



# PowerEdge M1000e Blade Enclosure

The Dell™ PowerEdge™ M1000e Modular Blade Enclosure is the rock-solid foundation for Dell's blade server architecture, providing an extremely reliable, flexible and efficient platform for building any IT infrastructure.

The Dell PowerEdge M1000e Modular Blade Enclosure is built from the ground up to combat data-center sprawl and IT complexity, delivering one of the most energy efficient, flexible, and manageable blade server implementations on the market.

## Leading energy efficiency

The M1000e enclosure takes advantage of its world-class design by coupling ultra-efficient power supplies with large variable-speed fans and optimized airflow to effectively cool the entire chassis while using less power.

## Effortless scalability

Only Dell provides complete, scale-on-demand switch designs. With additional I/O slots and switch options, you have the flexibility you need to meet ever-increasing demands for I/O consumption. Plus, Dell's FlexIO modular switch technology lets you easily scale to provide additional uplink and stacking functionality—no need to waste your current investment with a "rip and replace" upgrade.

## Easy-to-use, powerful management tools

The M1000e helps reduce the cost and complexity of managing computing resources so you can focus on growing your business or managing your organization with features such as:

- Centralized Chassis Management Controller (CMC) modules for redundant, secure access paths for IT administrators to manage multiple enclosures and blades from a single interface.
- Dynamic and granular power management so you have the capability to set power thresholds to help ensure your blades operate within your specific power envelope.
- Real-time reporting for enclosure and blade power consumption, as well as the ability to prioritize blade slots for power, providing you with optimal control over power resources.

## FlexAddress technology: the simple, low-cost way to limit downtime

Dell's patent-pending FlexAddress™ technology allows any M-Series blade enclosure to assign the World Wide Name (WWN) or Media Access Control (MAC) address of Fibre Channel, Ethernet and iSCSI controllers to an M1000e blade slot instead of directly to the blade. By

removing the network and storage identity from the server hardware, customers are now able to upgrade and replace components or even an entire blade server without being forced to change the identity on the network or rezoning switches. Unlike other solutions, which often require separate management interfaces and proprietary hardware, FlexAddress will work with any network and is implemented directly from the integrated Chassis Management Controller by simply selecting the chassis slots and fabrics which you want to enable. FlexAddress delivers persistent network and storage identities, equipping your data center to handle predictable or even unplanned changes—add, upgrade, or remove servers without affecting your networks.

## Dell Services

Dell Services can help reduce IT complexity, lower costs, and eliminate inefficiencies by making IT and business solutions work harder for you. The Dell Services team takes a holistic view of your needs and designs solutions for your environment and business objectives while leveraging proven delivery methods, local talent, and in-depth domain knowledge for the lowest TCO.

Built from the ground up to combat data-center sprawl and IT complexity, the PowerEdge M1000e delivers one of the most energy-efficient, flexible, and manageable blade server products on the market.

