SX-50

Hardware Installation Guide

For service person only

Disclaimers

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Safety Approvals

- CE Marking
- FCC Class B

FCC Compliance

This equipment has been tested and complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

---Reorient or relocate the receiving antenna.

---Increase the separation between the equipment and receiver.

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to following two condition.

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

Installation and use of this Firewall appliance for SMB device must be in atrict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user authority to operate the equipment. The manufacturer is not responsible for any

radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and

equipment other than manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

For compliance with the FCC RF exposure requirements, this device must be installed to provide a minimum of 20 cm between the antennas and all persons. This device may not be co-located or operating in conjunction with any other transmitter.

Safety Precautions

Before getting started, read the following important cautions.

1. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
2. Disconnect the power cords from the **SX-50** before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the **SX-50** is properly grounded.
3. Do not open the system's top cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
   - ✓ Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
   - ✓ When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Trademarks Acknowledgments

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Chapter 1
Introduction

This chapter contains the general information and the detailed specifications of the **SX-50 Series** Network Appliance server. Chapter 1 includes the following sections:

- **General Description**
- **Features**
- **System Specifications**
- **Mechanical Dimensions**
- **I/O Outlets**

1.1 General Description

SX-50 Front View (Desktop type)

SX-50 Rear View

The **SX-50 Series** server is designed for network software solution providers those have data secure, voice over IP, video streaming, network bandwidth controller and another networking appliance requirements across this stable and reliable multiple LAN device. There can be deployed up to four LAN ports combinations for customer selection in the maximum for application.

SX-50 Series has pretty good enclosure management interface to be implemented in the factory default. Clear LED indicators is available for status tracking by customer.

The **SX-50 Series** is an excellent networking application platform for network secure in the SOHO (Small Office and Home Office) market.

High speed for wireless LAN connection: IEEE802.11b 11Mbps data rate by incorporating Direct Sequence Spread Spectrum (DSSS); Rate with Orthogonal Frequency Division Multiplexing (OFDM) and up to 108Mbps with Turbo mode; IEEE802.11g 54Mbps date rate with OFDM (108Mbps in Turbo mode) and 11Mbps with DSSS. Provide seamless roaming within the IEEE 802.11b WLAN infrastructure.

IEEE 802.11b/g compatible: allowing inter-operation among multiple vendors.

64-bit, 128-bit, or 152-bit WEP encryption, set by ASCII and Hexadecimal mode.

Smart selection function.

Half size Mini PCI Type 3A form factor.

Site survey function.

Hardware Radio on/off function.

Interoperability – Complying with WiFi

WPA, WPA-PSK.

1.2 Standard Features

- The **SX-50 Series** Firewall platform is an industrial grade CPU board incorporating the VT8601T chipset and the VT82C686B with built-in AGP2x VGA controller. Supports four Ethernet ports.
- Completely fanless or 1U desktop system design.
- To simplify system integration, it packs embedded provisions such as Compact Flash TYPE2, XVGA, four Fast Ethernet.(Optional)
- Unique embedded features such as 2 RS-232C serial ports

1.3 System Specifications

1.3.1 Hardware

- **CPU:** VIA Eden/C3 400MHz, 533MHz, 667MHz, C3 800MHz or C3-1GHZ CPU (other frequency processors are manufacture optional)
- **Chipset:** VT8601T
- **Bus Clock:** 100/133 MHz
- **L2 Cache:** Integrated in CPU
- **BIOS:** Winbond or SST 2Mbit PnP Flash BIOS
- **System Memory:**
  - 1 x 168-pin DIMM sockets
  - Maximum of 512MB SDRAM
  - Supports unbuffered, Non-ECC SDRAM only
  - Supports PC133 SDRAM module
  - Onboard 64MB DRAM (SX-50A)(default)
  - Onboard 128MB DRAM (SX-50B)(default)
- **IDE Interface:**
  - 2 chanels up to 4 devices (IDE1 x 44-pin, IDE2 x 40-pin)
  - PIO Mode 0-4, DMA Mode 0-2 and Ultra DMA/33/66/100
  - LS-120 & ZIP Bootable
- **FDD Interface:** Supports up to 2 drives
- **Serial Ports:** two 16550 UARTs ports with RS-232
- **Parallel Ports:** One parallel port with ECP/EPP/SPP supported
- **VGA Controller:**
  - AGP interface controller integrated in VIA VT8601T
  - Supports CRT display only
  - Extended Screen Resolutions up to 1600x1200
- **Ethernet:**
  - Onboard 4x RTL8139C or 1xIntel 82540 1000M Ethernet + 3x Intel 82551 or 4x Intel 82551 10/100M Ethernet
  - Onboard RJ-45 connector

- **USB Interface:**2 USB ports
- **Power Management:**ACPI
- **Watchdog Timer:**
  - Generates System Reset or Non-Maskable Interrupt (NMI) via jumper selection
  - 64 programmable time interval levels of 0.5~8/ 5~80/ 50~800/ 100~1600 seconds
- **CompactFlash Socket:**
  - Support ATA interface CompactFlash from IDE1 Interface.
  - Power is 3.3V (Option) or 5V (default).
- **Expansion Slots:**
  - One Slim type PCI slot for PCI expansion
  - One Mini PCI Interface
- **Operating Temperature:** 0°C~60°C (32°F~140°F)
- **Operating Humidity:** 5%~95%; non-condensing
- **Form Factor:** 5.25" form factor
- **Dimensions:** 44mm(H) x 215mm(W) x 150.6mm(D)

NOTE: Specifications are subject to change without notice.

1.4 Front Panel Outlets

Located at the front panel of the **SX-50 Series** server are the I/O outlets for connections of serial and Ethernet interface-supported devices.

The SX-50 Series Server Front Panel

- **Power –** Lights when the SX-50 is powered up and performing diagnostic tests to check for proper operation.
- **LAN Link –** Lights up with a Twisted pair connection is made to another Ethernet device on the port.
- **Transfer Rate –** Show network transfer rate while make connections
- **Activity –** Lights up when the SX-50 transmits or receives a packet through the twisted pair port

Indications of Front Panel

I. **Power on LED**

System and power on

II. **HDD LED**

Link/Active LED (single color)

