

Dear User of Inspur Yingxin Server ,

Heartfelt thanks to you for your use of Inspur Yingxin server.

This manual introduces the technical characteristics, the system installation and setup of the server to help you fully understand and expediently use this server.

Please deliver the package of our product to the waste recycling station for recycling, in favor of pollution prevention and humankind's benefit.

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Please contact Inspur Group Co., Ltd. if you have any questions or advice about this manual.

Inspur Group Co., Ltd.

August, 2011

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## Statement

Please read the following statement before you use this server formally. Only when you have read this statement hereinafter and agreed the following terms, you can formally use this server. If you have any questions about the following terms, please contact our supplier or us directly. If you have no questions about these terms and start to use this server, it acquiesces that you have agreed the following terms.

1. We must call your attention that you must not alter any other parameters in the main board BIOS of this server at any time, except for the parameters which we promote that you can alter.

2. If there are any hardware problems when you use this server, or you wish to upgrade the hardware, please feed back the detail hardware configuration of your computer to our Customer Service. Don't disassemble the server chassis or any hardware components in the chassis by yourself.

3. In this server, the MEMORY, CPU, CPU Fan and Fan are in given standard. Please don't use them with the corresponding components of any other computers confusedly.

4. When you have any software problems during the application of this server, we hope that you firstly contact the corresponding software supplier and then he will contact us in favor of communication so as to solve your problem together, especially the software problems about the database, the installation and running of the network management software or other networking product.

**5. We must call your attention that in the application process, you should pay attention to doing necessary backup of your file.**

6. This is a Grade A product, and this product may induce radio jamming. In this case, users need to adopt feasible measures to the interference.

7. The copyrights of the markers and names of the software and hardware product referred in this manual are the property of corresponding companies.

8. In the above statement, "us" indicates the Inspur Group Co., Ltd. The Inspur Group Co., Ltd. holds the right of final explanation about the above statement.

## Regarding the Manual

- **Chapter One Safety Information**

In this chapter, safety information regarding server usage is introduced.

- **Chapter Two Product Introduction**

In this chapter, the technical characteristics, appearance characteristics and I/O interface technical specification of the assembling of the module of this server are introduced.

- **Chapter Three System Setup**

In this chapter, the setup of the motherboard BIOS of this server is introduced.

- **Chapter Four SAS RAID of SWR Model Setup**

In this chapter, the setup of onboard SAS controller SAS RAID of SWR model is introduced.

- **Chapter Five SAS RAID of IR Model Setup**

In this chapter, the setup of onboard SAS controller SAS RAID of IR model is introduced.

- **Chapter Six SATA HostRAID Setup**

In this chapter, the setup of onboard SATA HostRAID controller is introduced.

- **Chapter Seven Operating System Installation**

In this chapter, how to install the main operating system to this server is introduced.

- **Chapter Eight Common Problem and Trouble-shooting**

In this chapter, solutions of some common problems are introduced.

- **Chapter Nine Application Introduction of Baseboard Management Controller**

In this chapter, how to apply baseboard management function is introduced.

- **Chapter Ten Server Installation Guide**

In this chapter, how to install NF5220 server to the cabinet by rail is introduced.

We suggest you read this manual carefully before you use this server for fear of the unnecessary faults in your operation.

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## Chapter One Safety Information



Warning: the following warnings show that there are potential dangers that may cause property loss, personal injury or death:

**Warning 1:** The power supply equipment in the system may generate high voltage and dangerous electrical energy and thus cause personal injury. Please do not dismount the cover of the host or to dismount and replace any component in the system by yourself, unless otherwise informed by Inspur; only maintenance technicians trained by Inspur have the right to disassemble the cover of the host, dismount and replace the internal components.

**Warning 2:** Please connect the equipment to appropriate power supply, and the power should be supplied by external power supply which is indicated on the rated input label. To prevent your equipment from damages caused by momentary spike or plunge of the voltage, please use relevant voltage stabilizing equipment or uninterruptible power supply equipment.

**Warning 3:** If extended cables are needed, please use the three-core cables matched with correct earthed plug, and check the ratings of the extended cables to make sure that the sum of rated current of all products inserted into the extended cables do not exceed 80% of the limits of the rated currents of the extended cables.

**Warning 4:** Please be sure to use the supplied power supply component, such as power lines, power socket (if supplied with the equipment) etc.. For the safety of equipment and the user, do not replace randomly power cables or plugs.

**Warning 5:** To prevent electric shock dangers caused by leakage in the system, please make sure that the power cables of the system and peripheral equipment are correctly connected to the earthed power socket. Please connect the three-core power line plug to the three-core AC power socket that is well earthed and easy to access, be sure to use the earthing pin of power lines and do not use the patch plug or the earthing pin unplugged with cables. In case of the earthing conductors not installed and it is uncertain whether there are appropriate earthing protections, please do not operate or use the equipment. Contact and consult with the electrician, please.

**Warning 6:** To avoid short circuit of internal components and fire or electric shock

## Chapter One Safety Information

hazards, please do not fill any object into the open pores of the system.

**Warning 7:** Please place the system far away from the cooling plate and at the place with heat sources, and be sure not to block the air vents.

**Warning 8:** Be sure not to scatter food or liquid in the system or on other components, and do not use the product in humid and dusty environment.

**Warning 9:** The replacement of batteries with those of another model may cause explosion. When replacement of batteries is required, please consult first the manufacturer and choose batteries of the same or a similar model recommended by the manufacturer. Do not dismount, extrude and pink the batteries or make the external connection point short circuit, and do not expose them in the environment over 60°C. Never throw them into fire or water. Please do not try to open or repair the batteries, and be sure to reasonably deal with the flat batteries and do not put the flat batteries, the circuit boards that may include the batteries and other components with other wastes. For relevant battery recovery, please contact the local waste recovery and treatment mechanism.

If what you bought is the chassis, besides carefully read the installation description attached with the cabinet products and get known about the special warning notices and installation process, you must abide by the following preventive measures to guarantee the cabinet to be stable and safe:

**Warning 10:** Before installing equipment in the chassis, please install front and side supporting feet on the independent chassis; for cabinet connecting with other chassis, it shall install the front supporting foot first. If you fail to install correspondingly the supporting foot before installing equipment in the chassis, it may cause the cabinet to turn over in some cases, and thus may cause personal injury. Therefore, it is necessary to install supporting feet before installing equipment in the chassis. After installing the equipment and other components in the chassis, it can only pull out one component from the cabinet through its sliding component at one time. Pulling out several components at the same time may lead the cabinet to turn over and cause serious personal injury.

**Warning 11:** Please do not move the chassis. Considering the height and weight of the chassis, at least two people are needed to complete its movement.

**Warning 12: Declaration**

The product is Grade A product, and in the living environment, it may cause radio jamming. In such case, it may need the user to take feasible measures for the interfer-

ence.

Notes: in order to help you use the equipment, the following considerations can help avoid the occurrence of problems that may damage the components or cause data loss:

1. In case of the following cases, please unplug the power line plug of products from the power socket and contact the customer service department of Inspur:

- The power cables, extended cables or power plugs are damaged.
- The products get wet by water.
- The products have fallen off or been damaged.
- Objects fall into the products.
- When operating according to the operation instructions, the products cannot function normally.

2. If the system becomes damp, please treat it according to the following steps:

- Switch off the power supplies of the system and the equipment, disconnect them with the power socket, wait for 10 to 20 minutes, and then open the cover of the host.
- Move the equipment to the ventilation place to dry the system at least for 24 hours and make sure that the system is fully dried.
- Close the cover of the host, re-connect the system to the power socket, and then start the equipment.
- In case of operation failure or abnormal situation, please contact Inspur and get technical support.

3. Pay attention to the position of the system cables and power cables, wire them in places not to be stepped on or knocked down and ensure not to place other objectives on the cables.

4. Before dismounting the cover of host or contacting the internal components, you shall cool down the equipment first; to avoid damaging the main-board, please power off the system and wait for 5 seconds, and then dismount the components from the main-board or disconnect the connection of peripheral equipment of the system.

5. If there exist modulator-demodulator, telecommunication or local area network options in the equipment, please pay attention to the following matters:

- In case of thunder and lightning weather, please do not connect or use the modulator-demodulator. Otherwise, it may be subject to lightning strike.
- Never connect or use modulator-demodulator in moist environment.
- Never insert the modulator-demodulator or telephone cables to the socket of net-



## Chapter One Safety Information

work interface controller (NIC).

- Before unpacking the product package, contacting or installing internal components or contacting un-insulated cables or jacks of the modulator-demodulator, please disconnect the modulator-demodulator cables.

6. In order to prevent the electrostatic discharge from damaging the electronic components in the equipment, please pay attention to the following matters:

- You shall conduct off the static electricity on the body before dismounting or contacting any electronic component in the equipment. You can conduct off the static electricity on the body by contacting the metal earthing objects (such as the unpainted metal surface on the chassis) to prevent the static electricity on the body from conducting itself to the sensitive components.

- For electrostatic sensitive components not ready to be installed for application, please do not take them out from the antistatic package materials.

- During the work, please touch the earthing conductor or the unpainted metal surface on the cabinet regularly to conduct off the static electricity on the body that may damage the internal components.

7. When dismounting the internal components with the approval of Inspur, please pay attention to the following matters:

- Switch off the system power supply and disconnect the cables, including disconnecting any connection of the system. When disconnecting the cables, please grab the connector of cables and plug it out, and never pull the cables.

- Before dismounting the cover of cabinet or touching the internal components, the products need to be cooled down.

- Before dismounting and touching any electronic component in the equipment, you shall conduct off the static electricity on the body by touching the metal earthing objectives.

- During the dismounting process, the operation shall not be too big, so as to prevent damage to the components or scratching of the arms.

- Carefully deal with the components and plug-in cards, and please never touch the components or connection points on the plug-in cards. When taking the plug-in cards or components, you should grab the edges of the plug-in cards or components or their metal fixed supports.

8. During the process of cabinet installation and application, please pay attention to the following matters:

## Chapter One Safety Information

- After the installation of cabinet is finished, please ensure that the supporting feet have been fixed to the rack and supported to the ground, and all weight of the rack have been fell onto the ground.

- It shall install into the cabinet according to the sequences from the bottom to the top, and first install the heaviest component.

- When pulling out the components from the cabinet, it shall apply force slightly to ensure the cabinet to keep balance and stabilization.

- When pressing down the release latch of the sliding rail of components and sliding in or out, please be careful, as the sliding rail may hurt your figures.

- Never make the AC power branch circuit in the cabinet overload. The sum of cabinet load shall not exceed 80% of the ratings of branch circuits.

- Ensure that components in the cabinet have good ventilation.

- When repairing components in the cabinet, never step on any other components.

## Chapter Two Product Introduction

### 2.1 Server Technical Specification

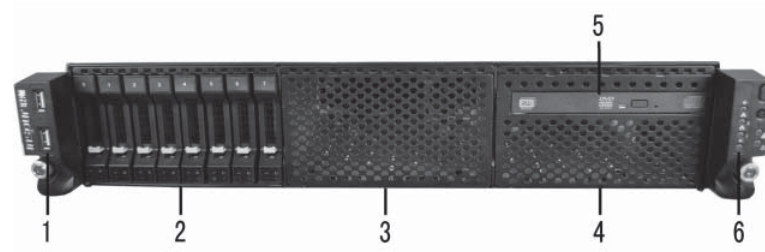
<b>Processor</b>	
Processor type	Two Intel® Xeon 5500,5600 series CPU
Interface	1366 Pin Sockets
<b>Chipset</b>	
Chipset type	Intel® 5500 plus ICH10R chipset
<b>Memory</b>	
Memory type	DDR3 Unbuffered/ECC Registered memory
RAM slot number	8
RAM Capacity	Up to 64G
<b>I/O Interface</b>	
Keyboard and mouse Interface	One PS/2 Keyboard interface and one PS/2 mouse interface
USB Interface	Four rear USB interfaces and one front USB interface
Serial Interface	One rear serial interface
Network Interface	Two RJ45 network interfaces
Display interface	One VAG interface
<b>Display controller</b>	
Controller type	Onboard AST2050 display controller
Video memory	8MB
<b>Hard disk controller</b>	
SAS controller	Integrated LSI Logic SAS 1068E controller, applicable to HostRAID RAID 0/1/1E, optional to support I-button to achieve RAID5
SATA controller	Six SATA II interfaces, applicable to HostRAID 0/1/5/10

## Chapter Two Product Introduction

<b>Network card</b>	
Network controller1/2	Integrated Intel 82574L dual giga network adapters, support WOL,PXE
<b>Management chip</b>	
Management chip	Integrated AST2050 chip, applicable to BMC function, optional to KVM function; based on the motherboard specification, some SATA are not configured to support KVM function
<b>PCI Expansion slot</b>	
PCI type bus	PCI-Express bus is applicable to the expansion card of full length and low profile
PCI-E slot	Two PCI-Express2.0 x8 slots One PCI-Express2.0 x4 slot
<b>Hard disk</b>	
Hard disk type	2.5 inches SAS and SATA hard disk
Storage	Support up to 24 hard disks
<b>External memory driver</b>	
CD-ROM	Slim SATA DVD CD-ROM (the server with 17-24 hard disks cannot collocate Slim CD-ROM )
Driver U disk	Optional to driver U disk
<b>Power</b>	
Specification	Optional to single or 1+1 redundancy supply
Power input	Please refer to the power input label near the power interface
<b>Physical specification</b>	
Package size	W(Width)662mm; H(Height ) 276mm; D(Depth)909mm
Host size	W(Width)432mm; H(Height)88mm;D(Depth)690mm
Host weight	Full configuration: net weight 19.2kg, gross weight 23.5kg
<b>Environment parameter</b>	
Operating temperature	10°C -35°C
Storage and transport temperature	-40°C -55°C
Operation humidity	35% -80% relative humidity (RH)
Storage and transport humidity	20% -93% (40°C) relative humidity(RH)

## Chapter Two Product Introduction

### 2.2 Front Panel View



8 hard disks front panel view



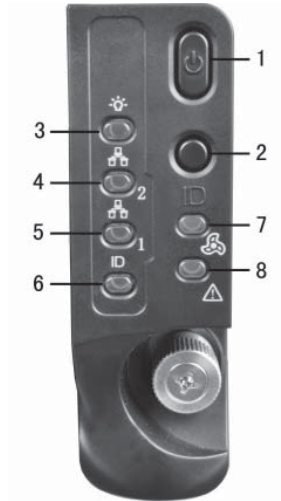
16 Hard Disks Front Panel View



24 Hard Disks Front Panel View

Serial number	Name	Specification
1	Front USB interface	To connect the USB devices.
2	Hard disk bay	To install the 1 <sup>st</sup> -8 <sup>th</sup> hard disk.
3	Hard disk bay	To install the 9 <sup>th</sup> -16 <sup>th</sup> hard disk.
4	Hard disk bay	To install the 17 <sup>th</sup> -24 <sup>th</sup> hard disk.
5	CD-ROM slot	Optional to install the Slim CD-ROM.(Not available when 17-24 hard disks are configured.)
6	Front-control panel	To manage the server and display indicator lights. Please refer to Front-control Panel View for details.

