



# H3C S9500 Board Datasheet Series

— Main Control Unit Datasheet V1.00



Hangzhou Huawei-3Com Technology Co., Ltd.

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


## Statement

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# 1 Product Overview

LSB1SRP series main control boards of H3C S9500 products refer to the switching-route processing boards of H3C S9500 products. They can implement the configuration management and state monitoring of the whole system, and own the clock synchronizing function. The boards provide the data exchange between LPU boards and routing protocol processing functions, forward the cross-board data service between service boards and realize the centralized switching. LSB1SRP series main control boards comprise LSB1SRP1N and LSB1SRP2N and so on. Among them, each category of main control boards includes four types: 0/1/2/3. For instance, LSB1SRP1N is composed of LSB1SRP1N0, LSB1SRP1N1, LSB1SRP1N2 and LSB1SRP1N3.

As the core of S9500 series routing switches, the LSB1SRP switching-route processing boards have the following main functions:

1. Implement such functions as switching, routing protocol processing, equipment management control and monitoring as well clock synchronizing.
2. Support the FIB entry of maximum 256K and maximum memory of 1GBytes.
3. Design involving the 1+1 backup and 1:1 load balancing (switching part), and realize the controlled or automatic protection switching in the fault status. Each main processing unit provides two 100M Ethernet links to realize the control and management of the system as well as two 100M for Ethernet backup..
4. Implement the monitoring management of fan and power systems: Two signaling lines PSNT (in place) and FAIL (fault) from the power system and another two signaling lines PSNT (in place) and FAIL (fault) from the fan system are available. In the form of high/low levels, the monitoring of the power and fan systems is connected to the backplane via cable. The main control unit offers 2-bit control signal to each fan monitoring board to control the rotation speed of the fan.
5. SRP1N provides 16M Flash; SRP2N/SRP1M provides 64MFLASH. The aim is to save programs and user configuration file.
6. A standard IDE interface is available to help plug Compact Flash Card (CF card)

- that provides the data storage capability to the system. By default, the configuration is 256Mbytes. The capacity of CF card is expansible as required.
7. Provide the NVRAM in order to save CF card FAT table backup or user configuration file.
  8. Provide the hardware reset control signal to other boards of the system, and implement the reset operation of other hardware sub-systems via the console.
  9. A 10M/100M or 10M/100M/1000M ethernet interface, two RS232 serial interfaces (connected to the background and terminal maintenance), a 4-wire RS485 interface and 3-wire RS232 serial interface (used for the external monitoring of primary power supply) are provided on the front panel.
  10. Provide the temperature monitoring function and monitor the board temperature.
  11. Provide an external reset button that is used for the main control unit reset.
  12. Provide the stratum-3 clock function and external clock interface via the sub-card CLKB. Provide the stratum-3 clock benchmark to LPUs in the system and lock the interface retrieval clock provided by LPU.
  13. Provide RTC and system clock, including year, month, day, hour, minute and second.
  14. The LANSWITCH sub-card provides 14 10/100BASE-TX Ethernet interfaces that are used for the control channel of the system management. Each Ethernet interface supports half-duplex, full-duplex, adaptive and compulsory work modes.
  15. Employ -48V DC power supply.

## 2 Product Composition and External Interface

The LSB1SRP series main control boards consist of the following seven modules: (1) power module, (2) control processing module, (3) LANSWITCH buckled module, (4) CLK clock buckled module, (5) Switch Fabric switching network module, (6) MBUS module and (7) external interface module.

The LSB1SRP series main control boards provide external interfaces as below:

### I AUX Interface

The AUX interface employs the RJ-45 connector. The interface can serve as the backup interface of console interface to connect the background terminal or connect the Modem equipment so as to conduct the system remote debugging, configuration, maintenance and management. In addition, the interface is also used to connect the background terminal computer.

Table 1 AUX Interface Attribute

Attribute	Description
Connector type	RJ-45
Interface standard	Asynchronous EIA/TIA-232
Support service	Connect the remote PC serial port (via a pair of Modems) and run the terminal emulation.

