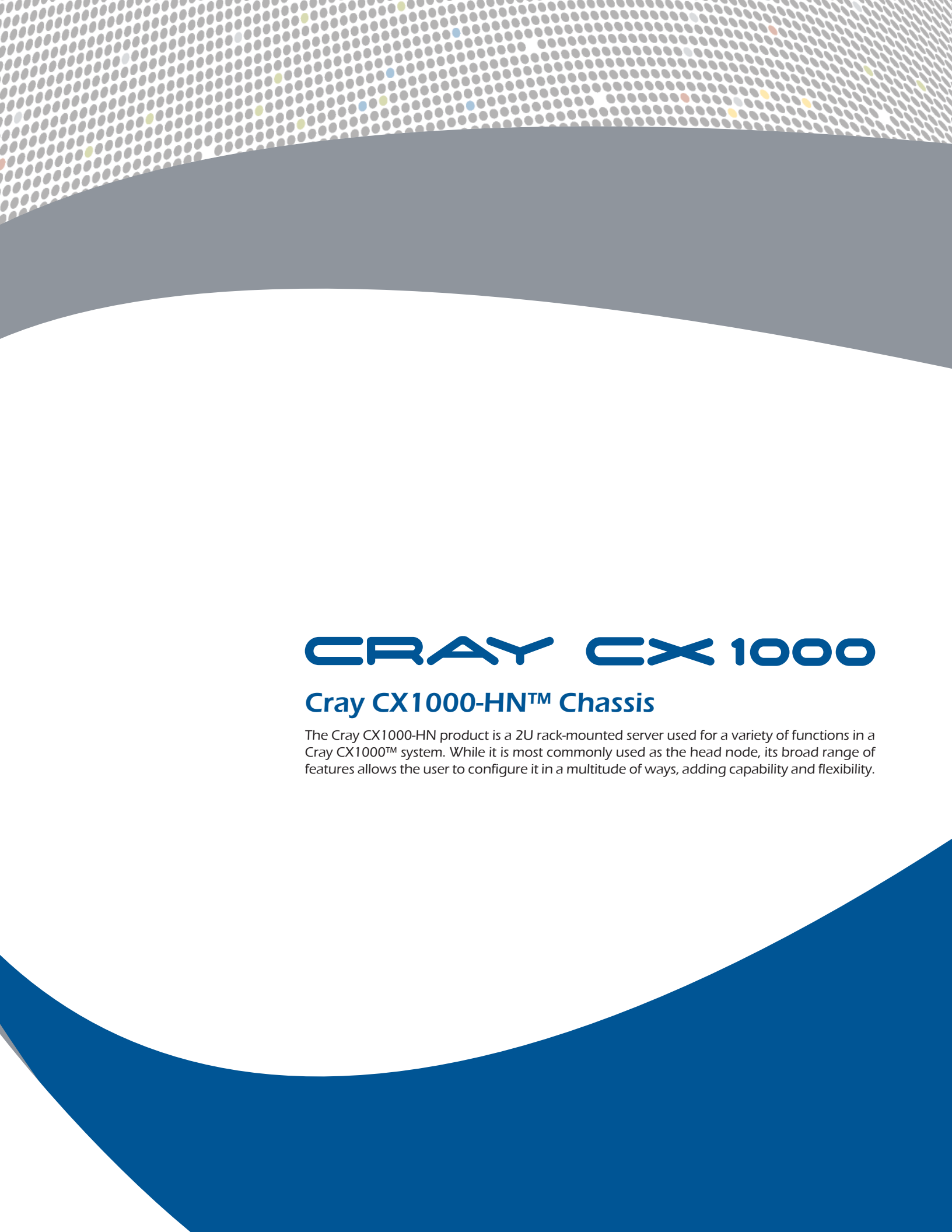




# CRAY CX 1000

## Cray CX1000-HN™ Chassis

The Cray CX1000-HN product is a 2U rack-mounted server used for a variety of functions in a Cray CX1000™ system. While it is most commonly used as the head node, its broad range of features allows the user to configure it in a multitude of ways, adding capability and flexibility.

# Cray CX1000-HN

Designed with high performance computing (HPC) in mind, the Cray CX1000-HN server delivers the qualities expected of an efficient server node. It has two Intel® Xeon® processors (5600 series) and is based on dual Intel S5520 chipsets (Tylersburg). The Cray CX1000-HN server supports both Linux and Windows® HPC Server 2008 environments.