2.3 Front-control Panel View

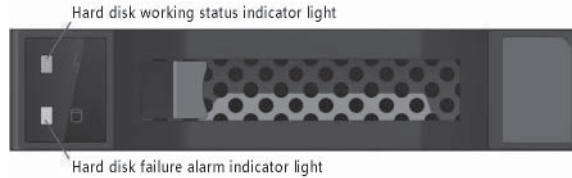


Front-control Panel View

Number	Name	Specification
1	Power button	Server on/off button.
2	ID light button	To turn on ID light.
3	Power indicator light	It is always green when server operates. It is off when server closes.
4	Network card 2 indicator light	Green flashing: network is being connected and data are being transmitted. Light off: network is disconnected.
5	Network card 1 indicator light	Green flashing: network is being connected and data are being transmitted. Light off: network is disconnected.
6	ID light	Machine-locating light (blue).
7	Fan failure indicator light	It warns fan failure. This light is always off when the system is in normal status. The light is always amber in case of system fan failure. (The light is also amber when server is turned off, AC power is connected and BMC is initialized.)
8	Abnormal system indicator light	It warns the abnormal status of the system such as over-high temperature (amber). (This light is always off when the system works normally. But the light is also amber when the server is connected with AC and BMC is initialized.)

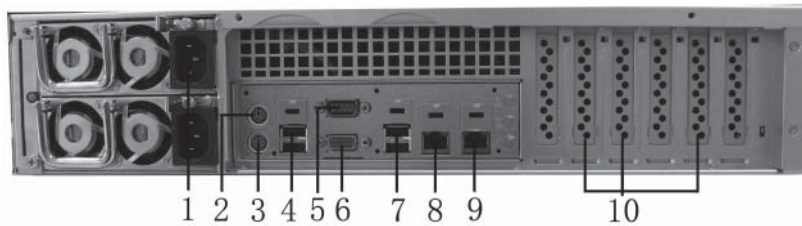
## Chapter Two Product Introduction

- Hard Disk Bracket Indicator Light



Name	Function and specification
Hard disk working status indicator light	The light is always green when hard disk is reading and writing.
Hard disk failure alarm indicator light	The light is always red in case of hard disk failure.
The light is always blue when hard disk is being located.	
The light is always purple when RAID card is being rebuilt.	

### 2.4 Back Panel View



Back Panel View

Number	Name	Function and specification
1	Power input interface	For connecting power line (the above picture example is for double power supply).
2	PS/2 mouse interface	For connecting PS/2 mouse.
3	PS/2 keyboard interface	For connecting PS/2 keyboard.
4	Rear USB interface1/2	For connecting USB interface devices.
5	Serial interface	For connecting serial interface devices.
6	VGA interface	For connecting display devices.
7	Rear USB interface3/4	For connecting USB interface devices.
8	Net card 1 interface	Integrated gigabit network card 1 interface(left).
9	Net card 2 interface	Integrated gigabit network card 2 interface(right); use this interface when onboard IPMI management function is applied.
10	PCI expansion slot	For inserting the external low profile PCI expansion card.

## Chapter Three System Setup

In this chapter, the wire jumper of motherboard and BIOS function setup of this server are introduced. Only operator or manager with qualification of system maintenance can implement these operations described in this part.

### 3.1 Main Board BIOS Setup

BIOS is a basic input and output system. With some special setting programs, it can adjust the system parameter and the hard disk parameter. As BIOS has great influence on the starting and running of the system, setting parameters improperly may cause the conflict among hardware resources, or affect the system's performance. Hence understanding the BIOS setup is significant to the configuration of your server. If there is no special requirement, we suggest you using the default value and not altering the parameters.

1. Before the server BIOS setup is altered, please record the corresponding original setup. Hence when there are operating problems in the system due to the alteration, the setup can be reversed.

2. The factory default system value is usually the optimized setup. Do not try to alter the parameters before you understand their denotations.

3. The common setup is introduced in detail in this chapter. For items less used in the application, this chapter only offers simple instruction or just omits the instruction.

The less referred options in the application procedure are explained simply or not mentioned.

4. The contents of the BIOS may be different based on the different configurations of the products; hence the detailed introduction is elided.

#### 3.1.1 How to Enter the BIOS Setup

Power up and start the server. When "Press <DEL> to SETUP or <TAB> to POST" appears at the bottom of the screen, please press <DEL> key. The system will enter BIOS setup.

If the system does not enter BIOS setup after previous steps, please press <Ctrl><Alt>and<Del> at the same time to reset the system and repeat the previous steps. (if the prompt displays to press <DEL> again, please press it quickly.)



## Chapter Three System Setup

### 3.1.2 BIOS System Menu Introduction

The following function menus of the BIOS system will be introduced mainly in this section:

Menu name	Menu function
Main	Configuring the basic system setup, like the system time and date, and displaying the information of the system, such as BIOS, CPU and so on.
Advanced	Configuring advanced characteristics in the chipset.
PCIPnP	Configuring traditional Plug & Play and PCI setup.
Boot	Setting the system's guiding order.
Security	Configuring the super user's system and setting user's password.
Chipset	Configuring the managing characteristics of chipset.
Exit	Saving or exiting BIOS, etc.

There are some items that can not be set in BIOS, for example some information on system's automatic detection and configuration. A right-pointing signal may be found before some item, which means this item is selected, and press [Enter], the system will enter the cascading menus (i.e. submenus).

#### Operation key introduction

Key	Description
<↑>(Up arrow)	for selecting the upper menu or value
<↓>(Down arrow)	for selecting the next menu or value
<← >(Left arrow)	for selecting the left menu or value
<→>(Right arrow)	for selecting the right menu or value
<ESC >	for returning to the superior menu or the main menu
<+ >	for changing the item value for changing the current menu item into the previous item value The key only displays the item values relevant to the item itself rather than all the item values
<- >	for changing the item value for changing the current menu item into the next item value The key only displays the item values relevant to the item itself rather than all the item values
<F1 >	the help key for displaying the relevant explanation of current menu

<F8>	for restoring to the default setting of the system safety performance
<F9 >	for restoring to the default setting of the system best performance
<F10>	for preserving the CMOS's setting and exiting
[Enter]	for operating current order or entering submenu

### I. Main menu

The Main menu appears first when entering the BIOS setup system. The BIOS version information, processor information and memory capacity can be examined here and the system date and time can be set.

Arrow keys can be used to select options. [Enter] can be used to select subfield. <-, +> can be used to set the field values.

- System Time

Set the system time, adopting 24 hour system, in format of [hour/minute/second].

- System Date

Set the system date, in format of [week month/date/year].

### II. Advanced menu

The menu is mainly used to set to enhance characteristics. Improper setting may cause the abnormal system operation, so please keep factory default settings.

- CPU Configuration

Display the detailed information installed in the system including manufacturer, CPU frequency, front-end bus, the size of cache and so on.

- IDE Configuration

The options in this menu can be used to set onboard SATA controller functions and IDE devices.

- \* SATA Configuration

In SATA channel model setting, there are three options: Disabled, Enhanced and Compatible.

If you don't use RAID when using onboard SATA controller, please set the SATA Configuration item to Enhanced.

- \* Configure SATA as

If the system will be configured as SATA RAID model, set this item to RAID.

If the system will be configured with 4 to 6 SATA hard disks and will not create RAID, set this item to AHCI.

After this item is set to RAID or AHCI model, SATA Configuration will automati-

## Chapter Three System Setup

cally hide.

- Hardware Health Configuration

In this menu, the health information of the hard disks can be configured and examined. In the submenu of Sensor Data Register Monitoring, information on system and CPU temperature, fan speed, system power voltage and other parameters can be examined.

- IPMI Configuration

Onboard BMC information and event log can be examined in this menu. In the sub-menu of Set LAN Configuration, BMC IP Address can be examined and set.

- Onboard Devices Configuration

This menu can be used to set the onboard devices (such as adapter and network card).

### III. Boot Menu

Boot menu is mainly used for system setup and priority settings of system boot devices.

- Boot Settings Configuration

This menu can be used to set the system boot process.

- \* Quick Boot

This item is to set the enable-quick-start system. If the system is set to Enabled, then it allows BIOS to reduce the boot time by skipping some tests.

- \* Quiet Boot

This item can be used to set the display status during the system boot process. Set to Disabled, it will show the self-test process and test information; set to Enabled (default), it will display the LOGO of manufacturers.

- Boot Device Priority

Enter this menu and select certain boot order device item. Press [Enter] button and the system will display optional boot device table. Then select a device through arrow key in the table to finish the setting of the boot order item.

### IV. Security Menu

- Supervisor Password

- User Password

The above two items can not be set, which display the setting state (whether it has been set or not) of the passwords of the super-user and the common user respectively in the current system.

- Change Supervisor Password

If you haven't set the super-user password, select this menu, press [Enter] and you can set super-user password.

If you have already set the super-user password, select this menu, press [Enter] successively and you can clear the super-user password.

- Change User Password

Used to set or alter common user password.

- Boot Sector Virus Protection

This item is used to set whether to enable boot sector Virus Protection. The default settings is Disabled.

### V. Chipset menu

The options in this menu can be used for the setting of some advanced features, including onboard CPU Bridge, South Bridge chipsets and management engine.

- South Bridge Configuration

The sub-menu of this menu can be used for setting South Bridge functions.

- \* Restore on AC Power Loss

This item is used to set the repower state after system's abnormal power-off. Its default setting is Power Off, the state of off, which necessitates manual boot for availability. Power On is the state of on. Last State is the state before power-off.

### VI. Exit Menu

The options in Exit menu can be used to save or discard the settings of the changes in the BIOS and exit the setting program.

- Save Changes and Exit

Select this item and press [Enter]. After select [OK] for confirmation, the changes in the BIOS settings will be saved and the system will exit the BIOS setup.

- Discard Changes and Exit

Select this item and press [Enter]. After select [OK] for confirmation, the changes in the BIOS settings will be discarded and the system will exit the BIOS setup.

- Discard Changes

Select this item and press [Enter]. After select [OK] for confirmation, the changes in the BIOS settings will be discarded, but the system will not exit the BIOS setup

- Load Optimal Defaults

Select this item and press [Enter]. After select [OK] for confirmation, the system will load optimal defaults. This function also can be achieved by pressing [F9].

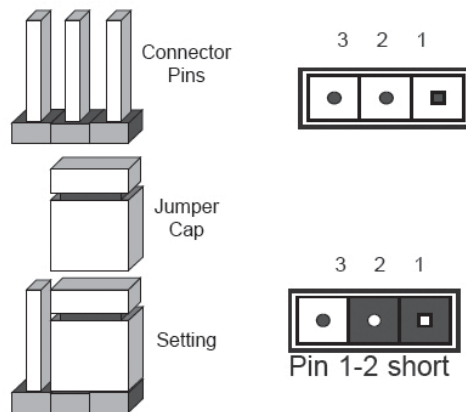
## Chapter Three System Setup

- Load Failsafe Defaults

Select this item and press [Enter]. After select [OK] for confirmation, the system will load Failsafe defaults. Failsafe default values can ensure the stability of the system to the max, but can not perform the best functions. This function also can be achieved by pressing [F8].

### 3.2 Motherboard Jumper Settings

Motherboard jumper setting is the operation of shorting out two pins of the jumper to change the interface functions. Refer to the following picture, and adjust the motherboard functions.



Jumper Setting View

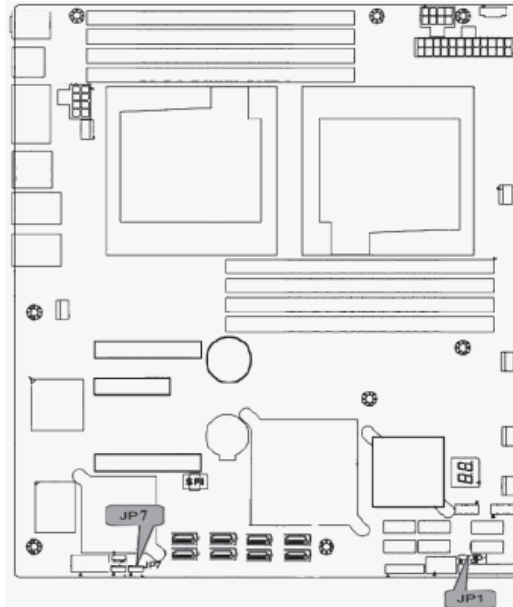
#### 3.2.1 Open the Chassis Upper Panel

If the user need alter motherboard jumpers, please first obtain the authorization of Inspur Group Co., Ltd. Then open the chassis upper panel according to the following steps:

1. Power off the system (turn off the AC power), and then loosen the screws fixed on the upper panel on the both sides of the chassis;
2. Loosen the two screws built on the rear point of the upper panel and remove the upper panel according to arrow in the picture below.



### 3.2.2 Motherboard jumper function introduction



Jumper location view

Jumper Number	Function description	Jumper function
JP1	clearing CMOS jumper	Normal state: short cut pin 1 and 2 Clearing CMOS: short cut pin 2 and 3
JP7	Enabling/disabling onboard SAS controller jumper	Enabling onboard SAS controller: short cut pin 1 and 2 Disabling onboard SAS controller: short cut pin 2 and 3
JP11	onboard SAS controller model set jumper	IR model: short cut pin 1 and 2 SWR model: short cut pin 2 and 3

## Chapter Three System Setup

Notes:

1. When clearing CMOS, shut down the system and cut off the power supply. After short cutting pin2 and 3, it needs to keep for 5 seconds; then reuse the jumper cap to short cut pin 1 and 2 (default settings) of the JP1 to restore the original state.

2. Some configuration of this kind of servers motherboard do not integrate SAS controller, so they don't have JP7 jumper and JP11 jumper functions.

## Chapter Four Set Up SAS RAID of SWR Model

This chapter mainly introduces the SWR model configuration and utility of on-board LSI SAS 1068E controller. You need to do a RAID0 array if using this controller to connect single SAS hard disk.

The SWR model of onboard SAS controller supports default of RAID0, RAID1, RAID10. If you want to support RAID5, you need to purchase I-Button.

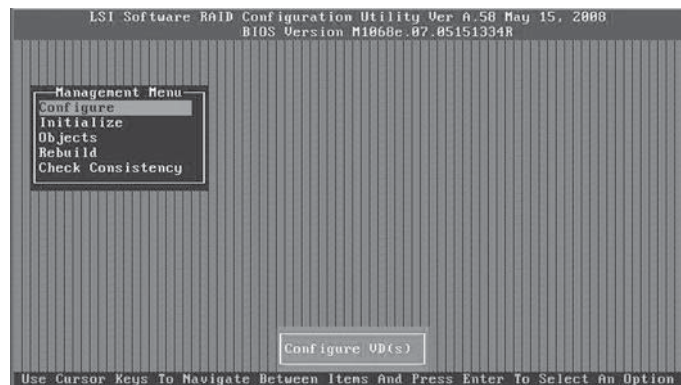
In case that the motherboard of the server you purchased does not integrate SAS controller, you can skip this chapter.

