

# Inspur

# Brief Introduction to Converged Architecture Blade System I9000

## Integrated and Unique System

This document aims at providing brief specifications of the converged architecture blade system I9000 for pre-sale engineers, sales personnel or customers who are interested in technology. It is suitable for sales personnel, pre-sale engineers and server users to learn about the technologies of the product.



### 10Gb Switch Module

External port	16 x 10Gb SFP+ interface; 4 x 40Gb QSFP expansion module, supporting stack, each port supports 4 x 10Gb roll-out; 1 x RJ45 interface for management and maintenance
Internal port	16 x 10Gb link for 10Gb Mezz on Blade; Links for I2C, GbE and GPIO of the redundancy management module
Switching function	Supporting standard two-layer and/or three-layer switching (IPv4 & IPv6); Supporting featured function of Data Center; Supporting FCoE (16 uplink ports), FC (8 of 16 uplink ports)
Management function	Supporting upload and download management of SNMP v1/v2/v3, Telnet, Console, MGMT, WEB, RM0N, SSHv1/v2 and FTP/TFTP files, supporting NTP clock, Syslog, SPAN/RSPAN, and IPFIX traffic analysis; Supporting direct network configuration and FW upgradation through the system management module; Available monitoring management interface for switch (temperature, voltage, log and alarm information), alarm information can be informed to the management module; Supporting startup, shutdown and reboot of switch modules through the management module; Supporting configuration of switch modules through management module (in two ways: command line or management interface)
Cooling fan	2 groups of hot-swap cooling fans

### 1Gb/10Gb Converged Switch Module

External port	8 x RJ45 8 x 10Gb SFP+ 2 x 40Gb QSFP, modular design, supporting stack; each port supports 4 x 10Gb roll-out; 1 x RJ45 interface for management and maintenance
Internal port	16 x 1Gb link for 1Gb LOM on the Blade; 32 x 10Gb link for 10Gb Mezz on the Blade; Links for I2C, GbE and GPIO of the redundancy management module
Switching function	Supporting standard two-layer and/or three-layer switching (IPv4 & IPv6); Supporting featured function of Data Center; 10Gb port supporting FCoE featured function; 40GE port supporting stack.
Management function	Supporting upload and download management of SNMP v1/v2/v3, Telnet, Console, MGMT, WEB, RM0N, SSHv1/v2, FTP/TFTP files, supporting NTP clock, Syslog, SPAN/RSPAN and IPFIX traffic analysis; Supporting direct network configuration and FW upgradation through the system management module; Available monitoring management interface for switch (temperature, voltage, log and alarm information); Supporting startup, shutdown and reboot of switch modules through the management module; Supporting configuration of switch modules through the management module (in two ways: command line or management interface).
Cooling fan	2 groups of hot-swap cooling fans

### 16Gb FC Converged Switch Module

External port	16 x SFP + FC interface, supporting 4/8/16Gb; Being used as F_ports and E_ports (expansion port), or N_ports under access gateway mode; 1 x RJ45 serial management interface for management and maintenance.
Internal port	32 x full duplex 16Gb FC interface; F_ports as internal interface; Links for I2C, GbE and GPIO of the redundancy management module.
Cooling fan	2 groups of hot-swap cooling fans



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Server Product Department



- Scale out + Scale up - 2/4/8-socket stack, and various EP/EX platforms;
- Independent IObox pass-thru solution - The only solution in the industry which will not affect the swithcing and compute density;
- Outstanding availability and reliability - Boasting the features of passive midplane, redundancy and hot swap;
- Concise and safe system management - Adopting multilink stack and supporting redundant active-active technology.

## Product Introduction

Based on the design of Converged Architecture Gen 2, the blade system Inspur 19000 comprehensively supports the current mainstream compute blade types and switch network types. By using the rich types of node and switch network, the users can conduct flexible configuration and optimization to high performance computing, cloud computing, memory computing, database and various enterprise-class applications in the same product. The Converged Architecture Gen 2 blade system supports simultaneously using of ultrahigh compute density nodes, heterogeneous compute blades, 2/4/8-socket compute blades with high performance, strong storage blades and strong expansion nodes. It adopts unified architecture of management, power supply and heat dissipation, which can independently increase pooling storage resources. The excellent network bandwidth design supports mainstream exchange modes of IB, Ethernet and optical fiber, which can also be extended to 100G in the future. Therefore, the system is the ideal choice for the customers looking for compute performance, compute density, network low latency and expansion capability, which ranks first among the same-type blade servers in the industry.

## Product Advantages

The converged architecture blade system 19000 adopts the latest design of Intel computing platform, emphasizing compute density, heterogeneous computing and storage, and network accelerating ability:

- With a height of 12U, it supports 16 high specification 2-socket compute blades or 8 stackable 2-socket compute blades with high specification (it can be allocated as three modes: 8 x 2-socket blade, 4 x 4-socket blade or 2 x 8-socket blade). As the leading Scale-up application platform in the industry, it dramatically reduces the deployment complexity of Scale-up type enterprise-class applications.
- The solution of converged storage and acceleration based on SAS/SATA/SSD/NVMe for the compute blades is the first choice in the industry;
- 1Gb/10Gb/FCoE/FC switch network are fully supported, and the integration of various switch modes is realized at the same time. The 100G single port network bandwidth design makes the switching capacity have wide promotion space;
- The only system in the industry that supports direct network access solution without affecting compute blades and switch modules and can also be allocated as the acceleration solution flexibly;
- Comprehensive enterprise-class management features, and active-active function of multilink stack management and redundancy management, dramatically reducing management complexity and promoting management reliability;
- The passive midplane and backplane design, and supports N+N redundancy management, power supply and heat dissipation based on hot-swap technology, providing extremely strong system reliability and availability.

