PowerEdge M1000e Blade Chassis

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 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: 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 the 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 works with any network and is implemented from the integrated CMC by selecting the chassis slots and fabrics 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.

Global services and support

Reduce IT complexity, lower costs and eliminate inefficiencies by making IT and business solutions work harder for you. You can count on Dell for end-to-end solutions to maximize your performance and uptime. A proven leader in Servers, Storage and Networking, Dell Enterprise Solutions and Services deliver innovation at any scale. And if you're looking to preserve cash or increase operational efficiency, Dell Financial Services has a wide range of options to make technology acquisition easy and affordable. Contact your Dell Sales Representative for more information.

> 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	M1000e Modular Blade Enclosure technical specifications
Chassis enclosure	Form factor: 10U modular enclosure holds up to eight full-height, sixteen half-height, or thirty two quarter-height blade servers 44.0cm (17.3") H x 44.7cm (17.6") W x 75.4cm (29.7") D Weight: • Empty chassis only—98 lb • Chassis with all rear modules (IOMs, PSUs, CMCs, KVM)—176 lb • Max fully loaded with blades and rear modules—394 lb
Power supplies	M1000e chassis supports up to six 3000W high-efficiency power supplies, 2700W high-efficiency power supplies or up to six -48V DC 2700W power supplies. Based on Dell's Energy Smart technologies, the M1000e power supplies deliver greater levels of efficiency, even at low levels of utilization. Supported power supply configurations include: • 3+3 and 2+2 (grid redundancy) • 2+1, 3+1, 4+2, and 5+1 (power supply redundancy) • 2+0 and 3+0 (non-redundant mode) The M1000e chassis supports dynamic power supply engagement (DPSE) mode, 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.
Cooling fans	M1000e chassis comes standard with nine 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 blade I/O modules for three fully redundant fabrics that take advantage of a fully passive midplane that can scale up to 8.4Tbps with current technologies featuring 1/10Gb Ethernet to servers, 40Gb Ethernet to top-of-rack switches, Fibre channel 8Gb, and InfiniBand QDR/FDR10/FDR. Dell's blade Ethernet devices also have FlexIO technology, providing on-demand uplink scalability and investment protection unrivaled in the blade server market. **Dell PowerEdge M I/O Aggregator** Supports Active System Manager and CMC Aggregator GUI. 1/10 Gb Ethernet connectivity with Zero touch FCoE and converged iSCSI deployment. 32 internal 10GE ports provide full redundancy to the M420 blade on fabric A. **Dell Networking MXL 10/40Gb Ethernet Switch** Converged 1/10/40Gb Ethernet switch with up to 56-10GE ports (32 internal), converged iSCSI and FCoE (transit to ToR), 320Gb stacking of up to 6 switches, FlexIO technology, and PVST+ industry standard spanning tree. 32 internal 10GE ports provide full redundancy to the M420 blade on fabric A. **Dell PowerConnect™ M8024-k 10Gb Ethernet Switch** Converged 1/10Gb Ethernet switch with up to 24-10GE ports (16 internal), converged FCoE (transit to ToR), stacking of up to 6 modules, FlexIO technology, and simple mode. **Dell M8428-k 10Gb Converged Network Switch** Converged 1/10Gb Ethernet switch with 24-10GE Ethernet ports (16 internal) and 4 native Fibre channel ports, converged iSCSI and FCoE (FC breakout at blade switch). Fibre channel ports support 2Gb, 4Gb, and 8Gb. **Dell PowerConnect M6220 Gigabit Ethernet Switch** 1Gb Ethernet switch with up to 24 ports (16 internal), stacking of up to 12 switches, simple mode, and 4 x fixed copper 10/100/1000Mb Ethernet uplinks and FlexIO technology for up to four additional 10GbE uplinks. **Dell PowerConnect M6348 Gigabit Ethernet Blade Switch** 1Gb