Feature	Technical Specification
<b>Chassis Enclosure</b>	<p>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</p> <p>Weight:</p> <ul style="list-style-type: none"> <li>• Empty Chassis only—98lbs</li> <li>• Chassis with all rear modules (IOMs, PSUs, CMCs, KVM)—176lbs</li> <li>• Max Fully loaded with blades and rear modules—394lbs</li> </ul>
<b>Power Supplies</b>	<p>Up to six 2700W hot-plug power supplies. Based on Dell's Energy Smart technologies, the M1000e power supplies deliver greater levels of efficiency, even at low levels of utilization.</p> <p><b>Supported power supply configurations include:</b></p> <ul style="list-style-type: none"> <li>• 3+3 and 2+2 (AC redundancy)</li> <li>• 3+1, 4+2, and 5+1 (power supply redundancy)</li> <li>• 2+0 and 3+0 (non-redundant mode)</li> </ul> <p>The M1000e chassis supports new Dynamic Power Supply Engagement functionality, which (if enabled) puts lightly loaded power supplies into standby mode, driving up the utilization and the efficiency of the active supplies. Dell supports either 110–120V or 208–240V AC power supply input and supports a wide range of power distribution options. Dell recommends 208–240V AC for all production environments.</p>
<b>Cooling Fans</b>	<p>M1000e Chassis comes standard with 9 hot-pluggable, redundant fan modules</p> <ul style="list-style-type: none"> <li>• Based on Dell Energy Smart Technologies, M1000e fans are a breakthrough in power and cooling efficiency</li> <li>• 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</li> </ul>
<b>Input Device</b>	<p>Front Control Panel with interactive Graphical LCD</p> <ul style="list-style-type: none"> <li>• Supports initial configuration wizard</li> <li>• Local server blade, enclosure, and module information and troubleshooting</li> </ul> <p>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</p>
<b>Enclosure I/O Modules</b>	<p>Up to six total I/O modules for three fully redundant fabrics, featuring Ethernet FlexIO technology providing on-demand stacking and uplink scalability. Dell's FlexIO technology delivers a level of I/O flexibility, bandwidth, investment protection, and capabilities unrivaled in the blade server market.</p> <p><b>FlexIO technologies include:</b></p> <ul style="list-style-type: none"> <li>• Completely passive, highly available midplane that can deliver 5Tbps of total I/O bandwidth</li> <li>• Support for up to two ports of up to 56Gbps from each I/O Mezzanine card on the blade server</li> </ul> <p><b>Dell™ PowerConnect™ M8428-k</b></p> <ul style="list-style-type: none"> <li>• Converged 10 Gigabit Ethernet (10GbE) switch with 600ns low-latency, wire-speed, cut-through 10GbE performance, Fibre Channel over Ethernet (FCoE) switching, and low-latency 8Gb Fibre Channel switching and connectivity.</li> <li>• 8 ports of 10GbE and DCB support with 4 Fibre Channel ports supporting 2, 4, and 8Gbps full duplex</li> </ul> <p><b>PowerConnect M8024-k 10Gb Ethernet Switch</b> Includes up to 8 external LAN ports using four fixed SFP+ ports and one FlexIO modular bay supporting 4 additional SFP+, 10GBASE-T, or CX-4 ports for diverse connectivity</p> <p><b>PowerConnect M6220 Gigabit Ethernet Switch</b> Includes 4 x fixed copper 10/100/1000Mb Ethernet uplinks standard plus 2 of the following optional modules:</p> <ul style="list-style-type: none"> <li>• 48Gb (full duplex) stacking module</li> <li>• 2 x 10Gb optical (XFP-SR/LR) uplinks</li> <li>• 2 x 10Gb copper CX4 uplinks</li> </ul> <p><b>PowerConnect M6348 Gigabit Ethernet Blade Switch</b> Includes 16 external fixed 10/100/1000Mb Ethernet RJ-45 ports to support 32 internal server GbE connections supplied by quad-port</p> <p>Gigabit Ethernet mezzanine cards (Broadcom® 5709 or Intel® ET 82572) plus up to 4 10Gb uplink ports:</p> <ul style="list-style-type: none"> <li>• 2 x 10Gb Optical SFP+ (SR/LR) and/or SFP+ DAC</li> <li>• 2 x 10Gb Copper CX4 or 32Gb stacking for M6348</li> </ul> <p><b>Dell 10Gb Gigabit Ethernet Pass-Through -k Module</b> Supports 16 x 10Gb copper RJ45 connections</p> <p><b>Dell Gigabit Ethernet Pass-Through II Module</b> Supports connectivity to legacy 10Gb adapters</p> <p><b>Cisco® Catalyst® Blade Switch M 