CAR-4000 Series
Communication Appliance

User's Manual

Revision: 1.1

CE

This certificate of conformity of CAR-4000 series with actual required safety standards in accordance with 89/366 ECC-EMC Directive and LVD 73/23 ECC

UL

This product meets all safety requirements per UL60950 standard.

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Table of Contents

Chapter 1 Introduction

1.1 About This Manual

This manual contains all required information for setting up and using the CAR-4000 series.

CAR-4000 provides the essential platform for delivering optimal performance and functionality in the value communications appliance market segment. This manual should familiarize you with CAR-4000 operations and functions. CAR-4000 series provide up to 20 GbE ports to serve communication applications like Firewall, requiring four Ethernet ports to connect external network (internet), demilitarized zone and internal network.

CAR-4000 series overview:

- Intel Xeon processor with Integrated memory and PCI-Express 2.0 controllers
- Intel Turbo Boost technology
- 80 Plus Certified ATX PSU
- Ready for PCIe2.0 5GT/s Ethernet controllers

1.2 Manual Organization

This manual describes how to configure your CAR-4000 system to meet various operating requirements. It is divided into three chapters, with each chapter addressing the basic concept and operation of this system.

Chapter 1: Introduction. This section describes how this document is organized. It includes brief guidelines and overview to help find necessary information.

Chapter 2: Hardware Configuration Setting and Installation. This chapter demonstrated the hardware assembly procedure, including detailed information. It shows the definitions and locations of Jumpers and Connectors that can be used to configure the system.

Chapter 3: Operation Information. This section provides illustrations and information on the system architecture and how to optimize its performance.

Any updates to this manual, would be posted on the web site: ***http://www.cas-well.com***

1.3 Technical Support Information

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

Taipei Office Phone Number: +886-2-77058888

1.4 Board Layout

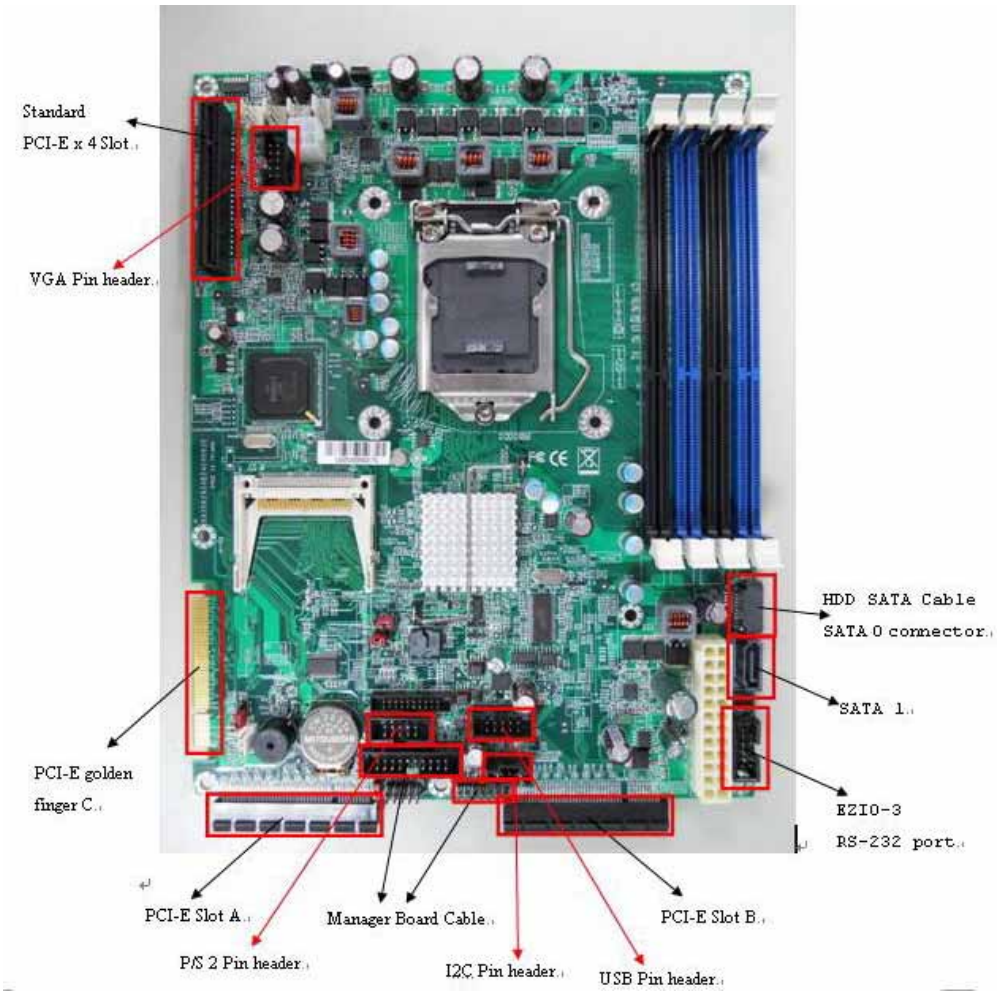


Figure 1-1 CAR-4000 Board Layout

1.5 System Block Diagram

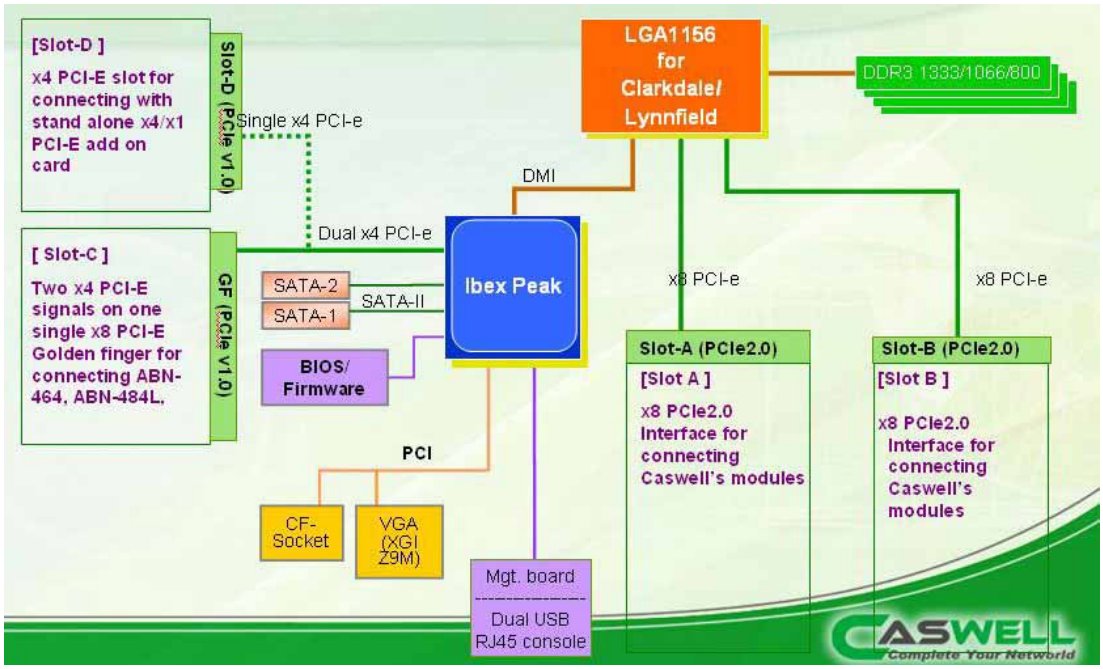


Figure 1-2 CAR-4000 Block Diagram

1.6 Product Specifications

CPU Board	-Intel® LGA1156 Xeon® X3400/L3400, and Corei3/i5 processor -Intel® DMI with up to 2.5 GT/s
System Memory	- Dual-channel DDR3 with four 240-pin DIMM sockets - Support DDR3 1333/1066/800 UDIMMs or RDIMMs, up to 16 GB
Ethernet Port	- Up to 20 GbE ports (16 for PCIe2.0)
Bypass feature	- Up to 6 Gen.2 bypass segment
Storage Device	- One 3.5” or two 2.5” SATA HDD - One onboard compact flash socket for type-I CF, supports DMA mode
Serial Port	- 1 front accessible RJ45 connector for system console - 1 internal 2x5 pin connector for connecting with EZIO or other device
LCD Panel	Support 16x2 characters or 128x32/128x64 LCD module with buttons
LED	LED indicators for power status, storage access, Ethernet status/speed and bypass status
USB	Dual USB 2.0 ports
VGA	Built-in on-board 2x5 pin-header
Power	80 Plus bronze level Certified 300 W ATX PSU
Dimension	438(W) x 457(D) x 44(H) mm, 17.20”(W) x 18.00”(D) x 1.73” (H)
Operation Environment	- Temperature: 5 to 35°C (41~95°F) - Humidity: 20% ~ 90%RH
Storage Environment	- Temperature: -20 to 70°C (-4~158°F) - Humidity: 5% ~ 95%RH
Certification	CE/FCC/UL