### 4.1 How to Enter SAS RAID Setting Interface

1. The screen will display the following English prompt during the booting process of the system: “Press Ctrl-M or Enter to run LSI Software RAID Setup Utility”, at the same time, press <Ctrl> <M> keys or [Enter] to enter RAID setting interface.

### 4.2 SAS RAID Menu Description

When entering RAID configuration main interface, following main menus will be available, as is shown in the picture below:



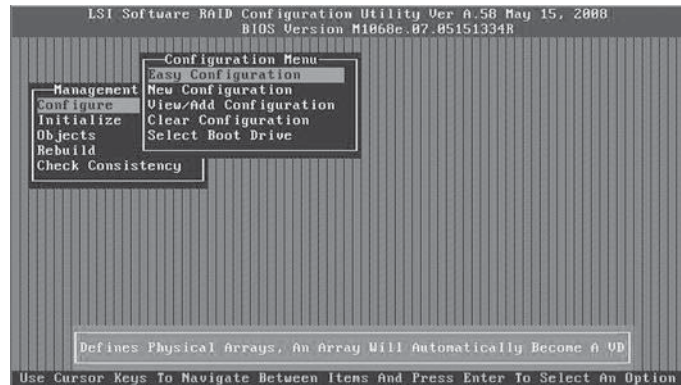
The following are respective explanation of each menu:

#### 1. Configure menu

Select Configure and press [Enter] to the interface, as is shown in the picture below:



## Chapter Four SAS RAID of SWR Model Setup



- Easy Configuration

For the easy/ automatic disk array configuration, so long as you select the number of physical disks intended to be configured, the menu will configure the array options of best performance in usual environment, including such subtle parameters as RAID level, stripe size, I/O as well as reading and writing strategies, etc. However, you can not choose to configure the size of the array, but only allowed to use the maximum possible capacity.

- New Configuration

Re-configure the disk array, and use this option to eliminate all the configuration information on the disk.

- View/Add configuration

It is used to browse the current disk array configuration information of the system, and new disk array configuration can also be added to the current configuration; this function can not cause any damage to the current configuration information.

- Clear Configuration

Eliminate array configuration information, including disk and NVRAM configuration information.

- Select Boot drive

Set bootable logical disk array number.

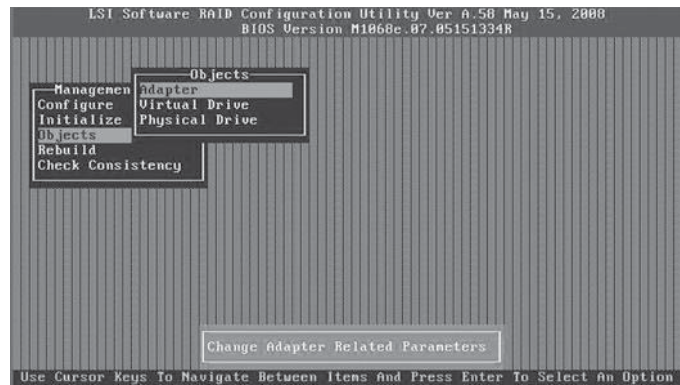
### 2. Initialize menu

This menu is to initialize the established array. After the array is established, select this menu for initialization.

### 3. Objects menu

Select “Objects” option and press [Enter] to enter the following interface:

## Chapter Four SAS RAID of SWR Model Setup



- Adapter: Select this option and modify relevant parameters.
- Virtual Drive: Through this option, you can initialize the logical disk.
- Physical Drive: Through this option, you can establish or delete hotspare disk.

### 4. Rebuild menu

This menu is mainly used to rebuild the failed physical disk.

### 5. Check Consistency menu

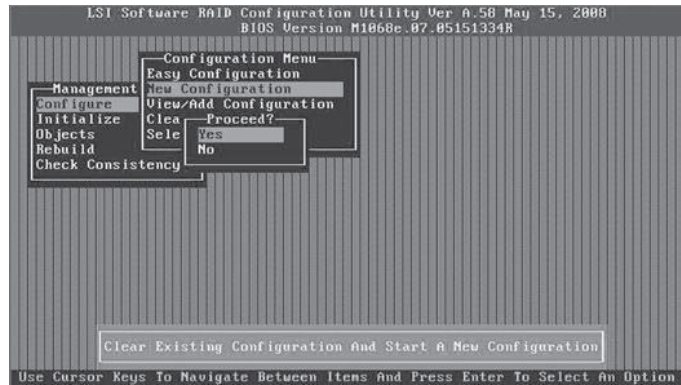
This menu is used to check the data consistency of data redundancy array, such as RAID1/5.

## 4.3 How to Configure SAS RAID

The following is the explanation of how to configure RAID by a specific example. (Taking the configuration of RAID1 as an example, there are two disks for system configuration, and different disks display different information and the information on the following picture only serves as an explanation example for reference.).

1. After entering the RAID configuration interface, firstly select Configure option from the Management Menu on the configuration main interface and press [Enter]; then select New Configuration option from the Configuration Menu and press [Enter]; select <Yes> from the pop-up window and press return key, as is shown in the picture below:

## Chapter Four SAS RAID of SWR Model Setup



2. Enter the “ARRAY SELECTION MENU” interface as is shown in the picture below:

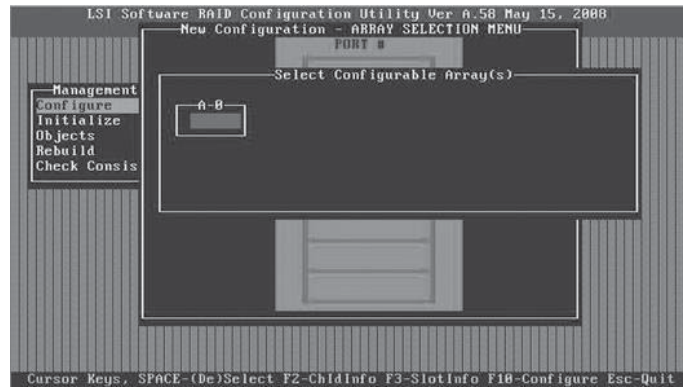


Use “[Space]” to select the disk to make RAID array, then select 0 Ready and 1 Ready to enter the interface as is shown below and then press [F10].

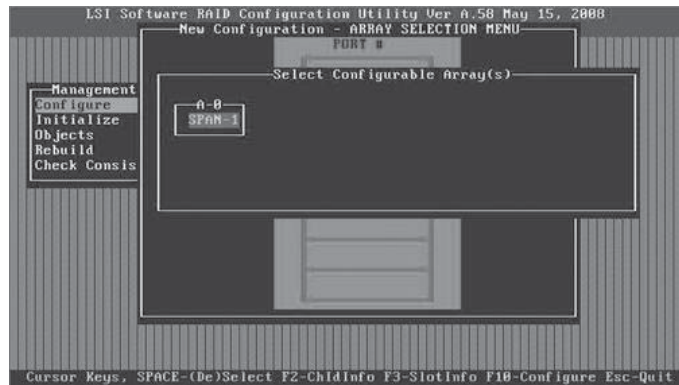


## Chapter Four SAS RAID of SWR Model Setup

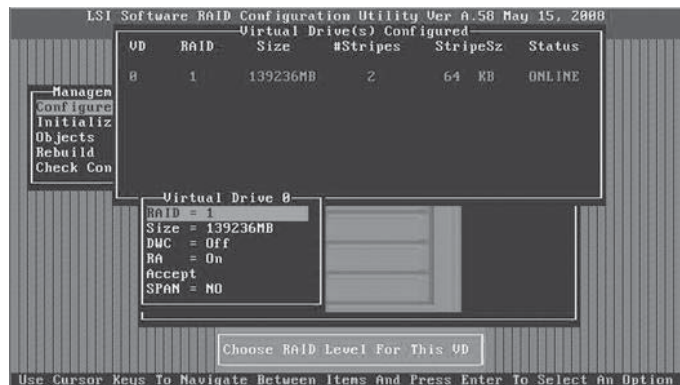
3. Configuration progress enters the interface as shown below:



4. Press [Space], and the configuration enters the interface as shown below:

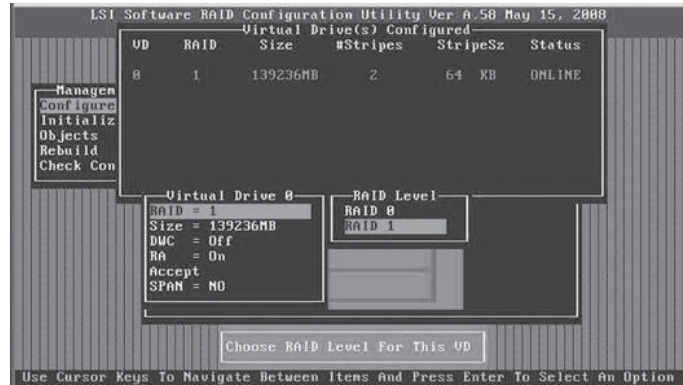


5. Press [F10], and the configuration program displays RAID information to provide a window for users to configure RAID parameters, as shown below:



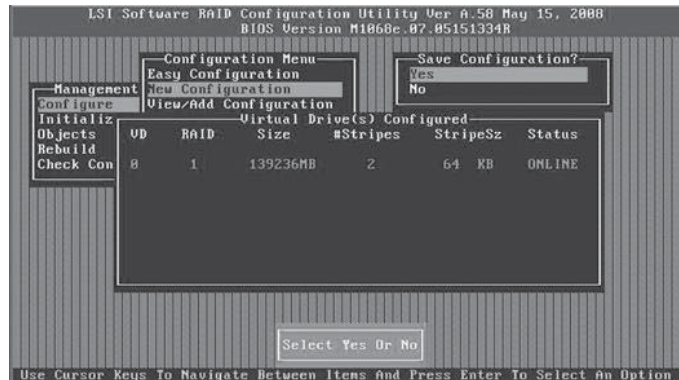
## Chapter Four SAS RAID of SWR Model Setup

6. Select “RAID=1”, press [Enter], and the interface as shown below will appear:



7. Select RAID1 and press [Enter] to return to the interface of Step 5; the user will set other parameters according to their actual need; after the setting is completed, move the cursor to “Accept” and press [Enter] to enter the interface as shown in the second picture of Step 2.

8. Press [Enter] and go into the interface as shown below:

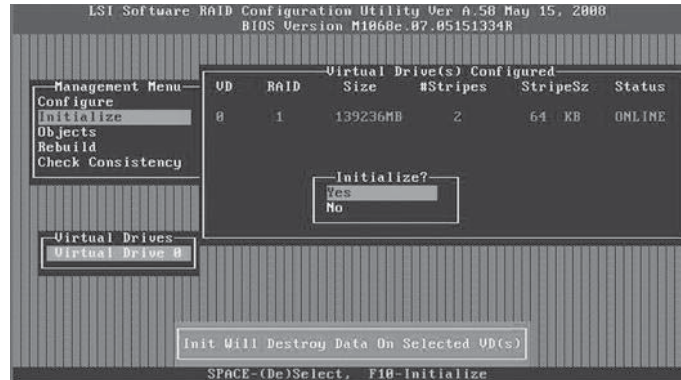


9. Select <Yes> and press [Enter], and then the RAID1 configuration is completed. Press any key to continue (go back to Configuration Menu interface).

10. Initialize the pre-configured RAID

Select initialize option from the Management Menu of the configuration main interface and press [Enter]; use the “[Space]” to select Virtual Drives from the pop-up window, press [F10] to initialize and select <Yes> from the interface as indicated in the following picture for initialization.

## Chapter Four SAS RAID of SWR Model Setup



11. After the initialization is completed, press [ESC] in turns and exit the RAID configuration interface according to system prompts to complete the whole RAID configuration process.

### 4.4 Rebuild Setting Process

- If the disk array is damaged, during the POST process, the system will prompt “Degraded” (yellow font) in the “Status” of RAID information, and then press <Ctrl><M> keys or [Enter] according to the system prompts to enter SAS RAID configuration. At this point, the system will automatically complete the Rebuilding process. After the Rebuilding automatic configuration process is completed, press <ESC> key to exit setting according to the system prompts.

- If you do not want to start Rebuild operation at this time, press <ESC> key during the automatic Rebuilding process of the system to halt the Rebuild process, then press “S” key to stop and press <ESC> key to exit according to system prompts.

- Manual Rebuild process:

- (1) Select Rebuild option from the Management Menu of the configuration main interface and press [Enter] to the interface as shown in the picture below:

## Chapter Five SAS RAID of IR Model Setup



(2) Select the disk (status is RBLD) to be rebuilt, then press [F10] and then press [Y] according to the prompts to start Rebuilding.

(3) Wait for the completion of Rebuilding. The length of time depends on the size of the disk. Please be patient.

(4) When the Rebuild configuration is finished, please exit the configuration program according to the system prompt



## Chapter Five Set SAS RAID of IR Model

This chapter mainly introduces the IR model configuration and using method of onboard LSI SAS 1068E controller; the IR model of onboard SAS controller provides default supports of RAID0, RAID1, RAID1E. In case that the motherboard of the server you purchased does not integrate SAS controller, you can skip this chapter.

The pictures of this chapter are only for reference and the version of information in the picture may be inconsistent with the actual version.

### 5.1 How to Enter SAS BIOS

1. The screen will display the following prompt during the booting process of the system:

Press Ctrl-C to Start LSI Corp Configuration Utility...

2. At this point, press <Ctrl> <C> keys to enter SAS controller setting interface.

### 5.2 The Application of Control Keys

Key	Description
<↑><↓><←><→>	For moving cursor in different menus
<+><->	For changing the content of the item value
[Enter]	For selecting submenu and displaying all the items in the selected menu
<Esc>	For existing menu or going back to the superior menu from the submenu
<F1>/Shift-<1>	For entering the help menu

### 5.3 SAS BIOS Setting

#### I. Adapter Properties menu

After entering the SAS BIOS main interface, such information as the name of the SAS controller and Firmware, etc. will be displayed; meanwhile, the Boot order (Boot order option) of SAS controller can also be set in the interface. Select the controller and then press [Enter] to the interface as shown below, and the system displays the name of the SAS controller, PCI slot, PCT address and Firmware edition, etc., most of which are only for display but not for setting.



## Chapter Five SAS RAID of IR Model Setup

```
LSI Corp Config Utility v6.22.00.00 (2008.04.10)
Adapter Properties -- SAS1068E

Adapter          C1068E
PCI Slot         31
PCI Address(Bus/Dev) 0A:00
MPT Firmware Revision 1.26.00.00-IR
SAS Address      500E0010:100EC028
NVMeATA Version  2D.03
Status           Enabled
Boot Order       0
Boot Support     Enabled BIOS & OS

RAID Properties
SAS Topology
Advanced Adapter Properties

Esc = Exit Menu      F1/Shift+F1 = Help
Enter = Select Item  +/-/Enter = Change Item
```

### 1. RAID Properties

After entering this option, RAID array management can be performed, including such functions as the creation & deletion of RAID array and creation of hot backup, etc. Suppose that the system does not create RAID array and SAS controller is externally connected with two hard drives, we take the deletion and creation of RAID1 array as an example to introduce the creation and deletion functions of RAID array.

