

Dear User of Inspur Tiansuo Server:

Heartfelt thanks to you for using Inspur TS Server.

This manual introduces technical features, system setup and installation, which facilitate you to fully understand and expediently use this server.

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

This manual is the property of Inspur.

This User Manual is not to be copied by any group or person in any manner without the consent of Inspur. Inspur reserves the right of revising this manual at any time.

Any alteration about the content of this manual will not be informed.

Please contact Inspur if you have any questions or advice about this manual.

Inspur
August, 2014

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Other trademarks respectively belong to their corresponding registered corporations.

Statements

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 indicate that you can alter.

2. If there are any hardware problems when you use this server, or you wish to upgrade the hardware, please feedback the detailed hardware configuration of your machine 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 Heat Sink and Fan are in given standard. Please don't mix them with the corresponding components of any other machines.

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 shall contact us in favor of communication so as to solve your problem together. We sincerely hope you can do this especially when you confront with the installation and running problem of database, network management software or other networking products.

5. Please firstly read the attached Brief User Guide when you install this server. Please contact our Customer Service Center if you have any questions about the application.

6. We must call your attention: please do necessary data backup in your application process.

7. This is a Grade A product, and may induce radio interference in the living environment, in which case the user may be required to take adequate measures.

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

9. In the above statement, "us" indicates the Inspur; Inspur reserves the right of final explanation about the above statement.

Regarding the Manual

- **Safety Information**

This chapter introduces the safety information regarding server usage.

- **Brief Introduction**

This chapter introduces module assembly, technical features, appearance and I/O interface specifications, etc, of the whole server.

- **System setup**

This chapter introduces the settings of BIOS.

- **Install OS**

This chapter introduces how to install the mainstream OS on this server.

- **Instructions on integrated management functions**

This chapter introduces how to use the management functions integrated by the management card.

- **OLED usage introduction**

This chapter introduces the functions and usage of OLED.

- **Common problems and troubleshooting**

This chapter introduces some measures for common problems.

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

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Chapter 1 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 dismantle the cover of the host or to dismantle 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, dismantle 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

Chapter 1 Safety Information

shock 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 interference.

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 are 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.

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- Never connect or use modulator-demodulator in moist environment.
- Never insert the modulator-demodulator or telephone cables to the socket of network 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:

- 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.

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Inspur TS860 is an 8U large-scale rack server, which can support 8*Intel Xeon E7-88XX V2/V3 processors, compatible with E7-48XX V2/V3 processors (only single 4-socket and dual partition configuration support); It supports 192*DDR3/DDR4 RDIMMS in maximum and 6TB system memory. If adopting 64GB LRDIMM, it can support 12TB. TS860 possesses the characteristics of high-performance, high reliability and easy expansion and management, meeting the demands of high-end industry's core business applications.

Warning!



≥ 18 kg



≥ 32 kg



≥ 55 kg

Due to the large packed weight, the professional forklift machine should be used in moving the shipping container. If you move manually, there should be at least 4 people operating simultaneously. Ignoring the warning may result in serious personal injury.

Notes:

- If you want to put the server into the cabinet through guide rail or the tray, you must first install the host chassis into the cabinet for safe operation because of the heavy product, and then put the computing module into the host chassis.
- At least 3 people are needed during the server installation operation.
- There is detailed operation instruction about the disassembly and assembly of modules and components on the side of host chassis cover for the reference of maintenance or expansion.

- To ensure the system's cooling effect, please uncover the film on the cover plate of the server and then power up the server to use.

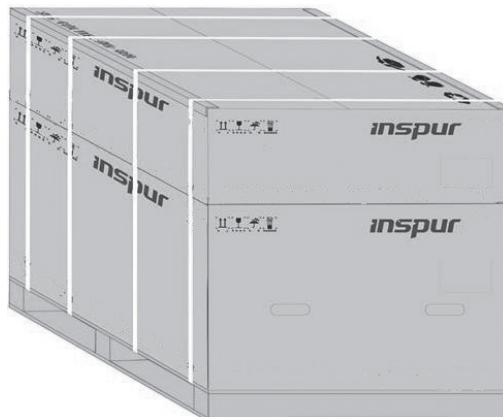
System module installation

The host chassis and computing modules of your TS860 server system are packed separately to ensure the transportation safety. Host chassis and computing modules boxes are stacked on the wooden pallet, and bound with packing tape and stretch film, showing as follows.

After the arrival of the goods, please remove the winding stretch film, packing tape, angle bead, and then take down the boxes with computing modules from the host packaging box.

Notes:

1. Please firstly install the separately-packaged computing modules into the host chassis before official usage.
2. Before unpacking the product, it is necessary to confirm the correspondence between host chassis box and computing module box according to the labels on the packaging box. Install the host chassis and computing module with the same serial numbers and do not mixed; otherwise the system will not function properly.
3. During the installation and dismantlement of machine modules, you should wear the attached anti-static gloves to protect components from electrostatic damage; the anti-static gloves are placed in the general accessories box in the host chassis box.



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Unpack host

1. Split the tape seal on the box with paper cutter and take out host panel, power cord and accessory box on the pad in the box for later use, and then remove the pad from the box.

2. Take out the rails on the side of the host from the box.

3. Take out the host packaging plastic bag and place the host on the working table.

Note: If you plan to install the server in the cabinet, you can use the attached guide rail to realize the installation after carrying out the host.

Unpack computing modules

TS860 server system includes two computing modules which are packaged using separate pad. Then 2 processing modules are packaged by carton as whole.

1. Split the tape seal on the box with paper cutter and take out the pad on the 2 separately-packaged computing modules.

2. Take out the computing module from the box and then take out the anti-static bags, and the serial number of each computing module can be identified by the label on the left side of modules.

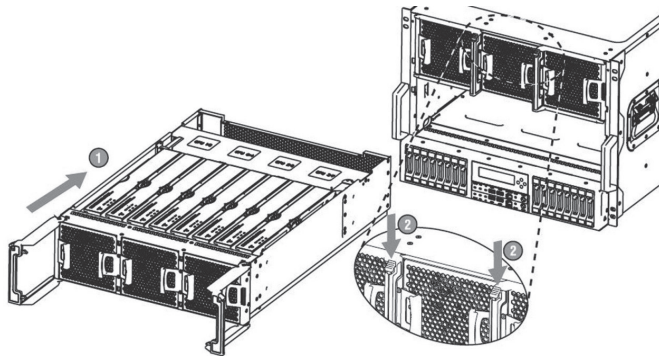
Install computing module

Note: Each server is configured with two computing modules. Please install them into the upper computing module slot and lower slot respectively according to the label instruction on the computing module box. The computing module-2 should be installed into the upper computing module slot, and the computing module-1 should be installed into the lower computing module slot.

1. Lift the module to insert its back horizontally into the module slot of chassis, and evenly force it back into the chassis and pull the handle to the straight position at the same time.

2. After pushing the computing module into the bottom of the chassis, turn over the handle on both sides of the module to let the hook fully locked.

3. Finally, install the front panel to the chassis.



Technical Specifications

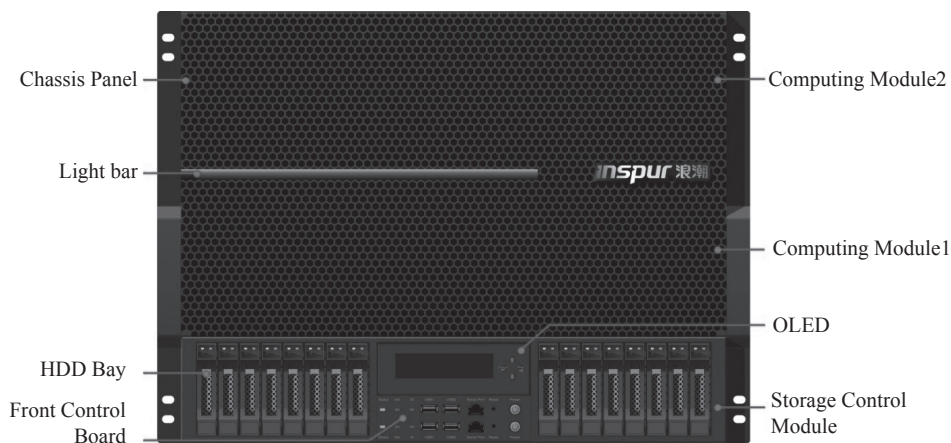
Processor	
Processor type	1. Intel Xeon E7-88XX V2 series processor, compatible with E7-48XX V2 series processor (only single 4-socket and dual partition support) 2. Intel Xeon E7-88XX V3/V4 series processor, compatible with E7-48XX V3/V4 series processor (only single 4-socket and dual partition support) Note: V3/V4 series CPU can only be used with DDR4 memory.
Interface	LGA2011
Chipset	
Chipset type	Intel C602J
Memory	
Memory type	1. DDR3 ECC Registered memory 2. DDR4 ECC Registered memory Note: DDR4 memory can only be used with V3/V4 series CPU.
Memory slot Qty.	Support to extend 16 memory boards, each supporting 12 memory slots
Total memory capacity	Support Max.6TB ECC DDR3/ ECC DDR4 memory(RDIMM) If using 64GB LRDIMM, it can support max.12TB.
I/O Port (1*I/O Riser)	
USB port	2*rear USB port 4*front USB port (only two available when it is non-dual partition mode and single IO Riser is used)
Serial port	1*front RJ45
Network port	4*RJ45
Management port	1*special RJ45

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Display port	1*rear VGA
Display controller	
Controller type	Integrated AST2300
Video memory	16MB
HDD controller	
SATA controller	(1) IO Riser, integrated 2*M-SATA
RAID	External SAS RAID card, support RAID0/1/5/6
NIC	
NIC controller 0/1/2/3	(1*I/O Riser) integrated Intel I350 4-port Gigabit network adapter
PCI expansion slot	
PCI bus type	PCI-Express bus, support FH/HH expansion card
PCI-E slot	Support max.26*PCI-Express 3.0 slots: Each basic IO module can support 2*PCIE slots: 1*PCIE x8, 1*PCIE x16; Each expansion IO module can support 10*PCIE slots: 5*PCIEx8, 5*PCIE x16; The 5*PCIE x16 slots of extended IO module only have the performance of x8; Storage control module supports 2*PCIE x8 slots (only HH expansion card supported); RAID card can only be installed in the PCIE slots of the storage control module; GPU can only be installed in the PCIE x16 slot of the basic IO module.
HDD	
HDD type	2.5-inch SAS/SATA/SSD HDD
Quantity	Support max.16*2.5-inch HDD Each IO Riser card can support 2*M-SATA HDD
External memory driver	
CD-ROM	USB CD-ROM (optional)
Inspur USB drive	Inspur USB drive (optional)
Power supply	
Specification	Support 8*800W redundant power supply module, support N+N/N+M redundancy(N Min.3)

Power input	Please refer to the specification in the host nameplate label.
Physical specifications	
External dimension of packing case	Host machine: 1168mm × 722mm × 587mm (depth x width x height) Module: 1168mm × 721mm × 279mm (depth x width x height)
Overall dimension	W(width): 444mm; H(height): 352mm; D(depth): 830mm
Weight	Host machine (package) gross weight: 71.5Kg Module (package) gross weight: 58Kg
Environmental parameters	
Operating temperature	5°C -40°C
Storage and shipping temperature	-40°C -55°C
Operating humidity	35%-80% relative humidity
Storage and shipping humidity	20%-93%(40°C) relative humidity

Front view



Chapter 2 Brief Introduction

Name	Description
Chassis panel	Installed in front of the computing module for dustproof
Indicator light	To indicate the start process through the change of light length when starting the system; To indicate the system pressure through the change of light color in the process of system operation. Please refer to Indicator Light Description.
HDD bay	16*2.5-inch hot-plug HDDs can be installed with the sequence from left to right. In dual partition mode: hard drives ID0 ~ ID7 serve computing module 2 (upper nodes) and ID8 ~ ID15 serve computing module 1 (lower node)
Front control panel	Power ON/OFF operation and the relevant status indicator display; The machine integrates the top and bottom front control switches and indicators serving computing module 2 and computing module 1 correspondingly; Only the front control panel serving computing module 1 is available in 8-socket mode.
Computing module 1/2	For installation of processor, memory and system fans; In dual partition mode: computing module 1 is the lower node and computing module 2 is the upper node; computing module 1 should be installed on the upper position when it is single 4-socket mode.
OLED screen	To realize the localized visual monitoring and management of the system
Storage control module	For the installation of the HDD, HDD backplane, RAID card, OLED screen and 2 cooling fans.

