



PowerConnect M6220 Switch

The Dell™ PowerConnect™ M6220 is a key component of the FlexIO architecture of the M1000e Modular Server Enclosure. FlexIO delivers a level of IO flexibility, bandwidth, features, and investment protection that is truly exceptional in the blade server market. The M6220, a breakthrough modular design that packages a high-performance 24-port stackable Ethernet switch with modular bays that can be populated with 10GbE or stacking modules to provide customers the flexibility to create exactly the switch they need for their environment.

The PowerConnect M6220 is a layer 3 switch designed to give users the flexibility to maximize server and workstation connectivity. The M6220, along with Dell blade servers, can help users address space constraints, reduce cabling requirements, and can help lower overall TCO. It offers integrated Gigabit connectivity and 10 Gigabit Ethernet (10GE) options for the Dell™ PowerEdge™ M1000e Modular Server Enclosure. Up to 240 servers and/or clients can be connected in a stack of 12 M6220 switches to help provide maximum density, flexibility, and manageability. A Simple Switch mode option further allows auto configuration of complex network settings without accessing the command-line interface.

The PowerConnect M6220 offers additional value because the modular design allows you to upgrade to advanced stacking or 10GE when you need it. It helps provide further flexibility and value with optional modules that allow for either 10 Gigabit optical or CX-4 copper interfaces – or both, based on your needs.

High-performance stacking with 10GbE

The PowerConnect M6220 supports high-performance, 48 Gbps stacking bandwidth for up to 12 systems, which allows increased throughput to be added as needed without affecting network performance. With each switch supporting up to 128 Gbps in switch bandwidth, the customer can have over 1.5 terabytes of bandwidth in a single stack of 12 switches.

The PowerConnect M6220 switch supports up to four 10GE uplinks which allow users to add bandwidth as they need it, and consolidate uplinks across the stack for further cable reduction. The two 10 Gb module slots support two 10 Gb ports each, with a wide variety of port variants.

Advanced Layer 3 Capabilities and IPv6 Support

The PowerConnect M6220 supports advanced Layer 3 routing and multicast protocols to help reduce congestion and manage traffic in the network. It also supports frequently used LAN routing protocols such as RIPv1/v2, OSPFv2/v3, VRRP, IGMPv2, DVMRP, PIM, and LLDP-MED.

Both the hardware and software for the PowerConnect M6220 support IPv6. In development for over 20 years, IPv6 has been designed to resolve IP address limitations of the previous version of the Internet Protocol, enabling an increased number of unique IP addresses for broader scalability worldwide now and in the future.

Advanced QoS and security features

The PowerConnect M6220 offers flexibility in Quality of Service (QoS) by giving network administrators the ability to prioritize time-critical network traffic based on a variety of user-defined criteria. Administrators can expedite traffic based on L2 or L3 information, such as IP QoS, and provide greater control over traffic flow within the network. Voice VLANs are provided specifically for VoIP applications.

Up to 1,024 L2-L4 Access Control Lists (ACLs) can be supported on the switch, allowing the user to perform deep packet inspection. 802.1x port authentication offers both single and multiple host access. Further security is provided through Denial of Service (DoS) Attack Prevention, whereby the switch can help protect against common network and CPU attacks.

Feature	Dell™ PowerConnect™ M6220
Port attributes	20 (16 internal, 4 external) 10/100/1000BASE-T auto-sensing Gigabit Ethernet switching ports Up to 2, dual port SR or LR 10 Gbps uplink modules (optional) 48 Gbps stacking module (optional) Auto-negotiation for speed, duplex mode, and flow control Auto MDI/MDIX Port mirroring Flow-based port mirroring Broadcast storm control
Performance	Switch Fabric Capacity 128 Gb/s Forwarding Rate 95 Mpps Up to 8,000 MAC Addresses 256 MB of CPU SDRAM 32 MB of Flash Memory
Availability	Spanning Tree (IEEE 802.1D) and Rapid Spanning Tree (IEEE 802.1w) with Fast Link Support; Multiple Spanning Tree (IEEE 802.1s); support for Virtual Redundant Routing Protocol (VRRP); cable diagnostics; optical transceiver diagnostics
Layer 3 routing protocols	Static Routes; Routing Information Protocol (RIP) v1/v2; Open Shortest Path First (OSPF) v1/v2/v3; Classless Inter-Domain Control Message Protocol (ICMP); ICMP Router Discover Protocol (IRDP); Virtual Redundant Routing Protocol (VRRP); Address Resolution Protocol (ARP); Internet Group Management Protocol (IGMP) v2; Distance-Vector Multicast Routing Protocol (DVMRP); DHCP – Helper/Relay
Layer 3 routing performance	Up to 128 RIP Routing Interfaces Up to 128 OSPF Routing Interfaces; up to 128 OSPF Areas; up to 128 Routing Interfaces per OSPF Area; up to 32 routes for ECMP Routing; up to 2 next hops per ECMP Up to 128 VLAN Routing Interfaces Up to 256 Multicast Forwarding Entries Up to 896 ARP entries; Up to 512 NDP entries
VLAN	VLAN support for tagging and port-based as per IEEE 802.1Q; double VLAN tagging (QinQ); up to 1,024 VLANs supported; dynamic VLAN with GVRP support; voice VLAN support, and private VLAN support.
Quality of service	Layer 2 Trusted Mode (IEEE 802.1p tagging); Layer 3 Trusted Mode (DSCP); Layer 4 Trusted Mode (TCP/UDP); Advanced Mode using Layer 2/3/4 flow-based policies, including metering/rate limiting, marking, and bandwidth guarantees; up to 100 ACLs can be used for QoS flow identification via class-maps; 8 Priority Queues per Port; adjustable Weighted-Round-Robin (WRR) and Strict Queue Scheduling; port-based QoS Services Mode; flow-based QoS Services Mode
Layer 2 multicast	Static IP Multicast; Dynamic Multicast Support – 256 Multicast groups supported in IGMP Snooping; IGMP snooping for IP multicast support; IGMP Querier; Protocol Independent Multicast (PIM-DM, PIM-SM)
Security	IEEE 802.1x-based edge authentication which supports single and multiple host access, guest access, voice authorization, and Microsoft® Active Directory® Switch access password protection User-definable settings for enabling or disabling Web, SSH, Telnet, SSL management access Port-based MAC Address alert and lock-down IP Address filtering for management access via Telnet, HTTP, HTTPS/SSL, SSH, and SNMP RADIUS and TACACS+ remote authentication for switch management access Up to 100 Access Control Lists (ACLs) supported; up to 12 Access Control Entries (ACEs) per ACL SSLv3 and SSHv2 encryption for switch management traffic Management access filtering via Management Access Profiles
Other switching features	Link Aggregation with support for up to 18 static aggregated links, 8 dynamic aggregated links per switch and up to 8 member ports per aggregated link (IEEE 802.3ad); LACP support (IEEE 802.3ad); Link Layer Discovery Protocol supported (IEEE 802.1AB)
Management	Web-based management interface; industry-standard CLI accessible via Telnet or Local Serial Port; SNMPv1, SNMPv2c and SNMPv3 supported; 4 RMON groups supported (history, statistics, alarms, and events); TFTP transfers of firmware and configuration files; dual firmware images on-board; multiple configuration file upload/download supported; statistics for error monitoring and performance optimization including port summary tables; BootP/DHCP IP address management supported; syslog remote logging capabilities; temperature sensors for environmental monitoring
Chassis	267 x 258 x 31mm (WxDxH) 10.5" x 10.2" x 1.2" Approximate weight: 2.7kg, 5.8lbs

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