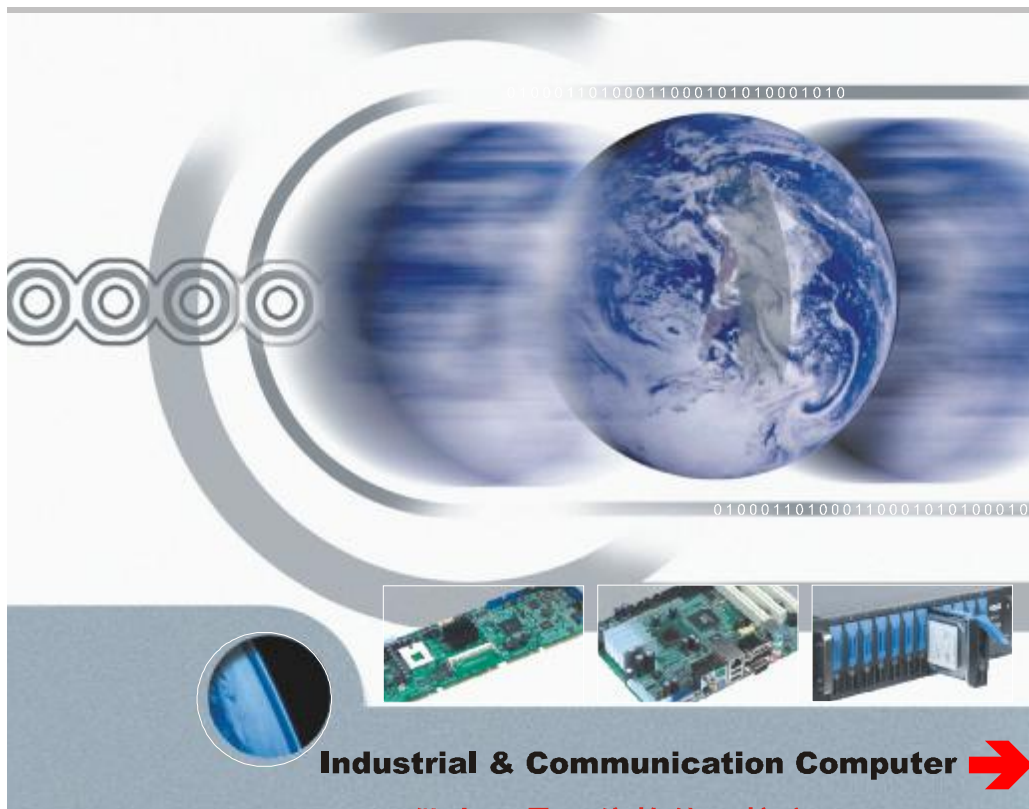





RPC-510D
Industrial PC
User Manual V1.0

用户手册

USER'Manual



Industrial & Communication Computer 

Announcement

With the exception of the accessories listed as per the product configuration, this manual does not create any commitment of our company. We retained the rights to change it without prior notice and will not be responsible for any direct, indirect, intentional or unintentional damage or hidden dangers caused by any improper installation or use.

Before ordering products, please learn about the product performance from the distributors to see if it is in line with your needs. NORCO is a registered trademark of Shenzhen NORCO Intelligent Technology CO.,LTD.The ownership of other trademarks involved in this manual is owned by its respective owners. The contents of this manual are protected by copyright law. All rights are strictly reserved. Any form of unauthorized reproduction including but not limited to carbon copy, facsimile transmission and electronic copy or email is prohibited.

Safety Instructions

1. Before using this product, please read this user manual carefully.
2. Before moving the device, please make sure to disconnect the power cord from the power socket.
3. Before connecting or disconnecting the device, please make sure all the power cords have been disconnected in advance.
4. To prevent any unnecessary damage to the products due to frequent power on/off, please wait at least 30 seconds to restart the unit.
5. Please use cross screwdriver to operate the unit and a consolidated one would be better (one with magnetism, to avoid leaving screws inside the chassis). Never leave any tools or components inside the chassis.
6. Before cleaning the host, please disconnect the power supply first. Please use wet cloth to clean, don't use liquid or spray cleanser.
7. When the host is running, please make sure no liquid poured in, which may cause fire or damage to the computer.
8. If any exceptions occurred during the operation, please seek help from professionals.
9. The power cord should be ground connecting, otherwise, it will cause electrical pressure or ESD.

Packing List

Thank you for purchasing NORCO products. Please check all the accessories as per the packing list once you open the package. If any items damaged or lost, please contact your retail as early as possible.

■ RPC-510D	1Unit
■ CD (PC Driver and User Manual)	1 pcs
■ Power Cord	1 pcs
■ 1to 2 Keyboard Mouse cable	1 pcs
■ Jumper Cap	1 pcs
■ SATA Cable	1 pcs

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Chapter 1 Product Introduction

1.1 Specifications

- Motherboard: SHB-890
- Backplane: PDP-15P12

1.1.1 Processor

- Intel Core TM 2 E6300 Processor
- 1066MHz FSB

1.1.2 Chipset

- Intel 945G/GC+ ICH7(R)
- PCI Express supports bandwidth up to 2.5Gb/s
- DMI connector between Southbridge and Northbridge, with bandwidth up to 2GB/S

1.1.3 Display

- Intel 945G/GC integrated Intel GMA 950 graphic controller
- 1x DB15 VGA port

1.1.4 Memory

- 2GB Memory
- Support DDRII 800(dual channel), with bandwidth up to 10.7GB/s

1.1.5 IDE

- 1x IDE Port
- Ultra DMA mode, supporting up to 100 MB/s

1.1.6 SATA Interface

- 4x serial ATA1/ATA2
- With transmission rate up to 300MB/s

1.1.7 USB

- 2 group 2×5Pin USB pin, able to be converted to 4x USB 2.0 ports with a transfer line

1.1.8 AUDIO

- Adopts Realtek ALC655 Chip
- 2×5Pin out and 1x Line-out Pin

1.1.9 Ethernet

- Adopts Realtek RTL8111D
- 1x Gigabit LAN Supports 10/100/1000 Mbps
- Connect to South Bridge via PCI EXPRESS Bus

1.1.10 I/O

- Adopt ITE IT8712F I/O Chip
- 1x standard FDD interface
- 1x PS/2 keyboard and mouse connector; 1x 5Pin keyboard interface and 1x 5Pin mouse interface.
- Provide 2x COM (COM1, COM2), adopting IDC10 interface and connect to DB 9 socket with a transfer line. COM1->RS232; COM2->RS232/RS422/RS485
- Provides 1x Parallel interface, adopting IDC26 interface, connecting to DB25 connector with a transfer line.
- 1x 5Pin IrDA interface

1.1.11 Watchdog Timer

- Generate system reset when timer overflows

1.1.12 BIOS

- 4M bit Flash

1.1.13 Power

- Power : 650W; Wide Voltage Input: 100V-240V

1.1.14 Environmental & Mechanical

- Operating Temperature: 0°C~60°C
- Storage Temperature: -40°C~85°C
- Operating Humidity: 5%~95%, no-condensing

- Vibration Test: 0.5g rms/5~500Hz/random operating
- Dimension: 482mm×472mm×177mm (L×W×H)
- Color: White



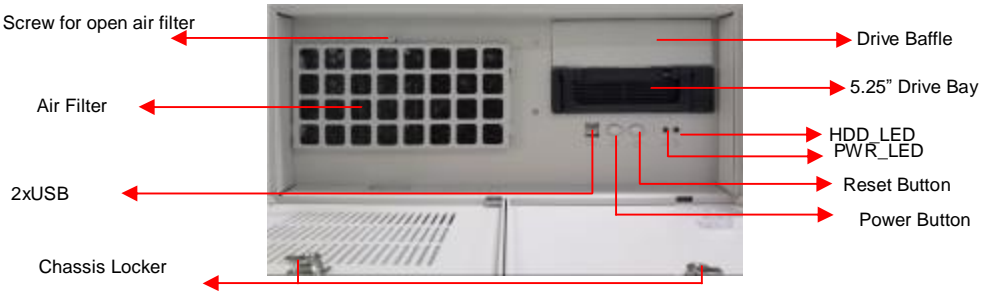
Chapter 2. Hardware Features

Chapter 2 Hardware Features

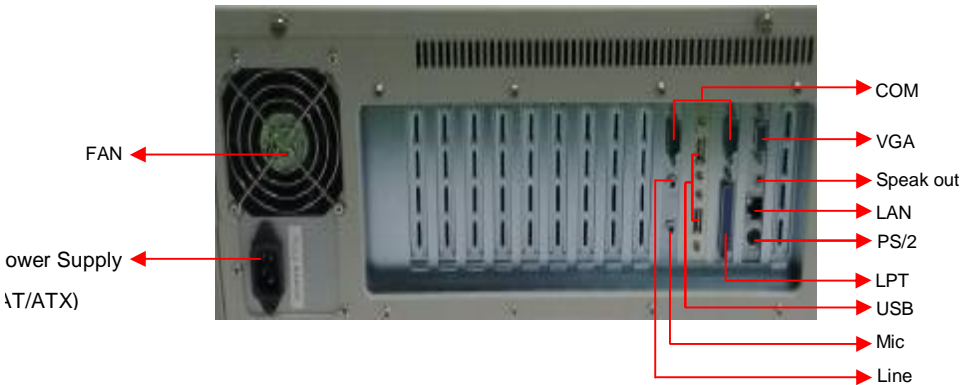
2.1 External Interfaces Location

1. RPC-510D Front View

Note: The AIR filter should be Cleaned every three months!



