CAR-1000 Series
Communication Appliance

User's Manual

Revision: 1.0

CE

This certificate of conformity of CAR-1000 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.

TÜV CERT ISO 9001

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Chapter 1 Introduction

1.1 About This Manual

This manual contains all required information for setting up and using the CAR-1000 series.

CAR-1000 provides the essential platform for delivering optimal performance and functionality in the value communications appliance market segment. This manual should familiarize you with CAR-1000 operations and functions. CAR-1000 series provide up to six on-board Ethernet ports to serve communication applications like Firewall, requiring six Ethernet ports to connect external network (internet), demilitarized zone and internal network.

CAR-1000 series overview:

- Embedded Intel Atom N450/D510/D410 1.66 GHz
- Up to 4GB support un-buffered SODIMM DDR2 800
- Three USB ports(one is behind) and two COM ports
- Two SATA connectors for SATA Hard disk
- PCI-E architecture with totally six x1 PCI-E interfaces
- One PCI-E x8 Golden finger GF reserved for proprietary daughter card in R/M
- Provides absolute high flexibility of customized I/O configuration

1.2 Manual Organization

This manual describes how to configure your CAR-1000 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.

1.3 Technical Support Information

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

1.4 Board Layout

Figure 1-1 Board Layout of CAR-1000 M/B

1.5 System Block Diagram

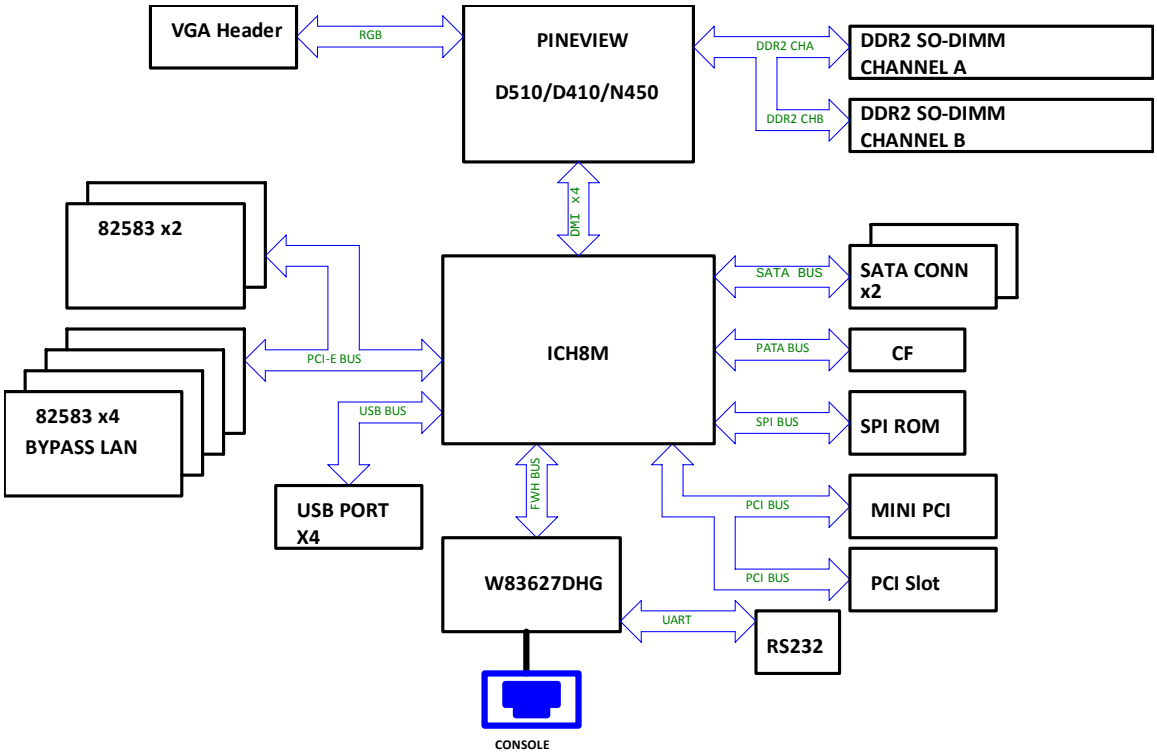
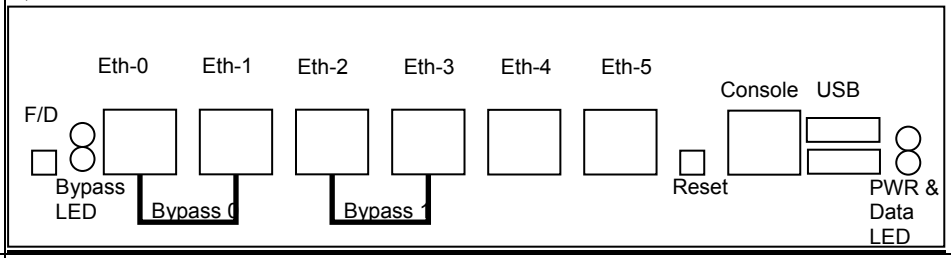


Figure 1-2 CAR-1000 Basic Block Diagram

1.6 Product Specifications

#	Feature	Detailed Description
1	CPU	Intel Atom N450/D510/D410 1.66 GHz
2	CPU Board	◆ Intel Pineview-M and Pineview- D with Intel® 82801HM I/O Controller (ICH8M) ◆ Board size: 203 mm / 8” (L) x 203 mm / 8” (W)
3	System Memory	◆ Two 200-pin SODIMM socket ◆ Supports un-buffered DDR2 6 67/800 up to 4GB w/ Pineview- D processors and DDR2 667 up to 2 GB w/ Pineview-M processor
4	Power Supply	◆ MPE-008A-P ◆ AC On/Off switch ◆ AT open frame with total 80W power output ◆ Certification: CE, UL, 3C
5	Ethernet	◆ Six PCI-E (x1) Gigabit Ethernet port based on Intel 82583V Ethernet controller from ICH8M. PXE function is included. (Eth-0) ◆ one internal RJ45 share one Ethernet above ◆ Two Gen 1.5 bypass segments
6	SATA Interfaces	◆ Two SATA Interfaces on board
7	*Front Panel*	◆ No EZIO on STD product but reserved for customer demand. ◆ RJ45 connector for system console, tab-down, no LED. Pin-definition refers to Appendix-B. One integrated connector with dual-USB connector as option. ◆ Six RJ-45 connector for PCI-E (x1) GbE interfaces ◆ Hardware **Reset Button** ◆ **Factory Default button**. (On board or by cable) ◆ Reserved **Power button** for project inquiry. ◆ LED**:** Signaling standard refer to Appendix-E - **System LED**: Power, Data access. - **Ethernet LED**: For every Ethernet interface there should be LEDs for link status and speed of LAN-ports**.** - **Bypass LED** ◆ 
8	*Rear Panel*	◆ Reserved semi-cutting opening of D-Sub 15 connector. ◆ AC power inlet ◆ Power on/off switch ◆ Opening for system ventilation.
9	Golden finger	◆ One PCI-E x8 GF reserved for proprietary daughter card in R/M

<table>
<tr><th>#</th><th>Feature</th><th>Detailed Description</th></tr>
<tr><td>10</td><td>Dimension</td><td>◆ W:443mm/17.4” x D:292mm /11.5” x H: 44mm /1.73” (1U)</td></tr>
<tr><td>11</td><td>Environmental requirement</td><td>
<table>
<tr><td></td><td>Operating</td><td>Storage</td></tr>
<tr><td>Acoustics</td><td>< 55dB</td><td>--</td></tr>
<tr><td>Temperature</td><td>0°C to 40°C</td><td>-20°C to 75°C</td></tr>
<tr><td>Relative Humidity</td><td>10 to 90% RH</td><td>5 to 95% RH</td></tr>
<tr><td>Shock</td><td>0.5 Sine shock, 10G peak, 10 +/- 3 ms on (X,Y,Z) axis</td><td></td></tr>
<tr><td>Vibration</td><td>0.5G (Peak) / 5~500 Hz, 2hours at each of Z axis</td><td>(Packaged) Sine Wave,2.0G / 5~500 Hz, 2hours at each axis(X,Y,Z)</td></tr>
<tr><td>Transportation</td><td></td><td>(Packaged) 0.5 sine shock, 50G peak on each surface.</td></tr>
<tr><td>Drop</td><td></td><td>(Packaged) H= 1.2M</td></tr>
<tr><td>Random Vibration</td><td></td><td>(Packaged) Sine Wave,2.8G / 5~500 Hz, 1hours at each axis(X,Y,Z)</td></tr>
</table>
</td></tr>
</table>

Note 1: For system stability and performance, please install Fedora Core 4 (2.6.11-1.1369) and Intel 82574 driver version e1000e-0.5.8.2 and add Linux kernel option on boot loader

Note 2: For Linux kernel 2.4 distribution, add kernel option on boot loader “hda=noprobe hdb=noprobe”
This parameter should increase the SATA HDD performance
For example: kernel /boot/vmlinuz-2.6.9-42.0.3.ELsmp ro root=LABEL=/ rhgb quiet had=noprobe hdb=noprobe

Note 3: For Linux kernel 2.6 distribution add kernel option on boot loader “ all-generic-ide”
For exampl e: kernel /boot/vmlinuz-2.6.9 -42.0.3.ELsmp ro root =LABEL=/ rhgb qui et all-generic-ide ==> **"all-generic-ide"**, this option will let kernel identify the device on IDE bus, and enable DMA

Note 4: For syste m sta bility, when execute soft ware reset, system w ill delay 2 ~3 seco nds; wh en execute hardware reset, system will cut off the power 1~2 seconds, the foregoing situation is normal.

