VGA port (optional)
For development or Windows based applications

One PCI expansion slot (optional)
For Modem or WAN cards

Two USB ports (optional)
For keyboard, mouse or other USB devices

Five 10/100 Ethernet ports
For internal, external or DMZ connections
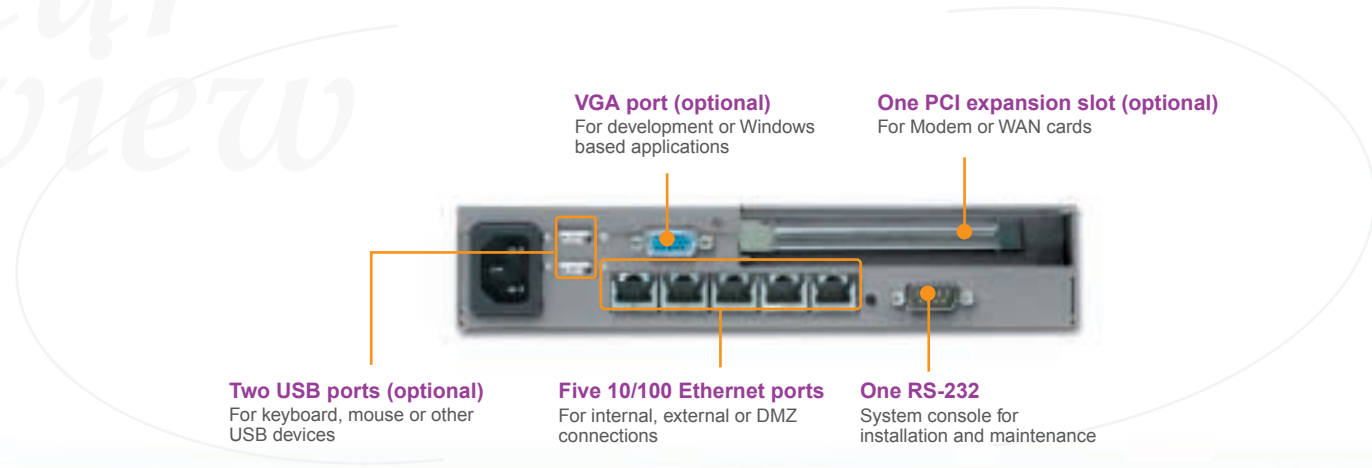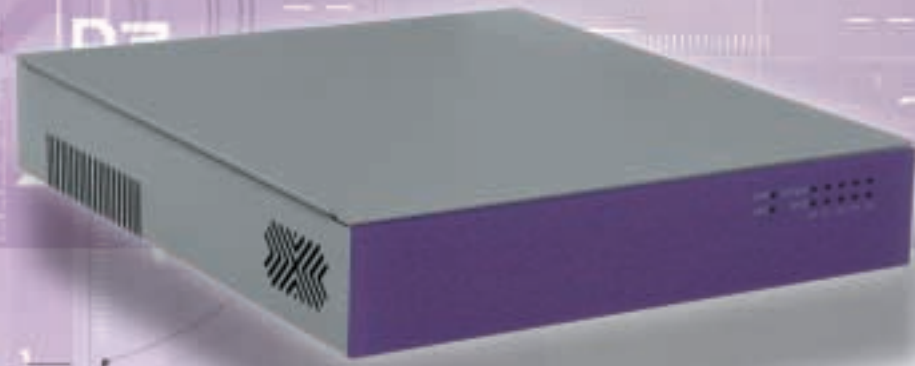
One RS-232
System console for installation and maintenance

NAD-2050 is the ideal platform for network security and management applications that demand adequate suitable computing power and connectivity at affordable. The compact design with desktop form factor helps the user to put them at any place need the service from NAD-2050. Integrated with one on-board low power CPU and five 10/100 BASE-T Ethernet ports, NAD-2050 gives good system reliability and sufficient communication capability required by most networking applications .The system flexibility is further enhanced by a short form PCI slot for expansion. In addition, a reset button mechanism is provided to download default values easily.

NAD-2050

Cost-effective Desk-top Solution with Higher Computing Power

Key feature

- Based on VIA PLE 133 chipset with low power C3 processor(533MHz)
- Three 10/100 BASE-T Ethernet ports as default
- One 3.5" or 2.5" HDD support
- Embedded storage solutions - DOM or Compact Flash
- One optional expansion slot
- Up to 512 MB on one SODIMM socket
- System console capability allows for in-depth H/W debug

Specifications

Processor	On-board VIA C3/533MHz
Memory	Standard 64MB, upgradeable to 512MB
I/O Ports	- Three 10/100 Base-T Ethernet connectors - One RS-232 system console - One optional VGA port - Two optional USB port
Storage	Device 64MB DOM as default
LED	- One power LED - One system alert LED - ACT/LNK and 10/100 LEDs for each Ethernet port
Power	45W AT power supply
Cooling	One 40mm system fan
Operating Environment	-Temperature: 5 to 40˚C - Humidity:20% to 90% RH
Storage Environment	Temperature: 0 to 70˚C Humidity 5% to 95% RH
Dimension	220 (W) x 254(D) x 44(H) mm 8.66" x 10.00" x 1.75"
Safety	- CE/FCC - UL

Ordering Guide

NAD-2050-300-001
Cost-effective desktop communication appliance with three Ethernet ports; built with on-board VIA C3-533 processor, 64MB RAM and 64MB DOM

NAD-2050-200-001
Cost-effective desktop communication appliance with two Ethernet ports; built with on-board VIA C3-533 processor, 64MB RAM and 64MB DOM

Intel' Applied Computing Platform Provider

CE

NAD-2050 Family
Communications Appliance

User's Manual

Revision: 010

Table of Contents

Chapter 1   Introduction

1.1   About This Manual

This manual describes all required information for setting up and using the NAD-2050. All mentioned below applies to the whole system, unless specially stated.

NAD-2050 provides the essential components for delivering optimal performance and functionality in the value communications appliance market segment. This manual should familiarize you with NAD-2050 operations and functions. NAD-2050 family has two, three or five on-board Ethernet ports to serve communication appliances, such as Firewall, which needs more Ethernet ports to connect external network (internet), demilitarized zone and internal network.