### I Console Interface

The console interface employs the RJ-45 connector to connect the background terminal computer and conduct the system debugging, configuration, maintenance, management, host software program load, etc.

Table 2 Console Interface Attribute

Attribute	Description
Connector type	RJ-45
Interface standard	Asynchronous EIA/TIA-232
Baud rate	9600bit/s (default)
Transmission distance	≤15m
Support service	Connect the local PC serial port and run the terminal emulation program over PC.

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#### & Note:

The baud rate of the console interface is variable.

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### I Ethernet Interface for Management (10Base-T/100Base-TX)

The Ethernet interface for management (10Base-T/100Base-TX) employs the RJ-45 connector to connect the background computer and conduct the program load and debugging and so on. It can also be used to connect the remote NMS work station and other equipment to realize the remote management of the system.

Table 3 Attribute of Ethernet Interface for Management (10Base-T/100Base-TX)

Attribute	10Base-T/100Base-TX interface description
Interface connector	RJ-45
Interface quantity	1
Interface speed	10M/100Mbit/s, half-duplex/full-duplex
Medium and maximum transmission distance	Must employ the crossover cable or category-5 twisted pair to support the transmission distance of 100m.
Interface function	Used for the switch software upgrade and network management.

For the descriptions of the Ethernet interface status indicator, see the following table:

Table 4 Descriptions of the Indicator of the Ethernet Interface for Management (10Base-T/100Base-TX)

Indicator	Status	Meaning
LINK	Off	Lines are not connected.
	On	Lines are connected.
ACT	Off	No data are received or sent.
	Flashing	Data are received or sent.

#### I RS232/RS485 Multiplex Interface

The RS232/RS485 multiplex interface employs the RJ-45 connector to connect the external POE power case while supporting the POE function, and monitors the external POE power state.

Table 5 RS232/485 Multiplex Interface Attribute

Attribute	Description
Connector type	RJ-45
Interface quantity	1
Interface function	Later, connect the external POE power case while supporting the POE function.

#### I CF Card Interface

The CF card interface is embedded on the main control board, It supports limited hot swappable function for standard CF card. The capacity of the supported CF card is 256M or 1G. It can be used to store log, host version, alarm and other diagnosis information, and simplifies the online upgrade of switch software.

#### I RESET Button

The LSB1SRP series main processing units provide the RESET button that is used to reset the main processing unit manually.

## I Status Indicator Light

The LSB1SRP board status indicator lights comprise main processing unit status indicator light and service board running status indicator light.

The main processing board indicator has five LED indicators from right to left below: RUN (running indication, green), ALM (alarm indication, red), ACT (active/standby indication, green), SFS (network chip status indication, green) and CFS (CF card status indication, green). For descriptions of main processing board, see Table 6.

Table 6 Meaning Descriptions of Main Processing Board Status Indicator

Indicator	Status	Meaning
RUN	On	Error encountered.
	Off	Error encountered.
	Flashing	The main control unit is running normally.
ALM	Off	No alarm occurs on the main control unit.
	On	Alarm occurs on the main control unit.
ACT	On	The main control unit is under master mode.
	Off	The main control unit is under backup mode.
SFS	On	The switching network is running.
	Off	The switching network is standby.
CFS	On	The CF card is in place; the CF card is idle.
	Flashing	The CF card is in place; the CF card is in the process of the read/write operation; the CF card does not allow the hot swap.
	Off	The CF card is not in place or the CF card is offline (execute the background command to make the CF card offline when the CF card is in place). Here, the CF card can be inserted or removed.

The LSB1SRP series main control units provide a running indicator to a service board. Each service board status indicator includes a RUN light and an ALM light. The descriptions of the service board running status indicator are shown in Table 10. If the used systems are different, there are different quantities of service board running status indicators on the main processing unit. However their meanings are the same.

Table 7 Descriptions of Service Board Indicator Status

Service board indicator	State	Meaning
RUN	On	Error encountered.

