

Big Data Specialized Servers

DataMandu 2 Mixed-Data Load Cruncher

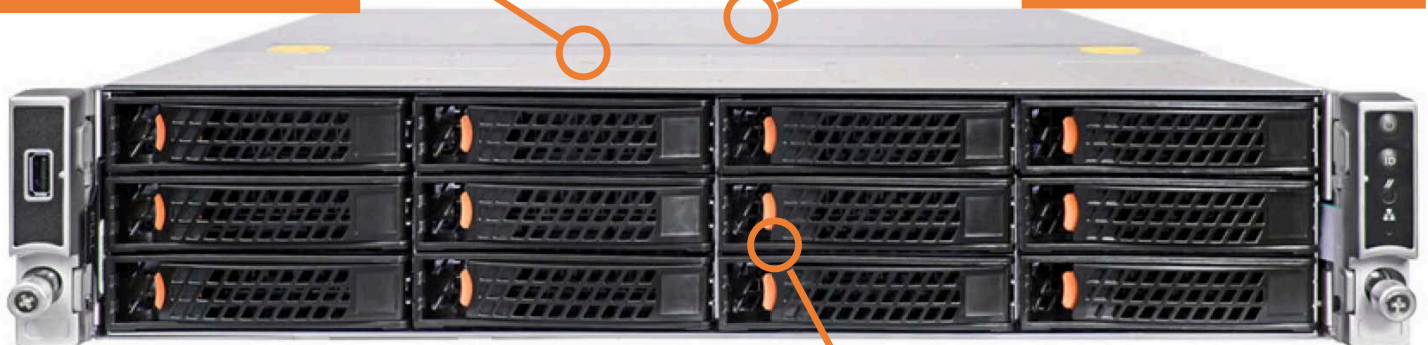


The DataMandu series of servers has been designed and optimized for today's data crunching needs, whether for OLTP (OnLine Transaction Processing), data warehousing, data staging, or—simply put, Big Data.

DataMandu 2 is a compact, 2U server optimized for mixed loads.

2x Xeon E5 v3

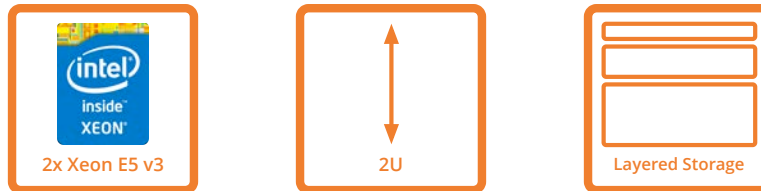
10 GbE, 40 GbE,
or 100 GbE



96 TB HDD
& 16 TB NVMe

Big Data Specialized Servers

Key Features



Features

Built with and for database experts, DataMandu 2 uses three levels of persistent storage: data center-grade SSD for system, NVMe drives for high performance storage, and helium-based mechanical drives for warm data. Relying on up to 2 Intel® Xeon® E5 v3, 36 cores, and 72 threads, DataMandu 2 is designed to optimize parallel throughput, up to the network, with up to 100 GbE network I/O.

Specifications

Storage	Layered storage using NVMe drives, data center-grade SSD, and high performance helium drives
CPU	Up to 2 Intel® Xeon® E5-2699 v3, E5-2650 v3, or E5-2623 v3
Network	Choice of 10 GbE, 40 GbE or 100 GbE

They trust us:



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Detailed Technical Specifications

CPU for DataMandu 2L

Features	Description
Reference	Intel® Xeon® E5-2699 v3
Cores	18
Threads	36
Cache	45 MB
Frequency	2.3 GHz
Max Turbo Frequency	3.6 GHz
Power	145 W
Lithography	22 nm

CPU for DataMandu 2M

Features	Description
Reference	Intel® Xeon® E5-2650 v3
Cores	10
Threads	20
Cache	25 MB
Frequency	2.3 GHz
Max Turbo Frequency	3.0 GHz
Power	105 W
Lithography	22 nm

CPU for DataMandu 2S

Features	Description
Reference	Intel® Xeon® E5-2623 v3
Cores	4
Threads	8
Cache	10 MB
Frequency	3.0 GHz

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Features	Description
Max Turbo Frequency	3.5 GHz
Power	105 W
Lithography	22 nm