Ethernet switch with up to 48 ports (32 internal), stacking of up to 12 modules, simple mode, and 16 external fixed 10/100/1000Mb Ethernet RJ-45 ports to support 32 internal server GbE connections supplied by quad-port Gigabit Ethernet adapters plus up to four 10Gb uplink ports. **Dell 10Gb Gigabit Ethernet Pass-Through -k Module** Supports 16 x 10Gb connections only **Cisco® Nexus™ B22DELL Fabric Extender (FEX)** 16 internal 10GbE ports and 8 external 10GbE ports; provides 10GbE connectivity to Cisco Nexus 5500 series infrastructure. **Cisco Catalyst Blade Switch M 3130G** Includes 4 x fixed copper 10/100/1000Mb Ethernet uplinks, 64Gb (full duplex) StackWise® Plus stacking ports plus two optional module bays, each can support either 2 x 1Gb copper or optical SFPs. **Cisco Catalyst Blade Switch M 3130X** 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. **Brocade® M5424 8Gb Fibre Channel Switch** Includes eight external SAN ports. **Dell 8Gb/4Gb Fibre Channel SAN Module NPIV Port Aggregator** **Emulex® 8Gb or 4 Gb/s Fibre Channel Pass-Through Module** **Mellanox® M4001Q QDR, M4001T FDR10, M4001Q FDR InfiniBand® Switches** 16 internal ports and 16 external QSFP+ ports in a single wide form factor. **Brocade M6505 16Gb Fibre Channel SAN I/O Module** 24 x 16Gbps Fibre channel ports (16 internal server ports and 8 external fabric ports). Zero footprint, hot-pluggable design with no additional fans or power supplies. Dynamic Ports on Demand (PoD) and "pay-as-you-grow" port upgrades for 12-port configurations.
Management	**One (standard) or a second optional (redundant) Chassis Management Controller(s) (CMC)** • Single, secure interface for inventory, configuration, monitoring, and alerting for the chassis and all components • Multi-chassis management that allows up to nine chassis and 288 servers to be managed from a single, embedded, agent-less interface • Automated and embedded one-to-many blade BIOS and firmware updates, independent of the operating system through the Integrated Dell Remote Access Controller (iDRAC) • One-to-many blade server BIOS capture and replication • Real-time power/thermal monitoring and management • Real-time system AC power consumption with resettable peak and minimum values • System-level power limiting and slot-based power prioritization • DPSE functionality to help lower overall system power consumption by ensuring power supplies run at their optimal efficiency points • Fan speed control using Dell's enhanced efficiency technologies to ensure fans are delivering optimal cooling while minimizing power consumption and airflow • Secure web (SSL) and command-line (Telnet/SSH) interfaces • Multiple levels of user roles and permissions, including integration into Microsoft® Active Directory® Services and Lightweight Directory Access Protocol (LDAP) services for authentication • Two 10/100/1000Mb Ethernet ports + one serial port • Single point of connection from management network to iDRAC on each of the servers and the management interfaces on the integrated I/O modules • Second Ethernet port supports daisy chaining of CMCs for improved cable management **Optional Integrated Avocent® keyboard, video and mouse (iKVM) switch** • Enables USB keyboard/mouse and video port on front control panel **Dell OpenManage™ Systems Management** • Dell OpenManage Server Administrator—monitoring agents and one-to-one management utilities • Dell OpenManage Essentials—discover, inventory, monitor, and update M1000e chassis and blade servers • Integration with third-party management solutions through Dell's Certified Partner Program • Remote management
Additional storage options	**Internal:** Dell EqualLogic™ PS-M4110 Blade Array **External:** Dell Compellent™, EqualLogic, and PowerVault™ storage
Rack support	RapidRails™ static rails for 4-post square hole racks; VersaRails™ static rails for 4-post square or unthreaded round hole racks

For more information about the M1000e Blade Chassis, see the PowerEdge M1000e Technical Guide.

Learn more at Dell.com/PowerEdge.