appear when the hard disk boot sector (partition table) has been changed. A check mark (☑) indicates enabled, while an underline (_) indicates disabled. The default setting is disabled.

CAUTION: sets this item to disabled before installing an operating system, running Fdisk or Format program. Otherwise, the intended action will fail.

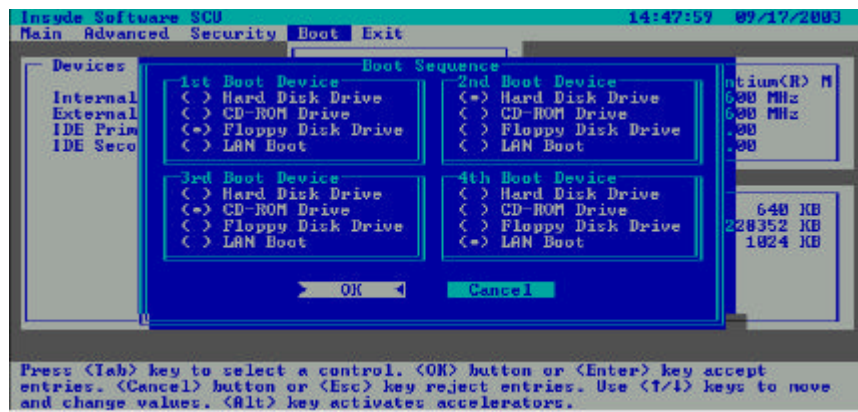


3-2.4 Boot Menu

The Boot pull-down menu, as shown below, displays ways of Boot SCU. After finished with your settings, you must save and exit SCU so that the settings can take effect.

The “Boot Sequence” have four device item sets the sequence of booting.

When this item is selected, the submenu will display as shown below.



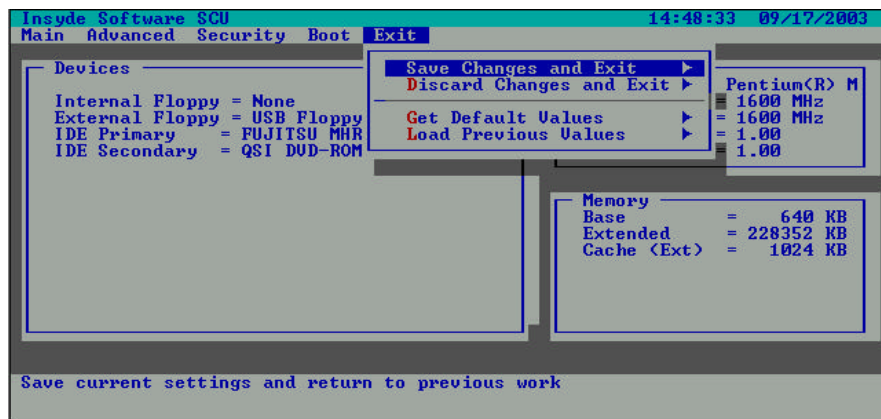
Sets the first, second, third and fourth booting device. The system will try to boot from the first device but if it is not available, will try the next boot device. If you set the first boot device to LAN, the system will boot from the LAN server first. The optionals are Hard Disk C, CD-ROM Drive, Diskette A, and LAN. The default setting is Diskette A, Hard Disk C, CD-ROM Drive, then LAN Boot.

NOTE

If you set all booting options to the same device, then the computer will try to boot from that device only.

3-2.5 Exit Menu

The Exit pull-down menu, as shown below, displays ways of exiting SCU. After finished with your settings, you must save and exit SCU so that the settings can take effect.



Descriptions of the Exit choices are:

1. **Save Change and Exit:** Save changes you have made and exit.
2. **Discard Changes and Exit:** Exit without saving the changes you has made.
3. **Get Default Values:** Load factory default values for all the items.
4. **Load Previous Values:** Restore previous values for all the items.