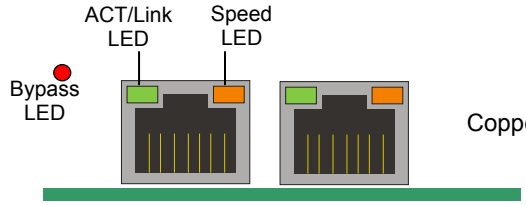
1.7 LED Signaling Standard

1. Power and Data-access LED

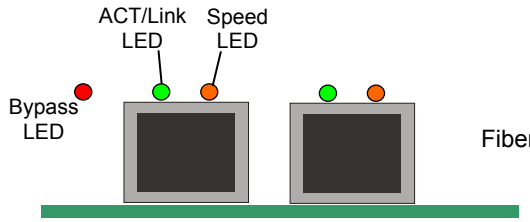
Lettering	Symbol	Function	Color	Signaling
PWR		Power status	Green	Off – No power, system off. On – Power good, system on.
Data Access		Data Access	Red	Off – no data access through IDE or SATA channel On – data is in transition through IDE or SATA channel

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

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-1000 Communication Appliance System Board
- One null serial port cable

Note: "Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

2.2 Before You Begin

To prevent damage to any system board, it is import ant 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 removi ng the board from the antistatic bag. Handle the board by its edges only; do not touch its com ponents, peripheral chips, memory modules or gold contacts.

When handling processor chips or memory modules , avoid touching their pins or gold edge fingers. Restore the communica tions appliance system board and peripherals back i nto th e 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!

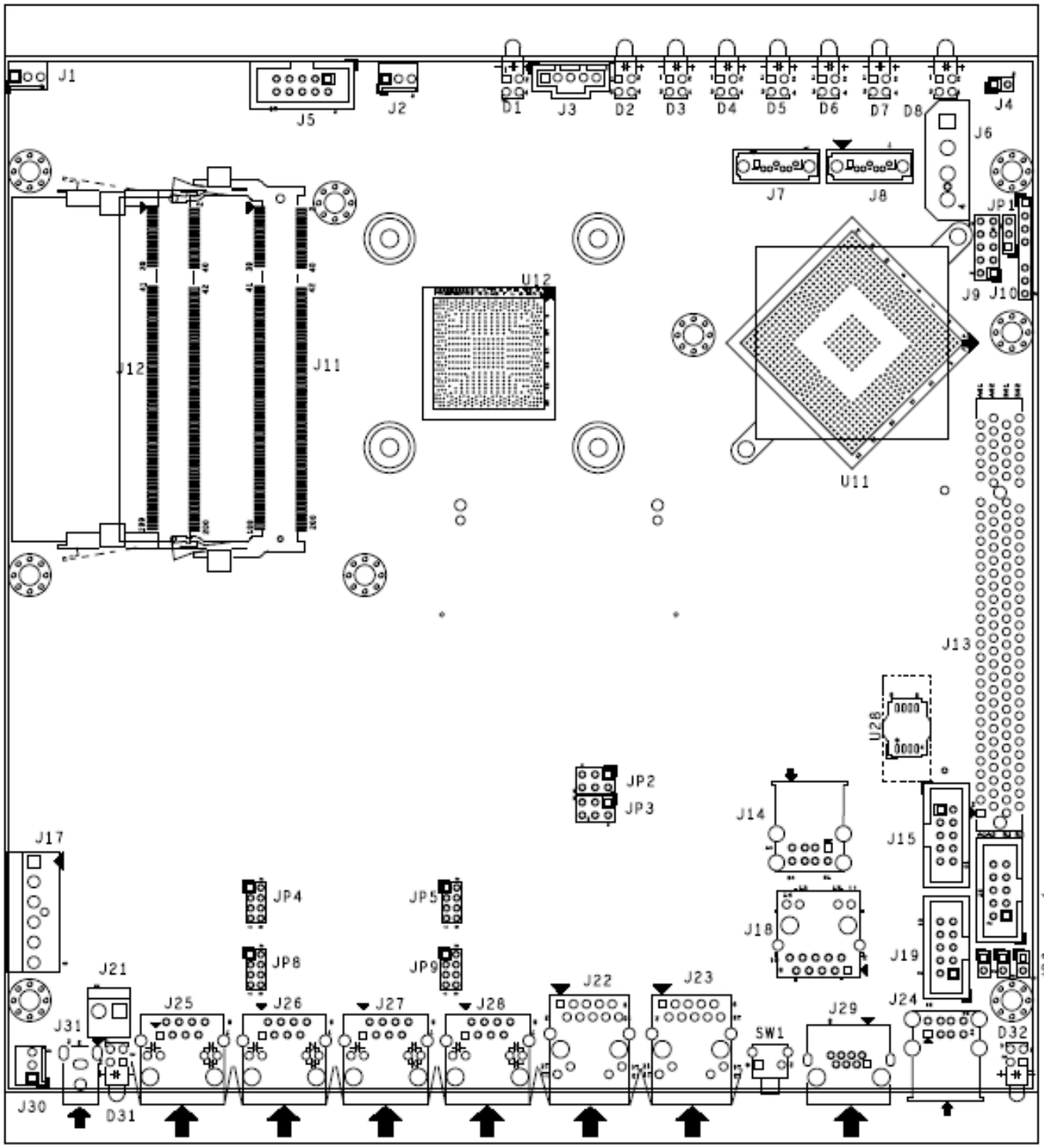
1. **"CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS"**
2. **This guide is for technically qualified personnel who have experience installing 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 Hardware Configuration Setting

2.3.1 CAR-1000 System Board Jumper

In general, jumpers on CAR-1000 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".

Location of Jumpers



Jumper Setting:

JP1: RTC Clear COMS (Default 1-2)
JP2/JP3: Ethernet Bypass mode & WDT mode selection (Default 1-2/2-4)
JP4/JP5/JP8/JP9: Ethernet Bypass mode & Open mode selection (Default: Close)
JP7: WDT Software Control Selection (Default : Open)

JP1: RTC Clear COMS (Default 1-2)

JP1	Function
1-2	Normal ★
2-3	CMOS Clear

JP2/JP3: Ethernet Bypass mode & WDT mode selection (Default 1-2/2-4)

JP2	Function
1-3	Normal Mode★
3-5	Bypass Mode
2-4	Disable WDT★
4-6	Enable WDT

JP4/JP5/JP8/JP9: Ethernet Bypass mode or Open mode selection (Default: Close)

JP4/5/7/8	Function	
1-2	Close: Bypass ★	Open: Open mode
3-4	Close: Bypass ★	Open: Open mode
5-6	Close: Bypass ★	Open: Open mode
7-8	Close: Bypass ★	Open: Open mode

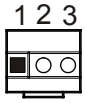
JP7: WDT Software Enable/Disable Control Selection (Default : Open)

JP7	Function	
1-2	Close: Enable	Open: Disable ★

Connectors Function Description:

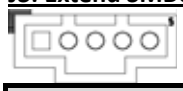
J1/J2/J30: 3P FAN Power Connector
J3: Extend SMBUS Interface Connector
J4: Factory to Default Setting Pin Header
J5: VGA Connector
J6: +5V & +12V Power Connector
J7/J8: SATA Connector
J9: GPIO PIN Header
J11/J12: DDR2 SO-DIMM
J13: PCI SLOT
J14/J24:Dual Port USB Connector
J15: PS/2 Keyboard & Mouse Pin Header
J16: RS232 PIN Header
J17: AT 6P Power IN Connector
J18: 180D Ethernet Connector
J19: Debug port Pin Header
J20: Power ON Button Pin Header
J25/J26/J27/J28 : RJ45 LAN Connector w/o transformer
J29: Console Connector
J32: Mini PCI Connector
J33: CF Socket

J1,J2,J30: 3P FAN Power Connector



PIN No.	Signal Description
1	Ground
2	+12V
3	FAN Speed IN (NC)