Indicator Light Description (take single 8-socket as an example)

Starting up process display stage

Green indicator on the left flashes	Server power-on, BMC has not started.
Blue indicator on the left flashes	BMC starts and the beam pulse is displayed in accordance with the BIOS initialization process sent by BMC.
Yellow indicator on the left flashes	BMC failed to start within 10 minutes
<p>Notes:</p> <ol style="list-style-type: none"> 1. If BMC does not sent the BIOS initialization process to the indicator light within 10 minutes, then the indicator light skips starting process and directly to the power dissipation display stage. 2. Once the BMC starts, it will send the BIOS initialization process to the indicator light: <ol style="list-style-type: none"> a. If the BIOS initialization process has completed, the indicator light will quickly finish the starting process bar to jump to power dissipation display stage b. If not, BMC will send the real-time process to indicator light, and indicator light displays the real-time pulse until the initialization completes and jumps to power dissipation display stage. <p>Note: After BMC upgrades FM, the indicator light will return to “Blue indicator on the left flashes” status, and wait for 10 minutes, enter the system power dissipation display.</p>	

Power dissipation display stage

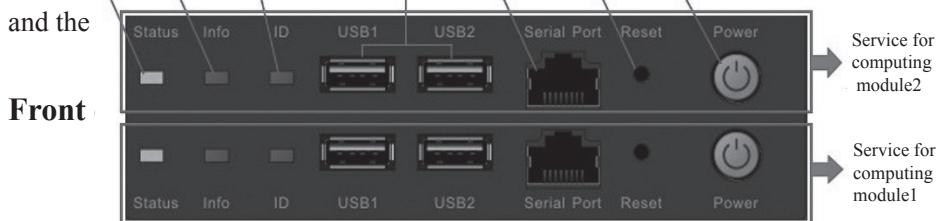
Green	CPU utilization is lower than 20% CPU temperature is lower than 50°C
Blue	CPU utilization is between 20%~60% CPU temperature is between 50°C ~65°C
Yellow	CPU utilization is between 60%~100% CPU temperature is higher than 65°C

Chapter 2 Brief Introduction

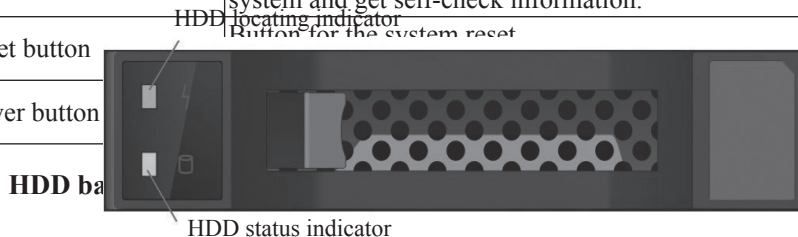
Note: The light color is modified according to the latest BMC detection data:

1. According to CPU utilization: if operating system has a running agent, then it can obtain the CPU utilization.
2. According to CPU temperature: indicator lights display according to CPU temperature if it cannot obtain the CPU utilization.

Dual 4-socket mode: indicator lights are divided into two parts, the left part corresponds to the lower 4-socket and the right part corresponds to the upper 4-socket. The process and the

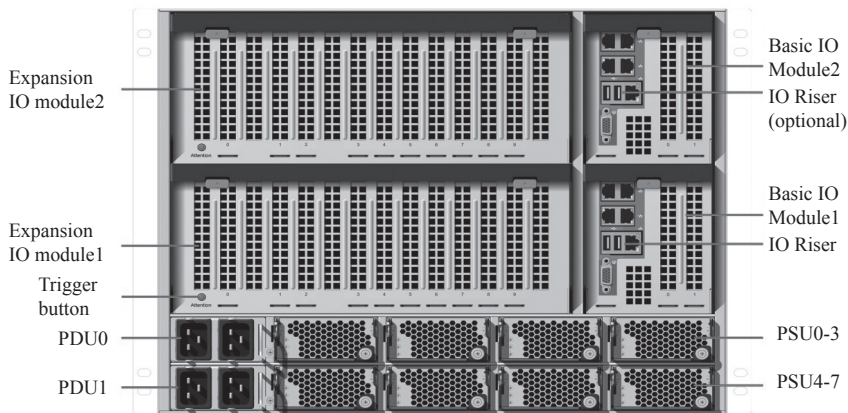


Name	Description
Status indicator	Green indicator on: normal running of the system after startup Indicator off: the system is not powered up normally
Information indicator	Red indicator on: system failure
ID indicator	The indicator is on when confirming the system ID. It needs the management software to realize this function.
Front USB ports 1,2	Connect USB devices
Serial ports	Connected to the client side through cable, it can monitor the system and get self-check information.
Reset button	Button for the system reset
Power button	g up.



Name	Function and description
HDD locating indicator	If a HDD is installed, the indicator flashes in blue when the HDD is being located.
HDD status indicator	Green indicator on: no read or write activity Green indicator flash: read or write activity is going on Red indicator on: HDD failure Red indicator flash: the HDD is being rebuilt

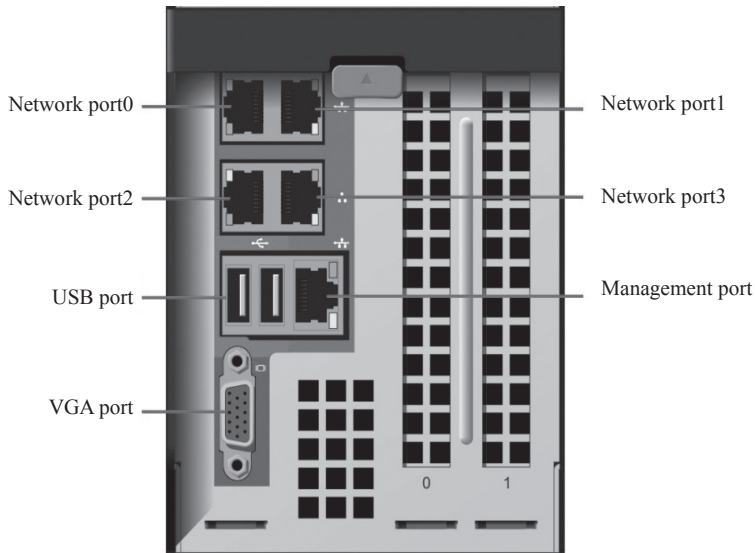
Rear view



Name	Function and description
Expansion IO module	Used for installing expansion card, default configuration is one module; Each expansion IO module supports 10 PCIe slots.
Basic IO module	Used for installing IO Riser card and other cards, default configuration is one module, two modules are needed in dual partition mode. Each basic IO module supports 2 PCIe slots.
IO Riser	Integrated network card, VGA, USB, BMC management interface; support BMC management card and MSATA.
IO Riser (optional)	When the system is dual partition, this configuration is needed to serve computing module 2.
Trigger button	Reserved function button. Once function realized, press the button, indicator light will put out a few seconds later. Expansion IO module can be pulled out in the system power-on state.
PDU0	PSU 0~3 power distribution board; Each power input interface supports 2 PSUs.
PDU1	PSU 4~7 power distribution board; Each power input interface supports 2 PSUs
PSU0-3	Power supply unit 0~3
PSU4-7	Power supply unit 4~7

Chapter 2 Brief Introduction

IO Riser port



Name	Function and description
Network port 0/1/2/3	Each IO Riser integrates 4 Gigabit network ports.
USB port 1/2	Connect USB devices.
VGA port	Connect display equipment with standard VGA port.
Management port	Independent RJ45 Gigabit management interface The system monitoring and management can be realized by the integrated BMC.

Note: the amount of I/O interface in the above table is under the condition of configuring one IO Riser.

Start the server

1. First correctly connect the monitor, keyboard and mouse. Then connect all PDUs configured with this server to the effective power strip or outlet by using the attached power cable.
2. Press the switch button on the front panel of the server, the fan will run and system start to power up and self-test.
3. The server will boot from the first device set in BIOS starting-up management.

If the device is unavailable, it will continue to boot the rest corresponding device.

Note:

- ✧ According to the configured memory capacity, it will take 4 minutes or longer for the display connected to the server to have display.

Close the server

1. Closing down the server can be achieved through the operation under the operating system.

2. Closing down the server can be achieved through manually pressing the switch button on the front panel.

Note: after the above two ways, although the server stops running, some voltage is still in a usable state, and the system can be started through remote management; to achieve complete shut down, you need to disconnect the system's AC power (unplugging the power line or turning off power strip)

Chapter 3 System Setup

This chapter introduces how to configure BIOS. All operations described in this section are only limited to operators or administrators with system maintenance qualification.

3.1 System BIOS setup

BIOS is a basic input and output system. The system parameters and hardware parameters can be adjusted through special setup procedure. BIOS has a great impact on the system booting and running, setting parameters improperly may cause conflicts among hardware resources, or degrade the system running performance. Hence understanding the BIOS setup is significant to the configuration of your server. If no especial requirement, you are suggested to use the default value and not alter the parameters arbitrarily.

Note:

- 1. Before changing the BIOS setup, please record the corresponding original setup. Hence when there are operating problems in the system due to the option altered, the setup can revert.**
- 2. Ordinarily the factory default settings are the optimal settings. Don't try to alter the parameters before you understand their denotations.**
- 3. The common settings are introduced in detail in this chapter. The less referred options during using are simply explained or not.**
- 4. The BIOS content varies according to different configurations of the products; hence the detailed introduction is elided.**

How to Enter the BIOS Setup

Power on and start the server, when the Inspur logo appears, “Press Esc for Boot menu” shows at the bottom of the screen, then press **【ESC】** button, and system enters into BIOS setup screen.

If it fails to enter into the setup screen, please reset the system by pressing **【Ctrl】**-**【Alt】** - **【Del】** at the same time and then repeat the above operation.

Based on the above described operation, you can enter BIOS main interface, which mainly includes the options as shown below.

In this interface, the information of CPU type, memory capacity and BIOS version can be viewed as well.



Option	Description
Continue	Overleap BIOS setup, continue the system boot operation
Boot Manager	System boot management menu, users can select the device from which the system boots.
Setup Utility	Enter BIOS setup interface

1. Continue

Select this option and press [enter] button, you will overleap BIOS setup, continue the system boot operation.

2. Boot Manager

Select this option and press [enter] button, the following boot option menu list will be displayed. Once an option in the list is selected, the system will boot from the corresponding device of the option.

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The list as shown by the figure is formed by BIOS automatic detection during the startup process. The boot options' constitution is in relation to the detailed configuration.

In some cases, a device can correspond with multiple different options. “EFI Internal Shell” represents the EFI Shell existed in the BIOS ROM.

