H3C UIS 3000 G5

Hyper Converged Infrastructure

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New H3C Technologies Co., Limited
Product Overview

H3C UIS HCI system 7.0 is an innovative future-oriented product for enterprises and industry data centers. In compliance with the open architecture standards, H3C UIS seamlessly integrates software technologies such as compute virtualization, storage virtualization, network security virtualization, O&M and monitoring management, and cloud service delivery on x86 and ARM servers. This integration streamlines data centers and IT operations, drives management efficiency, and reduces the TCO. Accommodating a full scope of engines including cloud native, Chixiao acceleration, multi-role, hybrid cloud, and intelligent edge cloud in one system, H3C UIS HCI offers an HCI solution that consolidates unified storage, cloud-native application building, high-performance edge computing, front-end and back-end acceleration, and intelligent cloud edge scheduling. By leveraging technologies such as converged AI, big data, and cloud (ABC), intelligent acceleration, cloud-edge-endpoint collaboration, and high-speed network aggregation, this inclusive HCI system allows for convergence of all storage forms including block, object, and file storage and all compute deployment forms including VM, container, function, and bare metal. The H3C UIS HCI system can provide cloud computing solutions for all kinds of cloud scenarios including private, hybrid, and edge clouds. This ultimately converged, highly streamlined, extremely wide, and intelligently accelerated cloud infrastructure can satisfy the technology revolution of enterprises in the next decade.

The H3C UIS system is available as a configure-to-order system that contains HCI servers and HCI kernel and management software that have been fully tuned, verified, and installed before delivery. The HCI servers can be up and running straight out of the box, simplifying deployment and accelerating service delivery.

UIS CAS is data center oriented virtualization software, providing powerful virtualization and resource pooling capabilities. UIS CAS has unique data acceleration capabilities and multi-queue block storage, which greatly improves the efficiency of services running on VMs. It provides dynamic resource eXtension (DRX), agentless anti-virus, and cloud rainbow features. UIS CAS had an excellent performance in SPECvirt tests.

As a leading software-defined storage product in the industry, UIS ONEStor provides unified block storage, file storage, and object storage services for upper-layer applications. UIS ONEStor provides flexible protection mechanisms in multiple dimensions, including volume-based data redundancy, erasure coding, and multiple replicas. These mechanisms enable fast data restoration without hot backup disks. UIS ONEStor offers rich enterprise-class features to ensure user data consistency and data reliability and security.

UIS Sec provides tenants with virtual network security services through NFV, including vFW, vRouter, vLB, vDBA, vACG, vNGFW, and vWAF. It offers VM access control and protection, automatic deployment of network devices in a cloud computing environment, and isolation in a multi-tenant environment. UIS Sec supports three-level HA to ensure continuity of customer services.

H3C UIS Manager provides a unified portal for users to access the infrastructure of the data center. Through SSO, H3C UIS Manager enables unified management of servers, VMs, networks, storage, and
upper-layer services in the data center. H3C UIS Manager offers a full-screen dashboard, health check, one-click inspection, resource statistics reports, and topology-based deployment for visualized, automated, and intelligent Ops through in one Web interface. In addition, UIS Manager allows for unified management of multiple clusters and tenants and request of virtual resources through a self-service portal in large-scale deployment or RBRO scenarios.

The H3C UIS 3000 G5 HCI server uses Intel Xeon 3rd-generation scalable processors, enabling a performance improvement of up to 52% for floating point operations and 42% kernel number increase. With eight-channel 3200MT/s DDR4 memory, this server guarantees a bandwidth improvement of up to 60%. With 14 PCIe 4.0 expansion slots and 41 disks, the server has excellent system expansion capabilities. The power conversion efficiency of the server is 96%, and its standard operating temperature is 5 to 45°C (41 to 113°F), which provides users with high energy efficiency.

Features and Benefits

Five Innovative Engines

- **Cloud-native engine** - With the built-in K8s APIs, the cloud-native engine offers unified orchestration and management of VMs, containers, and functions to help you build an application-centric cloud data center. Featuring small size and fast speed the cloud-native engine greatly improves resource usage.
H3C UIS 3000 G5 Hyper Converged Infrastructure

- **Chixiao acceleration engine** - With the built-in intelligent acceleration card, the Chixiao acceleration engine provides frontend-to-backend acceleration with no host-side losses, allowing for creating 50% more VMs with the same number of CPU cores, reducing per-VM cost by 20%, and doubling the 4K random IOPS performance than non-acceleration schemes. A lossless network with the shortest IO path in the industry reduces network latency from milliseconds to nanoseconds.