2: RPC-510D Rear View



2.2 External Interfaces

2.2.1 USB (USB1/2, USB3/4)

RPC-510D provides 4x standard USB ports. The embedded SBC SHB-890 provides 1 group 2 × 5Pin USB pin, able to be converted to 2x USB 2.0 ports with a transfer line



USB12:

Pin	Signal Name
1	VCC
2	USB_P+
3	USB_P-
4	GND

USB34:

Signal Name	Pin		Signal Name
VCC	1	2	GND
USB DATA-	3	4	GND
USB DATA+	5	6	USB DATA+
GND	7	8	USB DATA-
GND	9	10	VCC

2.2.2 Serial Interface (COM1, COM2)

RPC-510D provides 2x standard DB9 COM ports to connect external devices.

Users can enable or disable this interface under BIOS setting and choose its IRQ or I/O address.

COM1, COM2 support RS-232 transmission mode. COM2 also supports RS422/485. Users can select the transmission mode for COM2 via jumper setting. Details please refer to Chapter 2-2.5.3 "COM2 Jumper Setting".



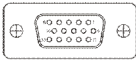
Pin	Signal Name
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Set COM2 as RS232/422/485, the pin is defined as below:

RS485	RS422	RS232	Pin		RS232	RS422	RS485
DATA-	TX-	DCD	1	2	DSR	NC	NC
DATA+	TX+	RXT	3	4	RTS	NC	NC
NC	RX+	TXD	5	6	CTS	NC	NC
NC	RX-	DTR	7	8	RI	NC	NC
GND	GND	GND	9	10	GND	GND	GND

2.2.3 Display Interface (VGA)

RPC-510D provides 1x standard DB15 VGA port.



Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	SDA_R
3	BLUE	8	GND	13	HS_R
4	NC	9	VCC	14	VS_R
5	GND	10	GND	15	SCL_R

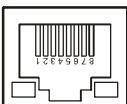
2.2.4 Audio Interface (Line, Mic-in, Speakout)

RPC-510D provides 1x audio input ports, 1x audio out and 1x Speak-out.



2.2.5 Ethernet Interface (LAN)

RPC-510D provides 1x RJ-45 Gigabit Ethernet Port. LILED & ACTLED is respectively the yellow LED and the green LED on the interface, indicating the status of LAN.



RJ45 LAN LED Status:

LILED(Green)	Function	ACTLED(Yellow)	Function
--------------	----------	----------------	----------

ON	100/1000M Link	Flash	Data Transfer
OFF	10M Link/Close	OFF	No data

2.2.6 Keyboard/Mouse Interface (PS/2)

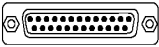
RPC-510D provides one standard PS/2.



Pin	Signal Name
1	KB_DATA
2	MS_DATA
3	GND
4	+5V
5	KB_CLK
6	MS_CLK

2.2.7 Parallel Port (LPT)

Board provides 1x standard parallel port to connect parallel devices based on actual needs.



Signal Name	Pin		Signal Name
STROBE	1	2	DATA0
DATA1	3	4	DATA2
DATA3	5	6	DATA4
DATA5	7	8	DATA6
DATA7	9	10	ACK#
BUSY	11	12	PE
SELECT	13	14	AUTO FEED#
ERR#	15	16	INIT#
SLIN#	17	18	GND
GND	19	20	GND
GND	21	22	GND
GND	23	24	GND
GND	25		

2.4 Jumper Setting

Note: How to identify jumper and interface Pin1.

Observe the word mark on the side of the plug socket. Often "1" or bold line or triangle symbol will be used to represent Pin1. Look at the rear of the pad. The square-shaped pad will be Pin. The red line or other marks on the cable indicates the connection of Pin1.

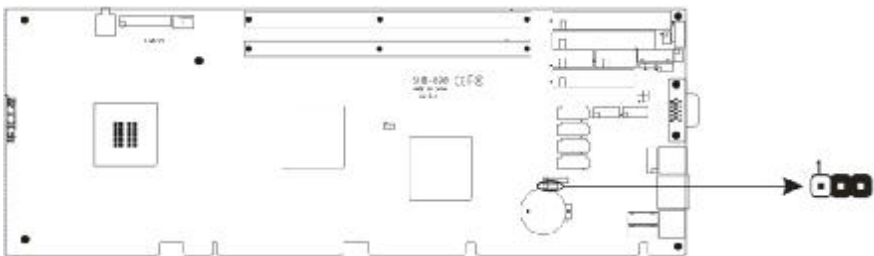
Onboard jumpers include CMOS Jumper JCC1, BIOS write in jumper JAV1, etc. All jumpers Pin1 with a white arrow. In the following definition, 1-2 indicates Pin1 and Pin2 short. 2-3 indicates Pin 2 and Pin 3 short.

2.4.1 CMOS Content Clearance/Hold Setting (JCC)

CMOS is powered by the onboard button cell. Clear CMOS will lead to permanent elimination of previous system settings and back to the original setting (the default setting).

Steps: (1) Turn off the computer and disconnect the power supply

- (2) Make Pin1 and Pin2 of Jumper JCC short for 5~6 seconds, then back to Pin 2~3;
- (3) Start the computer, then press DEL key to enter BIOS setting and reload the optimized default value.
- (4) Save and exit

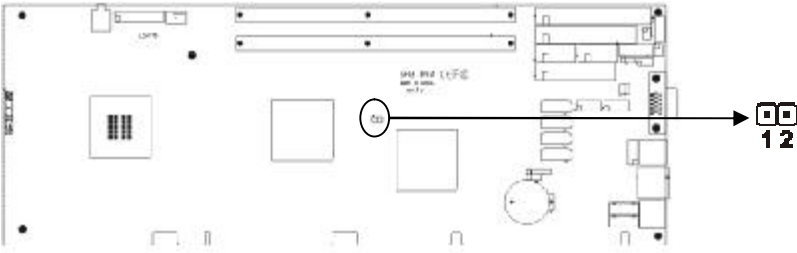


Setting	JCC
1-2	Clear CMOS (BIOS renew to initialization)
2-3	Normal Status (default)

2.4.2 Anti-virus BIOS Write-protect Jumper (JAV)

This jumper is used to protect BIOS from virus attack or rewriting. If the jumper JAV is

set as closed, you will be unable to flash the BIOS. However in this status, the system BIOS is protected from being attacked by serious virus such as CIH virus. If you want to flash your BIOS, please open this jumper.

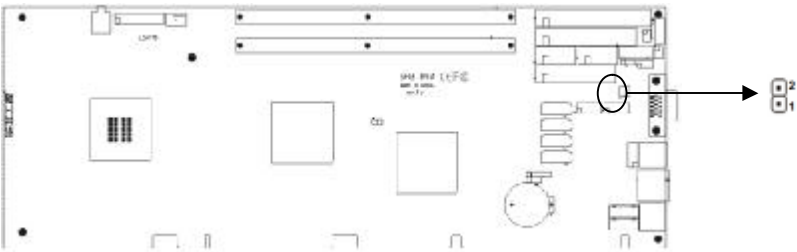


JAV:

Setting	Status
Close	Unable to flash BIOS (default)
Open	Able to flash BIOS

2.4.3 CF Card Master/Slave Setting (JCF)

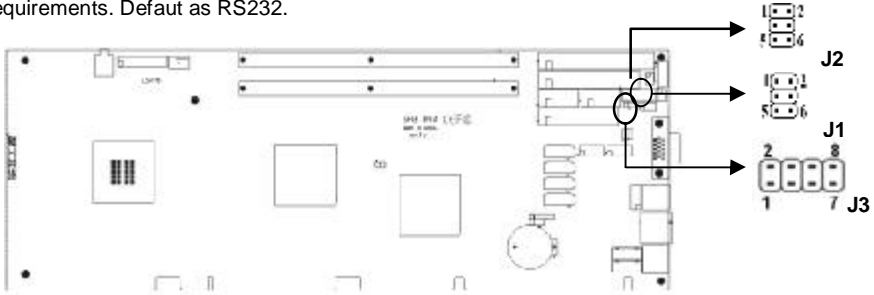
The jumper is used for setting CF card's slave or master disk. When JCF is closed, CF card is Master device. When you remove jumper, it will be slave.



Setting	JCF
Close	Set CF card as master (default)
Open	Set CF card as slave

2.4.4 COM2 Jumper Setting (J1, J2, J3)

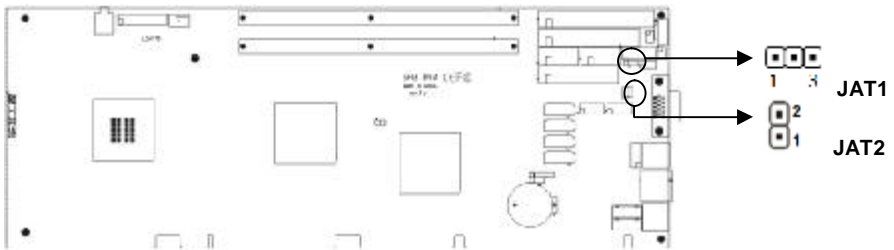
J1, J2, J3 are used to config COM2 transmission mode. COM2 supports RS232/422/485 three transmission modes. Users can choose different configuration according to the actual requirements. Default as RS232.



COM2	RS232(default)	COM2	RS422	COM2	RS485
J1	1-3 2-4	J1	3-5 4-6	J1	3-5 4-6
J2	1-3 2-4	J2	3-5 4-6	J2	3-5 4-6
J3	1-2	J3	3-4	J3	5-6 7-8

2.4.5 Power Mode Jumper (JAT1/2)

This jumper is used to select the motherboard power and POWER ON/OFF mode. JAT1 set as 1-2 and JAT2 OPEN, motherboard powered by ATX power supply. JAT1 set as 2-3, JAT2 close, motherboard powered by AT power supply.