	Off	Error encountered or it is not in place.
	The indicator is flashing normally (1S)	The board is running normally.
	The indicator is flashing quickly (125ms)	When a board starts up, the RUN indicator lights up or flashes quickly, the quick flashing means that the board registration fails.
ALM	On	No alarm occurs on the board or the board is not in place.
	Off	Alarms occur on the board.
0 ~ 5, 8 ~ 13	Correspond to 0 ~ 5 slots and 8 ~ 13 slots.	

### I Clock Interface

LSB1SRP1N3 and LSB1SRP2N3 main control boards provide external stratum-3 clock interface that employs the SMB coaxial connector.

Table 8 Clock Interface Attribute

Attribute	Description
Connector type	SMB-75JYWHD1
Interface quantity	4
Interface function	Provide the stratum-3 clock interface. Among them, two are used for input and the other two for output.

The input port receives 2048KHz or 2048Kbit/s clock; the output port provides external 2048KHz or 2048Kbit/s clock. Select the clock type via the dial switch on the LSB1CLKB clock buckled interface.

## 3 Product Applications

The LSB1SRP series main control units are applicable to four systems: S9502 system, S9505 system, S9508 system, S9512 system and S9508V system. Each system has a corresponding main control unit. Their corresponding relationships are shown in Table 11.

Table 9 Corresponding Relationships of LSB1SRP Main Processing Units and Hosts

Board type		S9502	S9505	S9508	S9512	S9508V
SRP1M	SRP1M0	√	×	×	×	×

SRP1N	SRP1N0	×	×	×	√	×
	SRP1N1	×	×	√	×	√
	SRP1N2	×	√	×	×	×
	SRP1N3	×	√	√	√	√
SRP2N	SRP2N0	×	×	×	√	×
	SRP2N1	×	×	√	×	√
	SRP2N2	×	√	×	×	×
	SRP2N3	×	√	√	√	√

In different systems, the main control units are located in different slots. In the S9502 case, the main control units are in the slots No.0 and No.1; in the S9505 case, the main control units are in the slots No.0 and No.1; in the S9508/S9508V cases, the main control units are in the slots No.4 and No.5; in the S9512 case, the main control units are in the slots No.7 and No.8.