NAD-2050 features:
Versatile networking and I/O capabilities: 2, 3 or 5 Ethernet ports
Two COM port
Up to 512 Mbytes of SODIMM memory
Two on-board DMA/33/66/100 IDE channels to support up to four IDE devices

1.2   Manual Organization

The manual describes how to configure your NAD-2050 system to meet various operating requirements. It is divided into three chapters, with each chapter addressing a basic concept and operation of this whole system.

Chapter 1:   Introduction. This section briefly talks about how this document is organized. It includes some guidelines for users who do not want to read through everything, but still helps you find what you need.

Chapter 2:   Hardware Configuration Setting and Installation. This chapter shows how the hardware is put together, including detailed information. It shows the definitions and locations of Jumpers and Connectors that you can easily configure your system. Descriptions on how to properly mount the main memory are also included to help you get a safe installation. Reading this chapter will teach you how to set up NAD-2050.

Chapter 3:   Operation Information. This section gives you illustrations and more information on the system architecture and how its performance can be maximized.

Any updates to this manual, technical clarification and answers to frequently asked questions would be posted on the web site: *http://isc.portwell.com.tw*

1.3   Technical Support Information

Users may find helpful tips or related information on Portwell's web site: *http://www.portwell.com.tw.* A direct contact to Portwell's technical person is also available. For further support, users may also contact Portwell's headquarter in Taipei or your local distributors.

Taipei Office Ph*one Number: +886-2-27992020*

Chapter 2   Get Started

This section describes how the hardware installation and system settings should be done.

2.1   Included Hardware

The following hardware is included in your kit:
PPAP-1610 Communication Appliance System Board
One null serial port cable

2.2   Before You Begin

To prevent damage to any system board, it is important to handle it with care. The following measures are generally sufficient to protect your equipment from static electricity discharge:

When handling the board, use a grounded wrist strap designed for static discharge elimination and touch a grounded metal object before removing the board from the antistatic bag. Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

When handling memory modules, avoid touching their pins or golden edge fingers. Put the value communications appliance system board and peripherals back into the antistatic bag when they are not in use or not installed in the chassis.

Some circuitry on the system board can continue operating even though the power is switched off. Under no circumstances should the Lithium coin cell be used to power the real-time clock be allowed to be shorted. The coin cell can heat under these conditions and present a burn hazard.

WARNING!
1. "CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions"

2. This guide is for technically qualified personnel who have experience installing and configuring system boards. Disconnect the system board power supply from its power source before you connect/disconnect cables or install/remove any system board components. Failure to do this can result in personnel injury or equipment damage.

3. Avoid short-circuiting the lithium battery; this can cause it to superheat and cause burns if touched.

4. Do not operate the processor without a thermal solution. Damage to the processor can occur in seconds.

5. Do not block air vents. Minimum 1/2-inch for clearance required.

2.3   The Chassis

The system is integrated in a customized 1U chassis (**Fig. 2-1, Fig. 2-2**). On the front panel you will find the Power LED, Hard Disk LED and LAN LED. The back panel has three LAN ports and a COM port.

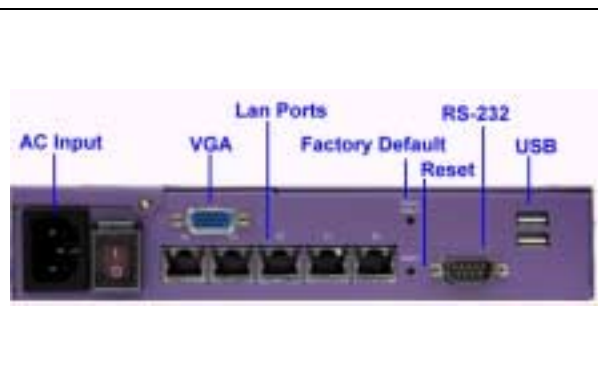**Fig. 2-1** *Front view of the Chassis*   **Fig. 2-2** *Back view of the Chassis*

2.4   Open the Chassis

1. Take off the two screws (one at the right of power on/off and one on the top lead) and remove the top lead (**Fig. 2-3**).

Fig. 2-3 *The top lead*

2. The top lead (**Fig. 2-4**) can be removed from the base stand (**Fig. 2-5**).

Fig. 2-4 *The top lead*   **Fig. 2-5** *The base stand*

2.5　Install or Remove a SODIMM

Follow these steps to upgrade or remove RAM module:

1. Install the system memory by pulling the socket's arm and pressing it into the slot gently. (***Fig. 2-6, 2-7***)
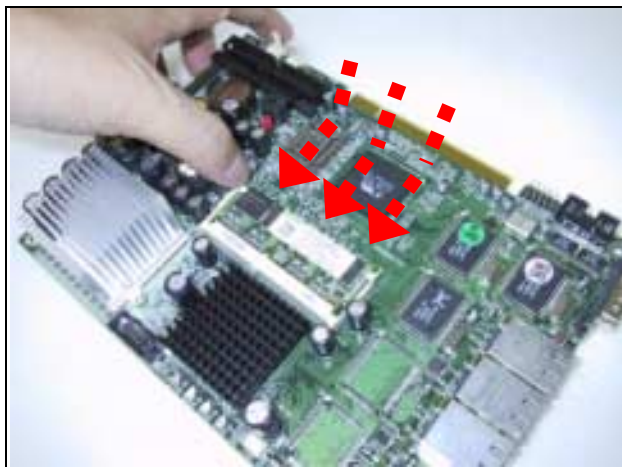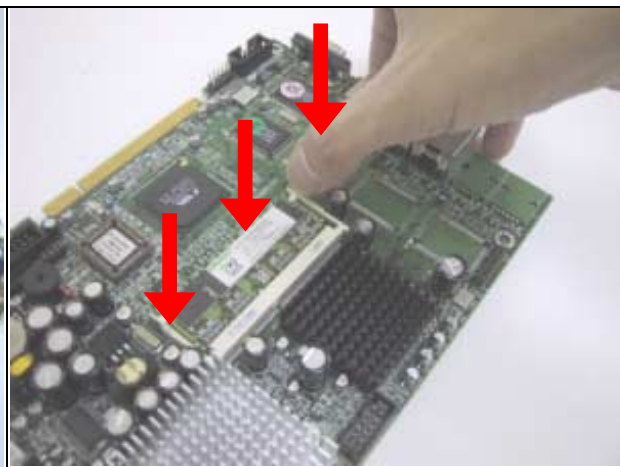