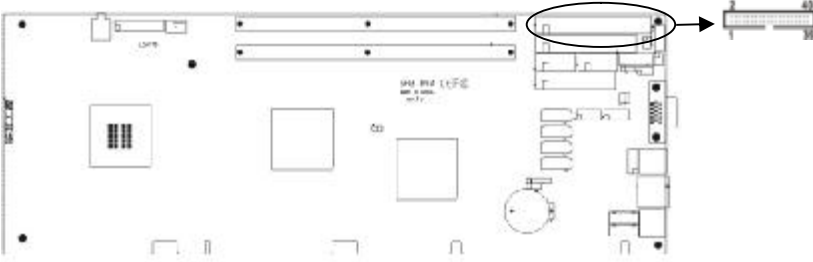


JAT1	JAT2	Power Mode
1-2	Open	ATX (BIOS BIOS set as auto boot upon power on)
2-3	Close	AT

2.5 Internal Interface Description

2.5.1 IDE (IDE)

Standard 40PIN IDE port to connect two IDE devices simultaneously.

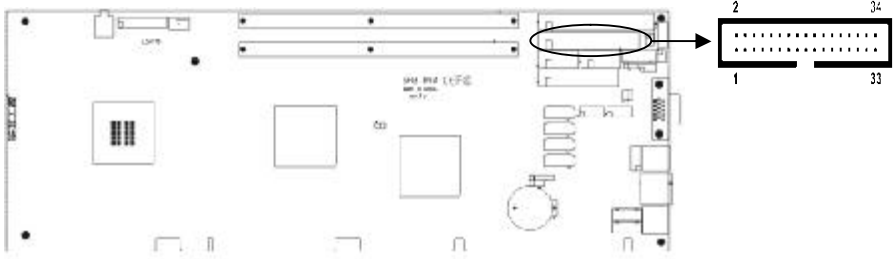


IDE:

Signal Name	Pin		Signal Name
IDERST#	1	2	GND
DDP7	3	4	DDP8
DDP6	5	6	DDP9
DDP5	7	8	DDP10
DDP4	9	10	DDP11
DDP3	11	12	DDP12
DDP2	13	14	DDP13
DDP1	15	16	DDP14
DDP0	17	18	DDP15
GND	19	20	VCC
IDE_PDDREQ#	21	22	GND
IDE_PDIOW	23	24	GND
IDE_PDIOR	25	26	GND
IDE_PIORDY	27	28	ALE
IDE_PDDACK#	29	30	GND
INT_RQR14	31	32	NC
IDE_PDA1	33	34	P66DET#
IDE_PDA0	35	36	IDE_PDA2
IDE_PDCS1#	37	38	IDE_PDCS3
ACTP#	39	40	GND

2.5.2 FDD Interface

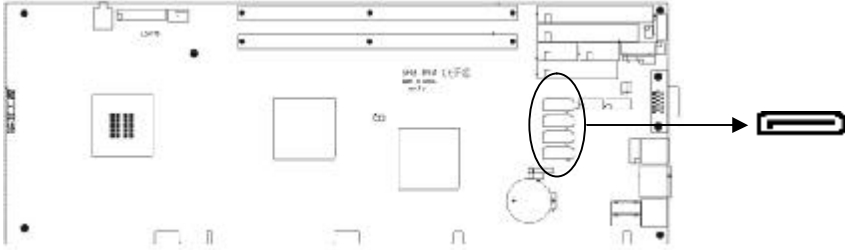
Board provides one FDD interface, to connect up to 2x 3.5 FDD (360K/ 720K/ 1.2M/ 1.44M/ 2.88M)



Signal Name	Pin		Signal Name
GND	1	2	REDWC
GND	3	4	NC
NC	5	6	NC
GND	7	8	INDEX#
GND	9	10	MTR0#
GND	11	12	DR1#
GND	13	14	DR0#
GND	15	16	MTR1#
GND	17	18	DIR#
GND	19	20	STEP#
GND	21	22	WDATA#
GND	23	24	WGATE#
GND	25	26	TRK0#
GND	27	28	WP#
GND	29	30	RDATA#
GND	31	32	HDSEL#
GND	33	34	DSKCHG#

2.5.3 SATA Ports (SATA1-SATA4)

Board provides 4x SATA ports to connect four serial hard disk.

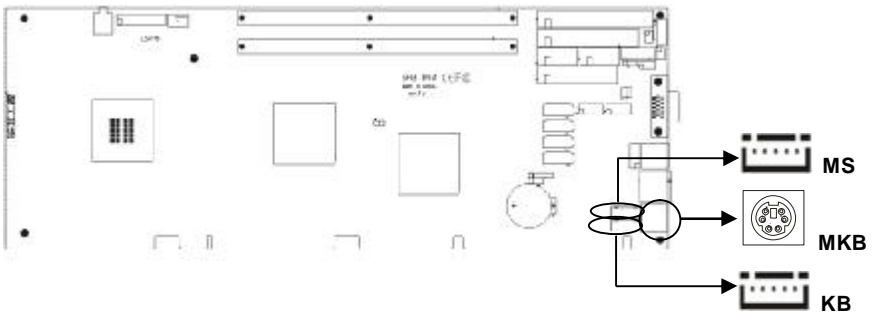


SATA:

Pin	Signal Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

2.5.4 Keyboard Mouse Connector (KB, MS)

Board provides one PS/2 keyboard and mouse connector MKB. Users need to use a PS/2 KB/MS Y cable to connect keyboard and mouse. Here also a 5Pin mouse interface and a 5Pin keyboard interface to connect keyboard and mouse via an extension cable.



PS/2 (MKB1) :

Pin	Signal Name
1	Keyboard data
2	Mouse data
3	GND
4	+5V
5	Keyboard clock
	Mouse clock

5Pin KB (KB1) :

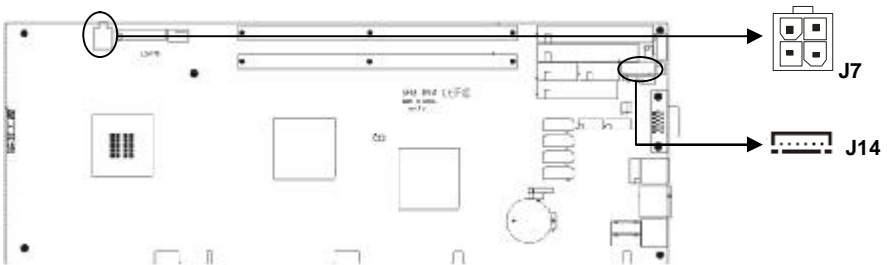
Pin	Signal Name
1	VCC
2	GND
3	NC
4	KB_DATA
5	CLK

5Pin MS (MS1) :

Pin	Signal Name
1	VCC
2	GND
3	NC
4	MS_DATA
5	CLK

2.5.5 Power Interface (J14, J7)

PWR1 provides +12V power to CPU; J7 provides 5VSB to SBC via backplane and provides +12V, +5V via backplane slots.



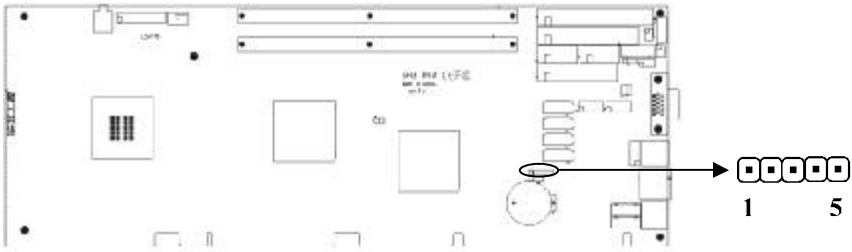
J7:

Pin	Signal Name
1	GND
2	GND
3	12V
4	12V

J14:

Pin	Signal Name
1	5VSBIN
2	PWRCTL
3	GND
4	PS_ON
5	GND
6	SLEEPSW+

2.5.6 IrDA Interface (IRDA)



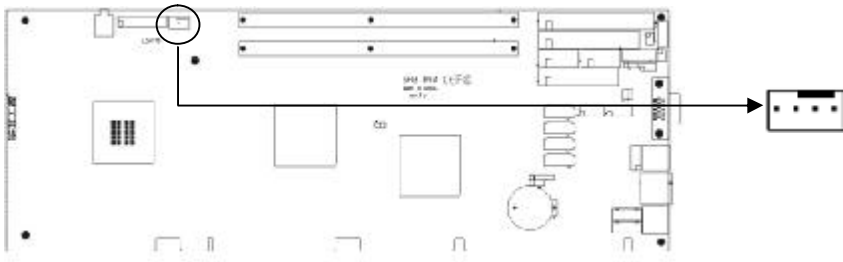
Pin	Signal Name
1	+5V
2	NC
3	IRRX
4	GND
5	IRTX

2.5.7 FAN Connector (CPUFAN)

Board provides a 4Pin CPUFAN. Please keep the following two points in mind when using this connector:

- (1) Fan power current should not be above 350 mA (4.2W, 12V)
- (2) Make sure the fan cable can match the socket cable



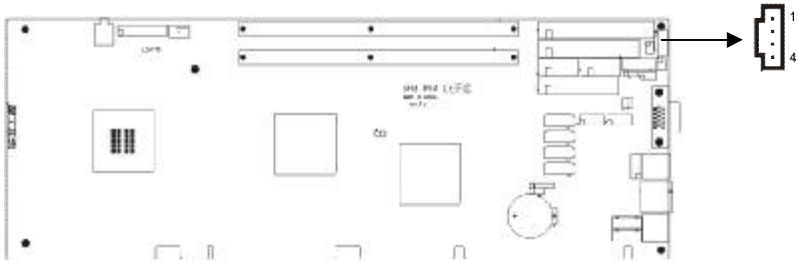


CPUFAN:

Pin	Signal Name
1	GND
2	+12V
3	FANIO
4	FANPWM

2.5.7 Audio Interface (CD_IN)

Onboard audio adaptor, offering CD_IN function.