Authenticated operating systems which can apply EFI mode include Windows Server 2008 R2, SUSE 11 SP1, Redhat 6.0 and above version.

3. Setup Utility

Select this option and press [enter] button, enter BIOS setup interface.

Entering BIOS setup interface, most system information check and option settings, including CPU, QPI, PCIE, memory, chipset, etc. can be achieved.

BIOS system menu introduction

BIOS setup programs of this product mainly consist of the following function menu:

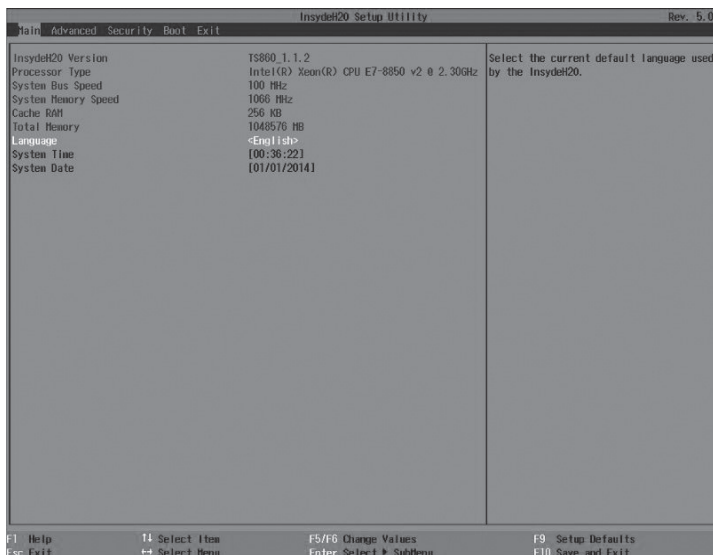
Name	Function
Main	Set basic system time, system date, display BIOS version, CPU type, system memory capacity, etc.
Advanced	Set up CPU, advanced features as integrated SATA controller
Security	Set administrator password
Boot	Set the boot sequence of system devices
Exit	Save BIOS setup, exit BIOS setup.

Some items are unable to be set in BIOS, such as some system automatically detected and configured information. Options with symbol “ ► ” have a sub-menu.

Operational key description:

Key	Description
↑	Select the last option
↓	Select the next option
←	Select the left menu
→	Select the right menu
Esc	Return to the previous menu or the main menu
+ /F6	Alter the option value. Alter the current value to the last one. This key only displays the option value of the relevant option, not all the options.
- /F5	Alter the option value. Alter the current value to the next one. This key only displays the option value of the relevant option, not all the options.
F1	Help key, display related instructions of the current menu
F9	Restore to system optimum default settings
F10	Save CMOS settings and exit
Enter	Execute the current command or enter a submenu

Main menu



Chapter 3 System Setup

Enter BIOS setup utility, firstly the Main menu is displayed, from which you can see BIOS version, CPU type, system memory capacity, etc. You can also set BIOS interface language, system time, system date.

When setting system time and date, select the options with arrow key, then press **【Enter】** to select the subfield, afterwards, set the field value with +/- key.

- InsydeH20 Version

Display system BIOS version

- Processor Type

Display CPU type

- System Memory Speed

Display working frequency of the current memory

- Total Memory

Display system total memory capacity

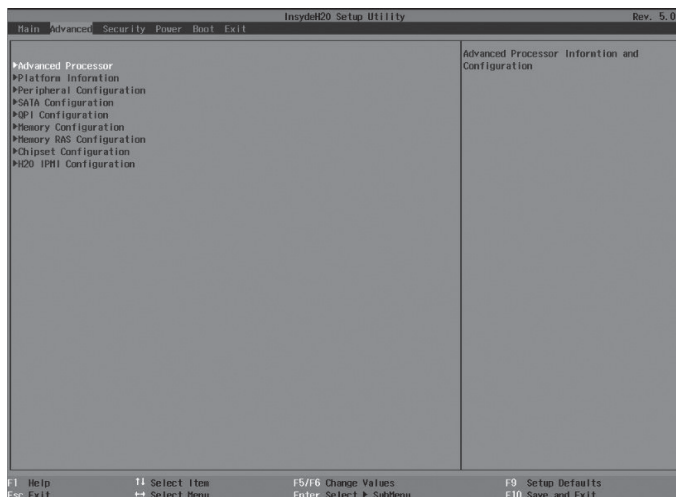
- System Time

Set system time, in format of [hour /minutes /seconds]. The modified time takes effect immediately after modification; there is no need for extra save.

- System Date

Set system date, in format of [month /day /year]. The modified date takes effect immediately after modification; there is no need for extra save.

Advanced menu



This menu is mainly for the setting of advanced menu, improper settings may cause system works abnormally, factory settings are recommended.

The following is the introduction of main submenus.

- Advanced Processor

- * CPU Package Detected

Display CPU quantity.

- * Socket 0/1/2/3/4/5/6/7 CPU Information

Display the current CPU details, including CPU type, basic frequency, CPU cores, thermal design power, etc.

- * CPU Power Management Controls

This option can manage CPU power dissipation.

BIOS Setting	Options	Description
EIST Support	Enabled/ Disabled	Enable or disable the processor EIST technology. If enabled, it can automatically adjust the voltage and frequency of the processor according to different workload, in order to reduce power consumption and heat output. The default is Enabled.
Energy Policy	Performance/ Balanced Performance/ Balanced Energy/Energy Efficient	Choose energy policy. After selecting the option, selection window will pop up by pressing the [enter] key. When disabling EIST Support, this option is not visible. The default is Balanced Performance.
Dynamic Switching	Enabled/ Disabled	Enable or disable dynamic switching characteristics of power consumption performance adjustment, the default is Enabled.
Turbo Mode	Enabled/ Disabled	Enable or disable processor turbo mode. If enabled, it intelligently closes some cores of no use through the analysis of the current CPU load, leaving the energy to the core in use, and making them run at a higher frequency, to further improve performance. In contrary, when multiple cores are needed, relevant cores are opened dynamically, and frequency is adjusted dynamically. The default is Enabled.
T-States	Enabled/ Disabled	Enable or disable Processor Throttling State. If enabled, system power dissipation and temperature are adjusted through the adjustment of per unit time CPU Clock On/(Clock On + Clock Off) ratio. The default is Disabled
C-States	Enabled/ Disabled	Enable or disable C-State energy saving state. If enabled, processor enters C-State energy saving mode; if disabled, processor works at C0 mode, which is normal operation at full speed. The default is Enabled.

Chapter 3 System Setup

* Active Processor Cores

Set the number of cores used by each CPU. Default is [All]. This option works for all CPUs in the system (number of CPU cores are associated with specific models).

* Intel HT Technology

Enable or disable Intel hyper-threading technology (only works for CPUs with hyper-threading function). This option works for all CPUs in the system. Default is Enabled.

● Platform Information

Display ME version, working status and other information.

● SATA Configuration

Check SATA status on each SATA ports and set SATA controller mode.

* SATA Controller

Enable or disable integrated SATA controller. Default is [Enabled].

* HDC Configure As

Set integrated SATA controller mode, including [IDE], [AHCI] (default) and [RAID].

Use integrated SATA controller. If you would have a serial device used as parallel IDE a storage device, please set this option to [IDE].

Use integrated SATA controller, if no RAID, and connect to 1-2 SATA, please set this option to [AHCI].

Use integrated SATA controller, if to make SATA Host RAID, please set this option to [RAID].

* Serial ATA Port 0/1

Display SATA status connected to SATA ports.

● QPI Configuration

* QPI General Configuration

Check QPI status and configure the general options.

BIOS Setting	Options	Description
Link Speed Mode	Fast/Slow	Select QPI link speed, default is Fast.
Link Frequency Select	6.4GB/s, 7.2GB/s, 8.0GB/s, Auto, Use Per Link Setting	Select link frequency, default is Auto.
Legacy VGA Socket	0/1/2/3/4/5/6/7	The value determines to enable which display card on PCIe slots drawn from Socket.

* QPI Per Socket Configuration

To set QPI of each processor, including assign proportion of CPU bus resources, IO resources and MMIO resources.

● Memory Configuration

To set the related parameters of memory

BIOS Setting	Options	Description
DDR Speed	Auto/1067/1333/1600	Set memory working frequency (MHz). When it is “Auto”, the memory will work at the highest frequency supported by CPU and installed memory. Default is Auto.
Rank Margin Tool	Enable/Disable	Enable or disable Rank Margin Tool, if enabled, it can test the memory Margin; default is Disable.
RMT Loop count	1~31	Set RMT loop count
Data Scrambling	Enable/Disable	Enable or disable memory data scrambling, default is Enable.
VMSE RMT	Enable/Disable	Enable or disable VMSE RMT, default is Disable.
VMSE RMT CPGC Pattern Length	0~30	Set VMSE RMT cycles.
Memory Topology	No Options	Display topology of installed memory, including memory installation location, frequency, manufacturers, capacity and other information. If it cannot be showed in one page completely, you can flip over through Page down or Page up to view it.

● Memory RAS Configuration

To set memory RAS features

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BIOS Setting	Options	Description
Memory Rank Sparing	Disable/ Enable	Enable or disable memory Rank Sparing function. This function is backup a Rank, if there occurs a Rank with many ECC errors on a memory board, then the system will enable the backup Rank, and the one with errors will never be used. Default is [Disable].
Spare Error Threshold	1~32767	Error threshold that can trigger memory Rank Sparing function
Patrol Scrub	Disable/ Enable	With the function being enabled, CPU will read and verify all memory installed in the system in a certain period (24 hours). It will correct the ECC error initiatively. The advantage over the common ECC function is that ECC can only find error when reading the memory. This function can find and correct the ECC error in the memory without reading the memory content; default is [Disable].
Demand Scrub	Disable/ Enable	Once this function is enabled, when CPU reads certain memory and finds Ecc error, it will correct it. Default is [Enable].
Device Tagging	Disable/ Enable	Once this function is enabled, within a single rank in DIMM if a particle fails, the particle used for error correction function will replace it, and then the rank loses Device tagging function, and error correction capability declines. Default is [Disable].
VMSE Lockstep mode	1:1 Mode/2:1 Mode	1:1 Sub-Channel Lockstep Operation 2:1 Independent Channel Operation
Memory Mirroring	Disable/ Enable	Enable or disable Memory Mirroring function, default is [Disable].

- Chipset Configuration

To set up system status after abnormal power off and power up again, including the following options:

[Power On]: Power on

[Power Off] (default): power off, need to be manually switched on.

[Last State]: State before power off

- H2O IPMI Configuration

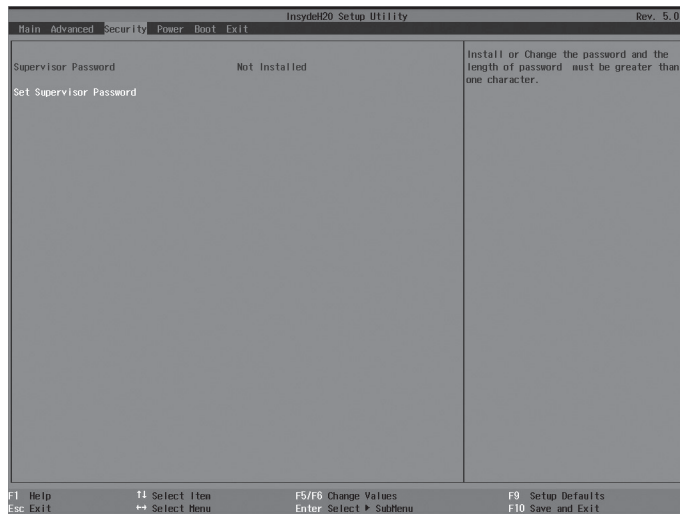
Check BMC state, Firmware version, BMC MAC address, IP and other

information and configure BMC.

