

HPE Apollo 2000 & XL190r Gen10 VS Servers of Inspur, Dell, Lenovo and Huawei

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

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					memories depends on the CPU model) CPU models that can support 16 memories include: 3104 , 3106, 4108, 4110, 4112, 4114, 4116, 5115 , 5118, 5120, 6130, 8153	
	Total Capacity	1.5TB/node/the entire chassis is 4node	1TB/node, totally 4TB/Chassis	RDIMM: 512GB / node; the entire chassis is 2TB LRDIMM: 2TB / node; the entire chassis is 8TB	16 memory slots RDIMMs support a maximum of 512GB. LRDIMMs support a maximum of 1024GB. 12 memory slots RDIMMs support a maximum of 384GB. LRDIMMs support a maximum of 768GB.	RDIMM: 16 32GB RDIMMs, with 2 processors, the maximum memory is 512GB. LRDIMM: 16 64GB LRDIMMs, with 2 processors, the maximum memory is 1024GB.
Storage controller	Model	S100i E208i/e P408i/e	INSPUR SAS 3008 (IT / IMR) Support RAID 0/1/10 / 1E / 5 INSPUR SAS RAID 3108 Support RAID 0/1 / 1E / 5/6/10/50, optional 2G / 4G cache, optional super capacitor LSI 9361-8i supports RAID 0/1 /	PERC H730P Mezz PERC H330 Mezz 12Gbps SAS HBA [LP] SAS HBA330 Mezz S140	Intel RSTe 6 Gb SATA software RAID controller 12Gb SAS/SATA RAID adapter (SAS3408-based)	Server node supports SR150-M (Avago SAS3408) / SR430C RAID card

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			1E / 5/6/10/50, optional 1G / 2G cache, optional super capacitor			
	Cache size / maximum	0/2/4GB	2GB/4GB	2GB	None	4GB
	Cache protection type		Non-volatile memory		N/A	N/A
	Battery or capacitor	Battery	Battery, Capacitor	Battery	N/A	Capacitance
	Main technical characteristics		INSPUR SAS 3008 (IT / IMR) Support RAID 0/1/10 / 1E / 5 INSPUR SAS RAID 3108 Support 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 super capacitor	PERC H730P Mezz 2GB (LSI3108) PERC H330 Mezz (LSI3008) 12Gbps SAS HBA [LP] SAS HBA330 Mezz (LSI3008) S140	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)	SR150-M (Avago SAS3408) can support RAID0 / 1/10, and does not support power-down protection. SR430C 1GB / 2GB (LSI SAS3108) and SR450C 2GB / 4GB (Avago SAS3508) can support RAID0 / 1/10/5/50/6/60, support super capacitor power-down protection, and cache capacity can be selected from 1GB / 2GB / 4GB.

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SD card	Number of SD cards	1	NA	2	N/A	N/A
	SD card capacity	8GB/32GB	NA	64GB	N/A	N/A
	SD cards can form RAID levels		NA	1	N/A	N/A
M.2	M.2 quantity	2	2 M.2 SSD	2	1 or 2	1 SATADOM
	M. 2 single chip capacity	960GB	150GB, 240GB, 480GB, 760GB, 960GB	240GB	ThinkSystem M.2 CV1 32GB ThinkSystem M.2 CV3 128GB	32G、 128G
	M.2 RAID levels	1	1	1	Raid 1	N/A
Network card	Sub-Card (NDC Card Type)	10G/25G/100G	1 OCP	2 1GE interfaces, or 2 10GE plus 2 1GE interfaces, or 2/4 10GE interfaces, or 2 25GE interfaces, 2 40GE, 1/2 100Gb Ethernet / IB / Omni-Path	Optional 8-port EIOM 10Gb SFP + (2 ports per node); Optional 8-port EIOM 10GbbaseT RJ45 (2 ports per node).	Each node: 2 1Gb Base-T, 2 10Gb SFP +
	PCIe (occupies a standard slot)	Yes	Yes	Yes	4 PCIe 3.0 x16 slots (1 per node) or 8 PCIe 3.0 x8 slots (2 per node)	8 PCIe 3.0 x16 (2 per node)
GPU	GPU Max Supported Blocks	1	0	0	8 (2 GPU cards per node); GPU support is planned for a future update, with the addition of SD530 GPU tray	Not support

