Specificații tehnice (F4.1)

Numărul procedurii de achiziție ocds-b3wdp1-MD-1617976846592 Din 09.04.2021

Denumirea procedurii de achiziție: Echipament și servicii pentru modernizarea Centrului de Date al IP Universității Tehnice a Moldovei

Nr. poziție	Cod CPV	Denumirea bunurilor/serviciilor	Modelul articolului	Țara de origine	Produ-cătorul	Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către ofertant	Standarde de referință
	1	2	3	4	5	6	7	8
		Bunuri/Servicii						
		LOT 1 Failover Clustering system						
1.1	4882000 0-2	Server pentru sistema cluster	Huawei FusionServer 1288H V5	China	Huawei Technologie s Co. Ltd.	• Form-factor: 19" rackmount • CPU: 2 buc incluse, frecvența de bază min. 3.1GHz, frecvența maximală - min. 4.1GHz, min. 35MB cache, min. 20 nuclee, min. 40 fluxuri • RAM: suport până la 3TB, min 6 x 32GB Dual Rank DDR4-2933 ECC instalate • min 8 sloturi pentru HDD/SSD 2.5" folosite numai pentru discuri cu date (fără sistem de operare) • Boot media: min 2 x 32GB SSD in RAID1 • LAN: min 2 x 1Gbps RJ-45, min 4 x 10Gbps SFP+, 1x 1Gbps port de management dedicat • USB porturi: min 3 x USB 3.0 type A • sloturi de extensie: până la 3 PCIe 3.0 • Sursa de alimentare: min 2 surse de alimentare, min 550W fiecare	1x H12H-05-S8AFF 1288H V5 (8*2.5inch HDD Chassis, With 2*GE and 2*10GE SFP+(Without Optical Transceiver)) H12H-05(For oversea) 2x WEPW55000 550W platinum AC Power Module 1x BC1M02MSMA SR230-M,Avago3004,M.2 RAID PCIE card-RAID0,1,JBOD,Support Sideband Management,PCIE 3.0 X8,No Cache,HH/HL 2x BC1M02M2FRU M.2 SSD,SATA 6Gb/s-32GB,Hot-Swappable 2x BC30M11CPU Intel Xeon Gold 6242R(3.1GHz/20-Core/35.75MB/205W)Cascade lake Processor (with heatsink) 6x M429R32 Memory Module,DDR4 RDIMM,32GB,288pin,0.68ns,293 3000KHz,1.2V,2Rank(2G*8bit)	

						• Remote management interface fără necesitatea licențierii sau cu licența de tip "full-feature" activată • Sisteme de operare suportate: VMware vSphere, Microsoft Hyper-V, Citrix XenServer • Rail kit si cabluri de alimentare C13-C14 incluse • Minim 3 ani de garanție direct de la producător de tip Next Business Day (NBD)	1x BC11RLCA SR150-M(Avago3408) SAS/SATA RAID Card-RAID0,1,10-12Gb/s-no Cache 1x BC5M01ETHD SM330 Onboard NIC,10GE Optical Interface(Intel X710),Dual-Port,SFP+(without Optical Transceiver) 1x BC2M04RISE PCIe Riser Card,RISER1,1*x16 HH,Used for 1288H V5 2x C0IMSHC02 High Speed Cable,Internal Mini SAS HD Cable,0.85m,Internal Mini SAS HD R/A,8*(1P*30AWG+2*Drain)+8C*30AWG,Internal Mini SAS HD STR,R/A-STR 1x SR796X43 RH1288 V3 1U static rail(Direct delivery material) 1x 02311XDB_88134UGQ-28S_36 1288H V5 (8*2.5inch HDD Chassis, With 2*GE and 2*10GE SFP+(Without Optical Transceiver)) H12H-05(For oversea)_Co-Care Standard 1288H V5_36Month(s) • Form-factor: 19" rackmount •CPU: Intel Xeon Gold 6242R frecvența de bază 3.1GHz, frecvența maximală - 4.1GHz, 35.75MB cache, 20 nuclee, 40 fluxuri – 2 buc inclus • RAM: suport până la 7,5TB. 32GB Dual Rank DDR4-2933 ECC – 6 buc instalate •8 HDD/SSD 2.5" chassis • Boot media: incluse 2 buc M.2 SSD,SATA 6Gb/s-32GB,Hot-Swappable in RAID1	

							•LAN: 2 buc 1 GE RJ-45, 4buc 10GE SFP+, 1buc 1GE serial port RJ-45 • USB porturi: 3 buc USB 3.0 de tip A • Sloturi de extensie: până la 5 PCIe 3.0 • Sursa de alimentare: 550W AC Platinum PSU – 2 buc • Intelligent Server Management System (iBMC) inclus • Sisteme de operare suportate: Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, CentOS, Citrix XenServer, VMware ESXi • Rail kit si cabluri de alimentare C13-C14 incluse • Garanție:3 ani de tip NBD Onsite	
1.2	4878200 0-3	Sistem de stocare tip I	OceanStor Dorado 5000 V6	China	Huawei Technologie s Co. Ltd.	• Compatibilitatea deplină cu serverele din punctul 1.1 • Chassis: max 2U, rackmount 19" • Tip de stocare – all-flash cu arhitectura full-mesh • Controler dual pe șasiu în modul activ / activ. Suport până la 4 controlere per sistem de stocare, posibilitatea extinderii până la 16 controlere doar prin actualizarea software-ului • RAM cache - Min. 128 GB per controler instalat. Suport pentru până la 2 TB per sistem de stocare. Posibilitatea extinderei până la 4 TB per sistem de stocare doar prin actualizarea software-ului • Protocoale suportate – FC, CIFS, NFS, iSCSI	1x D5V6-256G-SAS-DC-TPM OceanStor Dorado 5000 V6(2U,Dual Ctrl,SAS,AC\240V HVDC,256GB Cache,4*(4*12Gb) SAS,25*2.5",SPE52C0225) 2x DV6-SMARTIO4*10E-ML 4 ports SmartIO I/O module(SFP+,10Gb ETH) 12x D5V6-SSD-SAS-3.84T 3.84TB SSD SAS Disk Unit(2.5") 8x SN2F01FCPC Patch Cord,DLC/PC,DLC/PC,Multi-mode,3m,A1a.2,2mm,42mm DLC,OM3 bending insensitive 1x D5V6-LBS-Super Advanced License(Including DeviceManager,Thin,Migration,Sn ap,Replication,Clone,QoS,Erase,eS ervice,Virtualization,Metro,CDP) 73x D5V6-LBS-C-General Capacity License (per TiB	

| | | | | | | • 24 sloturi hotswap pentru SSD 2.5" (extensibil pana la 1600 discuri SSD)
• Min. 8 interfete SFP+ 10Gbps. Posibilitatea de adauga pina la 16 x 10/25Gbps.
• Min. 4 interfete externe SAS 12Gbps pentru extinderea capacitatii storage-ului
• Sursa de alimentare: min 2 buc redundant, AC 220V
• Sistem integrat pentru monitorizarea și înregistrarea sănătății și performanței echipamentelor, cu stocarea datelor
• RAID niveluri 5/6/10/TP
• Suport de monitorizare statutului de SSD
• Suport discuri hot-spare
• Compatibilitate inalta snapshoturilor cu sisteme de virtualizare VMWare ESXi si Microsoft Hyper-V
• Funcționalitate software-lui cu licența activa: inline deduplication; inline compression; thin provisioning; metro cluster in active/active mode; remote replication; snapshot; data caching;
• Discuri hot-swap incluse: min 12 x 3.84TB 12G SAS 2.5" Read-intensive SSD
• Suport de virtualizare pe niveluri hardware si software
• Management – interfata Web, SNMP, port consola, RESTful API | Effective Capacity,Including SmartDedupe&SmartCompression)
12x 02352SFR_88134UGQ-28A_36 3.84TB SSD SAS Disk Unit(2.5")_Co-Care Standard Dorado 5000 3.6TB-4TB SSD_36Month(s)
1x 02352VUU_88134UGQ-4XE_36 OceanStor Dorado 5000 V6(2U,Dual Ctrl,SAS,AC\240V HVDC,256GB Cache,4*(4*12Gb) SAS,25*2.5",SPE52C0225)_Co-Care Standard Dorado 5000 V6 Controller Enclosure_36Month(s)
1x 88036XNC_88134UHK-1HL_36 Advanced License(Including DeviceManager,Thin,Migration,Snap,Replication,Clone,QoS,Erase,eService,Virtualization,Metro,CDP)_ Hi-Care Application Software Upgrade Support Service OceanStor Dorado 5000 V6 Advanced License_36Month(s)

• Compatibilitatea deplină cu Huawei FusionServer 1288H V5
• Chassis: 2U, rackmount 19"
• Tip de stocare – All-Flash cu Full-Mesh Balanced Hardware Architecture
• Controler dual pe șasiu în modul activ / activ. Suport până la 4 controlere per sistem de stocare, posibilitatea extinderii până la 16 controlere doar prin actualizarea software-ului
• RAM cache - 128 GB per controler instalat. Suport pentru până la 2 TB per sistem de stocare. | |

| | | | | | | • Minim 3 ani de garantie direct de la producator de tip Next Business Day (NBD) | Posibilitatea extinderei până la 4 TB per sistem de stocare doar prin actualizarea software-ului
• Protocoale suportate – FC, CIFS, NFS, iSCSI
• 24 sloturi hotswap pentru SSD 2.5" (extensibil pana la 1600 discuri SSD)
• 8 interfete SFP+ 10Gbps. Posibilitatea de adauga pina la 16 x 10/25Gbps.
• 4 interfete externe SAS 12Gbps pentru extinderea capacitatii storage-ului
• Sursa de alimentare: 2 buc redundant, AC 220V
• Sistem integrat pentru monitorizarea și înregistrarea sănătății și performanței echipamentelor, cu stocarea datelor
• RAID niveluri 5/6/10/TP
• Suport de monitorizare statutului de SSD
• Suport discuri hot-spare
• Compatibilitate inalta snapshoturilor cu sisteme de virtualizare VMWare ESXi si Microsoft Hyper-V
• Funcționalitate software-lui cu licența activa: inline deduplication; inline compression; thin provisioning;
metro cluster in active/active mode; remote replication; snapshot; data caching;
• Discuri hot-swap incluse: 12 x 3.84TB 12G SAS 2.5" Read-intensive SSD
• Suport de virtualizare pe niveluri hardware si software | |

							• Management – interfata Web, SNMP, port consola, RESTful API • Garanție:3 ani de tip NBD Onsite	
1.3	4862600 0-2	Soft de virtualizare	VMware VSphere Essentials Plus Kit 6 Processor 3yr	SUA	VMware	• Suport de 3 servere cu cate 2 CPU fiecare • Compatibilitatea cu serverele din punctul 1.1 • Suport de High Availability, Replication, Thin Provisioning, Live migration • Licența trebuie să fie pe viață fără subscripțiile • Suport de la producator pentru 3 ani	• Suport de 3 servere cu cate 2 CPU fiecare • Compatibil cu serverele Huawei FusionServer 1288H V5 • Suport de High Availability, Replication, Thin Provisioning, Live migration • Suport de la producator pentru 3 ani de tip 24/7	
1.4	4878200 0-3	Sistem de stocare tip II	SYNOLOGY "RS3618xs"	Taiwan	Synology Inc.	• Chassis: max 2U, rackmount 19" • min. 12 sloturi pentru HDD/SSD 2.5" si 3.5" form-factor • CPU: frecventa de baza min. 2.4GHz, frecventa maximala - min. 2.7GHz, min. 6MB cache, min. 4 nuclee, min. 8 fluxuri • RAM: suport pana la 64GB, min 8 GB DDR4 ECC instalat • Discuri incluse: min. 10x 12TB SATA 6GB/s 3.5" 7200RPM de tip Enterprise; min. 2x 500GB SSD SATA 6GB/s 2.5" • LAN: min. 4x 1Gbps RJ-45, 2x 10GbE SFP+ (cu suport Dynamic Link Aggregation IEEE802.3ad LACP) • PCI Express slots - min. 2 x PCIe 3.0 x8 • Encryption - AES-NI hardware-based • Storage modes – block, file • Network protocols - SMB, AFP, NFS, FTP, WebDAV, CalDAV, iSCSI, SSH, SNMP	• Form Factor: 2U, Rackmount 19" •12 sloturi pentru HDD/SSD 2.5" si 3.5" • CPU: Intel Xeon D-1521, 4-core 2.4 (base) / 2.7 (turbo) GHz, 6MB cache, 4 nuclee, 8 fluxuri • RAM: suport pana la 64GB, 8 GB DDR4 ECC instalat • Discuri incluse: 10x 3.5" HDD 12.0TB-SATA-256MB Western Digital "Gold Enterprise Class (WD121KRYZ)"; 2x 2.5" SATA 6GB/s SSD 500GB Samsung 870 EVO "MZ-77E500BW" • LAN: 4x 1Gbps RJ-45, 2x 10GbE SFP+ E10G17-F2 (cu suport Dynamic Link Aggregation IEEE802.3ad LACP) • PCI Express slots - 2 x PCIe 3.0 x8 • Encryption - AES-NI hardware-based • Storage modes – block, file • Network protocols - SMB, AFP, NFS, FTP, WebDAV, CalDAV, iSCSI, SSH, SNMP	