3032</b> Includes 4 x fixed copper 10/100/1000Mb Ethernet uplinks standard plus 2 optional module bays, supporting 2 x 1Gb copper or optical SFPs each</p> <p><b>Cisco Catalyst Blade Switch M 3130G</b> Includes 4 x fixed copper 10/100/1000Mb Ethernet uplinks, 64Gb (full duplex) StackWise® Plus stacking ports plus 2 optional module bays, each can support either 2 x 1Gb copper or optical SFPs</p> <p><b>Cisco Catalyst Blade Switch M 3130X</b> Includes 4 x fixed copper 10/100/1000Mb Ethernet uplinks, 64Gb full duplex StackWise® Plus stacking ports, and support for two X2 modules for up to a total of two 10Gb CX4 or SR/LRM uplinks</p> <p><b>Dell 8Gb/4Gb Fibre Channel SAN Module NPIV Port Aggregator</b> <b>Emulex® 8Gb or 4Gb/s Fibre Channel Pass-Through Module</b> <b>Mellanox® M2401G Dual Data Rate (DDR) InfiniBand Switch</b> 8 copper or Optical external 4x Double Data Rate (DDR 20Gb) Infiniband ports</p> <p><b>Mellanox M3601Q Quad Data Rate (QDR) InfiniBand Switch</b> 16 copper or Optical external 4x Quad Data Rate (QDR 40Gb) Infiniband ports</p>
<b>Management</b>	<p><b>1 (standard) or optional 2nd (redundant) Chassis Management Controller(s) (CMC) which provide:</b></p> <ul style="list-style-type: none"> <li>• Single secure interface for inventory, configuration, monitoring, and alerting for the chassis and all components</li> <li>• Multi-chassis management capability allows up to 9 chassis to be managed from a single, embedded, agent-less interface</li> <li>• Enables automated and embedded one-to-many blade BIOS and firmware updates, independent of the OS through iDRAC</li> <li>• Allows one-to-many blade server BIOS capture</li> <li>• Real-Time Power/Thermal Monitoring and Management</li> <li>• Real-Time System AC Power Consumption with resettable peak and minimum values</li> <li>• System-level power limiting and slot-based power prioritization</li> <li>• Manages Dynamic Power Engagement functionality which can help to lower overall system power consumption by ensuring power supplies run at their optimal efficiency points</li> <li>• Manages fan speed control using Dell's enhanced efficiency technologies to ensure fans are delivering optimal cooling while minimizing power consumption and airflow</li> <li>• Secure Web (SSL) and Command Line (Telnet/SSH) interfaces</li> <li>• Supports multiple levels of user roles and permissions, including integration into Microsoft® Active Directory® Services</li> <li>• 2 x 10/100/1000Mb Ethernet ports + 1 serial port</li> <li>• Provides single point of connection from management network to iDRAC on each of the blades and the management interfaces on the integrated I/O Modules</li> <li>• 2nd Ethernet port supports daisy chaining of CMCs for improved cable management</li> </ul> <p><b>Optional Integrated Avocent® keyboard, video and mouse (iKVM) switch</b></p> <ul style="list-style-type: none"> <li>• Enables USB keyboard/mouse and video port on front control panel</li> <li>• 2 x USB, video, and Analog Console Interface (ACI) ports</li> <li>• ACI port allows connectivity and seamless tiering via cat5 cables to Dell or Avocent® KVM switches with Analog Rack Interface (ARI) ports.</li> </ul> <p><b>Dell OpenManage™ systems management</b></p> <ul style="list-style-type: none"> <li>• Dell OpenManage Server Administrator—monitoring agents and 1:1 management utilities</li> <li>• Dell OpenManage Essentials—manage multiple Dell servers and monitor storage and networking devices from a single console</li> <li>• Integration with third-party management solutions through Dell's Certified Partner Program</li> <li>• Remote Management</li> </ul>
<b>External Storage Options</b>	Dell EqualLogic™ PS Series, Dell/EMC AX Series, Dell/EMC CX Series, Dell/EMC NS Series, Dell PowerVault™ MD Series, Dell PowerVault NX Series
<b>Rack Support</b>	RapidRails™ static rails for 4-post square hole racks; VersaRails static rails for 4-post square or unthreaded round hole racks
<b>For more information about the M1000e Blade Chassis, see the <a href="#">PowerEdge M1000e Technical Guide</a>.</b>	

Discover more at [Dell.com/PowerEdge](http://Dell.com/PowerEdge)

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