J3: Extend SMBUS Interface Connector



PIN No.	Signal Description
1	SMB_CLK
2	SMB_DAT
3	SMB_ALERT
4	GND
5	+3.3V

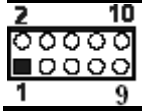
J5: VGA Connector

Pin	Signal Name	Pin	Signal Name
1	RED	2	DDCCLK
3	GREEN	4	Ground
5	BLUE	6	DDCDATA
7	HSYNC	8	Ground
9	VSYNC	10	N/C

J6: +5V & +12V Power Connector

PIN No.	Signal Description
1	+12V
2	GND
3	GND
4	+5V

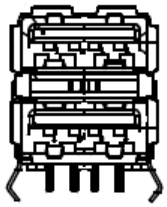
J9: GPIO PIN Header



PIN No.	Signal Description

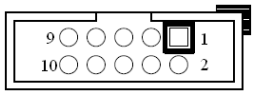
1	GPIO
2	GPIO
3	GPIO
4	GPIO
5	GPIO
6	GPIO
7	GPIO
8	GPIO
9	GND
10	5VSB

J14/J24:Dual Port USB Connector



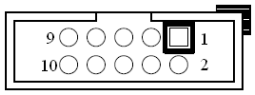
PIN No.	Signal Description
A1	+5V
A2	USB0-
A3	USB0+
A4	GND
B1	+5V
B2	USB1-
B3	USB1+
B4	GND

J15: PS/2 Keyboard & Mouse Pin Header



Pin No.	Signal Description
1	Mouse DAT
2	Keyboard DAT
3	NC
4	NC
5	GND
6	GND
7	+5V
8	+5V
9	Mouse Clock
10	Keyboard Clock

J16: RS232 PIN Header



Pin No.	Signal Description
1	NC
2	NC
3	RXD (Receive Data)
4	RTS (Request to Send)

5	TXD (Transmit Data)
6	CTS (Clear to Send)
7	NC
8	NC
9	GND
10	NC

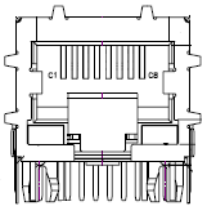
J17: 6P AT Power IN Connector

PIN No.	Signal Description
1	+5V
2	+5V
3	GND
4	GND
5	GND
6	+12V

J20: POWER ON Button Pin Header

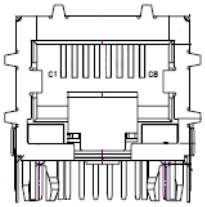
PIN No.	Signal Description
1	Power on signal
2	GND

J22/J23: RJ45 LAN Connector



PIN No.	Signal Description
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI1-
5	NC
6	GND
7	MDI2+
8	MDI2-
9	MDI3+
10	MDI3-
11	LINK#
12	ACTIVE
13	LINK_1000#
14	LINK_100#

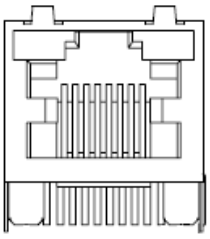
J25/J26/J27/J28 : RJ45 LAN Connector w/o transformer



PIN No.	Signal Description
1	TD1+

2	TD1-
3	TD2+
4	TD3+
5	TD3-
6	TD2-
7	TD4+
8	TD4-
9	LINK#
10	ACTIVE
11	LINK_100#
12	LINK_1000#

J29: Console Connector



PIN No.	Signal Description
1	RTS#
2	DTR#
3	TXD#
4	GND
5	GND
6	RXD#
7	DSR#
8	CTS#

2.4 The Chassis

The system is integrated in a customized 1U chassis (***Fig. 2-1, Fig. 2-2***). On the front panel you will find, six LAN ports, two USB ports and a COM port.

CAR-1000

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 remo ve the top lead (***Fig. 2-3***).

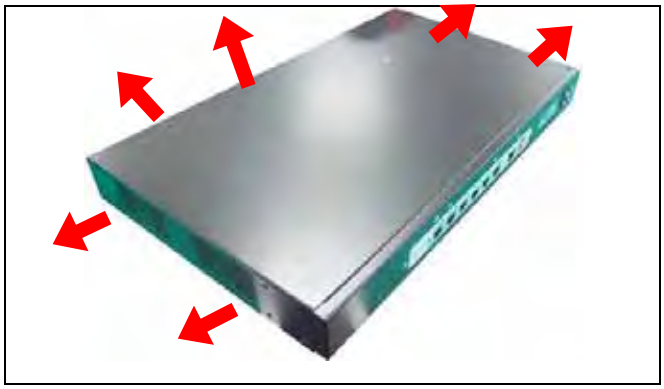


Fig. 2-3 *Take off screws*

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

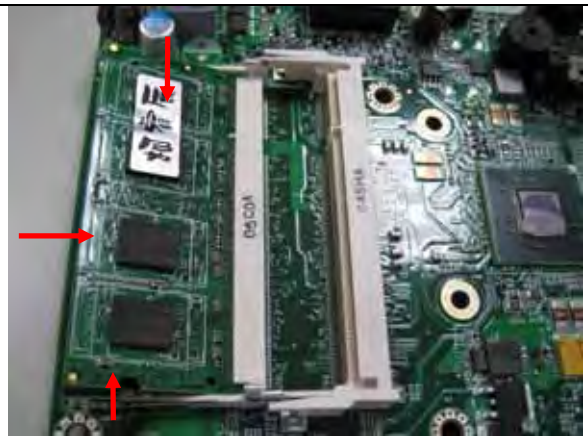
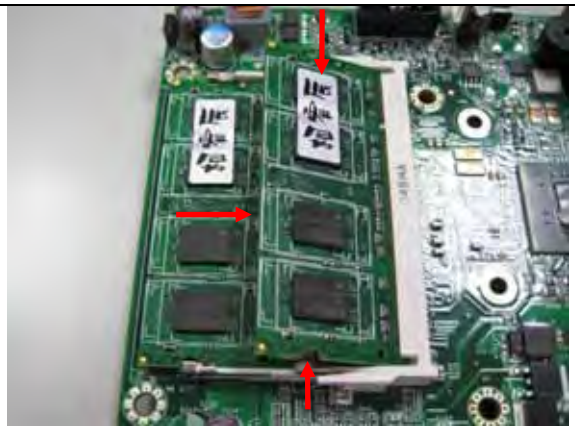
Fig. 2-4 *The top lead*

Fig. 2-5 *The base stand*

2.7 Install and Reomve 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.Add sodimm in left slot first	2.Insert sodimm in left slot first
	
3.Memory install complete in first slot	4.Insert sodimm in 2nd slot

	
5.Install complete	6.Reverse step from 5 to 1, remove all memory

2.8 Remove and Install Compact Flash Card

1. Insert the Compact Flash Card into the CF interface

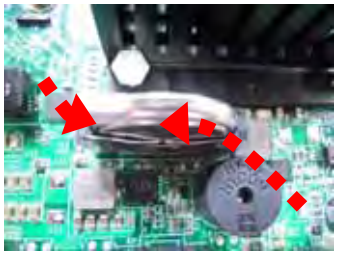
	
Compact Flash Card	*Insert Compact Flash Card into the CF interface*

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 i nternal 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:

There are three hard disk kits in the CAR-1000 system:

Hard disk fixed plate and hard disk tray

1. No add any card, use 3.5” HDD kit:

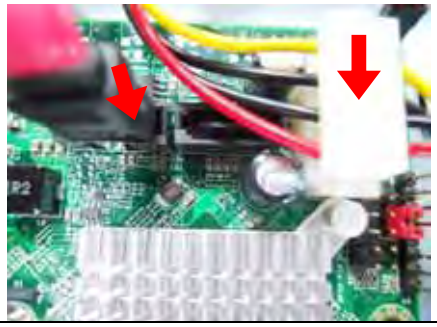
3.5”HDD Kit

install HDD bracket

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

Fasten the two screws to lock Ha rd disk fixed plate and chassis

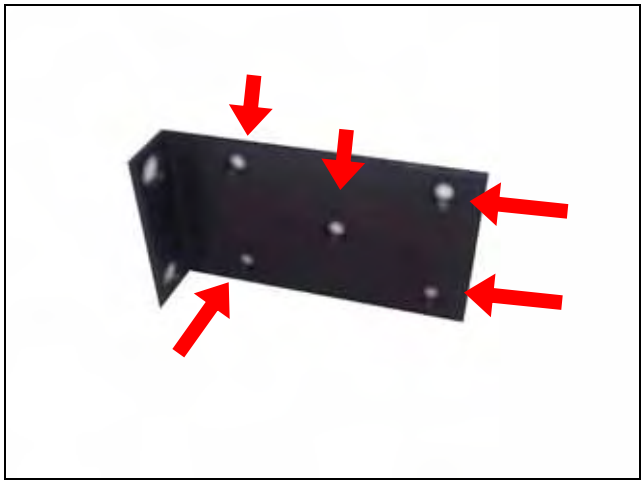
Connect Power cable and HDD cable to CAR-1000 system board