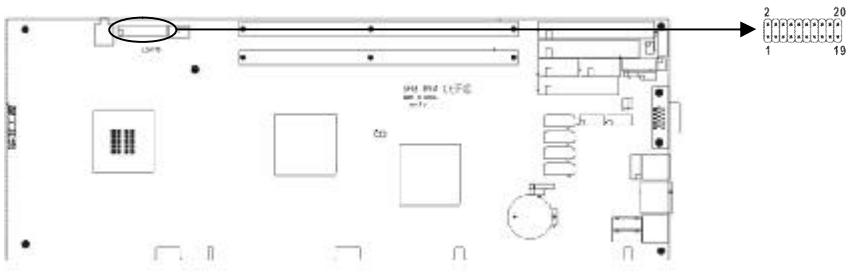


CD-IN:

Pin	Signal Name
1	CD-L
2	GND
3	GND
4	CD-R

2.5.8 Front Panel Connector (J8)

JFP is used to connect all the function buttons and indicator LED on the chassis front panel.



JFP:

Signal Name	Pin		Signal Name
PWR_LED+	1	2	VCC
GND	3	4	NC
GND	5	6	NC
KEYLOCK#	7	8	SPK-
GND	9	10	NC
GND	11	12	SLP_BTN-
GND	13	14	PWRBTSW-
GRELED+	15	16	GRELED-
GND	17	18	RSTBTN-
HDDLED-	19	20	VCC

Please follow the table below to connect, pay attention to the anode(+) and cathode(-), otherwise, some functions can not be realized:

SPEAKER		SLEEP	POWER	GREEN	RESET	IDD
POWER LED		BUTTON	BUTTON	LED	BUTTON	LED

1) System Power LED Pins (Pin 1 and Pin 3: PWLED)

Connect system power LED cable with these pins. (pin 1 is LED anode) When system power is switched on, power LED on; when system power is switched off, power LED off.

2) Buzzer Pins (Pin2 and Pin8: SPEAKER)

External Speaker Pin. This CPU card has installed the buzzer. Users can decide to install a speaker or not.

3) Sleep Button Pins (Pin11, Pin12: SLEEP BUTTON)

Connect the sleep button controlling cable with these two pins and press the button, system will enter sleep mode.

4) ATX Power ON/OFF Pin (Pin13, Pin14: POWER BUTTON)

Connect these two pin to the spring button on the chassis to connect or disconnect the power supply.

5) Sleep LED Pins (Pin 15 and Pin16: GREEN LED)

Connect the system power LED cable to these two pins(Pin15 is LED anode). When the system is connected to the power supply, the Power LED will be on. LED OFF means power off, LED flashes indicates the sleep mode.

6) Reset Button Pins (Pin 17 and Pin18: RESET BUTTON)

Connect the reset button cable to these two pins. When system fails, reset button can make the system continue to work and no need to turn on / off the power.

7) IDE Pins (Pin19, Pin20 for IDE LED)

One IDE LED on the chassis panel. When IDE write and read, the LED flashes. Connect this LED cable to the pin. (Pin19 is LED anode).

2.5.9 RAM Slot (UDIMM1, UDIMM2)

Board provides 2x DDRII DIMM slots, supporting 400/533/667 MHz , up to 2G Bytes.




Chapter 3. Quick Install

Chapter 3 Quick Install

Tools:

Following tools are recommended:


- Compact plain end screwdriver
- Torx Screwdriver
- RPC-510D Accessory kit
- Operating System CD


 NORCO industrial computers support Windows98/2000/XP/NT, Linux and Unix. These operating systems will not be delivered together with the machine. Users need to buy and install the OS by themselves. If you encounter any problems during the installation, please contact your software vendor. Or you can contact NORCO for technical support.


Before installing your computer accessories:

Please keep the following cautions in your mind when handling the installation:

 **Please make sure your computer disconnected from power supply**

 Only NORCO authorized technicians can do maintenance to the computer. The damage that caused by unauthorized maintenance is not within the scope of the warranty.

 When connecting cables, please hold the cable connector and its pull ring to insert.

 Key components of the motherboard are integrated circuit components, which are easy to be damaged by ESD.

3.1 Connect Serial Devices

Connect serial devices to the computer serial ports.

3.2 Connect Keyboard and Mouse

Please first identify the type of keyboard mouse interface before connecting your keyboard and mouse:

1. PS/2: connect to the keyboard and mouse interface directly
2. USB type: connect the USB keyboard and mouse to the computer USB ports.

3. Serial Type: connect serial keyboard and mouse to the computer serial ports.

3.3 Connect Power Cord

1. Connect the power plug base to the DC power Jack on the computer rear panel (male);
2. Connect the power plug to a trislot power strip;
3. The power cord should be grounded, otherwise, it may cause electric tension and static electricity.

3.4 Install Driver

1. Insert Driver CD into CD-ROM, and the Install Options screen will pop out automatically. (if not, please manually find the driver run program in the CD-ROM Drive.
2. Please select the motherboard type based on your motherboard you bought. (such as Full Size CPU Card)
3. Double click the driver that you need to install and follow the instructions to install the driver
4. System may prompt you to restart your system when the installation of some drivers are completed. Restart the system and to install other drivers as per the previous steps.
5. After all the drivers are installed, users can check the device manager that the devices are working.



Chapter 4. BIOS SETUP

Chapter 4 BIOS Setup

AMI BIOS Upgrading

BIOS functions as a bridge connecting hardware and operating system. Hardware and software are upgrading all the time, so when your system goes wrong, for example, your system can not support the newest CPU, you need to upgrade BIOS to keep up with the latest technology.

AFUDOS.EXE is the FLASH IC program for BIOS to upgrade, which needs to be run in DOS mode.

Pls use a boot disk to load DOS, then run AFUDOS.EXE to upgrade BIOS (for example: write XXXX.ROM into FLASH IC)

Oder format:

A:\ Afudos XXXX.rom

If you need to add other parameters, pls add <space>/? after the order format

Example: Afudos N890T000.rom /P /B /C /N /X

Remarks:

1. BIOS upgrading is only executed when your system goes wrong.
2. Please use the upgrading program in the driver disk provided by us or download the latest version from related websites.
3. Please do not power off or reboot the system when upgrading, otherwise, the BIOS may be damaged or system may not be able to boot again.
4. After upgrading, manually load default.
5. Please backup your BIOS before upgrading

AMI BIOS Description

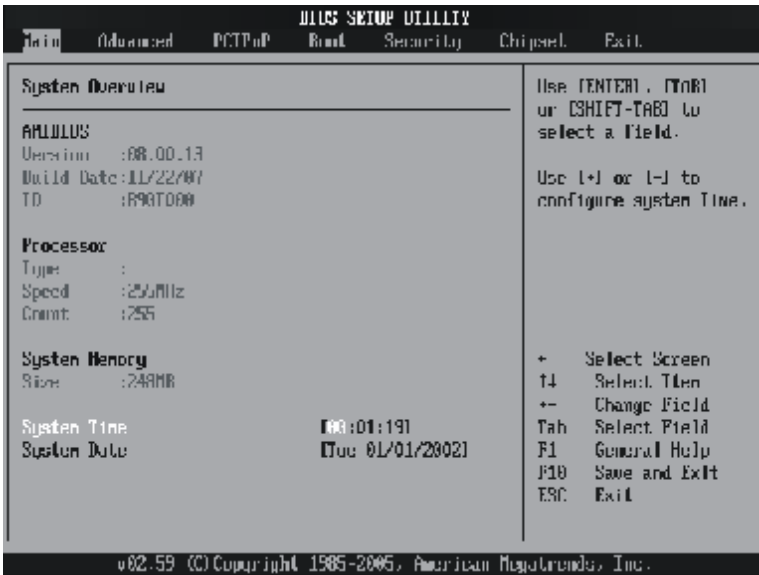
When the computer is power on, BIOS will conduct self-diagnosis to its hardware on motherboard and configure hardware parameter, finally the operating system will take control. BIOS is the communication bridge between hardware and O/S. Correct configuration of BIOS is critical for maintaining system stability and its optimized performance.

BIOS Setup

Power on your computer, when “Del->SETUP” message displayed on your screen: please press “DEL”, then it will enter BIOS setup interface.

1. Power on or Reset computer.
2. When "Press to enter setup" message displayed on the screen, please press .
3. Use the “←→↓”to choose the option which your want to modify, press <Enter> and enter into the sub-menu.
4. Use the “←→↓”and <Enter> to modify the value.
5. At any time, press<Esc> can go back to the father-menu

4.1 Main Menu



System Time

System time format: Hour/Minute/Second

System Date

Setup system date. Format: Week/Month/Day/Year

AMI BIOS (Read Only)

BIOS information: such as BIOS version, Build date and BIOS ID

Processor (Read Only)

CPU information, such as the processor speed.

