

# Cisco UCS Invicta Scaling System

## Product Overview

What if you could accelerate the performance of your mission-critical workloads? Transactions could be processed instantaneously. Users could analyze data and make better decisions faster. Batch processing jobs would go faster. And other important processes would deliver better performance. And what if you could easily reshape your infrastructure as demands on it change? Now you can. Cisco's leadership in high-performance, scalable, solid-state systems is dramatically improving application performance while simplifying data center operations.

Meet the Cisco UCS Invicta™ Scaling System: the first truly enterprise-class, scalable, solid-state architecture. As a next-generation modular architecture, the Cisco UCS Invicta Series delivers the highest sustained write throughput in the industry. It supports all standard networking and file protocols. And it can serve up application workloads from a multitenant architecture in which applications coexist without performance degradation.

Compared to similar technologies, the Cisco UCS Invicta OS outperforms. It was designed to use NAND flash memory for sustained high throughput, a high rate of I/O operations per second (IOPS), ultra-low latency, and fast write performance.

Cisco's application-centric approach, combined with a modular, scalable, high-performance architecture, let you improve performance of many types of workloads:

- Analytics and intelligence: Extract, integrate, and analyze data up to 10 times faster.
- Batch processing: Run batches without interrupting other workflow.
- E-mail: Reduce time delays by a factor of up to 50.
- Online transaction processing: Remove performance bottlenecks between servers and memory.
- Video: Complete more transcoding tasks in significantly less time.
- Virtual desktops: Improve overall user experience with desktops that launch faster and respond quickly while virus scanning.
- Database loads: Dramatically reduce query response times.
- High-performance computing (HPC): Leverage low latency IO requests to speed time sensitive applications.

## Features and Benefits

Table 1 summarizes the features and benefits of the Cisco UCS Invicta Scaling System.

**Table 1.** Features and Benefits

Feature	Benefit
<b>Cisco UCS Invicta OS</b>	<ul style="list-style-type: none"> <li>• Enables the appliance to achieve high throughput, high IOPS rate, and ultra-low latency</li> <li>• Greatly extends useful life of multilevel cell (MLC) media</li> <li>• Optimizes write requests for flash-memory architecture-wear-leveling algorithms by committing all writes across the entire appliance</li> <li>• Reduces power consumption and floor space for energy and space savings</li> </ul>
<b>Expandability and scalability</b>	<ul style="list-style-type: none"> <li>• Through scale-up and scale-out architecture, provides flexibility to increase throughput or capacity, based on workload demands</li> </ul>

Feature	Benefit
<b>Data protection</b>	<ul style="list-style-type: none"> <li>• Through write protection buffer, delivers confirmed writes in the event of a power loss</li> <li>• Uses asynchronous and open target replication to let you replicate data to a variety of targets for increased flexibility, security, and availability</li> </ul>
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>• Preserves existing investment without limiting options to build an enterprise infrastructure</li> </ul>
<b>Manageability</b>	<ul style="list-style-type: none"> <li>• Configures the appliance in a few easy steps</li> <li>• Simplifies performance monitoring, automated support setup, role assignment, and management with tools for mirroring, replication, and other functions</li> </ul>
<b>Data reduction</b>	<ul style="list-style-type: none"> <li>• Provides up to 10x deduplication rate</li> <li>• Reduces space requirements</li> </ul>
<b>Thin provisioning</b>	<ul style="list-style-type: none"> <li>• Eliminates cost of unused, over allocated memory</li> <li>• Saves space and resources</li> </ul>

## Product Specifications

Table 2 lists the hardware specifications for the Cisco UCS Invicta Scaling System.