- * IPMI Support

Enable and disable support for IPMI.

Security menu



- Supervisor Password

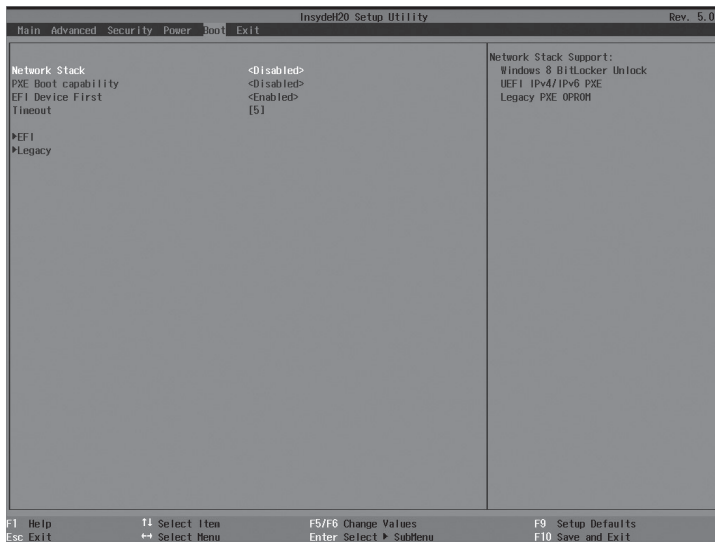
Display whether system administrator password has been set, this option is unable to be set.

- Set Supervisor Password

Set administrator password. If set, when entering BIOS Setup utility, you must enter the administrator password, or some administrator privileges will be limited.

Chapter 3 System Setup

Boot menu



The menu is mainly for the setting of system startup process and system boot priority.

- Network Stack

Open or close support for network protocol stack, [Enabled] setting can support PXE.

- PXE Boot Capability

Select whether to use integrated network card PXE to boot, available only after enabling Network Stack. When using PXE function to install the operating system, set this to [Legacy].

- EFI Device First

Set the preferred bootable device during boot. When the setting is [Enabled], EFI bootable device is preferred; when the setting is [Disabled], Legacy device is preferred.

- Timeout

Set the waiting time before default boot, the default is [5].

- EFI

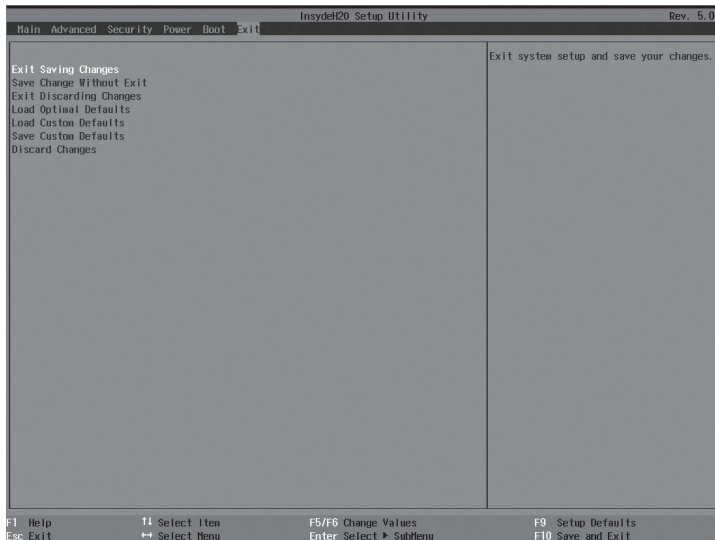
Select this option and press [Enter] to enter submenu, you can set EFI device boot priority.

- Legacy

Select this option and press [Enter] to enter submenu, you can set legacy device boot priority.

Select one device in the boot device list, and adjust the device boot sequence through [F5] or [F6] key.

Exit menu



Options in this menu can save or give up BIOS modified settings and exit setup procedure.

- Exit Saving Changes

Select this option and press [enter] key, in the pop-up prompt, select [Yes], it will save modifications made in BIOS setup and exit the BIOS setup. The menu function can be achieved by using [F10].

- Saving Change Without Exit

Select this option and press [enter] key, in the pop-up prompt, select [Yes], it will save modifications made in BIOS setup, but will not exit the BIOS setup.

- Exit Discarding Changes

Select this option and press [enter] key, in the pop-up prompt, select [Yes], it will give up modifications made in BIOS setup and exit the BIOS setup.

- Load Optimal Defaults

Select this option and press [enter] key, in the pop-up prompt, select [Yes], system

Chapter 3 System Setup

default optimization settings will be loaded; this operation will not exit BIOS setup. The menu function can be achieved by using [F9].

- Load Custom Defaults

Select this option and press [enter] key, in the pop-up prompt, select [Yes], saved user default setting value will be loaded.

- Save Custom Defaults

Select this option and press [enter] key, in the pop-up prompt, select [Yes], the current setting value of all BIOS options will be saved as user default options.

- Discard Changes

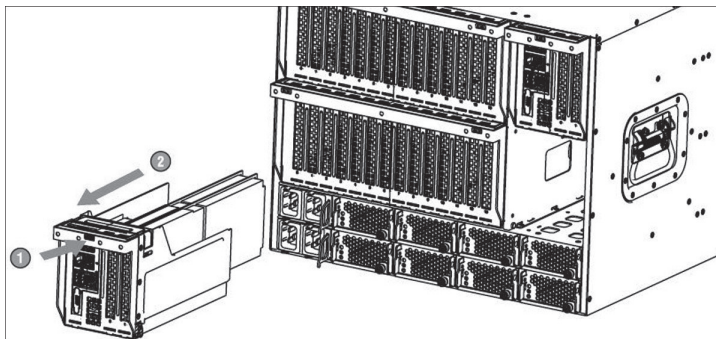
Select this option and press [enter] key, in the pop-up prompt, select [Yes], modifications in the BIOS setting will be given up; this operation will not exit BIOS setup.

3.2 Clear CMOS

Take out the basic IO module

If the following operations are needed, please get the authorization of Inspur. Take out the basic IO module according to the following methods:

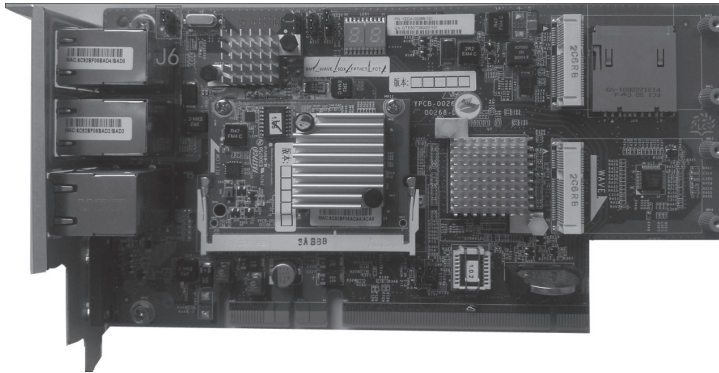
1. Power off the system (turn off the AC power);
2. Press the plastic key of basic IO module handle on the back of the chassis. Open the module handle.
3. Hold the module handle and pull afterwards, take out the module from the chassis.



Clear CMOS

The following figure shows the Clear CMOS jumper position in the IO Riser card,

and the following jumper state is the default setting:



Jumper name	Function description	Jumper function
J6	CMOS jumper	Pin 1-2 short circuit is in normal state (default) Pin 2-3 short circuit is in CMOS cleared state

Note:

1. You must shut down the system and cut off power supply when clearing the CMOS and need to keep for 5 seconds after short circuiting pin 2-3; then re-short circuit pin1 and pin 2 of J17 jumper to restore to the original state.

2. After completing this operation, please install the upper panel.

Chapter 4 Operating System Installation

Manual setup of the operating system is introduced with emphasis in this chapter, including Windows Server 2012 and Red Hat Enterprise Linux 6.4 [x64system].

During manual setup of the operating system, some operating systems may need Inspur USB disk to load the HDD controller driver. Please refer to the attached Inspur USB disk instructions for the making method of Inspur U disk driver and notes of driver loading.

Enter the interface of driver making, you can check and make the controller drives that need be loaded during operating system installation under relevant configuration.

The introduction of operating system installation in this chapter takes the server configured with external LSI 9271-8i SAS RAID card as an example. If your server is configured with other external RAID card, please refer to User Manual in the attached CD to add the HDD controller driver. For NIC driver, graphics driver and system patch program, the guidance in the chapter can also be referred to for setup.

It is suggested that you confirm in advance that whether the purchased machine configuration supports the version of the installed operating system.

4.1 Manually Install Windows Server 2012

4.1.1 Preparation before installation

- Windows Server 2012 Installation CD (X86_64bit version)
- Inspur driver CD
- No need of adding controller driver for external LSI 9271-8i SAS RAID card

4.1.2 Installation steps

1. Connect USB drive to the server, power up and start the server, insert Windows Server 2012 installation CD into optical drive, and select to boot from CD.

2. Press any key if the system prompts to confirm boot from CD. If not, the system will start the Windows installation program from CD automatically. In Windows Boot Manager interface, press [enter] to continue.

3. In the language and other preferences settings interface, select and set the language to be installed and other preferences according to actual needs, then click <Next> to continue.

4. In the installation confirmation interface click <Install now > to continue.

5. In the interface of “choose the operating system to install”, choose from the list according to your CD version. If you need a graphical interface, please choose GUI system type.

If it displays interface of inputting product key, then input your product key (25 characters) according to actual needs, and then click <Next> to continue.

If you select the key below “automatically activate windows when online” item, then three days after you first login, automatic activation begins trying to activate your windows; after installing windows, you have a 30-day to activate windows online (or by phone), if you haven’t completed the activation before the 30-day period, the windows will stop running.

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. Select the installation type, and here we default it is the first installation. Select “Custom” mode to continue.

8. The system enters the interface of “Where do you want to install Windows?”,

⊙ If it prompts “no drive is found”, it indicates that the configuration you use needs to load the disk controller drivers through Inspur USB drive, operate as follows:

Using Inspur USB drive to load driver:

① Please make the disk controller driver into the Inspur USB drive [3.5 floppy disk (A :)] partition.

② Please connect Inspur USB drive to the USB port of the server;

③ Select <Load Driver> in the interface, in the pop-up prompts click [Yes] to continue.

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

⑤ The system will install the driver searched automatically and return to main interface.

⊙ If the system automatically completes installing the disk controller drivers, the existing disk partitions and unallocated spaces on this computer will be displayed in the main interface, click [Drive Options] to start the disk partition operation.

9. In the disk partition operation interface, we can perform the following

Chapter 4 Operating System Installation

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 needs. Here we'd explain on the issue when there are no existing partitions in the disk.

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

Note: we suggest the partition should be larger than 160GB.

② If the prompt “To ensure that all Windows functions are in normal use, windows may need to create additional partitions for system files” appears, click [Yes] to continue

This operation will create additional disk partitions (such as recovery, system partition, MSR and other types of partitions).

③ Select the newly created disk partition, and then click <Format>, click <OK> in the prompted confirmation interface.

④ After formatting the partition, click <Next> to continue.

10. The system starts to install Windows, and it will complete operations of “Copying files”, “Expanding files”, “Installing functions”, “Installing updates” and “Completing installation” etc. In this course the system may automatically reboot several times.

Note:

the above Windows Server 2012 OS installation steps may differ because of different versions of CD, please install according to the actual display interface.

