VECTOR DATA™

Forge M1000E t

PRODUCT OVERVIEW

The Forge M1000e t Modular Server Enclosure is a NEBS Level 3 and ETSI certified blade server. The enclosure and its components spring from a revolutionary, ground up design incorporating the latest advances in power, cooling, I/O, and management technologies. These technologies are packed into a highly available rack dense package that integrates into standard 1000mm depth racks.

Summary

The enclosure is 10U high and supports:

- Up to 16 server modules.
- Up to 6 network & storage I/O interconnect modules.
- A high speed passive midplane connects the server modules in the front and power, I/O, and management infrastructure in the rear of the enclosure.
- Comprehensive I/O options support dual links of 20 Gigabits per second today (with 4x DDR InfiniBand) with future support of even higher bandwidth I/O devices when those technologies become available.
- Thorough power management capabilities including delivering shared power to ensure full capacity of the power supplies available to all server modules.
- Broad management ability including private Ethernet, serial, USB, and low level management connectivity between the Chassis Management Controller (CMC), Keyboard/Video/Mouse switch, and server modules.
- Up to two Chassis Management Controllers (CMC- 1 is standard, 2nd provides optional redundancy) and 1 optional integrated Keyboard/Video/Mouse (iKVM) switch.
- Up to 6 hot pluggable, redundant Power Supplies and 9 hot pluggable, N+1 redundant Fan Modules.
- System Front Control panel w/ LCD panel and two USB Keyboard/Mouse and one Video "crash cart" connections.

The Forge M1000e t has global availability and is designed to deliver high performance, maximum scalability, and safe and reliable service:

- NEBS Level 3 and ETSI certified
- Fresh-air cooling systems enable servers to operate in warmer environments than traditional data centers
- Designed for extreme conditions such as high humidity, earthquakes, and dust

Perfect for NFV (network function virtualization), the Forge M1000e t offers full support for VMware®, OpenStack, and other leading virtualization platforms, providing a foundation for SDN and the network of the future. Forge M1000e t supports the Intel® Open Network Platform Server software stack, including:

- **OpenStack**—Manages and orchestrates applications running on network nodes
- **OpenDaylight**—Enables programmability of networks of any size and scale
- **DPDK**—Accelerates packet processing on general-purpose processors
- **Open vSwitch**—Performs virtual, multilayer network switching
- **Linux/KVM**—Provides operating system and hypervisor support

Key Benefits

- 16 server modules
- 3x2 (Redundant) I/O fabrics
- Redundant Power and Cooling
- Redundant Chassis Management Controllers
- Avocent iKVM interface
- LCD Control Panel
- Perfect for NFV and SDN. Supports VMware®, OpenStack, and other leading virtualization platforms

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TECHNICAL SPECIFICATIONS

Feature	Forge M620t blade specifications & NEBS-compliant components
Form Factor/Enclosure	Half-height blade: Vault M1000e t Blade Enclosure
Processor	95W Intel® Xeon® E5-2600 series OEM XL processors: Intel® Xeon® E5-2650 processor Intel® Xeon® E5-2640 processor Intel® Xeon® E5-2620 processor Intel® Xeon® E5-2603 processor
Internal Interconnect	Intel® QuickPath Interconnect (QPI) links: 6.4GT/s; 7.2GT/s; 8.0 GT/s
Cache	2.5MB per core; core options: 2, 4, 6, 8
Chipset	Intel® C600
Memory[1]	Up to 384GB (24 DIMM slots); 2GB/4GB/8GB/16GB DDR3 RDIMM LV up to 1333MHz
Video	Integrated Matrox® G200
Primary Storage*	Hot-plug hard drive options: Up to two 2.5" SAS HDD, or SAS/SATA SSD
USB Ports	2 front, 1 internal
Network Adapter (NDC) options	Broadcom® 57810S-k Dual Port 10Gb KR blade NDC Intel X520-k Dual Port 10Gb KR blade NDC
Mezzanine card options	Brocade® BR1741M-k Dual Port 10Gb CNA Broadcom 57810S-k Dual Port 10Gb KR Intel Ethernet X520-K Dual Port 10Gb QLogic QME2572 (FC8) Emulex® LPe1205 (FC8)
I/O Slots	Fully populated mezzanine card slots and switch modules will yield 3 redundant I/O fabrics per blade
RAID Controller	Internal: PERC H310
Power Supplies and Fans	Supplied by Vector Data Vault M1000e t Blade Enclosure
Remote Management	iDRAC7 with Lifecycle Controller for Blades (default) iDRAC7 Enterprise with Lifecycle Controller (upgrade option)
Rack Support	2/4-Post Static Rails
Operating Systems	Microsoft Windows Server® 2008 R2 SP1 x64 (includes Hyper-V™ v2) SUSE® Linux® Enterprise Server Red Hat® Enterprise Linux®
Virtualization Options:	Citrix® XenServer™ VMware® vSphere™
Embedded Hypervisor	Two internal SD cards dedicated for hypervisor, One dedicated for vFlash media support