						• Supported RAID types – JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10 • Posibilitatea de a adăuga cache SSD • Functii de creare Snapshot, management si backup • Supported files systems in file mode: ext4, ext3, FAT, NTFS, HFS+, exFAT • Compatibilitate cu sisteme de virtualizare: VMware, • Suportul tehnologiei VMware/Hyper-V CBT • Securitate - ACL, firewall, tunelare TLS / SSL, detectare malware, volume encryption • Software pentru gestionarea de la distanță a configurației și copiilor de rezervă • Minim 2 ani de garantie	• Supported RAID types – JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10 • Posibilitatea de a adăuga cache SSD • Functii de creare Snapshot, management si backup • Supported files systems in file mode: ext4, ext3, FAT, NTFS, HFS+, exFAT • Compatibilitate cu sisteme de virtualizare: VMware • Suportul tehnologiei VMware/Hyper-V CBT • Securitate - ACL, firewall, tunelare TLS / SSL, detectare malware, volume encryption • Software pentru gestionarea de la distanță a configurației și copiilor de rezervă • 2 ani de garantie	
1.5	7221221 2-8	Servicii de instalare si configurare al echipamentului	Servicii de instalare si configurare al echipamentulu i	Republica Moldova	IT-LAB GRUP SRL	• Instalare si interconectare serverelor in dulap de telecomunicatii existent conform shemei din Anexa 1 • Instalare sistemului de stocare in dulap de telecomunicatii existent • Conectare echipamentul (servere si sistem de stocare) in UPS existent si calibrarea aceea • Configurare serverelor si sistem de stocare (management, RAID groups, monitoring) • Instalarea si configurarea softului de virtualizare (cluster, live migration, iSCSI storage, thin provisioning, backup)	• Instalare si interconectare serverelor in dulap de telecomunicatii existent conform shemei din Anexa 1 din caietului de sarcini. • Instalare sistemului de stocare in dulap de telecomunicatii existent • Conectare echipamentul (servere si sistem de stocare) in UPS existent si calibrarea aceea • Configurare serverelor si sistem de stocare (management, RAID groups, monitoring) • Instalarea si configurarea softului de virtualizare (cluster, live	

						• Migrarea datelor si sistemelor de operare (bare metal) de pe echipamentul veche: - Windows server 2008, 2012, 2016 - 20 buc - Linux Debian, CentOS- 10 buc - FreeBSD - 3 buc • Configurarea copiilor de rezerva pentru fiecare unitate (sisteme de operare, masini virtuale, date critice pe sistem de stocare) prin NFS/CIFS • Verificarea si testarea tuturor componentelor software si hardware	migration, iSCSI storage, thin provisioning, backup) • Migrarea datelor si sistemelor de operare (bare metal) de pe echipamentul veche: - Windows server 2008, 2012, 2016 - 20 buc - Linux Debian, CentOS- 10 buc - FreeBSD - 3 buc • Configurarea copiilor de rezerva pentru fiecare unitate (sisteme de operare, masini virtuale, date critice pe sistem de stocare) prin NFS/CIFS • Verificarea si testarea tuturor componentelor software si hardware	
		LOT 2 Echipament de rețea pentru Failover Clustering system					
2.1	32420000-3	Comutator de rețea	Huawei CloudEngine S6730-H24X6C	China	Huawei Technologies Co. Ltd.	• L3 comutator de retea • min. 24x 1/10G SFP+ porturi • min. 6x 40/100G QSFP28 porturi • min. 1x console port • min. 1x Out-of-band management port • Sursa de alimentare: min. 2x hot-swappable PSU AC220V • Suport de clustering/stacking cu capacitatea min 1Tbps si pina la 9 dispozitive in stack • Switching Capacity: min 1.6Tbps • Quality of service (QoS) features: Strict Priority (SP); Traffic prioritization (IEEE 802.1p); L4 prioritization based on TCP/UDP • Layer 2 features: VLAN (min 4k); Q-in-Q; min 350k MAC table, Jumbo packet; STP; port	1x S6730-H24X6C S6730-H24X6C (24*10GE SFP+ ports, 6*40GE QSFP28 ports, optional license for upgrade to 6*100GE QSFP28, without power module) 2x PAC600S12-CB 600W AC Power Module(Back to Front, Power panel side exhaust) 1x L-100GEUPG-S67H S67XX-H Series,40GE to 100GE Electronic RTU License,Per Device 1x N1-S67H-M-Lic S67XX-H Series Basic SW,Per Device 10x 10G-DAC-03 10G direct attach cable 3m 2x SFP-RJ-45 10G SFP10/100/1000/10000M,100m,RJ45 4x SFP+SR SFP+10G,850nm,300m,LC,DDM 1x QSFP28-100G-CU1M QSFP28,100G,High Speed Direct-attach	

					security; port isolation; ACL; LACP • Layer 3 features: BGP; ECMP; OSPF, BFD, min 250k IPv4/70k IPv6 routes • Datacenter features: VXLAN, MPLS L2/L3. • Toate licentele necesare trebuie sa fie incluse. • SFP module incluse: min 2x 1/10G SFP RJ45, pina la 100m prin cablu UTP Cat6; min. 4 x 10G SFP+ LC SR 300m MMF; min. 1x 100G QSFP28 to QSFP28 1m DAC Cable, min 10 x 10Gbps 3m DAC cable compatibile cu servere si sisteme de stocare • Minim 3 ani de garantie direct de la producator de tip Next Business Day (NBD)	Cables,1m,(QSFP28),CC8P0.254B (S),QSFP28,Used indoor 1x 02352FSG_88134UGQ-4SU_36 S6730-H24X6C (24*10GE SFP+ ports, 6*40GE QSFP28 ports, optional license for upgrade to 6*100GE QSFP28, without power module)_Co-Care Standard S6730-H24X6C_36Month(s) • L3 comutator de retea • 24x 1/10G SFP+ porturi • 6x 40/100G QSFP28 porturi • 1x console port • 1x Out-of-band management port • Sursa de alimentare: min. 2x hot-swappable PSU AC220V • Suport de stacking cu capacitatea min 1.68Tbps si pina la 9 dispozitive in stack • Switching Capacity: 1.68Tbps • Quality of service (QoS) features: Strict Priority (SP); Traffic prioritization (IEEE 802.1p); L4 prioritization based on TCP/UDP • Layer 2 features: 4K VLANs; Q-in-Q; min 350k MAC table, Jumbo packet; STP; port security; port isolation; ACL; LACP • Layer 3 features: BGP; ECMP; OSPF, BFD, min 250k IPv4/70k IPv6 routes • Datacenter features: VXLAN, MPLS L2/L3. • SFP module incluse: 2x 1/10G SFP RJ45, pina la 100m prin cablu UTP Cat6; 4 x 10G SFP+ LC SR 300m MMF; 1x 100G QSFP28 to QSFP28 1m DAC Cable, 10 x 10Gbps 3m DAC cable	

						compatibile cu servere si sisteme de stocare • Garantie:3 ani de tip NBD Onsite	
2.2	7221221 2-8	Servicii de instalare si configurare al echipamentului	Servicii de instalare si configurare al echipamentulu	Republica Moldova	IT-LAB GRUP SRL	• Instalare si interconectare in dulap de telecomunicatii existent conform schemei din Anexa 1 • Conectare echipamentul in UPS existent • Instalarea si configurarea echipamentului (routing, VLAN, port security, stack, management) • Configurarea interconectarii cu retea universitara existenta la nivel fizic si logic (VLAN, routing, security)	• Instalare si interconectare in dulap de telecomunicatii existent conform schemei din Anexa 1 din caietului de sarcini. • Conectare echipamentul in UPS existent • Instalarea si configurarea echipamentului (routing, VLAN, port security, stack, management) • Configurarea interconectarii cu retea universitara existenta la nivel fizic si logic (VLAN, routing, security)	
		TOTAL						

Semnat:_____   Numele, Prenumele: Cioban Alexei   În calitate de: Director

Ofertantul: IT-LAB GRUP SRL   Adresa: mun. Chisinau; str-la Studentilor 2/4 of 217

Huawei FusionServer Pro
1288H V5 Server

| High-Density Deployment with Lower OPEX |

1288H V5 (4-drive)   1288H V5 (8-drive)   1288H V5 (10-drive)

- 2 Intel® Xeon® Scalable processors in 1U space, with 24 DDR4 DIMMs
- Up to 4 3.5-inch or 10 2.5-inch hard drives for local storage, or 4/8 NVMe SSDs
- 2 10GE and 2 GE LAN on motherboard (LOM) ports, and 5 PCIe expansion slots
- Leverages intelligent energy saving to improve performance per watt by 15%; combines intelligent management features to enable up to 93% accuracy for fault locating

Delivers high computing density, which is especially suitable for scenarios such as virtualization, high-performance computing (HPC), and big data analytics.
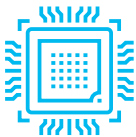
Superior Performance, Ultra-high Density

- Supports 2 Intel® Xeon® Scalable Processors in a 1U space. Its Ultra Path Interconnect (UPI) bus supports rates of up to 10.4 GT/s, and a single CPU supports up to 28 cores. The server supports the Intel® Turbo Boost, hyper-threading, and Advanced Vector Extensions (AVX-512). A single processor delivers up to 40% higher compute power than the previous-generation processor.
- Supports 24 DDR4 DIMMs with a memory capacity of up to 3 TB (configured with 128 GB DIMMs) to meet large-capacity memory application requirements.
- Supports 12 Intel® Optane™ persistent memory (Optane™ PMem) modules (100 series) as volatile or non-volatile storage, which can be used together with 12 DDR4 DIMMs, offering up to 7.5 TB memory capacity (configured with 512 GB Optane™ PMem and 128 GB DDR4 DIMMs) to meet various workload requirements.
- Supports heterogeneous computing acceleration, configurable with 2 single-slot half-height half-length (HHHL) GPU accelerator cards.
- Supports two GE and two 10GE LAN on motherboard (LOM) ports, meeting networking requirements of 98% scenarios with streamlined configuration.

Smart Power Saving and Better Energy Efficiency

- Leverages patented Dynamic Energy Management Technology (DEMT), and multiple power-saving measures such as component hibernation, proportional-integral-derivative (PID) algorithm based fan speed tuning, and active-standby power supplies, driving down overall equipment power consumption by up to 15% without compromising workload performance.
- Supports 80 Plus® Titanium power supply units (PSUs), with up to 96% conversion efficiency and compliant with China Energy Conservation Certification.
- Supports 550 W, 900 W, 1,200 W, and 1,500 W PSU options, flexibly adapting to different power requirements. The 1,200 W and 1,500 W PSUs support DC and high-voltage DC (HVDC) technologies, enabling better energy utilization.
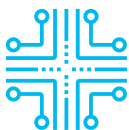
Unmatched Intelligent Manageability, Integration, and Openness

- Uses patented intelligent Fault Diagnosis & Management (FDM) technology, delivering up to 93% accuracy in diagnosing core component faults.
- Integrates FusionDirector for smart entire-lifecycle O&M, boosting deployment and O&M efficiency.
  - » Supports batch OS installation, slashing the average OS installation time of each server from hours to minutes.
  - » Supports automated firmware upgrade, with flexible and configurable upgrade policies for different components and drivers.
  - » Supports stateless computing, allowing for rapid replication of live-network configuration and swift failover.
- Integrates fault diagnosis LEDs on the front panel to display error codes in real time, enabling maintenance personnel to rapidly locate a fault.
- Provides standardized open interfaces and development guides, facilitating seamless integration with third-party management software.