#### (1) Creation of RAID1 array

Select RAID Properties option, press [Enter], and the system displays:

Create IM Volume

Create IME Volume

Create IS Volume

Create IM Volume: Select this option to allow two hard disks to make RAID1 array. RAID1 array can save the data on the main disk, transplant the data on the main disk to the auxiliary disk or create a brand new array.

Create IME Volume: Select this option to allow 3-10 hard drives to make RAID1E array. Create RAID1E array and all the data on the hard disks will be eliminated.

Create IS Volume: Select this option to allow 2-10 hard disks to make RAID0 array. Create RAID0 array and all the data on the hard disks will be eliminated.

When we select Create IM Volume to create RAID1 array, press [Enter], and the system will display the following interface:

## Chapter Five SAS RAID of IR Model Setup

```
LSI Corp Config Utility v6.22.00.00 (2008.04.10)
Create New Array -- SAS1068E
Array Type: IM
Array Size(MB): -----
Slot Device Identifier RAID Hot Drive Pred Size
Num Disk Spr Status Fail (MB)
0 SEAGATE ST3300656SS 0003 [No] [No] ----- --- 286102
1 SEAGATE ST3450856SS 0004 [No] [No] ----- --- 429247

Esc = Exit Menu F1/Shift+1 = Help
Space/+/- = Select disk for array or hot spare C = Create array
```

Move the cursor to select the “RAID Disk” to confirm the hard disk that will be made into a main disk, use “[Space]” to change its status into “Yes”, press [Space] and the system will prompt information as shown in the picture below:

```
LSI Corp Config Utility v6.22.00.00 (2008.04.10)
Create New Array -- SAS1068E

M - Keep existing data, migrate to an IM array.
  Synchronization of disk will occur.

D - Overwrite existing data, create a new IM array
  ALL DATA on ALL disks in the array will be DELETED!!
  No Synchronization performed.

Esc = Exit Menu F1/Shift+1 = Help
Space/+/- = Select disk for array or hot spare C = Create array
```

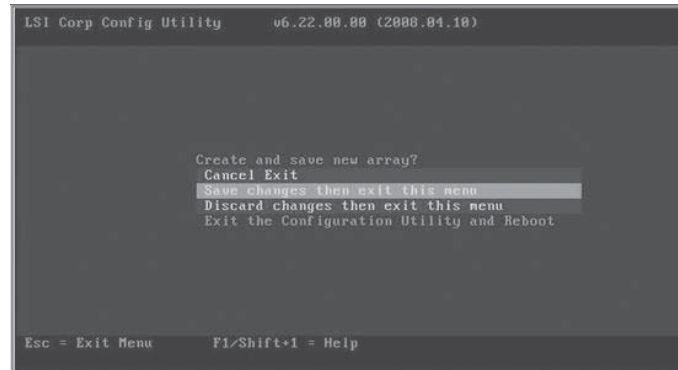
Please press “M” if you want to save data on this hard disk and transplant the data on the hard disks to the array.

If you want to create a brand new RAID1 array, please press “D” and all the data on the hard disk will be eliminated.

Please select according to your actual needs and here we choose “D” to establish a brand new RAID1 array.

With the same method, select another hard disk to make RAID1 array. After the hard disk is selected, press <C> to create array and the system will return to the interface as indicated in the following picture:

## Chapter Five SAS RAID of IR Model Setup



Here we select “Save changes then exit this menu option”, press [Enter], and the system will start array initialization; the time required by the initialization depends on the hard disk capacity; the system can make backstage initialization.

Re-enter the RAID Properties option, and the system can see the RAID array information, including array type, array capacity and array status (initialization progress) etc.

### (2) Deletion of RAID1 array

Select and enter RAID Properties option and then select to enter Manage Array option, the system can make hot backup addition, re-synchronization of array, array activation and array deletion, etc.

Please select Delete Array option to delete array, and the system will prompt:

- Y Delete array and exit to Adapter Properties
- N Abandon array deletion and exit this menu

Please confirm whether to delete the array; if you will, press [Y], and the array will be automatically deleted.

### 2. SAS Topology

Enter this option to check the information of SAS controller and all the hard disks connected to the controller.

### 3. Advanced Adapter Properties

The sub-menu under this option is used to set hard disk cylinder, magnetic head, sector division method and default value, etc.

### II. Global Properties menu

At SAS controller interface, press [ALT]+[N] to enter Global Properties menu, which includes the following options:

## Chapter Five SAS RAID of IR Model Setup

### 1. Pause When Boot Alert Displayed

It is indicated that during the boot process, whether it is needed for the user to intervene if alert is displayed. Please select <No> if it is required that the system boot continues after alert is displayed. Please select <Yes> if it is required that the user shall intervene after the alert is displayed by pressing any key to continue.

### 2. Boot Information Display Model

This option defines BIOS information display model. It controls the information of the display controller and all the attached devices of the system while booting. The display model can be set to include 4 options: Display adapters & Installed devices (display the information of all controllers and installed devices), Display controllers and all devices (Display the information of all adapters and all the devices), Display minimal information (display the minimal amount of information) and Display adapters only (only display the information of controllers).

### 3. Support Interrupt

This option sets interrupt support type. The options include: Hook Interrupt, the Default or Bypass Interrupt hook. Default value is recommended.

### 4. Restore Defaults

Select this option and press [Enter] to restore the default settings.

## Chapter Four SAS RAID of SWR Model Setup

This chapter mainly introduces the configuration of onboard Intel SATA controller HostRAID and its application. If the server you purchased does not use onboard SATA HostRAID, you can skip this chapter.

### 6.1 How to Enter the Configuration Interface of SATA HostRAID

1. During the process of system start, the screen will present:

Press <CTRL-I> to enter Configuration Utility...

2. At this time, press <Ctrl> <I>, and enter the configuration interface of SATA HostRAID.

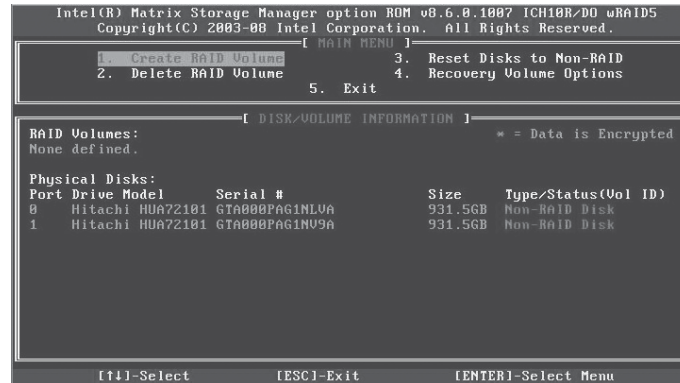
### 6.2 Application of Control Keys

Press key	Description
<↑><↓>	Move the cursor in different menus or change the options of menu.
<TAB>	Select the next menu configuration item.
[Enter]	Select menu.
<Esc>	Exit the menu or return to the superior menu from the submenu.

### 6.3 Setup of SATA HostRAID

After entering the configuration interface of SATA HostRAID, it will display the list information of menu, information on hard disks connected with SATA controller (interface number of hard disk, model of hard disk, hard disk capacity and whether the hard disk is volume member etc.), and the existing RAID volume information (including volume ID No., name, RAID level, capacity, status, bootable information), as shown in the following picture:

## Chapter Four SAS RAID of SWR Model Setup



The executable menus of the configuration interface of SATA HostRAID are the following five:

- Create RAID Volume

Create RAID Volume.

- Delete RAID Volume

Delete the existing RAID Volume.

- Reset Disks to Non-RAID

Reset Disks to Non-RAID

- Recovery Volume Options

Make enable option to the main disc or recovery disk in Recovery Volume.

- Exit

Exit the configuration interface of SATA HostRAID.

### I . Create RAID Volume

After entering the configuration interface of SATA HostRAID, it can select the menu with up and down arrow keys, and then press [Enter] to create RAID volume menu.

The system will display the following menu options:

Name: Please input the volume name, which contains less than 16 characters without special characters.

RAID Level: Please select RAID volume grade; if it has not created volume at present, there are five volumes for selection, such as RAID1 (Mirror), Recovery, RAID10 and RAID5 (Parity), and please select the grades based on the actual demand.

RAID0: it allows 2 or more than two hard disks to create this RAID volume.

RAID1: it allows two hard disks to create this RAID volume.

## Chapter Four SAS RAID of SWR Model Setup

Recovery: it allows two hard disks to create this RAID volume, and this function is Intel Rapid Recover Technology.

RAID10: it allows four hard disks to create this RAID volume.

RAID5 (Parity): it allows three and more than three hard disks to create this RAID volume.

Disks: select hard disks to be used to create RAID volume; select this option and press [Enter], and it will enter the hard disk option interface; please press [Space] to select the hard disk in turn to create RAID volume, and then press [Enter] to return the menu creation interface.

Strip Size: please select the size of strip of volume, and only volumes RAID0 and RAID5 can select this option.

Capacity: Set the volume capacity, which is defaulted as the maximum capacity.

Sync: Set synchronous model, and if it is to select to create Recovery, it needs to set this option.

After having done all the settings above, please select <Create Volume>, press [Enter], and the screen will display:

“WARNING:ALL DATA ON THE SELECTED DISKS WILL BE LOST. Are you sure you want to create this volumes? (Y/N):”

If the creation of RAID volume is confirmed, please enter “Y”, the volume will then be created, and at the same time, all the data on the selected hard disk will be lost.

If not to create RAID volume, please enter “N” and exit the creation of volume.

Here, we enter “Y” and create RAID volume, after the creation, return to the main configuration interface of SATA HostRAID, and the created RAID volume will be displayed in the RAID volume.

### II . Delete RAID Volume menu

Enter the configuration interface of SATA HostRAID, select the menu by up and down arrows, and then press [Enter] to enter the menu of Delete RAID.

System warning: Deleting a volume will reset the disks to non-RAID.

Warning: ALL DISKS DATA WILL BE DELETED.

If the user confirms to delete RAID volume, please press [DEL] key; and the system will pop up the warning again: “ALL DATA IN THE VOLUME WILL BE LOST! Are you sure you want to delete “Volume\*”? (Y/N):” ; if yes, please enter “Y”, otherwise, please enter “N”.

## Chapter Four SAS RAID of SWR Model Setup

### III. Reset Disks to Non-RAID menu

After entering the configuration interface of SATA HostRAID, we can select the menu by up and down arrows, and then press [Enter] to the menu.

The system will display all hard disks in RAID volume, please select hard disks to be reset by [Space] key based on actual demand, and then reset hard disk by pressing [Enter]. The system will again warn whether there is a need to reset the hard disk, and enter “Y” or “N” according to the prompt. It should be noted that when resetting hard disks, all data on hard disks will be lost. And at the same time, the hard disk will never again belong to the RAID volume.

### IV . Recovery Volume Options menu

After entering the configuration interface of SATA HostRAID, select the menu by the up and down arrows, and then press [Enter] to the menu. Notes: only after creating the Recovery volume can it perform the operation to the menu.

Select to reserve the main disk or recovery disk based on demand and then press [Enter] to the interface of volume selection. Please select volume to be operated by [Space] and press [Enter] to complete this operation.

### V . Exit menu

After entering the configuration interface of SATA HostRAID, select the menu by the up and down arrows, and then press [Enter] to enter the menu.

System prompts: “Are you sure you want to exit? (Y/N):” ; input “Y”, and then it will exit the configuration interface of SATA HostRAID; input “N”, and it will cancel the operation and exit.



# Chapter Seven Operating System Installation

This chapter primarily focuses on the method for installing the prevailing operating system to the server. The Ruijie server kit supports the following operating systems that can be installed intelligently and automatically, such as Windows Server 2003, Windows Server 2008 and Red Hat Enterprise Linux. However, some configuration of the server may not support automatic setup of these operating systems. The operating system of other version shall be set up manually according to the actual need. For operating steps of Ruijie kit intelligent installation operating system, refer to corresponding chapters and sections of User Manual for Ruijie server kit.

The configuration of onboard Intel SATA HostRAID of the server does not support Red Hat Linux operating system.

During manual setup of the operating system, some operating system may need the floppy drive or Inspur driver U disk to load the driver of hard disk controller. Refer to the readme.pdf file under the root directory in Inspur system driver CD for the making method of the driver floppy disk. If the system you purchased is configured with Inspur driver U disk, you may refer to relevant contents of this chapter for the making method of Inspur driver U disk.

If your server is configured with external RAID card or SAS sub-card, please refer to the electronic version of User Manual in the CD for the external RAID card or SAS sub-card to add the driver for the hard disk controller. If it uses onboard SATA controller, please make the driver of controller according to the attached system driver CD. For network card driver, graphics driver and system patch program, the guidance in the chapter can also be referred for setup.

**It is suggested that you confirm in advance that the purchased machine configuration supports the version of the installed operating system. This chapter is prepared by taking the configuration of onboard SAS controller of SWR model as an example and introduces the installation methods of some prevailing operating systems.**

## 7.1 Application Instructions for Inspur driver U disk

Under Windows system and Linux system, Inspur driver U disk can be identified as two parts: simulation floppy drive [3.5 floppy disk (A :)] and normal partition of U disk [UDISK PRO]. When you install some operating systems manually, you can use

## Chapter Seven Operating System Installation

Inspur driver U disk to load the drive of hard disk controller (at present, the operating systems that use Inspur driver U disk to load support of the hard disk controller are Windows XP or above versions, Red Hat Linux 4.5 or above versions, and Suse Linux 9.0 SP2 or above versions systems).

### Warning:

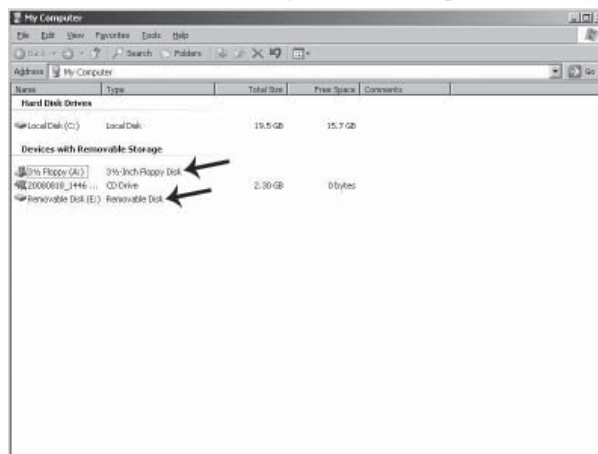
During the installation of the operating system by using Inspur drive, it may detect Inspur driver U disk on the disk partition interface, at this moment, the user must distinguish between U disk from hard disk, and never delete or format U disk.