1. The green LED is on when the HD has connection normally

2. The LED flashes when there is transmit or receive activity

III. **Link/Active LED (Single color)for LAN port #1, port#2,**

port#3 and port#4

1. The yellow LED is on when there is an active connection on the LAN port

2. The LED flashes when there is transmit or receive activity to or from the appliance

3. The LED is dark when it off line.

IV. Transmitted LED for LAN port #1, port#2, port#3 and port#4

1. The green LED light is on 10/100Mbps transfer rate

2. The LED is dark if the Link/Active LED is light or flash in the same time; It's on 10Mbps transfer rate

3. The LED is dark if the Link/Active LED is dark also.

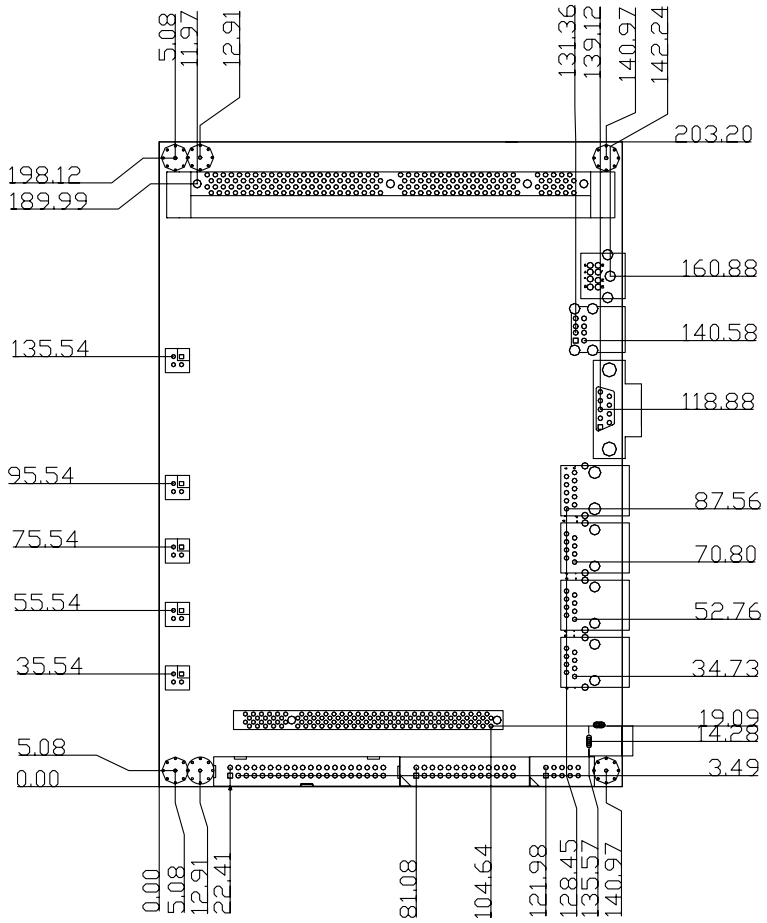
There is no any networking device was attached.

1.5 Rear Panel Outlets

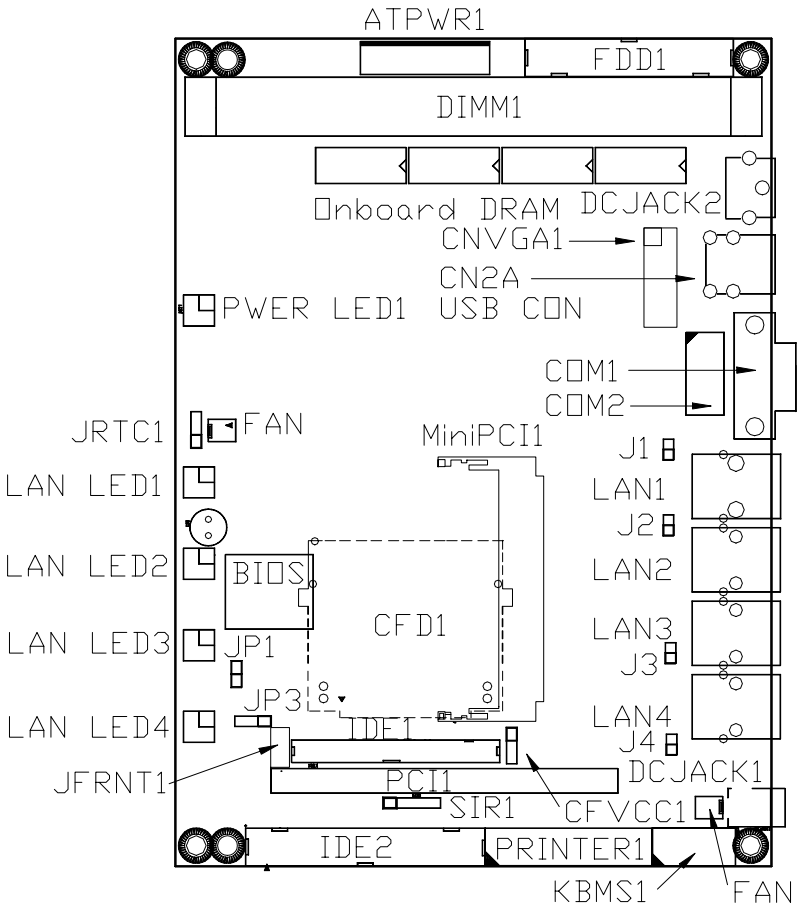
Located at the rear panel of the **SX-50** server are the I/O outlets.

Chapter 2
Jumpers and Connectors

2.1 Board Dimensions



2.2 Board Placement



2.3 Jumper Settings

The SX-50 is configured to match the needs of your application by proper jumper settings. The following tables show the correct jumper settings for the onboard devices.

Jumper	Default Setting	Jumper Setting
JP1	Compact flash selection Default: Master	Short 1-2
JP3	WatchDog Timer Output Selection Default: NMI	Short 1-2
JRTC1	Battry and Clear CMOS selection Default: Battry	Short 1-2
CFVCC1	Compact flash power select Default:5Voltage	Short 1-2
J1	LAN1 selection Default: Enable	Short 1-2
J2	LAN2 selection Default: Enable	Short 1-2
J3	LAN3 selection Default: Enable	Short 1-2
J4	LAN4 selection Default: Enable	Short 1-2

2.3.1 Compact Flash IDE Mode Selection: JP1

SX-50 compact Flash IDE Mode for Master/Slave selection completed by setting: **JP1**

CF IDE Mode	JP1
Master	Short
Slave	Open (default)

2.3.2 Watch Dog Timer Timeout Trigger Seclection: JP3

Option	JP3
Disable	Open
NMI	Short 1-2(default)
Reset	Short 2-3

2.4 Connectors

The connectors allow the CPU card to connect with other parts of the system. Some problems encountered by your system may be a result from loose or improper connections. Ensure that all connectors are in place and firmly attached. The following table lists the function of each connector on the **SX-50**.

Connectors	Label
44pin IDE Channel 1	IDE1
40pin IDE Channel 2	IDE2
BOX-Header VGA Connector	CNVGA1
RJ-45 LAN1 Connector	LAN1
RJ-45 LAN2 Connector	LAN2
RJ-45 LAN3 Connector	LAN3
RJ-45 LAN4 Connector	LAN4
FDD Connector	FDD1
Parallel Port Connector	PRINTER1
D-SUB COM1 Connector	COM1
BOX-Header COM2 Connector	COM2
Keyboard and PS/2 Mouse Connector	KBMS1
Double stack USB Connector	CN2A
PWR/HD/LAN LED	PWERLED1, LAN1~4
Front Panel Bezel Connector	JFRNT1
8PIN POWER IN Connector	ATPWR1
CPU FAN Connector	CPUFAN1, CPUFAN2
IRDA Connector	SIR1
DC Jack POWER IN Connector	DCJACK1/DCJACK2

Chapter 3
Installation

This chapter describes the hardware installation procedures on the **SX-50** Network application platform. The following is a list of typical peripherals required to build a minimum system:

- 5V DC power adapter
- Display monitor
- Floppy or hard disk with MS-DOS or Flash Disk emulator

3.1 System Memory

The **SX-50** Network application platform has one 168-pin DIMM socket for a maximum total memory of 512M unbuffered SDRAMs. The memory module can come in sizes of 16MB, 32MB, 64MB, 128MB, 256MB and 512MB SDRAMs.

NOTE: Use SDRAM modules with PC100 or PC133 specification when running 66/100MHz CPU bus speed. With 133MHz CPU bus speed, SDRAM modules with PC133 specification can be used. You have to install the Intel Celeron or Pentium III processor before installing the memory modules.

3.2 Completing Installation

To complete the installation, follow the steps listed below.

1. Make sure the power is OFF.
2. Set the configuration jumpers according to the jumper settings on Chapter 2.
3. Connect the I/O cables and peripherals, i.e. floppy disk, hard disk, monitor, keyboard, power supply and etc. to the CPU board.