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	GPU model	P40/P100/M10			N/A	N/A
FPGA	FPGA Maximum Supported Blocks		0	0	N/A	Unknown
	FPGA model				N/A	Unknown
Hard drive backplane	Type (including the maximum number of supported hard disks)	12 2.5 inches or 6 3.5 inches per node	12x 3.5" or 24x 2.5" (SATA / SAS / NVMe SSD) are equally divided into 4 nodes. In the case of NVMe configuration, each node has a maximum of 4 NVMe	Direct backplane with 24 2.5-inch hard drive slots: each C6420 node supports up to 6 SAS / SATA hard drives Expansion backplane with 24 2.5-inch hard drive slots: Each C6420 node supports up to 12 SAS / SATA Hard disk. At this time, the C6420 chassis can only support two NVMe backplanes with 24 2.5-inch hard disk slots on two C6420 nodes : each C6420 node supports a maximum of two SAS / SATA / NVMe hard disks and four SAS / SATA hard disks with 12 3.5-inch hard disk	6 2.5-inch hot-swap hard drives a. 6 SAS / SATA b. 4 SAS / SATA + 2 AnyBay 5 2.5-inch hot-swap hard drives + KVM modules a. 5 SAS / SATA b. 3 SAS / SATA + 2 AnyBay 4 2.5-inch hot-swap hard drives + KVM modules a. 4 SAS / SATA	Front 24 * 2.5 inch SAS / SATA hard disk. Front 24 * 2.5 inch SAS / SATA / NVMe PCIe solid state drive. Each compute node: Six 2.5-inch hard disk slots

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				slot directly connected backplane: Each C6420 node supports up to 3 SAS / SATA hard disks. Each C6420 node also supports the option of no backplane and no external hard disk.		
	Whether to support hard disk hot swap	Yes	yes	Yes	Yes	Yes
Hard disk configuration	Model and quantity	SAS/SATA; 24*2.5"/12*3.5"	12x 3.5" or 24x 2.5" (SATA / SAS / NVMe SSD) equally divided into 4 nodes	SAS/SATA; 24*2.5"/12*3.5"	2.5-inch 12Gbps SAS hard disk: 300GB 15K, 600GB 15K, 900GB 15K 300GB 10K, 600GB 10K, 900GB 10K, 1.2TB 10K, 1.8TB 10K 2.5-inch 12Gbps NL-SAS hard disk: 1TB 7.2K, 2TB 7.2K 2.5-inch 6Gbps SATA hard disk : 1TB 7.2K, 2TB 7.2K 2.5-inch SSD hard disk:	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

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					SAS interface: HUSMM32 400GB, HUSMM32 800GB, PM1635a 400GB, PM1635a 800GB, PM1633a 3.84TB, PM1633a 7.84TB SATA interface: PM863a 240GB, PM863a 480GB, Intel S3520 240GB, Intel S3520 480GB, NVMe PCIe interface: U.2 PX04PMB 800GB, U.2 PX04PMB 1.6TB, U.2 PX04PMB 960GB, U.2 PX04PMB 1.92TB	
Chassis	Dimensions (cm)	8.73*44.80*86.33cm; 25.37kg	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)	48.2*8.7*79; 43.6kg	SD530 server node height: 41 mm (1.7 in) width: 222 mm (8.8 in) depth: 562 mm (22.2 in) D2 chassis: (2U height) height: 87 mm (3.5 in) width: 488 mm (19.3 in) Depth: 892 mm (35.1 in)	Dimensions (height x width x depth) 86.1 mm x 436 mm x 805 mm
	Ventilation method	Air-cooled	Air-cooled, liquid direct cooling (DLC)	Air-cooled, liquid direct cooling (DLC)	Wind after wind	Forward wind
Temperature	Equipment	10℃ to 35℃	5℃ to 35℃	10℃ to 35℃	ASHRAE Class A4: 5℃ -	Operating temperature:

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	operating temperature range (°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 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	5 °C to 35 °C (41 °F to 95 °F)
	Equipment working humidity range	10% to 90%		10% to 80%	ASHRAE Class A4: 8% - 90% (non-condensing); maximum dew point: 24 °C (75 °F) ASHRAE Class A3: 8% - 85% (non-condensing); maximum	Operating humidity: 8% RH to 90% RH (non-condensing) Non-operating humidity: 5% RH to 95% RH