11. Set the administrator password according to the prompt and click [Yes] to continue.

Windows Server 2012 has strict requirement for the password, it must contain letters, numbers and special characters when setting a password, otherwise, the settings

cannot be successful.

12. After logging in the system, select “Administration” -> “Server Manager Properties” on the top right of the menu bar in the “Server Manager” screen, in the pop-up properties window, select “Does not start automatically when logging in “ and then click [Yes] and close the server manager interface.

4.1.3 Install Driver

1. Install chipset driver

(1) Insert Inspur driver CD into CD-ROM, click the blue dolphin icon under the installation or operation procedure item in the pop-up autoplay interface after disk running, and input the navigation No. on the driver CD set in the navigation No. verification interface and click <OK> to enter the installation interface automatically;

(2) In “Select OS” column, select Windows 2012;

(3) In “Select Hardware” column, select chipset patch;

(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;

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

2. Install network card driver

After installation of the chipset driver, do not take out the Inspur driver CD, but continue the installation of network card driver.

(1) In the “Select OS” column, select Windows 2012;

(2) In the “Select Hardware” column, select NIC driver;

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

(4) Enter the interface of welcome to use, click <Next> to continue;

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

Chapter 4 Operating System Installation

- (6) Enter the interface of “Setup Options” and click <Next> to continue;
- (7) Enter the interface of “Ready to Install the Program”, and click <Install> to continue;
- (8) The installation program starts to install; when the installation is completed, click <Finish> according to the prompt.

3. Install VGA card driver

After installation of the network card driver, do not take out the Inspur driver CD, but continue the installation of VGA card driver.

(1) Login system, click [Server Manager] on the task bar, in the pop-up interface, select [Tools] -> [Computer Management] on the right top menu;

(2) In computer management interface, select [device manager];

(3) In the Device Manager window, select the [Microsoft basic display adapter] in [Display adapter], click the right mouse button and select [Update Driver Software];

(4) In the “Update Driver Software” window, select “Browse my computer for driver software”;

(5) System prompts: browse driver files on your computer, click [Browse] button behind “search for driver software at the following locations” and select the drive path in the CD: \ driver \ video \ TS \ win2012 (if it is other version of the system, select the appropriate directory), then click [OK]; click [Next] to continue. System begins to automatically install drivers;

(6) It prompts “Windows has successfully updated driver file” and click [Close] to complete the ASPEED Graphics Family (WDDM) driver installation.

Take out Inspur driver CD, and reboot system. Complete the installation of Windows Server 2012.

4.2 Manually Install Red Hat Enterprise Linux 6.4

4.2.1 Preparation before installation

- Red Hat Enterprise Linux 6.4 installation CD (DVD) (X86_64bit version)
- Inspur driver CD
- No need of adding controller driver for external LSI 9271-8i SAS RAID card

4.2.2 Installation steps

1. Connect USB drive to the server. Power up and start the system, put the installation disk into the optical drive (here taking using DVD installation disk as example), enter BIOS setup and select to boot from the CD.

2. System enters the interface of “Welcome to Red Hat Enterprise Linux 6.4!” there are the following options:

- Install or upgrade an existing system

- Install system with basic video driver

- Rescue installed system

- Boot from local driver

Use up and down arrow keys to select the option, here the default is the first installation, select “Install or upgrade an existing system”, press <Enter> to continue the installation.

3. System prompts “Disc Found, To begin testing the media before installation press OK. Choose Skip to skip the media test and start the installation.”

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

4. Enter the interface of “Red Hat Enterprise Linux 6”, click <Next> to continue the installation.

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

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

7. System enters the interface of “What type of devices will your installation involve?”

- Basic Storage Devices

Installs or upgrades to typical type of storage devices. If you’re not sure which option is right for you? This is probably it.

- Specialized Storage Devices

Installs or upgrades to enterprise devices such as Storage Area Networks (SANs). This option will allow you to add Foe/Ischia/Zech disks and to filter out devices the installer should ignore.”

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Here we select “Basic Storage Devices”, and press <Next> to continue the installation.

8. System enters the interface of “Please name this computer. The hostname identifies the computer on a network.”

Please input the Hostname. Here you can select the [Configure Network] at the left bottom of this window to set network configuration, including adding or deleting NIC and configuring network IP address. After network configuration is finished, press <Next> to continue the installation.

9. The installation program enters “Please select the nearest city in your time zone” time zone selection interface, select “Asia/shanghai” and click <Next> to continue the installation.

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

The root account is used for administering the system. Enter a password for the root user.

11. The installation program enters “Which type of installation would you like?” interface; there are the following installation options:

Use All Space

Replace Existing Linux System(s)

Shrink Current System

Use Free Space

Create Custom Layout

This installation takes custom layout as an example, select “Create Custom layout”, click <Next> to continue the installation.

12. The installation program enters install hard disk interface. In the list of “Data Storage Devices (to be mounted only)”, system will display the detected storage devices. Please select the hard disk that needs to install system, add this hard disk to the list of “Install Target Devices”, select one hard disk as “Boot Loader”, and then click <Next> to continue the installation.

13. The installation program enters partition creating interface of “Please Select A Device” (if partition has been created on the hard disk, it will be displayed, and you can delete it if you do not need it).

Double click the Free partition and other existing partitions under hard disk, or

click the <Create> button at the right bottom, system will pop up “Add Partition”

1) Create root partition (/) and boot partition: Select root partition in Mount point: /, select the hard disk that needs to install system in the window of “Allowable Drives”, enter the size of partition in Size (MB) 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): Select “Swap” in File system Type, select the hard disk that needs to install system in the window of “Allowable Drives”, and input the size (MB) of the swap partition in Size (MB) (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), and then click <OK> to finish the creating of swap partition.

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

14. System prompts that “Writing storage configuration to disk”.

The partitioning options you have selected will now be written to disk. Any data on deleted or reformatted partitions will be lost.

Select “Write changes to disk” to continue the installation, and system starts to format hard disk partitions.

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

16. System prompts “The default installation of Red Hat Enterprise Linux is a basic server install. You can optionally select a different set of software now”.

Please select the type that needs to install and software package that needs to be customized according to actual demand. Here select “Customize now” and click <Next> to continue the installation.

17. The installation program enters program package selection interface. please select the software package to install according to actual demand, confirm it and click <Next> to continue the installation.

Here we select Desktop and X Windows System in Desktops and Development tools package in Development.

18. The system start to create files system and copy files.

19. The system enters “Congratulations, your Red Hat Enterprise Linux installation is complete” interface which means the system installation is finished, click <Reboot> and take out the installation CD and driver floppy. The system will restart

Chapter 4 Operating System Installation

automatically.

20. After the system restarts, it will enter the “Welcome” interface, so click <Forward> to continue.

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

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

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

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

25. The installation program enters Kdump interface. Set according to the actual demand and click <Forward> to continue the installation.

26. Input Username and Password to log in system.

4.2.3 Install VGA card driver

After the installation of OS, You can manually load VGA card driver using the attached driver CD.

1. Insert Inspur driver CD into the optical drive, click Terminal menu in Applications → System Tools, and input in the window:

```
#mount /dev/cdrom /mnt
#cd /mnt
#cd driver/video/linux/video
#cp xorg782-0.99-10.x86_64.rpm /tmp
#cd /tmp
#rpm -ivh xorg782-0.99-10.x86_64.rpm --force
```

2. Restart system, and take out the driver CD.

Chapter 5 Integrated Management Functions

Introduction

This product integrates remote management card, you can remote login the server through remote management card. Following gives an introduction of integrated remote management card.

5.1 Remote login

1. Remote client server system requirements

The requirements for client server system connected to GUI interface through Web browser are as follows:

Requirements	Remote web console/ client server
OS	Support Microsoft Internet Explorer
Browser	Support windows browser, chrome browser is suggested
Browser plug-in	Install Java SE Runtime Environment 6, Update 12or higher version
TCP/IP network protocol stack	Support TCP/IP network protocol stack

Browser plug-in download link:

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

2. It needs to set remote client server IP and management card IP in the same network segment, the corresponding management card default IP (192.168.0.62), and the remote client server IP can be set as:

IP: 192.168.0.63 gateway: 192.168.0.1 subnet mask: 255.255.255.0

Note:

management card (BMC) IP address can be modified and set in “Configuration”→ “network” menu by remote logging in management web interface.

Two options in “Lan Interface” correspond as follows respectively:

Management network: correspond to management card

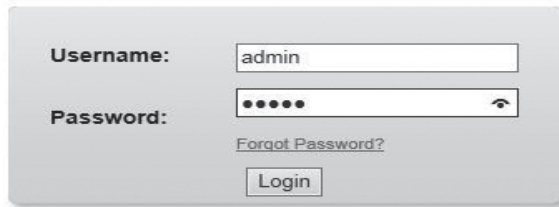
System network: correspond to integrated network card.

Chapter 5 Integrated Management Functions Introduction

If you reset the IP address of remote management card, it can be used normally after saving (there is no need to restart or power off the server).

3. Login management web interface

Input BMC's IP address <http://192.168.0.62> (If IP has been modified, please use the modified IP) in client server browser IP address, and then press [Enter], the management login interface shows as follows:



Username: admin

Password: [masked] [eye icon]

[Forgot Password?](#)

Login

Required Browser Settings

1. Allow popups from this site
2. Allow file download from this site. (How to)
3. Enable javascript for this site
4. Enable cookies for this site

It is recommended not to use Refresh, Back and Forward options of the browser.

Please input default administrator Username and Password:

Username: admin

Password: admin

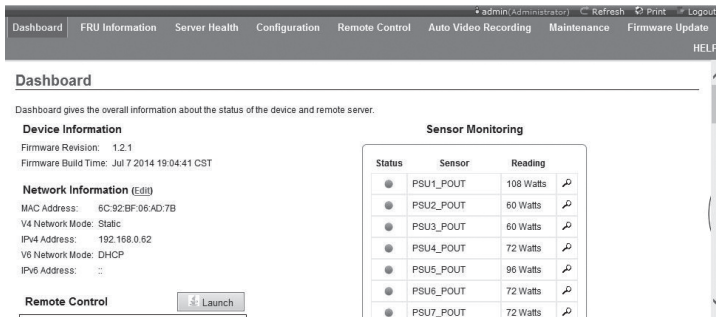
Note:

The user with default user name and password has all the permissions to set and configure all the modules, to ensure system security, it is recommended to timely change password after you log in.

5.2 Function menu introduction

After logging in, the following default interface displays:

Chapter 5 Integrated Management Functions Introduction



On the left top of the interface, you can see the menu including the following functions: Dashboard, FRU Information, Server Health, Configuration, Remote Control, Auto Video Recording, Maintenance and Firmware Update.

On the right top of the interface, there are user name and login user's user groups, you can also use Refresh, Print, Logout and other shortcut menu.

1. Dashboard menu

In this interface, you can see the Firmware version of management chip, modification time, MAC address and other information.

Click [Edit] after Network Information, enters network setup interface, you can set the IP address and gateway here.

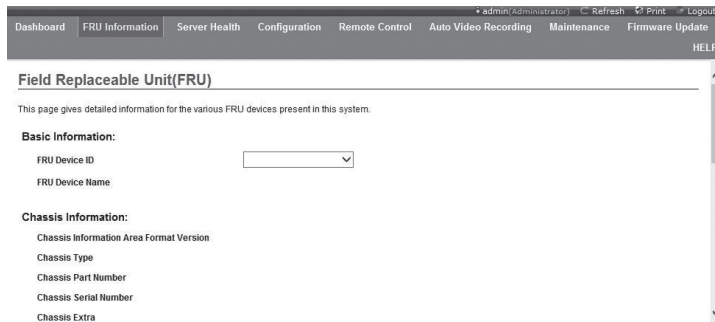
The windows under Remote Control display remote control panel information. Click [Launch] after Remote Control, logging in control panel. If it prompts to install Jviewer browser when using, please install according to the prompt.