## Target customers and applications

The converged architecture blade system 19000 can be used to satisfy the harsh requirements of scientific research institutions, financial industries, telecom operators and national public resource management departments to the construction of cloud computing platform and enterprise-class applications. The users can even adjust the node configuration mode at any time according to the demand, realizing the flexible deployment of different applications.



## Specifications of the Enclosure

<b>Model</b>	I9000
<b>Height</b>	12U
<b>Node</b>	8 x full-width nodes or 16 x half-width node in maximum (supporting half-width dual-node)
<b>PCI-E expansion module</b>	8 x standard PCI-E module in maximum; with each module supporting two X8 half height and half length expansion slots, with built-in cooling fans
<b>Switch module</b>	4 x full-height switch modules in maximum
<b>Cooling module</b>	10 x cooling fan modules in maximum
<b>Management module</b>	2 x SMC management modules, supporting 1 + 1 redundancy and stack management function; Supporting remote management of blades and chassis through a unified interface, information monitoring, log management, automatic alarm, online installation, remote management, remote node start, monitoring, locking, close, and cancellation; Supporting IPMI 2.0, KVM Over LAN/KVM Over IP; Serial over LAN(SOL); Virtual Media Over LAN(Virtual USB/DVD and Drove Redirection); 3 x RJ45 interface for management; 2 x USB for directional node blades.
<b>Power module</b>	Front 3,000W 100 - 240V full-power AC hot-swap power module, supporting 1 + 1, 2 + 1, 2 + 2, 3 + 1, 3 + 2, 3 + 3, 4 + 1, 4 + 2 and 5 + 1 redundancy modes, platinum-class conversion efficiency; 2 x rear PDU module, with each module supporting 3 AC input interfaces.
<b>Operating temperature</b>	5°C - 35°C
<b>International certification</b>	ISO 9001 international quality management system; ISO 14001 international environmental management system.
<b>Size</b>	528 x 447 x 839mm (H x W x D)

## 2-socket Compute Blade NX5460M4

<b>Processor</b>	2 x Intel® Xeon® E5-2600V3 processors
<b>Chipset</b>	Dedicated chipset for Intel® C600 server
<b>Memory</b>	Supporting 24 memory slots, supporting DDR4-2133 memory in maximum, 1.5TB memory in maximum (when using the single 64GB memory); Supporting memory ECC, memory mirroring, hot standby for memory and other advanced functions.
<b>Hard disk controller</b>	Standard SAS 12Gb disk controller daughter card
<b>RAID</b>	SAS disk controller supporting RAID 0/1
<b>Storage</b>	1 x built-in Msata SSD hard disk in maximum and 2 x 2.5" hot-swap SATA/SAS/NVMe (PCI-E) interface hard disks or SSD, or SAS + NVWMe
<b>I/O expansion slot</b>	1 x PCI-E 3.0 X8 Raid daughter card slot, 2 x PCI-E3.0 X16 expansion daughter card slot, 1 x PCI-E3.0 X16 expansion module interface, 1 x standard PCI-E 3.0 X8 expansion card slot (realizing through the IO Box on the rear of the enclosure, in half height and length specification)
<b>Integrated I/O port</b>	2 x USB 3.0, 1 x VGA, 1 x Power button, 1 x Reset button
<b>Network controller</b>	Integrated dual-port 1Gb Ethernet card, supporting virtualization acceleration, network acceleration, load balancing, redundancy and other advanced functions
<b>Enclosure Size</b>	Half-width computing blade, applicable to the main enclosure I9000 55 x 214 x 524mm (H x W x D)



## Multi-socket Compute Blade NX8880M4

(Supporting 2/4/8-socket Stack Computing)

<b>Processor</b>	Supporting 2 Intel® Xeon® E7-48/8800V3 processor, 2/4/8-socket stack expansion
<b>Memory</b>	Supporting 48 memory slot, supporting DDR4-1866 memory in maximum, 3TB memory in maximum (when using the single 64GB memory); Supporting advanced memory error correction, memory mirroring, hot standby for memory and other advanced functions.
<b>Hard disk controller</b>	Standard SAS 12Gb disk controller daughter card
<b>RAID</b>	SAS disk controller supports RAID 0/1/5
<b>Storage</b>	Supporting 4 x 2.5" hot-swap SATA/SAS/NVMe (PCI-E, 2, CPU0) interface hard disk or SSD in maximum
<b>I/O expansion slot</b>	1 x PCI-E 3.0 X8 Raid daughter card slot, 2 x PCI-E3.0 X16 expansion daughter card slot, 2 x PCI-E3.0 X8 expansion card slot (can be used to connect IOBox through a dedicated cable; supporting 2 x standard PCI-E expansion card, in half height ad length specification).
<b>Integrated I/O port</b>	2 x USB 3.0, 1 x VGA, 1 x Power button, 1 x Reset button
<b>Network controller</b>	Integrating dual 1Gb Ethernet cards, supporting virtualization acceleration, network acceleration, load balancing, redundancy and other advanced functions.
<b>Enclosure</b>	Full-width computing blade, applicable to the main enclosure I9000 Supporting 2-node, 4-socket stacking and 4-node, 8-socket stacking; the aforesaid computing, storage and expansion specifications improve exponentially based on the quantity of stacked nodes.
<b>Size</b>	51 x 433 x 576mm (H x W x D)