Huawei FusionServer Pro
1288H V5 Server

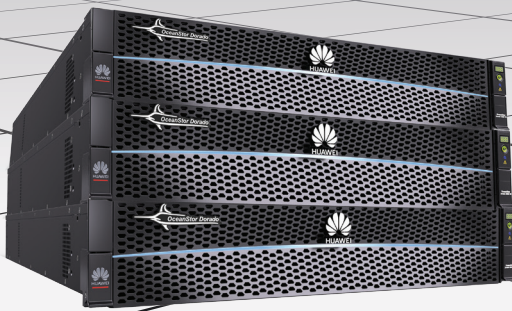|	
Form factor	1U rack server
Processors	1 or 2 1st Generation Intel® Xeon® Scalable processors (3100/4100/5100/6100/8100 series), up to 205 W 1 or 2 2nd Generation Intel® Xeon® Scalable processors (3200/4200/5200/6200/8200 series), up to 205 W
Chipset platform	Intel C622
Memory	24 DDR4 DIMM slots, 2933 MT/s; up to 12 Intel® Optane™ PMem modules (100 series), 2666 MT/s
Internal storage	Supports hot-swappable hard drives with the following configuration options: • 10 x 2.5-inch hard drives (6–8 NVMe SSDs and 2–4 SAS/SATA drives, with a total number of 10 or less) • 10 x 2.5-inch SAS/SATA/SSDs (2–4 NVMe SSDs and 6–8 SAS/SATA HDDs, with a total number of 10 or less) • 10 x 2.5-inch SAS/SATA/SSDs • 8 x 2.5-inch SAS/SATA hard drives • 4 x 3.5-inch SAS/SATA hard drives Flash storage: • 2 M.2 SSDs
RAID support	RAID 0, 1, 1E, 5, 50, 6, or 60; optional supercapacitor for cache power-off protection; RAID-level migration, drive roaming, self-diagnosis, and web-based remote configuration
Network ports	LOM: 2 x 10GE + 2 x GE ports Flexible NIC: 2 x GE, 4 x GE, 2 x 10GE, 2 x 25GE, or 1/2 x 56G FDR IB ports
PCIe expansion	Up to 5 PCIe 3.0 slots, including 1 for a RAID controller card and 1 for a flexible NIC
Heterogeneous accelerator cards	2 single-slot HHHL GPU heterogeneous accelerator cards For details, visit https://support.huawei.com/onlinetoolsweb/ftca/indexEn?serise=2.
Fan modules	7 hot-swappable counter-rotating fan modules with support for N+1 redundancy

Power supply units	2 hot-swappable PSUs with support for 1+1 redundancy and the following configuration options:
	• 550 W AC Platinum PSUs (input: 100 V to 240 V AC, or 192 V to 288 V DC)
	• 900 W AC Platinum/Titanium PSUs (input: 100 V to 240 V AC, or 192 V to 288 V DC)
	• 1500 W AC Platinum PSUs
	  1000 W (input: 100 V to 127 V AC)
	  1500 W (input: 200 V to 240 V AC, or 192 V to 288 V DC)
	• 1500 W 380 V HVDC PSUs (input: 260 V to 400 V DC)
	• 1200 W -48 V to -60 V DC PSUs (input: -38.4 V to -72 V DC)

Management	• Huawei iBMC integrates one dedicated management GE network port to provide comprehensive management features such as fault diagnosis, automated O&M, and hardware security hardening. • iBMC supports standard interfaces such as Redfish, SNMP, and IPMI 2.0; provides a remote management interface based on HTML5/VNC KVM; supports CD-free deployment and the Agentless feature, simplifying management. • (Optional) Configured with the Huawei FusionDirector management software to provide advanced management features such as stateless computing, batch OS deployment, and automated firmware upgrade, enabling smart and automatic entire-lifecycle management.
Operating Systems	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, CentOS, Citrix XenServer, VMware ESXi For details, visit https://support.huawei.com/onlinetoolsweb/ftca/indexEn?serise=2.
Security	Power-on password, administrator password, Trusted Platform Module (TPM) 2.0, and security front panel
Operating temperature	5ºC to 45ºC (41ºF to 113ºF), compliant with ASHRAE A3 and A4
Certification	CE, UL, FCC, CCC, and RoHS
Installation suite	L-shaped guide rails, adjustable guide rails, and holding rails
Dimensions (H x W x D)	Chassis with 3.5-inch hard drives: 43 mm x 447 mm x 748 mm (1.70 in. x 17.60 in. x 29.45 in.) Chassis with 2.5-inch hard drives: 43 mm x 447 mm x 708 mm (1.70 in. x 17.60 in. x 27.87 in.)

For more information

To learn more about Huawei servers, contact Huawei sales representatives or business partners, or visit:

https://e.huawei.com/en/products/cloud-computing-dc/servers

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Scan to learn more
about Huawei servers

OceanStor Dorado 5000/6000 All-Flash Storage Systems

OceanStor Dorado 5000/6000 All-Flash Storage Systems

Ever Fast Performance with Innovative Hardware

30% higher performance than the previous generation

E2E NVMe for 0.05 ms of ultra-low latency

FlashLink® intelligent algorithms

Efficient O&M with Intelligent Edge-Cloud Synergy

Converged SAN and NAS for improved resource utilization

3-layer intelligent management:

• 365-day capacity trends prediction

• 60-day performance bottleneck prediction

• 14-day disk fault prediction

• Immediate solutions for 93% of problems

FlashEver: No data migration over 10 years for 3-gen systems

Always-On Applications with 5-Layer Reliability

Component reliability: Wear leveling and anti-wear leveling

Architecture and product reliability: 0 data loss in the event of failures of controllers, disk enclosures, or three disks

Solution and cloud reliability: 0 business interruption with gateway-free A-A design, geo-redundant 3DC solution, and gateway-free cloud backup

Huawei OceanStor Dorado 5000/6000 are mid-range storage systems in the OceanStor Dorado all-flash series, and are designed to provide excellent data service experience for enterprises. Both products are equipped with innovative hardware platform, intelligent FlashLink® algorithms, and an end-to-end (E2E) NVMe architecture, ensuring the storage systems deliver a 30% higher performance than the previous generation, and achieve the latency down to just 0.05 ms. The intelligent algorithms are built into the storage system to make storage more intelligent during the application operations. Furthermore, the five-level reliability design ensures the continuity of core business.

Excelling in scenarios such as OLTP/OLAP databases, server virtualization, VDI, and resource consolidation, OceanStor Dorado 5000/6000 systems are smart choices for medium and large enterprises, and have already been widely adopted in the finance, government, healthcare, education, energy, and manufacturing fields. The storage systems are ready to maximize your return on investment (ROI) and benefit diverse industries.

Product Features

Ever Fast Performance with Innovative Hardware

Innovative hardware platform:

The hardware platform of Huawei storage enables E2E data acceleration, improving the system performance by 30% compared to the previous generation.

√ The intelligent multi-protocol interface module hosts the protocol parsing previously performed by the general-purpose CPU, expediting the front-end access performance by 20%.

√ The computing platform offers industry-leading performance with 25% higher computing power than the industry average.

OceanStor Dorado 5000/6000
All-Flash Storage Systems

√ The intelligent accelerator module analyzes and understands I/O rules of multiple application models based on machine learning frameworks to implement intelligent prefetching of memory space. This improves the read cache hit ratio by 50%.

√ The intelligent SSD hosts the core Flash Translation Layer (FTL) algorithm, accelerating data access in SSDs and shortening the write latency by half.

√ The intelligent hardware has a built-in Huawei storage fault library that accelerates component fault location and diagnosis, and shortens the fault recovery time from 2 hours to just 10 minutes.

Intelligent algorithms:

Most flash vendors lack E2E innate capabilities to ensure full performance from their SSDs. OceanStor Dorado 5000/6000 run industry-leading FlashLink® intelligent algorithms based on self-developed controllers, disk enclosures, and operating systems.

FlashLink®

Controller

Smart SSD enclosure

SSD

√ Many-core balancing algorithm: Taps into the full power of the hardware platform in a controller to deliver premium computing power.

√ Service splitting algorithm: Offloads reconstruction services from the controller enclosure to the smart SSD enclosure, easing load pressure.

√ Cache acceleration algorithm: Accelerates batch processing with the intelligent module to bring intelligence to storage systems during application operations.

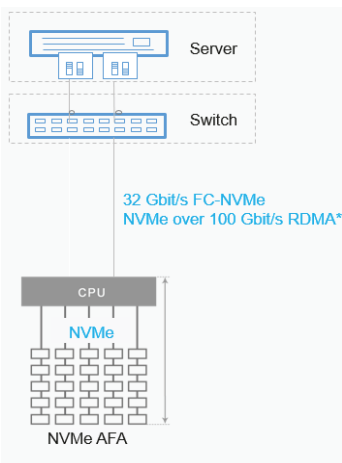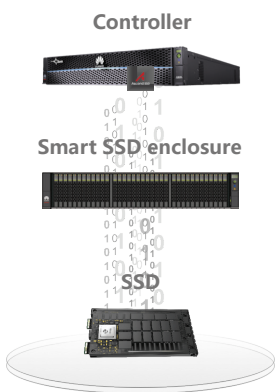The data layout between SSDs and controllers is coordinated synchronously.

√ Large-block sequential write algorithm: Aggregates multiple discrete data blocks into a unified big data block for disk flushing, reducing write amplification and ensuring stable performance.

√ Independent metadata partitioning algorithm: Effectively controls the performance compromise caused by garbage collection for stable performance.

√ I/O priority adjustment algorithm: Ensures that read and write I/Os are always prioritized, shortening the access latency.

FlashLink® intelligent algorithms give full play to all flash memory and help Huawei OceanStor Dorado achieve unparalleled performance for a smoother service experience.

E2E NVMe architecture for full series:

All-flash storage has been widely adopted by enterprises to upgrade existing IT systems, but always-on service models continue to push IT system performance boundaries to a new level. Conventional SAS-based all-flash storage cannot break the bottleneck of 0.5 ms latency. NVMe all-flash storage, on the other hand, is a future-proof architecture that implements direct communication between the CPU and SSDs, shortening the transmission path. In addition, the quantity of concurrencies is increased by 65,536 times, and the protocol interaction is reduced from four times to two, which doubles the write request processing. Huawei is a pioneer in adopting end-to-end NVMe architecture across the entire series. OceanStor Dorado 5000/6000 use the industry-leading 32 Gb FC/100 Gb NVMe protocols at the front end, and 100 Gb RoCE protocol at the back end for E2E data acceleration. This enables latency as low as 0.05 ms and 10x faster transmission than SAS all-flash storage.

Server

Switch

32 Gbit/s FC-NVMe
NVMe over 100 Gbit/s RDMA*

CPU

NVMe

NVMe AFA

OceanStor Dorado 5000/6000 All-Flash Storage Systems

Linear increase of performance and capacity:

Unpredictability of business growth requires storage to provide effortless linear increases in performance as more capacity is added to keep up with ever-changing business needs. OceanStor Dorado 5000/6000 support scale-out of 16 controllers, and IOPS increases linearly as the quantity of controller enclosures increases, matching the performance needs of the future business development.

Efficient O&M with Intelligent Edge-Cloud Synergy

Extreme convergence:

Huawei OceanStor Dorado 5000/6000 provide both SAN and NAS services to meet diverse service needs, improve storage resource utilization, and reduce total cost of ownership (TCO).

On and off-cloud synergy:

Huawei OceanStor Dorado 3000 all-flash system combines general-purpose cloud intelligence with customized edge intelligence over a built-in intelligent hardware platform, providing incremental training and deep learning for a personalized customer experience. The eService intelligent O&M and management platform collects and analyzes over 190,000 device patterns on the live network in real time, extracts general rules, and enhances basic O&M.

Intelligence throughout service lifecycle:

Intelligent management covers resource planning, provisioning, system tuning, risk prediction, and fault location, and enables 60-day and 14-day predictions of performance bottleneck and disk faults respectively, and immediate solutions for 93% of problems detected.

FlashEver:

The intelligent flexible architecture implements component-based upgrades without the need for data migration within 10 years. Users can enjoy latest-generation software and hardware capabilities while also protecting their existing investments.

Vn   Vn+1   Vn+2

Always-On Applications with 5-Layer Reliability

Industries such as finance, manufacturing, and carriers are upgrading to intelligent service systems to meet the strategy of sustainable development. This will likely lead to diverse services and data types that require better IT architecture. Huawei OceanStor Dorado all-flash storage is an ideal choice for customers who need robust IT systems that consolidate multiple types of services for stable, always on services. It ensures end-to-end reliability at all levels, from component, architecture, product, solution, all the way to cloud, supporting data consolidation scenarios with 99.9999% availability.

