

## Huawei FusionServer X6000, XH321 v5 VS Servers of HPE, Lenovo, Dell and Inspur

Server Model		Huawei FusionServer X6000, XH321 v5 Rack Server	HPE Apollo 2000 Chassis + HPE ProLiant XL190r Gen10 Server	Lenovo ThinkSystem SD530 Server	Dell PowerEdge C6420 Server	Inspur i24 (NS5162M5 node)
Advantages of Dell Servers		The C6420 supports more CPU models and more types of nics		C6420 memory is not limited by CPU type, supports built-in redundant SD modules,	1. Intel full series CPU support, up to 205W 2. Dell's super supply capacity: 3. NVMe SSD support	1. Intel full series CPU support, up to 205W
Disadvantages of Dell Servers		The C6420 has a maximum RAID card cache of 2GB, while the Huawei XH321 V5 has a cache of 4GB		The C6420 does not support redundant m. 2, GPU options, and the number of PCIE slots		
CPU	Model	Intel® Xeon® 3100,4100,5100,6100,8100 series processors (165W and below)	1 -2 Intel® Xeon® processors 8100/6100/5100/4100	Intel Xeon Bronze, Silver, Gold, or Platinum processors	Intel® Xeon® Scalable processors Sky Lake, Cascade Lake Series	Intel® Xeon® Scalable processors
	CPU model	Currently supports up to 12 cores for 6146 model processors (up to 3.2GHz)	8164	Intel Xeon Platinum 8176 28C	8180M/8280M up to 205W	Up to 165W Intel® Xeon® Scalable processors
Chipset		Intel C621	C622	Intel C624	C621	intel 622/624
RAM	Model	16 memory slots DDR4 2666MHz	128GB/2667MHz/LRDIMM	16 DDR4 DIMM slots, up to 2666MT/s (up to 12 or 16 bits of memory depending on CPU model) CPU models that can support 16 bits of memory	32GB/2667MHz/RDIMM 128GB/2667MHz/LRDIMM	64GB/2667MHz/RDIMM 64GB/2667MHz/LRDIMM Support 2 NVDIMM per node

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				include: 3104, 3106, 4108, 4110, 4112, 4114, 4116, 5115, 5118, 5120, 6130, 8153		
	<b>Total Capacity</b>	RDIMM: 16 32GB RDIMM, when 2 processors, the maximum memory is 512GB. LRDIMM: 16 64GB LRDIMM, when 2 processors, the maximum memory is 1024GB.	1.5tb /node/ machine box 4node	116 memory slots RDIMMs supports up to 512GB. LRDIMMs supports up to 1024GB. 12 memory slots RDIMMs supports up to 384GB. LRDIMMs supports up to 768GB.	RDIMM: 512GB/node; machine box 2TB LRDIMM: 2TB/node; machine box 8TB	1TB/node, totally 4TB/Chassis
<b>Storage controller</b>	<b>Model</b>	Server node supports SR150-M (Avago SAS3408) / SR430C RAID card	S100i E208i/e P408i/e	Intel RSTe 6 Gb SATA software RAID controller 12Gb SAS/SATA RAID adapter (SAS3408-based)	PERC H730P Mezz PERC H330 Mezz 12Gbps SAS HBA [LP] SAS HBA330 Mezz S140	INSPUR SAS 3008 (IT/IMR) supports RAID 0/1/10/1E/5 INSPUR SAS RAID 3108 supports RAID 0/1/1e /5/6/10/50, optional 2G/4G cache, Optional super capacitor LSI 9361-8i supports RAID 0/1/1e /5/6/10/50, optional 1G/2G cache, Optional ultracapacitors