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Feature	Forge M1000E t enclosure specifications & NEBS-compliant components
Chassis Enclosure	Form factor: 10U modular enclosure holds up to sixteen half-height blade servers 44.0cm (17.3") H x 44.7cm (17.6") W x 75.4cm (29.7") D **Weight:** • Empty chassis only — 98lbs • Chassis with all rear modules (IOMs, PSUs, CMCs, KVM)—176lbs • Max fully loaded with blades and rear modules—394lbs
Power Supplies	Up to six 2700W DC hot-plug power supplies **Supported power supply configurations include:** • 3+3 and 2+2 (AC redundancy) • 3+1, 4+2, and 5+1 (power supply redundancy) • 2+0 and 3+0 (non-redundant mode)
Cooling Fans	M1000e Chassis comes standard with 9 hot-pluggable, redundant fan modules • Based on Dell Energy Smart technologies, M1000e fans are a breakthrough in power and cooling efficiency • The fans deliver low power consumption, but also use next generation fan technologies to ensure the lowest possible amount of fresh air is consumed to cool the enclosure
Input Device	Front control panel with interactive graphical LCD • Supports initial configuration wizard • Local server blade, enclosure, and module information and troubleshooting Two USB Keyboard/Mouse connections and one Video connection (requires the optional Avocent® iKVM switch to enable these ports) for local front "crash cart" console connections that can be switched between blades
Enclosure I/O modules	Up to six total I/O modules for three fully redundant fabrics, featuring Ethernet FlexIO technology provid ing on-demand stacking and uplink scalability. **FlexIO technologies include:** • Completely passive, highly available midplane that can deliver 5Tbps of total I/O bandwidth • Support for up to two ports of up to 56Gbps from each I/O Mezzanine card on the blade server **Compliant I/O Modules:** • Dell™ PowerConnect™ M8428-k • PowerConnect M6348 Gigabit Ethernet Blade Switch • Dell 10Gb Gigabit Ethernet Pass-Through -k Module • Cisco Catalyst Blade Switch M 3130G • Brocade M5424 8Gb Fibre Channel Switch • Dell 8/4 Gbps FC Pass-Through Module
Management	1 (standard) or optional 2nd (redundant) Chassis Management Controller(s) (CMC) which provide: Optional integrated Avocent® keyboard, video and mouse (iKVM) switch **Dell OpenManage™ systems management:** • Dell OpenManage server administrator — monitoring agents and 1:1 management utilities • Dell OpenManage wssentials — manage multiple Dell servers and monitor storage and networking devices from a single console • Integration with third-party management solutions through Dell's Certified Partner Program • Remote management
Rack support	VersaRails static rails for 4-post square or unthreaded round hole racks
Bezel Support	Optional filtered bezel; required for NEBS compliance

For more information, please contact your Vector Data account manager.