During the installation of the operating system, if it needs to boot the system from hard disk after reboot, it must enter the server BIOS for setting to ensure the starting sequence of hard disk is prior to the starting sequence of U disk and the system can be booted from the disk. If the starting sequence of U disk is prior to the starting sequence of hard disk, the system will fail to be booted from hard disk.

The following introduces the making method for the driver of controller of main board disk when using Inspur driver U disk to install the operating system. For driver making of external RAID card or SAS card, please refer to the corresponding contents in the driver CD for external board card.

### Make Driver

1. Prepare a set of computer installed with Windows system, and connect the Inspur driver U disk to the USB interface of the computer, as shown in the picture below. Inspur driver U disk will be identified as two parts: simulation floppy drive [3½ Floppy (A)] and normal partition of U disk [Removable Disk (E:)], in which, the disk character E in [Removable Disk (E)] will be different according to the actual partitions of your computer.



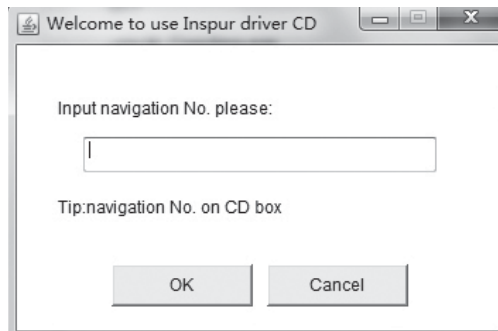
## Chapter Seven Operating System Installation

**Notes:** Before connecting the Inspur driver U disk to the computer, if your computer is configured with standard floppy, please enter BIOS and close this standard floppy; if your computer is connected with USB floppy, please first disconnect USB floppy. It must guarantee that when the Inspur driver U disk is connected to your computer, the analog floppy disk under Windows system shall be identified to be A:, and only by this can the normal making of subsequent driver be guaranteed.

2. Put the driver CD (Inspur system driver CD and RAID card driver CD) into the CD driver, and the driver making software will operate automatically. If the system forbids the automatic operation of CD, please enter CD contents and operate documents of dolphin.bat (Inspur system driver CD) in CD or setup.exe (RAID card driver CD) in CD contents.

3. Methods for making drivers by using Inspur system driver CD:

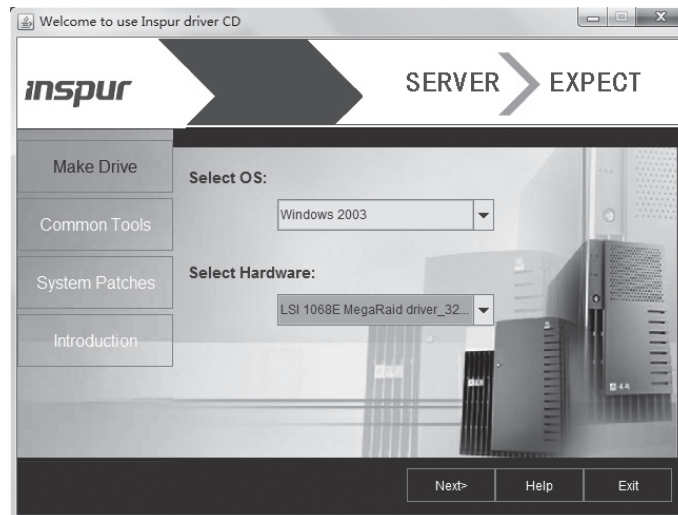
(1) After operating dolphin.bat documents, the system will enter the interface of “Input navigation No. please:”



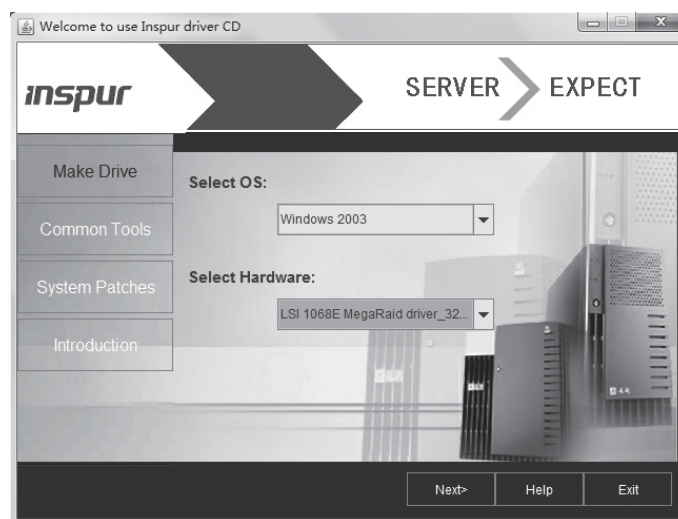
Input the navigation code in the text box (the navigation code is shown in CD box), click [OK] button, and it can log in the main interface of driver making software. Click [Cancel] button and exit the logging.

(2) Having input the navigation code and logged in the system, enter the main interface of driver making software, and the main interface is shown in the following picture:

## Chapter Seven Operating System Installation



(3) Click the [Make Drive] button and enter the driver making interface, as shown in the following picture:



(4) After you select the corresponding operating system and the controller driver to be made according to the actual need, click [Next] button and make corresponding driver. Different operating systems correspond to different making interfaces and methods of the driver.

- **Driver making of Windows system**

When the driver of Windows operating system is made, copy the driver directly

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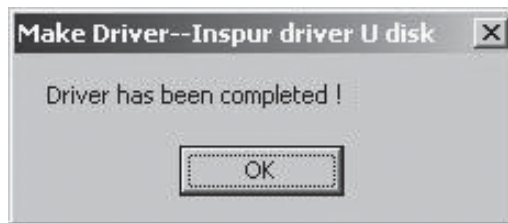
into the simulation floppy drive A: of Inspur driver U disk.

Select the Windows version to be installed and driver to be made, and then click [Next].

The system will display a prompt as shown in the following picture. Please confirm that Inspur driver U disk is well connected, and format the floppy A: of Inspur driver U disk, and then click [OK] to start the driver making.



After the driver making is completed, the system will pop up the window, prompting “Driver has been completed”, and click <OK> to complete the making of driver.



- Notices for using Inspur driver U disk to load driver under windows system

During the installation of Windows operating system, if the driver of hard disk controller is loaded by using Inspur driver U disk, entering the interface of disk partition, the Inspur driver U disk will occupy a disk letter. If the disk is not divided, U disk will occupy disk C: and if the disk has other partitions, U disk will occupy other disk letter (please distinguish according to the actual hard disk partition).

If there are other partitions on the disk, at this moment, it needs to delete all of them and then create new partitions on the hard disk, and the U disk will not occupy disk letter any more.

If the disk is not divided, it needs to create one disk partition on the unallocated space, and then delete this newly created disk partition. And at this time the U disk will not occupy any disk letter any more. Then create disk partition based on actual need, and complete the installation of operating system according to the instructions.

Notes: Be sure to distinguish U disk from hard disk, and never delete or format U disk.

### 7.2 Manually Install Windows Server 2003 Enterprise Edition

#### 7.2.1 Preparation Prior to Installation

- Installation CD for Windows Server 2003 Enterprise Edition (supporting 32 bit or 64 bit versions; here taking 64 bit as an example to introduce)
  - Inspur system driver CD
  - LSI 1068E MegaRaid Driver\_64bit drive for Windows 2003 (made by using driver CD for Inspur system; applicable to the onboard SAS controller of SWR model)
    - Please select corresponding driver to the version of made or installed system according to the version of the installed operating system.

Note: When making the above driver, if you use USB floppy, please make the driver in the floppy; if you use Inspur driver U disk, please make the driver in the Inspur driver U disk.

#### 7.2.2 Installation steps

1. Connect USB floppy or Inspur driver U disk to the USB interface of the server, power up to start the server, and put the installation CD of Windows Server 2003 into CD-ROM and select to boot from CD.
2. Press any key when the system presents “Press any key to boot from CD” and the system will start Windows installation program from CD.
3. When the screen presents “Press F6 if you need to install a third party SCSI or RAID driver...” please press [F6] key.

When the system displays “Setup could not determine the type of one or more mass storage...”, press <S> key.

If a USB floppy drive is used:

When the system prompts to insert a floppy disk, insert the LSI 1068E MegaRaid Driver\_64bit driver diskette, then press [Enter]. The system will display the list of drivers, and select this edition of operation system driver corresponding to the controller. Select “LSI Embedded MegaRAID (Windows XP/2003 64-bit)” and then press [Enter] to continue; the system will start the loading driver, after the driver is loaded, press [Enter] to continue to install according to the on-screen prompts.

If Inspur driver U disk is used:

Firstly, ensure that LSI 1068E MegaRaid Driver\_64bit driver has been made into the **[3.5 Floppy disk (A:)]** partition of the Inspur driver U disk; the system displays the list of drivers and select this edition of operation system driver corresponding to the

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controller. Select “LSI Embedded MegaRAID (Windows XP/2003 64-bit)” and then press [Enter] to continue; the system will start loading the driver; after the driver is loaded, press [Enter] to continue to install according to the on-screen prompts.

After the driver is loaded, press [Enter] to continue the installation according to on- screen prompts.

4. The system displays:

Welcome to Setup.

This portion of the Setup program prepares Microsoft(R) Windows(R) to run on your computer.

- ⊙ To set up Windows now, press [ENTER].
- ⊙ To repair a Windows installation using Recovery Console, press R.
- ⊙ To quit Setup without installing Windows, press F3.

Here, we default it is the first installation, so press [Enter] key to continue the installation.

5. The system displays Windows Licensing Agreement. The user can read the licensing agreement by pressing <Page Down> key. After finishing the reading or not reading the agreement, you can directly press [F8] key to accept the agreement.

6. The system displays

The following list shows the existing partitions and unpartitioned space on this computer.

Use the UP and DOWN ARROW keys to select an item in the list.

- ⊙ To set up Windows on the selected item, press [ENTER].
- ⊙ To create a partition in the unpartitioned space, press C.
- ⊙ To delete the selected partition, press D.

You can select the items based on the actual situation, select the unallocated space here and then press <C> key.

7. Program installation prompts:

- ⊙ To create the new partition, enter a size below and press [ENTER].
- ⊙ To go back to the previous screen without creating the partition, press ESC.

The minimum size for the new partition is 8 megabytes <MB>.

The maximum size for the new partition is XXX megabytes <MB>. (XXX means the maximum capacity of the disk)

Create partition of size <in MB>:

Press [Backspace] to delete the numeral in the frame, input the size of the disk

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partitions you want to create and then press [Enter] to continue.

Notes: it is suggested that the partition is more than 30GB.

8. The system displays the interface of Step 6, here select the partition of “Partition1 [New <Raw>]” and press [Enter] key to continue the installation.

9. System displays

- ⊙ Format the partition using the NTFS file system <Quick>
- ⊙ Format the partition using the FAT file system <Quick>
- ⊙ Format the partition using the NTFS file system
- ⊙ Format the partition using the FAT file system

Select “Format the partition using the NTFS file system” (it is suggested to use) and press [Enter] to format the disk partition.

10. The system displays the progress bar of formatting

Please wait while Setup copies files to the Windows installation folders.

This might take several minutes to complete.

After the installation program formats the new partitions, it will prompt

“Please wait while Setup copies files to the Windows installation folders. This might take several minutes to complete.”

The system will display the progressive bar of document duplicating.

After the duplication of document, take out the driver floppy, and the system will restart automatically.

11. After the system restarts, select to boot from hard disk, and begin to execute Collecting information, Dynamic Update, Preparing installation operations and so on. Install wizard collects relevant information and prepares to install.

The installation program detects and installs the equipment, and during the process, if prompts of “software installation” and “hardware installation” etc. pop up, click “YES” to continue. After the completion, the system will automatically take the next step.

12. The system displays Regional and Language Options:

It is suggested using the default setting, and here click <Next> to continue the installation.

13. Personalize Your Software

The installation program will self-define your Windows software based on the personal information you provided.

Type your full name and the name of the company or organization.



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Name:

Organization:

The user can fill in according to his actual situations and then click <Next> to continue the installation.

14. Input your Product Key (25-character) and then click <Next> to continue the installation.

15. Licensing Models

Windows Server 2003 supports two licensing models.

Per server. Number of concurrent connections:

Each connection must have its own Client Access License.

Per Device or Per User.

Each device or user must have its own Client Access License.

The user can select and set according to his demands and then click <Next>.

16. Computer Name and Administrator Password.

After setting the computer name (less than 15 characters) and administrator password (can not exceed 14 characters) based on the actual situation, click <Next> to continue the installation.

17. Date and Time Settings.

After setting the correct date and time, click <Next> to continue the installation.

18. The installation program starts to install the network and duplicate the document, install <start> menu, register components and execute the last series of relevant task (the process requires a certain period of time).

19. After the installation, the system will restart automatically and the installation CD shall be taken out.

20. After the restart of the system, press <Ctrl+Alt+Del> to login. Input the user name and password, and click <OK>. After logging in the system, click <Finish> if the system prompts the interface of “Windows Server Post-Setup Security Updates”, and then click <Yes> in the dialog box. Select “Don’t display this page at logon” in the interface of “Manage Your Server” and close the windows interface.

21. After the installation of the operating system of Windows Server 2003, please install its SP2 patch program. You won’t need to do this if you are using the installation CD for operating system of integrated SP2 patch.

22. Install Chipset patch

(1) Insert the Inspur driver CD into CD-ROM, input the navigation code on the

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driver CD set in the navigation code verifying interface popped up after the running of CD, click <OK> and it will enter the installation interface automatically;

(2) In column “Select OS”, select Windows 2003;

(3) In column “Select Hardware”, select Chipset patch\_64bit;

(4) Click <Next> and begin the installation;

(5) Enter the interface of “Welcome to the Setup Program”, and click <Next> to continue the installation;

(6) Enter the interface of “License Agreement”, and select <Yes> to continue the installation;

(7) Enter the interface of “Readme File Information”, and click <Next> to continue the installation;

(8) The program starts to install; and click <Next> according to the prompt;

(9) Setup Is Complete, click <Finish> according to the prompt, take out the driving CD and restart the system.

### 23. Install Network card driver

(1) Insert the Inspur driver CD into CD-ROM, input the navigation code on the driver CD set in the navigation code verifying interface popped up after the running of CD, click <OK> and it will enter the installation interface automatically;

(2) In column “Select OS”, select Windows 2003;

(3) In column “Select Hardware”, select Network card driver\_64bit;

(4) Click <Next> to start the installation;

(5) Enter the interface of “Welcome to the InstallShield Wizard for Intel(R) Network Connections”, and click <Next> to continue;

(6) Enter the interface of “License Agreement”, select “I accept the terms in the license agreement” and click <Next> to continue;

(7) Enter the interface of “Setup Options” and click <Next> to continue;

(8) Enter the interface of “Ready to Install the Program” and click <Install> to continue;

(9) The program starts to install; click <Finish> according to the prompt in the interface of InstallShield Wizard Complete

### 24. Install Video driver

After the installation of network card driver, stay in the installation interface of driver CD and continue with the installation of video driver.