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	Cache Size/Maximum	4GB	0/2/4GB	None	2GB	2GB/4GB
	Cache Protection Type	N/A		N/A		Nonvolatile memory
	Battery or Capacitance	Capacitance	Battery	N/A	Battery	Battery or Capacitance
	Main technical characteristics	The sr150-m (Avago SAS3408) supports raid0/1/10, not power-off protection. SR430C 1 gb / 2 gb (LSI SAS3108) and SR450C 2 GB / 4 GB (Avago SAS3508) can support RAID0/1/10/5 50/6/6 0, support the super capacitor electric protection, Cache capacity optional 1 GB / 2 GB / 4 GB.		Intel RSTe (SW RAID) 、 SAS3408 (HW RAID) Intel RSTe (RAID 0, 1, 10, 5, 50) 、 12Gb SAS/SATA RAID adapter (RAID 0, 1, 10, 5)	PERC H730P Mezz 2GB (LSI3108) PERC H330 Mezz (LSI3008) 12Gbps SAS HBA [LP] SAS HBA330 Mezz (LSI3008) S140	INSPUR SAS 3008 (IT/IMR) supports RAID 0/1/10/1E/5 INSPUR SAS RAID 3108 supports RAID 0/1/1e /5/6/10/50, optional 2G/4G cache, Optional super capacitor LSI 9361-8i supports RAID 0/1/1e /5/6/10/50, optional 1G/2G cache, Optional ultracapacitors
SD Card	Number of SD cards	N/A	1	N/A	2	N/A
	SD card capacity	N/A	8GB/32GB	N/A	64GB	N/A
	SD cards can	N/A		N/A	1	N/A

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	form RAID levels					
M.2	M.2 quantity	1 SATADOM	2	1 or 2	2	2 M.2 SSD
	M. 2 single chip capacity	32G、128G	960GB	ThinkSystem M.2 CV1 32GB ThinkSystem M.2 CV3 128GB	240GB	150GB, 240GB, 480GB, 760GB, 960GB
	M.2 RAID levels	N/A	1	Raid 1	1	1
Network card	Sub-Card (NDC Card Type)	Each node: 2 1Gb base-t, 2 10Gb SFP+	10G/25G/100G	8 ports EIOM 10Gb SFP+ (2 ports per node); 8 port EIOM 10GbaseT RJ45 (2 ports per node) is optional.	2 1GE interfaces, or 2 10GE plus 2 1GE interfaces, or 2/4 10GE interfaces, or 2 25GE interfaces, 2 40GE interfaces, 1/2 100Gb Ethernet /IB/ omni-path	1 OCP card
	PCIe (occupies a standard slot)	8 PCIe 3.0x16 (2 per node)	Yes	4 PCIe 3.0x16 slots (1 per node) or 8 PCIe 3.0x8 slots (2 per node)	Yes	Yes
GPU	GPU Max Supported Blocks	Does not support	1	8 (2 GPU CARDS per node); GPU support is planned for a future update, with the addition of SD530 GPU tray	0	0
	GPU model	N/A	P40/P100/M10	N/A		
FPGA	FPGA Maximum Supported Blocks	Unknown		N/A	0	0

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	FPGA model	Unknown		N/A		
Hard drive backplane	Type (including the maximum number of supported hard disks)	24 x 2.5 inch SAS/SATA hard drive front. 24 x 2.5 inch front SAS/SATA/NVMe PCIe SSD. Each compute node: 6 2.5 inch hard disk slots	12 2.5 inches per node or 6 3.5 inches per node	<b>6 2.5 inch hot plug hard drives</b> a. 6 SAS/SATA b. 4 SAS/SATA + 2 AnyBay <b>5 2.5 inch hot swap hard disk +KVM modules</b> a. 5 SAS/SATA b. 3 SAS/SATA + 2 AnyBay <b>4 2.5-inch hot swap hard disk +KVM modules</b> a. 4 SAS/SATA	Straight back with 24 2.5-inch hard drive slots: up to 6 SAS/SATA hard drives per C6420 node Extended back with 24 2.5-inch hard drive slots: up to 12 SAS/SATA hard drives per C6420 node, only 2 C6420 nodes per C6420 case NVMe back with 24 2.5-inch hard drive slots: up to 2 SAS/SATA/NVMe hard drives and 4 SAS/SATA hard drives per C6420 node Straight back with 12 3.5-inch hard drive slots: up to 3 SAS/SATA hard drives per C6420 node, each C6420 node also supports the option of no backplane, no external hard disk	12x 3.5 "or 24x 2.5" (SATA/SAS/NVMe SSD) Evenly distributed to four nodes In an NVMe configuration, a maximum of four blocks of NVMe per node
	Whether to	Yes	Yes	Yes	Yes	Yes