In this interface, you can also check the relevant sensor information, such as power supply module, CPU voltage and temperature, system fan speed, storage control module fan speed, hard disk and power module status.

2. FRU Information menu

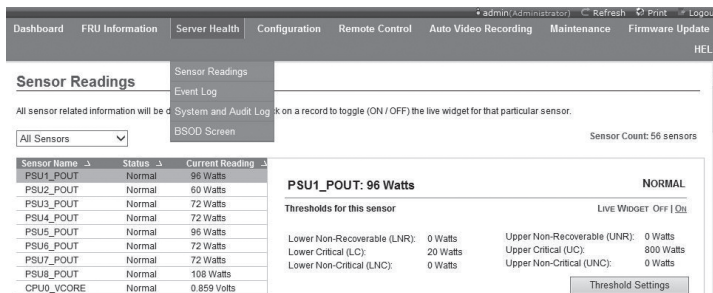
This menu displays FRU information, including Basic Information, Chassis Information, Board Information, Product Information and other information. Basic Information displays FRU device ID and name. The other three options correspond to the information of chassis, motherboard and whole machine type respectively. Detailed information is as follows:

Chapter 5 Integrated Management Functions Introduction



3. Server Health menu

From this menu, you can check server health-related data, including Sensor Readings (sensor readings), Event Log (Event Log), System and Audit Log, BSOD Screen, as shown below:



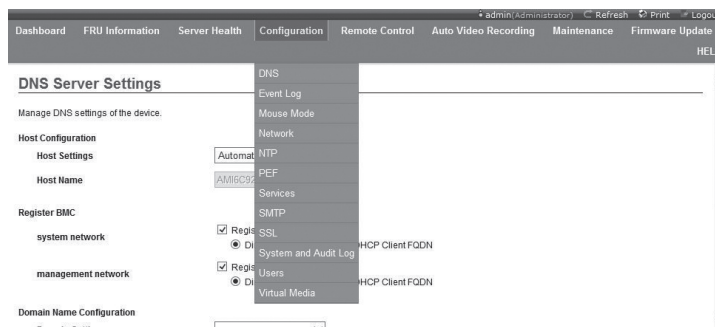
① Sensor Readings menu: Display all the sensor values, mainly including temperature, voltage, fan speed, hard drive and power status. You can refresh and display sub-categories.

② Event Log menu: Display sensor events, BIOS events, system management software events, OEM events, remote console software event logs. It can be classified or unified and you can check the logs anytime, the logs can also be cleared.

③ System and Audit Log menu: Display system logs and check logs. System logs need to be classified.

④ BSOD Screen menu: In this menu, you can check blue screen information during the latest system boot.

4. Configuration menu



Configuration menu shows as above. The following is a brief of common menus:

1. Mouse Mode menu: Set mouse mode

Set Mode to Absolute (Recommended when server OS is Windows): Set mouse to be absolute mode, absolute mode mouse can freely switch between remote and local pictures.

Set Mode to Relative (Recommended when server OS is Linux): Set mouse to be relative mode, relative mode mouse switches between remote and local pictures with [Alt]+[M].

Set Mode to Other Mode (Recommended for SLES-11 OS Installation): Set mouse to be other mode, which is recommended when installing OS SLES-11.

2. Network menu: Set network (Management Card), Systems Network (Integrated LAN), modify IP address or select DHCP according to actual need.

3. NTP menu: To set the date and time synchronized with a time server, you can also set the time on your own. If you need to select time synchronization server for remote management, please enter the address of the time synchronization server.

4. PEF: This option can set PEF (Platform Event Filter). When SENSOR detects an error, this option takes appropriate actions depending on the settings (such as shutting down the server, restart the server, etc.)

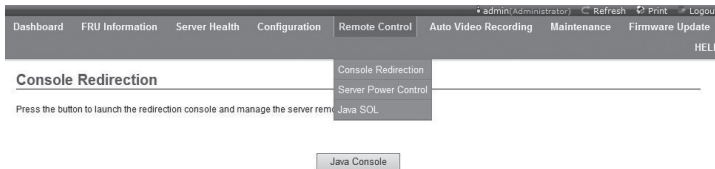
5. SMTP menu: Set SMTP server IP address, username and user password.

6. User menu: Settings for users, you can add users, delete users and modify users. User name must begin with the letters, and it must be within 4 to 32 characters in length, the password is at least eight characters in length.

7. Virtual Media menu: Set the number supported by each type of virtual device (maximum support 2 for all virtual devices), and whether it supports SD media.

Chapter 5 Integrated Management Functions Introduction

5. Remote Control menu



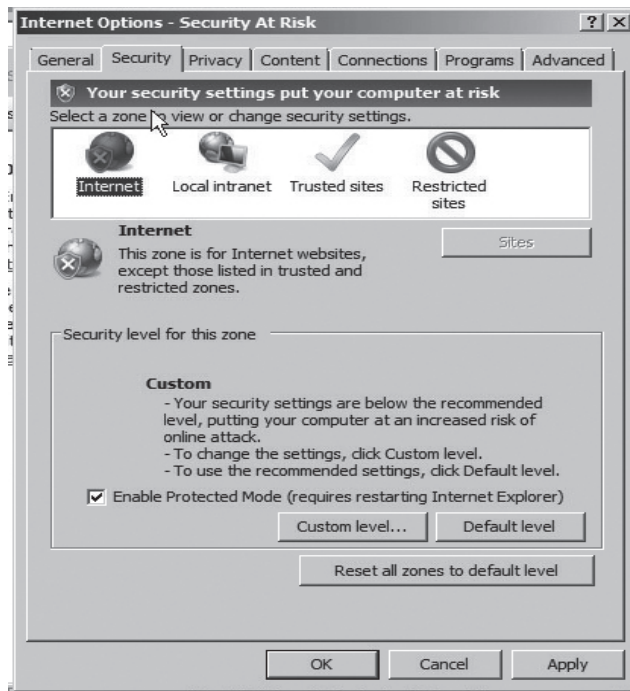
The function menu can perform various actions on remote servers, such as running a remote console, system power on/off and other control operations.

(1) Console Redirection menu: login the console

After selecting the menu, click [Java Console], the system will log in to the remote desktop. If you are prompted to install Jviewer when using the browser, install according to the prompts.

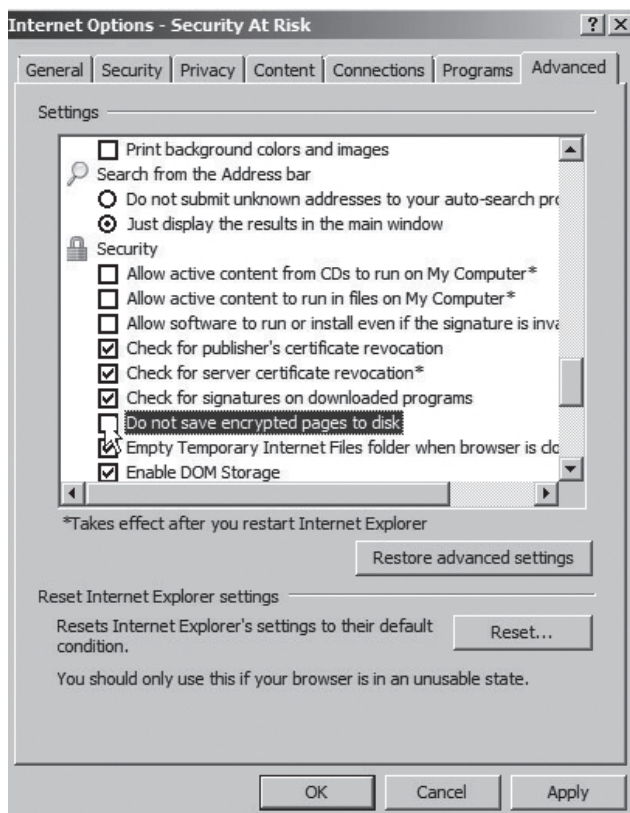
Before you log into the remote desktop, please do the following settings of browser in advance:

- In tool→<Internet >→<Safe> option, active Internet, local Intranet and all the options related to Active X in trusted sites, shown as follows:

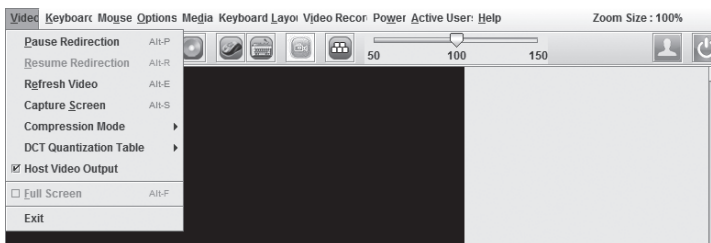


Chapter 5 Integrated Management Functions Introduction

- In tool→<Internet>→<Advanced> option, do not check the “Do not save encrypted pages to disk” option and save it, shown as follows:



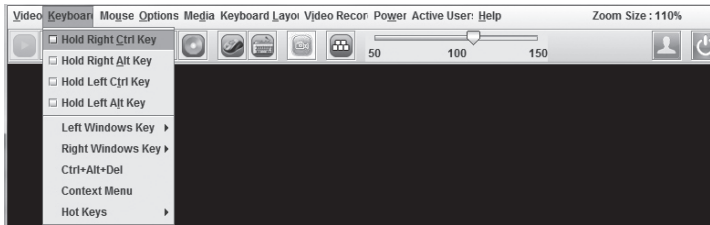
A. Remote desktop: Video menu



Chapter 5 Integrated Management Functions Introduction

Menu	Function
Pause Redirection	Pause remote desktop display
Resume Redirection	Restore remote desktop display
Refresh Video	Refresh remote desktop display
Capture Screen	Achieve remote desktop screenshots
Compression Mode	Compression mode settings
Det Quantization Table	Remote desktop display quality settings
Host Video Output	Open or close host machine output video display
Full Screen	Full screen remote desktop
Exit	Exit remote desktop

B. Remote desktop: Keyboard menu



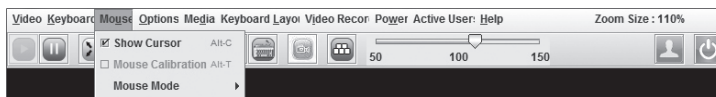
Menu	Function
Hold Right Ctrl Key	Select this option, the operation is equivalent to pressing the right side of the “Ctrl” key
Hold Right Alt Key	Select this option, the operation is equivalent to pressing the right side of the “Alt” key
Hold Left Ctrl Key	Select this option, the operation is equivalent to pressing the left side of the “Ctrl” key
Hold Left Alt Key	Select this option, the operation is equivalent to pressing the left side of the “Alt” key
Left Windows Key	Select this option, it displays “Hold down” and “Press and Release”, which means press or release left side Windows key
Right Windows Key	Select this option, it displays “Hold down” and “Press and Release”, which means press or release right side Windows key
Ctrl+Alt+Del	Select this option, the operation is equivalent to pressing “Ctrl+Alt+Del” at the same time
Context Menu	Shortcut menu
Hot Keys	Select this option, hotkey can be added according to actual needs
Full keyboard	Client server keyboard features can be fully implemented on the remote server, including function keys

Note:

When configure RAID via remote controlpanel, you need to adopt the following three ways to enter the RAID configuration interface (with Ctrl + H key combination, for example)

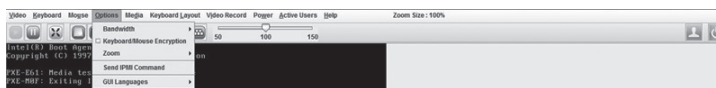
- ① Check Hold Left Ctrl Key Option in the Remote Desktop Keyboard menu, then click the H key;
- ② Select LCTRL key on the lower right corner of remote desktop, and then click “H”;
- ③ Click “ctrl + h” through SoftKeyboard in the Keyboard Layout menu of Remote Desktop.