(1) Enter Windows system; click in turn <Start>→<Programs>→<Administrative

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Tools>→<Computer Management>;

(2) In the interface of “Computer Management”, open “Device Manager”;

(3) Select “Display adapters” and double-click; then select “Standard VGA Graphics Adapter”, click the right button of the mouse and select “Update Driver...”;

(4) The window “Welcome to the Hardware Update Wizard” will pop up. If the system inquires “Can Windows connect to Windows Update to search for software?”, select “No, not this time” and click <Next>;

(5) The window “Hardware Update Wizard” will be shown, select “Install from a list or specific location (Advanced)”, and click to continue;

(6) Insert Inspur driver CD into the CD-ROM, select “Search for the best driver in these locations”, then select “Include this location in the search”, then select the path of the driver in the CD: \driver\video\nf5220\win03\_64, and click <OK>;

(7) Click <Next> to start the installation;

(8) It will prompt “Completing the Hardware Update Wizard” and click <Finish> to finish the installation of equipment driver of “ASPEED Graphics Family”;

(9) Select <Yes> according to the system prompt, take out Inspur driver CD and restart the computer.

### 25. Install Expander card driver

When the machine you purchased is configured with Inspur Expander card and the operating system you used is Windows Server 2003, it necessitates the Expander card driver under the load system. Please install Expander card driver in searching model (refer to Video driver model), and the path of Expander card driver is \driver\Expander\nf5280m2.

### 26. Complete the installation of Windows Server 2003.

## 7.3 Manually install Windows Server 2008 Enterprise Edition

### 7.3.1 Preparation prior to the installation

- Windows Server 2008 Enterprise Edition Installation disk (DVD, supporting the version of 32bit or 64 bit and here taking 64bit as an example to introduce) of Windows Server 2008 Enterprise Edition.

- Inspur system driver CD.

- LSI 1068E MegaRaid Driver\_64bit driver for Windows 2008(made from Inspur system driver CD, applicable to onboard SAS controller of SWR model)

- **Please select the corresponding driver to the made or installed version of system**

according to the operating system version selected to install.

Note: When making the above driver, if you use USB floppy, please make the driver in the floppy; if you use Inspur driver U disk, please make the driver in the Inspur driver U disk.

### 7.3.2 Installation steps

1. Make sure the USB floppy or Inspur driver U disk is connected well. Power up and start the server, put the installation CD of Windows Server 2008 into the CD-ROM and enter BIOS to set so that the server can boot from CD.

2. When the system prompts “Press any key to boot from CD or DVD”, press any key, and the system will start Windows installation program from CD.

3. In the language to install interface, select and set the language and other options according to the actual demand, and click <Next> to continue.

4. Click <Install now> to continue in the interface of the installation confirmation. Then select the operating system to be installed and click <Next> to continue.

5. Input your product key (25 characters), and then click <Next> to continue.

6. The Microsoft software license clauses will be shown in the interface of “Please read the license terms”. Select “I accept the license terms” after reading, and click <Next> to continue.

7. In the interface of “Which type of installation do you want?”, select the installation type, and here the default set by us is the first installation. Select “Custom” model to continue.

8. The system enters the interface of “Where do you want to install Windows?”, it will display the existing disk partitions and unallocated spaces on the computer, and click <Drive options> to start the operation of disc partition. Some configurations need us to load disk controller driver manually, and the driver loading methods are as follows:

#### **If USB floppy is used:**

(1) First finish making the driver floppy. When powering up and starting the server, please connect the floppy to the USB interface of the server, and insert driver floppy into the floppy drive;

(2) In the interface of “Where do you want to install Windows?”, select <Load Driver>;

(3) Click <Browse> item in the “Loader Driver” window, and in the pop-up

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prompt interface, select the driver “Floppy Disk Driver (A:)”;

(4) The system will search the driver automatically. In the interface of “Choose to install the driver”, click <Next> to continue;

(5) The addition of disk controller driver is completed.

### **If Inspur driver U disk is used:**

(1) Please make the disk controller driver in the **Inspur driver U disk** [3.5 floppy disk (A :)] partition.

(2) When powering up and starting the server installation operating system, please connect Inspur driver U disk to the USB interface of the server;

(3) In the interface of “Where do you want to install Windows?”,select <Load Driver>;

(4) The system pops up the “Load Driver” window to prompt: to install the device driver needed to access your hard drive, insert the installation media containing the driver file, and then click OK. Here directly select <OK>;

(5) The system will search the driver automatically. In the interface of “Choose to install the driver”, click <Next> to continue;

(6) The addition of disk controller driver is completed.

9. In the disk partition operation interface, select <Drive Options> and we can perform the following operation:

⊙ **It can delete the existing partitions by selecting the existing partitions and then clicking <Delete>.**

⊙ **It can format the partitions by selecting the existing partitions and clicking <Format>.**

⊙ **It can create new partitions by selecting unallocated disk spaces and then clicking <New> to create new partitions.**

You can operate according to the actual demands. Here we’d expound on the issue when there are no existing partitions in the disk.

(1) Select the unallocated space, click <New>, delete the number in the Size input box, then input the one you want to create (unit: MB) and click <Apply> to continue.

**Note: we suggest the partition should be larger than 30GB.**

(2) Select the newly created disk partition, then click <Format>, and click <OK> at the prompt confirmation interface.

(3) After formatting the partition, click <Next> to continue.

10. The system starts to install Windows, and it will complete operations of

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“Copying files”, “Expanding files”, “Installing functions”, “Installing updates” and “Completing installation” etc.. In this course the system may automatically reboot for several times.

11. After the installation, the system would boot to the interface of “The user’s password must be changed before logging on for the first time.”. Take out the installation CD-ROM and then click <OK> to continue.

12. Follow the prompt to set the administrator password and then click the arrow button at the right of the password input box to continue. If the password meets the requirements, it will prompt “Your password has been changed.” and then click <OK> to confirm that the password has been changed.

Windows Server2008 has strict requirement for the password, so it must contain letters, numbers and special characters, or the setting cannot be successful.

13. After logging in the system, select “Do not show this window at logon” at the bottom of the “Initial Configuration Tasks” interface, and then click <Close>. In the new interface of “Server Manager”, select “Do not show this console at logon” and close the interface.

### 14. Install Chipset patch

(1) Insert Inspur driver CD into CD-ROM, click the blue dolphin icon under the installation or operation procedure item in the automatically playing interface popped out after the disk’s running, input the navigation code on the driver CD case in the navigation code verification interface popped out after the operation of CD, and click <OK> to enter the installation interface automatically;

(2) In “Select OS” column, select Windows 2008;

(3) In “Select Hardware” column, select Chipset patch\_64bit; (select 32bit or 64bit driver according to the installed system)

(4) Click <Next> to start the installation;

(5) Enter the interface of “Welcome to the Setup Program” and click <Next> to continue the installation;

(6) Enter the interface of “License Agreement”, and select <Yes> to continue the installation;

(7) Enter the interface of “Readme File Information”, and click <Next> to continue the installation;

(8) The installation program begins to install; and click <Next> according to the prompts;

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(9) Complete the installation, click <Finish> according to the prompts, take out the driver CD and restart the system.

### 15. Install Network card driver

(1) Insert Inspur driver CD into CD-ROM, click the blue dolphin icon under the installation or operation procedure item in the automatically playing interface popped out after the disk's running, input the navigation code on the driver CD case in the navigation code verification interface popped out after the operation of CD and click <OK> to enter the installation interface automatically;

(2) In the "Select OS" column, select Windows 2008;

(3) In the "Select Hardware" column, select Network card driver\_64bit; (Select 32bit or 64bit driver according to the installed system.)

(4) Click <Next> to start the installation;

(5) Enter the interface of "Welcome to the InstallShield Wizard for Intel(R) Network Connections", click <Next> to continue;

(6) Enter the interface of "License Agreement", select "I accept the terms in the license agreement" and then click <Next> to continue;

(7) Enter the interface of "Setup Options" and click <Next> to continue;

(8) Enter the interface of "Ready to Install the Program", and click <Install> to continue;

(9) The installation program starts to install; when the installation is completed, click <Finish> according to the prompt.

16. Install Video driver (please select 32bit or 64bit driver according to the installed system.)

(1) Enter the Windows system, click in turn <Start>→<Administrative Tools>→<Computer Management>;

(2) In the interface of "Computer Management", open "Device Manager";

(3) Select "Display adapters", double click, then select "Standard VGA Graphics Adapter", and click the right mouse button to select "Update Driver Software..."

(4) When the interface appears "How do you want to search for driver software?" window, select and click "Browse my computer for driver software";

(5) When the interface appears "Browse for driver software on your computer" window, click <Browse> at the back of research position column;

(6) In the window "Browse For Folder", select the path where the driver locates: CD \driver\video\nf5220\win08\_64 (please select 32bit or 64bit driver according to the

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installed system), and then click <OK>;

(7) In the window “Browse for driver software on your compute”, click <Next>;

(8) After the driver is finished installation, click <Close> in the window “Windows has successfully updated your driver software” according to the prompts;

(9) Click <Yes> according to the prompt, take out the driver CD and restart the machine.

17. After the system is restarted, it completes the installation of Windows Server 2008.

### 7.4 Manually Install Red Hat Enterprise Linux 5.2

#### 7.4.1 Preparation prior to the installation

- Installation CD for Red Hat Enterprise Linux 5.2 (five pieces of CD or one piece of DVD, here taking the CD used in the 64bit system as an example to introduce.)

- Inspur system driver CD.

- LSI 1068E MegaRaid Driver drive for RedHat Enterprise Linux 5.0 UP2 (made through Inspur system driver CD, applicable to onboard SAS controller of SWR model).

- **Please select corresponding driver to the version of made or installed system according to the version of the installed operating system.**

Note: When making the above driver, if you use USB floppy, please make the driver into the floppy; if you use Inspur driver U disk, please make the driver into the Inspur driver U disk.

#### 7.4.2 Installation steps

1. Connect USB floppy or Inspur driver U disk to the USB interface of the server. Power up and start the system, put the installation disk into the driver (here taking using DVD installation disk as example), and select to boot from the CD.

2. When boot is displayed: press [Enter] to continue the installation.

If it doesn't need to load hard disk controller driver, directly press [Enter] to continue the installation.

If it needs to load disk controller driver, please input Linux dd and press [Enter] to continue to enter the installation steps as follows:

- (1) The screen prompts “Do you have a driver disk?”,select <Yes> and press [Enter] to continue the installation.



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(2) The system prompts “Insert your driver disk into /dev/sda and press ‘OK’ to continue.”

(3) If USB floppy is used. Please insert the already made driver floppy during the installation and preparation period. Select <OK> and press [Enter] to continue the installation.

If Inspur driver U disk use is used, directly select <OK> and press [Enter] to continue the installation.

(4) The system begins to load driver. After it is finished, the system prompts “Do you wish to load any more driver disks?”; if you do, please select <Yes> to repeat the above steps; if you don’t, please select <NO>. Here we select <NO> and press [Enter] to continue the installation.

3. Installation program displays: CD Found

Select <Skip> to evade the disk detection and press [Enter] to continue the installation.

4. The installation program goes to “Red Hat Enterprise Linux 5” interface; click <Next> to continue the installation.

5. The installation program goes to “What language would you like to use during the installation process?” Interface. Select to install language version of the operating system. Here we select “English (English)” for installation and click <Next> to continue.

6. The installation program enters “Select the appropriate Keyboard for the system” interface. Here we select U.S. English and click <Next> to continue the installation.

7. You can select to enter in the pop-out “Installation Number” interface. If you input the installation number, all the software packages applicable to your Installation Number will be provided; here we select “Skip entering Installation Number” and click <OK> to continue the installation. Click <Skip> on the newly pop-out interface to continue the installation.

8. When the system prompts “Would you like to initialize this drive, erasing ALL DATA?”, in respect of us, it is a brand new installation by default and select <Yes> to continue. When the installation program enters installation ways selection, the user can select them according to his actual condition. Here the installation shall take the customizing manual partitioning as an example. Please select “Create Custom layout” and click <Next> to continue the installation

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9. When the installation program enters partition creating interface, (if partition has been created on the hard disk, it will be displayed, and you can delete it if you do not need it), firstly select the hard disk, and then click “NEW” to create new partition.

(1) Select root partition in Mount point: /, input the size (MB) of partition and click <OK> to finish the creating of root partition. Create the boot partition in the same way: /boot.

(2) Create a swap partition (Swap). Click “New” to create new partition. Select “Swap” in File system Type and input the size(MB) of the swap partition and click <OK> to finish the creating of swap partition (set according to the size of memory, if the memory is smaller than 512MB, set as twice of it. If the memory exceeds 512MB, you can set it as 2GB).

Note: when you create partition, please distinguish Inspur driver U disk and local disk and do not create new partition on the Inspur driver U disk

You can also create other partitions as needed, and click <Next> to continue the installation after the creation.

10. The installation program enters Boot Loader setting interface, set as needed and click <Next> to continue the installation.

11. The installation program enters “Please click into the map to choose a region” interface, select your current time zone based on actual demand and click <Next> to continue the installation.

12. The installation program enters Root Password setting interface, set at least six figures as needed and click <Next> to continue the installation.

13. When entering installation package, generally we need to consider customized installation as needed, so select “Customize now” and click <Next> to continue the installation.

14. The installation program enters program package selection interface. And in order to meet the compile need in the subsequent installation of network card driver, here we select these two software packages of “Development Tools” and “X software Development” in “Development”. The users can also add other options according to actual needs, confirm it and click [Next] to continue the installation.

15. The system prompts: Click next to begin installation of Red Hat Enterprise Linux Server; click <Next>; the system prompts the installation CD that are needed to prepare; click <Continue> to start installation.

16. The system begins to format partition, build file system and copy files. During

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this installation process, it will prompt you to change installation CD, so please change the CD according to the prompts.

17. Entering “Congratulations, the installation is complete.” interface indicates the success of installation. Then click <Reboot>, and take out the installation CD and driver floppy. The system would reboot automatically.

18. The system reboots to enter “Welcome” interface; click <Forward> to continue the installation.

19. The installation program enters “License Agreement” interface. Select “Yes, I agree to the License Agreement” and click <Forward> to continue the installation.

20. The installation program enters “Firewall” interface. Select and set according to actual need; then click <Forward> to continue the installation.

21. The installation program enters SELinux interface. Select and set according to actual need; then click <Forward> to continue the installation.

22. The installation program enters Kdump setting interface. Set according to the actual need and select <Forward> to continue the installation.

23. The installation program enters “Date and time” interface. Set the correct time and date; then click <Forward> to continue the installation.

24. The installation program enters “Set Up Software Updates” interface and click <Forward> to continue the installation.

25. The installation program enters “Create User” interface. Set user name and password to add user; click <Forward> to continue the installation.

26. The installation program enters “Sound Card” interface and click <Forward> to continue the installation.

27. The system enters “Additional CDs” interface:

When the installation program prompts whether to install other application programs, you can select as needed or install as the default, and then click <Finish> to finish the installation.