System Memory (Read Only)

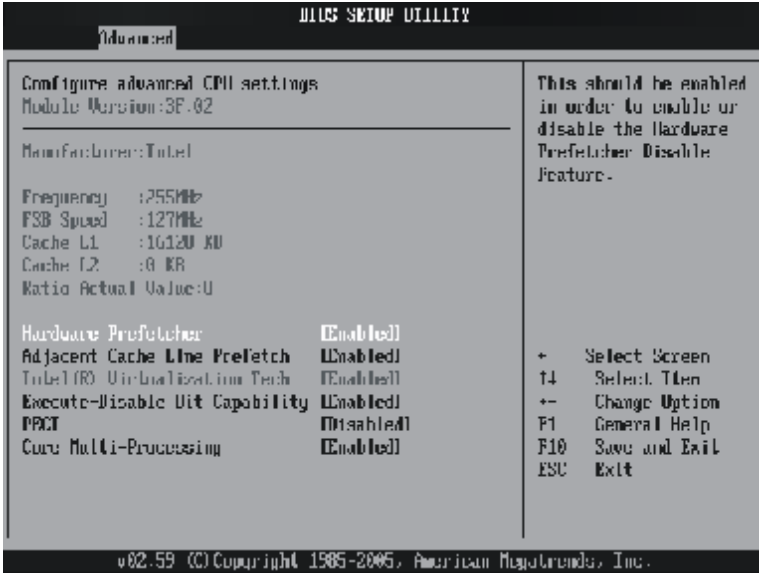
This section shows the size of the system memory

4.2 Advanced Menu

Note: Incorrect parameter setup may lead to system failure, please setup this section carefully according to the following instructions.



4.2.1 CPU Configuration



The Read-Only option contains the detailed information of CPU, including CPU manufacturer, type, frequency, L1 cache and L2 Cache, etc.

Hardware Prefetcher

[Enabled]: permit to change the speed of HDD Drive

[Disabled]: Prohibit to change the speed of HDD Drive

Adjacent Cache Line Prefetch

The configuration to allow or prohibit the use of adjacent Cache Line Prefetch mode.

Users can choose [Disabled] or [Enabled].

Intel (R) Virtualization Tech

Intel virtualization technology enables to run multiple O/S of the same kind or different kind by using the same physical platform so as to realize the management and allocation of computer resources, maximizing the resource utilization.

Execute-Disable Bit Capability

Execute Disable Bit (EDB) is a hardware-based security feature that introduced to its new generation CPU by Intel, which can help reduce system exposure to viruses and malicious code. EDB allows the processor to classify areas in memory where application code can or cannot execute. To use Execute Disable Bit you must have Windows XP SP2 operating system to support this function.

PECI

A new interface to monitor system temperature, voltage and FAN. Default as [Disable].

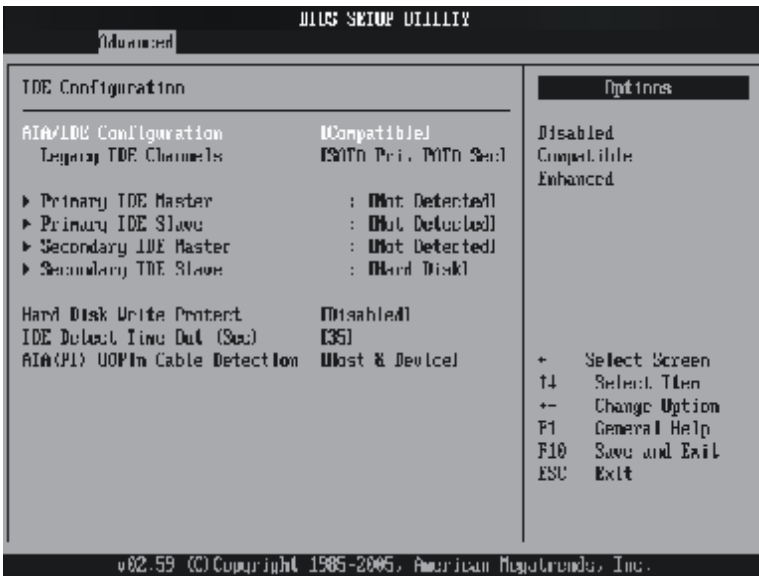
Core Multi-Processing

Set up the CPU operating mode. This option is only available when system utilizes Intel core duo processor.

[Enabled] : activate core-multi processing function (default)

[Disabled]: disable the core-multi processing function

4.2.2 IDE Configuration



ATA/IDE Configuration

This option is for selecting ATA/IDE configuration mode. Two options available: [Compatible] mode and [Enhanced] mode

Legacy IDE Channels

This is used to select legacy IDE channels.

Primary/Secondary/Third IDE Master/Slave

The four options are used to setup IDE devices, including Type, LBA/Large Mode, Block(Multi-Sector Transfer), PIO Mode, DMA Mode, S.M.A.R.T., 32Bit Data Transfer. Recommended defaults as [Auto] to let the system automatically setup the devices.

Hard Disk Write Protect

HDD Write Protect function setting:

<Enabled> Write Protect is activated, HDD read only:

<Disabled> HDD can write or read.

IDE Detect Time Out(Sec)

Set BIOS searching IDE device in appointed time (by seconds).

ATA(PI) 80Pin Cable Detection

Setup detecting ATA (PI) 80pin cable. There are three options available.

Select <Host & Device>: it will consult the cable type both IDE controller and IDE disk drive,

which is system default; Select<Host> it will use the cable type used by IDE controller; Select

<Device> it will use the cable type used by IDE disk drive.

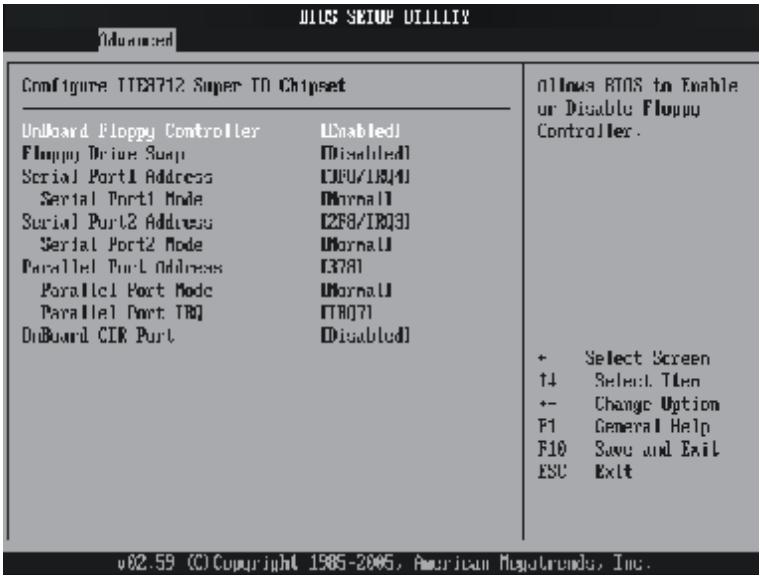
4.2.3 Floppy Setting



Floppy A/B

Floppy setting, available options include 360KB 5.25in; 1.2MB/5.25in; 720KB/3.5in ; 1.44MB 3.5in ;2.88MB/3.5in ;Disabled

4.2.4 IO Setting



OnBoard Floppy Controller

This is used to enable or disable the onboard floppy interface.

Floppy Drive Swap

It's for people with A: and B:drives. Swap reverses the drive letter assignments. System defaults [Disabled].

Serial Port1 Address

Setup the IRQ and address of serial port1. Default value is recommended.

Serial Port1 Mode

Set up the serial Port1 Mode. [Normal] is recommended.

Serial Port2 Address

Set up the serial port2 address and IRQ. Default value is recommended.

Serial Port2 Mode

Set up serial port2 mode. If this port is to connect IrDA device, this option should setup as IrDA or ASK IR, otherwise, [Normal] is recommended.

Parallel Port Address

Set up the parallel port address. Default value is recommended.

Parallel Port Mode

To select parallel port transmission mode (Bi-Dir/ECP/EPP/ECP&EPP/Normal). Default as [Normal].

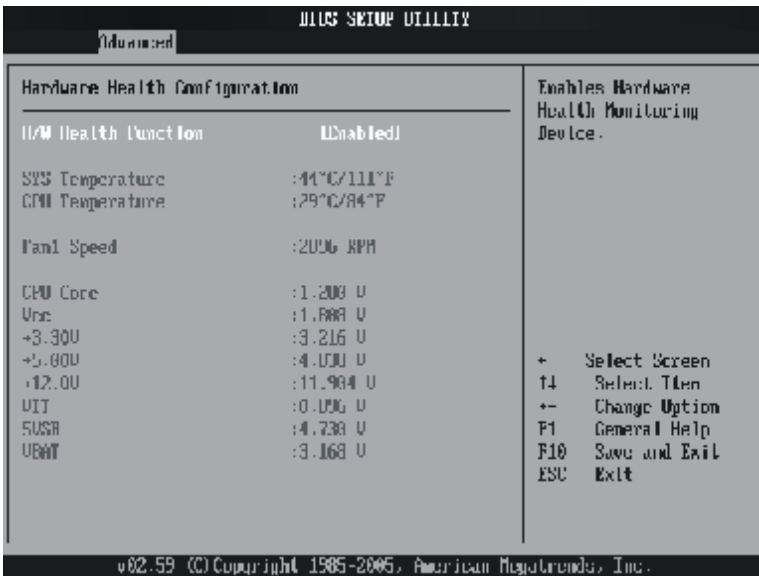
Parallel Port IRQ

To select Parallel Port IRQ. The default value is recommended.