## Enhanced I/O and storage capabilities in a 2U form factor

The Cray CX1000-HN server is ideally suited for use as head node in the Cray CX1000 blade system. Together they form a powerful and cost-effective HPC cluster. In only 2U, it offers the advanced connectivity features and the extended storage options that make an efficient and flexible service node. For example, this flexibility allows the user to configure the Cray CX1000-HN server as a cost-effective head node or upgrade it to serve as a large memory node for targeted applications. The features include:

- Reinforced connectivity with 2/4/1 PCI-E 2.0 x16/ x8/ x4 slots to support InfiniBand DDR/QDR, very high speed network boards, and ultra fast 8Gb/s Fibre Channel cards
- Up to 6.4GT/s Intel QuickPath Interconnect (QPI)
- Enhanced memory capacity and throughput with up to 18 DIMMs ensuring up to 144GB
- High internal storage capacity with up to 6 SATA2 or 8 SAS disks (hot-swap)
- Support of RAID 0, 1, 5, 10 (with PCI-Express SAS RAID board)

## Reliability features

Because a service node must provide cluster administration services without disruption, the Cray CX1000-HN server also comes with:

- Redundant Power Supply Unit (PSU) with airflow and thermal control
- Hot-swap cooling fans

## CX1000-HN Technical Specifications

### FORM FACTOR

|                             |                                                                                                                                                                                                         |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chassis                     | Rack mount 2U drawer                                                                                                                                                                                    |
| Processors                  | Two Intel Xeon (5600) <ul style="list-style-type: none"><li>• Intel Xeon X5670, 2.93 GHz, 6 cores</li><li>• Intel Xeon X5650, 2.66 GHz, 6 cores</li><li>• Intel Xeon E5620, 2.40 GHz, 4 cores</li></ul> |
| Chipset                     | 2x Intel S5520 Chipset (Tylersburg) – QPI up to 6.4 GT/s                                                                                                                                                |
| Memory slots (number, type) | 18x DIMM sockets                                                                                                                                                                                        |
| I/O bus slots               | 2 PCI-Express-2.0 X16<br>4 PCI-Express-2.0 X8<br>1 PCI-Express-2.0 X4<br>All LP slots                                                                                                                   |

### MEDIA AND STORAGE DEVICES

|                                   |                                                                                  |
|-----------------------------------|----------------------------------------------------------------------------------|
| Slim Combo CD-RW/DVD-ROM          | 1 (optional)                                                                     |
| Hard Disk Drives SATA2 7200 rpm   | 6x 3.5" disks (250/500/750/1000 GB)                                              |
| Hard Disk Drives SAS 15Krpm       | 8x 3.5" disks (146/300/400 GB), with PCI-Express SAS add-on adapter              |
| Maximum Internal Storage capacity | 6000 GB with SATA2<br>Support of RAID 0/1/5/10 (with PCI-Express SAS RAID board) |

## NETWORK

|                              |                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network interface controller | Intel 82576 dual-port Gigabit Ethernet Controller                                                                                                                                                                                                                                                                                                                                |
| InfiniBand                   | Mellanox ConnectX single port 4x QDR IB/LP/PCI-Ex Gen2-X8<br>Mellanox ConnectX dual port 4x QDR IB/LP/PCI-Ex Gen2-X8                                                                                                                                                                                                                                                             |
| LAN Adapters                 | Intel PRO1000 PT Single Port RJ45 Gigabit Copper/ LP/ PCI-Ex Gen1-X1/ for R4xx<br>Intel PRO1000 PT Quad Ports RJ45 Gigabit Copper/ LP/ PCI-Ex Gen1-X4/ for R422E1/R423<br>Myricom 10G Single Port 10 Gigabit/ LP/ PCI-Ex Gen1-X8/ for R423<br>XFP Fiber transceiver 10GBase - SR for Myricom 10G Ethernet NIC<br>XFP Fiber transceiver 10GBase - LR for Myricom 10G Ethernet NIC |
| FC Controller                | PCI-Express F/C 4Gb/s mono Host Bus Adapter, w/o cable (LPE1150)<br>PCI-Express F/C 4Gb/s dual Host Bus Adapter, w/o cable (LPE11002)<br>PCI-Express F/C 8Gb/s Single Channel Host Bus Adapter, w/o cable (LPe1250)<br>PCI-Express F/C 8Gb/s Dual Channel Host Bus Adapter, w/o cable (LPe12002)                                                                                 |

## SECURITY

|                                   |                             |
|-----------------------------------|-----------------------------|
| Front door / Intrusion protection | Chassis intrusion detection |
|-----------------------------------|-----------------------------|

## I/O PORTS

|                            |                                                                                                   |
|----------------------------|---------------------------------------------------------------------------------------------------|
| USB ports                  | 2 front USB ports 2.0, 6 rear USB ports 2.0                                                       |
| Serial port                | 1 fast UART 16550 serial port                                                                     |
| Audio port                 | 1                                                                                                 |
| PS/2 port (mouse/keyboard) | 1                                                                                                 |
| SVGA video port            | 1                                                                                                 |
| System Management          | 1 BMC (IPMI 2.0 with virtual media-over-LAN)<br>Embedded Winbond WPCM450-R on dedicated RJ45 port |
| Ethernet port              | 2 RJ45 Ethernet ports                                                                             |