   NOTE: *The color of pin one is usually red or blue, while others are gray.*
4. Turn ON the system power.

Chapter 4
Hardware Description

This chapter gives a detailed explanation of the hardware features onboard for the **SX-50 Series** Network application platform.

4.1 Microprocessors

The **SX-50 Series** use VIA Eden/C3 400MHz, 533MHz, 667MHz, C3 800MHz or C3 1GHZ CPU (other frequency processors are manufacture optional)

4.2 BIOS

The system BIOS used in **SX-50 Series** is Award Plug and Play BIOS. The **SX-50 Series** contains a single 2Mbit Flash EPROM. For more detailed information, refer to Chapter 7 for a complete description of the BIOS setup utility and the available features accompanying it.

4.3 DMA Channel assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Parallel**
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

4.4 Interrupt Controller

The **SX-50 Series** is a fully PC compatible control board. It consists of 16 ISA interrupt request lines and 4 of the 16 can be either ISA or PCI. The mapping list of the 16 interrupt request lines is shown below;

NMI	Parity Check Error
IRQ0	System timer output
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	Serial port #2
IRQ4	Serial port #1
IRQ5	LAN
IRQ6	Floppy disk controller
IRQ7	Parallel port #1
IRQ8	Real time clock
IRQ9	USB
IRQ10	LAN/LAN
IRQ11	LAN
IRQ12	PS/2 mouse
IRQ13	Math co-processor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE channel

4.5 I/O Port Address Map

The CPU card communicates via I/O ports. It has a total of 1KB port addresses that can be assigned to other devices via I/O expansion cards.

I/O	Address Map Description
000-01F	DMA Controller #1
020-021	Interrupt Controller # 1, Master
022-023	Chipset address
040-05F	System Timer
060-06F	Standard 101/102 keyboard Controller
070-07F	Real time Clock, NMI Controller
080-0BF	DMA Page Register
0A0-0BF	Interrupt Controller # 2
0C0-0DF	DMA Controller # 2
0F0-0FF	Math Coprocessor
120-121	Watch dog timer
170-1FF	VIR BUS Master PCI IDE Controller
250	I/O configuration port
2F8-2FF	Serial Port 2
378-37F	Parallel Printer Port 1
3B0-3DF	Cyrix Graphic Adapter
3F0-3F7	Floppy Disk Controller
3F8-3FF	Serial Port 1

4.6 IDE Interface Connector

The SX-50 SERIES is built in 2 channels to support 4 IDE drives. IDE1 is 44 pins connector for 2.5” type drive. IDE2 is 40 pins connector for 3.5” type drive or CD-ROM.

IDE1: IDE Connector Pin Assignment (44 pins)

Pin	Description	Pin	Description	Pin	Description
1	Reset #	2	GND	3	Data 7
4	Data 8	5	Data 6	6	Data 9
7	Data 5	8	Data 10	9	Data 4
10	Data 11	11	Data 3	12	Data 12
13	Data 2	14	Data 13	15	Data 1
16	Data 14	17	Data 0	18	Data 15
19	GND	20	N.C.	21	DREQ
22	GND	23	IOW #	24	GND
25	IOR #	26	GND	27	IORDY
28	Pull down	29	DACK#	30	GND
31	IRQ14	32	N.C.	33	SA1
34	PDIAG	35	SA0	36	SA2
37	CS1 #	38	CS3 #	39	Active #
40	GND	41	+5V	42	+5V
43	GND	44	N.C.		

IDE2: IDE Connector Pin Assignment (40 pins)

Pin	Description	Pin	Description	Pin	Description
1	Reset #	2	GND	3	Data 7
4	Data 8	5	Data 6	6	Data 9
7	Data 5	8	Data 10	9	Data 4
10	Data 11	11	Data 3	12	Data 12
13	Data 2	14	Data 13	15	Data 1
16	Data 14	17	Data 0	18	Data 15
19	GND	20	N.C.	21	DREQ
22	GND	23	IOW #	24	GND
25	IOR #	26	GND	27	IORDY
28	Pull down	29	DACK#	30	GND
31	IRQ15	32	N.C.	33	SA1

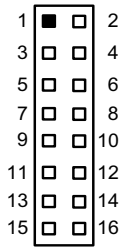
34	PDIAG	35	SA0	36	SA2
37	CS1 #	38	CS3 #	39	Active #
40	GND				

4.7 VGA Connector: CNVGA1

The **SX-50 Series** has one video connector that supports CRT. **CNVGA1** is a 16PIN Box header connector commonly used for the CRT VGA display.

CNVGA1: CRT/VGA Connector Pin Assignment

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	AGND	3	Green
4	N/A	5	Blue	6	AGND
7	N/A	8	DDC DAT	9	GND
10	AGND	11	GND	12	Horizontal Sync
13	AGND	14	Vertical Sync	15	DDC CLK
16	NC				

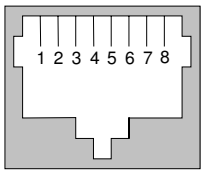


4.8 Ethernet Connector

The LAN1connector have Giga bit LAN supports. To connect the **SX-50 Series** to 10-Base-T, 100-Base-T hub or 1000-Base-T hub, just plug one end of the cable into the **LAN1**and connect the other end (phone jack) of the cable to a 10-Base-T hub. 100-Base-T hub or 1000-Base-T hub.

LAN1: RJ-45 Connector Pin Assignment

Pin	Signal
1	Tx+ (Data transmission positive)
2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)
6	Rx- (Data reception negative)
4	Tx2+ (Data transmission positive)
5	Tx2- (Data transmission negative)
7	Rx2+(Data reception positive)
8	Rx2- (Data reception negative)

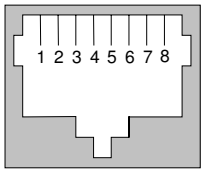


RJ-45

The LAN2~LAN4 connector is used for Ethernet. To connect the **SX-50 Series** to 10-Base-T or 100-Base-T hub, just plug one end of the cable into the **LAN2~LAN4** and connect the other end (phone jack) of the cable to a 10-Base-T hub or 100-Base-T hub.

LAN1~LAN4: RJ-45 Connector Pin Assignment

Pin	Signal
1	Tx+ (Data transmission Firewallitive)
2	Tx- (Data transmission negative)
3	Rx+(Data reception Firewallitive)
6	Rx- (Data reception negative)
other	Not use



RJ-45

4.9 Floppy Disk Controller

The **SX-50 Series** provides a 34-pin header type connector, **FDD1**, supporting up to two floppy drives. The floppy drives may be any one of the following types: 5.25" 360KB/1.2MB and 3.5" 720KB/1.44MB/2.88MB.

FDD1: Floppy Disk Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	GND	2	RWC	3	GND
4	No connector	5	GND	6	No connector
7	GND	8	Index#	9	GND
10	Motor A#	11	GND	12	Drive select B#
13	GND	14	Drive select A#	15	GND
16	Motor B#	17	GND	18	Direction#
19	GND	20	STEP#	21	GND
22	Write data#	23	GND	24	Write gate#
25	GND	26	Track 0 #	27	GND
28	Write protect#	29	GND	30	Read data#
31	GND	32	Side 1 select#	33	GND
34	Disk change#				

4.10 Parallel Port Interface

The **SX-50 SERIES** onboard **PRINTER1** is a multi-mode parallel port able to support:

- **Standard mode:** IBM PC/XT, PC/AT and PS/2™ compatible with bi-directional parallel port
- **Enhanced mode:** Enhance parallel port (EPP) compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
- **High speed mode:** Microsoft and Hewlett Packard extended capabilities port (ECP) IEEE 1284 compliant

The address select of the onboard parallel port in PRINTER1 (378H) or disabled is done by BIOS CMOS setup.