On Board CIR Port

This is used to enable or disable the onboard CIR port.

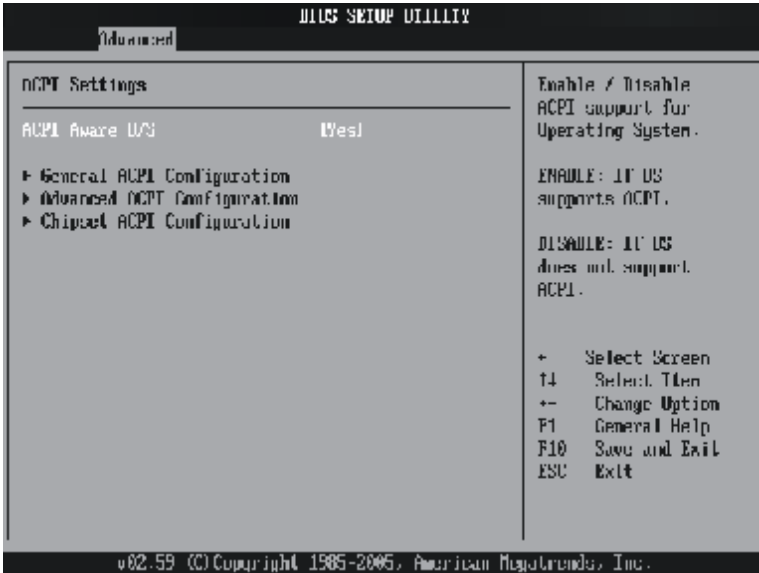
4.2.5 Hardware Health Configuration



Hardware Health Configuration

This option is for hardware security detection. BIOS will show system current temperature, CPU temperature, the rev of FAN and related voltage. All the items has a separate parameter preset value . The system should work within this value.

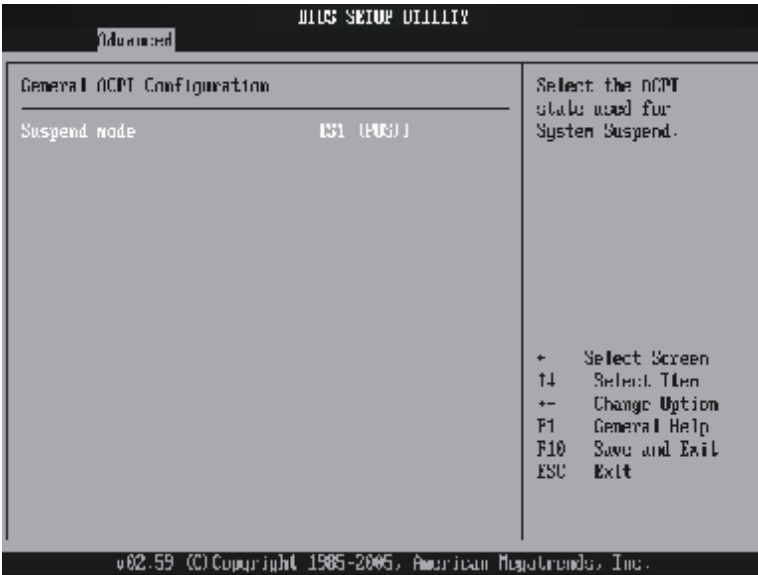
4.2.6 ACPI Configuration



ACPI Aware O/S

[YES]: support ACPI. BIOS will allocate resources as per ACPI specification and system will execute power management as per ACPI specifications.

4.2.6.1 General ACPI Configuration



Suspend mode

Suspend mode selection. Different modes with different power consumption.

S1(pos): CPU stops working while other devices are still connected to power supply.

S3(STR): Power is only supplied to system memory.

Repost Video on S3 Resume

Select to repost VGA BIOS picture on S3 resume or not.

4.2.6.2 Advanced ACPI Configuration



ACPI Version Features

ACPI Version Selection. Different versions with different features, generally with downward compatibility.

ACPI APIC support

Select to open or close the APIC, which can manage to expand the system and utilize IRQ resources.

AMI OEMB table

Disable or enable the AMI OEMB table function

Headless mode

System in this mode that no VGA output , no mouse or keyboard input.

4.2.6.3 Chipset ACPI Configuration



Energy Lake Feature

Select to support Energy Lake Feature or not.

APIC ACPI SCI IRQ

Enable or disable interior I/O APIC/SCI IRQ.

USB Device Wake up From S3/S4

Allow or not allow USB device to wake up from S3/S4.

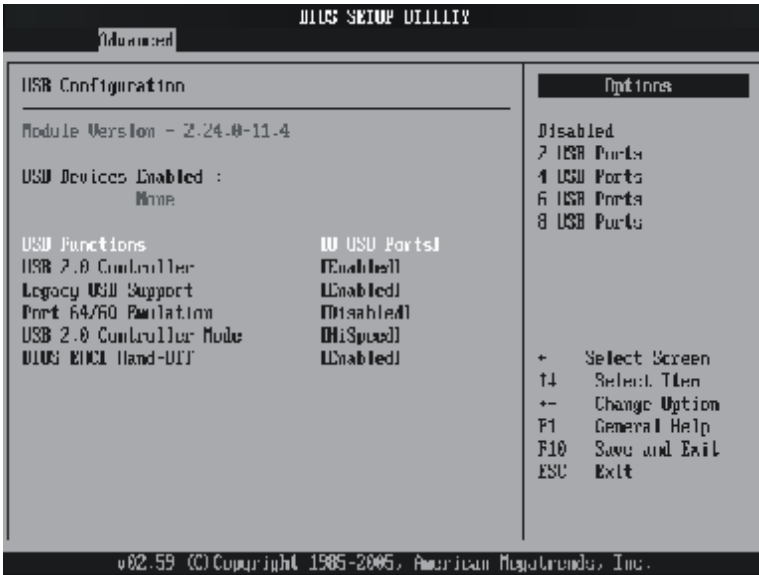
4.2.7 PCI Setting



Active State Power-Management

This option allows you to enable or disable the connection of PCI Express to Power.

4.2.8 USB Setting



USB Functions

Open USB controller, 0-8x USB controller.

USB 2.0 Controller

Enable or disable USB2.0 Controller.

Legacy USB Support

If need support USB device in DOS mode: such as USB Flash Disk, USB keyboard, then select <Enabled> or<Auto>. If not , pls select < Disabled>

Port 64/60 Emulation

To control the emulation function of USB Port64/60. When this function is activated, USB keyboard supports some key combination.

USB2.0 Controller Mode

This option is to set the transmission speed of USB 2.0 Controller:

<FullSpeed> : USB port is 1.1 spec (12Mbps)

<HiSpeed>: USB port is 2.0 spec (480Mbps)

BIOS EHCI Hand-Off

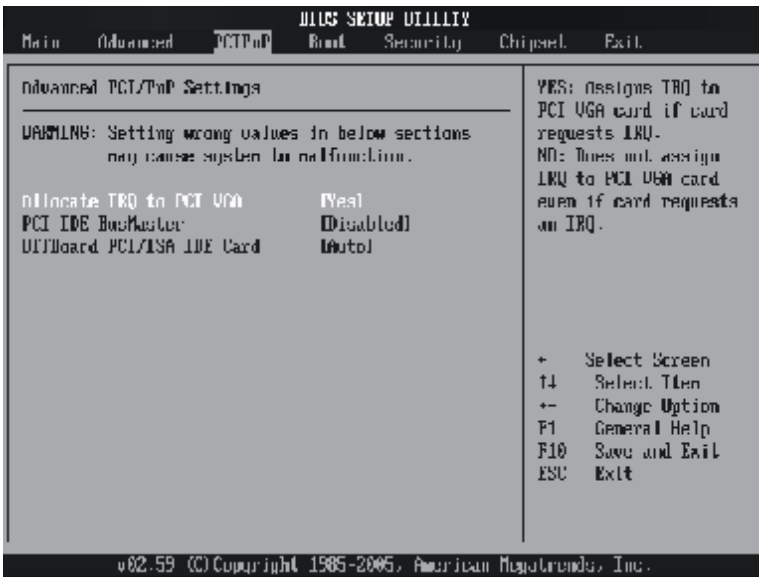
<Enabled>: When enter OS, BIOS auto close.

<Disabled>: When enter OS, BIOS closed by OS

USB Mass Storage Device Configuration

The Emulation Type: Floppy, Hard disk, CD-ROM, etc. Default [Auto] recommended.

4.3 PCI PnP Menu



Allocate IRQ to PCI VGA

<Yes>: Allocate PCI /VGA card

<No>: Don't need to allocate the PCI /VGA card

PCI IDE BusMaster

This option is for allowing or foridding the use of PCI IDE Bus Mastering. Bus Mastering can accelerate the speed of PCI IDE . System defaults as [Disabled]

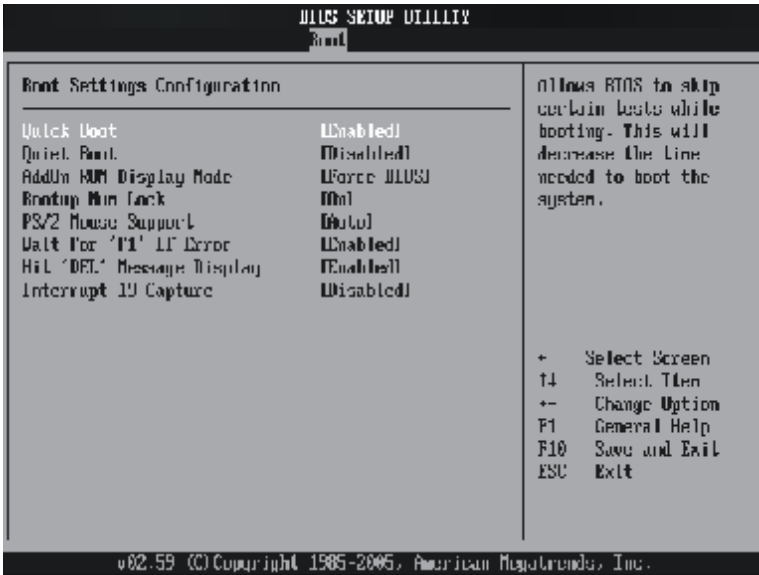
OffBoard PCI/ISA IDE Card

This option is for configuring the offboard PCI/ISA IDE card. Choose "AUTO", system will conduct self-detect, or users can choose the specific slot for this card by themselves.