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	support hard disk hot swap					
Hard disk configuration	Model and quantity	300GB / 600GB / 900GB / 1.2TB 10K to SAS 300GB / 600GB 15K to SAS 2TB / 3TB / 4TB 7.2K to NL-SAS 1TB / 3TB / 4TB 7.2K to SATA 1.2TB / 1.6TB / 1.92TB / 240GB / 3.84TB / 480GB / 800GB / 960GB SSD No information is currently found to support NVMe SSD	SAS/SATA; 24*2.5"/12*3.5"	<b>2.5-inch 12Gbps SAS hard drive:</b> 300GB 15K、600GB 15K、900GB 15K 300GB 10K、600GB 10K、900GB 10K、1.2TB 10K、1.8TB 10K <b>2.5-inch 12Gbps nl-sas hard drive:</b> 1TB 7.2K、2TB 7.2K <b>2.5-inch 6Gbps SATA hard drive:</b> 1TB 7.2K、2TB 7.2K <b>2.5-inch SSD hard drive:</b> <b>SAS interface:</b> HUSMM32 400GB、HUSMM32 800GB、PM1635a 400GB、PM1635a 800GB、PM1633a 3.84TB、PM1633a 7.84TB <b>SATA interface:</b> PM863a 240GB、PM863a 480GB、Intel S3520 240GB、Intel S3520 480GB、 <b>NVMe PCIe interface:</b> U.2	SAS/SATA; 24*2.5"/12*3.5"	12x 3.5" or 24x 2.5" (SATA/SAS/NVMe SSD),evenly distributed to 4 nodes.

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				PX04PMB 800GB、U.2 PX04PMB 1.6TB、U.2 PX04PMB 960GB、U.2 PX04PMB 1.92TB		
Chassis	Dimensions (cm)	Dimensions (height x width x depth) 86.1 mm*436 mm*805 mm	8.73*44.80*86.33cm; 25.37kg	<b>SD530 server node</b> Height: 41 mm (1.7 in) Width: 222 mm (8.8 in) Depth: 562 mm (22.2 in) <b>D2 chassis: (2U height)</b> Height: 87 mm (3.5 in) Width: 488 mm (19.3 in) Depth: 892 mm (35.1 in)	48.2*8.7*79; 43.6kg	2.5-bay chassis: 446 width x 87.5 height x 805 depth (unit: mm) 3.5-bay chassis: 446 width x 87.5 height x 845 depth (unit: mm)
	Ventilation method	Forward wind	Air-cooled	Wind after wind	Air-cooled, liquid direct cooling (DLC)	Air-cooled, liquid direct cooling (DLC)
Temperature	Equipment operating temperature range (°C)	Operating temperature: 5 °C ~ 35 °C (41 °F ~ 95 °F)	10 °C to 35 °C	ASHRAE Class A4: 5 °C - 45 °C (41 °F - 113 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 125-m (410-ft) increase in altitude ASHRAE Class A3: 5 °C - 40 °C (41 °F - 104 °F); for altitudes above 900 m (2,953 ft), decrease the	10 °C to 35 °C	5 °C to 35 °C

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				maximum ambient temperature by 1 °C for every 175-m (574-ft) increase in altitude ASHRAE Class A2: 10 °C - 35 °C (50 °F - 95 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 300-m (984-ft) increase in altitude		
	<b>Equipment working humidity range</b>	Working humidity: 8% RH ~ 90% RH (no condensation) Non-working humidity: 5% RH ~ 95% RH (no condensation)	10% to 90%	ASHRAE Class A4: 8% - 90% (non-condensing); maximum dew point: 24 °C (75 °F) ASHRAE Class A3: 8% - 85% (non-condensing); maximum dew point: 24 °C (75 °F) ASHRAE Class A2: 8% - 80% (non-condensing); maximum dew point: 21 °C (70 °F)	10% to 80%	