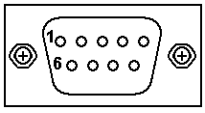
PRINTER1: Parallel Port Connector Pin Assignment

Pin	Description	Pin	Description
1	Strobe #	14	Auto Form Feed #
2	Data 0	15	Error #
3	Data 1	16	Initialize #
4	Data 2	17	Printer Select In #
5	Data 3	18	GND
6	Data 4	19	GND
7	Data 5	20	GND
8	Data 6	21	GND
9	Data 7	22	GND
10	Acknowledge #	23	GND
11	Busy	24	GND
12	Paper Empty #	25	GND
13	Printer Select		

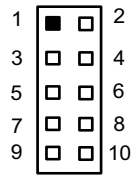
4.11 Serial Port Interface

The SX-50 SERIES has two onboard serial ports COM1 is standard DB9 connectors. COM2 is combo connector. The pin assignments are listed below.

COM1	Description
1	Data Carrier Detect (DCD)
6	Data Set Ready (DSR)
2	Receive Data (RXD)
7	Request to Send (RTS)
3	Transmit Data (TXD)
8	Clear to Send (CTS)
4	Data Terminal Ready (DTR)
9	Ring Indicator (RI)
5	Ground (GND)



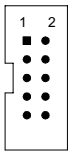
COM2	Description	COM2	Description
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request to Send (RTS)
5	Transmit Data (TXD)	6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	NC



4.12 Keyboard and PS/2 Mouse Connectors

The **SX-50 SERIES** provides a PS/2 keyboard and PS/2 mouse interface **KBMS1** with a 2X5-pin connector.

KBMS1	Description
1	KBVCC
2	KB Data
3	KB Clock
4	KB GND
5	VCC
6	MSVCC
7	MS Data
8	MS Clock
9	MSGND
10	N.C.



4.13 USB Connector

The Universal Serial Bus (USB) connector on the **SX-50 SERIES** is for installation of peripherals supporting the USB interface. **USB** is 8-pin standard double stack USB connector.

4.14 POWER LED & LAN LED

PWERLED1: 4 Pin LAN LED for Network communication.

Pin	Description
1	Power LED+
2	Power LED-
3	HDD LED+
4	HDD LED-

LAN1~LAN4: 4 Pin LAN LED for Network communication.

Pin	Description
1	10/100 Link LED+
2	10/100 Link LED-
3	LAN Active LED+
4	LAN Active LED-

4.15 HDD LED Connector: JFRNT1

JFRNT1: Pin 3-4 connector for HDD LED communication.

Pin	Description
3	LED+
4	LED-

4.16 Power LED Connector: JFRNT1

JFRNT1: Pin 1-2 connector for Power LED communication.

Pin	Description
1	LED-
2	LED+

4.17 Hardware Reset Connector: JFRNT1

JFRNT1: Pin 5-6 connector for Hardware Reset communication.

Pin	Description
5	Signal
6	GND

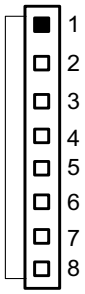
4.18 Power Button Connector: JFRNT1

JFRNT1: Pin 7-8 connector for Hardware Reset communication.

Pin	Description
7	Signal
8	GND

4.19 8PIN Power IN Connector: ATPWR1

Pin	Description
1	+5V
2	GND
3	+12V
4	5VSB
5	Soft on/off
6	-12V
7	GND
8	+5V



4.20 CPU FAN Connector: FAN1/FAN2

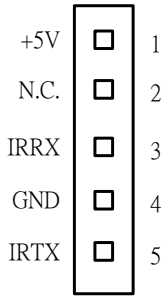
FAN1 and **FAN2** are CPU and system fan connectors.

Pin	Description
1	GND
2	+5V

4.21 IRDA Connector: SIR1

SIR1 is a 5-pin IrDA connector for wireless communication.

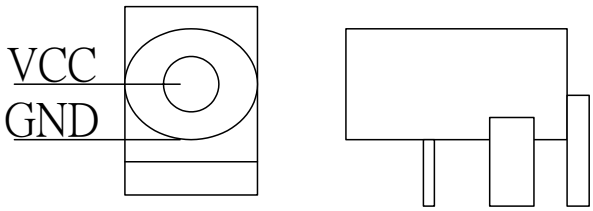
SIR1



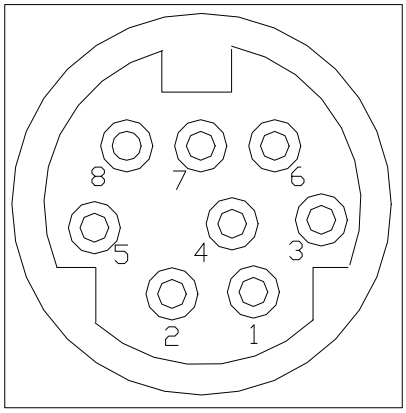
4.22 DC Jack Power IN Connector: DCJACK1, DCJACK2

DCJACK1 is a 2-pin 5Voltage DC IN connector with 2.5Φ Jack for 5V /3A TYPICAL loading use (4Amp Max.)

DCJACK1



DCJACK2 is a 8-pin 5Voltage DC IN connector with Mini DIN type for 5V /5A TYPICAL loading use (8Amp Max.).



+5V:PIN4,6,7,8
GND:PIN1,2,3,5

Chapter 5
Display Drivers

5.1 Introduction

The Apollo PLE133 Graphics Controller is a highly integrated display control device that incorporates a 64-bit 3D/2D graphic engine and video accelerator with advanced DVD video and optional TV output capability. It provides a flexible and high performance solution for graphics and video playback acceleration for various color depth and resolution modes.

The Apollo PLE133 Graphics Controller supports a video capture port to inport captured live MPEG 1 or MPEG 2 video streams, or DVD decompressed video streams to be overlaid with a graphics stream of mixed color depth displays. In supporting dual live videos, the Apollo PLE133 Graphics controller offers independent dual video windows ready for videoconferencing and with linear scaling capability.

5.2 Features

- High Performance single cycle GUI
- Highly Integrated RAMDAC™ and Triple Clock Synthesizer
- Full Feature High Performance 3D Graphics Engine
- High speed internal AGP Bus Mastering data bus supporting DVD video playback & 3D
- Hardware implementation of motion compensation
- Dual Video Windows for Videoconferencing
- TrueVideo® Processor
- DirectDraw™ and DirectVideo™ Hardware Support
- Versatile Motion Video Capture/Overlay/Playback Support
- Flexible Frame Buffer Memory Interface
- Advanced Mobile Power Management
- CRT Power Management (VESA™ DPMS)
- PC99 Hardware Support

Chapter 6
Ethernet

6.1 Introduction

The SX-50 Series is equipped with a high performance Plug and Play Ethernet interface which is fully compliant with the IEEE 802.3 standard, and consisting of a RJ-45 connector.

6.2 Features

- 10Mb/s, 100Mb/s, or 1000Mb/s(LAN1) operations
- Supports 10Mb/s, 100Mb/s or 1000Mb/s(LAN1) N-Way auto negotiation
- Full duplex capability
- Full compliance with PCI Revision 2.1
- PCI Bus Master data transfers

6.3 Drivers Supported

Bundled with popular software drivers, the SX-50 Series Ethernet interface allows great flexibility to work with all major networking operating systems including Novell NetWare v2.x, v3.x, v4.x, Microsoft LAN Manager, Win3.1, Win NT, Win95, IBM LAN Server, SCO UNIX or other ODI, NDIS and Packet drive compliant operating systems.