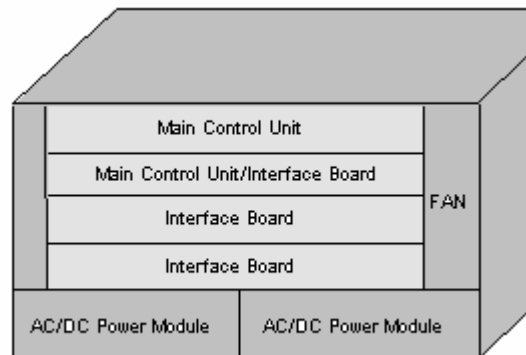


Figure 2 H3C® S9502 System Board Location Diagram

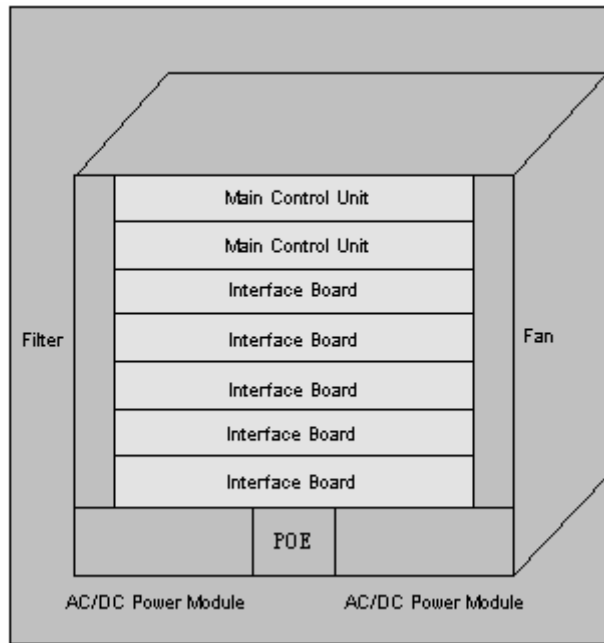


Figure 3 H3C® S9505 System Board Location Diagram

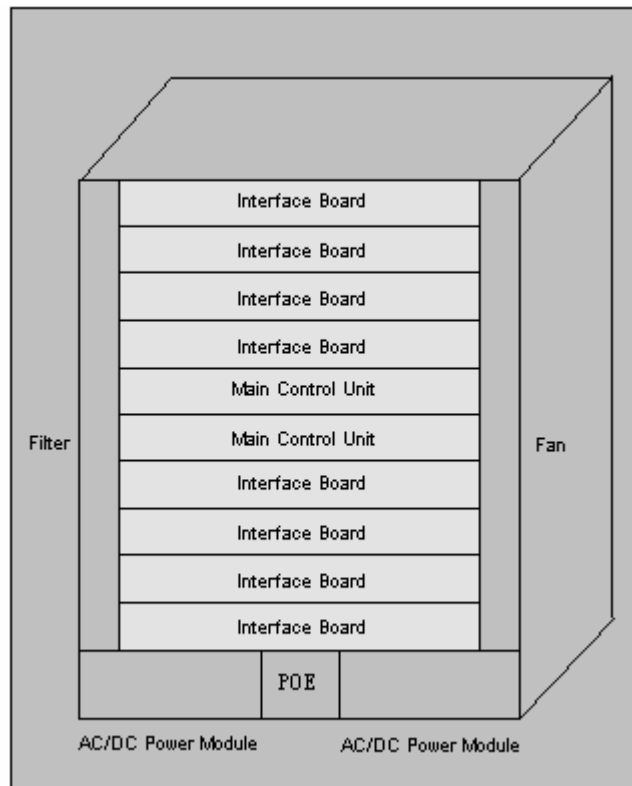


Figure 4 H3C® S9508 System Board Location Diagram

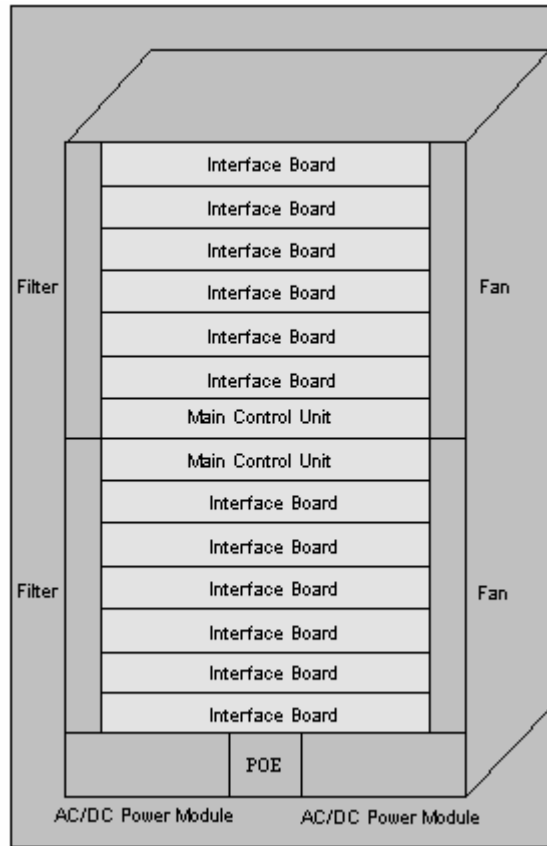


Figure 5 H3C® S9512 System Board Location Diagram

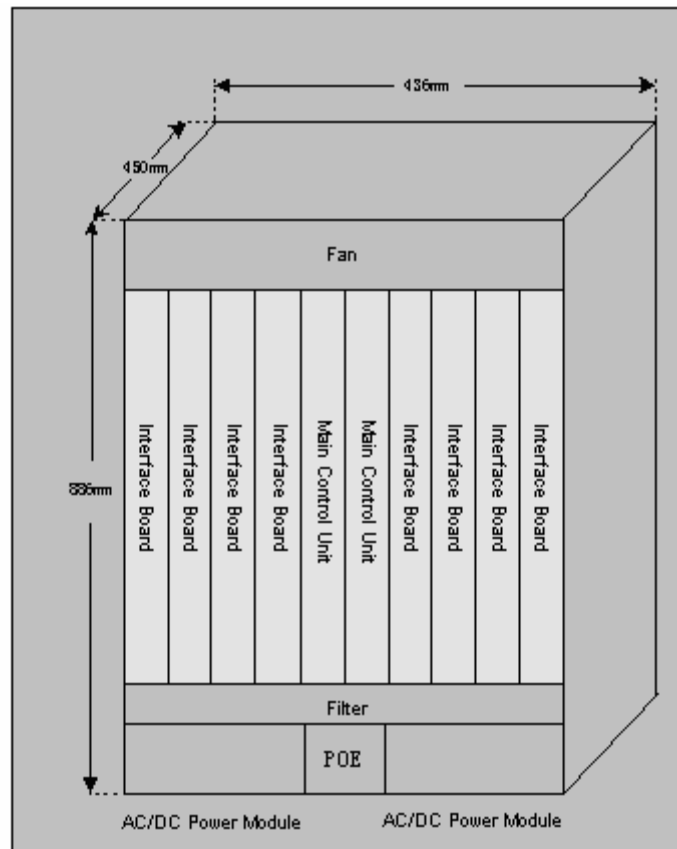


Figure 6 H3C® S9508V System Board Location Diagram

## 4 Switch Capacity Indexes

SRP1M0: 240G

SRP1N0: 360G

SRP1N1: 240G

SRP1N2: 150G

SRP1N3: 360G

SRP2N0: 720G

SRP2N1: 480G

SRP2N2: 300G

SRP2N3: 720G

## 5 Product Parameter Indexes

### 5.1 Basic Specifications

Table 10 Basic Specification Table of LSB1SRP Series Main Processing Unit

Project	LSB1SRP1N	LSB1SRP2N	LSB1SRP1M
External interface	AUX interface CONSOLE interface 10/100M network interface RS232/485 interface CF card interface Clock interface (optional)	AUX interface CONSOLE interface 10/100M network interface RS232/485 interface CF card interface Clock interface (optional)	AUX interface CONSOLE interface 10/100M/1000M network interface RS232/485 interface CF card interface USB interface
Board dimension(L×W)	366.7mm×340mm		
Work environment temperature	0°C ~ 45°C		