Fig. 2-6 *The memory slot*

Fig. 2-7 *Install SODIMM*

2. By pulling the arms, the SODIMM can eject itself (***Fig. 2-8***).
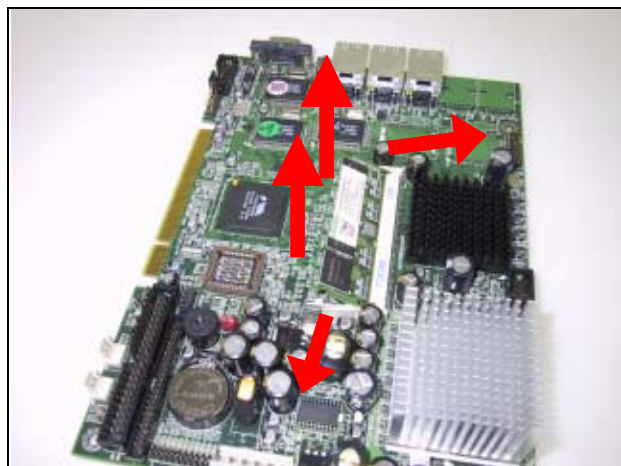

Fig. 2-8 *Eject a SODIMM module*

2.6　Install DOM

1. Insert the DOM (***Fig. 2-9***) into the IDE interface (***Fig. 2-10***).

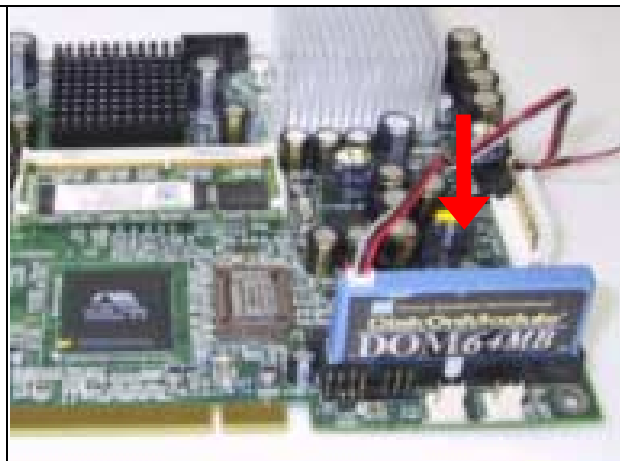**Fig. 2-9** *DiskOnModule*

Fig. 2-10 *Insert DOM into IDE interface*

2. Connect the power source to DOM (*Fig. 2-11, 2-12*).
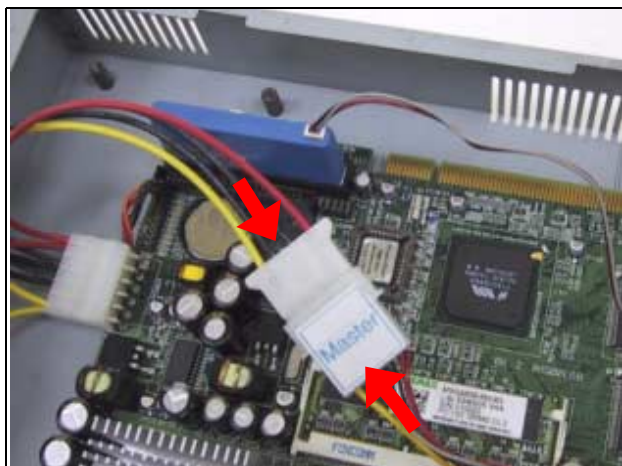
Fig. 2-11 *Connect power to DOM*
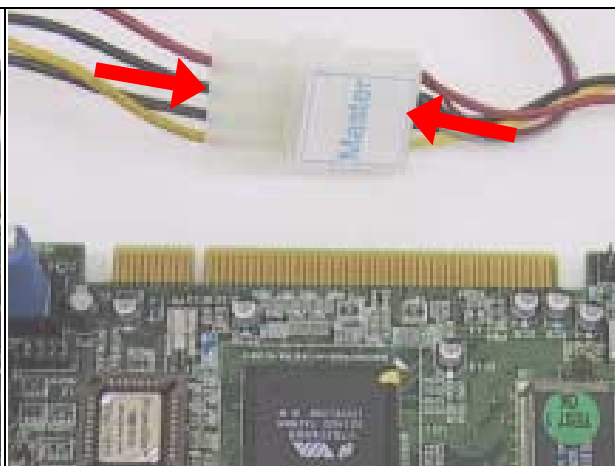
Fig. 2-12 *DOM power connection*

3. The completed installation of DOM is shown as *Fig. 2-13*.

Fig. 2-13 *Completion of DOM power connection*

2.7 Remove and Install Battery

1. Press the metal clip back to eject the button battery (*Fig. 2-14*).

2. Replace it with a new one by pressing the battery with fingertip to restore the battery (*Fig. 2-15*).
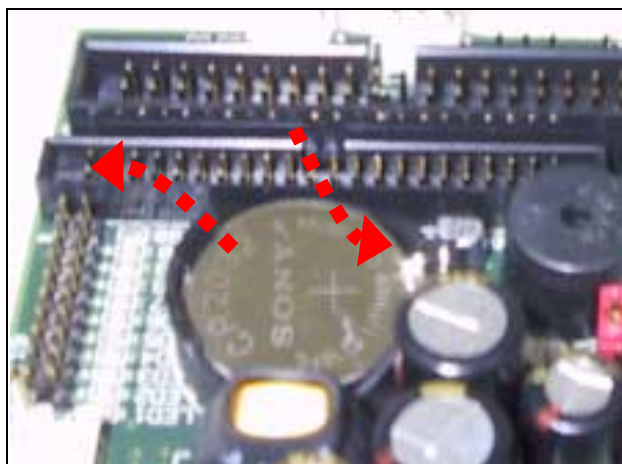
Fig. 2-14 *Eject the battery*
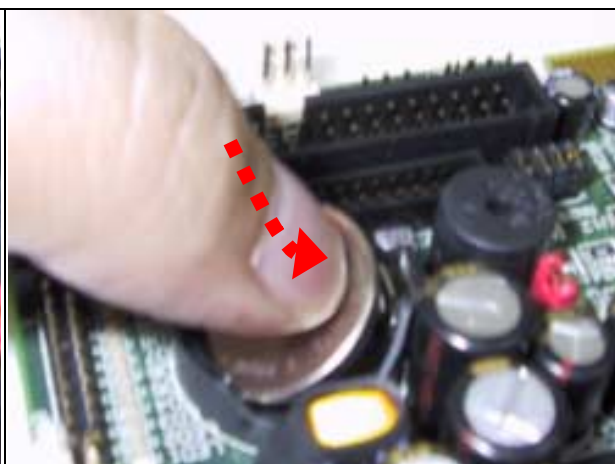
Fig. 2-15 *Restore the battery*