2.11 Ear Mount Kit Installation

The CAR-1000 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 wit h four holes agonist s t he chassis and the side wit h two holes face outward.
3. Fasten five screws on each side



Fasten the screws to the side

2.12 Remove EZIO / LCD

The CAR-1000 series support EZIO modules. The following is the remove instruction of these EZIO/LCD modules:

1. Remove all cables from EZIO

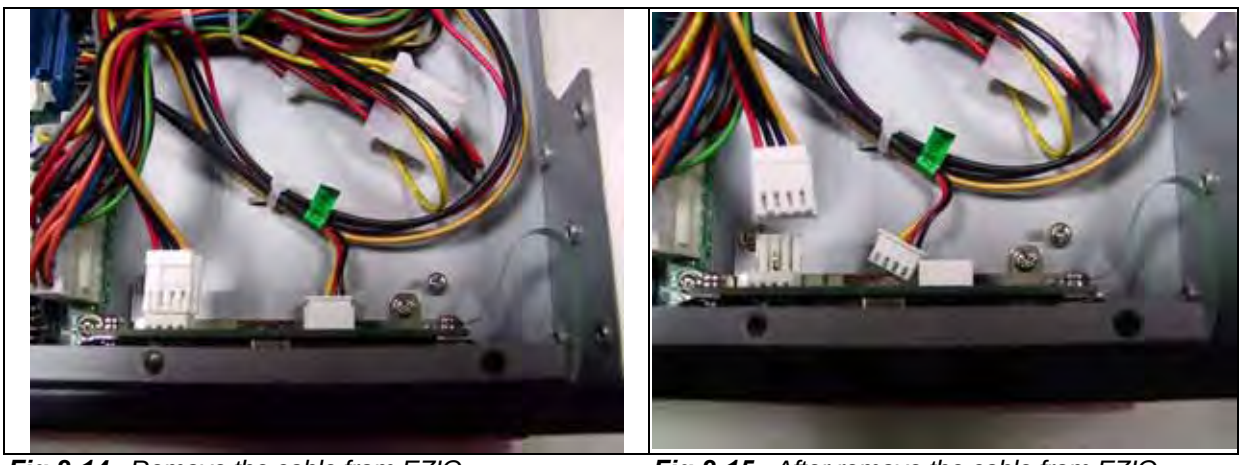


Fig.2-14 *Remove the cable from EZIO*

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

2. Remove the screws from chassis.

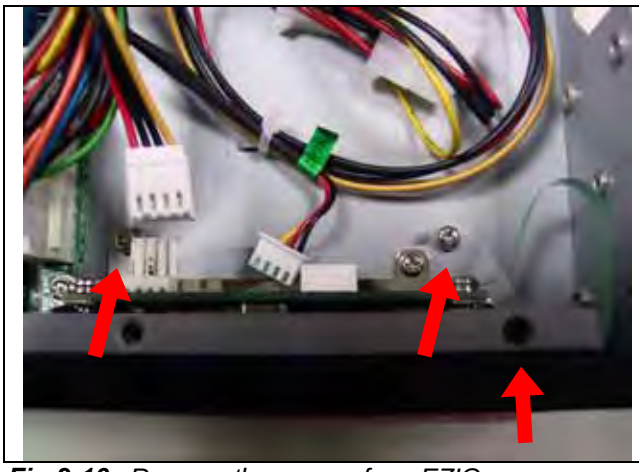


Fig.2-16 *Remove the screws from EZIO*

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

Fig.2-18 *EZIO*

2.13 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

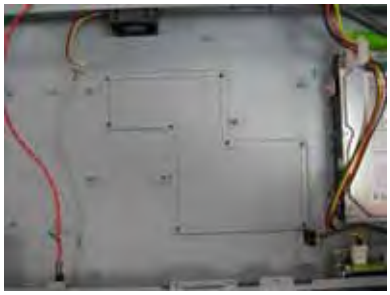
Remove the screws from PSU and Complete remove power supply

2.14 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

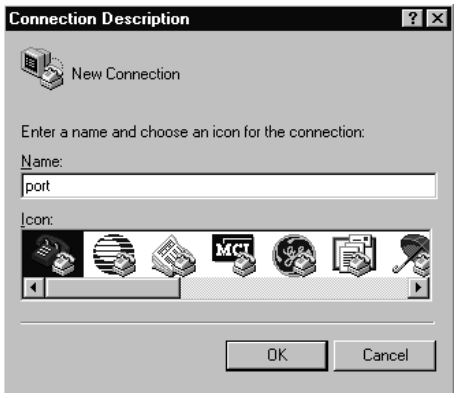
Connection Using Hyper Terminal

If users use a headless CAR-1000 system, which has no mouse/keyboard and VGA output connected to it, the console may be used to communicate with CAR-1000.

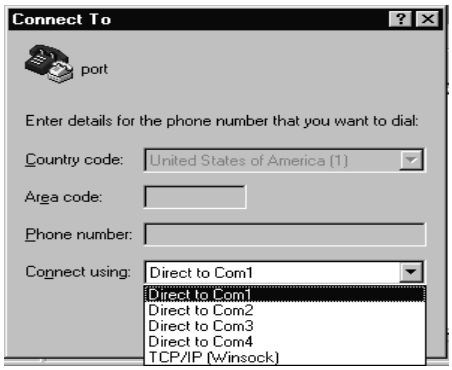
To access CAR-1000 via the console, Hyper Terminal is one of many choices. Follow the steps below for the setup:

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

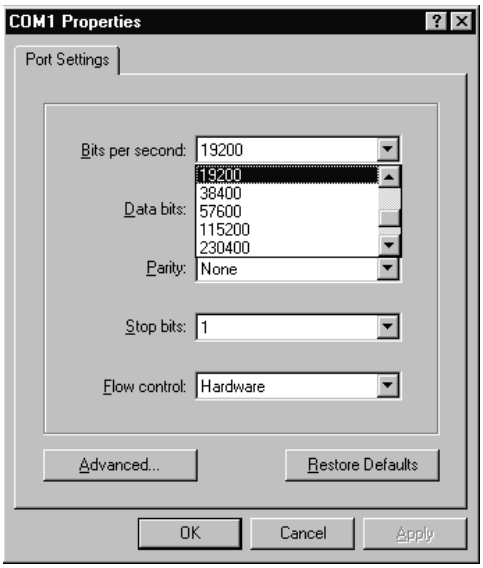
1. Execute HyperTerminal under C:\Program Files\Accessories\HyperTerminal
2. Enter a name to create new dial



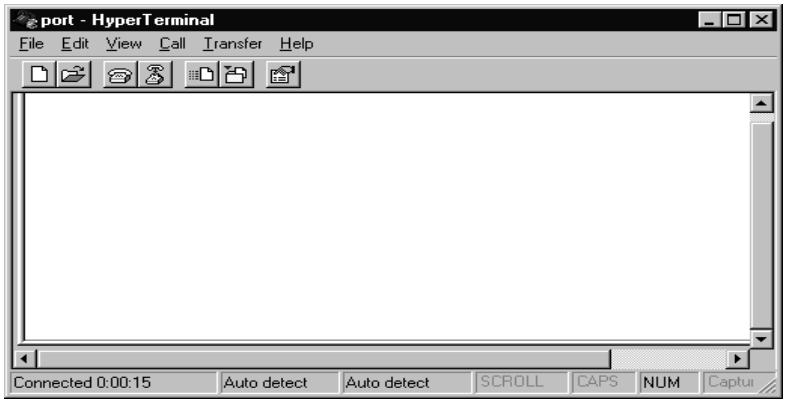
3. For the connection settings, make it Direct to Com1.



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-1000 system, after following screen was shown:



6. You can then see the boot up information of CAR-1000.

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.