1.7 CPU and Memory support

1.7.1. CPU support

CPU	Core Freq. (GHZ)	Turbo in GHz (4C/3C/2C/1C)	Cache (MB)	Cores/ Threads	DDR3 Memory Speed Support			PCIe Config[1]			RDIMM	ECC[2]	TDP	AES NI	VT-x	VT-d	TXT	Int. GFx[3]
					800	1066	1333	1x16	2x8	4x4								
Intel® Xeon® X3480	3.06	3.33/3.33/3.6/3.73	8	4/8	✓[4]	✓	✓	✓[1]	✓	✓	✓	✓	95		✓	✓	✓	
Intel® Xeon® X3470	2.93	3.2/3.2/3.46/3.6	8	4/8	✓[4]	✓	✓	✓[1]	✓	✓	✓	✓	95		✓	✓	✓	
Intel® Xeon® X3460	2.8	2.93/2.93/3.33/3.46	8	4/8	✓[4]	✓	✓	✓[1]	✓	✓	✓	✓	95		✓	✓	✓	
Intel® Xeon® X3450	2.67	2.8/2.8/3.2/3.2	8	4/8	✓[4]	✓	✓	✓[1]	✓	✓	✓	✓	95		✓	✓	✓	
Intel® Xeon® X3440	2.53	2.66/2.66/2.8/2.93	8	4/8	✓[4]	✓	✓	✓[1]	✓	✓	✓	✓	95		✓	✓	✓	
Intel® Xeon® X3430	2.4	2.53/2.53/2.66/2.8	8	4/4	✓[4]	✓	✓	✓[1]	✓	✓	✓	✓	95		✓	✓	✓	
Intel® Xeon® L3426	1.86	2.13/2.13/3.06/3.2	8	4/8	✓[4]	✓	✓	✓[1]	✓	✓	✓	✓	45		✓	✓	✓	
Intel® Xeon® L3406	2.26	2.53/2.53	4	2/4		✓		✓	✓			✓	30		✓	✓	✓	
Intel® Core™ i5-680	3.6	3.73/3.86	4	2/4		✓	✓	✓	✓			✓	73	✓[5]	✓	✓	✓	✓
Intel® Core™ i5-670	3.46	3.6/3.73	4	2/4		✓	✓	✓	✓			✓	73	✓[5]	✓	✓	✓	✓
Intel® Core™ i5-661[8]	3.33	3.46/3.6	4	2/4		✓	✓	✓	✓			✓	87	✓[5]	✓			✓
Intel® Core™ i5-660	3.33	3.46/3.6	4	2/4		✓	✓	✓	✓			✓	73	✓[5]	✓	✓	✓	✓
Intel® Core™ i5-650	3.2	3.33/3.46	4	2/4		✓	✓	✓	✓			✓	73	✓[5]	✓	✓	✓	✓
Intel® Core™ i3-550	3.2	0/0	4	2/4		✓	✓	✓	✓			✓	73		✓			✓
Intel® Core™ i3-540	3.06	0/0	4	2/4		✓	✓	✓	✓			✓	73		✓			✓
Intel® Core™ i3-530	2.93	0/0	4	2/4		✓	✓	✓	✓			✓	73		✓			✓
Intel® Pentium® G6950	2.8	0/0	3	2/2		✓		✓	✓			✓	73		✓			✓
Intel® Celeron® G1101 (Off-roadmap)	2.26	0/0	2	2/2		✓		✓	✓			✓[6]	73		✓			✓[7]

* **Note1: Use the Xeon 3450 and Xeon 3430 CPU. Jump JP12 can be set x4x4 or x8x8**
Note2: Use the Core-i5 660 and Core i3 540 CPU. Jump JP12 can only be set x8x8

1.7.2. Memory support

DIMM Configuration	Intel Xeon X3400 series (Quad-core)	Intel Core i5/i3 (Dual-core)	Intel Xeon L3406 Processor
UDIMM non-ECC only	Supported (Not valid by Intel)	Not supported	Not supported
UDIMM ECC only	Supported	Supported	Supported
RDIMM ECC only	Supported	Not supported	Not supported

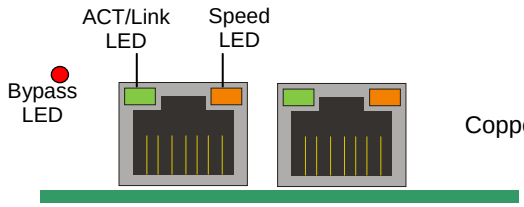
1.8 LED Signaling Standard

1.8.1. Power and Data-access LED

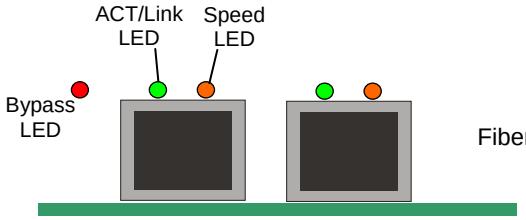
Lettering	Symbol	Function	Color	Signaling
PWR	⏻	Power status	Green	Off – No power, system off. On – Power good, system on.
Data Access	🛢	Data Access	Red	Off – no data access through IDE or SATA channel On – data is in transition through IDE or SATA channel

1.8.2. Ethernet LED

Label	Color	Indication	Status
ACT/LINK	**Green Or Others**	**On**	1. The Ethernet port is receiving power. 2. Good linkage between the Ethernet port and its supporting hub.
		Off	1. The adapter and switch are not receiving power. 2. No connection between both ends of network cable. 3. The drivers of Ethernet have not been loaded or does not function correctly.
	Green Or Others	**Flashing**	The adapter is sending or receiving network data. The frequency of the flashes varies with the amount of network traffic.
SPEED	**Yellow**	**On**	ACT/LNK LED must on then this LED show the operating at 1000 Mbps. If ACT/LINK is off and this function will be disable.
	Green	**On**	ACT/LNK LED must on then this LED show the operating at 100 Mbps. If ACT/LINK is off and this function will be disable.
		Off	ACT/LNK LED must on then this LED show the operating at 10 Mbps. If ACT/LINK is off and this function will be disable.



Copper Ethernet Interface



Fiber/SFP Ethernet Interface

1.8.3. Bypass LED

LED Status	green	red	off
Bypass Mode/Status	normal mode	bypass mode, triggered by WDT expiring	power off, in normal or bypass mode which is defined by customer

Chapter 2 Getting Started

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

2.1 Included Hardware

The following hardware is included in package:

- CAR-4000 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 touches 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 processor chips or memory modules, avoid touching their pins or gold edge fingers. Restore the 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 battery cell used to power the real-time clock be allowed to be shorted. The battery cell may heat up under these conditions and present a burn hazard.

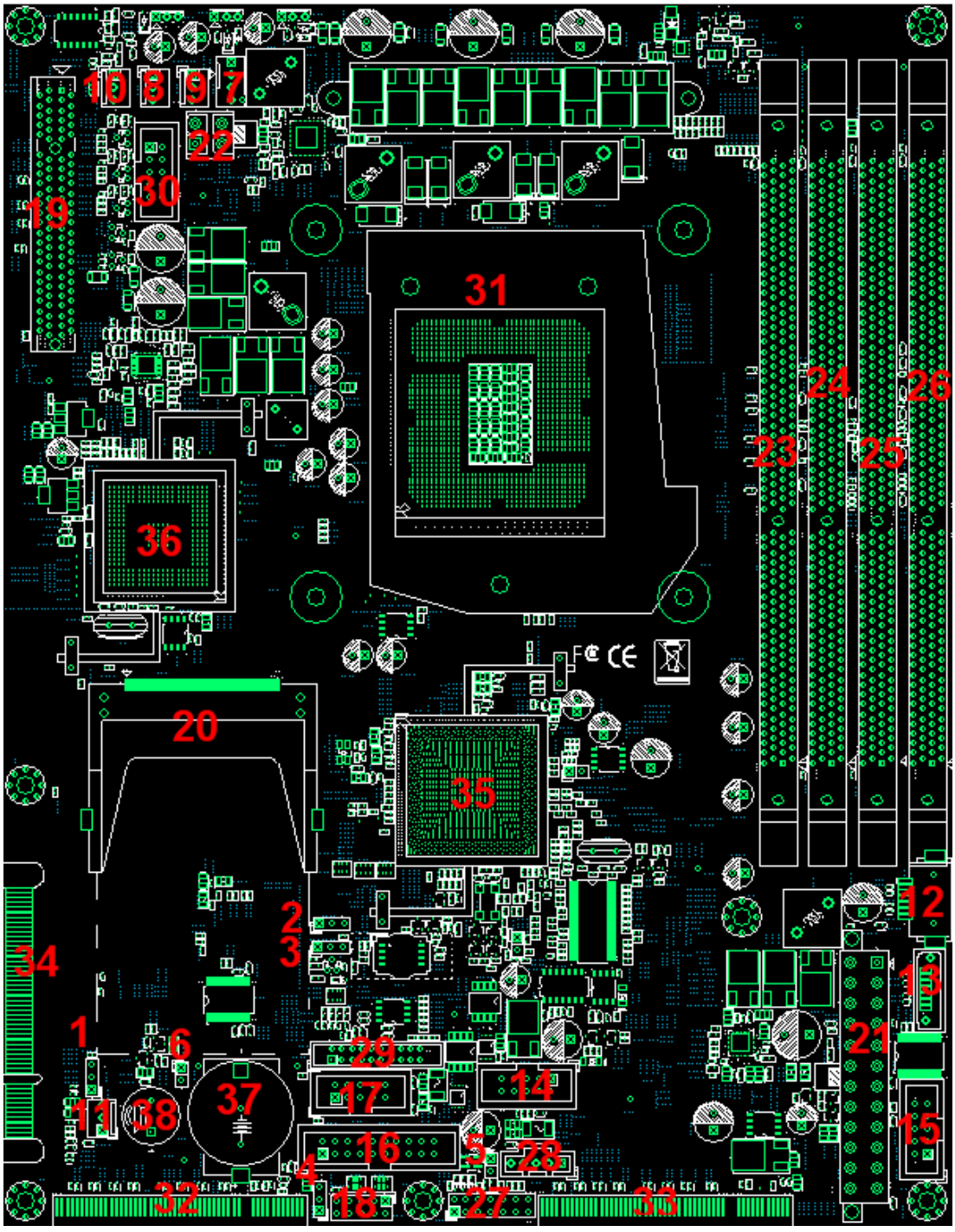
WARNING!