The system has an internal drive bay for one 2.5" hard disk drive. If the HDD is not pre-installed, you can install it by yourself. Follow the steps below to install the HDD:

1. Fasten the four screws to lock HDD and bracket together (***Fig. 2-16a, 2-16b***).
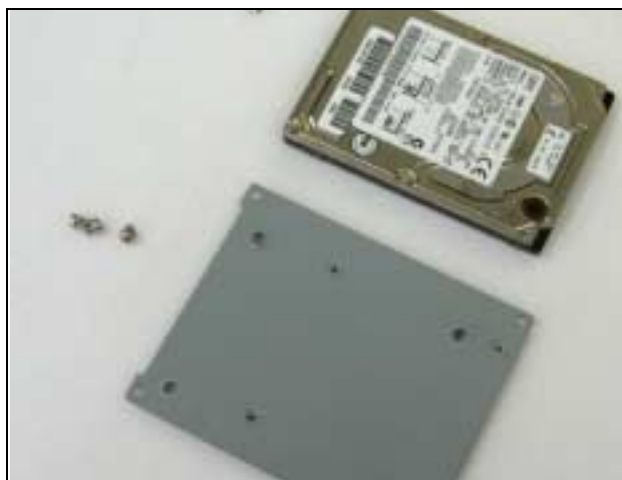
Fig. 2-16a *A 2.5" HDD and the HDD bracket*   **Fig. 2-16b** *Fix HDD to the bracket*

2. Connect the IDE cable to HDD (***Fig. 2-17***).
3. Connect IDE cable to PPAP-1610 (***Fig. 2-18***).

Fig. 2-17 *Connect IDE cable to HDD*   **Fig. 2-18** *Connect IDE cable to PPAP-1610*

4. Fix all three screws back (***Fig. 2-19***).
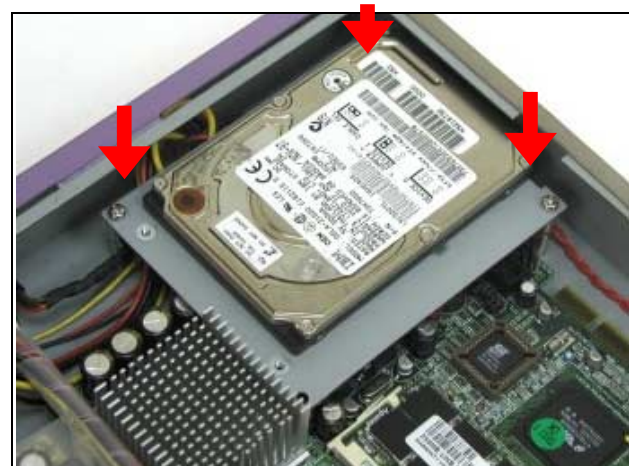
Fig. 2-19 *Drive all four screws back*

The system has an internal drive bay for one CompactFlash card drive. If the CF is not pre-installed, you can install it by yourself. Follow the steps below to install the CF:

1. Fasten the four screws to lock HDD and bracket together (**Fig. 2-20a, 2-20b**).

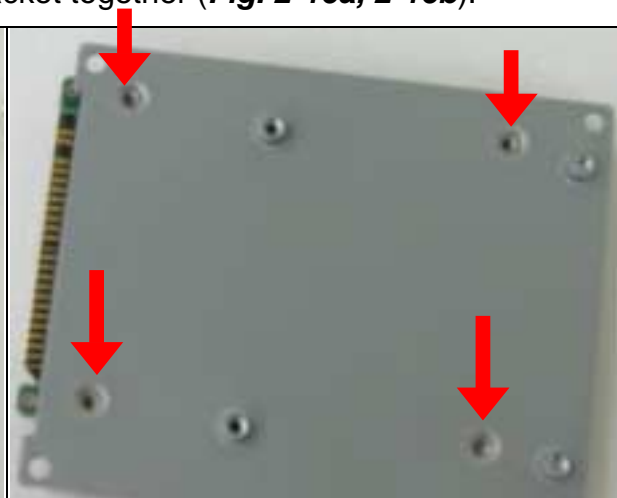

Fig. 2-20a *A CF and the CF bracket*   **Fig. 2-20b** *Fix CF to the bracket*
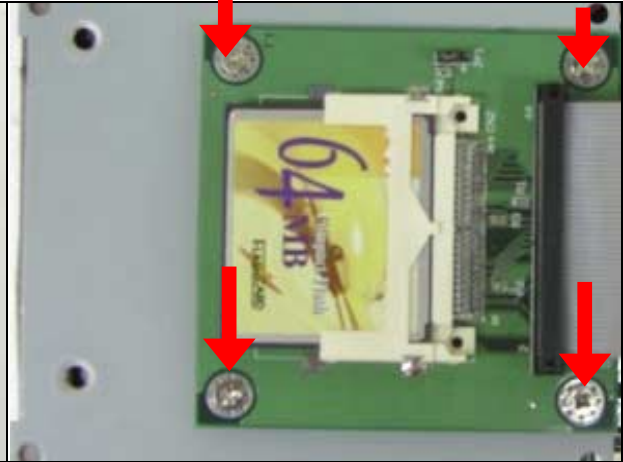
2. Connect the IDE cable to CF (**Fig. 2-21**).