Note:

Closer LAN Mode A:

The CM10 Module does not have the LAN Mode A function, when the system was closed by Manufacture.

If you want to use the Mode A, please contact your service center, or please use the other Model number will support you needing.

Chapter 7
Award BIOS Utility

The different settings available in the Award BIOS that comes with the **SX-50 Series** CPU board. Also contained here are instructions on how to set up the BIOS configuration.

7.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Celeron processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for standard devices such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

7.2 BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn ON the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, FIREWALLT (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system OFF and back ON again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

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▸ Standard CMOS Features	▸ Frequency/Voltage Control
▸ Advanced BIOS Features	▸ Load Optimized Defaults
▸ Advanced Chipset Features	▸ Set Supervisor Password
▸ Integrated Peripherals	▸ Set User Password
▸ Power Management Setup	▸ Save & Exit Setup
▸ PnP/PCI Configurations	▸ Exit Without Saving
▸ PC Health Status	
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type…	

The section below the setup items of the Main Menu displays the control keys for this menu. Another section located at the bottom of the Main Menu, just below the control keys section, displays information on the currently highlighted item in the list.

NOTE: *If you find that your computer cannot boot after making and saving system changes with Setup, the Award BIOS, via its built-in override feature, resets your system to the CMOS default settings.*

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

7.3 Standard CMOS Features

"Standard CMOS Setup" allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

CMOS Setup Utility-Copyright © 1984-2000 Award Software
Standard CMOS Features

			Item Help
Date (mm:dd:yy)		Wed, Jul 31 2002	
Time (hh:mm:ss)		2 : 31 : 24	Menu Level ▶
▶	IDE Primary Master	[None]	
▶	IDE Primary Slave	[None]	Change the Day, month, Year and Century
▶	IDE Secondary Master	[None]	
▶	IDE Secondary Slave	[None]	
	Drive A	[1.44M, 3.5 in].	
	Drive B	[None]	
	Video	[EGA/VGA]	
	Halt On	[All, But Keyboard]	
	Base Memory	640K	
	Extended Memory	65472K	
	Total Memory	1024K	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following pages describe each item of this menu.

- **Date**
  The date format is:

Day	the day of week, from Sun to Sat, determined by the BIOS, is read only
Month	the month, Jan (1) through Dec (12)
Date	the date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
Year	the year, from 1994 to 2079

  To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

- **Time**

The time format is:

Hour	From 00 to 23
Minute	From 00 to 59
Second	From 00 to 59

To set the time, highlight the "Time" field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

- **IDE Primary/Secondary Master/Slave** *Hard Drives*
  The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".
  To enter the specifications for a hard disk drive, you must select first a "Type". There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Types 1 to 45 are predefined. Type "User" is user-definable. For the Primary Master/Slave as well as Secondary Master/Slave, you can select "Auto" under the TYPE and MODE fields. This will enable auto detection of your IDE drives and CD-ROM drive during FIREWALLT.
  Press <PgUp>/<PgDn> to select a numbered hard disk type or type the number and press the <Enter> key. The hard disk will not work properly if you enter incorrect information for this field. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually. If you select Type User, the utility will ask you to enter the information on the following table.

CYLS	number of cylinders
HEAD	number of read/write heads
PRECOMP	write precompensation
LANDZ	landing zone
SECTOR	number of sectors
SIZE	Automatically adjust according to the configuration
MODE (for IDE HDD only):	Auto Normal: (HD < 528MB) Large: (for MS-DOS only) LBA: (HD > 528MB and supports Logical Block Addressing)

NOTE: *The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in these fields. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.*

- **Drive A / Drive B**

  These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360K, 5.25 in	5.25 inch PC-type standard drive; 360Kb capacity
1.2M, 5.25 in	5.25 inch AT-type high-density drive; 1.2MB capacity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb capacity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB capacity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB capacity

- **Video**
  This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	For Hercules or MDS adapters, includes high resolution monochrome adapters

- **Halt On**
  This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected. (default)
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

7.4 Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

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Advanced BIOS Features

		Item Help
Virus Warning	[Disabled]	
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	Menu Level ▶
CPU L2 Cache ECC Checking	[Enabled]	Allows you to
Processor Number Feature	[Enabled]	choose the VIRUS
Quick Power On Self Test	[Enabled]	Warning feature
First Boot Device	[HDD-0]	for IDE Hard disk
Second Boot Device	[Floppy]	boot sector
Third Boot Device	[SCSI]	protection. If this
Boot Other Device	[Enabled]	function is enable
Swap Floppy Drive	[Disabled]	and someone
Boot Up Floppy Seek	[Enabled]	attempts to write
Boot Up NumLock Status	[On]	data into this area,
Gate A20 Option	[Normal]	BIOS will show
Typematic Rate Setting	[Disabled]	a warning
Typematic Rate (Chars/Sec)	6	message on
Typematic Delay (Msec)	250	screen and alarm
Security Option	[Setup]	beep
OS Select for DRAM >64MB	[Non-OS2]	
Video BIOS Shadow	[Enabled]	
C8000-CBFFF	[Disabled]	
CC000-CFFFF	[Disabled]	
D0000-D3FFF	[Disabled]	
D4000-D7FFF	[Disabled]	
D8000-DBFFF	[Disabled]	
DC000-DFFFF	[Disabled]	
Small Logo(EPA) Show	[Disabled]	
Display board ID Message	[Disabled]	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **Virus Warning**
  This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

NOTE: *Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. If you will run such a program, disable the Virus Warning feature.*

- **CPU Internal Cache / External Cache**
  Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these are ***Enabled***.

- **CPU L2 Cache ECC Checking**
  When enabled, this allows ECC checking of the CPU's L2 cache. By default, this field is ***Enabled***.

- **Processor Number Feature**
  When a Pentium® III CPU is installed, the system automatically detects it and displays this item.

- **Quick Power On Self Test**
  When enabled, this field speeds up the Power On Self Test (FIREWALLT) after the system is turned ON. If it is set to Enabled, BIOS will skip some items.

- **First/Second/Third Boot Device**
  These items allow the selection of the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, ZIP100, HDD0~3, SCSI, and CDROM.

- **Boot Other Device**
  This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is ***Enabled***.

- **Swap Floppy Drive**
  This allows you to determine whether to enable Swap Floppy Drive or not. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

- **Boot Up Floppy Seek**
  When enabled, the BIOS seeks for number of track (40 or 80) of the installed floppy drive. 360K type has 40 tracks while 760K, 1.2M and 1.44M have 80 tracks. By default, this field is set to ***Enabled.***
- **Boot Up NumLock Status**
  This activates the NumLock function after powering up the system. By default, the system boots up with ***NumLock*** ON.
- **Gate A20 Option**
  Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.
- **Typematic Rate Setting**
  When Disabled, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystrokes repeat at a rate determined by the keyboard controller in your system. When Enabled, you can select a typematic rate and typematic delay.
- **Typematic Rate (Chars/Sec)**
  When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10,12, 15, 20, 24 or 30 characters per second.
- **Typematic Delay (Msec)**
  When the typematic rate setting is enabled, you can select a typematic delay (the delay before key strokes begin to repeat) of 250, 500, 750 or 1000 milliseconds.
- **Security Option**
  If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.
- **OS Select for DRAM > 64MB**
  Select OS2 only if you are running OS/2 operating system with greater than 64 MB of RAM on your system.
- **Display board ID Message**
  This allows you to show board ID Message on Screen.