1. **"CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH 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 clearance required.**

2.3.1 CAR-4000 System Board Jumper

In general, jumpers on CAR-4000 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 settings and connector functions



Descriptions

Display number	Reference Designator	Function
1	JP7	PCIE MUX selection
2	JP12	PCIe lanes width selection
3	JP4	CMOS clear
4	JP11	GPIO header supply voltage
5	JP13	WDT# enable/disable
6	JP9	Case open
7	J19	CPU FAN connector
8	J20	SYS FAN connector (rear side)
9	J21	SYS FAN connector (rear side)
10	J22	SYS FAN connector (rear side)
11	J45	SYS FAN connector (front side)
12	J5	SATA connector-1
13	J6	SATA connector-2
14	J15	USB connector
15	J13	COM2 connector (for EZIO)
16	J14	USB/COM1 combo
17	J18	K/B、M/S connector
18	J43	8-bit GPIO connector
19	J11	x8 PCIe SLOT-D (x4 PCIe signals is supported only)
20	J12	CF connector
21	J23	24-pin ATX power connector
22	J24	+12V power connector_
23	J1	Memory channel A, DIMM1(black)
24	J2	Memory channel A, DIMM0(Blue)
25	J4	Memory channel B, DIMM1(black)
26	J3	Memory channel B, DIMM0(Blue)
27	J44	PWR & HDD LED, PWR ON, REST, LDF
28	J42	SMbus connector
29	J16	TPM connector
30	J7	VGA connector
31	U1	CPU socket
32	J8	x8 PCIe SLOT-A
33	J9	x8 PCIe SLOT-B
34	J10	x8 PCIe SLOT-C
35	U7	PCH
36	U13	VGA controller
37	BAT1	Battery
38	BZ1	Buzzer

Jumper setting

(default setting:” ”)

JP7:PCIe MUX selection

JP7	Function
1-2 Short	MUX Selected by PCH * PCIe x 4 default to SLOT-C
2-3 Short	PCIe x4 to SLOT-D

JP12:PCIe lanes width selection

JP12	Function
1-2 Short	2x8
2-3 Short	4x4 *

JP4:CMOS clear

JP4	Function
1-2 Short	No operation *
2-3 Short	Clear CMOS

JP11:GPIO header supply voltage

JP11	Function
1-2 Short	5V
2-3 Short	3.3V *

JP13:WDT# enable/disable

JP13	Function
1-2 Short	Enable WDTO# * (controlled by PCH GPIO32)
1-2 Open	Disable WDTO#

JP9: Case Open Function

JP9	Function
1-2 Short	Case Open
1-2 Open	No case open *

Connector pin out

J15: PIN definition

Pin	Signal Name	Pin	Signal Name
1	GND	2	VCC_USB
3	GND	4	USB2-
5	USB3+	6	USB2+
7	USB3-	8	GND
9	VCC_USB	10	GND

J14: PIN definition

Pin	Signal Name	Pin	Signal Name
1	DCD#1	2	DSR#1
3	RXD#1	4	RTS#1
5	TXD#1	6	CTS#1
7	DTR#1	8	RI#1
9	GND	10	NC
11	GND	12	VCC_USB
13	GND	14	USB0-
15	USB1+	16	USB0+
17	USB1-	18	GND
19	VCC_USB	20	GND

J43: 8-bit GPIO connector definition

Pin	Signal Name	Pin	Signal Name
1	GPIO	2	GPIO
3	GPIO	4	GPIO
5	GPIO	6	GPIO
7	GPIO	8	GPIO
9	Ground	10	+5V or +3.3V

J44: PIN definition

Pin	Signal Name	Pin	Signal Name
1	HD+(+5V)	2	GP+(+5V)
3	HD-	4	YP+
5	GND	6	PWR SW
7	RSET	8	GND
9	DEFAULT-	10	GND
11	RSV	12	RSV
13	RSV	14	RSV

J42: PIN definition

Pin	Signal Name
1	SMBCLK
2	SMBDAT
3	NC
4	GND
5	VCC3

J7: VGA connector definition

Pin	Signal Name	Pin	Signal Name
1	RED	2	DDCCLK
3	GREEN	4	Ground
5	BLUE	6	DDCDATA
7	VSYNC	7	Ground
9	HSYNC	10	N/C

2.4 The Chassis

The system is integrated in a customized 1U chassis (***Fig. 2-1, Fig. 2-2***).

Fig. 2-1 *Front view of the chassis*

Fig. 2-2 *Rear view of the chassis*

2.5 Open the Chassis

1. Loosen the 6 screws of the chassis, two on each side and the rest two on the back, to remove the top lead (***Fig. 2-3***).

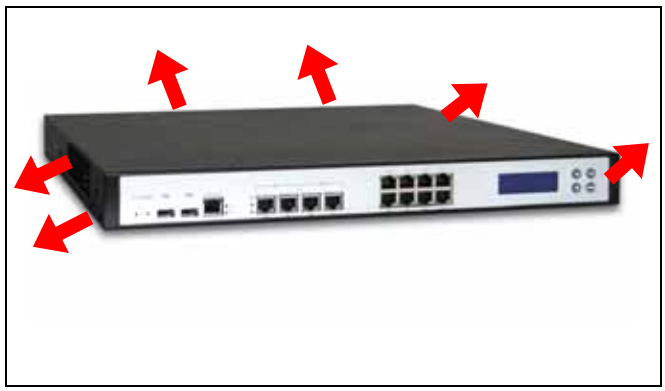


Fig. 2-3 *Take off screws*

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

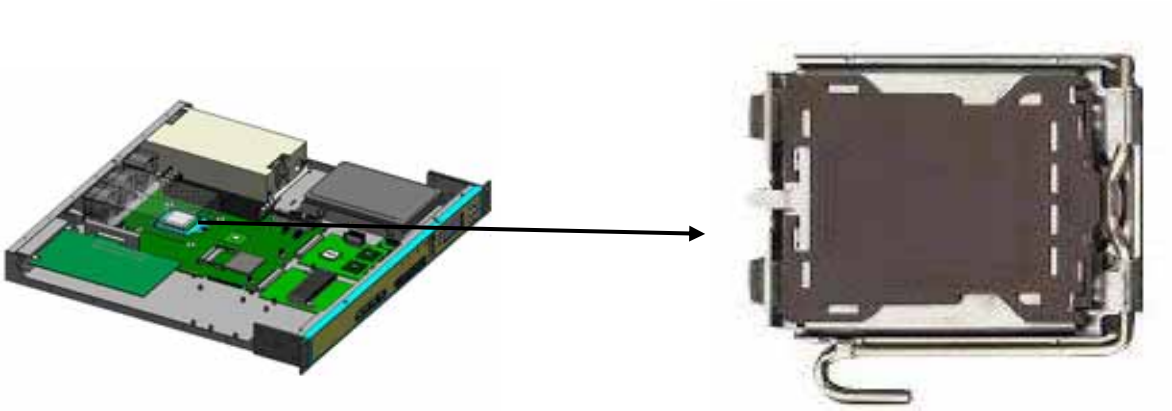
Fig. 2-4 *The top lead*

Fig. 2-5 *The base stand*

2.6 Install a Different Processor

To install a CPU

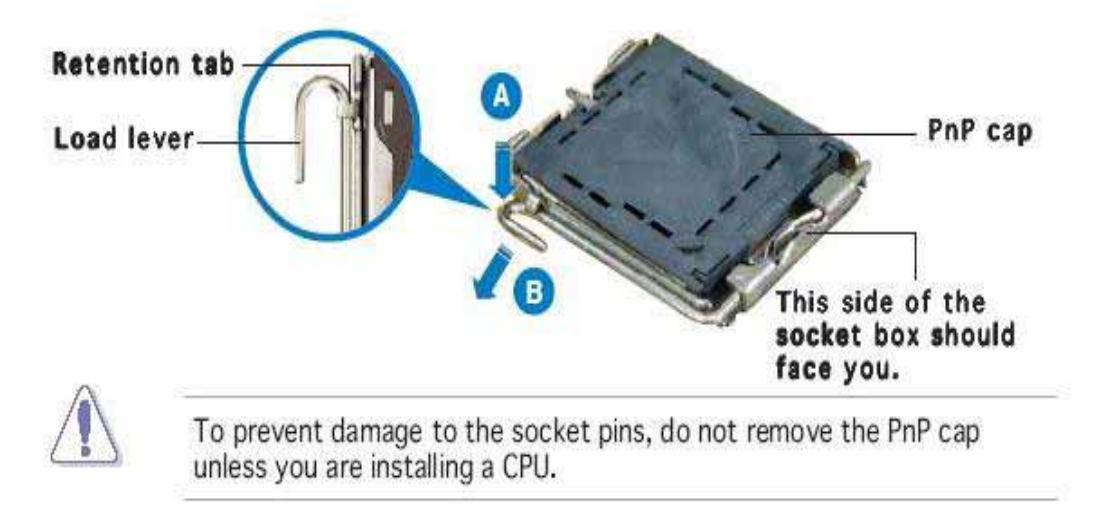
1. Local the CPU socket on the motherboard



CPU socket 1156

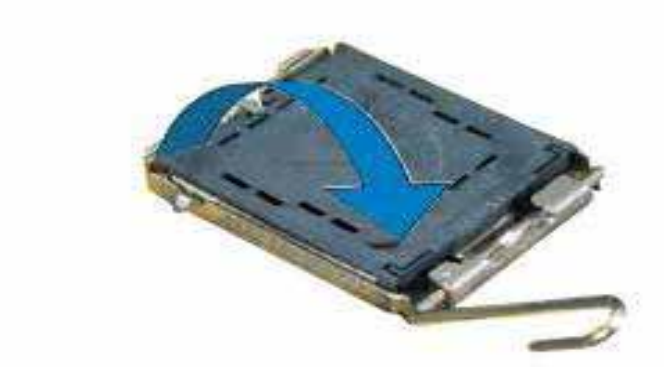
Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

