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 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 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 will work with any network and is implemented directly from the integrated CMC by simply selecting the chassis slots and fabrics that 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 total cost of ownership (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	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—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 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. **Supported power supply configurations include:** • 3+3 and 2+2 (AC 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 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.	
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 8.4 Tbps with current technologies featuring 1/10 Gb Ethernet to servers, 40Gb Ethernet to top-of-rack switches, Fibre Channel 8 Gb, 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 Force10 MXL 10/40Gb Ethernet Switch** Converged 1/10/40 Gb Ethernet switch with up to 56-10GE ports (32 internal), converged iSCSI and FCoE (transit to ToR), 320 Gb 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 1/10 Gb 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 1/10 Gb 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** 1 Gb 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** 1 Gb 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 copper RJ45 connections. **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 3032** Includes 4 x fixed copper 10/100/1000Mb Ethernet uplinks standard plus two optional module bays, supporting 2 x 1Gb copper or optical SFPs each. **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** 24×16 Gbps 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) that provides:** • Single secure interface for inventory, configuration, monitoring, and alerting for the chassis and all components • Multi-chassis management capability allows up to 9 chassis and 288 servers to be managed from a single, embedded, agent-less interface • Enables automated and embedded one-to-many blade BIOS and firmware updates, independent of the OS through iDRAC • Allows 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 • Manages Dynamic Power Engagement functionality that can help to lower overall system power consumption by ensuring power supplies run at their optimal efficiency points • Manages 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 • Supports multiple levels of user roles and permissions, including integration into Microsoft® Active Directory® Services and Lightweight Directory Access Protocol (LDAP) services for authentication • 2 x 10/100/1000Mb Ethernet ports + 1 serial port • 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 • 2nd 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 1:1 management utilities • Dell OpenManage Essentials—discover, inventory, monitor, and update M1000e chassis and blades • 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.

Discover more at Dell.com/PowerEdge