## POWER SUPPLY

|                   |                                            |
|-------------------|--------------------------------------------|
| Fixed PSU         | Redundant PSU with airflow/thermal control |
| Power consumption | 700 Watts w/PFC (+85% efficiency)          |
| Auto-sensing      | 110/220V – 60/50Hz                         |

## VENTILATION

|                    |                                       |
|--------------------|---------------------------------------|
| Fan specifications | 3x 8cm 6300 RPM hot-swap cooling fans |
|--------------------|---------------------------------------|

## PHYSICAL SPECIFICATIONS

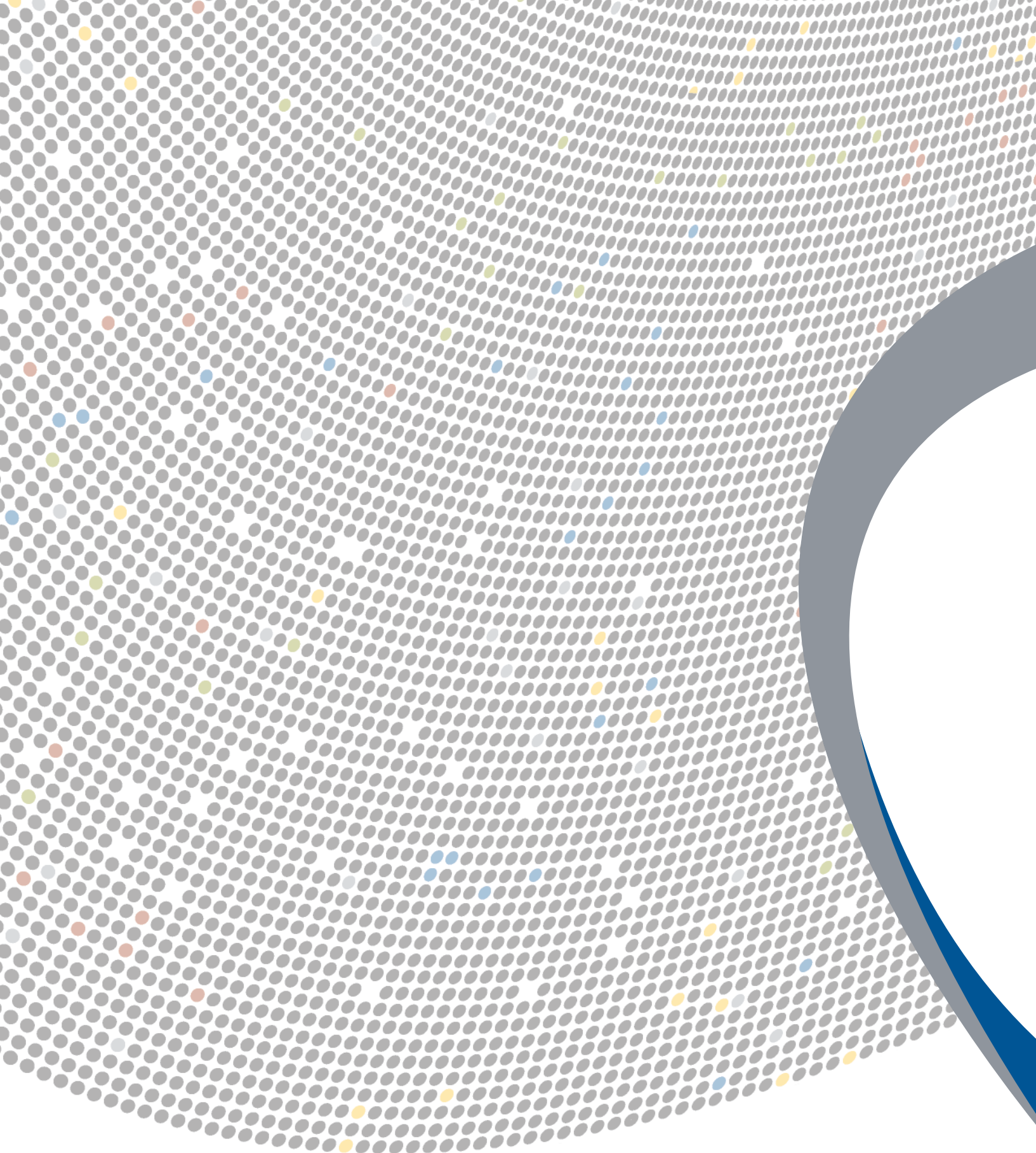
|              |                   |
|--------------|-------------------|
| Size (HxWxD) | 89 x 437 x 648 mm |
| Weight       | 24.9 kg           |

## OS AND SOFTWARE

|                                    |                                                   |
|------------------------------------|---------------------------------------------------|
| Windows® Server 2003 Certification | Microsoft® Windows HPC Server 2008                |
| Linux Support                      | Red Hat Enterprise Linux 5 & Cray Cluster Manager |

## REGULATORY & SAFETY

|                       |                    |
|-----------------------|--------------------|
| Regulatory compliance | CE (UL, FCC, RoHS) |
|-----------------------|--------------------|



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