2. Press the load lever with your thumb (A), then move it to left (B) until it is released from the retention tab

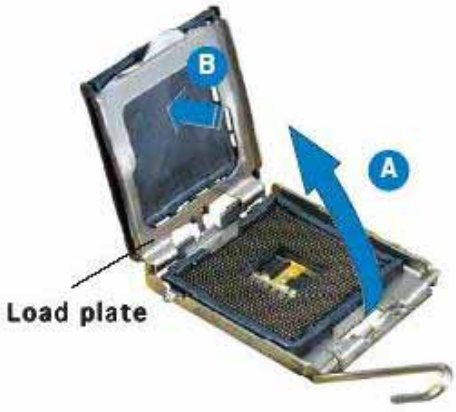


To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

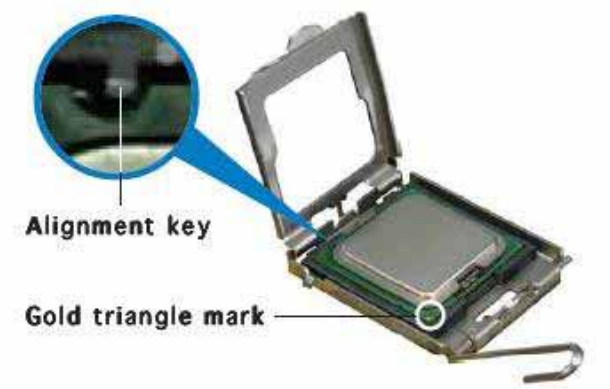
3. Lift the load lever in the direction of the arrow to a 135° angle



4. Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B)



5. Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket. The socket alignment key should fit into the CPU notch



6. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab

The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

Configure Processor Speed

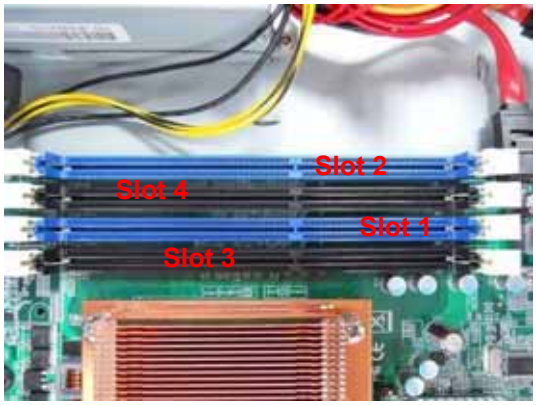
The system was designed to self-detect its CPU speed. So it does not require any system adjustment.

2.7 Remove and Install DIMM

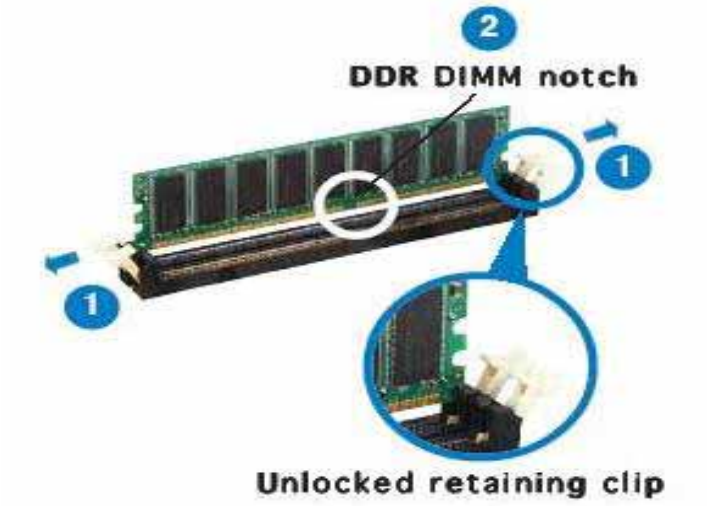
Follow these steps to upgrade RAM module:

Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1. Installs DIMM based on the Slot order

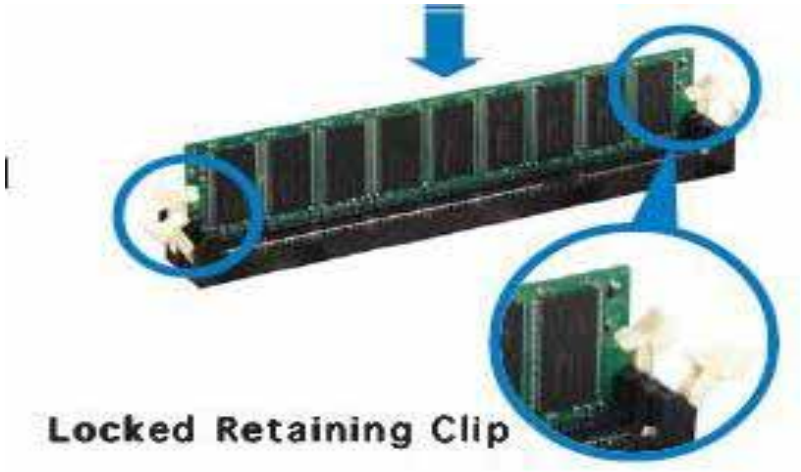


2. Unlock a DIMM socket by pressing the retaining clips outward
3. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket



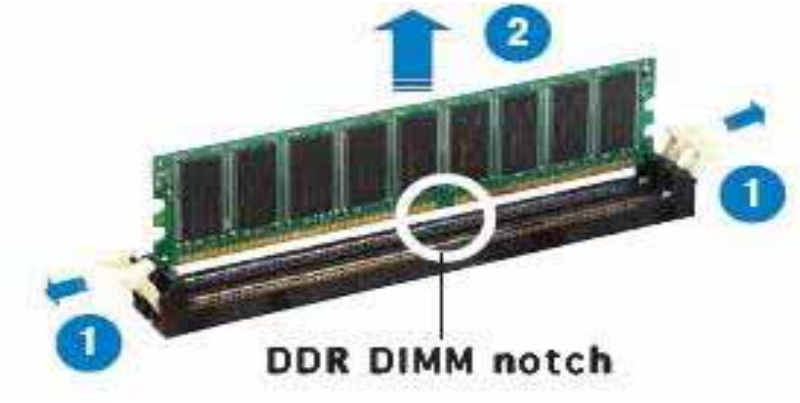
A DDR DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

4. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated



Follow these steps to remove a DIMM:

1. Simultaneously press the retaining clips outward to unlock the DIMM

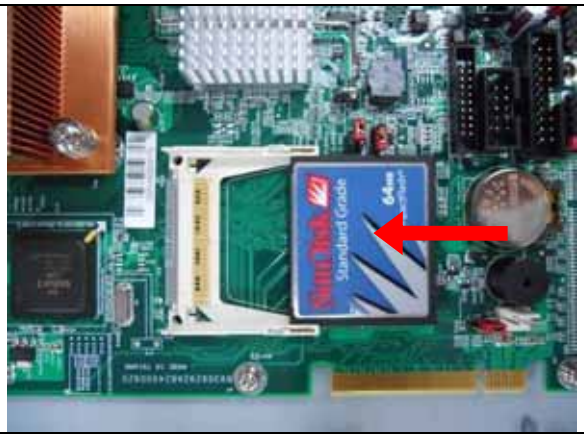


2. Remove the DIMM from the socket

2.8 Remove and Install Compact Flash Card

1. Insert the Compact Flash Card into the CF interface

Compact Flash Card



Insert Compact Flash Card into the CF interface

2. The completed installation of Compact Flash Card is shown as

Completion of Compact Flash Card connection

2.9 Remove and Install Battery

1. Press the metal clip back to eject the button battery
2. Replace it with a new one by pressing the battery with fingertip to restore the battery

Eject the battery

Restore the battery

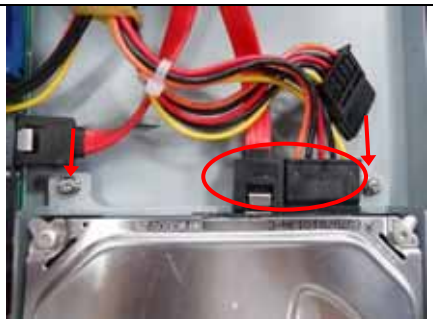
2.10 Install HDD

The system has an internal drive bay for one 3.5" SATA hard disk drive. If the HDD is not pre-installed, you can install it by yourself. Follow the steps below to install the HDD:

3.5”HDD Kit

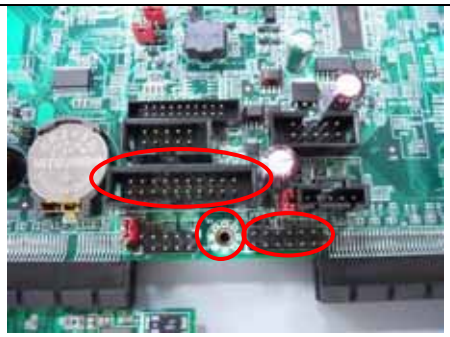
Fix the hard disk drive on the HDD Bracket with four screws.

Fix the hard disk drive on the HDD Bracket with four screws.

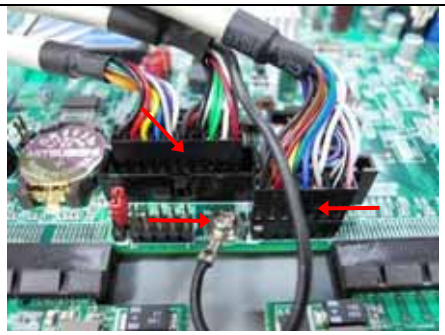


Fasten the two screws to lock Hard disk fixed plate and chassis, Connect Power cable and HDD cable to CAR-4000 system board

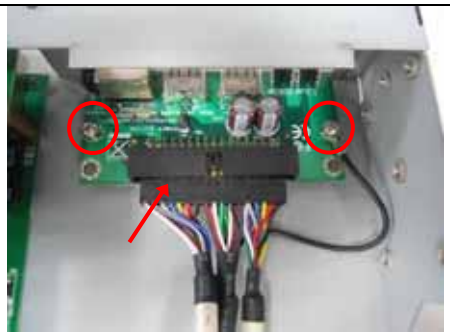
2.11 Install Manager board



Install Manager board control Cable and Manager board GND Cable



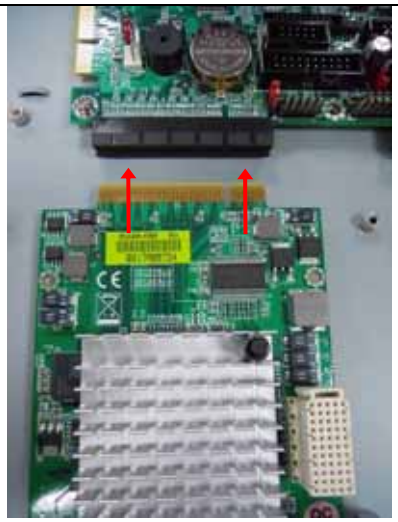
Manager board control Cable and Manager board GND Cable link to system board