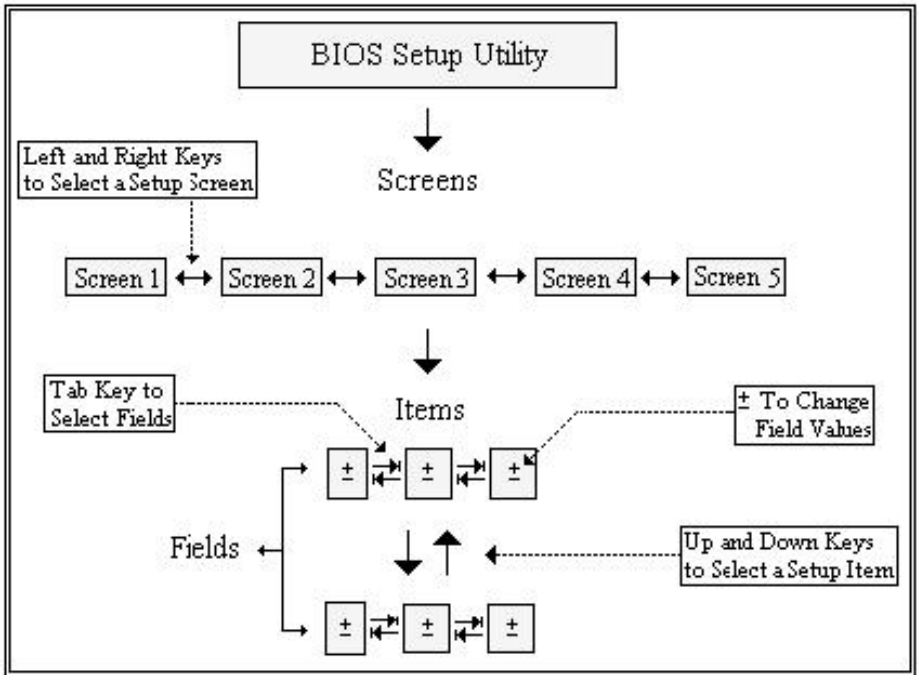
This is the end of this sect ion. If the termi nal did not por t correctly, please check the previous steps.

Chapter 3 BIOS Setting

BIOS Setup Information

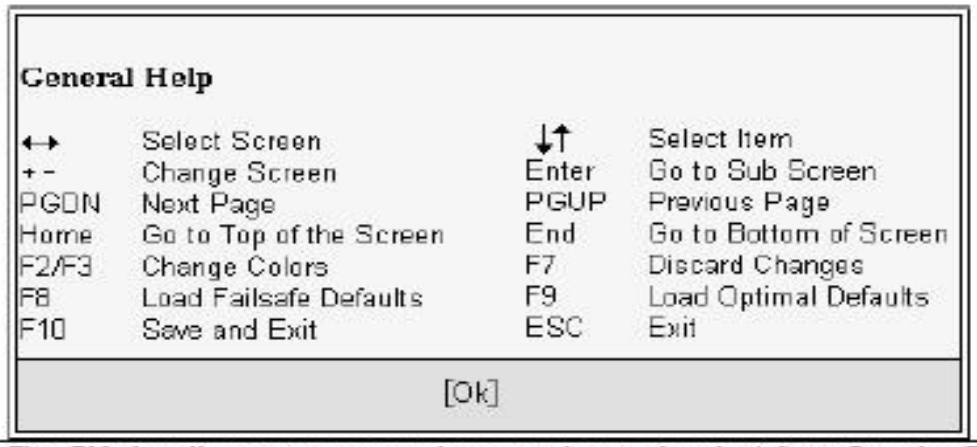
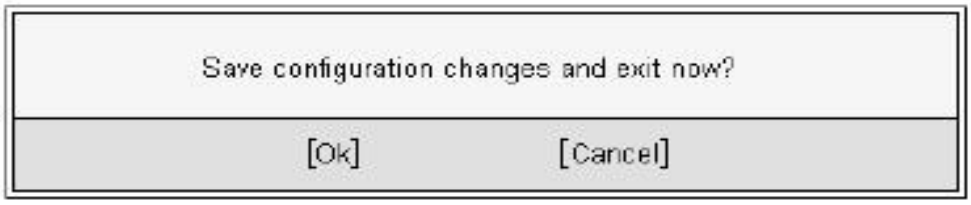
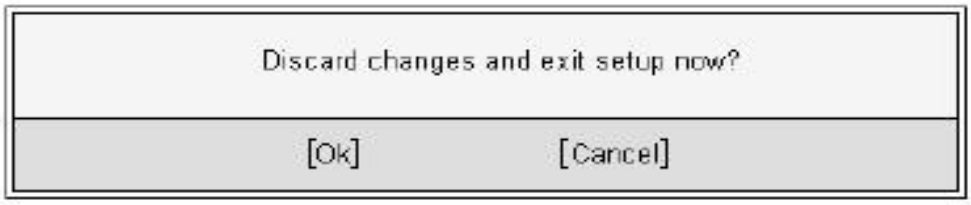
Power on the system, press the <Del> to run BIOS setup. After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

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.



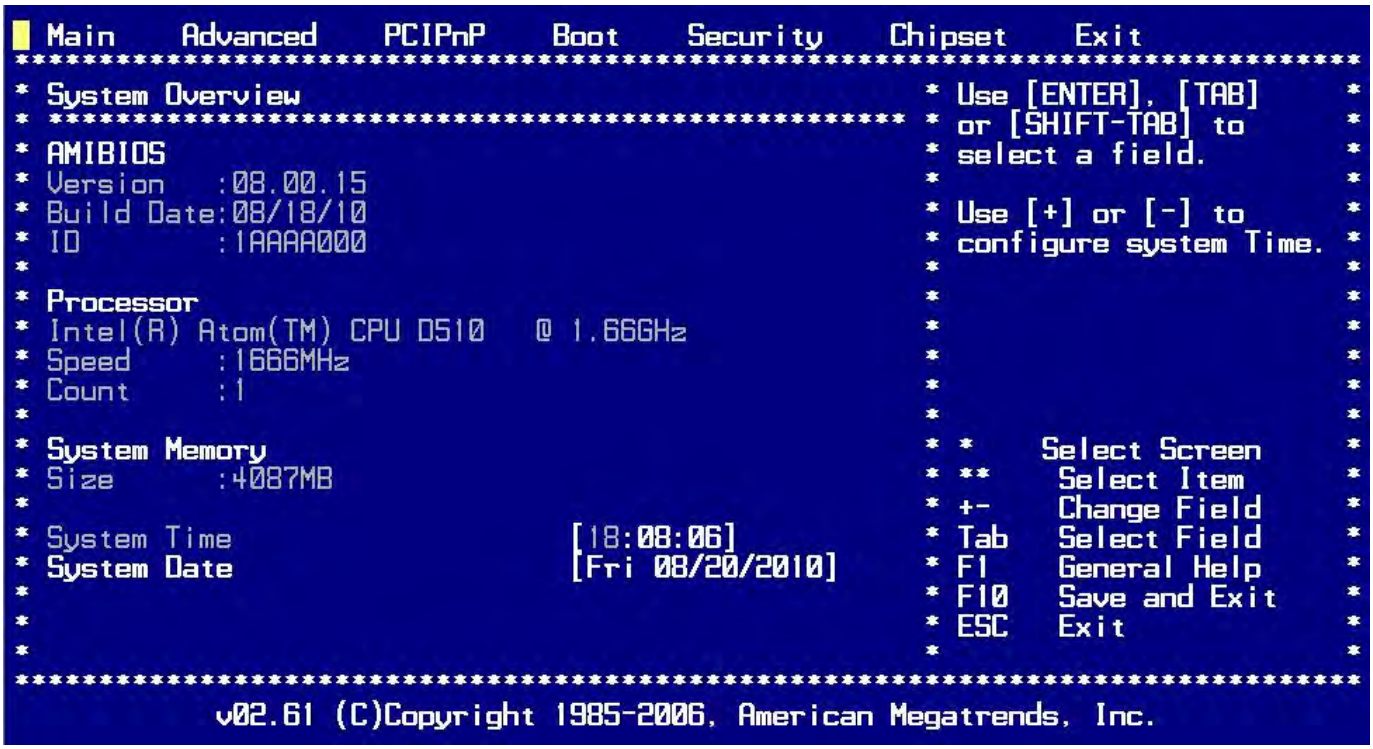
Control Keys

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*. 
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:  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:  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.

3.1 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.

3.2 Advanced Settings

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.