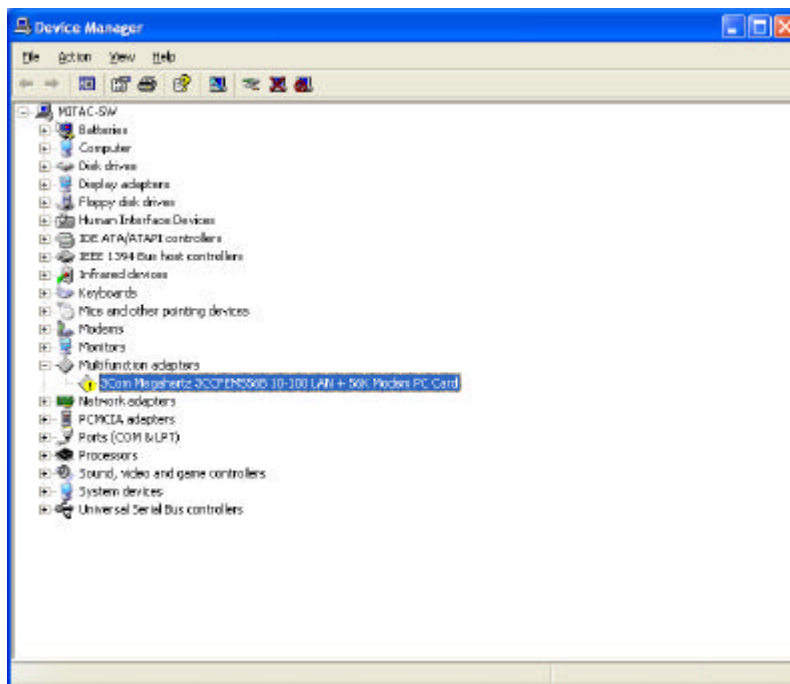
3-2.6 How to Release Resource from SCU

Some I/O and IRQ resource will be released by the following instruction:

1. Under “SCU\Advanced\IR Ports\COM2 Settings:” select “Disable” will release resource--> IO port 2F8h~2FFh and IRQ3.
 2. Under “SCU\Advanced\COM Ports\COM1 Settings:” select “Disable” will release resource--> IO port 3F8h~3FFh and IRQ4.
 3. Under “SCU\Advanced\COM Ports\COM3 Settings:” select “Disable” will release resource--> IO port 3E8h~3FFh and IRQ5.
 4. Under “SCU\Advanced\COM Ports\COM4 Settings:” select “Disable” will release resource--> IO port 2E8h~2FFh and IRQ11.
 5. Under “SCU\Advanced\LPT Port\Port Address” select “None” will release resource--> IO port 378h~37Fh and IRQ7.
- You can choice one disable or release IRQ.

1. For Example:

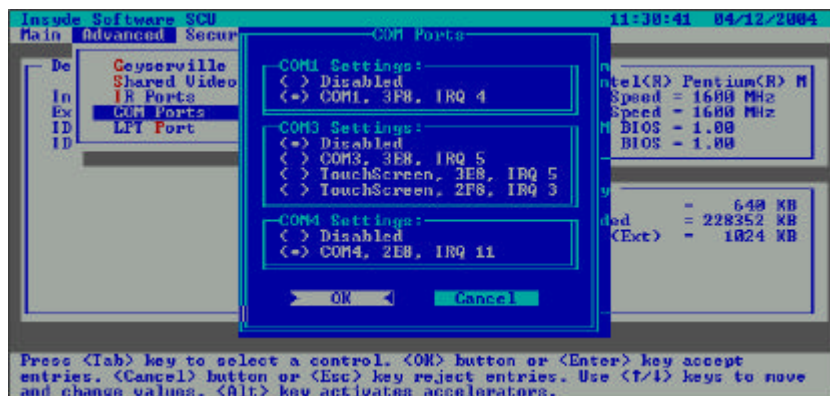
If you insert the PCMCIA Card, then you see the screen appear yellow mark as below:



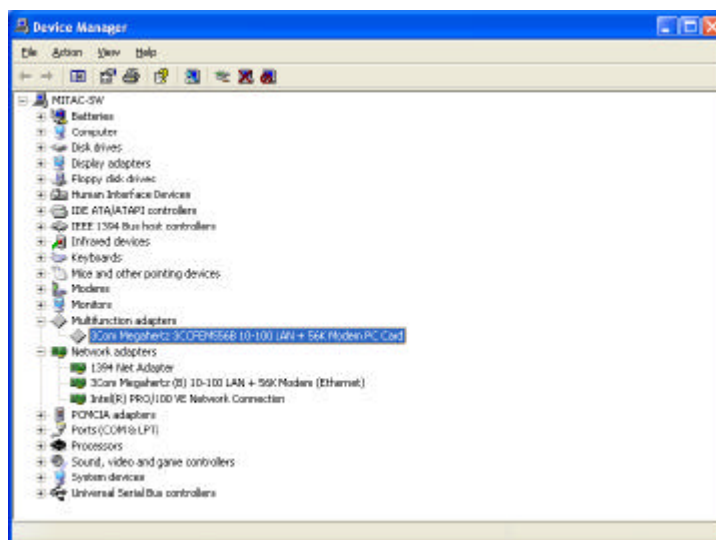
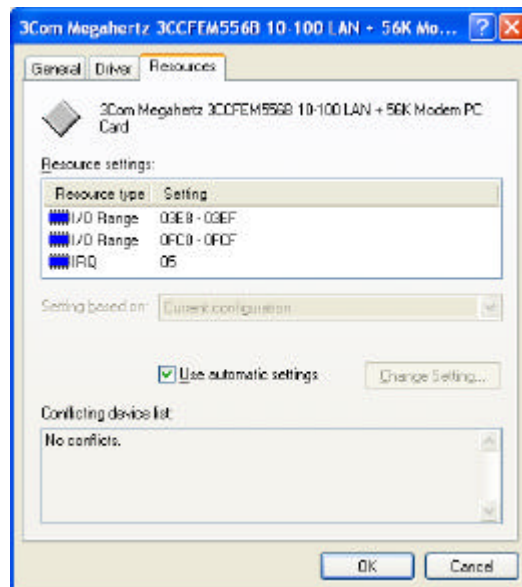
2. When you device cannot find enough free resources that it can use.



1. Because of a less IRQ, You can release IRQ as below:
COM 3 will disable, release resource I/Q address 3E8H~3EFH, IRQ 5,
then must save and restart.



4. Use IRQ5 as below:



Chapter 4

Notebook Maintenance

4-1 Introduction

This chapter tells how to maintain the notebook in good working order.

4-2 Daily Use

For maximum reliability in the field, keep all access doors shut whenever possible.

4-3 Battery Maintenance

Maintaining and preserving the battery is a key to keeping the notebook productive in the field.

4-3.1 Conserving Power

Even though the notebook has several automatic power saving features, there are ways to maximize the battery life.

- ? Use the lowest brightness and contrast display settings.
- ? Avoid using "reverse video". The white text on a black background uses significantly less power than black on white.
- ? Some screen savers place a large burden on the CPU. We recommend that you do not use screen saver programs.
- ? Develop good, consistent work habits. Set the power management features according to your style. For example, if you do not read from or write to the hard disk very often, set the hard disk time-out setting to a very short time.
- ? Plan each computing session ahead of time. Don't waste valuable time and power thinking about what to do.
- ? Disable the cache if you do not need it.

4-3.2 Changing the Battery Pack

To change the battery pack:

1. Loosen two screws from battery pack on the two sides.
2. To pull handle from battery pack.
3. Take the battery pack out.
4. Put another battery pack back in the battery pack house and make sure that the removal strap is available for future changes.