7.5 Advanced Chipset Features

This Setup menu controls the configuration of the motherboard chipset.

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Advanced Chipset Features

			Item Help
	DRAM Clock	[Host CLK]	
	DRAM Timing By SPD	[Enabled]	
X	DRAM Cycle Length	3	Menu Level ►
X	Bank Interleave	Disable	
	Memory Hole	[Disabled]	
	P2C/C2P Concurrency	[Enabled]	Enabled adds a
	Fast R-W Turn Around	[Enabled]	Parity check to the
	System BIOS Cacheable	[Disabled]	boot-up memory
	Video RAM Cacheable	[Disabled]	tests. Select
	Frame Buffer Size	[8M]	Enabled only if the
	AGP Aperture Size	[64MB]	system DRAM
	OnChip USB	[Enabled]	Contains parity
	USB Keyboard Support	[Disabled]	
	OnChip Sound	[Auto]	
	CPU to PCI Write Buffer	[Enabled]	
	PCI Dynamic Bursting	[Enabled]	
	PCI Master 0 WS Write	[Enabled]	
	PCI Delay Transaction	[Enabled]	
	PCI#2 Access #1 Retry	[Disabled]	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **DRAM Clock**
  Set DRAM clock speed.
- **DRAM Timing By SPD**
  This item allows you to select the value in this field, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs.
- **DRAM Cycle Length**
  When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer. The default setting is ***3***.
- **Memory Hole**
  In order to improve performance, certain space in memory can be

reserved for ISA cards. This field allows you to reserve 15MB to 16MB memory address space to ISA expansion cards. This makes memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. By default, this field is set to ***Disabled***.

- **System BIOS Cacheable**
  When enabled, access to the system BIOS ROM addressed at F0000H-FFFFFH is cached, provided that the cache controller is ***Disabled***.
- **Video RAM Cacheable**
  When enabled, access to video BIOS addressed at C0000H to C7FFFH is cached, provided that the cache controller is ***Disabled***.
- **AGP Aperture Size**
  Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.
- **OnChip USB**
  This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature. By default, this field is set to ***Enabled***.
- **USB Keyboard Support**
  Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.
- **Memory Parity/ECC Check**
  This item *enabled* to detect the memory parity and Error Checking & Correcting.
- **Onchip sound**
  The SX-50 SERIES support AC97 audio.
- **CPU-To-PCI Write Buffer**
  When Enabled, the CPU can write up to four dwords of data to the PCI write buffer before the CPU must wait for the PCI bus cycles to finish. When Disabled, the CPU must wait after each write cycle until the PCI bus signals that it is ready to receive more data.
- **PCI Dynamic Bursting**
  When Enabled, every write transaction goes to the write buffer. Burstable transactions then burst on the PCI bus and nonburstable transactions do not

- **PCI Master 0 WS Write**
  When Enabled, writes to the PCI bus are executed with zero wait states.
- **PCI Delayed Transaction**
  The chipset has an embedded 32-bit Firewallted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.
- **Memory Parity/ECC Check**
  Select Enabled, Disabled, or Auto. In Auto mode, the BIOS enables memory checking automatically when it detects the presence of ECC or parity DRAM.

7.6 Integrated Peripherals

This option sets your hard disk configuration, mode and port.

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Integrated Peripherals

			Item Help
	OnChip IDE Channel0	[Enabled]	
	OnChip IDE Channel1	[Enabled]	
	IDE Prefetch Mode	[Enabled]	Menu Level ►
	Primary Master PIO	[Auto]	
	Primary Slave PIO	[Auto]	
	Secondary Master PIO	[Auto]	
	Secondary Slave PIO	[Auto]	
	Primary Master UDMA	[Auto]	
	Primary Slave UDMA	[Auto]	
	Secondary Master UDMA	[Auto]	
	Secondary Slave UDMA	[Auto]	
	Init Display First	[PCI Slot]	
	IDE HDD Block Mode	[Enabled]	
	Onboard Lan Boot ROM	[Disabled]	
	Onboard FDD Controller	[Enabled]	
	Onboard Serial Port 1	[3F8/IRQ4]	
	Onboard Seiral Port 2	[2F8/IRQ3]	
	UART 2 Mode	[Standard]	
X	IR Function Duplex	Half	
X	TX,RX inverting enable	No, Yes	
	Onboard Parallel Port	[378/IRQ7]	
	Onboard Parallel Mode	[Normal]	
	ECP Mode Use DMA	[3]	
	Parallel Port EPP Type	[EPP1.9]	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **On-Chip IDE Channel0/Channel1**
  The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.
- **IDE Prefetch Mode**
  The onboard IDE drive interfaces support IDE prefetching for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support prefetching.

- **Primary/Secondary Master/Slave PIO**
  The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The options available are Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.

- **Primary/Secondary Master/Slave UDMA**
  Ultra DMA 66/100 implementation is Firewallsible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software support Ultra DMA 33/66/100, select Auto to enable BIOS support. The options available are Auto, Mode 0, Mode 1, and Mode 2.

- **Init Display First**
  This item allows you to decide to active whether PCI Slot or AGP first. The options available are PCI Slot, AGP.

- **IDE HDD Block Mode**
  This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

- **Onboard FDD Controller**
  Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field. The options available are Enabled, Disabled.

- **Onboard Serial Port 1/Port 2**
  Select an address and corresponding interrupt for the first and second serial ports. The options available are 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

- **UART 2 Mode**
  The second serial port offers these infrared interface modes:

  - ✓ **IrDA**
  - ✓ **ASKIR IrDA-compliant serial infrared port**
  - ✓ **Normal (default value)**

  NOTE: *The UART Mode Select will not appear on the menu once you disable the setting of Onboard Serial Port 2.*

  When UART Mode Select is set as ASKIR or IrDA, the options RxD, TxD Active and IR Transmission delay will appear.

- **IR Function Duplex**
  This item allows you to select the IR half/full duplex function.

- **TX,RX inverting enable**
  This item allow you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.
- **Onboard Parallel Port**
  This item allows you to determine access onboard parallel port controller with which I/O address. The options available are 378H/IRQ7, 278H/IRQ5, 3BC/IRQ7, Disabled.
- **Parallel Port Mode**
  Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require one of the other modes offered in this field. The options available are EPP1.9, ECP, SPP, ECPEPP1.7, EPP1.7.
- **ECP Mode Use DMA**
  Select a DMA channel for the parallel port for use during ECP mode.
- **Parallel Port EPP Type**
  Select EPP port type 1.7 or 1.9.

7.7 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

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Power Management Setup

		Item Help
ACPI Function	[Disabled]	
Power Management	[Press Enter]	Menu Level
PM Control by APM	[Yes]	
Video off Option	[Suspend -> off]	
Viode off Method	[V/H SYNC+Blank]	
MODEM Use IRQ	[3]	
Soft-off by PWRBTN	[Instand-off]	
State After Power Failure	[Auto]	
Wake Up Events	[Press Enter]	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **ACPI Function**
  This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The options available are Enabled, Disabled.

- **Power Management**
  This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
  - HDD Power Down
  - Doze Mode
  - Suspend Mode

  There are four selections for Power Management, three of which have fix**ed mode settings.**

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- ONLY AVAILABLE FOR SL CPU'S. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Define	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

NOTE: *In order to enable the CPU overheat protection feature, the Power Management field should not be set to Disabled.*

- **PM Control by APM**
  When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting Yes gives better power savings.

- **Video Off Method**
  This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This causes the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the

	Video Electronics Standards to select video power management values.
Blank Screen	This option only writes blanks to the video buffer.