4.4 Boot Menu



4.4.1 Boot Settings Configuration



Quick Boot

<Enabled>: BIOS will skip self-detection and accelerate POST

<Disabled>: After BIOS detect load Windows O/S.

Quiet Boot

This option is for showing the supplier's Logo on the screen picture when booting the computer.

<Disabled> for close and <Enabled> for open. The system defaults as <Enabled>.

AddOn ROM Display Mode

This option is for setting the display mode of graphic card software and default as[Force BIOS].

Boot Up Num-Lock

This option is for activating the Num-lock after booting the DOS system. <ON> for unlocking the number key and <OFF> for locking the number key.

PS/2 Mouse Support

This option is for opening or closing PS/2 Mouse Interface

Wait For “F1” If Error

If error occurs , wait for “F1”. When the error doesn’t lead to power down, then following messages will show: “Press ‘F1’ to resume” or “Press ‘F1’ to Setup”, users can press F1 to make the system go on working.

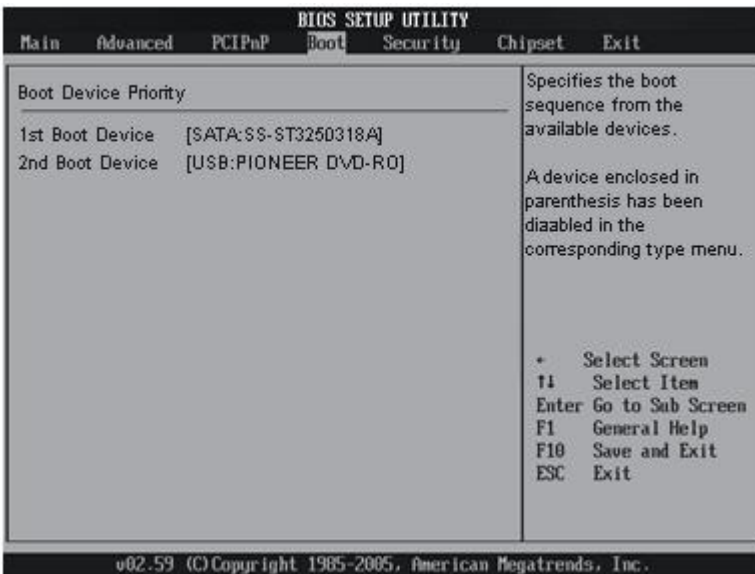
Hit “DEL” Message Display

[Enabled]: when boot the system, following message will show:

Hit “DEL” if you want to run Setup

[Disabled]: No message will show, system generally defaults as [Enabled].

4.4.2 Boot Device Priority



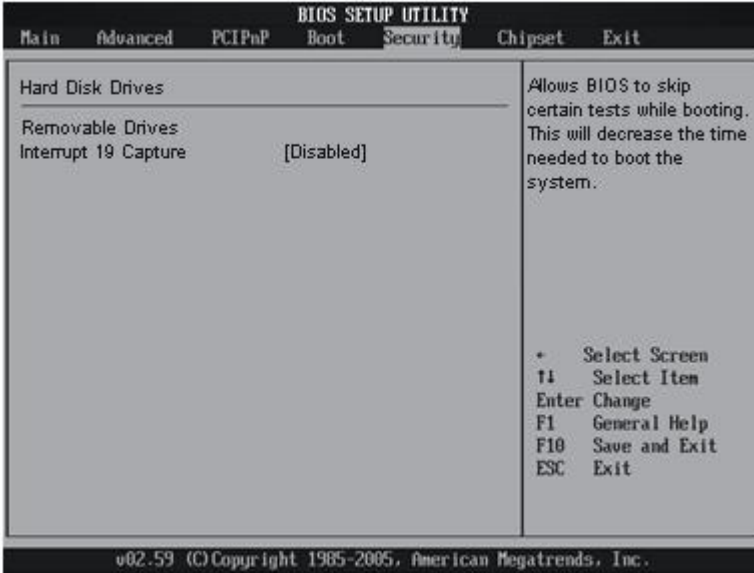
Press “Enter” , then the following sub-menu will show:

1st Boot Device

System will detect devices by this priority until it finds an available boot device.

(Boot device can be the Removable Drive or the Hard Disk Drive)

4.4.3 HDD Setting



This option includes hard disk drives that can be used as boot devices. If it contains multiple hard disks, please specify the boot sequence for the available devices and the first boot device will be list under boot device priority.

Removable Drives

This option contains the removable drives that can be used as boot devices, including U disk, CD-ROM, Floppy drive, etc. First boot device will be list under boot device priority.

Interrupt 19 Capture

[Enabled]: Capture function is activated. BIOS will function according to the add-in cards configurations in ROM

[Disabled]: BIOS will not be effected by add-in card

4.5 Security Menu



Supervisor Password

If you set up the password, it will display “Installed”

If not, it will display “Not Installed”

User Password

If you set up the password, it will display “Installed”

If not, it will display “Not Installed”

Change Supervisor Password

Press ‘Enter ‘ under this option, then enter sub-menu to change the password.

Change User Password

This option is for changing the users’ password. Press ‘Enter ‘ under this option, then enter sub-menu to change the password.

Clear User Password

This option is for clearing users' password. Press 'Enter' under this option and select "yes" and press "Enter" then you can change the password.

Boot Sector Virus Protection

<Enabled> the bootable sections protection will be available. If you execute disk format or write the bootable section instruction, BIOS will send a warning.

Example as below:

Boot Sector Write!

Possible VIRUS: Continue (Y/N)? _

(Must press much 'N' and skip up)

Format!!!

Possible VIRUS: Continue (Y/N)? _

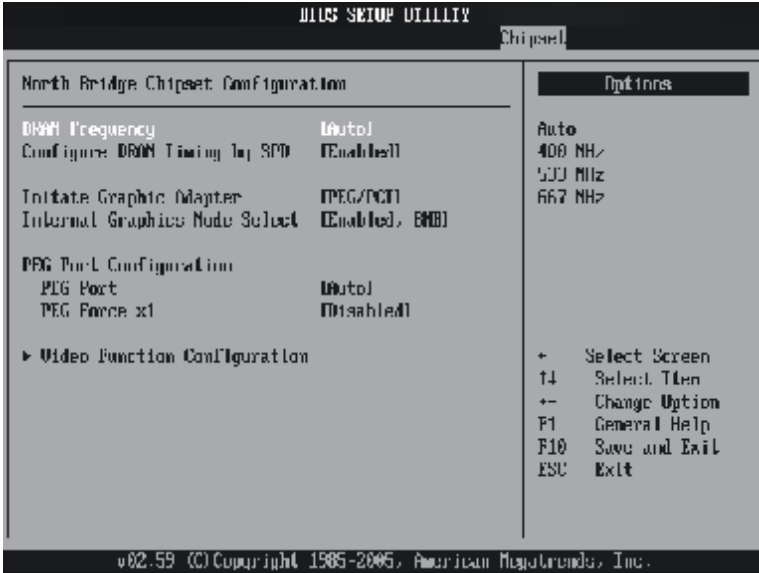
(Must press much 'N' and skip up)

<Disabled>: close this function.

4.6 Chipset Menu



4.6.1 North Bridge Configuration



DRAM Frequency

Set DRAM Frequency. Please set this option according to your RAM BANK specifications.

Configure DRAM Timing by SPD

DRAM configuration. If selecting [Enabled], system will configure the RAM specifications by SPD. If manually setting DRAM specification, please select [Disabled] and set the specifications such as the line and column address and pulse length manually.

Initate Graphic Adapter

Set priority for display devices, including:

1. PEG (PCI Express Graphics)
2. IGD (Integrated Graphics Device,)
3. PCI (PCI Graphics)
4. Internal Graphics Mode Select

Internal Graphics Mode Select. This shows the memory size before system drive installed.

After installing the drive, Graphic drive will auto allocate the video memory size by DVMT(Intel Dynamic Video Memory Technology), up to 224M.