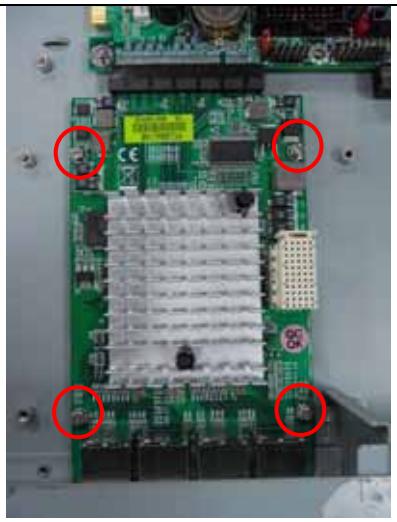
Manager board control Cable and Manager board GND Cable link to chassis

Install manager board finish

2.12 Install ABN-Card link to Slot A or B



Install ABN-Card

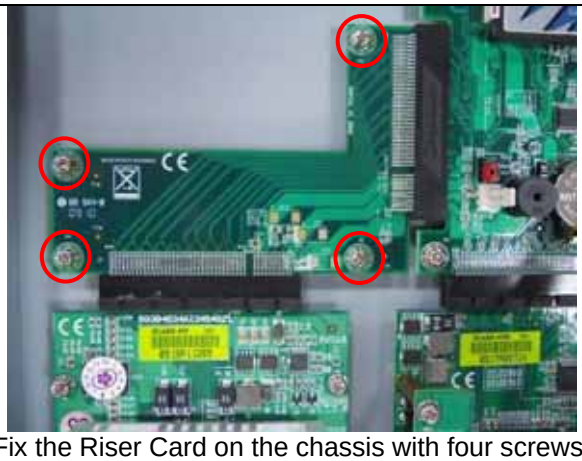


Fix the ABN-Card on the chassis with four screws.

2.13 Install ABN-Card link to Slot C

Install Slot C link to Riser Card

Install ABN-Card link to Slot C



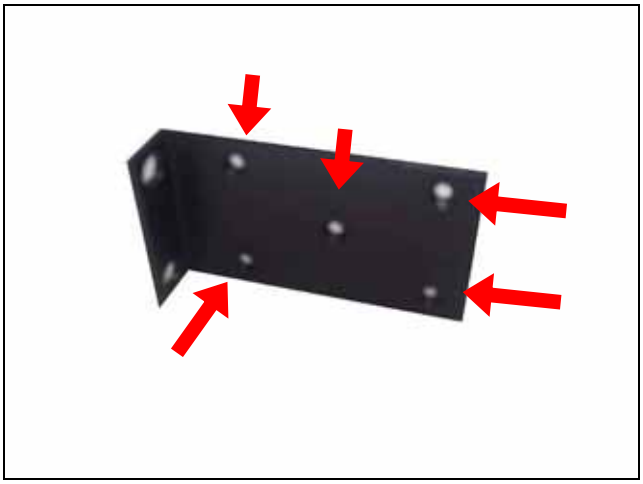
Fix the Riser Card on the chassis with four screws.

Fix the ABN-Card on the chassis with four screws.

2.14 Ear Mount Kit Installation

The CAR-4000 series shipped with 2 ear mount kits. The following is the installation instruction of these ear mounts:

1. Take out the L shape ear mount kits. One ear mount fits on one side of the chassis,
2. Placing the side with four holes agonists the chassis and the side with two holes face outward.
3. Fasten five screws on each side



Fasten the screws to the side

2.15 Remove EZIO / LCD

The CAR-4000 series support EZIO modules. The following is the remove instruction of these EZIO/LCD modules:

1. Remove all cables from EZIO

Fig.2-14 *Remove the cable from EZIO*

Fig.2-15 *After remove the cable from EZIO*

2. Remove the screws from chassis.

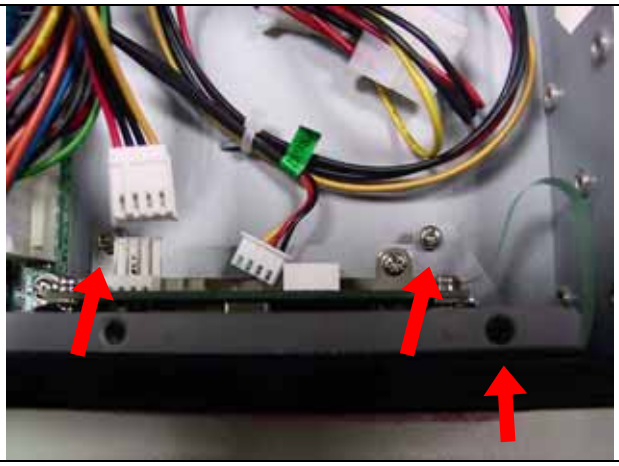
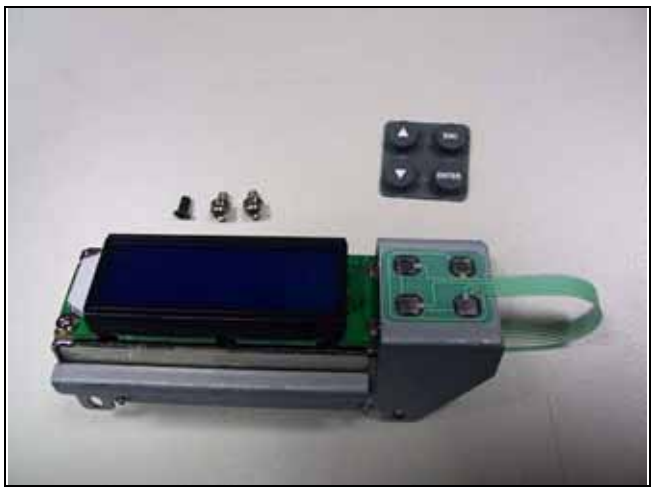


Fig.2-16 *Remove the screws from EZIO*

Fig.2-17 *Remove screws from chassis.*



EZIO

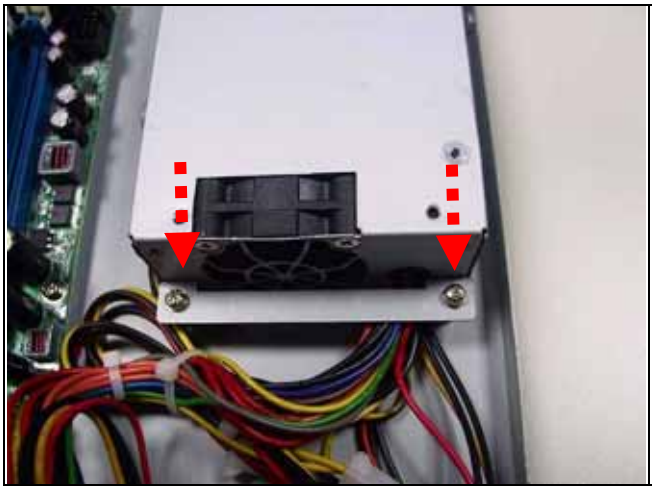
2.16 Remove Power Supply

The following is the remove step instruction of power supply.

1. Remove all power cables from main board.
2. Remove the screws from PSU

Remove all cables from board

Remove all cables from board



Remove the screws from PSU

Remove the screws from PSU

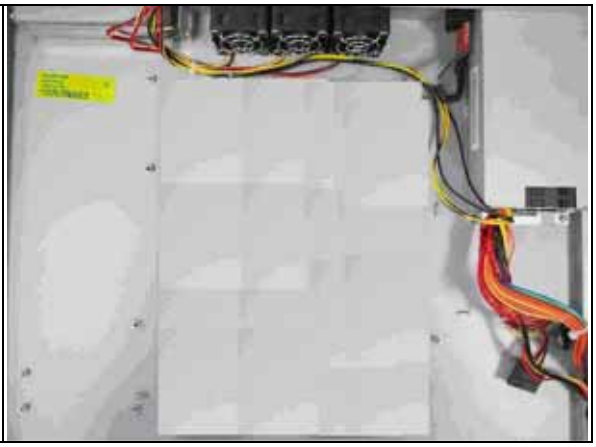
Complete remove power supply

2.17 Remove main board

The following is the remove step instruction of main board.

1. Remove all cables and heatsink from main board.
2. Remove all screws from main board.

Remove all cables and heatsink from main board



Complete remove main board

2.18 Use a Client Computer

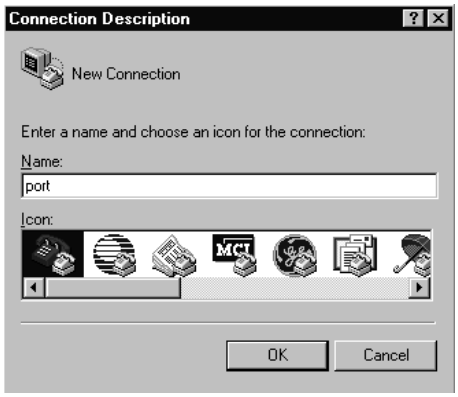
Connection Using Hyper Terminal

If users use a headless CAR-4000 system, which has no mouse/keyboard and VGA output connected to it, the console may be used to communicate with CAR-4000.

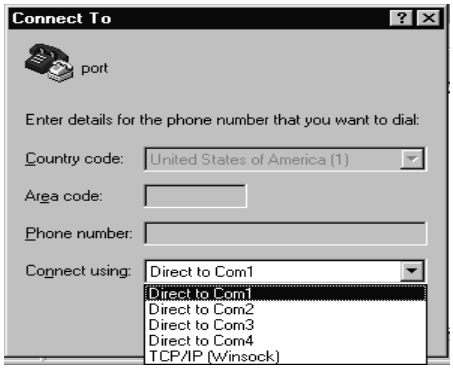
To access CAR-4000 via the console, Hyper Terminal is one of many choices. Follow the steps below for the setup:

Note: Terminal software may need to update for correct console output.