CAUTION

In case, the battery leaks and the fluid gets into eyes. Do not rub eyes. Immediately flush eyes with clear water and see a doctor as soon as possible.

NOTE

- ? Take off the battery pack within computer when it is not used. If the battery pack will not be used in the term of 10 days or longer period, please charge or discharge the battery pack to maintain 30% to 40% battery level and store it in cool, dry room.
- ? If you remove the battery pack, make sure the battery terminals do not contact any conductors such as metal objects or water. Otherwise, the battery may become unusable as a result of a short circuit.
- ? Do not leave the battery pack in storage for more than 3 months without recharging it.

- ? If the battery pack has been left unused for a long period of time, or if the battery has deteriorated, the remaining battery capacity may not be displayed accurately. Recommend a process of fully charging, discharging, and then charging. It can take several hours. If still not recovered yet, call nearest service centers.
- ? The battery pack is a consumable item. After a certain period of time when the computer runs off within a dramatically short time and needs repeatedly recharging or does not restore its performance, the battery pack should be replaced with a new one.

4-3.2 The Battery Pack Guidelines

- ? Battery pack should be protected as below-

To avoid the possibility of overheating fire or drop damage.

To avoid extreme heat, cold and direct sunlight.

Do not use with any other computer.

Do not put into a microwave.

Do not expose the battery pack to water, or allow it become wet.

Do not place battery pack together with articles, such as necklaces or hairpins when carrying or storing.

- ? Recharge the battery pack when it is nearly discharged. When recharging, make sure the battery pack is fully charged. Doing so may avoid harm to the battery pack.

- ? Battery traveling with your computer, make a backup of your hard disk data into floppy disks or other storage devices. As an added precaution, bring along an extra copy of your important data.
- ? Make sure the battery pack is fully charged.
- ? Make sure the computer is turned off.
- ? Do not leave object that will press onto the display.
- ? Disconnect the AC adapter from the computer and take it with you. Use the AC adapter as the power source and as a battery-charger.
- ? Hand-carry the computer. Do not check it in as luggage.
- ? Allow extra time for airport security. Many airports inspect electronic devices carefully.
- ? If you need to leave the computer in the car, put it in the trunk of the car to avoid exposing the computer to excessive heat.
- ? When going through airport security, it is recommended that you send the computer and floppy disks through the X-ray machine (the device you set your bags on). Avoid the magnetic detector (the device you walk through) or the magnetic wand (the hand-held device used by security personnel).
- ? If you plan to travel abroad with your computer, consult your dealer for the appropriate AC power cord for use in your country of destination.

4-3.4 Troubleshooting for Battery Problems

The battery does not charge (Battery Charge indicator does not light amber).

- ? Make sure that the AC adapter is properly connected.
- ? Make sure that the battery is not too hot or cold. Allow time for the battery pack to return to room temperature.
- ? Make sure that the battery pack is installed correctly.
- ? Make sure that the battery terminals are clean.

The operating time of a fully charged battery become shorter.

- ? If you often partially recharge and discharge, the battery might not be charged to its full potential. Recommend a process of fully charging, ischarging, and then charging. It can take several hours.
1. Make sure the computer power is turned off. Connect the AC adapter to fully charge the battery pack.
 2. After the battery pack is fully charged, turn on the computer into SCU or disable power management in Windows.
 3. Disconnect the AC adapter and leave the computer in until the battery is fully discharged. The computer will shut down automatically.
 4. Connect the AC adapter to fully charge the battery pack.
- ? The battery operating time indicated by the battery meter does not match the actual operating time.
 - ? The actual operating time can be differet from the estimated time, depending on how you are using the computer. If the actual operating time is much less than the estimated time, recommend a process of fully charging, discharging, and then chargig as above.

4-4 Cleaning

Periodically clean the exposed notebook surfaces. Use a soft cloth and water or mild detergent to clean all surfaces. The glass cleaner is recommended for cleaning the display screen.