C. Remote desktop: Mouse menu



Menu	Function
Show Cursor	Select this option, in the remote desktop the local mouse and redirected screen mouse are showed at the same time
Mouse Mode	Select this option to set mouse mode

D. Remote desktop: Options menu

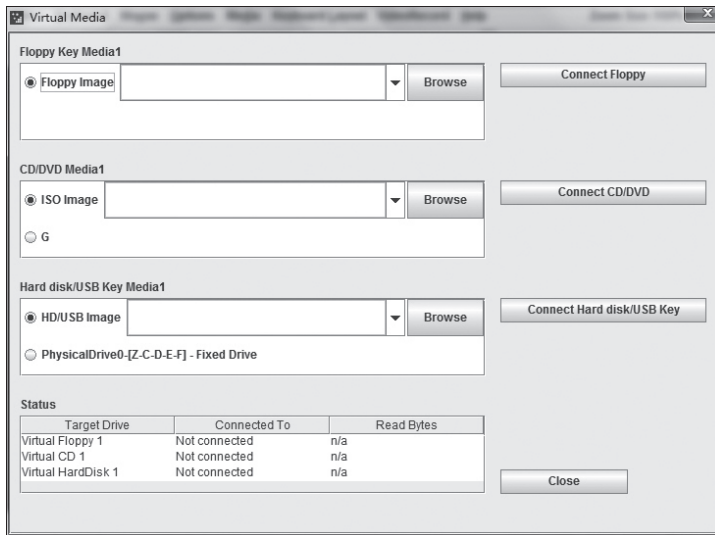


Menu	Function
Bandwidth	Select this option, you can set the display bandwidth
Keyboard/Mouse Encryption	Keyboard and mouse encryption settings
Zoom	Select this option, you can expand or shrink the remote desktop display window, Zoom In to enlarge the display window, Zoom Out to reduce the display window
GUI Languages	Select interface language type

E. Remote desktop: Media menu

Click [Media], [Virtual Media Wizard] window displays. This window will load client floppy image, ISO image and HD/USB image, shown as follows:

Chapter 5 Integrated Management Functions Introduction



Select the mirror type you want to load: if it is a floppy disk mirror, select [Floppy Image]; if it is CD mirror, select [ISO Image]; if it is hard disk / U disk mirror, select [HD / USB Image]; then click [Browse], select the path/ location where the image is, and then click the appropriate [Connect] button to complete the image loading.

If the CD in the synchronized client optical disc driver is a bootable CD or a system installation disk, please set the client CD as the first boot sequence in the server BIOS setup. Way to install ISO files is the same as the way to install CDROM remotely which needs to set the boot sequence in the server BIOS setup.

F. Remote desktop: Keyboard Layout menu

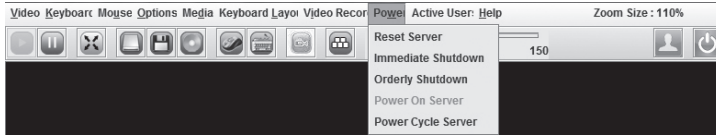
Menu	Function
Auto Detect	Select this option, it will automatically detect the type of keyboard
SoftKeyboard	Use a soft keyboard, choose from keyboard types of multiple languages

G. Remote desktop: Video Record menu

Select [Video Record] menu, you can set options related to video recording.

Menu	Function
Start Record	Select his option, begin video recording
Stop Record	Select his option, stop video recording
Settings	This term is used to set the length of time the video recording and storage directory, only to record video after setting storage directory

H. Remote desktop: Power menu



Menu	Function
Reset Server	Select this option, reset server
Immediate Shutdown	Select this option, shut down server immediately
Orderly Shutdown	Select this option, orderly shut down
Power On Server	Select this option, power on server
Power Cycle Server	Select this option, power cycle server

I. Remote desktop: Active Users

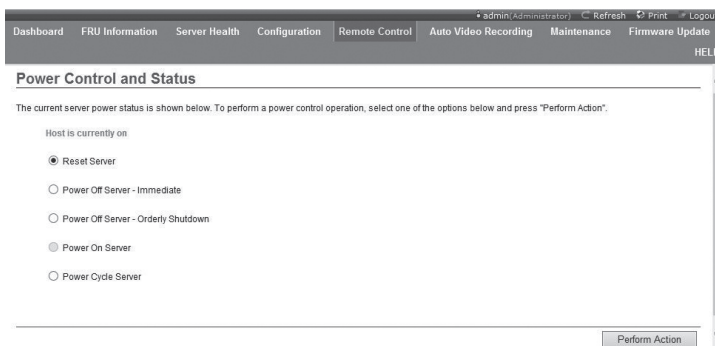
Click [Active Users] menu, you can check the current remote login user's name and IP address.

J. Remote desktop: Help menu

Click [Help] menu, drop-down menu [About JViewer] appears, select this option, the redirected browser version will display.

(2) Server Power Control menu

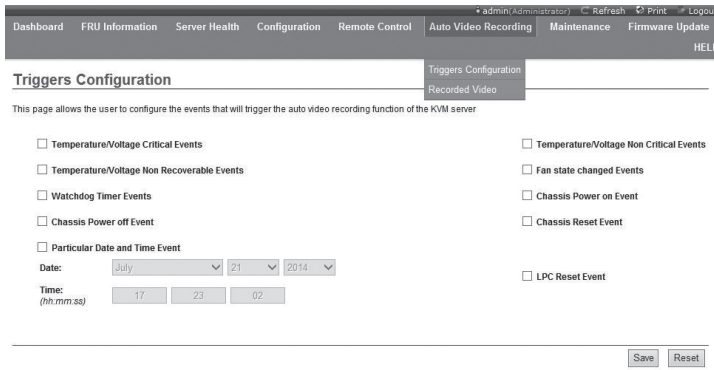
Select Server Power Control menu, enter the following interface:



Server Power Control menu: Display the current power status, providing reset server, power off server-immediate, power off server-orderly shutdown, power on server, power cycle server, totally five options. Select the option you need to perform, click [Perform Action] to execute.

Chapter 5 Integrated Management Functions Introduction

6. Auto Video Recording menu



The function menu can set Video Recording functions, and download the file to view the automatically recorded Video files.

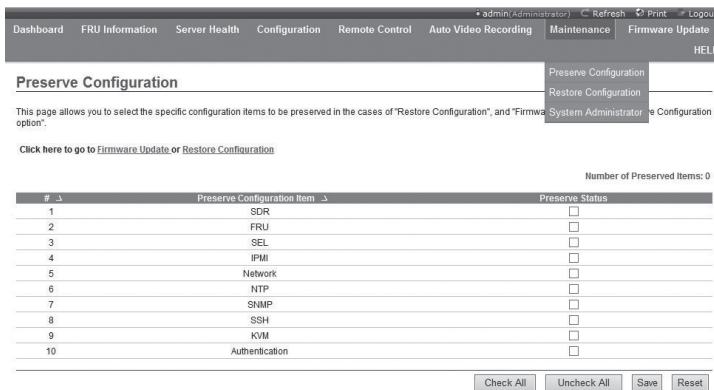
1. Triggers Configuration

This menu allows the user to configure the events that will trigger the auto video recording function of the KVM server.

2. Video Recording

This menu can achieve remote Video sharing and configuration, and can download, play, delete automatically recorded Video files.

7. Maintenance menu



The function menu can achieve remote BMC Firmware upgrades and IPMI Remote Management Card restart.

1. Preserve Configuration

This menu can select the configuration options in the list of items not to be

Chapter 5 Integrated Management Functions Introduction

modified before loading factory defaults or upgrading Firmware. The selected option will not be changed because of loading factory defaults or Firmware upgrading.

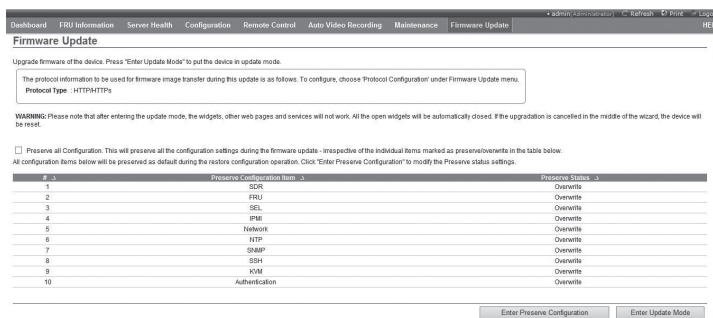
2. Restore Configuration

This menu is used to load the IPMI management card factory defaults.

3. System Administrator

This menu is used to set the system administrator account.

8. Firmware Update menu

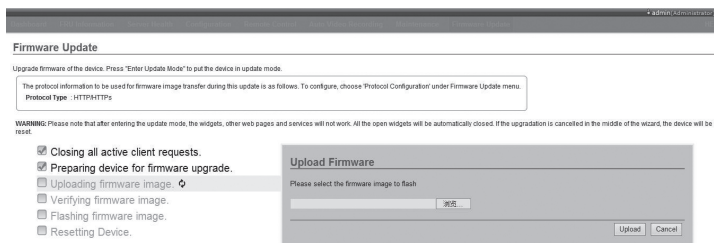


The function menu can set the BMC Firmware remote upgrade and image transfer protocol.

(1) Firmware Update menu

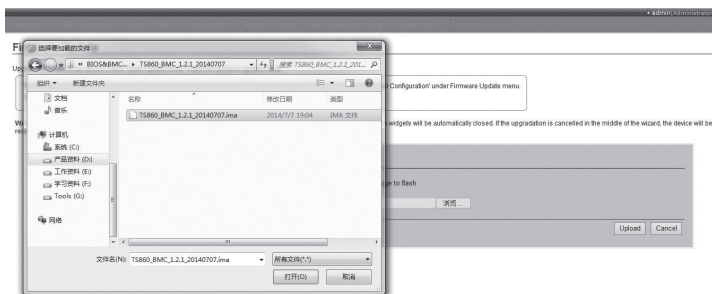
This menu can realize the remote upgrade of management card Firmware, we recommend that you do not upgrade by yourself, if it is really necessary, the upgrade file must be certified by Inspur.

① In Firmware Update menu interface, click [Enter Update Mode]. In the pop-up confirmation window, click [OK]; wait to enter the following interface.



② click “Browse” after input box and select the ROM image (* .ima file) you want to flash from the client’s disk, as shown below:

Chapter 5 Integrated Management Functions Introduction



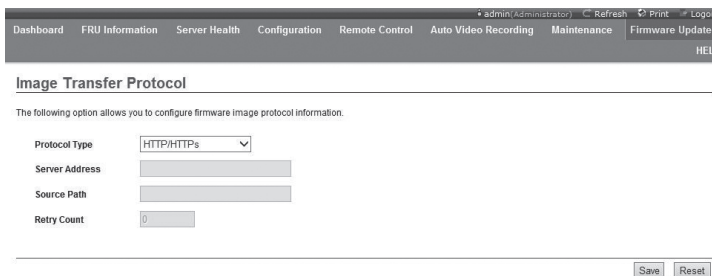
③ After the upgrade file is selected, click [Upload], the new window will pop up after file is uploaded, then click [Check this option to do full firmware flash], [Proceed] button, BMC will automatically complete the burn process.