Memory

Features	Description
Reference	Crucial® CT8G4RFS4213
Type	DDR4 ECC/RDIMM
Size	8 GB (1 x 8 GB)
Speed	PC4-17000 (2133)
Voltage	1.2 V

Storage

System Storage

Features	Description
Reference	Intel® SSD DC S3510 series
Capacity	240 GB
Form Factor	2.5" 7 mm
Interface	SATA 3.0 6 Gb/s
Sequential Read	500 MB/s
Sequential Write	260 MB/s
Random Read	68000 IOPS
Random Write	10200 IOPS
Endurance Rating	140 TBW
MTBF	2 million hours
Uncorrectable Bit Error Rate	1 sector per 10^{17} bits read
Lithography	22 nm

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Hot Data Storage

Features	Description
Reference	Intel® SSD DC P3700 series
Capacity	1.6 TB
Form Factor	2.5" 15 mm
Interface	PCIe NVMe 3.0 x 4
Sequential Read	2800 MB/s
Sequential Write	190 MB/s
Random Read	450000 IOPS
Random Write	150000 IOPS
Endurance Rating	43.8 PBW
MTBF	2 million hours
Uncorrectable Bit Error Rate	Less than 1 sector per 10^{17} bits read
Lithography	20 nm

Warm Data Storage

Features	Description
Reference	HGST® Ultrastar He8 series, HUH728080ALN600
Capacity	8 TB
Form Factor	3.5" 26.1 mm
Interface	SATA 6 Gb/s
Data Buffer	128 MB
Rotational Speed	7200 RPM
Random Read	450000 IOPS
Random Write	150000 IOPS

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Features	Description
MTBF	2.5 million hours
Uncorrectable Bit Error Rate	Less than 1 sector per 10^{15} bits read

System

Features	Description	
System	Dimension	16.93" x 27.95" x 3.44" (W x D x H)
	Gross weight	Est. 28 KG
Boards	Motherboard	(1) Intel® S2600 WTT
Drive bay	External	(12) 3.5" hot-swap SATA/SAS disks
Cooling	Fan	(6) hot-swap system fans
Power Supply	Output Watts	1100 W
	Efficiency	80 Plus Platinum
	Redundancy	1+1
Environment	Serviceability	Hot-swap
	Operating temperature	10°C ~ 35°C
	Non-operating temperature	-20°C ~ 60°C
OS Support	Windows	Windows® Server 2012 R2/2012
	Linux	Red Hat® Enterprise Linux, CentOS

Motherboard

Features	Description	
Processor	CPU	(2) Intel® Xeon® E5-2600 V3 Product Family, 145 W Max
	System Bus	Up to 9.6 GT/s with Intel QuickPath Interconnect (QPI) support
Chipset	PCH	Intel® C612
Memory	Memory type	DDR4 ECC RDIMM/LRDIMM 2133/1866/1600 MHz
	Max # of DIMM/Channel	(12) + (12) DIMM slots
	Capacity	Up to 1536 GB
	Voltage	1.2 V
Expansion	PCIe 3.0	(1) PCIe 3.0 x 8 slot (Riser #3, up to 2 FHHL slots)

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		(2) PCIe 3.0 x 24 slots (Riser #1, #2, up to 4 FHFL and 2 FHHL)
LAN	Controller	Intel® X540 Dual ports 10 GbE LAN controller Dedicated LAN for remote server management
	Port	(2) 10 GbE LAN ports (1) RJ45 connector
Storage	SATA Controller	Intel® C612
	SATA Speed	(10) 6.0 Gb/s ports
	RAID	Intel® RSTe RAID 0/1/10/5 for SATA mode 4.0 Intel® ESRT2 RAID 0/1/10/5 for SAS/SATA mode
Graphic	Video	Integrated 2D Video Graphic controller 16 MB DDR3 Memory
Server Management	Features	Integrated Baseboard Management Controller, IPMI 2.0 compliant Support for Intel® Remote Management Module 4 Lite (option) Onboard RJ45 management interface
Rear I/O	RJ45	(1) RJ45 port for remote server management
	LAN	(2) 10 GbE connectors
	Video	(1) DB15 video out
	USB	(3) USB 2.0/3.0 ports