PEG Port

Enable or disable the PCI Express Graphics

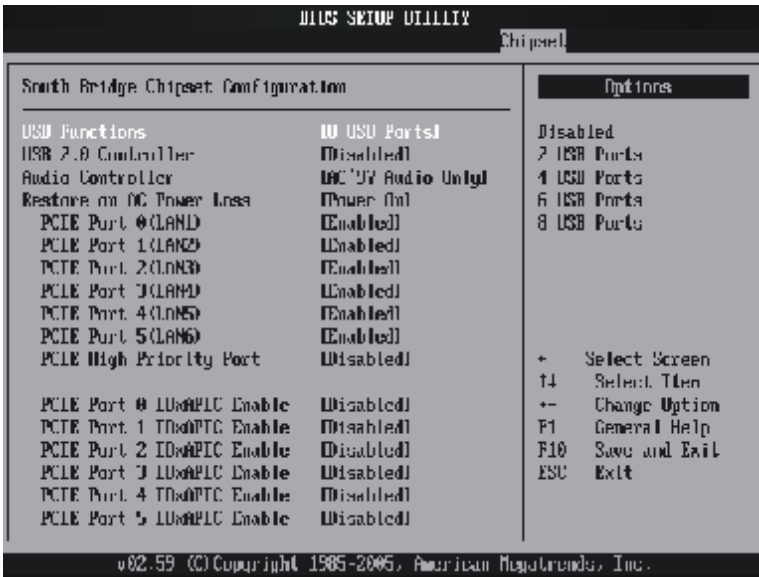
PEG Force ×1

PCI Express Graphics transmission rate setting.

[Enabled]: the PEG Force ×1 mode.

[Disabled]: X16 mode.

4.6.2 South Bridge Chipset Configuration



USB Functions

Enable or disable the USB1.1 port.

USB 2.0 Controller

Enable or disable the USB2.0 port.

Audio Controller

Enable or disable the onboard Audio Card.

Restore on AC Power Loss

Set the system status while connecting the power again after the AC Power Loss

<Power Off>: System remains the status of power off

<Power On>: System will reboot automatically

PCIE Port 0、 1、 2、 3、 4、 5

This option is used to control the ON/OFF of network card 1-6. PCIE0 for LAN card 1, net card2-6 are subordinate to net card1. Any of net card 2-6 ON, BIOS will automatically open net card 1.

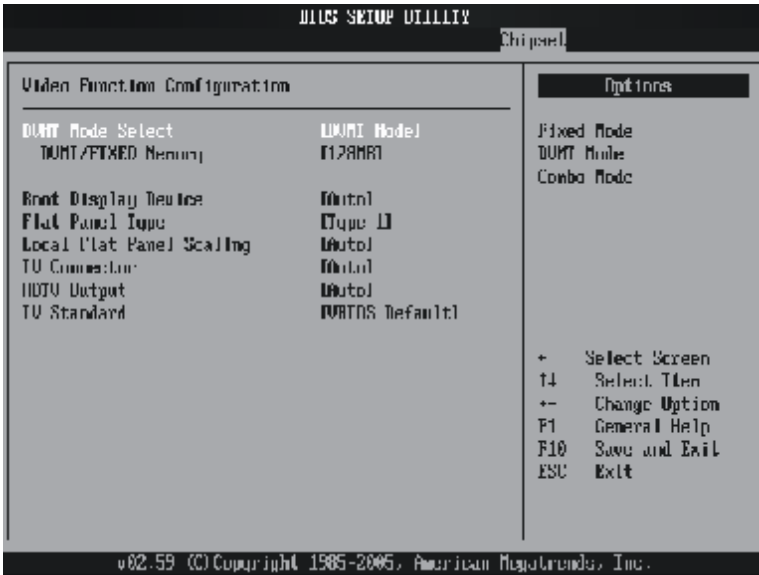
PCIE High Priority Port

To set PCIE high priority port.

PCIE Port 0、 1、 2、 3、 4、 5 IOxAPIC Enable

To enable or disable PCIE Port 0、 1、 2、 3、 4、 5 IOxAPIC. Default setting is recommended.

4.7 Video Setting



DVMT Mode Select

Internal graphics priority Select. Available options: [fixed mode] [dvmt mode].

DVMT/FIXED Memory

DVMT/FIXED memory size setting: [128mb] [256mb]

Boot Display Device

Set the display out device when system boo.

Flat Panel Type

Set the LCD type

Local Flat Panel Scaling

Select Local Flat Panel Scaling.

TV Connector

TV connector type select: [automatic],[Composite],[Component], or [Both].

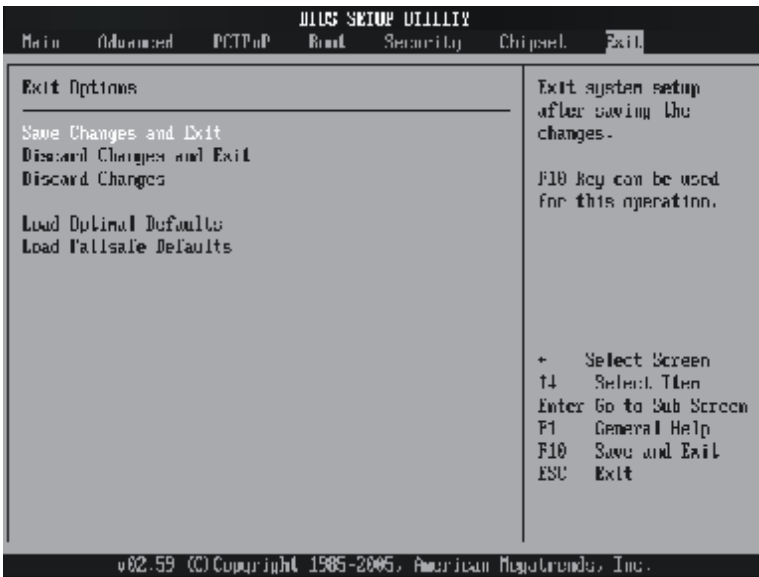
HDTV Output

HD TV Output. Recommend to set [AUTO].

TV Standard

TV Standard Select: [VBIOS-Default], [NTSC], [PAL],[SECAM], or set [off]. Recommend to set [VBIOS-Default].

4.8 Exit Menu



Save Changes and Exit

Press <Enter> and <Enter> under this option, to save BIOS change and reboot system.

Discard Changes and Exit

Press <Enter> and <Enter> under this option, to discard BIOS changes and exit the current interface.

Discard Changes

Press <Enter> and <Enter> under this option to discard changes and continue BIOS setting.

Load Optimal Defaults

Recommend users first to select his option before BIOS configurations.

Load Failsafe Defaults

Recommend users to select this option in case of system failure.



Appendix

Appendix

Appendix 1: Watchdog Programming Guide

watchdog and bypass reference code (DOS debug mode)
 =====SHBO-890 ITE8712 Watchdog

function

c:\>debug

-o 2e 87

-o 2e 01

-o 2e 55

-o 2e 55 ; unlock

-o 2e 07

-o 2f 07 ; select logical device

// -o 2e 28; following two lines deleted will not affect the function of Watchdog. Bypass=on,
 here means=42,

// -o 2f 40 ; If fill in 40 here, it will affect BYPASS=ON status, but will not affect Bypass=off

-o 2e 72

-o 2f c0 ; (c0 for second,40 for minute)

-o 2e 73

-o 2f 1e ;(0x1E=30)

-q

Appendix 2: Glossary

ACPI

Advanced Configuration and Power Management. ACPI specifications allow O/S to control most power of the computer and its add-ons

BIOS

Basic input/output system. It is a kind of software including all in/out control code interface in PC. It will do hardware testing while system is booting, and then the O/S runs. BIOS provides a interface between O/S and hardware and is stored in a ROM chip.

BUS

In a computer system, it is the channel among different parts for exchanging data; it is also a set of hardware lines. BUS here refers to part lines inside CPU and the main components of system memory.

Chipset

Chipset is a Integrated set of chips for executing one or more related functions. Here it refers to a system level chipset structured by Southbridge & Northbridge; It decides the structure and main functions of motherboard.

CMOS

Complementary Metal-Oxide Semiconductor, which is a widely used semiconductor with the characteristics of high-speed and low-power. COMS here refers to part of space on-board CMOS RAM for saving date, time, system information and system parameter,ect.

COM

Computer-Output Microfilmer.A universal serial communication interface, usually adopts normative OB 9 connector.

DIMM

Dual-Inline-Memory-Modules. It is a small circuit board with memory chipset providing 64 bit memory bus width.

DRAM

Dynamic Random Access Memorizer.It' s a normal type of memory often with a transistor and a capacitance to store 1 bit. With the development of the technology, more and more types of DRAM with different specifications exist in computer applications. For example: SDRAM/DDR SDRAM/RDRAM.

I2C

Inter—Integrated Circuit , generically referred to as "two-wire interface", is a multi-master serial single-ended computer bus invented by Philips that is used to attach low-speed peripherals to a motherboard, embedded system, or cellphone.

LAN

Network interface.Network grouped by correlative computers in a small area, generally in a company or a building. Local area network is buildup by sever, workstation, some communications links. Terminals can access data and devices anywhere through cables, which enables users to share costly devices and resource.

LED

Light-Emitting Diode.A semiconductor device that shines when power supply is connected, It is often used to denote information directly, for example, to denote power on or HDD working normally.

PnP

Plug-and-Play. It is a specification that allows PC to configure its external devices automatically and can work independently without the manual operation by its user . To achieve this function, its BIOS should be able to support PnP and a PnP expansion card

POST

Self-test when power on. While the system is booting, BIOS will do an uninterrupted testing to the system, including RAM, keyboard, hard disk driver etc.to check if all the components are in normal situation and work well.

PS/2

A keyboard & mouse connective interface specification developed by IBM.PS/2 is a DIN interface with only 6PIN; it also can connect other devices, like modem

USB

It' s Universal Serial Bus for short. A hardware interface adapts to low speed peripherals, and is always used to connect keyboard, mouse etc. One PC can connect maximum 127 USB devices, providing 12Mbit/s transmit bandwidth USB supports hot swap and multi- data stream, namely, you can plug USB devices while system is running, system can auto-detect and makes it work on.



敬请参阅

<http://www.norco.com.cn>

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