HDversa

mercury systems™

10" Deep, 12 Bay Modular & Composable Server

- **Up to 12 Intel Xeon D Processors with 8-16 cores**
- **Up to 1.5TB DD4 ECC Memory**
- **Up to 300TB SAS3 or 220TB SATA storage**
- **1350W max redundant power**
- **MIL-STD 810**

A part of the *EnterpriseSeries*™ RES HD product Line, Mercury's low power HDversa server integrates the latest Intel Xeon D processors to deliver reliable performance while reducing the total cost of ownership.

Common composable solution

Designed for applications that require minimum size, weight, and power—the HDversa features a power backplane with twelve module bays for standardized compute, storage, PCIe expansion, networking, and management modules.

Achieve optimum performance and precise functionality for a multitude of applications by mixing module types. Each module shares common attributes—allowing users to simply **plug and pull** modules according to specific system needs.

Low Power, Enhanced reliability

Designed to easily fit in the same physical space as legacy VME and 6U Compact PCI platforms, the **10" deep** and **10.5" high** Themis HDversa is a light weight, low power, high density computing platform. It embeds the latest commercial off the shelf (COTS) components in over six configurable modules — with each module requiring just **50-100W of power** — and a fully loaded HDversa system with twelve modules requiring a maximum of 1350W redundant power.

The perfect solution is only a module away

The HDversa module bays hold between seven to twelve single or double slot modules. Each module is designed for a special purpose and can be plugged into the chassis in any combination. This configuration flexibility allows users the ability to design a solution best suited for their application.

With hundreds of configuration possibilities, the HDversa fits in tight spaces, simplifies upgrades, **reduces costs**, and accelerates workloads—all while operating at the tactical edge.

Space Optimized Modularity

Each compute (HDC), storage (HDS2, HDS4), and PCIe expansion (HDP) module contains an Intel Xeon D processor with eight or sixteen cores and up to 128TB DDR4 ECC memory. A configured HDversa system can contain up to twelve Intel Xeon D processors with **1.5TB memory** or up to **300TB of storage** with seven Intel Xeon D Processors and **896GB memory**. For workload-heavy applications, GPUs can be integrated in HDP modules to accelerate performance.

Simplify Upgrades, Cut Costs

As technology moves forward and application needs change, upgrading is as simple as replacing a single module. Modules can be repurposed between multiple HDversa systems, minimizing the need for spares, while reducing costs associated with technology insertion.

Mercury Systems is a leading commercial provider of secure sensor and safety-critical processing subsystems. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.

ACQUIRE   DIGITIZE   PROCESS   STORAGE   EXPLOIT   DISSEMINATE
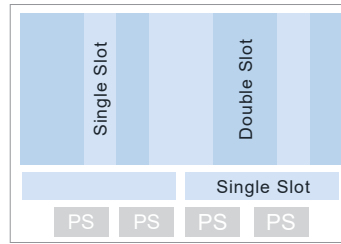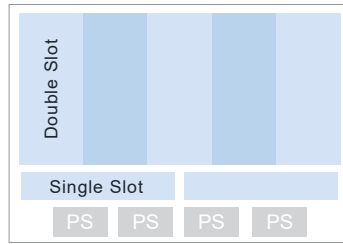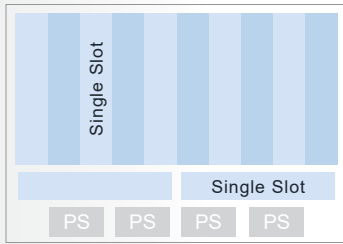
Figures 1-3: Twelve Module bays can accomodate between seven to twelve modules in any combination.

Proven Performance

Mercury's EnterpriseSeries RES HD modular servers are trusted worldwide for their high-performance, long life cycles, thermal resiliency, compatibility with industry standards, and SWaP optimization. With the latest Intel core-count processors and configurable I/O, HDversa servers are ideally suited for space and power constrained autonomous vehicle, industrial, shipboard, subsurface, radar, mission, command, control, and battle management processing mission critical applications.

Your Reliable Teammate

With over 30 years of technical expertise, Mercury Systems works closely with customers to design computing solutions that are easy to integrate, affordable, and reliable for years to come.