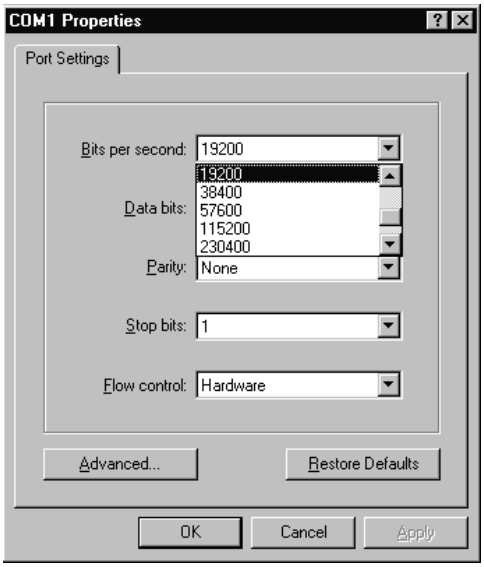
1. Execute HyperTerminal under C:\Program Files\Accessories\HyperTerminal
2. Enter a name to create new dial



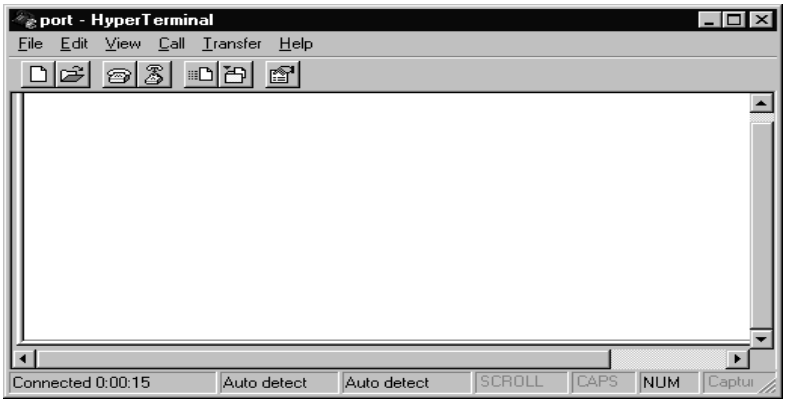
3. For the connection settings, make it Direct to Com1.



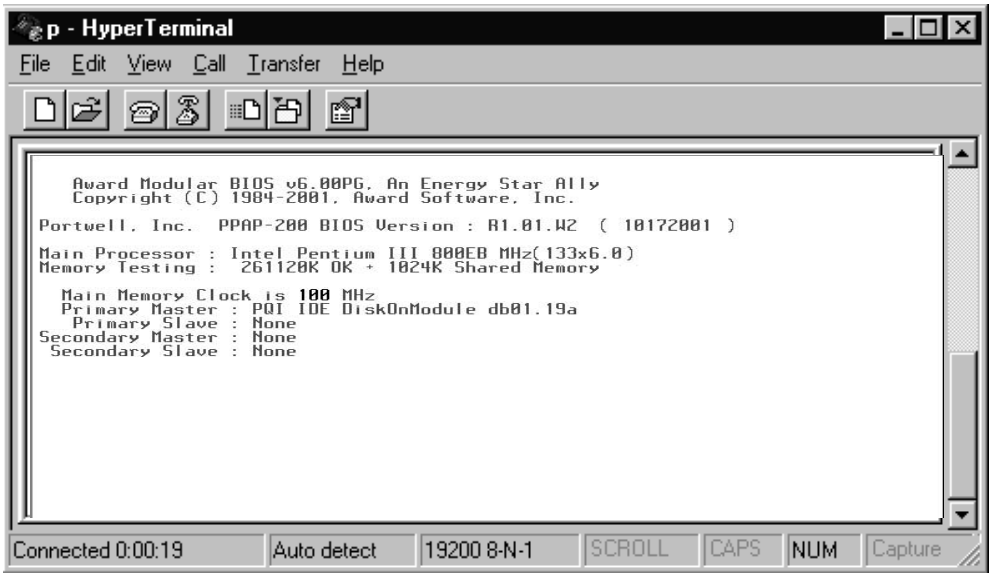
4. Please make the port settings to Baud rate 19200, Parity None, Data bits 8, Stop bits 1



5. Turn on the power of CAR-4000 system, after following screen was shown:



6. You can then see the boot up information of CAR-4000.



7. When message “Hit <DEL> if you want to run Setup” appear during POST, after turning on or rebooting the computer, press **<Tab>** key ***immediately*** to enter BIOS setup program.

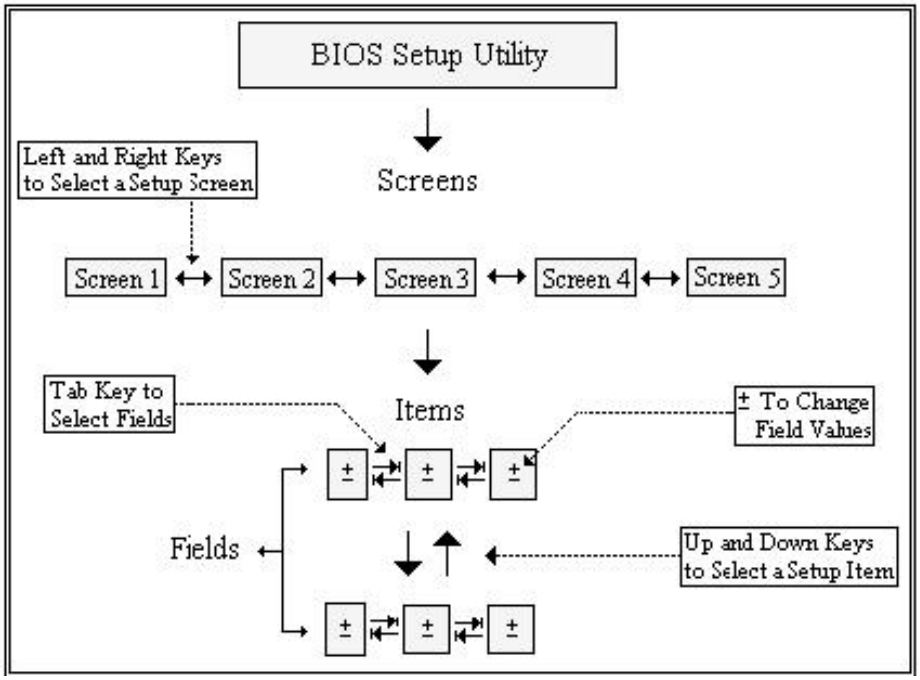
This is the end of this section. If the terminal did not port correctly, please check the previous steps.

Chapter 3 BIOS Setting

3.1 BIOS Setup Information

Power on the system, press the <Del> to run BIOS setup. After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.



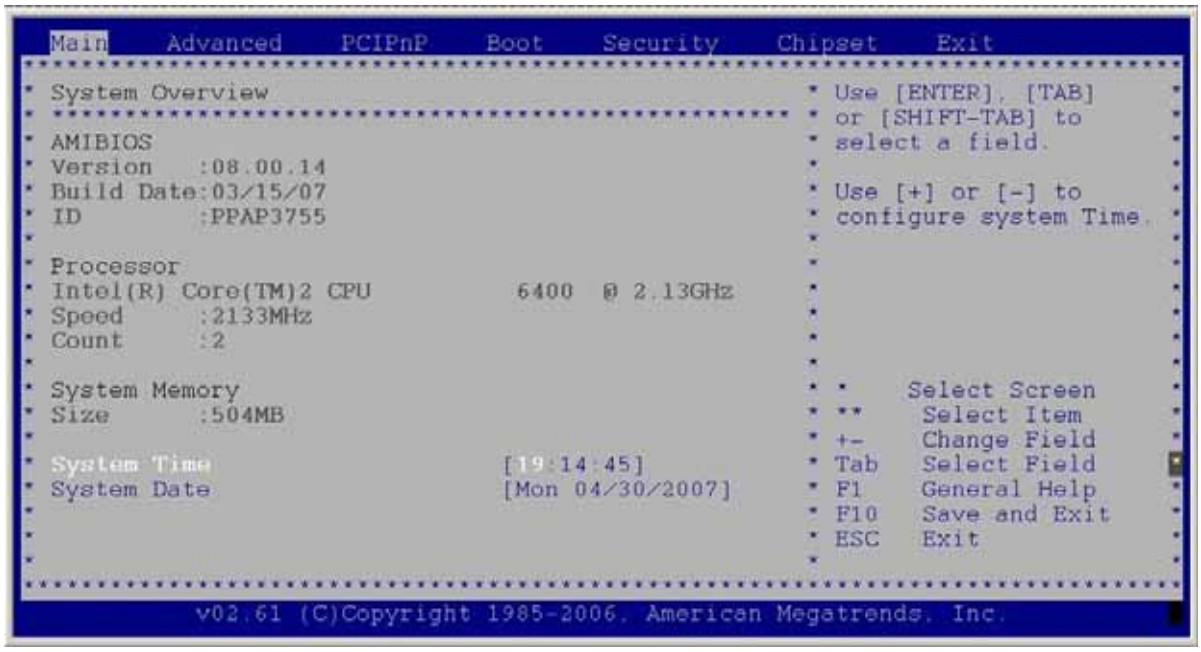
Control Keys

Key	Function
↑↓Up /Down	The *Up and Down* <Arrow> keys allow you to select a setup item or sub-screen.
→ ← Left/Right	The *Left and Right* <Arrow> keys allow you to select a setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
+ - Plus/ Minus	The *Plus and Minus* <Arrow> keys allow you to change the field value of a particular setup item. For example: Date and Time.
Tab	The <Tab> key allows you to select setup fields.