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Hot-swappable power supplies	Nominal power of single power supply (W)	1500W 1000W	800/1400w	ThinkSystem D2 1100W Platinum PSU ThinkSystem D2 1600W Platinum PSU ThinkSystem D2 2000W Platinum PSU	2400W/2000W/1600W AC power supply	2 2000W 80Plus platinum power supplies, support 1+1 redundancy (conditional support 1+1 redundancy, please confirm according to the specific configuration) 100 V to 240 V AC or 192 V to 300 V DC (please refer to the power input value on the label of the host nameplate)
	Quantity	1 or 2	2	1 or 2	2	1+1
	Dual power mode	2 hot plugs/redundancy 1+1	Redundancy	2 hot plug/redundancy 1+1 or 1 non-redundancy 1100W	Redundancy	Redundancy
	Input method	220V AC /240V DC		110V AC ( 1100W ) 220V AC ( 1100W、1600W、2000W ) 240V DC ( 1100W、1600W、2000W )	90-264V AC, 47-63Hz	100 V to 240 V AC or 192 V to 300 V DC (please refer to the power input value on the host nameplate label)
PCI-E (I/O)	Quantity	Each node has 2 half high and half long PCIe standard CARDS (card slot 1 can be selected with RAID control buckle card, card slot 2 can	4	4 PCIe 3.0x16 slots (1 per node) or 8 PCIe 3.0x8 slots (2 per node)	4/node	3 PCI-Eslots: ▪ Riser conversion card supports horizontal, half high and half long CARDS;Slot 1, slot 2

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		be selected with huawei IB card)				(derived from CPU0) supports 2 pci-e x16 slots with 2 Riser CARDS ▪ the main board is integrated with an OCP standard card or PHY card slot
USB port	Quantity	3 USB 2.0 ports are provided by connecting the high density cable	3	Up to three USB ports are available through optional KVM modules a. KVM integrates 1 USB 3.0 interface b. provide 2 USB 2.0 ports by separating cables	2	2 x USB 2.0, need to switch wiring
Out-of-band management	Yes or No	Yes	Yes	Yes	Yes	Yes
	The main function	Management board (HMM) implements frame management of X6000, providing environmental temperature monitoring, fan management, power management and node management. The node integrates the new generation of iBMC	HPE iLO Standard with smart configuration (embedded), HPE OneView Standard (download required) (Standard), HPE iLO Advanced, HPE iLO Advanced Premium Security Edition and HPE OneView Advanced (optional)	XClarity Controller (XCC) Standard、Advanced、Enterprise Features of the Standard version are included by default, optionally upgraded to Advanced or Enterprise by Features on Demand (FoD) Mobile management	BMC with virtual media and console (default) iDRAC 9 Enterprise with server lifecycle management	i24 integrates a new generation of BMC intelligent management system ICM. The system, developed by Inspur Inspur, is compatible with the management standard of the server industry Quasi IP 2.0 specification, with high reliability, more

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		<p>intelligent management system, which is a server remote management system independently developed by huawei and has completely independent intellectual property rights. It is compatible with IPMI2.0 standard of server industry management and has highly reliable hardware monitoring and management functions. The whole machine integrates a new generation of HMM whole machine management system to realize the management of heat dissipation, power supply and frame asset information of common parts of the whole frame. Users can log in to the node iBMC Web interface through the management network port of the node or the sink network port of the chassis.</p>		<p>function is supported (Xclarity Mobile App+ USB interface), and Mobile App supports Android or iOS</p>		<p>intelligent hardware monitoring and management functions. i24 also supports the CMC management of the machine box, which can realize the unified management of the power supply and fan in the machine box and view any node Regulatory information.</p>

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Energy management	Yes or No	N/A	Yes	Yes: Xclarity Energy Manager	Yes	N/A
System cooling fan		The X6000 adopts 4 8080 high pressure convection fans to improve the heat dissipation capacity of the X6000 machine. The management module automatically adjusts the speed according to the working conditions of the server nodes, realizing intelligent cooling and supporting single fan failure.	8	5 hot plug fans: a. 3 60mm hot unplug fans b. 2 80mm hot unplug fans	4 dual-rotor non-redundant non-hot plug fans	Two dual-rotor non-redundant non-hot plug fans
LCD display		N/A	N/A	N/A is diagnosed by Light path diagnostics	N/A	N/A
Host front panel with keyhole and key		N/A	N/A	N/A	N/A	N/A
Other		N/A		Lenovo AnyBay is a unique drive bay type that allows a choice of drive interface types in the same drive bay: SAS drives, SATA drives, or U.2 NVMe PCIe drives.		

## Related Sources

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