Relative humidity of work environment (non-condensing)	10% ~ 90%		

### 5.2 Power Parameters

Table 11 Power Parameters of LSB1SRP Series Main Processing Unit

Board type		Input voltage (DC)			Maximum input current ①	Maximum power consumption
		Minimum	Typical	Maximum		
SRP1M	SRP1M0	-36 V	-48V	-75V	1.25	60W
SRP1N	SRP1N0	-36 V	-48V	-75V	1.25A	60W
	SRP1N1	-36 V	-48V	-75V	1.25A	60W
	SRP1N2	-36 V	-48V	-75V	1.25A	60W
	SRP1N3	-36 V	-48V	-75V	1.46A	70W
SRP2N	SRP2N0	-36 V	-48V	-75V	2.40A	115W
	SRP2N2	-36 V	-48V	-75V	2.40A	115W
	SRP2N2	-36 V	-48V	-75V	2.40A	115W
	SRP2N3	-36 V	-48V	-75V	2.60A	125W

Note①: current refers to the current value when the voltage is -48V.

### 5.3 Environment Conditions

Operation temperature: 0 ~ 45°C

Storage temperature: -40 ~ 75°C

Relative humidity: 5 ~ 95% (non-condensing)

Fungus resistance grade: grade 0

Operation altitude: -60 ~ 3000m

### 5.4 Compliant Security Standards

- EN 60950-1 (LVD Directive)
- UL 60950-1, Edition 1, April 1, 2003
- IEC 60950-1

### 5.5 Compliant EMC Standard

- CISPR 22: 2003-04-10 Edition 4 Class A
- EN55022: 1998+ A1: 2000+A2: 2003 Class A
- CFR Title 47, FCC part 15, Subpart B, Class A
- ICES-003, Issue 4, 2004 Class A
- AS/NZS 3548 Class A
- VCCI V-4 (2002) Class A
- EN 55024: 1998, A1:2001, A2:2003