3. Connect IDE cable to PPAP-1610 (**Fig. 2-22**).
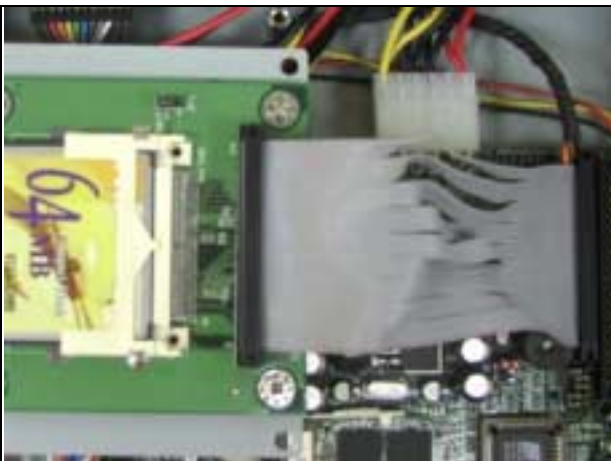
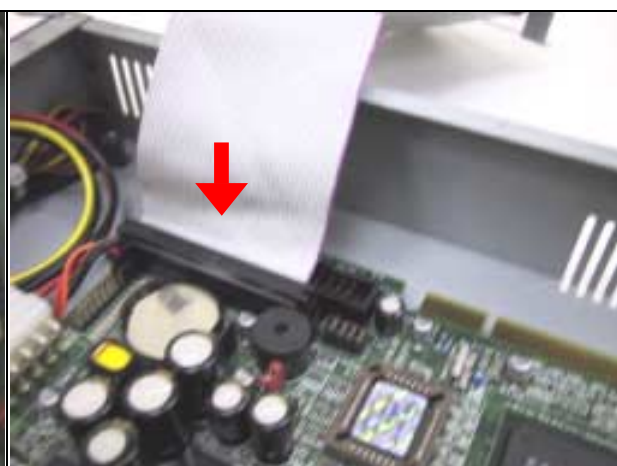**Fig. 2-21** *Connect IDE cable to CF*   **Fig. 2-22** *Connect IDE cable to PPAP-1610*
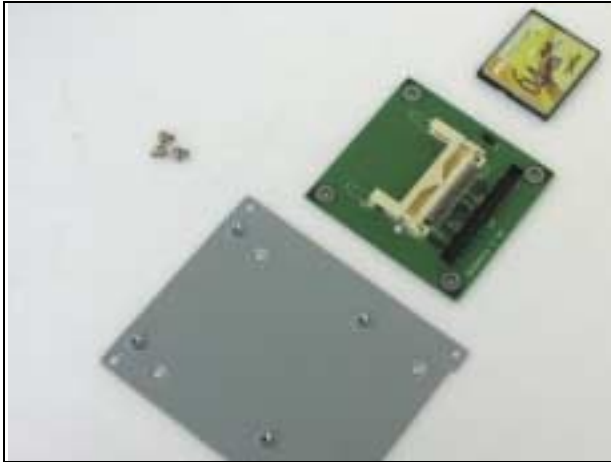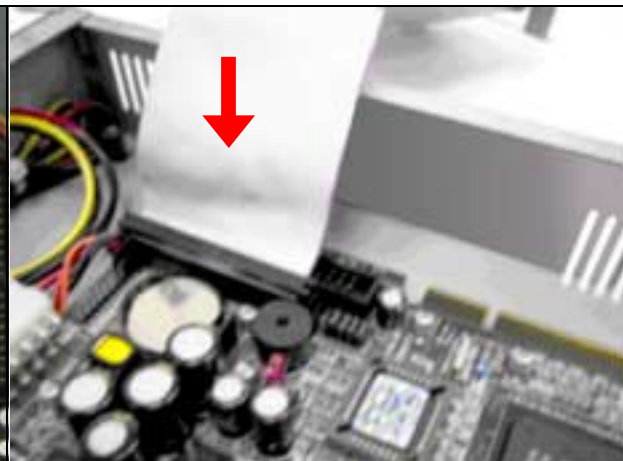
4. Fix all three screws back (**Fig. 2-23**).
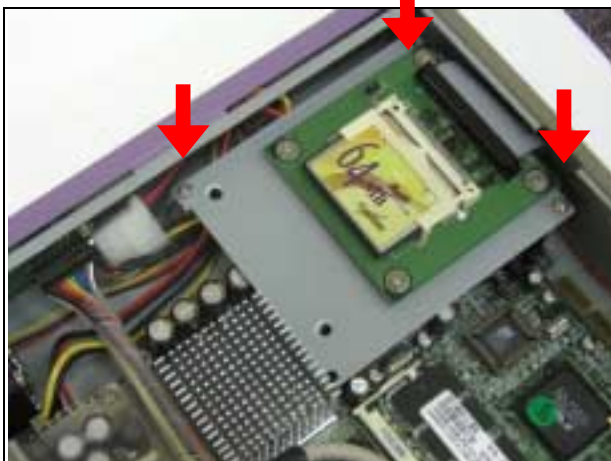
Fig. 2-23 *Fix all four screws back*

Model:	**NAD-2050**
Main Processor:	• VIA C3 processors (66, 100 or 133MHz system bus)
BIOS:	• Award system BIOS with 512KB flash ROM to support DMI, PnP, APM function
Main Memory:	• Up to 512MB 3.3V SDRAM on one 144-pin SODIMM socket
L2 Cache Memory:	• 64KB PBSRAM built in (C3) CPU module
Chipset:	• VIA 8601
PCI IDE Interface:	• One 2.5" hard disk bay for DMA/33/66/100 IDE hard disk
Serial Ports:	• Support two high-speed 16C550 compatible UARTs with 16-byte T/R FIFOs
USB Interface:	• Support two USB ports for high speed I/O peripheral devices
Auxiliary I/O Interfaces:	• System reset switch, power okay LED, Ethernet activity LED, Ethernet speed LED, general purpose LED, alert LED and HDD LED interface
Power Input:	• Support one AC input jack (power requirement: 110V ~220V)
On-board Ethernet:	• Two RealTek 8139C+ 10BASE-T/100BASE-TX Fast Ethernet controller with RJ-45 interface
Hardware Monitor:	Support on-board hardware monitor for • Chassis fan x 2 • System voltages: Vcore, 3.3V, 1.24V, +5V and +12V
Power Good:	• On-board power good interval: 100ms ~ 500ms
Environmental Requirements:	• Operating Temperature: 5°C ~ 45°C • Storage Temperature: 5°C ~ 70°C • Relative Humidity: 5% ～ 95%, non-condensing
Dimension:	• 10.15"(L) x 8.66"(W) x 1.73"(H)

This section gives the definitions and shows the positions of jumpers, headers and connectors. All of the configuration jumpers on PPAP-1610 are in the proper position. The default settings set by factory are marked with a star (★).

Jumpers

In general, jumpers on PPAP-1610 system board are used to select options for certain features. Some of the jumpers are configurable for system enhancement. The others are for testing purpose only and should not be altered. To select any option, cover the jumper cap over (Short) or remove (NC) it from the jumper pins according to the following instructions. Here NC stands for "Not Connected".