Benchmark-Setting Reliability

SSDs:

Reliability has always been a top concern in the development of SSDs, and Huawei SSDs are a prime example of this. Leveraging global wear-leveling technology, Huawei SSDs can balance their loads for a longer lifespan of each SSD. In addition, Huawei's patented anti-wear leveling technology prevents simultaneous multi-SSD failures and improves the reliability of the entire system.

SSD

OceanStor Dorado 5000/6000 All-Flash Storage Systems
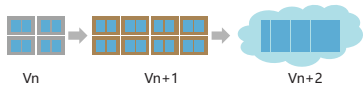
Architecture:

Huawei OceanStor Dorado 5000/6000 adopt the intelligent matrix architecture (multi-controller) within a fully symmetric active-active (A-A) design to eliminate single points of failure and achieve high system availability. Application servers can access LUNs through any controller, instead of just a single controller. Multiple controllers share workload pressure using the load balancing algorithm. If a controller fails, other controllers take over services smoothly without any service interruption.

Products:

Product design is a systematic process. Before a stable storage system is commercially released, it must ensure that it meets the demands from both software and hardware, and can faultlessly host key enterprise applications. The OceanStor Dorado 5000/6000 are equipped with hardware that adopts a fully redundant architecture and supports dual-port NVMe and hot swap, preventing single points of failure. The innovative 9.5 mm palm-sized SSDs and biplanar orthogonal backplane design provide 44% higher capacity density and 25% improved heat dissipation capability, and ensure stable operations of 2U 36-slot SSD enclosures. The smart SSD enclosure is the first ever to feature built-in intelligent hardware that offloads reconstruction from the controller to the smart SSD enclosure. Backed up by RAID-TP technology, the smart SSD enclosure can tolerate simultaneous failures of three SSDs and reconstruct 1 TB of data within 20 minutes. In addition, the storage systems offer comprehensive enterprise-grade features, such as 3-second periodic snapshots, that set a new standard for storage product reliability.

Gateway-free active-active solution:

Flash storage is designed for enterprise applications that require zero data loss or zero application interruption. OceanStor Dorado 5000/6000 use a gateway-free A-A solution to prevent node failures, simplify deployment, and improve system reliability. In addition, the A-A solution implements A-A mirroring for load balancing and cross-site takeover without service interruption, ensuring that core applications are not affected by system breakdown. The solution can also be smoothly upgraded to the geo-redundant 3DC solution for high-level data protection.

HyperMetro

Storage   Storage
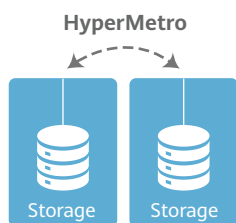
Gateway-free cloud DR*:

Traditional backup solutions are slow, expensive, and the backup data cannot be directly used. Huawei OceanStor Dorado 5000/6000 systems provide a converged data management solution. It improves the backup frequency 30-fold using industry-leading I/O-level backup technology, and allows backup copies to be directly used for development and testing. The disaster recovery (DR) and backup are integrated in the storage array, slashing TCO of DR construction by 50%. Working with HUAWEI CLOUD and Huawei jointly-operated clouds, the solution achieves gateway-free DR and DR in minutes on the cloud.

Technical Specifications

Model	OceanStor Dorado 5000 V6	OceanStor Dorado 6000 V6
Hardware Specifications		
Maximum Number of Controllers	16*	
Maximum Cache (Dual Controllers, Expanding with the Number of Controllers)	256 GB-4 TB	1 TB-8 TB
Supported Storage Protocols	FC, iSCSI, NFS, CIFS	
Front-End Port Types	8/16/32 Gbit/s FC/FC-NVMe*, 10/25/40/100 GbE, 25/100 Gb NVMe over RoCE*	
Back-End Port Types	SAS 3.0/100 Gb RDMA	
Maximum Number of Hot-Swappable I/O Modules per Controller Enclosure	12	
Maximum Number of Front-End Ports per Controller Enclosure	48	
Maximum Number of SSDs	1,600	2,400
SSDs	1.92 TB/3.84 TB/7.68 TB/15.36 TB* palm-sized NVMe SSDs 960 GB/1.92 TB/3.84 TB/7.68 TB/15.36 TB SAS SSDs	
SCM Supported	800 GB* SCM	
Software Specifications		
Supported RAID Levels	RAID 5, RAID 6, RAID 10*, and RAID-TP (tolerates simultaneous failures of 3 SSDs)	
Number of LUNs	16,384	32,768
Value-Added Features	SmartDedupe, SmartVirtualization, SmartCompression, SmartMigration, SmartThin, SmartQoS, HyperSnap, HyperReplication, HyperClone, HyperMetro, HyperCDP, CloudBackup *, SmartTier*, SmartCache*, SmartQuota*, SmartMulti-Tenant*	
Storage Management Software	DeviceManager UltraPath eService	
Physical Specifications		
Power Supply	SAS SSD enclosure: 100V–240 V AC±10%, 192V–288V DC Controller enclosure/Smart SAS disk enclosure/Smart NVMe SSD enclosure: 200V–240V AC±10%, 100–240V AC±10%,192V–288V DC, 260V–400V DC	SAS SSD enclosure: 100V–240V AC±10%, 192V–288V DC Controller enclosure/Smart SAS SSD enclosure/Smart NVMe SSD enclosure: 200V–240V AC±10%, 192V–288V DC, 260V–400V DC
Dimensions (H x W x D)	SAS controller enclosure: 86.1 mm × 447 mm × 820 mm NVMe controller enclosure: 86.1 mm × 447 mm × 920 mm SAS SSD enclosure: 86.1 mm × 447 mm × 410 mm Smart SAS SSD enclosure: 86.1 mm x 447 mm x 520 mm NVMe SSD enclosure: 86.1 mm x 447 mm x 620 mm	SAS controller enclosure: 86.1 mm × 447 mm × 820 mm NVMe controller enclosure: 86.1 mm × 447 mm × 920 mm SAS SSD enclosure: 86.1 mm × 447 mm × 410 mm Smart SAS SSD enclosure: 86.1 mm × 447 mm ×520 mm NVMe SSD enclosure: 86.1 mm x 447 mm x 620 mm
Weight	SAS controller enclosure: ≤ 45 kg NVMe controller enclosure: ≤ 50 kg SAS SSD enclosure: ≤ 20 kg Smart SAS SSD enclosure: ≤ 30 kg Smart NVMe SSD enclosure: ≤ 35 kg	SAS controller enclosure: ≤ 45 kg NVMe controller enclosure: ≤ 50 kg SAS SSD enclosure: ≤ 20 kg Smart SAS SSD enclosure: ≤ 30 kg Smart NVMe SSD enclosure: ≤ 35 kg
Operating Temperature	–60 m to +1800 m altitude: 5°C to 35°C (bay) or 40°C (enclosure) 1800 m to 3000 m altitude: The max. temperature threshold decreases by 1°C for every altitude increase of 220 m	
Operating Humidity	10% RH to 90% RH	

*For further details on specification with an asterisk for a specific project, please contact Huawei sales.

To learn more about Huawei storage, please contact the local office
or visit Huawei Enterprise website http://e.huawei.com.

Huawei Enterprise Business APP   Huawei IT Products & Solutions - LinkedIn   Huawei IT Products & Solutions - YouTube

VMWARE vSPHERE
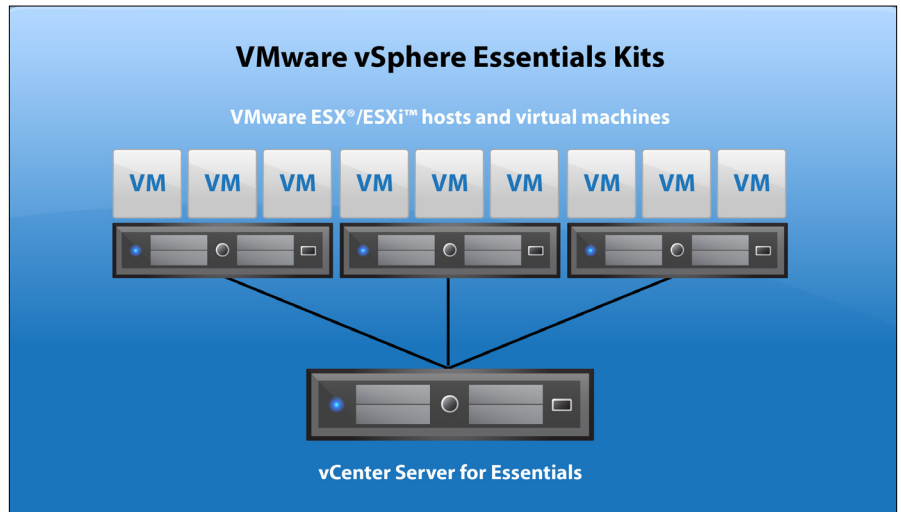## Essentials Kit and Essentials Plus Kit

AT A GLANCE

VMware vSphere® Essentials Kit and Essentials Plus Kit deliver the industry-leading virtualization platform at an affordable price for IT environments that run 20 or fewer server workloads. With vSphere Essentials Plus Kit, a small business can leverage a comprehensive and cost-effective virtualization solution to protect its business, reduce its IT footprint, and save on IT costs.

KEY BENEFITS

• Provide business continuity and always-available IT

• Reduce IT footprint and simplify management

• Save on IT hardware costs

• Improve service levels and application quality

• Strengthen security and data protection

What is VMware vSphere?

VMware vSphere, the industry-leading virtualization platform, empowers users to virtualize scale-up and scale-out applications with confidence, redefines availability, and simplifies the virtual data center. The result is a highly available, resilient, on-demand infrastructure that is the ideal foundation of any cloud environment. This dramatically reduces data center cost, increases system and application uptime, and drastically simplifies the way you operate your data center. vSphere is purpose-built for the next generation of applications and serves as the core foundational building block for the Software-Defined Data Center. vSphere simplifies IT by separating applications and operating systems (OSs) from the underlying hardware. Your existing applications see dedicated resources, but your servers can be managed as a pool of resources. The result is that your business runs on a simplified yet resilient IT environment.

VMware vSphere Essentials Kit enables you to virtualize and consolidate multiple application workloads onto three physical servers running vSphere and centrally manage them with VMware vCenter Server® for Essentials™.

KEY FEATURES AND COMPONENTS

VMware vSphere Essentials Kit and Essentials Plus Kit include the following key features and components:

- **VMware vSphere Hypervisor Architecture** provides a robust, production-proven, high-performance virtualization layer that enables multiple virtual machines to share hardware resources with performance that can match or exceed native throughput.

- **VMware vCenter Server for Essentials** provides centralized management and performance monitoring for all virtual machines and vSphere hosts with built-in physical-to-virtual (P2V) machine conversion and rapid provisioning, using virtual-machine templates.

- **VMware vSphere VMFS** enables virtual machines to access shared storage devices (Fibre Channel, iSCSI, etc.) and is a key enabling technology for other components such as VMware vSphere Storage vMotion®.

- **VMware vSphere Thin Provisioning** provides dynamic allocation of shared storage capacity, enabling IT organizations to implement a tiered storage strategy while reducing storage spending by up to 50 percent.

- **VMware vSphere vStorage APIs** provide integration with supported third-party data protection.

- **VMware vSphere Update Manager™** automates tracking, patching and updating for vSphere hosts and for applications and OSs running in VMware virtual machines.

- **VMware vCenter Converter™** enables IT administrators to rapidly convert physical servers and third-party virtual machines to VMware virtual machines.

- **VMware vSphere Content Library** provides simple and effective centralized management for VM templates, virtual appliances, ISO images, and scripts.

- **Hardware compatibility** is possible with the broadest range of 32- and 64-bit servers and OSs, storage and networking equipment and enterprise management tools.

What Are vSphere Essentials Kit and Essentials Plus Kit?

vSphere Essentials Kit and Essentials Plus Kit are designed for small businesses that are getting started with virtualization. Both provide virtualization and centralized management for up to three server hosts. vSphere Essentials Kit provides server consolidation to help you get the most out of your hardware and reduce hardware costs.

vSphere Essentials Plus Kit provides business continuity with a smaller IT footprint, which reduces overall hardware costs. Small businesses can ensure business continuity by using features such as vSphere High Availability (automatic restart of applications when server failures are detected) and vSphere vMotion® (elimination of planned downtime during server maintenance). Protect your business applications with VMware vShield Endpoint™ (agentless antivirus and antimalware protection for virtual machines).* vSphere Replication™ adds low-cost replication for your virtual machines and provides a foundation for small businesses to leverage a cloud-based disaster-recovery solution from a VMware cloud service provider.