XD5 Module Specifications

Common Specifications for HDC, HDP, HDS2, HDS4, and HDS8

Parameter	Qty	Description
processor	1	Intel® Xeon® D with 8 or 16 cores, 32 threads
memory		Up to 128GB DDR4 ECC 2133MHz
disk on module	2	Up to 128GB per DOM
internal drives	1	M.2 SATA

Input/Output	Qty	Access
USB 3.0 ports	2	front
VGA port	1	front
ethernet ports (RJ45)	4	front. dual 1GbE + dual 10GbE
serial port	1	front

Management and Operating System

Windows®, Linux®, VMWARE® application support IPMI v2.0
Redfish option available

Specifications

Width:	1.6" (41mm, 1 slot) or 3.35" (85mm, 2 slot)
Height:	7 inches (177mm)
Depth:	9.8 inches (249mm)
Weight:	see individual module specifications

High Density Compute (HDC)

Weight*:	3.16 lbs (1.43 kg)

High Density PCIe Expansion (HDP)

Weight*:	5.42 lbs (2.46 kg)
Expansion:	full height, half length cards
	up to 2 PCie 3.0x8 or 1 PCiE 3.0x16

High Density Storage (HDS2)

Weight*:	6.06 lbs (2.75 kg)
Storage:	2 SATA, SAS3 or NVME drives
	for up to 60TB SAS3 or 22TB SATA storage
Expansion:	low profile, half length cards
	up to 2 PCie 3.0x8

High Density Storage (HDS4)

Weight*:	7 lbs (3.17 kg)
Storage:	4 SATA drives for up to 44TB of storage

High Density Networking Switch (HDN1)

Weight*:	3.08 lbs (1.4 kg)
Ethernet Ports (RJ45):	16 1GbE
Other Ports (RJ45):	2 (serial, ethernet management)
Network:	Layer 2/3 Marvell Prestera®-DX PonCat3
Processor:	Intel® i5-5300U vPro Processor
Routing:	IPv4/IPv6 - IP multicast, VLANs, IETF, IEEE, DSL Forum
Quality of Service:	QoS IEEE 802.1 priority tagging, DSCP, traffic queues
Management:	Ethernet (http, telnet, SNMP, and RS232 (CLI)

Functionality:

48Gbps performance switching capacity

35.71 Mpps maximum forwarding rate

8K entries MAC address table size, 3.5Mbits Packet Buffer

Forwarding mode: store and forward

Supports half/full duplex operation at 10/100Mbps

Supports port auto-negotiation

High Density Networking Switch (HDN10)

Weight:	4 lbs (1.81 kg)
Switch:	Integrated Netgear M4300-8X8F
Ethernet Ports:	16 10GbE Ports that include:
	8 10GBASE-T (Fast Ethernet, 1G and 10G speeds)
	8 x SFP+ (1G and 10G speeds)
Network:	Layer 3 static, policy-based
	RIP OSPF VRRP PIM dynamic routing
Other Ports (RJ45):	1GbE port for out-of-band management (OOB, RJ45)
	RS232 for local management
Other Ports:	Mini-USB port for local management
	USB for storage, logs, configuration or images
Performance:	238Mpps throughput, 320Gps switching fabric

High Density Resource Management (HDRM)

Weight*:	3.08 lbs (1.4 kg)
Processor:	Intel i5-5300U vPro Processor
Management:	IPMI 21.0, Zabbix, Web Based Interface
Managed IPMI ports:	16 1GbE (RJ45)
Other Ports:	1 (management console) + 1 (serial)
Compliancy:	IEEE 802.3, 802.3u, 802.3ab
	IEEE 802.3x flow control support

2X	6	½	100%
Compute Density	Module Types	the Rack Space	Scalable & Flexible

A part of Mercury's EnterpriseSeries™ suite, RES HD servers integrate the latest Intel® processors in versatile "plug and pull" modules. Each chassis accomodates previous, current, and future module generations—simplifying logistics and reducing the total cost of ownership.

Technical Specifications

Up to twelve Intel® Xeon® D Processors with 8 or 16 cores, 32 threads

Up to 1.5TB DDR4 ECC 2133MHz

Up to 20 Front access HDD (up to 30TB) or SSD drives (up to 8TB each)

Power Supply Options

Redundant 100/240V VAC (50/60Hz, 400Hz)

Up to 1350W Redundant (3+1) Power

Environmental*

Operating

Temperature: 0°C to 50°C

Extended Temperature: -15°C to 65°C

Humidity: 8% to 95% (non-condensing)

Shock: 3 axis, 35g, 25ms

Vibration: 4.76Grms, 8Hz to 2000 Hz (SSD)

Altitude: 0 to 10,000 feet above sea level

Non Operating (if different)

Temperature: -40°C to 70°C

Humidity: 5% to 95% (non-condensing)

Altitude: 0 to 40,000 feet above sea level

Vibration: 4.76Grms, 5Hz to 2000 Hz (SSD)

Additional Options

Slide Rails

Mechanical

Height: 6U or 10.5 inches (266.7 mm)

Width: 17.06 inches (433.3 mm)

Depth: 10 inches (254 mm)

Chassis weight: 27.44 lbs (12.45 kg) with power supplies

Typical Weight*: 60 lbs (27.2 kg) of fully loaded system

19" rackmountable

* Mercury Systems designs all products to meet or exceed listed data sheet specifications. Some specifications including I/O profiles, weight, and thermal profiles are configuration dependent. Contact Mercury for information specific to your desired configuration requirements.

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