Jumper	Default Location	Brief Description
JP1	1-2, 3-4, 5-6, 7-8	Watchdog timer function
JP2	1-2	RTC CMOS clear setting
JP3	1-2, 5-6, 7-8, 9-10	Select CPU bus ratio

(JP1) Watchdog Timer Function

JP1	Function
1-2 Open	Disable WDT function★
1-2 Short	Enable WDT function
3-4 Short	Allocate I/O port 543/343
3-4 Open	Allocate I/O port 533/033★

5-6	7-8	9-10	Time-out Interval
Short	Short	Short	0.5 sec.
Short	Short	NC	1 sec.★
Short	NC	Short	2 sec.
Short	NC	NC	4 sec.
NC	Short	Short	8 sec.
NC	Short	NC	16 sec.
NC	NC	Short	32 sec.
NC	NC	NC	64 sec.

(JP2) RTC CMOS Clear Jumper Setting

JP2	Function
1-2	Normal operation★
2-3	Clear CMOS contents

(JP3) CPU Bus Ratio Select

BR [4]	BR [3]	BR [2]	BR [1]	BR [0]	Core/Bus Ratio
0	0	0	0	0	9.0X
0	0	0	0	1	3.0X
0	0	0	1	0	4.0X★
0	0	0	1	1	10.0X
0	0	1	0	0	5.5X
0	0	1	0	1	3.5X
0	0	1	1	0	4.5X
0	0	1	1	1	9.5X
0	1	0	0	0	5.0X
0	1	0	0	1	7.0X
0	1	0	1	0	8.0X
0	1	0	1	1	6.0X
0	1	1	0	0	12.0X
0	1	1	0	1	7.5X
0	1	1	1	0	8.5X
0	1	1	1	1	6.5X
1	0	0	0	0	Reserved
1	0	0	0	1	11.0X
1	0	0	1	0	12.0X
1	0	0	1	1	Reserved

Connector

Connector	Function
J1	Serial port D-SUB9 connector
J2	System reset
J5	Ethernet3 RJ-45 interface connector
J6	Ethernet2 RJ-45 interface connector
J7	Ethernet1 RJ-45 interface connector
J8	Serial port 2x5 shrouded connector
J9	Dual USB port connector
J10	LAN LED
J11	On-board VGA 2x5 shrouded connector
J12	Software reset
J13	CPLD 8-pin connector
J14	IDE1 2x20 shrouded connector
J15	Fan power connector: PIN1-> GND; PIN2-> +12V; PIN3-> Pull-up +3V (Reserved for sense signal)
J16	IDE2 2x22 shrouded connector
J17	Fan power connector: PIN1-> GND; PIN2-> +12V; PIN3-> Pull-up +3V (Reserved for sense signal)
J18	Power input
J19	GPIO

Pin Assignments of Connectors

J1: Serial port D-SUB9 connector (COM1)

PIN No.	Signal Description
1	Data Carrier Detect (DCD)
2	Receive Data (RXD)
3	Transmit Data (TXD)
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (RI)

J2: System reset

PIN No.	Signal Description
1	RST_SW
2	Ground

J3/J4/J5/J6/J7: Ethernet5 RJ-45 interface connector

PIN No.	Signal Description
1	TCT
2	TD+
3	TD-+
4	RD+
5	RD-
6	RTC
7	SPEEDLED-
8	SPEEDLED+
9	LINKLED-
10	ACTLED+

J8: Serial port 2x5 shrouded connector (COM2)

PIN No.	Signal Description
1	Data Carrier Detect (DCD)
2	Receive Data (RXD)
3	Transmit Data (TXD)
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (RI)
10	N/C

J9: Dual USB port connector

PIN No.	Signal Description	PIN No.	Signal Description
1	+5V	2	N/C
3	USBD0-	4	Ground
5	USBD0+	6	USBD1+
7	Ground	8	USBD1-
9	N/C	10	+5V

J10: LAN LED (2x20 pin header)

PIN No.	Signal Description	PIN No.	Signal Description
1	LANACT1	2	LINK#_1
3	LANSPE1	4	SPEEDLED_1
5	LANACT2	6	LINK#_2
7	LANSPE2	8	SPEEDLED_2
9	LANACT3	10	LINK#_3
11	LANSPE3	12	SPEEDLED_3
13	LANACT4	14	LINK#_4
15	LANSPE4	16	SPEEDLED_4
17	LANACT5	18	LINK#_5
19	LANSPE5	20	SPEEDLED_5

J11: On-board VGA 2x5 shrouded connector

PIN No.	Signal Description	PIN No.	Signal Description
1	RED	2	Green
3	Blue	4	VSYNC
5	HSYNC	6	MID3
7	Ground	8	MID1
9	Ground	10	N/C

J12: Software reset

PIN No.	Signal Description
1	SoRset
2	Ground

J13: CPLD 8-pin connector

PIN No.	Signal Description
1	+5V
2	TDO
3	TDI
4	N/C
5	N/C
6	TMS
7	Ground
8	TCK

J14: IDE1 2x20 shrouded connector

PIN No.	Signal Description	PIN No.	Signal Description
1	RESET#	2	Ground
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	Ground	20	N/C
21	DMA REQ	22	Ground
23	IOW#	24	Ground
25	IOR#	26	Ground
27	IOCHRDY	28	Pull-down
29	DMA ACK#	30	Ground
31	INT REQ	32	N/C
33	SA1	34	CBLID#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD Active#	40	Ground

J15/J17: Fan power connector

PIN No.	Signal Description
1	Ground
2	+12V
3	Pull-up 5V (Reserved for sense signal)

J17: Standard 5.25" disk power connector

PIN No.	Signal Description	PIN No.	Signal Description
1	RESET#	2	Ground
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	Ground	20	N/C
21	DMA REQ	22	Ground
23	IOW#	24	Ground
25	IOR#	26	Ground
27	IOCHRDY	28	Pull-down
29	DMA ACK#	30	Ground
31	INT REQ	32	N/C
33	SA1	34	CBLID#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD Active#	40	Ground
41	VCC5V	42	VCC5V
43	Ground	44	N/C

J18: Power input

| PIN No.	Signal Description
1	VCC5V
2	VCC5V
3	Ground
4	Ground
5	Ground
6	+12V

2.12 Use a Client Computer

Connection Using Hyper Terminal

If users use a headless NAD-2050, which has no mouse/keyboard and VGA output connected to it, the console may be used to communicate with NAD-2050.