The result is an always-available IT environment that is more cost-effective, resilient and responsive to changing business needs.

How Are vSphere Essentials Kit and Essentials Plus Kit Used?

- **Maximize application availability and protect information assets** – Achieve always-available IT with live migration for virtual machines and high availability for applications in virtual-machine clusters. Protect your data with the reliability of vSphere and integrated backup, recovery and failover features.

- **Consolidate and optimize IT investments** – Achieve consolidation ratios of 10:1 or higher and improve hardware utilization from 5–15 percent to 80 percent or more without sacrificing application performance.

- **Simplify management and enhance productivity** – Provision new applications in minutes instead of days or weeks, monitor virtual-machine performance and automate patch and update management.

- **Streamline software development** – Safely test complex multitier configurations in a secure, isolated sandbox environment while enabling test and development teams to share server, network and storage infrastructure.

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* VMware NSX® for vSphere 6.2.4 or later should be used for vShield Endpoint deployments and is available at VMware Downloads.

KEY FEATURES AND COMPONENTS

VMware vSphere Essentials Plus Kit includes the following business-continuity features and components for always-available IT:

- **vSphere High Availability** provides cost-effective, automated restart within minutes for all applications in the event of hardware or OS failures.

- **vSphere vMotion** enables live migration of virtual machines across servers with no disruption to users or service loss, eliminating the need to schedule application downtime for server maintenance.

- **vShield Endpoint*** provides agentless antivirus and antimalware protection to secure your virtual machines.

- **vSphere Replication** provides low-cost replication for your virtual machine and serves as the foundation for leveraging a cloud-based disaster-recovery solution from a VMware cloud service provider.

FOR MORE INFORMATION OR TO PURCHASE VMWARE PRODUCTS

CALL
877-4 -VMWARE (outside North America, +1-650 -427-5000),

VISIT
http://www.vmware.com/products, or search online for an authorized reseller. For detailed product specifications and system requirements, refer to the vSphere documentation.

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* NSX for vSphere 6.2.4 or later should be used for vShield Endpoint deployments and is available at VMware Downloads

How to Buy

	vSPHERE ESSENTIALS KIT	vSPHERE ESSENTIALS PLUS KIT
CapEx Savings	●	●
Business Continuity for planned and unplanned downtime vSphere vMotion and High Availability		●
Business Data Protection vShield Endpoint and vSphere Replication		●

vmware®

RackStation
RS3618xs

Synology RackStation RS3618xs is a reliable, superior-performance network-attached storage solution for large-scale enterprises with demanding business applications. RS3618xs simplifies data management, optimizes virtualization environments, and rapidly expands storage capacity with minimal time investment in setup and maintenance. Synology RS3618xs is backed by Synology's 5-year limited warranty.

High-speed Scalable Storage Server

Synology RS3618xs is a 2U 12-bay rackmount network-attached storage solution equipped with a **quad-core** processor and **8GB DDR4 memory (expandable up to 64GB)**, meeting the needs for large-scale businesses. With 10GbE Link Aggregation enabled, RS3618xs delivers great performance at over **3,900 MB/s** sequential reading throughput and **143,500 iSCSI random IOPS**[1] under a RAID 5 configuration. Encrypted data throughput can reach over **2,300 MB/s in reading** and **1,177 MB/s in writing**[1].

RS3618xs provides great flexibility to easily scale up to **36 drives** when connected to two Synology **RX1217 or RX1217RP**[2] expansion units. Storage capacity can be expanded according to your business needs with minimal effort.

Btrfs: Next Generation Storage Efficiency

RS3618xs introduces the **Btrfs file system**, bringing the most advanced storage technologies to meet the management needs of modern businesses:

- **Advanced snapshot technology** with customizable backup schedule allows up to **1,024 copies** of shared folder backups in a minimum **5-minute interval** without occupying huge storage capacity and system resources.
- **File or folder level data restoration** brings huge conveniences and saves time for users who wish to restore only a specific file or folder.
- **Flexible Shared Folder/User Quota System** provides comprehensive quota control over all user accounts and shared folders.
- **File self-healing:** Btrfs file system is able to auto-detect corrupted files with mirrored metadata, and recover broken data using the supported RAID volumes, which include RAID1, 5, 6, 10 and RAID F1.

Highlights

- Reliable centralized storage solution for large scale businesses
- Quad-core CPU with AES-NI and 8GB (up to 64GB) DDR4 ECC UDIMM
- Ultra-high performance of over 3,900 MB/s sequential reading and 143,500 iSCSI random read IOPS[1], capable of installing optional 10GbE/40GbE NICs
- Scalable up to 36 drives with Synology RX1217/RX1217RP[2]
- Complete virtualization solution with Synology Virtual Machine Manager
- Dynamic iSCSI/NFS storage for VMware, Windows Hyper-V, Citrix, and OpenStack
- Backed by Synology's 5-year limited warranty & Synology Replacement Service (SRS)[3]

Comprehensive Business Applications

Powered by the innovative Synology DiskStation Manager (DSM), RS3618xs comes fully-equipped with applications and features designed specifically for large-scale businesses:

- **Windows® AD** and **LDAP** support allows easy integration with existing business directory services without recreating user accounts.
- **Windows ACL** support provides fine-grained access control and efficient privilege settings, allowing RS3618xs to fit seamlessly into current infrastructure.
- Internet file access is simplified by the encrypted FTP server and the web-based file explorer, Synology **File Station**. HTTPS, firewall, and IP auto-block support ensure file sharing over the Internet is protected with a high level of security.
- **Application Privileges** controls access to applications and packages based on each individual account, user group, or IP address.
- **MailPlus** allows your business to set up a secure, reliable, and private mail server while giving your employees a modern mail client for receiving and sending messages.

Effortless Virtualization Environment

Synology iSCSI storage fully supports most virtualization solutions to enhance work efficiency with a simple management interface. **VMware vSphere™ 6.5** and **VAAI** integration helps offload storage operations and optimizes computation efficiency. **Windows Offloaded Data Transfer (ODX)** speeds up data transfer and migration rates, while **OpenStack Cinder** support turns your Synology NAS into a block-based storage component.

Synology's **Virtual Machine Manager** adds unlimited capabilities to your NAS. Set up and run various virtual machines, including **Windows, Linux**, and **Virtual DSM** so that you can test new software versions in a sandbox environment, isolate your customers' machines, and increase the flexibility of your RS3618xs with reduced hardware deployment and maintenance costs.

Running on Synology DiskStation Manager (DSM)

Synology DiskStation Manager (DSM) is a web-based operating system tailor-made for every Synology NAS. Featuring an intuitive multitasking user interface, DSM provides simple desktop-like experience to minimize effort in exploring and managing your Synology NAS.

The built-in **Package Center** allows you to download and install a variety of packages designed specifically for your unique needs, ranging from file backup, virtualization, productivity, safeguard security and utilities.

With all the built-in and add-on features, DSM provides comprehensive and fine-grained controls over your RS3618xs, helping you maximize productivity and make the best out of your digital assets. All will happen with just a few clicks.

Next-Generation File System

A modern file system designed to address obstacles often encountered in enterprise storage systems. Safeguarding data integrity through metadata mirroring, self-healing and snapshot replication.
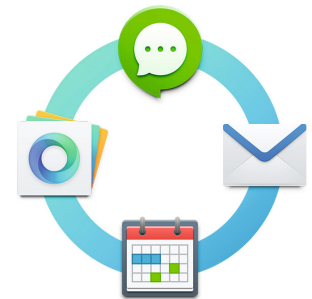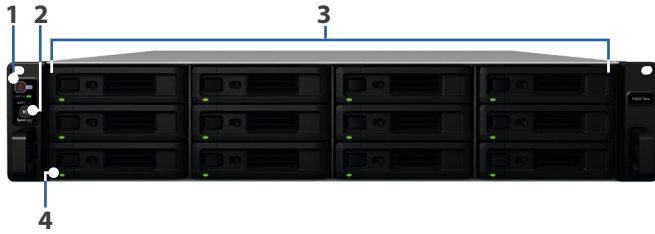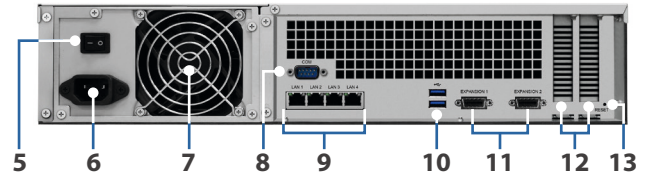
Synology Collaboration Suite

A powerful and secure private cloud solution for business collaboration and organization, offering intuitive yet effective management options.

Hardware Overview

Front   Rear

1	Power button and indicator	2	Beep off button	3	Drive tray	4	Drive status indicator
5	PSU on/off switch	6	Power port	7	PSU fan	8	Console port
9	1GbE RJ-45 port	10	USB 3.0 port	11	Expansion port	12	PCIe expansion slot
13	RESET button						

Technical Specifications

Hardware

CPU	Intel Xeon D-1521 quad-core 2.4GHz, Turbo Boost up to 2.7GHz
Hardware encryption engine	Yes (AES-NI)
Memory	8GB DDR4 ECC UDIMM (expandable up to 64GB)
Compatible drive type	12 x 3.5" or 2.5" SATA SSD/HDD (drives not included)
External port	• 2 x USB 3.0 port • 2 x Expansion port
Size (HxWxD)	• 88 x 430.5 x 692 mm • 88 x 482 x 724 mm (with server ears)
Weight	14.5 kg
LAN	4 x 1GbE (RJ-45)
PCIe 3.0 slot	• x8 slot x 2 (8-lane) • High-performance network interface card support
Wake on LAN/WAN	Yes
Scheduled power on/off	Yes
System fan	4 (80 x 80 x 32 mm)
AC input power voltage	100V to 240V AC
Power frequency	50/60Hz, single phase
Operating temperature	5°C to 35°C (40°F to 95°F)
Storage temperature	-20°C to 60°C (-5°F to 140°F)
Relative humidity	5% to 95% RH
Maximum operating altitude	5,000 m (16,400 ft)

General DSM Specification

Networking protocol	SMB, AFP, NFS, FTP, WebDAV, CalDAV, iSCSI, Telnet, SSH, SNMP, VPN (PPTP, OpenVPN ™, L2TP)
File system	• Internal: Btrfs, ext4 • External: Btrfs, ext4, ext3, FAT, NTFS, HFS+, exFAT[4]
Supported RAID type	Basic, JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID F1
Storage management	• Maximum internal volumes: 1,024 • Maximum iSCSI targets: 64 • Maximum iSCSI LUNs: 512 • iSCSI LUN clone/snapshot support
SSD cache	SSD read-write cache support

File sharing capability	• Maximum local user accounts: 16,000 • Maximum local groups: 512 • Maximum shared folders: 512 • Maximum concurrent SMB/NFS/AFP/FTP connections: 2,000
Privilege	Windows Access Control List (ACL), application privilege
Directory service	Windows® AD integration: Domain users login via SMB/NFS/AFP/FTP/File Station, LDAP integration
Virtualization	VMware vSphere® 6.5, Microsoft Hyper-V®, Citrix®, OpenStack®
Security	Firewall, encrypted shared folder, SMB encryption, FTP over SSL/TLS, SFTP, rsync over SSH, login auto block, Let's Encrypt support, HTTPS (Customizable cipher suite)
Supported client	Windows 7 and 10, Mac OS X® 10.11 onwards
Supported browser	Chrome®, Firefox®, Internet Explorer® 10 onwards, Safari® 10 onwards; Safari (iOS 10 onwards), Chrome (Android™ 6.0 onwards)
Interface Language	English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svensk, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, 日本語, 한국어, 繁體中文, 简体中文