- **Multi-role engine** - With an adaptive architecture, UIS Manager enables you to perform unified management of x86 and ARM resources. It is compatible with physical nodes with different chips, models, settings, and capabilities and supports virtual nodes, distributed storage nodes, hybrid nodes, AI accelerated nodes, and bare metal nodes.
- **Hybrid cloud engine** - Provides high-speed interconnection between on-premises private cloud and UIS on UniCloud. It enables you to set up a hybrid cloud architecture with homogeneous resources, software, management, delivery, disaster recovery, and migration.

- **Intelligent edge cloud engine** - An ultimately light-weighted edge cloud engine for the access of massive IoT endpoints. Based on a cloud-edge-endpoint architecture, the UIS Edge platform deployed on the edge interconnects the cloud, edge, and endpoint data channels and control planes.

Convergence and Simplicity

- **Management convergence** - Unifies the management of compute, storage, network, security, monitoring, and cloud service software capabilities to provide cloud capabilities out of the box.

- **Kernel convergence** - Seamlessly integrates virtualized kernel and IPv6 capabilities, high-performance vSwitches, SR-IOV NIC driver, and GPU driver for system efficiency, reliability, and stability.

- **Storage convergence** - Virtualizes the local disks into a resource pool to provide unified block, file, and object storage services to accommodate structured, unstructured, and semi-structured data.

- **Simplified service deployment** - Integrates one-click auto migration tools that support P2V and V2V migration to help you quickly migrate traditional services to the cloud.

- **Visual and simplified O&M** - Provides a flat, adaptive, and scalable platform for agile service delivery.
The dashboard display, one-click operation, system health model, visual deployment, and quick access features enable you to perform visual, digital, automatic, and intelligent management, operations, and maintenance.

Virtualization Performance

UIS CAS performs well in the SPECvirt test and provides innovative features such as DRX, agentless anti-virus, application HA, and cloud rainbow.
Unified Distributed Storage

UIS ONEStor uses a unified distributed storage architecture to ensure high performance, scalability, and security of the storage system and support automatic O&M.

- **Unified distributed storage architecture** - Provides unified block, file, and object storage services without requiring independent metadata servers. Distributed global caching greatly improves read and write performance.

- **High availability** - Supports replication redundancy policies with two to six replicas and erasure coding redundancy policies of N+1 to N+4 levels to fully protect data. UIS ONEStor provides replication, snapshot, clone, copy, failure domain, and protection domain features.

- **High reliability** - Uses a fully redundant network to eliminate single point of failure and ensure uninterrupted services upon disk or node failures. UIS ONEStor automatically reconstructs data upon disk or node failures, and you can adjust the reconstruction priority. Nodes and disks can be added or deleted without interrupting services, and auto data balancing is supported.

Reliability Monitoring Center

UIS Manager provides visual and simplified operations and maintenance. Administrators can obtain resource information and service state at one click and quickly locate specific issues. Hierarchical display of service, system, and hardware reliability states and one-click health inspection help improve O&M efficiency.
Multidimensional Data Protection

UIS provides service protection at three levels: UIS backup, UIS disaster recovery, and UIS active-active schemes to cover the six disaster recovery tiers defined in Information security technology—Disaster recovery specifications for information system.

- **Flexible redundancy policy** - The distributed storage component integrated in UIS supports volume-based replication and erasure coding redundancy policies, providing data reconstruction without requiring hot backup disks and ensuring data integrity.
- **Multiscenario backup** - The agentless backup feature enables you to perform differential, full, and incremental backup of VMs without additional costs. Continuous data protection is supported.
- **SRM** - Disaster recovery schemes such as async remote replication meets the disaster recovery requirements of both heterogeneous and homogeneous sites.
- **Active-active** - Provides data center disaster recovery to ensure continuous running of critical services.

<table>
<thead>
<tr>
<th>Disaster recovery tier</th>
<th>RTO</th>
<th>RPO</th>
<th>Disaster recovery scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>&gt; 2 days</td>
<td>1 to 7 days</td>
<td>UIS backup</td>
</tr>
<tr>
<td>Tier 2</td>
<td>1 to 7 days</td>
<td>≤ 36 hours</td>
<td></td>
</tr>
<tr>
<td>Tier 3</td>
<td>≤ 12 hours</td>
<td>≤ 2 hours</td>
<td></td>
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<tr>
<td>Tier 4</td>
<td>≤ 4 hours</td>
<td>≤ 30 minutes</td>
<td>UIS SRM</td>
</tr>
<tr>
<td>Tier 5</td>
<td>≤ 30 minutes</td>
<td>&gt; 0</td>
<td></td>
</tr>
<tr>
<td>Tier 6</td>
<td>&lt; 0</td>
<td>0</td>
<td>UIS active-active</td>
</tr>
</tbody>
</table>
Cloud-managed Services

- **IaaS capabilities** - Provides abundant IaaS services, including self-service resource delivery, hierarchical privilege management, multitenant management, workflow and support ticket management, and heterogeneous virtual resource incorporation.