To access NAD-2050 via the console, Hyper Terminal is one of the choices. Follow the steps below for the setup:
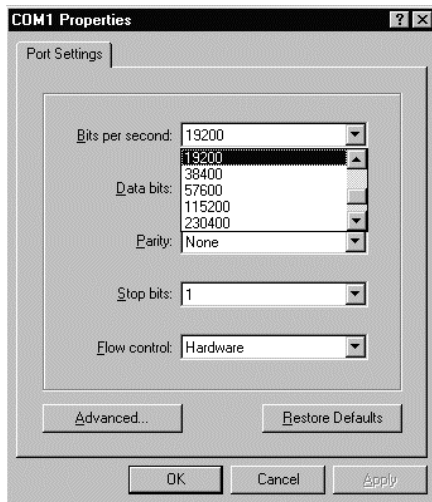
1. Execute HyperTerminal under C:\Program Files\Accessories\HyperTerminal
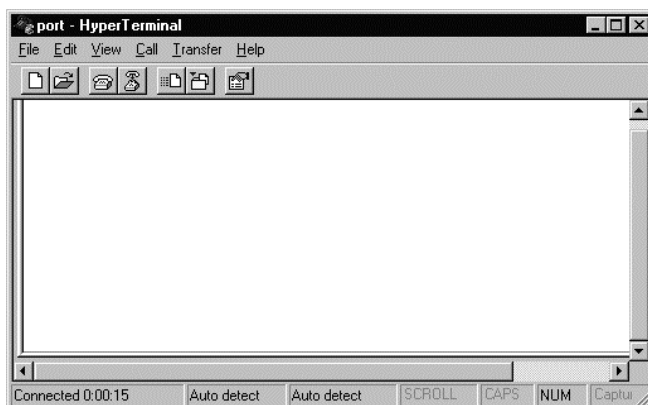2. Enter a name to create new dial
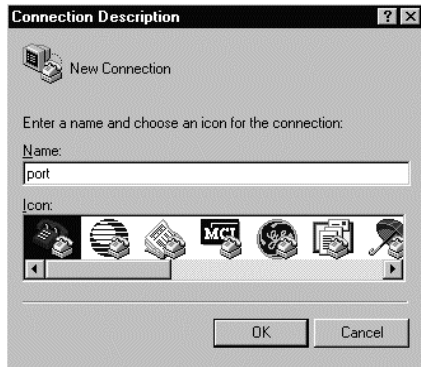
3. For the connection settings, make it Direct to COM1.
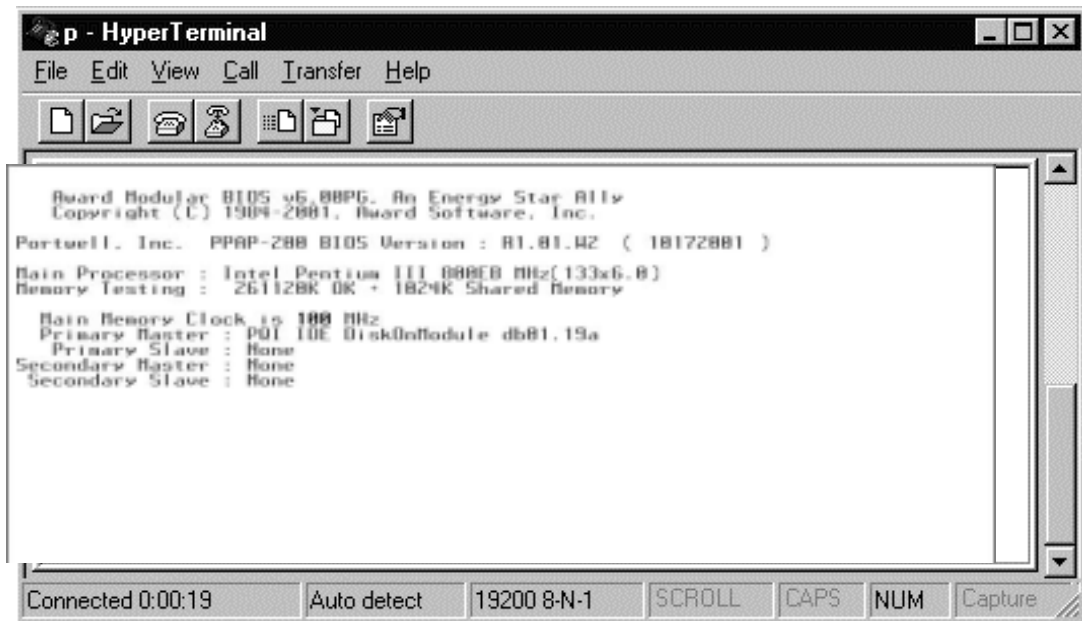

4. Please make the port settings to Baud rate 19200, Parity None, Data bits 8, Stop bits 1

5. Turn on the power of NAD-2050, after following screen was shown

6. You can then see the boot up information of NAD-2050

7. This is the end of this section. If the terminal did not port correctly, please check the previous steps.

2.13 BIOS Setup Information

NAD-2050 is equipped with the Award BIOS within Flash ROM. The BIOS has a built-in setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it still retains during power-off periods. When system is turned on, NAD-2050 communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. Whenever an error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the Setup program. Some errors are significant enough to abort the start-up.

Entering Setup

When you see the message "Hit <DEL> if you want to run Setup", after turning on or rebooting the computer, press <Del> key *immediately* to enter BIOS setup program.

If you want to enter Setup but fail to respond before the message disappears, please restart the system either by first turning it off and followed by turning it on (COLD START) or simply press the "RESET" button. "WARM START" (press <Ctrl>, <Alt>, and <Delete> keys simultaneously) will do, too. Unless you press the keys at the right time, the system will not boot, an error message will display and you will be asked to do it again.

When no setting is stored in BIOS or the setting is missing, a message "Press <F1> to run Setup" will appear. Then press <F1> to run Setup or resume HIFLEX BIOS Setup. You can use the keyboard to choose among options or modify the system parameters to match the options with your system. The table shown on next page will show you all of keystroke functions in BIOS Setup.

