

- High-performance switches (up to 3.6 Tbps)
- Non-blocking architecture
- L3 switch
- Stacking up to 8 devices¹
- Redundant power supplies
- Front-to-Back cooling
- Double cooling system



MES5410-48 switches are high-performance devices equipped with 25GBASE-R and 100GBASE-R interfaces that can be used as aggregation switches in carrier networks and as Top-of-Rack or End-of-Row switches in data centres.

Ports of the MES5410-48 switches support operation at 1 Gbps (SFP), 10 Gbps (SFP+), 25 Gbps (SFP28), 40 Gbps (QSFP+) and 100 Gbps (QSFP28).

The non-blocking architecture guarantees lossless packet forwarding at wire speed with minimum and predictable delays for all types of traffic.

The front-to-back cooling provides efficient cooling when using devices in modern data centres.

The redundant and hot-swappable fans and AC/DC power supplies along with advanced hardware monitoring functions provide high reliability and ensure uninterrupted operation of the carrier networks.

Support for EVPN/VXLAN technology in the devices allows creating networks with simple, high-performance and scalable architecture for data centres.

Technical features

| Interfaces | |
|---|-------------------------------|
| 10/100/1000BASE-T (OOB) | 1 |
| 1000BASE-X (SFP)/10GBASE-R (SFP+)/25GBASE-R (SFP28) | 48 |
| 40GBASE-R (QSFP+)/100GBASE-R (QSFP28) | 6 |
| USB 2.0 | 1 |
| Console port RS-232 (RJ-45) | 1 |
| Performance | |
| Bandwidth | 3.6 Tbps |
| Buffer memory | 24 Mbps |
| RAM (DDR4) | 8 Gbps |
| ROM (embedded uSSD) | 8 Gbps |
| MAC table | 131072 |
| ARP table | up to 65527 ² |
| VLAN table | 4094 |
| L2 Multicast groups | 4088 |
| SQinQ | 1320 (ingress), 1320 (egress) |
| MAC ACL | 4081 |
| IPv4/IPv6 ACL | 4081/2040 |
| L3 IPv4 Unicast | 126000 |

¹Implementation is planned for 1Q24.

²For each host in the ARP table, an entry is created in the switching table. The number of the ARP entries with installed EVPN license is 63479.

Technical features (continued)

| Performance | |
|-------------------------------|-----------------------------|
| L3 IPv6 Unicast | 73000 |
| L3 IPv4 Multicast | 146000 |
| L3 IPv6 Multicast | 36500 |
| VRRP routers | 255 |
| Maximum size of ECMP groups | 64 |
| VRF | 251 (including default VRF) |
| L3 interfaces | 2050 |
| Maximum number of VXLAN | 4083 |
| Link Aggregation Groups (LAG) | 128, up to 8 ports per LAG |
| Quality of Service (QoS) | 8 egress queues per port |
| Jumbo frames size | 10240 bytes |
| Stacking ¹ | up to 8 devices |

Features and capabilities

Interfaces features

- Head-of-line blocking (HOL) protection
- Back pressure
- Auto MDI/MDIX
- Jumbo frames
- Flow Control (IEEE 802.3X)
- Port Mirroring
- Stacking¹

MAC address functions

- Independent learning mode per VLAN
- MAC Multicast Support
- Configurable aging time of MAC addresses
- Static MAC Entries
- MAC Flapping

VLAN functions

- Voice VLAN
- IEEE 802.1Q
- Q-in-Q
- Selective Q-in-Q
- GVRP

L2 Multicast functions

- Multicast groups
- Static Multicast groups
- IGMP Snooping v1,2,3
- Host/port-based IGMP Snooping Fast Leave
- PIM-Snooping
- IGMP authorization through RADIUS
- MLD Snooping v1,2
- IGMP Querier

L2 functions

- STP (Spanning Tree Protocol, IEEE 802.1d)
- RSTP (Rapid Spanning Tree Protocol, IEEE 802.1w)
- MSTP (Multiple Spanning Tree Protocol, IEEE 802.1s)
- Spanning Tree Fast Link option
- STP Root Guard
- BPDU Filtering
- STP BPDU Guard
- Loopback Detection (LBD)
- ERPS (G.8032v2)
- PVSTP+
- RPVSTP+

L3 functions

- Static routes
- Dynamic routing protocols RIP, OSPFv2, OSPFv3, BGP², IS-IS
- Address Resolution Protocol (ARP)
- VRRP
- Multicast dynamic routing protocols PIM SM, PIM DM, IGMP Proxy, MSDP
- BFD
- IP Unnumbered
- VRF lite

EVPN/VXLAN³

- L2VPN
- L3VPN

¹ Implementation is planned for 1Q24.