- **Modem Use IRQ**
  This field names the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity on the selected IRQ always awakens the system. The available choices are 3, 4, 5, 7, 9, 10, 11, and NA. By default, the IRQ is set to ***3***.

- **Soft-off by PWRBTN**
  This only works with systems using an ATX power supply. It also allows tser to define the type of soft power OFF sequence the system will follow.

Instant-Off (default)	This option follows the conventional manner systems perform when power is turned OFF. Instant-Off is a soft power OFF sequence requiring only the switching of the power supply button to OFF.
Delay 4 Sec.	Upon turning OFF system from the power switch, this option will delay the complete system power OFF sequence by approximately 4 seconds. Within this delay period, system will temporarily enter into Suspend Mode enabling you to restart the system at once.

- **Wake Up Events**
  An input signal on the network 2 awakens the system from a soft-off state.

7.8 PnP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

CMOS Setup Utility-Copyright © 1984-2001 Award Software PnP/PCI Configurations		
PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
		Menu Level ►
Resources Controlled By	[Manual]	
► IRQ Resources	[Press Enter]	Select Yes if you are using a Plug and play capable operating system select No if you need the BIOS to configure non-boot devices
► DMA Resources	[Press Enter]	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Enabled]	
Assign IRQ For USB	[Enabled]	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **PNP OS Installed**
  This item allows you to determine install PnP OS or not. The options available are Yes and No.
- **Reset Configuration Data**
  Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup or if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The options available are Enabled and Disabled.
- **Resources Controlled By**
  The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. The options available are Auto and Manual.

- **IRQ Resources**
  When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

  1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).
  2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

  The default value is *"PCI/ISA PnP"*.

- **DMA Resources**
  When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

  1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel.
  2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

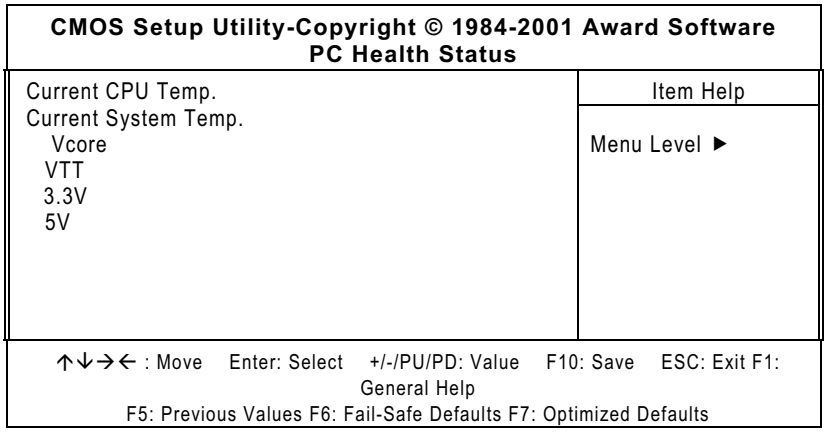
  The default value is *"PCI/ISA PnP"*.

- **PCI/VGA Palette Snoop**
  Some non-standard VGA display cards may not show colors properly. This field allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card. When disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

- **Assign IRQ For USB/VGA**
  Enable/Disable to assign IRQ for USB/VGA.

7.9 PC Health Status

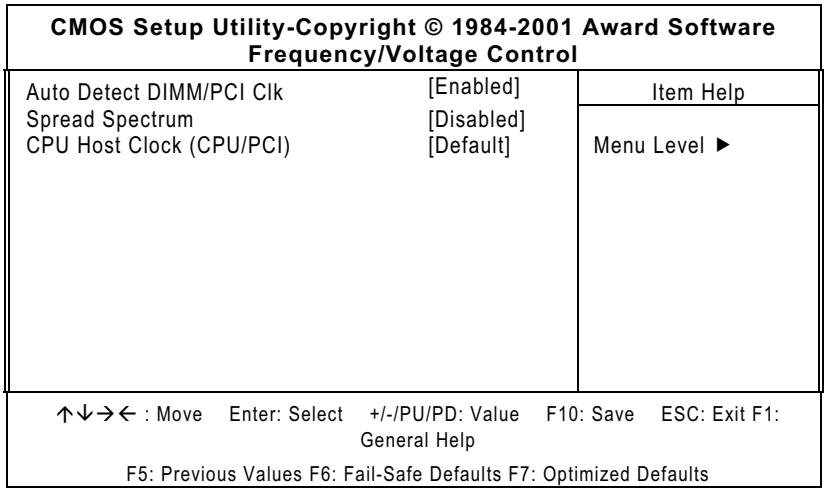
This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.



- **Current CPU/System Temperature**
  These read-only fields reflect the functions of the hardware thermal sensor that monitors the CPU and system temperatures to ensure the system is stable.

7.10 Frequency/Voltage Control

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.



- **Auto Detect DIMM/PCI Clk**
  This item automatically detects the clock speeds of the system memory installed as well as the PCI interface. The options available are Enabled and Disabled. The default setting is ***Enabled***.

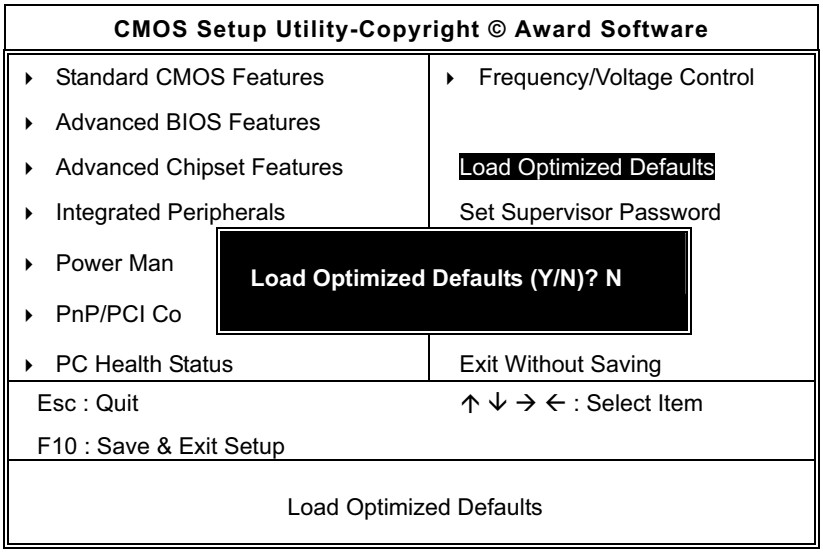
- **Speed Spectrum**
  This item directly relates to the EMI performance of the whole system. When enabled, all system clocks run at slower speeds thereby decreasing the electromagnetic interference to the surrounding environment. Disabling this item improves the system performance but simultaneously increase the EMI. The default setting is ***Disabled***.

- **CPU Host/PCI Clock**

  Select Default or select a timing combination for the CPU and the PCI bus. When set to Default, the BIOS uses the actual CPU and PCI bus clock values.