**Table 2.** Cisco UCS Scaling System Specifications

Item	Specification
<b>Capacity (TB)</b>	6 to 144 TB RAW
<b>Scaling architecture</b>	<ul style="list-style-type: none"> <li>• Up to 2 scaling system routers (SSRs)</li> <li>• Up to 6 scaling system nodes (SSNs)</li> </ul>
<b>IOPS</b>	316K IOPs with 2 SSNs and 2 SSRs in 0.5 milliseconds
<b>Bandwidth</b>	Up to 7.2 Gbps
<b>Latency</b>	0.5 milliseconds
<b>Drive protection</b>	RAID6
<b>Redundant fans and power supplies</b>	<ul style="list-style-type: none"> <li>• Dual-redundant fans and power supplies for enterprise-class reliability and uptime</li> <li>• Power efficiency through Cisco Common Form-Factor Platinum Power Supplies</li> </ul>
<b>Form factor</b>	8RU base configuration; 16RU fully expanded
<b>Power consumption</b>	<ul style="list-style-type: none"> <li>• 350W per node</li> <li>• 1,400W base unit</li> <li>• 2,800W fully expanded</li> </ul>
<b>Interfaces</b>	10-Gbps Ethernet 8-Gbps Fibre Channel
<b>OS support</b>	Microsoft Windows, Linux, Red Hat, Solaris, VMware vSphere, and Citrix XenServer
<b>Integration</b>	VAAI
<b>Management integration</b>	Cisco UCS Director
<b>Protocols</b>	Fibre Channel, iSCSI
<b>Power-outage protection</b>	Write-protection buffer
<b>Processors</b>	Intel Xeon processor E5-2680 v2
<b>Memory</b>	24 DIMM slots 16-GB dual-rank 1.35V
<b>PCIe slots</b>	2 PCIe Generation 3 x16 slots: both full height and 3/4 length (10.5 in.)
<b>Drives</b>	24 front-accessible, hot-swappable, 2.5-inch SATA drives
<b>Front-panel connectors</b>	One KVM console connector (supplies 2 USB ports, 1 VGA port, and 1 serial port)
<b>Front-panel locator LED</b>	Indicator to help direct administrators to specific servers in large data center environments
<b>Additional rear connectors</b>	Additional interfaces include a VGA video port, 2 USB 2.0 ports, 1 Gigabit Ethernet dedicated management port, quad 1 Gigabit Ethernet ports, and an RJ-45 serial port

Item	Specification
<b>Physical dimensions (HxWxD per node or router)</b>	2RU: 3.4 x 17.5 x 28.0 in. (8.7 x 44.5 x 71.2 cm)
<b>Temperature: Operating</b>	41 to 104°F (5 to 40°C) derate the maximum temperature by 1°C for every 305m of altitude above sea level
<b>Temperature: Nonoperating</b>	-40 to 158°F (40 to 70°C)
<b>Humidity: Operating</b>	10 to 90% noncondensing
<b>Humidity: Nonoperating</b>	5 to 93% noncondensing
<b>Altitude: Operating</b>	0 to 10,000 ft (0 to 3000m); maximum ambient temperature decreases by 1°C per 300m)
<b>Altitude: Nonoperating</b>	40,000 ft (12,000m)

## Regulatory Standards

Table 3 provides regulatory standards compliance information for the Cisco UCS Scaling System Appliance.

**Table 3.** Regulatory Standards Compliance: Safety

Specification	Description
<b>Safety</b>	<ul style="list-style-type: none"> <li>• UL 60950-1 No. 21CFR1040 Second Edition</li> <li>• CAN/CSA-C22.2 No. 60950-1 Second Edition</li> <li>• IEC 60950-1 Second Edition</li> <li>• EN 60950-1 Second Edition</li> <li>• IEC 60950-1 Second Edition</li> <li>• AS/NZS 60950-1</li> <li>• GB4943 2001</li> </ul>
<b>EMC: Emissions</b>	<ul style="list-style-type: none"> <li>• 47CFR Part 15 (CFR 47) Class A</li> <li>• AS/NZS CISPR22 Class A</li> <li>• CISPR2 2 Class A</li> <li>• EN55022 Class A</li> <li>• ICES003 Class A</li> <li>• VCCI Class A</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• KN22 Class A</li> <li>• CNS13438 Class A</li> </ul>
<b>EMC: Immunity</b>	<ul style="list-style-type: none"> <li>• EN55024</li> <li>• CISPR24</li> <li>• EN300386</li> <li>• KN24</li> </ul>

## For More Information

- For additional information about the Cisco UCS Scaling System, visit <http://www.cisco.com/go/ucsinvicta>.



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