Note:

Note: Do not disconnect the network during upgrading process. After the upgrade is completed, Management Card restarts, Web interface needs to re-login.

(2) Protocol Configuration

This menu can set firmware image transfer protocol type when BMC Firmware is upgrading, the default is via HTTP / HTTPS protocol mode.



If you choose TFTP protocol, you also the need to set server address, image path (including image file name).

After changing the settings, you need to click [Save] to save. If you do not want to save the setting parameters, click [Reset].

Chapter 6 OLED Usage Introduction

In order to bring you more excellent management experience, we add Inspur OLED module. It can provide system hardware configuration, BMC address and other real-time information during the daily running of the server system, and can also provide warnings when the system is abnormal, to help your Inspur server run more efficiently and more stably.

OLED module panel:



1. Page up key 2. Select/function key 3. Page down key 4. Return key 5. LCD

Connect BMC

1. Power on the server and enter OLED selfcheck interface (mainly check whether OLED screen has failed area), as shown in figure 1. In 5s, pressing any key can light the OLED full screen, as shown in figure 2 (OLED selfcheck). Pressing any key again will exit the selfcheck mode:

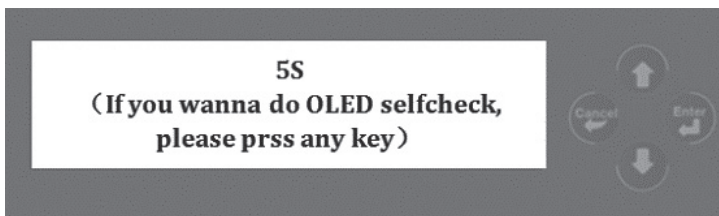


Figure 1



Figure 2

Chapter 6 OLED Usage Introduction

2. Enter connect BMC interface, as shown in figure 3. If BMC works normally (connect normally and get work mode normally), it will enter the main menu interface, otherwise it will report errors, as shown in the figure 4 and 5, and enter service telephone interface, as shown in figure 6:

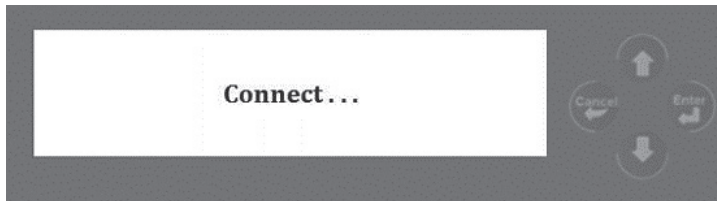


Figure 3

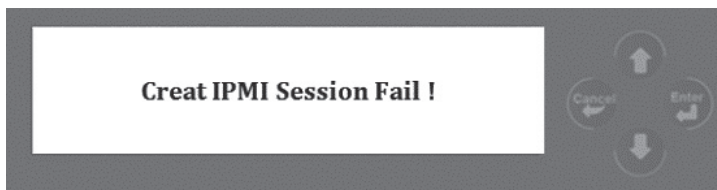


Figure 4

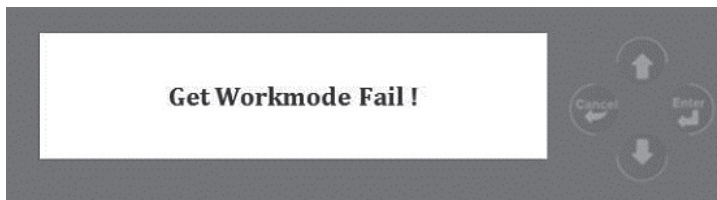


Figure 5



Figure 6

Menu interface

Figure 7 is the main menu interface (1st level menu). This menu has 2 options: Configuration and Fault Information. Enter Configuration, and enter the configuration information secondary menu, as shown in figure 8, 9, 10, and 11; enter Fault Information, and it will display the server fault information.

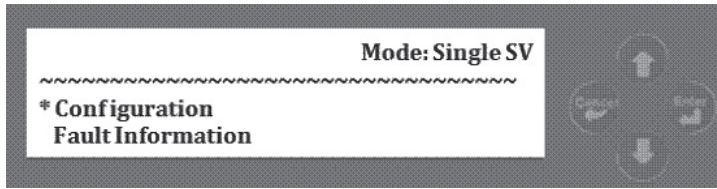


Figure 7

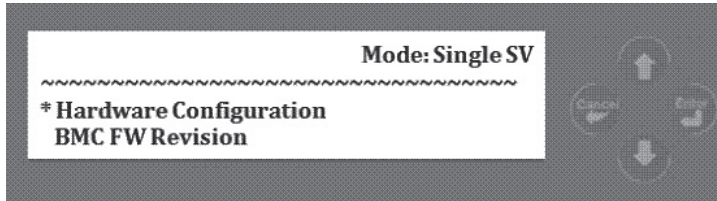


Figure 8

Hardware Configuration is the getting hardware configuration information menu: including operating system type, hard disk and memory capacity.

BMC FW Revision is the getting BMC FW version menu.

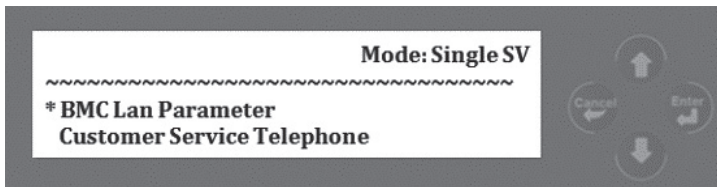


Figure 9

BMC Lan Parameter is the getting service network parameter menu: network port has 2 types of system network port and management network port. Click the right key to switch.

Customer Service Telephone is the getting service telephone menu.

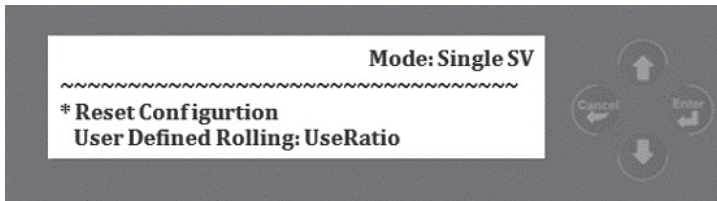


Figure 10

Reset Configuration is the executing reset menu: entering it will clear the fault information in Flash automatically.

Chapter 6 OLED Usage Introduction

Use Defined Rolling is the menu of scrolling to display entries per 30s: including Use Radio, String, and SV_NUM. Click the right key to switch.

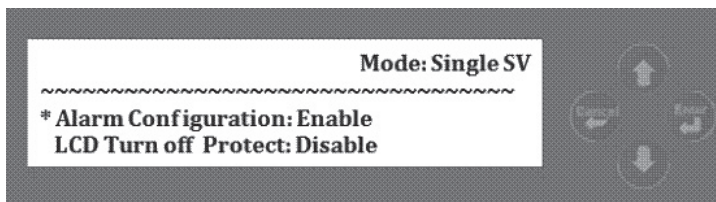


Figure 11

Alarm Configuration is the fault alarm enable switch menu: including Enable and Disable. Click the right key to switch.

LCD Turn off Protect is the black screen protection enable switch menu: including Enable and Disable. Click the right key to switch.

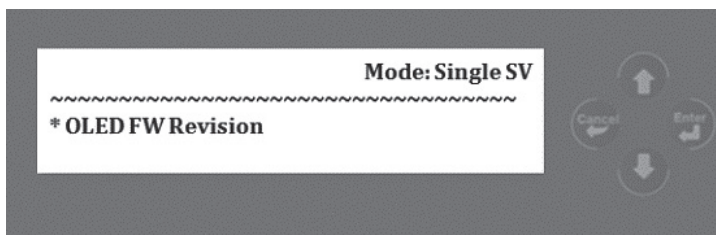


Figure 12

OLED FW Revision is the getting OLED FW revision menu.

Other interfaces

1. If there is no operation in the menu interface for 30s, it will enter UseRatio (figure 13) or String, SV_NUM scrolling display interface, press any key to return to the menu interface:

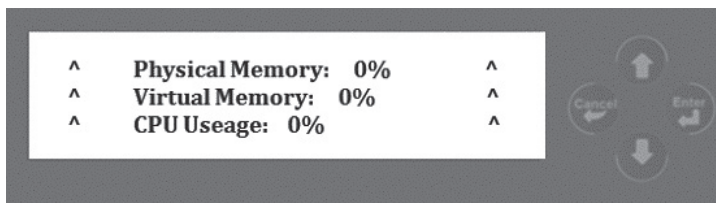


Figure 13

2. If there is no operation in the scrolling display interface for 3 minutes, the black screen protection will start (configurable). Press any key to return to the interface before black screen.

3. Alarm information: PSU, CPU Core Voltage, CPU Temperature, System fan, Storage board fan, Hard disk.

Note: UseRatio /String/SV_NUM scrolling display interface displays CPU model, OS model, CPU utilization, memory utilization and other information, which relies on OLED agent side--Agent program to provide related data. So, if there is no Agent program, the information that the scrolling display interface shows will be 0 or none related information.

Agent program installation method is as follows:

1) Install under Linux system:

① Unzip the software agent_linux.tar.gz under the \TS860_Agent directory in the attached driver CD.

② Enter agent_linux directory, modify the priority of the executable file:
chmod777 start.sh

③ Run ./start.sh

2) Install under Windows system

Agent program doesn't support windows system at present.

Chapter 7 Common Problems and Troubleshooting

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

Note: 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 antistatic wrist strap and to earth-connect the other end to provide electrostatic protection when dismantling the server.

7.1 Restart 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 in order to clear up the system RAM, to self-check the POST again, to restart the operating system and to power up all the peripherals again.	Power button

7.2 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 referring to the following methods.

7.2.1 System cannot be powered up

After pressing the power button, the power light is not on and the system maintains 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 exerting 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. Close the chassis and connect the power cable correctly and start the machine.

7.2.2 No display on the monitor

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 for 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 the memory and clear CMOS for test.

7.2.3 No disk found during OS installation

1. When installing system directly booting 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:

- Because the navigation serial number would be different when storage configuration is changed, 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, the hard disk drive is generally added through USB flash disk. Please check whether the USB flash disk drive is correct or not (the drive for external RAID card should be made

Chapter 7 Common Problems and Troubleshooting

directly from the attached RAID card driver CD) and whether there is fault in the USB flash disk.

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

7.2.5 System blue screen, halt or restart

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

1. If other external non-Inspur components or some application program software 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. Please refer to this manual or call 4008600011 for help.
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.

7.2.6 Machine alarm

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

1. If this happens after you inserting some external board cards, you may need to

pull off this device and to do another power-on 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. If Info light on the control board of the machine is on red alert, then the system hardware fails.

3. 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 the 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.

4. After having collected the basic information, please feed back 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.

7.3 Additional Notes

1. In order to guarantee the reliability of the system, it is suggested that you use the components of the relevant models 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 7 Common Problems and Troubleshooting

3. For special needs, when moving 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>

7.4 Technical Support Information

If you have questions or encounter insoluble problem in the process of using Inspur server, please take the following measures:

1. If you have problems about product configuration and detailed specification, please contact your supplier.

2. If system problem occurs during the use of the machine, please contact Inspur server customer service center. Please record serial number on the host chassis, our technical support staff will provide you with the solution or on-site service after receiving your service request.

3. Inspur server customer service center contact information:

Technical support telephone: 400-8600011

Email: sv_str_pcs@inspur.com

Inspur server driver and product material download link:

<http://www.inspur.com> (search related content in the “support download” column)