7.11 Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

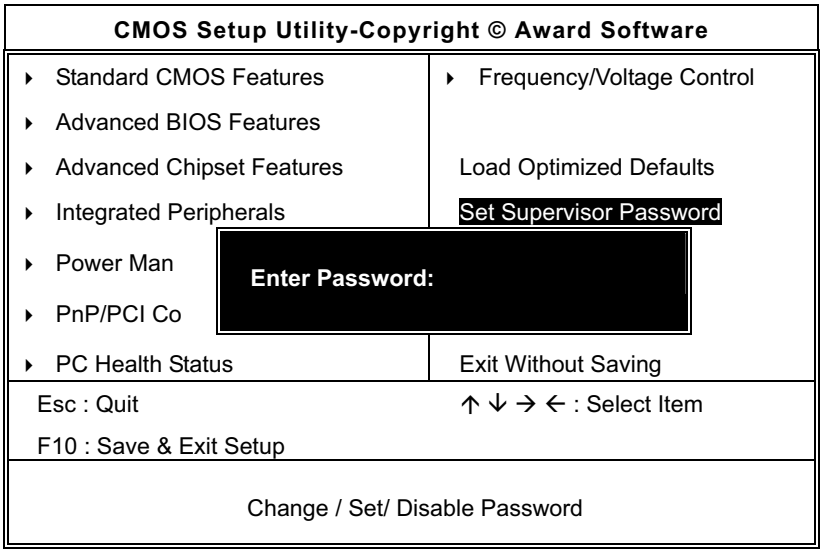


To load SETUP defaults value to CMOS SRAM, enter “Y”. If not, enter “N”.

7.12 Set Supervisor / User Password

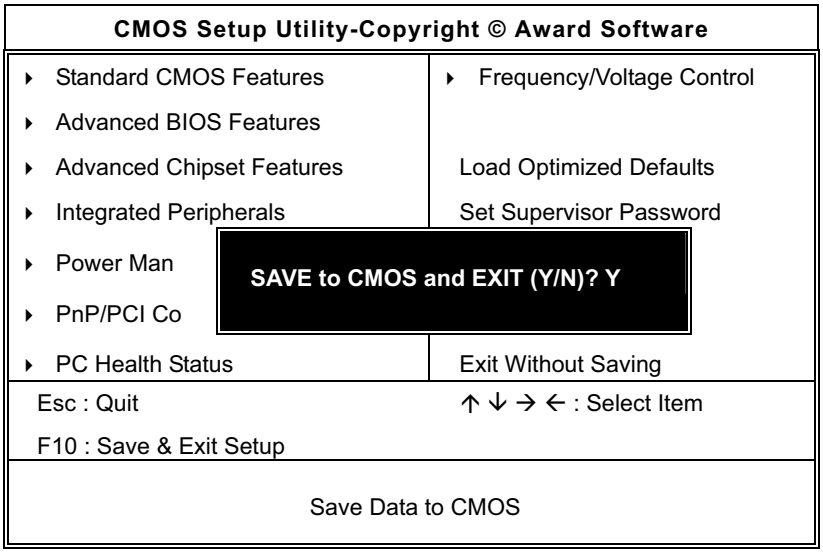
These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.



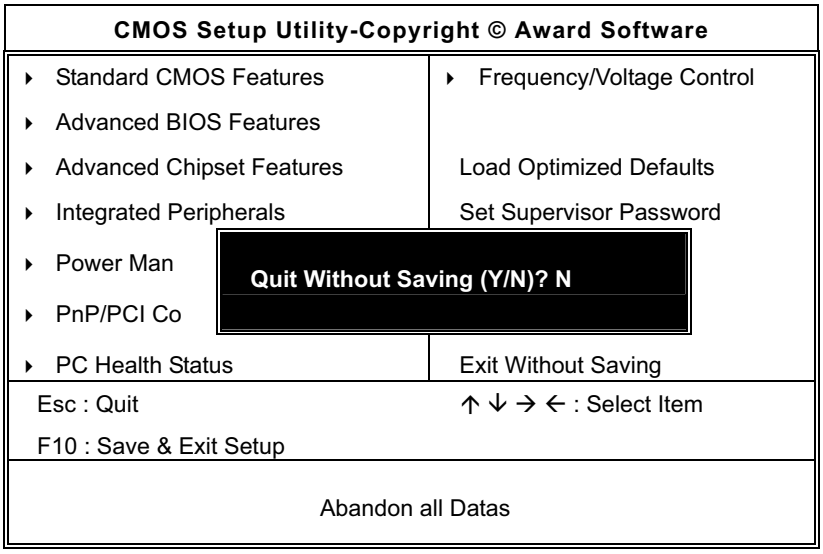
7.13 Save & Exit Setup

This allows you to determine whether or not to accept the modifications. Typing “Y” quits the setup utility and saves all changes into the CMOS memory. Typing “N” brigs you back to Setup utility.



7.14 Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.



Appendix A

Watchdog Timer

Using the Watchdog Function

The **SX-50 SERIES** CPU card uses version 2.0 of the watchdog timer. This onboard WDT generates either a system reset or non-maskable interrupt (NMI), depending on the settings made on jumper **JP3** of **SX-50 SERIES**. Follow the steps below to enable and program the watchdog function of **SX-50 SERIES**.

Start		
↓		
Un-Lock WDT	:	**OUT 120H 0AH ; enter WDT function** **OUT 120H 0BH ; enable WDT function**
↓		
Set multiple (1~4)	:	**OUT 120 0NH ; N=1,2,3 or 4**
↓		
Set base timer (0~F)	:	**OUT 121 0MH ; M=0,1,2,…F**
↓		
WDT counting		
↓		
re-set timer	:	**OUT 121 0MH ; M=0,1,2,…F**
↓		
IF No re-set timer	:	**WDT time-out, generate RESET or NMI**
↓		
IF to disable WDT	:	**OUT 120 00H ; Can be disable at any time**

M	N			
	1	2	3	4
0	0.5 sec.	5 secs.	50 secs.	100 secs.
1	1 sec.	10 secs.	100 secs.	200 secs.
2	1.5 secs.	15 secs.	150 secs.	300 secs.
3	2 secs.	20 secs.	200 secs.	400 secs.
4	2.5 secs.	25 secs.	250 secs.	500 secs.
5	3 secs.	30 secs.	300 secs.	600 secs.
6	3.5 secs.	35 secs.	350 secs.	700 secs.
7	4 secs.	40 secs.	400 secs.	800 secs.
8	4.5 secs.	45 secs.	450 secs.	900 secs.
9	5 secs.	50 secs.	500 secs.	1000 secs.
A	5.5 secs.	55 secs.	550 secs.	1100 secs.
B	6 secs.	60 secs.	600 secs.	1200 secs.
C	6.5 secs.	65 secs.	650 secs.	1300 secs.
D	7 secs.	70 secs.	700 secs.	1400 secs.
E	7.5 secs.	75 secs.	750 secs.	1500 secs.
F	8 secs.	80 secs.	800 secs.	1600 secs.

Appendix B

Warning

- This is a class A Product. In a domestic Environment this Product may cause radio interference in which case the user may be required to take adequate measures.

- It will be danger if battery is incorrectly replaced. Replacing only with the same or equivalent type is highly recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- **Warning for Hard Disk Drive Selection:**

  TUV approved Hard Disk Drive is preferred for TUV compliance Hard Disk drive-Optional, (NWGQ2), generic, Input Voltage rated 5V dc/1.0A, 12V dc/1.8A maximum. Minimum clearance from uninsulated live parts 4.0 mm.

"The equipment is to be installed in an environment with maximum ambient temperature must not exceed 40°C."

"The openings on the enclosure are for air convection hence protected the equipment from overheating. DO NOT COVER THE OPENINGS."

"Lay this equipment on a reliable surface when install. A drop or fall could cause injury."

"The equipment shall be installed according to specification as nameplate. Make sure the voltage of

the power source when connect the equipment to the power outlet. The current of load and output power of loads shall be not over the specification."

"This equipment must be connected to the reliable earthing before using."

Electric shock hazard inside the redundant power supply

The exchange of modules shall be done by service person.