28. Log in the system.

### 7.4.3 Install network card driver

1. Insert Inspur system driver CD into CD-ROM; click Applications and the Terminal menu in Accessories; input the following in the windows:

```
#mount /dev/cdrom /mnt [Enter]
```

```
#cd /mnt [Enter]
```

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```
#cd driver/nic/NF5120/linux          [Enter]
#cp e1000e-1.3.10a.tar.gz /tmp       [Enter]
#cd /tmp                             [Enter]
#tar -zxvf e1000e-1.3.10a.tar.gz    [Enter]
#cd e1000e-1.3.10a/src              [Enter]
#make install                        [Enter]
#reboot                              [Enter]
```

(Notes: “e1000e-1.3.10a.tar.gz” is network card driver, and its version will be updated. When being installed, the actual version in the attached driver CD shall prevail.)

2. The system will automatically restart; please take out the driver CD.
3. Log in the system, connect the network wires and configure the network.

## Chapter Eight Common Problems and Trouble-shooting

This chapter focuses on the common problems and Trouble-shooting of the server. If you are not sure about the cause of a failure and its removal method, please contact our customer service center for solution.

When replacing or installing hardware device for the server, you should disconnect the power cable from the server completely. It is recommended to use the anti-static wrist strap and to earth-connect the other end to provide electrostatic protection in dismounting the server.

### 8.1 Restarting the Server

When a failure occurs, try to restart the machine according to the following methods first.

Purpose	How to operate
Restart the software, clear up system RAM and restart the operating system.	<Ctrl+Alt+Del>
Clear up system RAM, self-check the POST again and restart the operating system.	Reset button
Cold boot again, switch off and restart the system power so that to clear up the system RAM, to self-check the POST again, to restart the operating system and to power up all peripherals again.	Power button

### 8.2 Problems When Starting the Machine

Some problems often occur when the machine is started, generally due to incorrect hardware installation and configuration. You may find and solve the problems by the following methods.

#### 8.2.1 System can not be powered on

After pressing the power button, the power light is not on and the system stays in non-electric state. Please try the following steps:

1. Check whether your power socket can supply power normally and the power cable is correctly connected.
2. Repeatedly press the power button to start the machine (pay attention not to ex-

## Chapter Eight Common Problems and Trouble-shooting

erting too much force).

3. Disconnect the power cable from the system and open the chassis to check.
4. Check the fastness of the cable connection and accessory plugging in the chassis.
5. Remove other external components other than Inspur's.
6. Pack the chassis, connect the power cable correctly and start the machine.

### 8.2.2 Monitor doesn't display

It can be powered on (the host can start and run normally), but the monitor doesn't work:

1. Check the correctness and fastness of the signal cable and power cable connected to the monitor.
2. Make sure to power on the monitor.
3. Adjust the contrast and brightness of the monitor to confirm whether it can display or not.
4. Shut down the system and disconnect the power cable to check whether there is curve in the pin at the connecting end of the monitor signal cable and the host.
5. Find another monitor for test if possible.
6. If the machine is installed with components other than Inspur ones, please remove them first.
7. With the permission of Inspur technical support personnel, you may pull and plug RAM and clear CMOS for test.

### 8.2.3 Installation system can't find hard disk

1. When installing the system directly booted from the system CD, if it prompts that no hard disk can be found, please check the normality of the disk state and power-on self-check hard disk state.
2. If the power-on self check can detect the hard disk but the hard disk can't be detected when the system is installed, it may be caused by the following conditions:
  - If you are using Ruijie management software disk to install system, after you input the navigation serial number and other system installation information, the system prompts "no matched storage controller", please reconfirm the navigation serial number.
  - Because the navigation serial number would be different when storage configuration is changed, so you should obtain a new navigation serial number from Inspur technical support before you change your storage configuration.
  - If you are using the system CD to boot and install the operating system directly,

## Chapter Eight Common Problems and Trouble-shooting

the hard disk drive is generally added through the floppy. When using USB floppy to add the drive, please set the BIOS first and close the onboard floppy controller.

- Please check whether the floppy drive is correct or not (the drive for external RAID card should be made directly from the attached RAID card driver CD) and whether there is fault in the floppy disk.

### 8.2.4 Keyboard and mouse do not work.

1. Check whether the cable joint of the mouse and keyboard is plugged and connected correctly. Make sure the joint pin has no curve.

2. Check whether the mouse setting in the control panel of the operating system is correct or not.

3. Clean the scrolling and drive shaft of the mouse.

4. It is suggested that you use the keyboard and mouse tested for compatibility by Inspur group or replace with other keyboard and mouse for testing.

### 8.2.5 System blue screen, halt or restart.

For blue screen, restart or halt of the machine in the utilization of the system, you may resort to the following measures:

1. If other external non-Inspur components or some application program softwares are installed before the fault, it is suggested removing it and going on to test your server.

2. Use the latest antivirus software for antivirus test.

3. It is suggested that you record the displayed information code for blue screen, such as: stop c00000218.....; stop: 0x0000007b. This kind of information reveals problems in the system. It is suggested that you reinstall it.

4. If all above operations fail to solve the problem, it is suggested that you backup the file winnt/minidump in disk C, and call the service center for support from professional technical engineers who may ask you to provide minidump file for further analysis on the cause for blue screen and halt. If there is no minidump folder in disk c, please refer to the following steps: right-click on My Computer, select <Property>→<advanced>→<startup and recovery>, then select <settings>, change <write debugging information> in the next page to “small RAM dump” and restart the machine. The system will produce minidump file automatically in the next blue screen.

### 8.2.6 Machine alarm

If there's machine alarm in startup or utilization process, please refer to the following measures:

## Chapter Eight Common Problems and Trouble-shooting

1. If this happens after you plugged in some external board, you may need to pull off this device and to do another test. If the alarm goes off, it shows that your external board is incompatible with the machine. It is suggested not using it any more; If the alarm is still on, please go on referring to the following steps.

2. Locate the alarm sound:

- when the alarm sound is from the front of the chassis, usually we notice abnormal changes of the fault indicating light. There is the possibility of abnormal fans or hard disk module;

- If the alarm sound is from the rear of the chassis, please check whether a redundant power supply is configured or not and whether there is an abnormal status light of the power supply module or a module without power cable (when power alarm goes on, the shield switch can be pressed to stop it);

- If the alarm sound is in the chassis, the alarm may be from motherboard, RAID card or hard disk back plate. If it is also accompanied by no display on the monitor or power on faults, there is high possibility of something wrong on motherboard. You can try to pull or plug RAM or clear CMOS; if the starting self-check is normal and the alarm starts when the RAID card is under test, and there is abnormal array information displayed, then it is likely that the RAID card has set off the alarm. There may be array abnormality; when the hard disk back plate alarms, there is always abnormal status light of the hard disk on the front panel, which can be used to our advantage.

3. After having collected the basic information, please feedback the detailed alarm information to Inspur technical support personnel in a timely manner. We will make further analysis and judgment and help you solve the problem as soon as possible.

### 8.3 Ruijie server kit and other machine-attached software problem

When Ruijie server kit is used in server management and system auto-installation, the system may operate abnormally due to changes in configuration, factory default system values, BIOS settings, etc. You may find and solve problems by referring to the following methods.

#### 8.3.1 The system prompts that it cannot access the disk size when Ruijie is used to boot the installation system

Please confirm local hard disk and RAID are in normal state.

1. In onboard RAID configuration, confirm that RAID model is open under BIOS.
2. In External RAID card configuration, please confirm that RAID array is config-



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ured.

### **8.3.2 The disk size is not consistent with the local disk capacity when Ruijie is used to boot system installation.**

Please check whether the machine connects external mobile devices (USB devices, external disk arrays, tape libraries, etc.). If the server connects USB, USB dongle, mobile hard disks and other USB devices, please remove them and then install the system; if the server connects storage devices, first disconnect them, then install with Ruijie installation system, or it will result in abnormal storage arrays and data loss.

### **8.3.3 After Ruijie boot configuration completed and system CD input, the machine reboots automatically and repeatedly**

1. Ruijie system installation CD is developed based on an authorized CD system contents framework. If your CD is an all-in-one system CD, please use a single system CD to install.

2. When Ruijie-boot configuration is completed, please operate according to Ruijie's guide prompts. Please do not insert system CD into CD-ROM without prompts; once the system prompts the CD is inside, the system will complete the installation automatically and please do not manually disrupt the process in case it result in abnormal system installation.

### **8.3.4 Losing the machine-attached Ruijie server kit and System Driver CD**

Please visit the Inspur's official website and download the correct version corresponding with your machine model.

1. Download Ruijie Server Kit from

[http://www.inspur.com/downloads/channel\\_home/Downloads\\_sv\\_1.asp](http://www.inspur.com/downloads/channel_home/Downloads_sv_1.asp)

2. Download System Driver from:

[http://www.inspur.com/downloads/channel\\_home/Downloads\\_sv.asp](http://www.inspur.com/downloads/channel_home/Downloads_sv.asp)

## **8.4 Additional Notes**

1. In order to guarantee the reliability of the system, it is suggested that you use the component of the relevant model tested and authenticated by us when expanding and equipping components.

2. Please guarantee the fine electricity utilization environment of the server, normal state of voltage input and earth-connecting condition as well as temperature and humidity and so on within the normal range.

## Chapter Eight Common Problems and Trouble-shooting

3. For special needs, when transferring the server, pay attention to avoiding the vibration and carry out in power off condition.

4. For more notices of our products, please refer to the FAQ for server in the official website of Inspur:

[http://www.inspur.com/support/Channel\\_Home/support\\_sv.asp](http://www.inspur.com/support/Channel_Home/support_sv.asp)

### 8.5 Technical Support Information

If you have any doubt or unsolved problems in using Inspur server, please take the following measures:

1. If you have doubt in product configuration and specification details, please contact your supplier.

2. If there is system problem in using the machine, please contact the customer service center of Inspur server directly, please record the product serial number on your host chassis. After receiving your service request, our technical support personnel will provide you with solution or field maintenance.

3. Contact method of customer service center of Inspur server:

email: [sv\\_str\\_pcs@inspur.com](mailto:sv_str_pcs@inspur.com)

Download address of drive and product information for Inspur server:

[http://www.inspur.com/support/Channel\\_Home/support\\_sv.asp](http://www.inspur.com/support/Channel_Home/support_sv.asp)

## Chapter Nine Application Introduction on Baseboard Management Controller

According to different configuration of purchased products, the function of the baseboard management controller is different. The following will describe the application of baseboard management controller.

### 9.1 Management Chip BMC IP

Onboard BMC IP can be checked and set in the menu of “Advanced”→ “IPMI 2.0 Configuration” →”Set LAN Configuration” in the BIOS.

### 9.2 Remote Login

#### 9.2.1 Remote client system requirements

The requirements of remote client system of GUI interface connecting to the server management chip through web browser are shown in the following table:

Requirements	Remote web control panel/client
Operation system	Support the operation system of Microsoft Internet Explorer browser; Windows xp is recommended.
Browser plug-in module	Install Java SE Runtime Environment 6, Update 12 or higher version
network protocol stack	Support TCP/IP network protocol stack

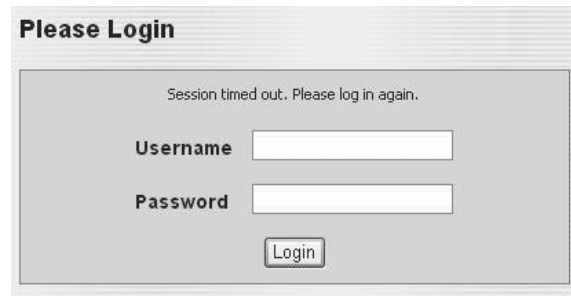
The download address of browser plug-in module

Java SE Runtime Environment:<http://www.java.com/en/download/>

#### 9.2.2 Log in the interface of management chip software control.

Input IP address of BMC in the IP address bar of client browser, and then click [Enter]. The management log-in interface will appear, just as shown in the following picture.

## Chapter Nine Application Introduction on Baseboard Management Controller



**Please Login**

Session timed out. Please log in again.

**Username**

**Password**

Please input default Username and Password

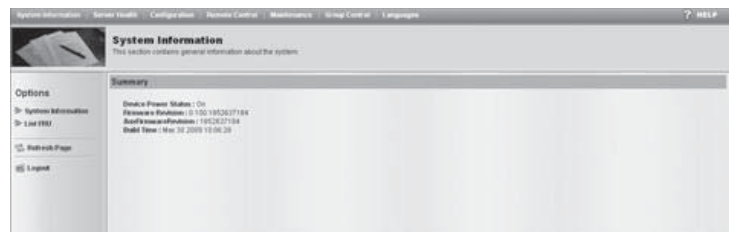
Username: root

Password: superuser

Note: default Username and Password can conduct all module configurations and setting of permission. So for safety reasons, it is recommended to change login password in time when you login.

### 9.3 Function Menu Introduction

The default display interface after logging in is as follows.



The following function menu can be found on the top of the interface: System Information, Server Health, Configuration, Remote Control, Maintenance and Languages.

#### 9.3.1 System Information Menu

In the menu, the power supply status and Firmware information of management chip can be seen.

#### 9.3.2 Server Health Menu

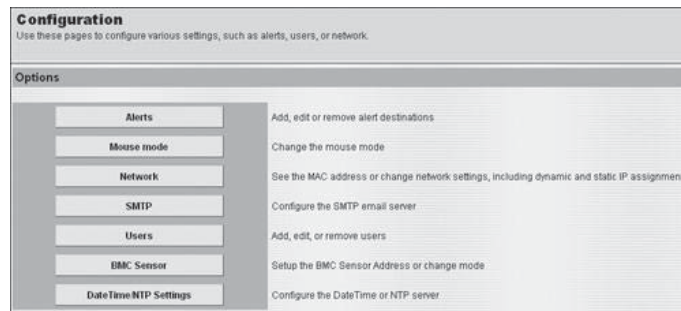
In the menu, data information relating to server health including sensor readings (temperature, voltage and fan) and event log can be checked.

#### 9.3.3 Configuration Menu

Relevant settings can be performed in the menu, such as alerts, mouse model,

## Chapter Nine Application Introduction on Baseboard Management Controller

SMTP, user and network (BMC IP).



(1) Alerts: add, edit or remove alert settings.

(2) Mouse model: set mouse model.

Set Model to Absolute: the absolute model mouse can switch freely between remote picture and local picture.

Set Model to Relative: the relative model mouse can switch between remote picture and local picture by selecting <Alt>+<M>.

(3) Network: examine the MAC address of BMC and set BMC IP

(4) SMTP: set IP of SMTP email server.

(5) Users: add, remove and change users.

The username should start with English letters and have a character size within 4~32. The password has 8 characters at least.

User rights can be divided into three kinds: Administrator, Operator and NO Access.

Administrator: can conduct all operations.

Operator: only can perform general application operations and can't change configuration and update Firmware.

NO Access: not allowed to log in remote management interface.

(6) BMC Sensor: Setup BMC Sensor Address or change model.

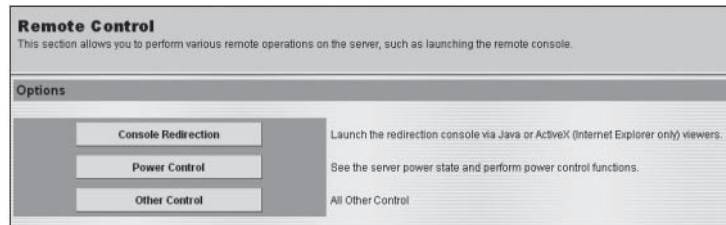
(7) Date Time/NTP Settings: configure the Date, time and NTP Server.

### 9.3.4 Remote Control Menu

This section allows you to perform various remote operations on the server, including operation remote console, system switch and other control operations.

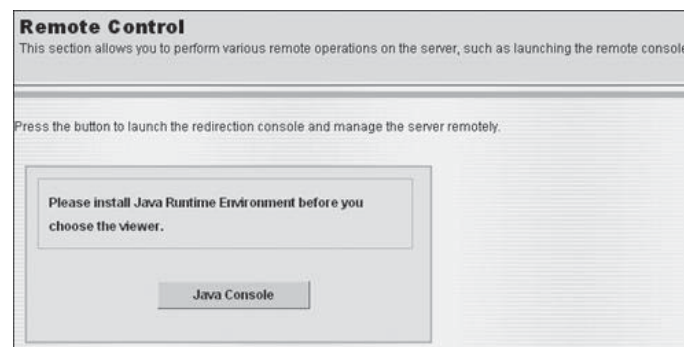
Note: if the machine you purchased can't support KVM, then the Console Redirection of operation remote control console can't be included.

## Chapter Nine Application Introduction on Baseboard Management Controller



(1) Console Redirection menu : redirect to console.

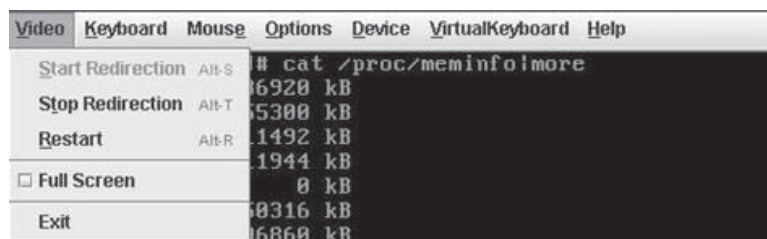
After choosing this menu, the system will enter the interface as the following chart



Click <Java Console> to log in remote desktop. Please install well browser plug-in module before logging in remote desktop.

- Start using all options relating to Active X in Internet, local Intranet and trusting sites in the option of tool→<Internet option>→<safety>.
- In the option of tool→<Internet option>→<advanced option>, don't tick the option of "don't store the cryptographic page in the hard disk" and save.

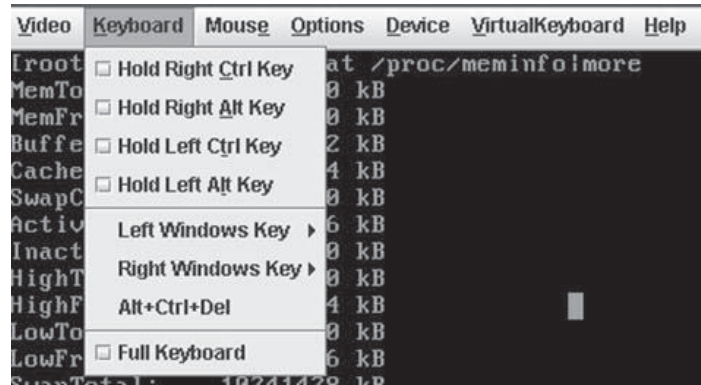
A. Remote desktop: Video set



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Options	Functions
Start Redirection	Start connecting redirection console.
Stop Redirection	Stop connecting redirection console.
Restart	Restart connecting redirection console.
Full Screen	Full screen display of redirection console.
Exit	Exit redirection console interface.

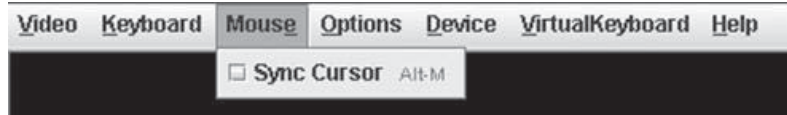
### B. Remote desktop: Keyboard set



Options	Functions
Hold Right Ctrl Key	Select this option, equal to click the “Ctrl”key of the right side when operating.
Hold Right Alt Key	Select this option, equal to click the “Alt”key of the right side when operating.
Hold Left Ctrl Key	Select this option, equal to click the “Ctrl”key of the left side when operating.
Hold Left Alt Key	Select this option, equal to click the “Alt”key of the left side when operating.
Left Windows Key	Select this option will appear “Hold down” and “Press and Release”. Stands for pressing down or releasing Windows key of the left side.
Right Windows Key	Select this option will appear “Hold down” and “Press and Release”. Stands for pressing down or releasing Windows key of the right side.
Alt+Ctrl+Del	Select this option, redirection frame and perform function of “Alt+Ctrl+Del” combination key.
Full keyboard	Keyboard function of client completely executes to remote server, including function key.

## Chapter Nine Application Introduction on Baseboard Management Controller

### C. Remote desktop: Mouse set



Click “Mouse” and select “Sync Cursor” in the drop-down list. Client’s mouse switches to remote server. Menu of local mouse and redirection mouse are synchronized.

When remote server is in textual interface and the mouse is not easily to switch, please select shortcut key <Alt>+<M> to switch mouse.

### D. Remote desktop: Option set



Click “Option” menu. “Bandwidth” and “Video Settings” will appear.

“Bandwidth” is used to set transmission bandwidth

“Video Setting” is used to set transmission picture quality and transmission efficiency.

### E. Remote desktop: Device set



Options	Options
Redirect CDROM	Synchronize with CDROM of client
Redirect ISO	Synchronize with image of client
Redirect Floppy/USB	Synchronize with floppy drive of client
Redirect Floppy Image	Synchronize with image of client-side floppy

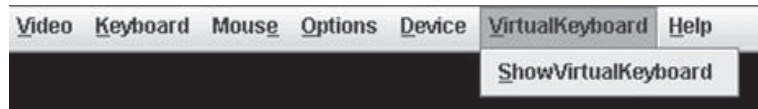
If the optical disk in the synchronous client-side CDROM is the activate disk or system subpanel, boot sequence should be set in the server BIOS. The installation mod-



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el of ISO document is the same with that through CDROM installation. Boot sequence should be selected in the server BIOS.

F. Remote desktop: VirtualKeyboard set



Click “VirtualKeyboard”. Drop-down menu appears. Select “Show VirtualKeyboard” and a virtual keyboard frame will appear.

(2) Power Control menu: in this menu, the current power status of the server can be checked and various kinds of power-on and power-off operation options are provided. Click <Perform Action> to execute.

(3) Other Control menu: in this menu, you can execute other control operations; the realization of some control operation is based on this function of the server.

### 9.3.5 Maintenance menu

It can realize remote updating of BMC firmware. We recommend the user not to refresh it by himself. If it really needs to be refreshed, the refresh file must have been approved by us.

### 9.3.6 Group Control menu

This function menu can realize the management of several hosts which support BMC.

### 9.3.7 Languages menu

It is used to select languages of web interface, which only supports English currently.

## Chapter Ten Server Installation Guide

- The Guide will help you to understand how to install Inspur 2U server in Inspur server cabinet or compatible standard industrial cabinet.
- After installing the server in the cabinet according to the Guide, please refer to other accompany material to acquire more application directions.
- Please uncover the film on the cover plate of the server, and then power up to use it.
- Pictures in the Guide just for reference, please give priority to real products.

### 10.1 Cabinet Preparation

Angle rail adjustment: in order to guarantee the 2U server can be installed in the cabinet normally, the clearance between the front and rear part of the angle rail should be adjusted to be at least larger than 740mm.

Leveling cabinet: the cabinet must be installed in a stable place. Adjust the four support feet at the bottom of the adjustment cabinet to make the cabinet stable on the ground. Meanwhile, dismount the cabinet door for convenience of guide rail installation.

Cabinet grounding: to avoid electric shock, a grounding device must be installed in the cabinet. If the server power line is installed in the power socket, which constitutes a portion of the cabinet, grounding should be properly provided for the cabinet. If the server power line is inserted into the power socket in the wall, the grounding device in the power socket just provides grounding for the server, and then proper grounding protection for cabinet and other internal devices should be provided. We recommend you to use the cabinet specially designed by Inspur for the server. If so, the internal of the cabinet should be already grounded. Please don't change the ground joint in the cabinet unless it is of absolute necessity.

Temperature: if installed in the cabinet, the operation and working temperature of the server can't be lower than 5°C and higher than 35°C .

Ventilation: the cabinet used by server cluster must provide enough wind current for the front of the server to ventilate, and must ensure 4100Btu heat discharge per hour. The cabinet selected by the cluster and ventilation condition must correspond

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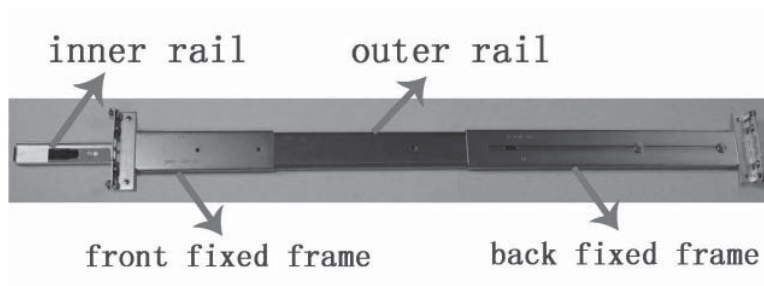
with requirements of the server.

### 10.2 Components Needed in Server Installation

Accompanying guide rail suit of 2U server includes the following objects:

1. Guide rail 1 set (one for left and one for right rail)
2. Fixing screw 1 wrap

The rail consists of inner rail, outer rail and fixed frame, just as shown in (picture 1).



Picture 1

### 10.3 Installation of Inner Rail

Please install the inner rail to the cabinet according to the following description.

1. Firstly, take out the inner rail from the guide rail: hold the front fixed frame of the whole guide rail and pull outward the inner rail, just as shown in (picture 2).



Picture 2

2. When the inner rail can't be pulled any more, stir the bayonet lock shown in (picture 3) along the direction of arrow, and then pull outward the inner rail completely with even strength.



Picture 3

3. Fix the inner rail on the four screws on the cabinet, the fix position shown in (picture 4).



Picture 4

4. Make the smooth side of the inner rail confront the side of cabinet, get the holes on the inner rail and screws on cabinet corresponding with each other well, let the inner rail cling to the cabinet closely, then push the inner rail in the direction (rear of the machine) of red arrows shown in (picture 5), and clamp tightly the inner rail with double-screw bolts.

▲ Special notice: when push the inner rail in the direction of red arrows, if the inner rail can't be clamped into the double-screw bolt, slightly loose the four screws and then push the inner rail again. After the inner rail is clamped tightly, screw down.



Picture 5

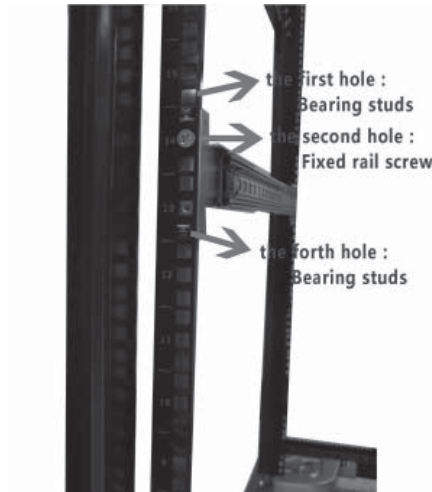
5. Repeat step 1~4, install the other inner rail in the corresponding position at the other side of the cabinet.

#### 10.4 Install Guide Rail into Cabinet

1. Make sure the installation location of the guide rail on the cabinet; firstly, let the bearing stubs of the front frame pass through the fixed hole of the cabinet's angle rail (picture 6). Based on the depth of the cabinet, properly adjust the back frame and fix the bearing stubs of the back frame to the angle rail at the back of the cabinet. (Notice:

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the front and back frame must be guaranteed at the same level.)



Picture 6

2. Find out the screw accompanied with guide rail (**picture 7**); fix well the second hole (**picture 6**) on the front and back frame corresponding to angle rail.



Picture 7

3. Repeat the above operation; install the other guide rail to the cabinet.

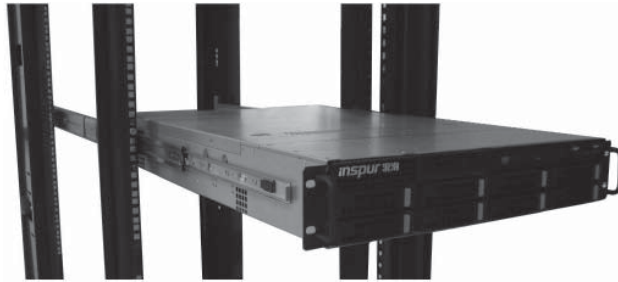
### 10.5 Install the Server to Cabinet

1. Raise the server and carry it close to the cabinet, and align the back of the server with the front of the cabinet.

## Chapter Ten Server Installation Guide

2. Clamp the inner rail at both sides of the server into the outer rail groove of the cabinet (the sliding bead of the outer rail must be moved to the front end of the outer rail).

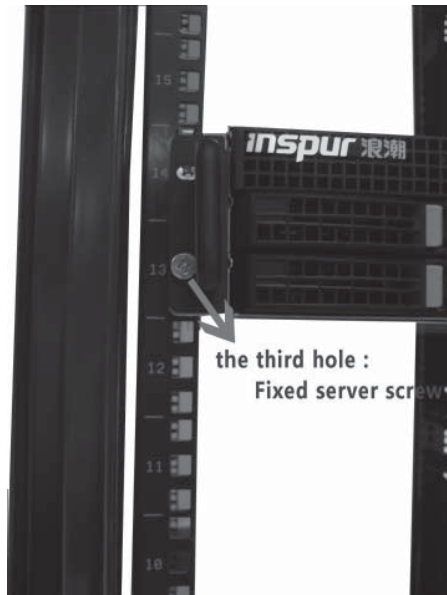
3. Refer to **(picture 8)**, keep the server horizontal and push it steadily into the cabinet. If it is blocked during the pushing, pull forward the bayonet lock at the front of the inner rail, and at the same time push it into the cabinet.



Picture 8

4. Use fixed screw (picture 7) to fix the server to the cabinet through the third hole (picture 9) in the front of guide rail corresponding to angle rail.

▲ Special notice: if the third hole screw is accompanied with the cabinet front panel, you may use the accompanying screw to fix the server to the cabinet in this operation.



Picture 9