Keys to navigate within Setup menu

Key	Function
Up (↑)	Move to the previous item
Down (↓)	Move to the next item
Left (→)	Move to the item on the left (menu bar)
Right (←)	Move to the item on the right (menu bar)
Enter	Enter the item you desired
PgUp	Increase the numeric value or make changes
PgDn	Decrease the numeric value or make changes
┼	Increase the numeric value or make changes
─	Decrease the numeric value or make changes
Esc	**Main Menu:** Quit and not save changes into CMOS **Status Page Setup Menu and Option Page Setup Menu:** Exit current page and return to Main Menu
F1	General help on SETUP navigation keys
F5	Load previous values from CMOS
F6	Load the fail-safe defaults from BIOS default table
F7	Load the optimized defaults
F10	Save all the CMOS changes and exit

Main Menu

Once you enter NAD-2050 Award BIOS CMOS Setup utility, you should start with the Main Menu. The Main Menu allows you to select from eleven setup functions and two exit choices. Use arrow keys to switch among items and press <Enter> to accept or bring up the sub-menu.

Phoenix – Award BIOS CMOS Setup Utility

CMOS Setup Utility	
Standard CMOS Features	Frequency /Voltage Control
Advanced BIOS Features	Load Fail/Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
ESC: Quit F10: Save & Exit Setup	↑ ↓ ← →: Select Item (Shift) F2: Change Color
Time, Date, Hard Disk Type ...	

NOTE: It is strongly recommended to reload the optimized default setting if CMOS is lost or BIOS is updated.

✏️ *Standard CMOS Setup Menu*

This setup page includes all the items within standard compatible BIOS. Use the arrow keys to highlight the item and then use the <PgUp>/<PgDn> or <+>/<-> keys to select the value or number you want in each item and press <Enter> to certify it.

Follow command keys in CMOS Setup table to change *Date, Time, Drive type* and *Boot Sector Virus Protection Status*.

Screen Shot: Phoenix – Award BIOS CMOS Setup Utility

Standard CMOS Setup Utility

Date: Wed, Jan 17 2001
Time: 16:51:13

IDE Primary Master [None]
IDE Primary Slave [None]
IDE Secondary Master [None]
IDE Secondary Slave [None]
Video: EGA/VGA
Halt On: All, but Keyboard

Base Memory: 640K
Extended Memory: 64512K
Total Memory: 65536K

ESC: Quit
F1: Help
PU/PD/+/-: Modify

↑↓←→: Select Item
(Shift) F2: Change Color

Menu Selections

Item	Options	Description
Date	mm:dd:yy	Set the system date. Note that the 'Day' automatically changes when you set the date
Time	hh:mm:ss	Set the system time
Video	EGA/VGA CGA 40CGA 80MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	Display the amount of conventional memory detected during boot up
Extended Memory	N/A	Display the amount of extended memory detected during boot-up
Total Memory	N/A	Display the total memory available in the system

❧ *BIOS Features Setup*

This section allows you to configure your system for basic operation. You are able to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Screen Shot: Phoenix – Award BIOS CMOS Setup Utility

Advanced BIOS Features	
Virus Warning	
CPU Internal Cache: Enabled	Console Redirection: Disabled
External Cache: Enabled	Agent connect via: NULL
CPU L2 Cache ECC Checking: Enabled	Agent wait time (min.): 1
Quick Power On Self Test: Enabled	Agent after boot: Disabled
First Boot Device: USB-FDD	
Second Boot Device: HDD-0	
Third Boot Device: LS-120	
Boot Up NumLock Status: On	
Gate A20 Option: Normal	
Typematic Rate Setting: Disabled	
Typematic Rate (Chars/Sec): 6	ESC: Quit
Typematic Delay (Msec): 250	↑ ↓ ← →: Select Item
Security Option: Setup	F1: Help
PCI/VGA Palette Snoop: Disabled	(Shift) F2: Color
OS Select for DRAM > 64MB: Non-OS2	F5: Old Values
Console Redirection: Enabled	F6: Load BIOS Default
Baud Rate: 19200	F7: Load Setup Default
Agent Connect via: Null	PU/PD/+/-: Modify
Agent Wait Time (min.): 1	
Agent after boot: Enable	

❧ *Internal Cache/External Cache*

These two categories speed up memory access. However, it depends on CPU/chipset design.

Enabled	Enable cache
Disabled	Disable cache

❧ *Quick Power On Self Test*

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

Boot Up NumLock Status

Select power on state for NumLock.

The choice: Enabled/Disabled.

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory over 1 Mbytes. Originally, the gate A20 was handled via a pin on the keyboard. But now, though keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Normal	Keyboard
Fast	Chipset

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Set the how many number of times a second to repeat a keystroke when you hold the key down.

The choice: 6, 8, 10, 12, 15, 20, 24 and 30.

Typematic Delay (Msec)

Set the delay time after the key is held down before it begins to repeat the keystroke.

The choice: 250, 500, 750 and 1000.

✎ *Security Option*

Select whether the password is required every time the system boots or only when you enter 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 and access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and simply press <Enter>, it will disable security. Once the security is disabled, the system will boot up and you can enter Setup freely.

✎ *OS Select for DRAM > 64MB*

Select the operating system that is running with more than 64MB of RAM on the system.

The choice: Non-OS2, OS2.

✎ *Console Redirection*

Set the UNIX Console redirect to the terminal from COM1**.**

The choice: Enabled/Disabled.

✎ *Baud Rate*

Set the RS-232 baud rate speed.

The choice: 9600, 19200, 38400, 57600 and 115200.

Chapter 3   Operation Guide

PPAP-1610 is a Communication Appliance computing board based on VIA VT82C686B chipset technology. PPAP-1610 has three on-board LAN ports to serve communication appliances, such as Firewall, which needs three Ethernet ports to connect external network (internet), demilitarized zone and internal network. Different I/O management policies can be applied respectively to individual network to achieve the highest security level. The target market segment is communication appliance including Virtual Private Network, Load Balancing, Quality of Service, Intrusion Detection, Virus Detection, Firewall and Voice Over IP.

This PPAP-1610 system board is eligible with VIA C3 processor EBGA package (Eden Esp5000) and 144-pin SODIMM up to 512MB DRAM. The enhanced on-board PCI IDE interface supports 2 drives up to PIO mode 4 timing and Ultra DMA/100 synchronous mode feature. The on-board super I/O chipset integrates two serial ports driven by two high performance 16550C-compatible UARTs to provide 16-byte send/receive FIFOs. Besides, the two Universal Serial Bus ports provide high-speed data communication between peripherals and PC.

The on-board flash ROM is used to make the BIOS update easier. The high precision Real Time Clock/Calendar is built to support Y2K for accurate scheduling and storing configuration information. All of these features make PPAP-1610 excellent in stand-alone applications.

If any of these items is damaged or missing, please contact your vendor and save all packing materials for future replacement and maintenance.