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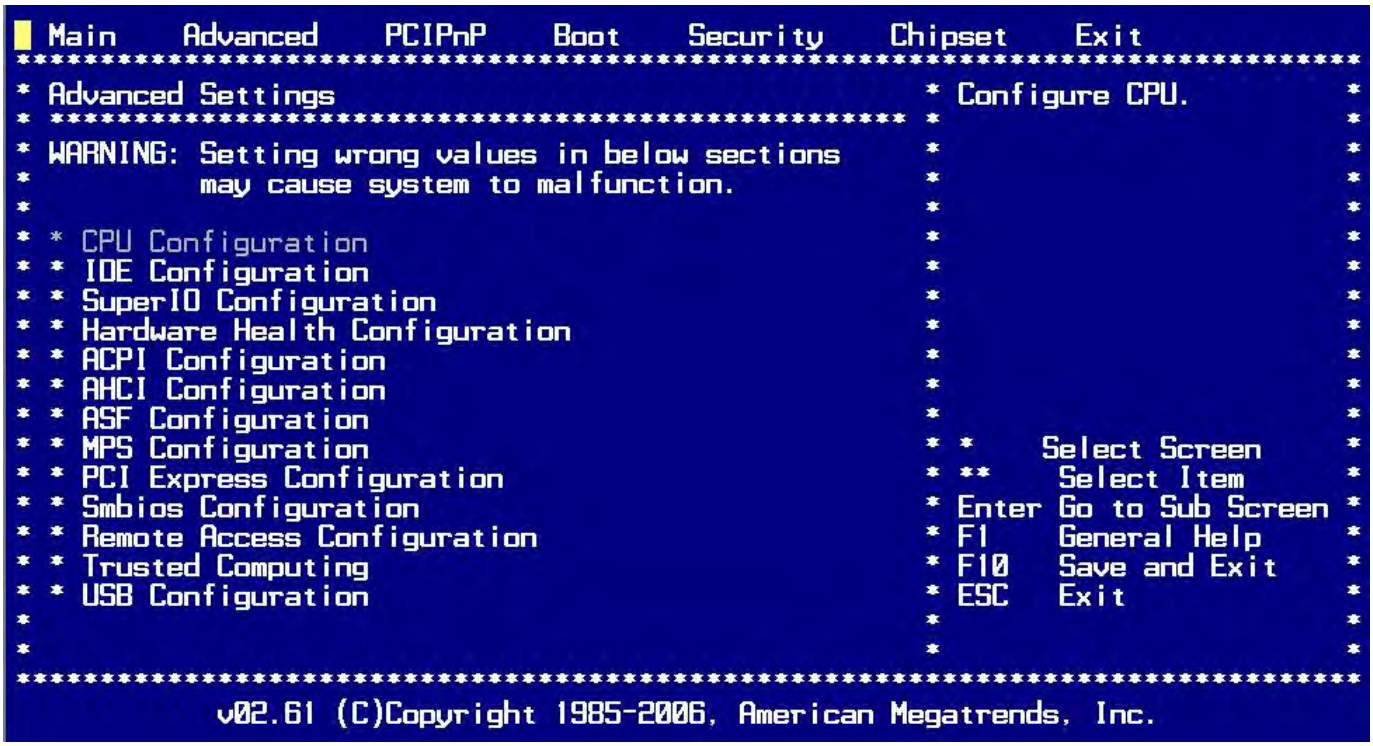
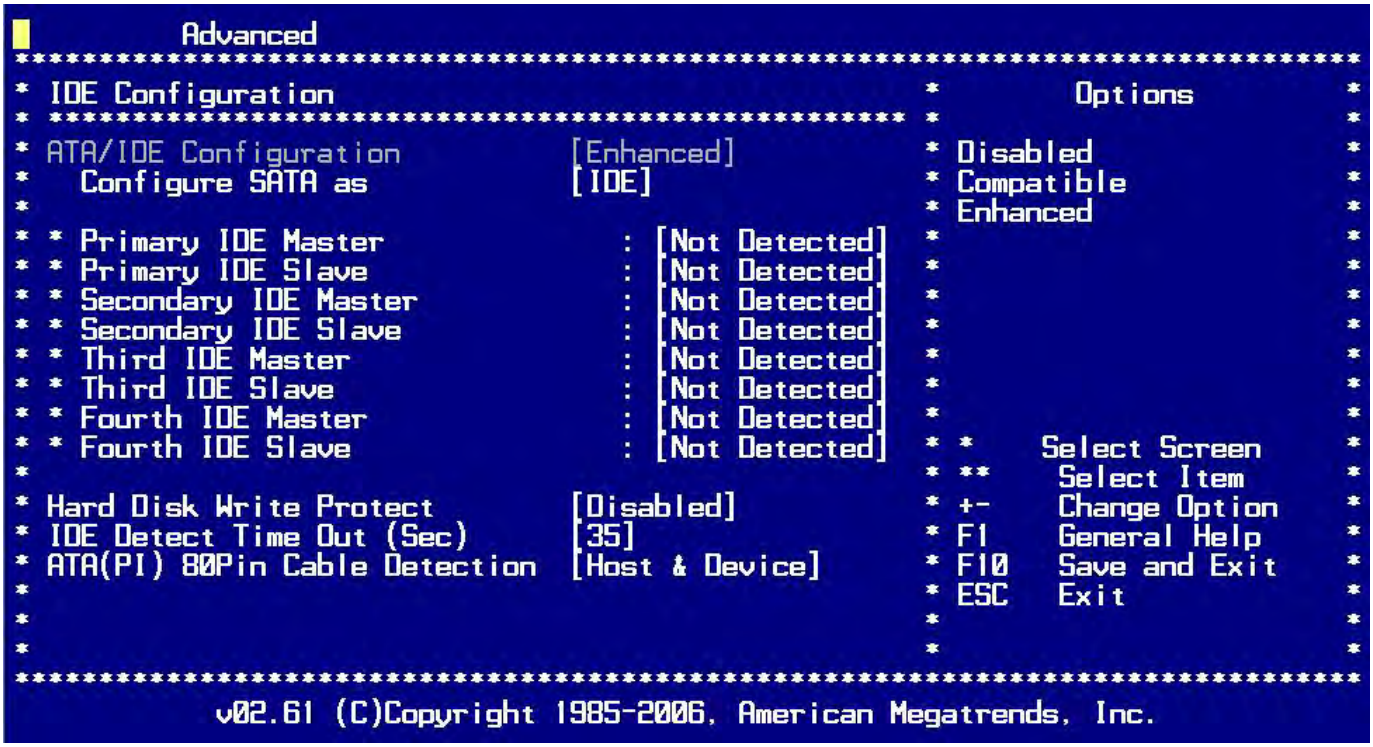


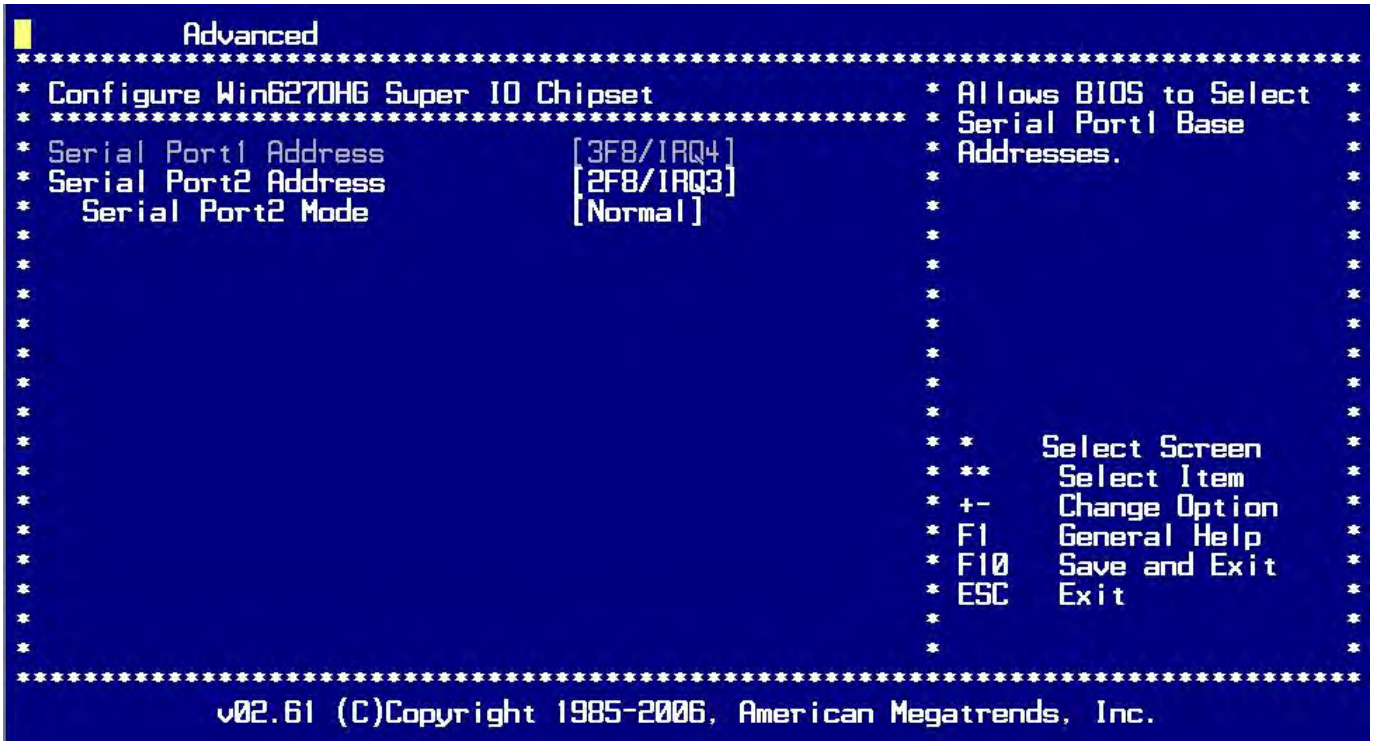
3.3 IDE Configuration

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.