Packages and Applications

File Station	Virtual drive, remote folder, Windows ACL editor, compressing/extracting archived files, bandwidth control for specific users or groups, creating sharing links, transfer logs
FTP Server	Bandwidth control for TCP connections, custom FTP passive port range, anonymous FTP, FTP SSL/TLS and SFTP protocol, boot over the network with TFTP and PXE support, transfer logs
Universal Search	Offer global search into applications and files
Hyper Backup	Support local backup, network backup, and backup data to public clouds
Active Backup for Server	Centralize data backup for Windows and Linux servers without client installation
Backup tools	DSM configuration backup, macOS Time Machine support, Cloud Station Backup Shared folder sync - maximum tasks: 16
Cloud Station Suite	Sync data between multiple platforms by installing the client utilities on Windows, Mac, Linux, Android and iOS devices, while retaining up to 32 historical versions of files Maximum concurrent file transfers: 2,000
Cloud Sync	One or two-way synchronization with public cloud storage providers including Amazon Drive, Amazon S3-compatible storage, Baidu cloud, Box, Dropbox, Google Cloud Storage, Google Drive, hubiC, MegaDisk, Microsoft OneDrive, OpenStack Swift-compatible storage, WebDAV servers, Yandex Disk
Surveillance Station	Maximum IP cameras: 75 (total of 2,250 FPS at 720p, H.264) (includes two free camera licenses; additional cameras require the purchasing of additional licenses)
Virtual Machine Manager	Deploy and run various virtual machines on Synology NAS, including Windows, Linux, or Virtual DSM
High Availability Manager	Reduce service downtime by setting up two identical NAS into one high-availability cluster
Snapshot Replication	• Maximum replications: 64 • Maximum shared folder snapshots: 1,024 • Maximum system snapshots: 65,536
Directory Server for Windows Domain	A flexible and cost-effective domain controller solution
CMS	Provide a single interface to manage and monitor multiple Synology NAS
VPN Server	Maximum connections: 30, supported VPN protocol: PPTP, OpenVPN™, L2TP/IPSec
MailPlus Server	Secure, reliable, and private mail solution with high-availability, load balancing, security and filtering design (Includes 5 free email account licenses; additional accounts require the purchasing of additional licenses)
MailPlus	Intuitive webmail interface for MailPlus Server, customizable mail labels, filters, and user interface
Collaboration tools	• Chat maximum users: 4,000 • Office maximum users: 1,600, maximum simultaneous editing users: 100 • Calendar: support CalDAV and access via mobile devices
Note Station	Rich-text note organization and versioning, encryption, sharing, media embedding and attachments
Storage Analyzer	Volume and quota usage, total size of files, volume usage and trends based on past usage, size of shared folders, largest/most/least frequently modified files
Security Advisor	Malware detection/removal, user account/password, network, system-related security scan
Antivirus Essential	Full system scan, scheduled scan, white list customization, virus definition auto update
Download Station	Supported download protocols: BT, HTTP, FTP, NZB, eMule, Thunder, FlashGet, QQDL Maximum concurrent download tasks: 80
Web Station	Virtual host (up to 30 websites), PHP/MariaDB®, 3rd-party applications support
Other packages	Video Station, Photo Station, Audio Station, DNS Server, RADIUS Server, iTunes® Server, Log Center, additional 3rd-party packages are available in Package Center

Environment and Packaging

Environment safety	RoHS compliant
Package content	• RS3618xs main unit x 1 • Quick Installation Guide x 1 • Accessory pack x 1 • AC power cord x 1
Optional accessories	• 8GB / 16GB DDR4-2133 ECC UDIMM (RAMEC2133DDR4-8G / RAMEC2133DDR4-16G) • Synology E10G17-F2 / E10G15-F1 10Gbps Ethernet adapters • Expansion Unit RX1217/RX1217RP • RKS1317-Rail Kit Sliding • VisualStation VS360HD, VS960HD • Surveillance Device License Pack • MailPlus License Pack • Virtual DSM License Pack
Warranty	5 years[5]

*Model specifications are subject to change without notice. Please refer to www.synology.com for the latest information.

1. Performance figures may vary depending on environment, usage, and configuration.
2. RS3618xs supports two Synology Expansion Unit RX1217/RX1217RP, sold separately.
3. Synology Replacement Service (SRS) is available in selected countries only. For more information about SRS, please visit srs.synology.com.
4. exFAT Access is purchased separately in Package Center.
5. The warranty period starts from the purchase date as stated on your purchase receipt. Visit http://www.synology.com for more information.

SYNOLOGY INC.

Synology is dedicated to taking full advantage of the latest technologies to bring businesses and home users reliable and affordable ways to centralize data storage, simplify data backup, share and sync files across different platforms, and access data on-the-go. Synology aims to deliver products with forward-thinking features and the best in class customer services.

RS3618xs-2019-ENU-REV003

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CloudEngine S6730-H Series 10GE Switches

Huawei CloudEngine S6730-H series 10GE switches are next-generation enterprise-class core and aggregation switches that provide 10GE downlink optical ports and 100GE uplink optical ports.

Product Overview

Huawei CloudEngine S6730-H series switches are next-generation enterprise-class core and aggregation switches that offer high performance, high reliability, cloud management, and intelligent operations and maintenance (O&M). They build on an industry-leading Versatile Routing Platform (VRP) and are purpose-built with security, IoT, and cloud in mind. With these traits, CloudEngine S6730-H can be widely used in enterprise campuses, colleges/universities, data centers, and other scenarios.

CloudEngine S6730-H switches offer 10GE, 25GE, 40GE, and 100GE port types, flexibly adapting to diversified network bandwidth requirements. They also support cloud management and implement cloud-managed network services throughout the full lifecycle from planning, deployment, monitoring, experience visibility, and fault rectification, all the way to network optimization, greatly simplifying network management.

By integrating the native wireless access controller (WAC) capability, a single CloudEngine S6730-H switch can manage a vast number of wireless access points (APs). The results are simplified network architecture, fewer required devices, and lowered networking costs. Free mobility, another key differentiator of CloudEngine S6730-H, enables consistent user experience no matter the user location or IP address, fully meeting enterprises' demands for mobile offices.

CloudEngine S6730-H switches support VXLAN to implement network virtualization, achieving multi-purpose networks and multi-network convergence for greatly improved network capacity and utilization. As such, CloudEngine S6730-H switches are an ideal choice for building next-generation IoT converged networks in terms of cost, flexibility, and scalability.

The full series of CloudEngine S6730-H switches have built-in security probes to enable abnormal traffic detection, analysis of threats even in encrypted traffic, and network-wide threat deception. With such robust security features, CloudEngine S6730-H switches transform traditional passive security defense into proactive security protection, fully ensuring campus network security.

Models and Appearance

Appearance	Description
CloudEngine S6730-H48X6C	• 48 x 10 Gig SFP+, 6 x 40/100 Gig QSFP28 • Dual pluggable power modules, 1+1 power backup • Switching capacity: 2.16Tbps/2.4Tbps **NOTE** 100GE QSFP28 interfaces support 40GE and 100GE optical module auto-sensing. The default uplink port is 40GE, which needs to be upgraded to 100GE through the license. The value before the slash (/) refers to the device's switching capability, while the value after the slash (/) means the chip's switching capability.

Appearance	Description
CloudEngine S6730-H24X6C	• 24 x 10 Gig SFP+, 6 x 40/100 Gig QSFP28 • Dual pluggable power modules, 1+1 power backup • Switching capacity: 1.68Tbps/2.4Tbps **NOTE** 100GE QSFP28 interfaces support 40GE and 100GE optical module auto-sensing. The default uplink port is 40GE, which needs to be upgraded to 100GE through the license. The value before the slash (/) refers to the device's switching capability, while the value after the slash (/) means the chip's switching capability.
CloudEngine S6730-H24X4Y4C	• 24 x 10 Gig SFP+, 4 x 25 Gig SFP28, 4 x 100 Gig QSFP28 • Dual pluggable power modules, 1+1 power backup • Switching capacity: 1.48Tbps/2.4Tbps **NOTE** 25GE SFP28 interfaces support 10GE and 25GE optical module auto-sensing. 100GE QSFP28 interfaces support 40GE and 100GE optical module auto-sensing. The default uplink port is 100GE. The value before the slash (/) refers to the device's switching capability, while the value after the slash (/) means the chip's switching capability.

Features and Highlights

Abundant Convergence

• This CloudEngine S6730-H series provides the integrated WLAN AC function that can manage 1K APs, reducing the costs of purchasing additional WLAN AC hardware. With this switch series, customers can stay ahead in the high-speed wireless era.

• The CloudEngine S6730-H series supports SVF and functions as a parent switch. With this virtualization technology, a physical network with the "Small-sized core and aggregation switches + Access switches + APs" structure can be virtualized into a "super switch", greatly simplifying network management.

• The CloudEngine S6730-H series provides excellent QoS capabilities and supports queue scheduling and congestion control algorithms. Additionally, it adopts innovative priority queuing and multi-level scheduling mechanisms to implement fine-grained scheduling of data flows, meeting service quality requirements of different user terminals and services.

Providing Granular Network Management

• The CloudEngine S6730-H series uses the Packet Conservation Algorithm for Internet (iPCA) technology that alters the traditional method of using simulated traffic for fault location. iPCA technology can monitor network quality for any service flow anywhere, anytime, without extra costs. It can detect temporary service interruptions in a very short time and can identify faulty ports accurately. This cutting-edge fault detection technology turns "extensive management" to "granular management."

• The CloudEngine S6730-H supports Two-Way Active Measurement Protocol (TWAMP) to accurately check any IP link and obtain the entire network's IP performance. This protocol eliminates the need of using a dedicated probe or a proprietary protocol.

Flexible Ethernet Networking

• In addition to traditional Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP), the CloudEngine S6730-H supports Huawei-developed Smart Ethernet Protection (SEP) technology and the latest Ethernet Ring Protection Switching (ERPS) standard. SEP is a ring protection protocol specific to the Ethernet link layer, and applies to various ring network topologies, such as open ring topology, closed ring topology, and cascading ring topology. This protocol is reliable, easy to maintain, and implements fast service switching within 50 milliseconds. ERPS is defined in ITU-T G.8032. It implements millisecond-level protection switching based on traditional Ethernet MAC and bridging functions.

- The CloudEngine S6730-H supports Smart Link and Virtual Router Redundancy Protocol (VRRP), which implement backup of uplinks. One CloudEngine S6730-H switch can connect to multiple aggregation switches through multiple links, significantly improving reliability of access devices.

Intelligent Stack (iStack)

- The CloudEngine S6730-H series supports the iStack function that combines multiple switches into a logical switch. Member switches in a stack implement redundancy backup to improve device reliability and use inter-device link aggregation to improve link reliability. iStack provides high network scalability. You can increase a stack's ports, bandwidth, and processing capability by simply adding member switches. iStack also simplifies device configuration and management. After a stack is set up, multiple physical switches can be virtualized into one logical device. You can log in to any member switch in the stack to manage all the member switches in it.

Cloud-based Management

- The Huawei cloud management platform allows users to configure, monitor, and inspect switches on the cloud, reducing on-site deployment and O&M manpower costs and decreasing network OPEX. Huawei switches support both cloud management and on-premise management modes. These two management modes can be flexibly switched as required to achieve smooth evolution while maximizing return on investment (ROI).

VXLAN Features

- VXLAN is used to construct a Unified Virtual Fabric (UVF). As such, multiple service networks or tenant networks can be deployed on the same physical network, and service and tenant networks are isolated from each other. This capability truly achieves 'one network for multiple purposes'. The resulting benefits include enabling data transmission of different services or customers, reducing the network construction costs, and improving network resource utilization.

- This series switches are VXLAN-capable and allow centralized and distributed VXLAN gateway deployment modes. These switches also support the BGP EVPN protocol for dynamically establishing VXLAN tunnels and can be configured using NETCONF/YANG.

Clock Synchronization

- CloudEngine S6730-H48X6C and CloudEngine S6730-H24X6C models supports the IEEE 1588v2 protocol, which implements low-cost, high-precision, and high-reliability time and clock synchronization. This feature can meet strict requirements of power and transportation industry customers on time and clock synchronization.

Link Layer Security

- CloudEngine S6730-H24X4Y4C models support MACsec. MACsec protects transmitted Ethernet data frames through identity authentication, data encryption, integrity check, and anti-replay protection, reducing the risks of information leakage and malicious network attacks. With MACsec, these switch models are able to address strict information security requirements of customers in industries such as government and finance.

Intelligent O&M

- This series switches provides telemetry technology to collect device data in real time and send the data to Huawei campus network analyzer(iMaster NCE-CampusInsight). The CampusInsight analyzes network data based on the intelligent fault identification algorithm, accurately displays the real-time network status, effectively demarcates and locates faults in a timely manner, and identifies network problems that affect user experience, accurately guaranteeing user experience.