- **Open REST APIs** - Provides standard REST APIs and is compatible with OpenStack H/J/K/L/M/P plugins and interfaces.

- **Open platform** - Compatible with 200+ guest operating systems and 20+ open-source and commercial VNFs.

- **Open cooperation** - Open cooperation in verticals such as security, backup, industry-specific applications, and cloud management platform.

Critical Service Benefits

UIS provides the following benefits in the deployment, management, and application of critical database services.

- **High I/O performance** - Separation of metadata and data reduces resource loss caused by access and disk caching improves log processing efficiency.

- **Simplified infrastructure and management** - Consolidates different load systems into a unified resource pool to greatly improve compute resource usage.

- **Fast deployment and delivery of database instances** - Enables you to directly configure and allocate compute, storage, and network resources in existing resource pools, shortening the configuration time and reducing the technical requirements on operators.

- **Best practice for database instance deployment** - Provides deployment templates that help in the configuration of compute resource flavors, operating system settings, and storage resource planning.

- **Dynamic compute resource scaling** - Dynamically scales compute resources based on service needs, improving resource usage and simplifying initial planning and infrastructure upgrade.
## Specification

![H3C UIS 3000 G5](image)

### H3C UIS 3000 G5

<table>
<thead>
<tr>
<th><strong>CPU</strong></th>
<th>2 x 3rd generation Intel® Xeon® Ice Lake SP series (each processor up to 40 cores and maximum 270W power consumption)</th>
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</thead>
</table>
| **Memory** | 32 x DDR4 DIMM slots, maximum 12.0 TB  
Up to 3200 MT/s data transfer rate, support RDIMM or LRDIMM  
Up to 16 Intel® Optane™ DC Persistent Memory Module PMem 200 series (Barlow Pass) |
| **Storage controller** | Embedded RAID controller (SATA RAID 0, 1, 5, and 10)  
Standard PCIe HBA controller or storage controller, depending on model |
| **FBWC** | 8 GB DDR4 cache, depending on model, support supercapacitor protection |
| **Storage** | Up to front 12LFF bays, internal 4LFF bays, Rear 4LFF+4SFF bays*  
Up to front 25SFF bays, internal 8SFF bays, Rear 4LFF+4SFF bays*  
Front/Internal SAS/SATA HDD/SSD/NVMe Drives, maximum 28 x U.2 NVMe Drives  
SATA or PCIe M.2 SSDs, 2 x SD card kit, depending on model |
| **Network** | 1 x onboard 1 Gbps management network port  
2 x OCP 3.0 slots for 4 x 1GE or 2 x 10GE or 2 x 25GE NICs  
PCIe Standard slots for 1/10/25/40/100/200GE/IB Ethernet adapter |
| **PCIe slots** | 14 x PCIe 4.0 standard slots |
| **Ports** | VGA ports (Front and Rear) and serial port (RJ-45)  
6 x USB 3.0 ports (2 front, 2 rear, 2 internal)  
1 dedicated management Type-C port |
| **GPU** | 14 x single-slot wide or 4 x double-slot wide GPU modules |
| **Optical drive** | External optical disk drive, optional |
| **Management** | HDM OOB system (with dedicated management port) and H3C iFIST/FIST, LCD touchable smart model |
| **Security** | Chassis Intrusion Detection  
TPM2.0  
Silicon Root of Trust  
Two-factor authorization logging |
### Power supply
- 2 x Platinum 550W/800W/850W/1300W/1600W/2400W (1+1 redundancy), depending on model
- 800W ~ 48V DC power supply (1+1 Redundancy)
- Hot swappable redundant fans

### Standards
- CE, UL, FCC, VCCI, EAC, etc.

### Operating temperature
- 5°C to 45°C (41°F to 113°F)
- The maximum operating temperature varies by server configuration. For more information, see the technical documentation for the device.

### Dimensions (H × W × D)
- 2U Height
- Without a security bezel: 87.5 x 445.4 x 748 mm (3.44 x 17.54 x 29.45 in)
- With a security bezel: 87.5 x 445.4 x 776 mm (3.44 x 17.54 x 30.55 in)