3.4 Super IO Configuration

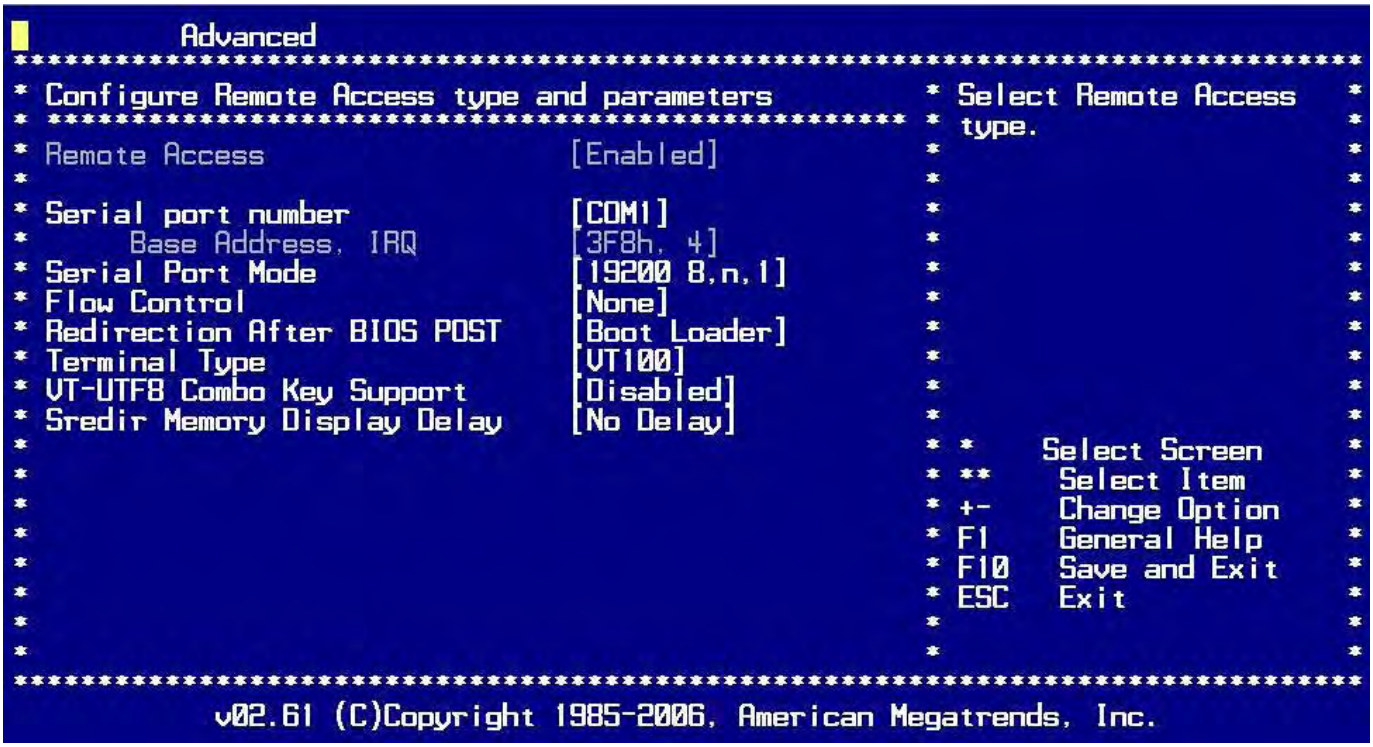
You can use this screen to select options for the Super I/O settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



3.5 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.



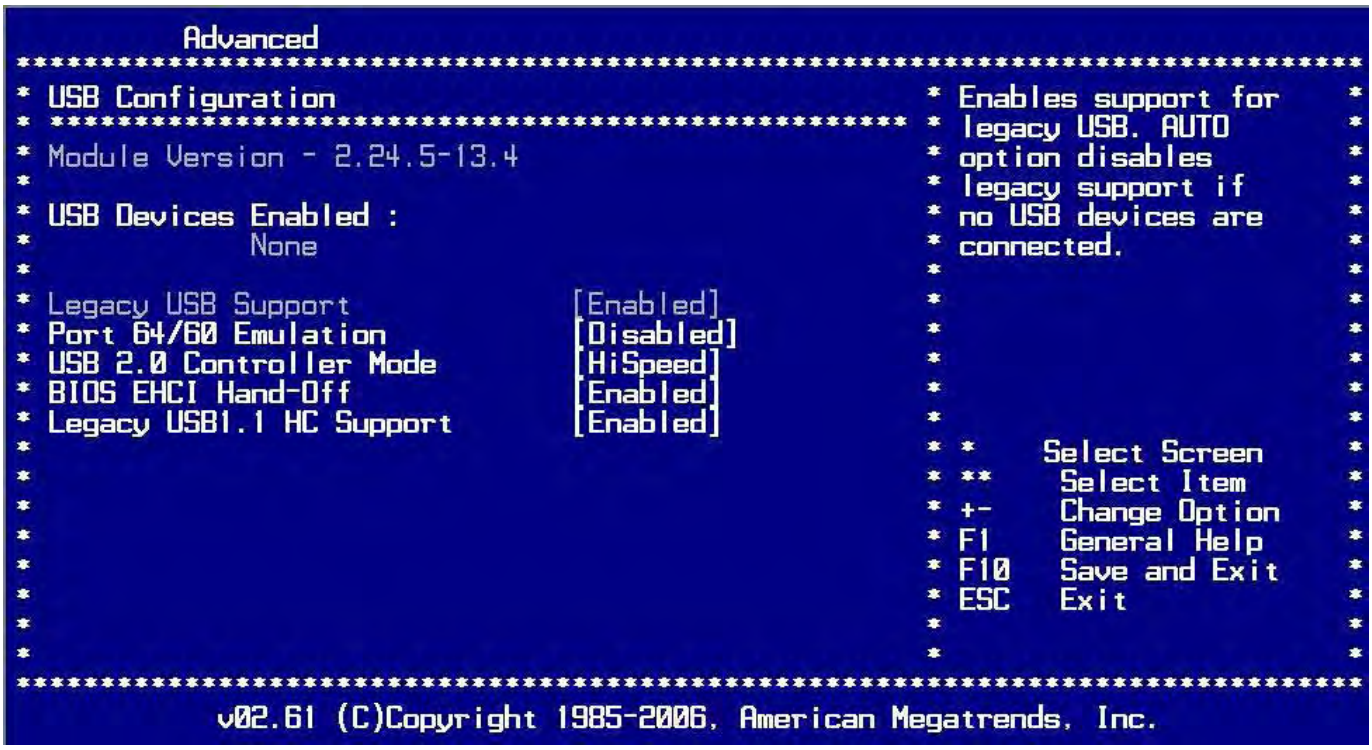
Remote Access
You can disable or enable the BIOS remote access feature here.

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.

3.6 USB Configuration

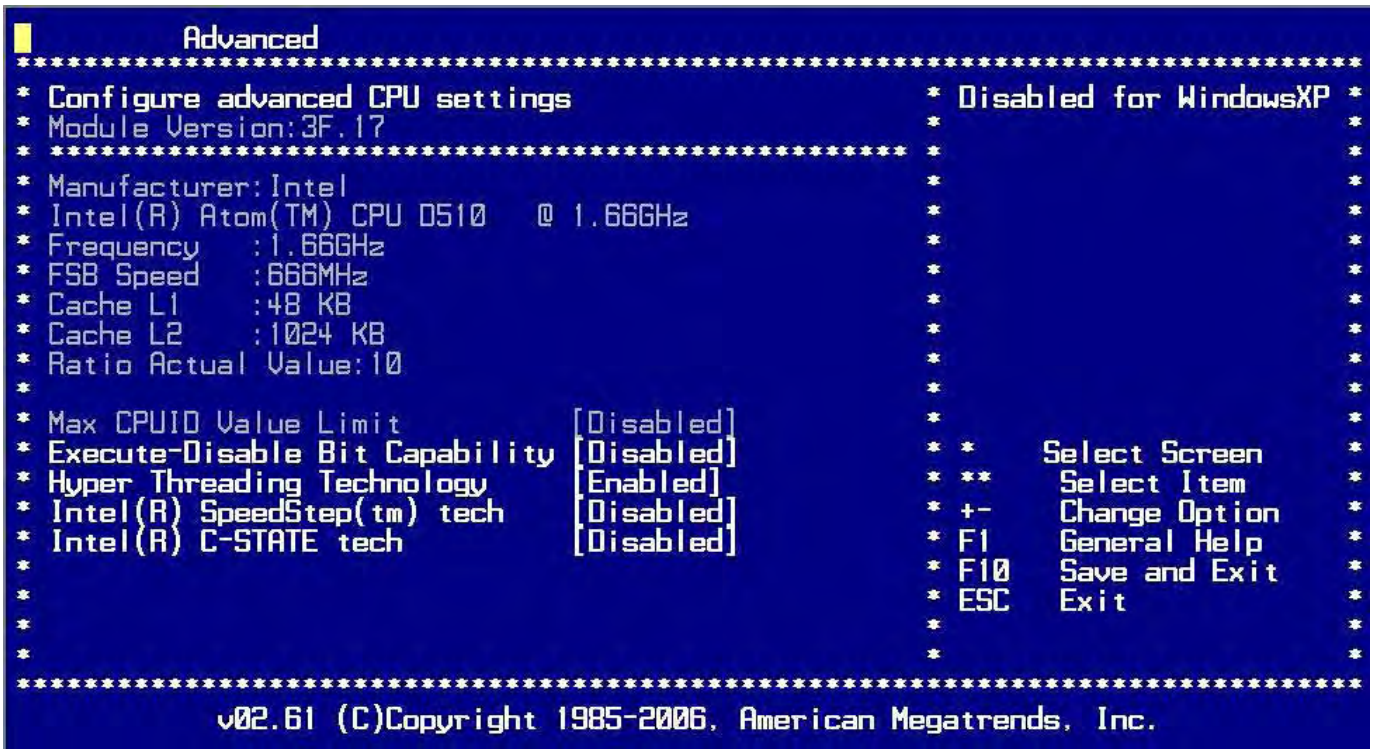
You can use this screen to select options for the USB Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