- This series switches supports a variety of intelligent O&M features for audio and video services, including the enhanced Media Delivery Index (eMDI). With this eDMI function, the switch can function as a monitored node to periodically conduct statistics and report audio and video service indicators to the CampusInsight platform. In this way, the CampusInsight platform can quickly demarcate audio and video service quality faults based on the results of multiple monitored nodes.

Intelligent Upgrade

- Switches support the intelligent upgrade feature. Specifically, switches obtain the version upgrade path and download the newest version for upgrade from the Huawei Online Upgrade Platform (HOUP). The entire upgrade process is highly automated and achieves one-click upgrade. In addition, preloading the version is supported, which greatly shortens the upgrade time and service interruption time.

- The intelligent upgrade feature greatly simplifies device upgrade operations and makes it possible for the customer to upgrade the version independently. This greatly reduces the customer's maintenance costs. In addition, the upgrade policies on the HOUP platform standardize the upgrade operations, which greatly reduces the risk of upgrade failures.

Big Data-Powered Collaborative Security

- This series of switches supports encrypted communication analytics (ECA), a traffic identification and detection technology. ECA can precisely detect malicious traffic by efficiently identifying encrypted and non-encrypted traffic, extracting the characteristics of encrypted traffic, and sending these characteristics to HiSec Insight (a big data-powered security analysis system). Furthering to this, ECA-capable switches can work with the controller iMaster NCE-Campus to automatically isolate threats, thereby ensuring campus network security.

- This series of switches also supports network deception technology. Specifically, switches functioning as sensors can detect threats (such as IP address scanning and port scanning on the network) and lure threat traffic to the honeypot for simulated interaction with attackers. In this way, it is easy to obtain attack behaviors, extract attack tools, and analyze suspicious traffic in depth to create defense policies. Switches then work with iMaster NCE-Campus to automatically isolate threats and block the spread of attack behaviors, ensuring campus network security.

Open Programmability System(OPS)

- Open Programmability System (OPS) is an open programmable system based on the Python language. IT administrators can program the O&M functions of a switch through Python scripts to quickly innovate functions and implement intelligent O&M.

Licensing

Licensing

This series switches supports both the traditional feature-based licensing mode and the latest Huawei IDN One Software (N1 mode for short) licensing mode. The N1 mode is ideal for deploying Huawei CloudCampus Solution in the on-premises scenario, as it greatly enhances the customer experiences in purchasing and upgrading software services with simplicity.

Software Package Features in N1 Mode

Switch Functions	N1 Basic Software	N1 Foundation Software Package	N1 Advanced Software Package
Basic network functions: Layer 2 functions, IPv4, IPv6, MPLS, SVF, and others Note: For details, see the Service Features	√	√	√
Basic network automation based on the iMaster NCE-Campus: • Basic automation: Plug-and-play, SSID, and AP group management • Basic monitoring: Application visualization • NE management: Image and topology management and discovery • WLAN enhancement: Roaming and optimization for up to 128 APs	×	√	√
Advanced network automation and intelligent O&M: VXLAN, user access authentication, free mobility, and CampusInsight basic functions	×	×	√

Note: Only V200R019C00 and later versions can support N1 mode

Product Specifications

Item	CloudEngine S6730-H48X6C	CloudEngine S6730-H24X6C	CloudEngine S6730-H24X4Y4C
Fixed ports	48 x 10 Gig SFP+, 6 x 40/100 Gig QSFP28	24 x 10 Gig SFP+, 6 x 40/100 Gig QSFP28	24 x 10 Gig SFP+, 4 x 25 Gig SFP28, 4 x 100 Gig QSFP28
Dimensions (H x W x D)	43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.4 in. x 16.5 in.)	43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.4 in. x 16.5 in.)	43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)
Chassis height(U)	1U	1U	1U
Rated voltage range	- AC input: 100 V AC to 240 V AC, 50/60 Hz - High-Voltage DC input: 240 V DC - DC input: -48 V DC to -60 V DC		- AC input: 100 V AC to 240 V AC, 50/60 Hz - High-Voltage DC input: 240 V DC - DC input: -48 V DC to -60 V DC
Maximum voltage range	- AC input: 90 V AC to 290 V AC, 45 Hz to 65 Hz - High-Voltage DC input: 190 V DC to 290 V DC - DC input: -38.4 V DC to -72 V DC		- AC input: 90 V AC to 290 V AC, 45 Hz to 65 Hz - High-Voltage DC input: 190 V DC to 290 V DC - DC input: -38.4 V DC to -72 V DC
Maximum input current	- AC 600W：8A - DC 1000W：30A		- AC 300W：4A - DC 260W：10A
Typical power consumption (30% of traffic load, tested according to ATIS standard)	165 W	149 W	186 W
Maximum power consumption (100% throughput, full speed of fans)	291 W	254 W	253 W
Operating temperature	-5°C to +45°C (23°F to 113°F) at an altitude of 0-1800 m (0-5906 ft.) **NOTE** When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). The switch cannot be started when the ambient temperature is lower than 0°C (32°F).		
Storage temperature	-40°C to +70°C (-40°F to +158°F)		
Operating altitude	0-5000 m (0-16404 ft.)		
Noise (sound pressure at normal temperature)	< 65 dB(A)		< 64.5 db(A)
Power supply surge protection	- Using AC power modules: ±6 kV in differential mode, ±6 kV in common mode - Using DC power modules: ±2 kV in differential mode, ±4 kV in common mode		
Power supply type	• 600 W AC Power Module		• 300 W AC Power Module

Item	CloudEngine S6730-H48X6C	CloudEngine S6730-H24X6C	CloudEngine S6730-H24X4Y4C
	• 1000 W DC Power Module **NOTE** The S6730-H can use a single power module or double power modules for 1+1 power redundancy. Pluggable AC and DC power modules can be used together in the same switch.		• 260 W DC Power Module **NOTE** The S6730-H can use a single power module or double power modules for 1+1 power redundancy. Pluggable AC and DC power modules can be used together in the same switch.
Relative humidity	5% to 95%, noncondensing		
Fans	4, Fan modules are pluggable		3，Built-in fan
Heat dissipation	Heat dissipation with fan, intelligent fan speed adjustment		

Service Features

Except for special instructions, the following features are supported by CloudEngine S6730-H with N1 basic software.

| Feature	Description
MAC	Up to 384K MAC address entries IEEE 802.1d standards compliance MAC address learning and aging Static, dynamic, and blackhole MAC address entries Packet filtering based on source MAC addresses
VLAN	4K VLANs Guest VLANs and voice VLANs GVRP MUX VLAN VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports VLAN mapping
ARP	Static ARP Dynamic ARP
IP routing	Static routes, RIP v1/2, RIPng, OSPF, OSPFv3, IS-IS, IS-ISv6, BGP, BGP4+, ECMP, routing policy Up to 256K FIBv4 entries Up to 80K FIBv6 entries
Interoperability	VLAN-Based Spanning Tree (VBST), working with PVST, PVST+, and RPVST Link-type Negotiation Protocol (LNP), similar to DTP VLAN Central Management Protocol (VCMP), similar to VTP
Wireless service	AP access control, AP domain management, and AP configuration template management Radio management, unified static configuration, and dynamic centralized management WLAN basic services, QoS, security, and user management CAPWAP, tag/terminal location, and spectrum analysis
Ethernet loop	RRPP ring topology and RRPP multi-instance

Feature	Description
protection	Smart Link tree topology and Smart Link multi-instance, providing millisecond-level protection switchover
	SEP
	ERPS (G.8032)
	BFD for OSPF, BFD for IS-IS, BFD for VRRP, and BFD for PIM
	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s)
	BPDU protection, root protection, and loop protection
MPLS	MPLS L3VPN
	MPLS L2VPN (VPWS/VPLS)
	MPLS-TE
	MPLS QoS
IPv6 features	Neighbor Discover (ND)
	PMTU
	IPv6 Ping, IPv6 Tracert, IPv6 Telnet
	ACLs based on source IPv6 addresses, destination IPv6 addresses, Layer 4 ports, or protocol types
	Multicast Listener Discovery snooping (MLDv1/v2)
	IPv6 addresses configured for sub-interfaces, VRRP6, DHCPv6, and L3VPN
Multicast	IGMP v1/v2/v3 snooping and IGMP fast leave
	Multicast forwarding in a VLAN and multicast replication between VLANs
	Multicast load balancing among member ports of a trunk
	Controllable multicast
	Port-based multicast traffic statistics
	IGMP v1/v2/v3, PIM-SM, PIM-DM, and PIM-SSM
	MSDP
	Multicast VPN
QoS/ACL	Rate limiting in the inbound and outbound directions of a port
	Packet redirection
	Port-based traffic policing and two-rate three-color CAR
	Eight queues on each port
	DRR, SP, and DRR+SP queue scheduling algorithms
	WRED
	Re-marking of the 802.1p and DSCP fields of packets
	Packet filtering at Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP source/destination port number, protocol type, and VLAN ID
	Queue-based rate limiting and shaping on ports
Security	Hierarchical user management and password protection
	DoS attack defense, ARP attack defense, and ICMP attack defense
	Binding of the IP address, MAC address, port number, and VLAN ID
	Port isolation, port security, and sticky MAC
	MAC Forced Forwarding (MFF)
	Blackhole MAC address entries
	Limit on the number of learned MAC addresses
	IEEE 802.1X authentication and limit on the number of users on a port

Feature	Description
	AAA authentication, RADIUS authentication, and HWTACACS authentication
	NAC
	SSH V2.0
	HTTPS
	CPU protection
	Blacklist and whitelist
	Attack source tracing and punishment for IPv6 packets such as ND, DHCPv6, and MLD packets
	IPSec for management packet encryption
	ECA
	Deception
	MACSec(Supported by the CloudEngine S6730-H24X4Y4C models)
Reliability	LACP
	E-Trunk
	Ethernet OAM (IEEE 802.3ah and IEEE 802.1ag)
	ITU-Y.1731
	DLDP
	LLDP
	BFD for BGP, BFD for IS-IS, BFD for OSPF, BFD for static routes
VXLAN	VXLAN L2 and L3 gateways
	Centralized and distributed gateway
	BGP-EVPN
	Configured through the NETCONF protocol
SVF	Acting as the parent node to vertically virtualize downlink switches and APs as one device for management
	Two-layer client architecture
	ASs can be independently configured. Services not supported by templates can be configured on the parent node.
	Third-party devices allowed between SVF parent and clients
iPCA	Marking service packets to obtain the packet loss ratio and number of lost packets in real time
	Measurement of the number of lost packets and packet loss ratio on networks and devices
Management and maintenance	Cloud-based management
	Virtual cable test
	SNMP v1/v2c/v3
	RMON
	Web-based NMS
	System logs and alarms of different severities
	GVRP
	MUX VLAN
	NetStream
	Telemetry