Hot Key	Description
F1	The <F1> key allows you to display the *General Help screen*. Press the <F1> key to open the *General Help screen*. **General Help** ↔ Select Screen ↓↑ Select Item + - Change Screen Enter Go to Sub Screen PGDN Next Page PGUP Previous Page Home Go to Top of the Screen End Go to Bottom of Screen F2/F3 Change Colors F7 Discard Changes F8 Load Failsafe Defaults F9 Load Optimal Defaults F10 Save and Exit ESC Exit [Ok]
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes. The following screen will appear: Save configuration changes and exit now? [Ok] [Cancel] Press the <Enter> key to save the configuration and exit. You can also use the <Arrow> key to select *Cancel* and then press the <Enter> key to abort this function and return to the previous screen.
ESC	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes. The following screen will appear: Discard changes and exit setup now? [Ok] [Cancel] Press the <Enter> key to discard changes and exit. You can also use the <Arrow> key to select *Cancel* and then press the <Enter> key to abort this function and return to the previous screen.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the *Main* tab. There are two Main Setup options. They are described in this section.



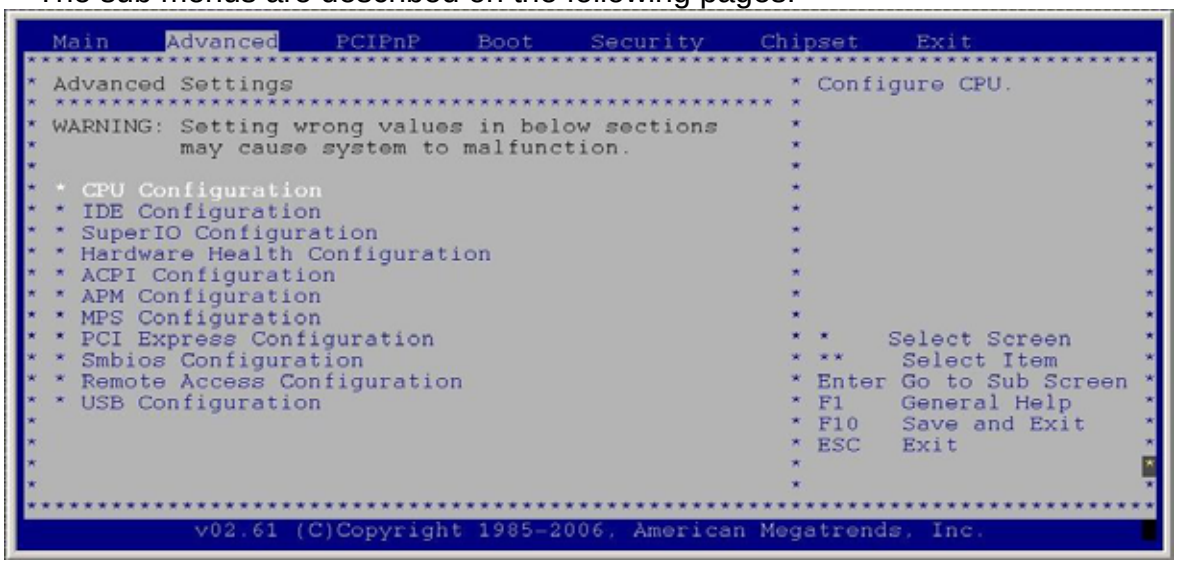
System Date / Time

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

➢ Advanced BIOS Setup

Select the *Advanced* tab from the setup screen to enter the Advanced BIOS Setup screen.

You can select any of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub menus are described on the following pages.



➢ IDE Configuration Setup

From the IDE Configuration screen, press <Enter> to access the sub menu. Use the up and down <Arrow> keys to select an item. The settings are described on the following pages.

➢ SUPER IO CONFIGURATION

Super IO Configuration

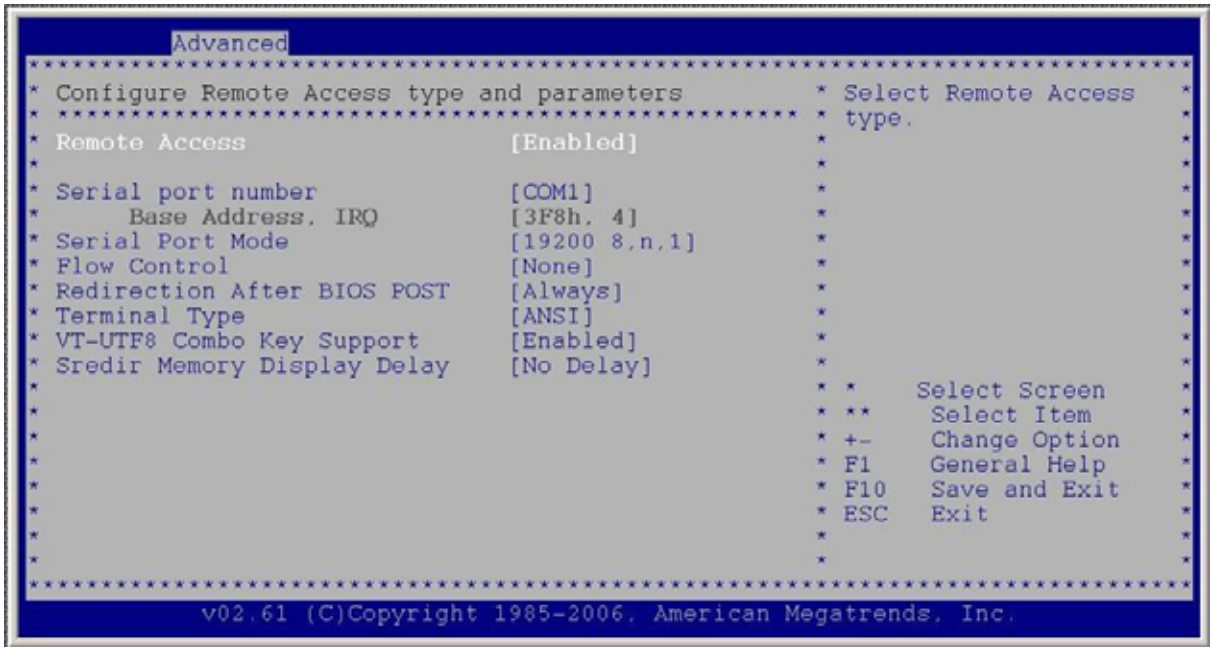
You can use this screen to select options for the Super I/O settings. Use the up and down

<Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

➢ REMOTE ACCESS CONFIGURATION

Remote Access Configuration

You can use this screen to select options for the Remote Access Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



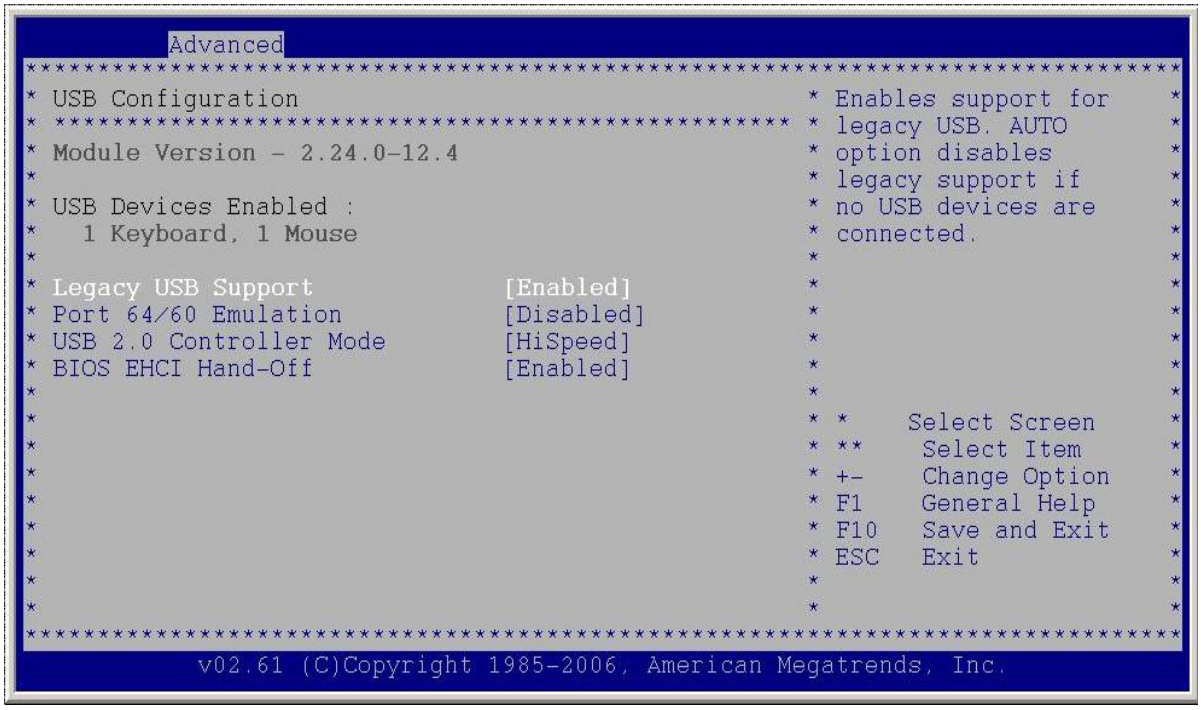
Remote Access
You can disable or enable the BIOS remote access feature here.

Serial Port Number
Select the serial port you want to use for console redirection. You can set the value for this option to either *COM1* or *COM2*.

Serial Port Mode
Select the baud rate you want the serial port to use for console redirection.

➢ USB Configuration

You can use this screen to select options for the USB Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



Legacy USB Support
Legacy USB Support refers to the USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard will not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB drivers loaded on the system. Set this value to enable or disable the Legacy USB Support. The Optimal and Fail-Safe default setting is *Disabled*.

➢ CPU Configuration

You can use this screen to select options for the CPU Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.

Note: The CPU Configuration setup screen varies depending on the installed processor.