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*.

3.7 CPU Configuration

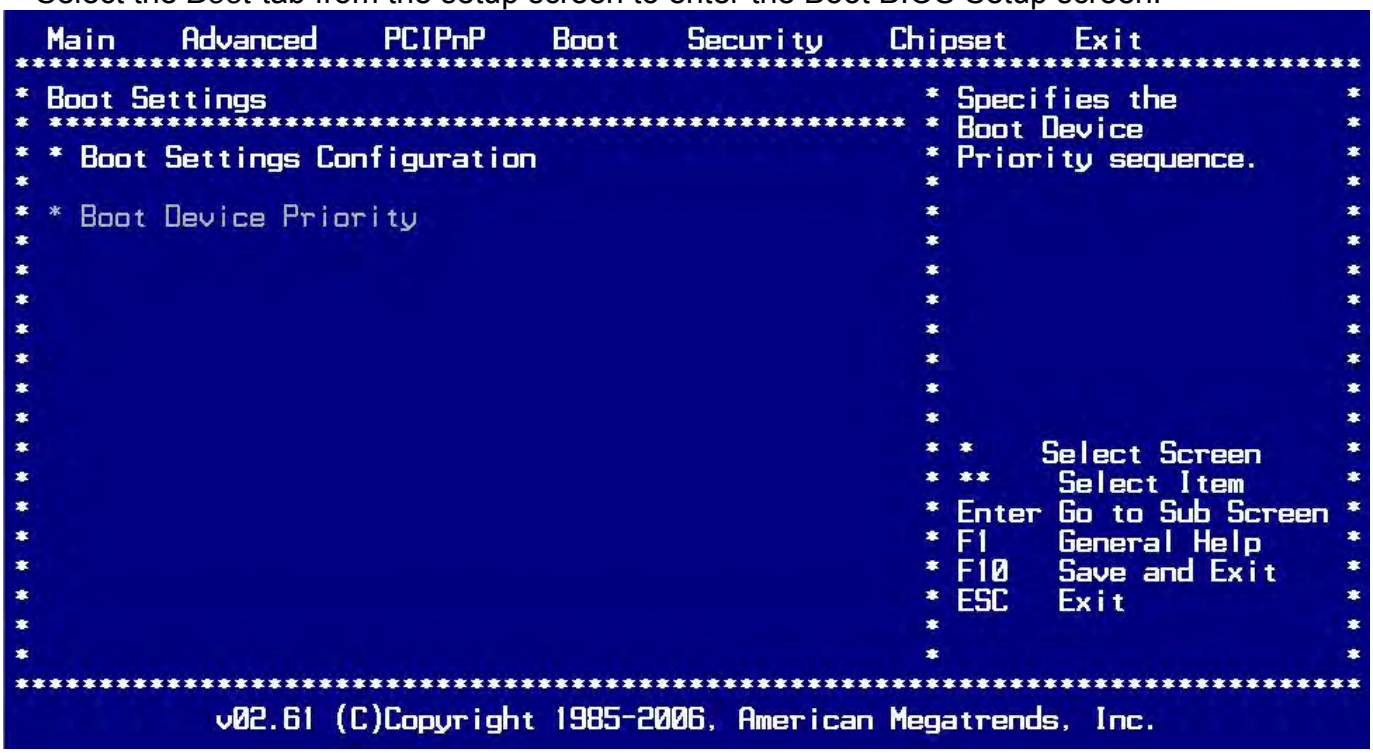
You can use this screen to select options for the CPU Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.



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

3.8 Boot Settings

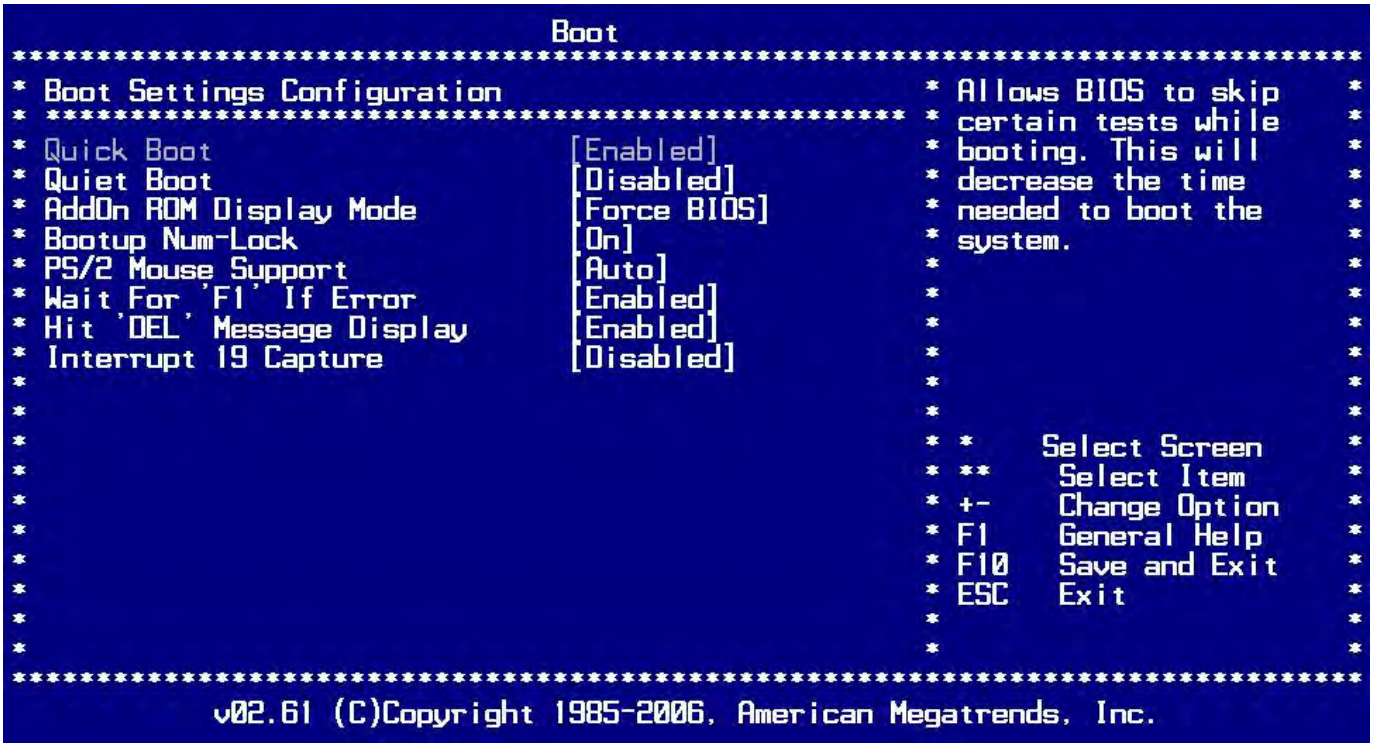
Select the *Boot* tab from the setup screen to enter the Boot BIOS Setup screen.



3.9 Boot Settings Configuration

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*

Wait For 'F1' if error
Wait for F1 key to be pressed if error occurs.

Hit 'Del' Message Display
Displays 'Press DEL to run Setup' in POST.

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

3.10 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:

3.11 Exit BIOS

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>.