# Networking and Applications

Large-scale Enterprise Campus Network

CloudEngine S6730-H series switches can be deployed at the aggregation layer of a large-scale enterprise campus network, creating a highly reliable, scalable, and manageable enterprise campus network.
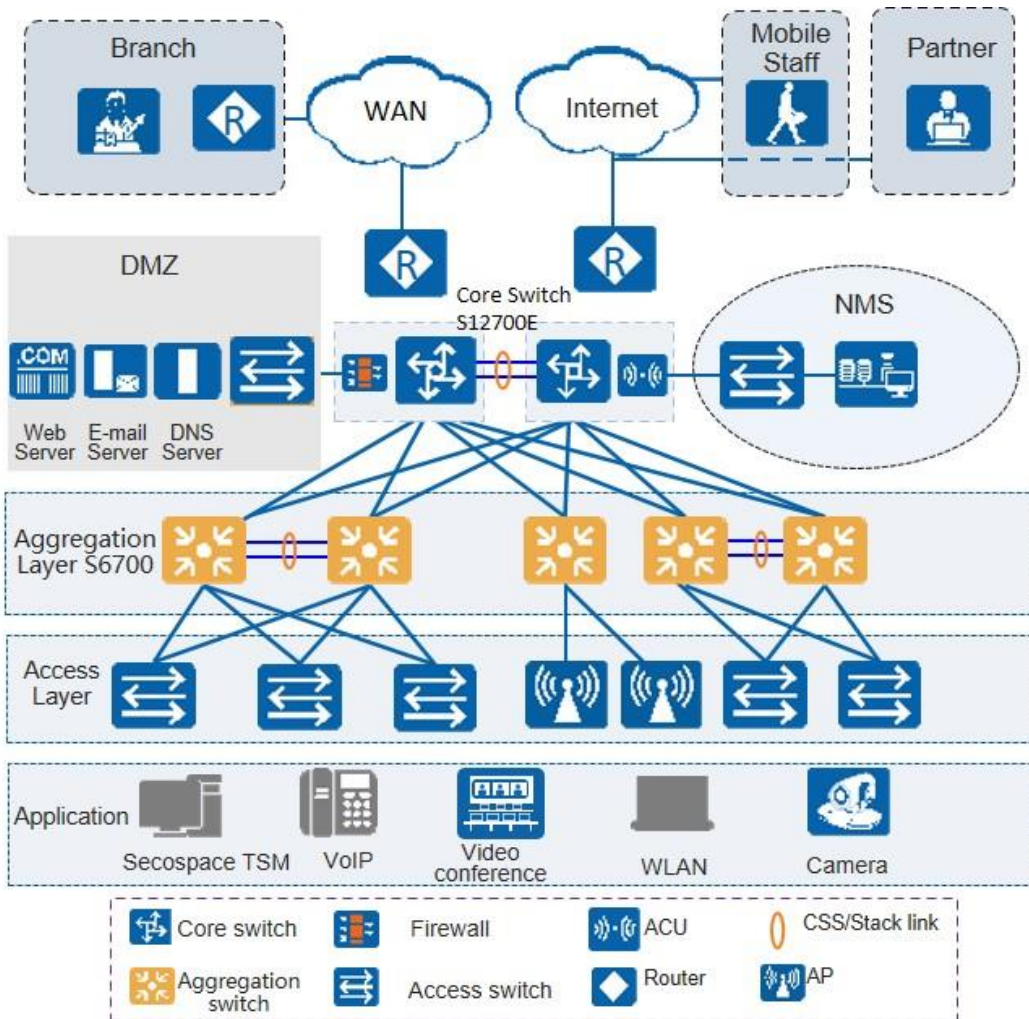

Application on a MAN

CloudEngine S6730-H series switches can be deployed at the access layer of a MAN(Metropolitan Area Network) to build a high-performance, multi-service, and highly reliable ISP MAN network.
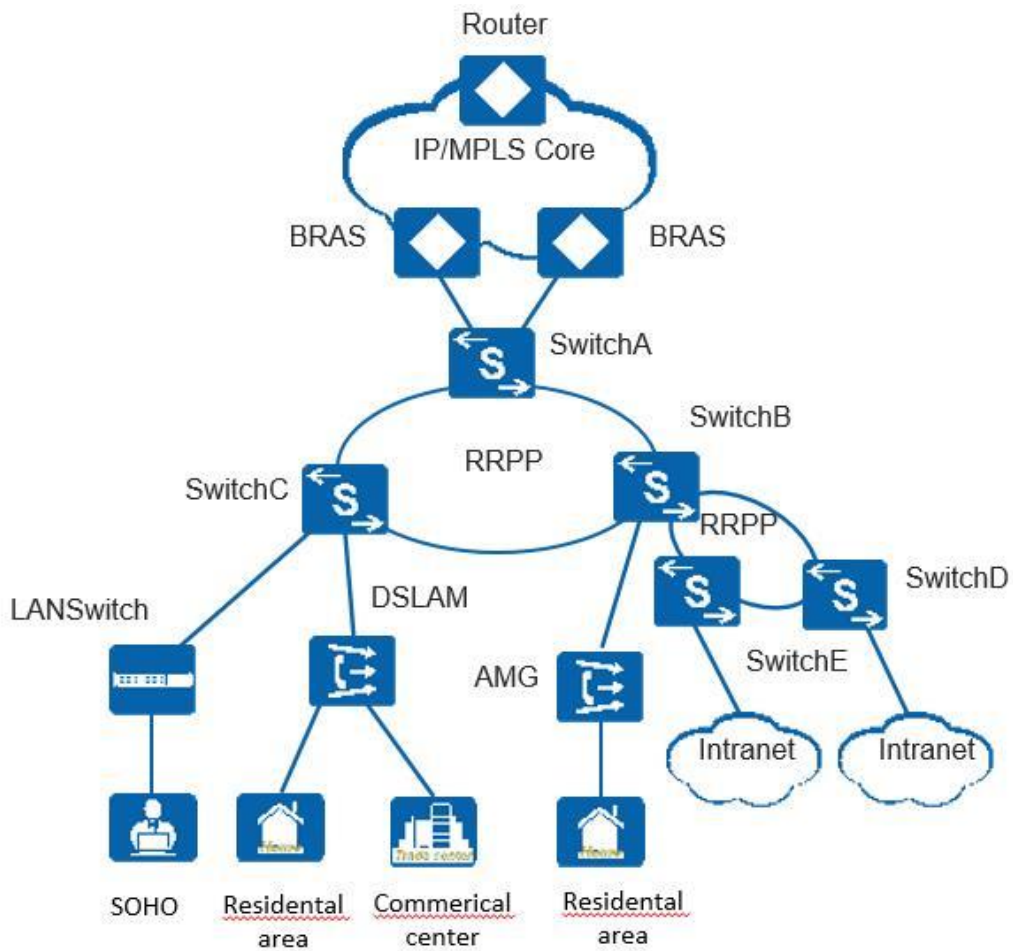
Data Center

CloudEngine S6730-H switches can be deployed at the access layer build a virtualized, highly reliable, non-blocking, and energy conservative data center network.
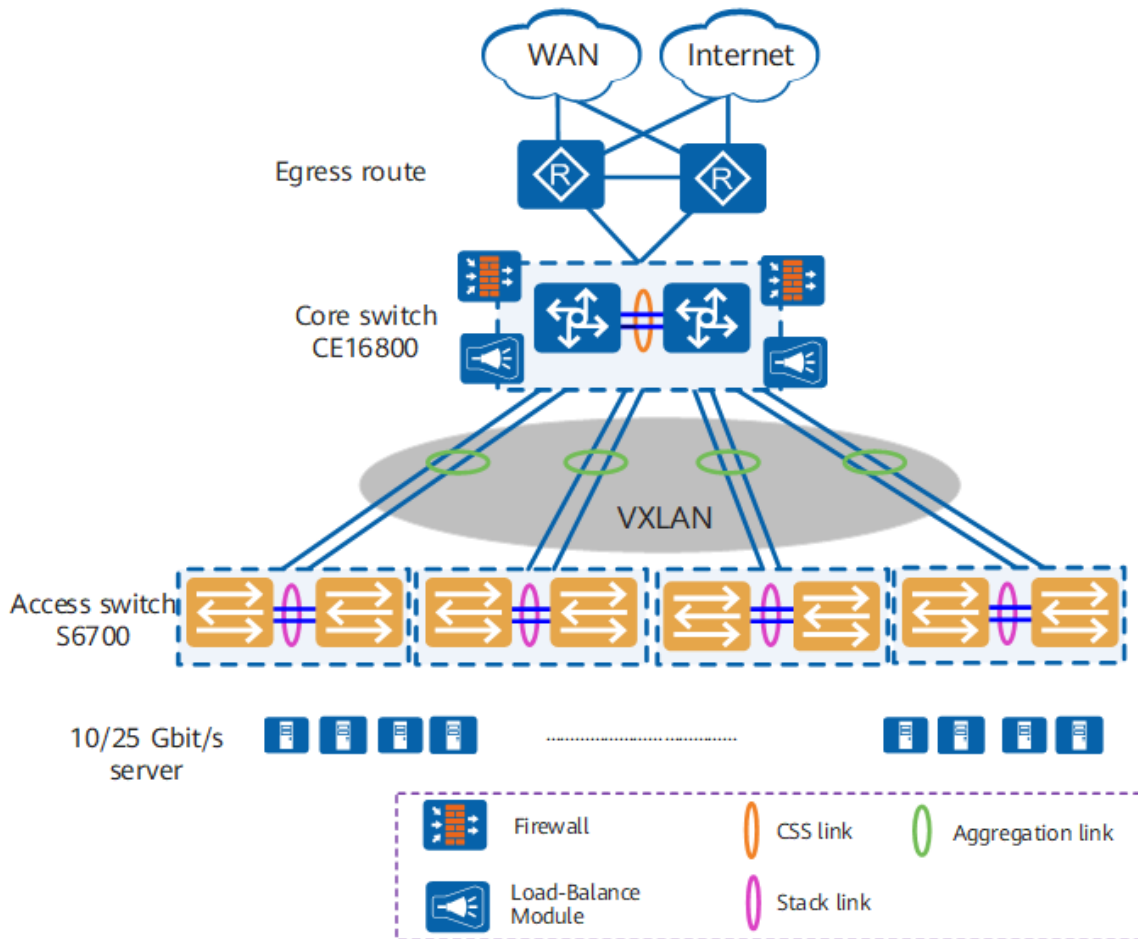
Ordering Information

The following table lists ordering information of the CloudEngine S6730-H series switches.

Model	Product Description
CloudEngine S6730-H48X6C	S6730-H48X6C (48*10GE SFP+ ports, 6*40GE QSFP28 ports, optional license for upgrade to 6*100GE QSFP28, without power module)
CloudEngine S6730-H24X6C	S6730-H24X6C (24*10GE SFP+ ports, 6*40GE QSFP28 ports, optional license for upgrade to 6*100GE QSFP28, without power module)
CloudEngine S6730-H48X6C	S6730-H48X6C Bundle (48*10GE SFP+ ports, 6*40GE/100GE QSFP28 ports, with 100G license, without power module)
CloudEngine S6730-H24X6C	S6730-H24X6C Bundle (24*10GE SFP+ ports, 6*40GE/100GE QSFP28 ports, with 100G license, without power module)
CloudEngine S6730-H24X4Y4C	S6730-H24X4Y4C (24*10GE SFP+ ports, 4*25GE SFP28 ports, 4*40GE/100GE QSFP28 ports, without power module)
PAC600S12-CB	600W AC power module (for S6730-H48X6C/S6730-H24X6C series models)
PDC1000S12-DB	1000W DC power module (for S6730-H48X6C/S6730-H24X6C series models)
PAC300S12-CL	300W AC power module (for S6730-H24X4Y4C series models)
PDC260S12-DL	260W DC power module (for S6730-H24X4Y4C series models)

License	Product Description
N1-S67H-M-Lic	S67XX-H Series Basic SW,Per Device
N1-S67H-M-SnS1Y	S67XX-H Series Basic SW,SnS,Per Device,1Year
L-100GEUPG-S67H	S67XX-H Series,40GE to 100GE Electronic RTU License,Per Device
L-VxLAN-S67	S67 Series, VxLAN License, Per Device
L-1AP-S67	S67 Series, Wireless Access Controller AP Resource License-1AP
N1-S67H-F-Lic	N1-CloudCampus,Foundation,S67XX-H Series,Per Device
N1-S67H-F-SnS	N1-CloudCampus,Foundation,S67XX-H Series,SnS,Per Device
N1-S67H-A-Lic	N1-CloudCampus,Advanced,S67XX-H Series,Per Device
N1-S67H-A-SnS	N1-CloudCampus,Advanced,S67XX-H Series,SnS,Per Device
N1-S67H-FToA-Lic	N1-Upgrade-Foundation to Advanced,S67XX-H,Per Device
N1-S67H-FToA-SnS	N1-Upgrade-Foundation to Advanced,S67XX-H,SnS,Per Device
N1-AM-30-Lic	N1-CloudCampus, Add-On Package, Access Management, Per 30 Endpoints
N1-AM-30-SnS1Y	N1-CloudCampus, Add-On Package, Access Management, Software Subscription and Support, Per 30 Endpoints, 1 Year
N1-EPNP-30-Lic	N1-CloudCampus, Add-On Package, Endpoints Plug and Play, Per 30 Endpoints
N1-EPNP-30-SnS1Y	N1-CloudCampus, Add-On Package, Endpoints Plug and Play, Software Subscription and Support, Per 30 Endpoints, 1 Year
N1-APP-X7FSwitch	N1-CloudCampus, Add-On Package, Intelligent Application Analysis, X7 Series Fixed Switch, Per Device
N1-APP-X7FSwitch-SnS1Y	N1-CloudCampus, Add-On Package, Intelligent Application Analysis, X7 Series Fixed Switch, Software Subscription and Support, Per Device, 1 Year

More Information

For more information about Huawei Campus Switches, visit http://e.huawei.com or contact us in the following ways:

- Global service hotline: http://e.huawei.com/en/service-hotline
- Logging in to the Huawei Enterprise technical support website: http://support.huawei.com/enterprise/
- Sending an email to the customer service mailbox: support_e@huawei. com