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Order Information

Base System

Reference	Specifics	Notes
D22123TE-2L	<p>DataMandu 2L server with:</p> <ul style="list-style-type: none"> • 2x Intel® Xeon® E5-2699 V3, 18 cores, 36 threads, 45 MB cache, 2.3 GHz (up to 3.6 GHZ), 145 W • 64 GB of DD4 RAM • 2x Intel® SSD DC S3510 Series, 240 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC • 2x Intel® SSD DC P3700 Series, 1.6 TB, 2.5" PCIe 3.0, 20 nm, MLC, connected via 2CRSI® NVMe Instant • 4x HGST Ultrastar He8, 8 GB, SAS hard drive • 2U chassis with rails • US and EU power cord 	
D22123TE-2M	<p>DataMandu 2M server with:</p> <ul style="list-style-type: none"> • 2x Intel® Xeon® E5-2650 V3, 10 cores, 20 threads, 25 M catch, 2.3 GHz, 105 W • 64 GB of DD4 RAM • 2x Intel® SSD DC S3510 Series, 240 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC • 2x Intel® SSD DC P3700 Series, 1.6TB, 2.5" PCIe 3.0, 20 nm, MLC, connected via 2CRSI® NVMe Instant • 4x HGST Ultrastar He8, 8 GB, SAS hard drive • 2U chassis with rails • US and EU power cord 	
D22123TE-2S	<p>DataMandu 2S server with:</p> <ul style="list-style-type: none"> • 2x Intel® Xeon® E5-2623 V3, 4 cores, 8 threads, 10 M catch, 3.0 GHz, 105 W • 64 GB of DD4 RAM • 2x Intel® SSD DC S3510 Series, 240 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC • 2x Intel® SSD DC P3700 Series, 1.6 TB, 2.5" PCIe 3.0, 20 nm, MLC, connected via 2CRSI® NVMe Instant • 4x HGST Ultrastar He8, 8 GB, SAS hard drive • 2U chassis with rails • US and EU power cord 	

Options

Reference	Specifics	Notes
CT8G4RFS4213	64 GB DDR4–Kit of 8 modules of 8 GB	

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Reference	Specifics	Notes
TBD	128 GB DDR4–Kit of 8 modules of 16 GB	
TBD	256 GB DDR4–Kit of 8 modules of 32 GB	
SSDSC2BB240G601	2x Intel® SSD DC S3510 Series, 240 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC	1
SSDSC2BB480G601	2x Intel® SSD DC S3510 Series, 480 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC	2
SSDSC2BB800G601	2x Intel® SSD DC S3510 Series, 800 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC	3
SSDSC2BB012T601	2x Intel® SSD DC S3510 Series, 1200 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC	4
SSDSC2BB016T601	2x Intel® SSD DC S3510 Series, 1600 GB, 2.5" SATA 6 Gb/s, 16 nm, MLC	5
SSDSC2BB016T601	2x Intel® SSD DC P3700 Series, 1.6 TB, 2.5" PCIe 3.0, 20 nm, MLC, connected via 2CRSI® NVMe Instant™	
SSDPE2MD020T401	2x Intel® SSD DC P3700 Series, 2.0TB, 2.5" PCIe 3.0, 20 nm, MLC, connected via 2CRSI® NVMe Instant™	
NVMEINSTANT01	2CRSI® NVMe Instant™	
HUH728060AL5200	4x HGST Ultrastar He8, 6 GB, SAS, with tray	
HUH728080AL5201	4x HGST Ultrastar He8, 8 GB, SAS, with tray	
AXX4P1GBPWLMIOM	Quad ports RJ45 1 GbE module, Intel® Ethernet Controller I350	
AXX10GBNIAIOM	Dual ports SFP+ 10 GbE module, Intel® Ethernet Controller 82599	
AXX1P40FRTIOM	Single port QSFP+ 40 GbE module, Intel® Ethernet Controller XL710-QDA1	
AXX2P40FRTIOM	Dual ports QSFP+ 40 GbE module, Intel® Ethernet Controller XL710-QDA2	

¹ To be removed if switching system disk

² Replacing the 2x 240GB

³ Replacing the 2x 240GB

⁴ Replacing the 2x 240GB

⁵ Replacing the 2x 240GB

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