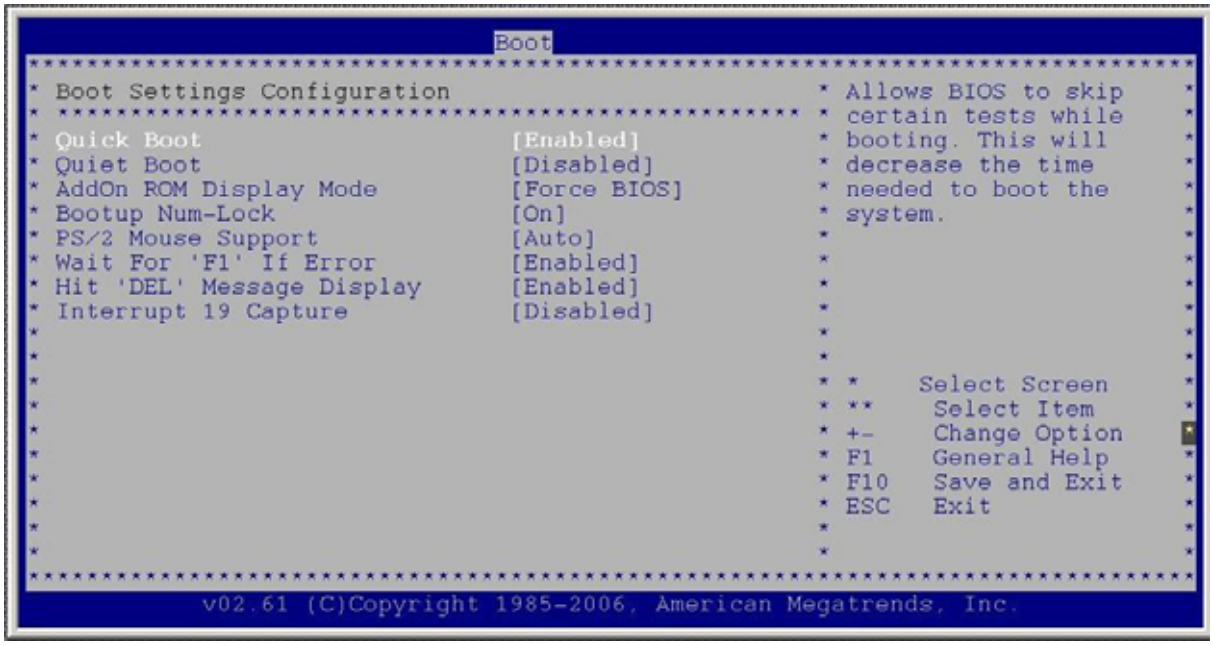
➢ Boot Settings

Select the *Boot* tab from the setup screen to enter the Boot BIOS Setup screen.

➢ BOOT SETTINGS CONFIGURATION SCREEN

Boot Settings Configuration

Use this screen to select options for the Boot Settings Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



Quick Boot

The Optimal and Fail-Safe default setting is *Disabled*.

Quiet Boot

Set this value to allow the boot up screen options to be modified between POST messages or OEM logo. The Optimal and Fail-Safe default setting is *Enabled.*

Add-On ROM Display Mode

Set this option to display add-on ROM (read-only memory) messages. The Optimal and Fail-Safe default setting is *Force BIOS*. An example of this is a SCSI BIOS or VGA BIOS.

Boot up Num-Lock

Set this value to allow the Number Lock setting to be modified during boot up. The Optimal and Fail-Safe default setting is *On.*

PS/2 Mouse Support

Set this value to allow the PS/2 mouse support to be adjusted. The Optimal and Fail-Safe default setting is *Enabled*

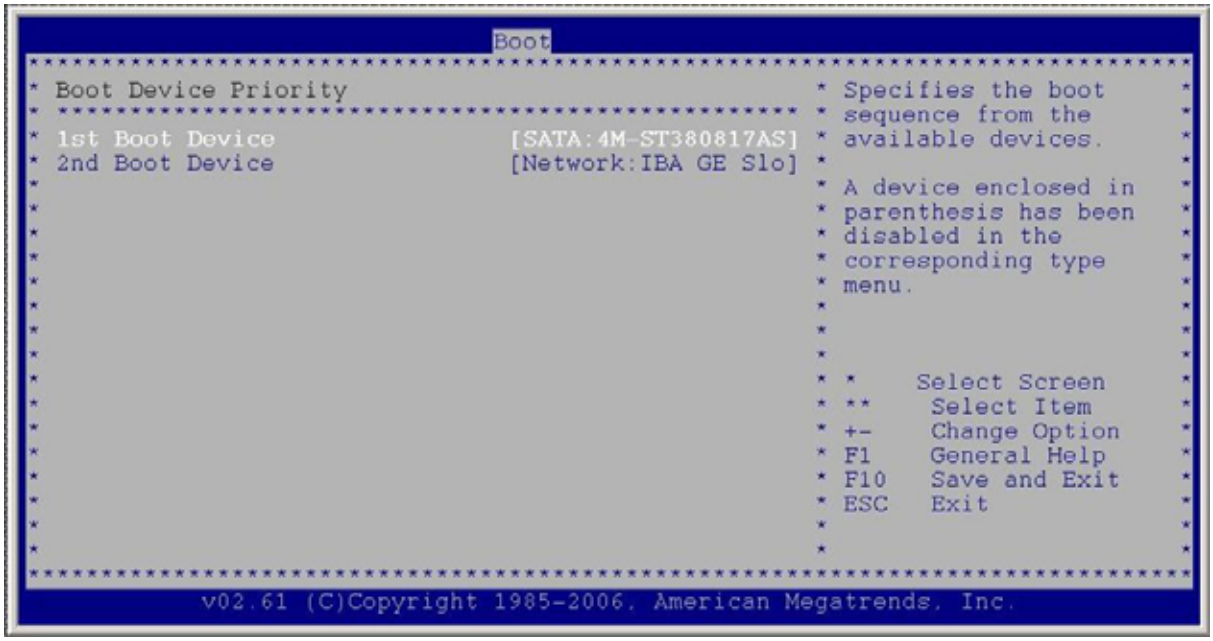
Interrupt 19 Capture

Set this value to allow option ROMs such as network controllers to trap BIOS interrupt 19.

➢ BOOT DEVICE PRIORITY

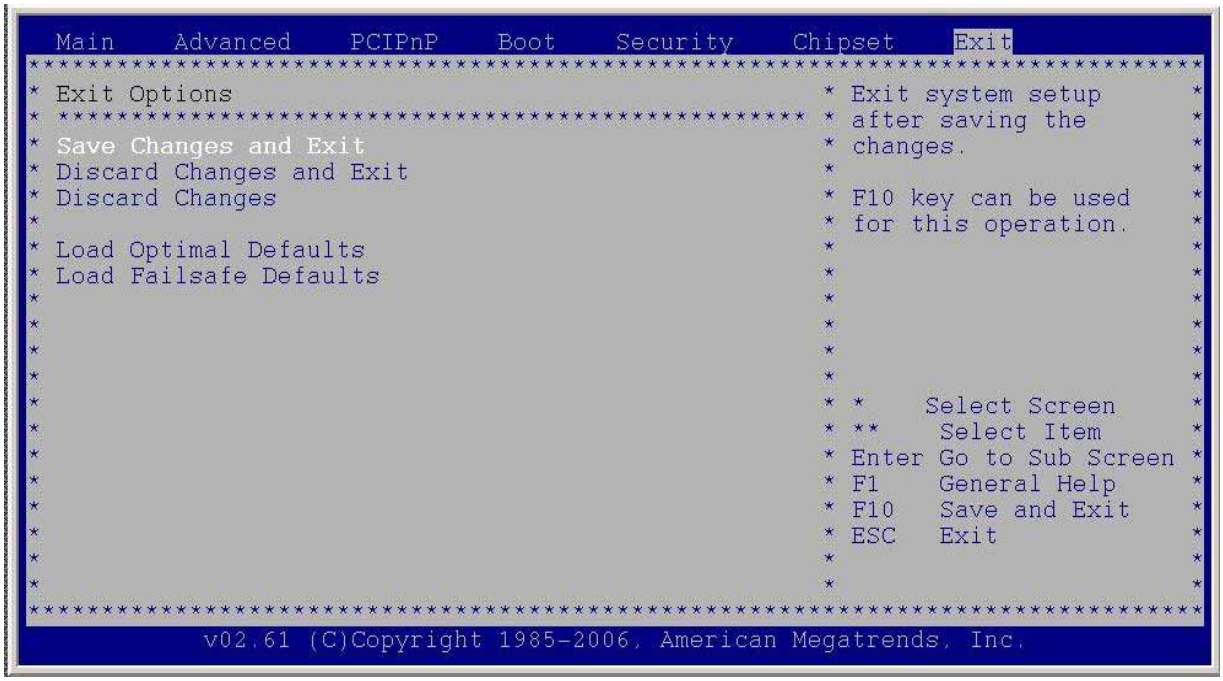
Boot Device Priority

Use this screen to specify the order in which the system checks for the device to boot from. To access this screen, select Boot Device Priority on the Boot Setup screen and press <Enter>. The following screen displays:



➢ Exit Menu

Select the *Exit* tab from the setup screen to enter the Exit BIOS Setup screen. You can display an Exit BIOS Setup option by highlighting it using the <Arrow> keys. All Exit BIOS Setup options are described in this section. The Exit BIOS Setup screen is shown below.



Saving Changes and Exit
When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Exit Saving Changes from the Exit menu and press <Enter>.

Discarding Changes and Exit
Select this option to quit Setup without making any permanent changes to the system configuration. Select Exit Discarding Changes from the Exit menu and press <Enter>.

Discard Changes
Select Discard Changes from the Exit menu and press <Enter>.

Load Optimal Defaults
Automatically sets all Setup options to a complete set of default settings when you select this option. Select Load Optimal Defaults from the Exit menu and press <Enter>.

Load Fail-Safe Defaults
Automatically sets all Setup options to a complete set of default settings when you select this option. The Fail-Safe settings are designed for maximum system stability, but not maximum performance. Select the Fail-Safe Setup options if your computer is experiencing system configuration problems.
Select Load Fail-Safe Defaults from the Exit menu and press <Enter>.