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					dew point: 24 °C (75 °F) ASHRAE Class A2: 8% - 80% (non-condensing); maximum dew point: 21 °C (70 °F)	(non-condensing)
Hot-swappable power supplies	Nominal power of single power supply (W)	800/1400w	Two 2000W 80Plus Platinum power supplies, supporting 1 + 1 redundancy (conditionally supports 1 + 1 redundancy, please confirm according to the specific configuration) 100 V to 240 V AC or 192 V to 300 V DC (please use the Power input value shall prevail)	2400W / 2000W / 1600W AC power supply	ThinkSystem D2 1100W Platinum PSU ThinkSystem D2 1600W Platinum PSU ThinkSystem D2 2000W Platinum PSU	1500W 1000W
	Quantity	2	1+1	2	1 or 2	1 or 2
	Dual power mode	Redundancy	Redundancy	Redundancy	2 hot-swappable / redundancy 1 + 1 or 1 non-redundancy 1100W	2 hot-swappable / redundancy 1 + 1
	Input method		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)	90-264V AC, 47-63Hz	110V AC (1100W) 220V AC (1100W、1600W、2000W) 240V DC (1100W、1600W、2000W)	220V AC / 240V DC
PCI-E (I/O)	Quantity	4	3 PCI-E slots: ▪ Supports horizontal,	4/node	4 PCIe 3.0 x16 slots (1 per node) or 8 PCIe 3.0 x8 slots	Each node has two half-height, half-length

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			half-height, and half-length cards through riser conversion cards; Slot 1, slot 2 (from CPU0) supports two PCI-E x16 slots through 2 riser cards ▪ Motherboard Integrated 1 OCP standard card or PHY card sl		(2 per node)	PCIe standard cards (standard card slot 1 can be equipped with a RAID controller card, and standard card slot 2 can be equipped with a Huawei IB card)
USB port	Quantity	3	2 x USB 2.0, requires adapter cable	2	Provides up to 3 USB interfaces through optional KVM module a. KVM integrates 1 USB 3.0 interface b. Provides 2 USB 2.0 interfaces through separate cables	Provides three USB 2.0 ports by connecting high-density cables
Out-of-band management	Yes or No	Yes	Yes	Yes	Yes	Yes
	The main function	HPE iLO Standard with Smart Configuration (embedded), HPE OneView Standard (download required) (standard), HPE iLO Advanced, HPE iLO Advanced	i24 integrates the new generation of BMC intelligent management system ICM. The system developed by Inspur wave of independent, industry-compatible server management standard	BMC (default) iDRAC 9 Enterprise with virtual media and console with server lifecycle management	XClarity Controller (XCC) Standard, Advanced, and Enterprise include Standard version features by default. You can choose to upgrade to Advanced or Enterprise	The management board (HMM) implements the chassis management of the X6000 and provides functions such as environmental temperature monitoring,

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		Premium Security Edition, and HPE OneView Advanced (optional)	<p>quasi IPMI2.0 specification, with high reliability, more intelligent hardware monitoring and management capabilities.</p> <p>The i24 also supports CMC management of the entire chassis, which can implement unified management of the power supply and fans in the entire chassis and view the supervision information of any node .</p>		<p>through Features on Demand (FoD). Support mobile management functions (Xclarity Mobile App + front USB interface connection). Mobile App supports Android or iOS</p>	<p>fan management, power management, and node management. The node integrates a new generation of iBMC intelligent management system. The iBMC intelligent management system is a server remote management system with completely independent intellectual property rights independently developed by Huawei. It is compatible with the server industry management standard IPMI2.0 specification and has highly reliable hardware monitoring and management. Features. The whole machine integrates a new-generation HMM whole machine</p>

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						management system, which realizes the management of heat dissipation, power supply, and chassis asset information of common parts of the whole chassis. Users can log in to the iBMC web interface of the node through the management network port of the node or the aggregation network port of the chassis.
Energy management	Yes or No	Yes	No	Yes	Yes: Xclarity Energy Manager	N/A
System cooling fan		8	2 dual-rotor non-redundant non-hot-swappable fans	4 dual-rotor non-redundant non-hot-swappable fans	5 hot-swap fans: a. 3 60mm hot-swap fans b. 2 80mm hot-swap fans	The X6000 uses four 8080 high-pressure convection fans to improve the heat dissipation capability of the X6000. The management module automatically adjusts the

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					rotation speed according to the working status of the server node, realizes intelligent heat dissipation, and supports single fan failure.
LCD display	N/A	N/A	N/A	N/A, using Light path diagnostics	N/A
Host front panel with keyhole and key	N/A	N/A	N/A	N/A	N/A
Other				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.	N/A

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