² BGP protocol support is provided under license.

³ Support for EVPN technology is provided under license.

Features and capabilities (continued)

Link Aggregation functions

- LAG groups creation
- LACP
- LAG Balancing Algorithm
- Multi-Switch Link Aggregation Group (MLAG)

IPv6 functions

- IPv6 Host
- Dual stack

Service functions

- Optical transceiver diagnostics

Security functions

- DHCP Snooping
- DHCP option 82
- IP Source Guard
- Dynamic ARP Inspection
- sFlow
- MAC-based authentication, Port Security, Static MAC entries
- IEEE 802.1x port authentication
- Guest VLAN
- DoS attacks prevention
- Traffic segmentation
- DHCP clients filtering
- BPDU attacks prevention
- NetBIOS/NetBEUI filtering

Access Control Lists (ACL)

- L2-L3-L4 ACL (Access Control List)
- Time-Based ACL
- IPv6 ACL
- ACL based on:
 - Switch port
 - IEEE 802.1p
 - VLAN ID
 - EtherType
 - DSCP
 - IP protocol type
 - TCP/UDP port number

Management functions

- Configuration and firmware files download and upload via TFTP
- SNMP
- Command Line Interface (CLI)
- Web interface
- Syslog
- SNTP (Simple Network Time Protocol)
- Traceroute
- LLDP (IEEE 802.1ab)
- Access control – privilege levels
- Management ACL

- Management interface blocking
- Local authentication
- IP addresses filtering for SNMP
- RADIUS/TACACS+ client (Terminal Access Controller Access Control System)
- SSH server
- Telnet server
- SSL
- Macrocommands
- Command logging
- System log
- DHCP autoprovision
- DHCP Relay (Option 82)
- DHCP Option 12
- DHCP server
- Debugging commands
- Traffic to CPU rate limiting
- Password encryption
- Password recovery
- Ping (IPv4/IPv6)

Monitoring functions

- Interface statistics
- RMON/SMON remote monitoring
- CPU utilization monitoring per task and per traffic type
- Temperature monitoring
- TCAM monitoring
- IPFIX

Quality of Service (QoS) and rate limiting

- QoS statistics
- Shaping, Policing
- IEEE 802.1p Class of Service
- Broadcast storm control
- Bandwidth management
- Strict Priority and Weighted Round Robin (WRR) scheduling algorithms
- Three marking colors
- ACL-based CoS/DSCP mark assignment
- ACL-based VLAN assignment
- Setting the IEEE 802.1p priority for management VLAN
- DSCP to CoS/CoS to DSCP remarking
- 802.1p, DSCP mark assignment for IGMP

OAM

- 802.3ah Ethernet Link OAM
- 802.3ah Unidirectional Link Detection

Features and capabilities (continued)

MIB

- RFC 1065, 1066, 1155, 1156, 2578 MIB Structure
- RFC 1212 Concise MIB Definitions
- RFC 1213 MIB II
- RFC 1215 MIB Traps Convention
- RFC 1493, 4188 Bridge MIB
- RFC 1157, 2571-2576 SNMP MIB
- RFC 1901-1908, 3418, 3636, 1442, 2578 SNMPv2 MIB
- RFC 271, 1757, 2819 RMON MIB
- RFC 2465 IPv6 MIB
- RFC 2466 ICMPv6 MIB
- RFC 2737 Entity MIB
- RFC 4293 IPv6 SNMP Mgmt Interface MIB
- Private MIB
- RFC 3289 DIFFSERV MIB
- RFC 2021 RMONv2 MIB
- RFC 1398, 1643, 1650, 2358, 2665, 3635 Ether-like MIB
- RFC 2668 IEEE 802.3 MAU MIB
- RFC 2674, 4363 IEEE 802.1p MIB
- RFC 2233, 2863 IF MIB
- RFC 2618 RADIUS Authentication Client MIB
- RFC 4022 MIB for TCP
- RFC 4113 MIB for UDP
- RFC 3298 MIB for Diffserv
- RFC 2620 RADIUS Accounting Client MIB
- RFC 2925 Ping & Traceroute MIB
- RFC 768 UDP
- RFC 791 IP
- RFC 792 ICMPv4
- RFC 2463, 4443 ICMPv6
- RFC 4884 Extended ICMP for Multi-Part messages
- RFC 793 TCP
- RFC 2474, 3260 DS field detection in IPv4 and IPv6 header
- RFC 1321, 2284, 2865, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC 2571-2574 SNMP
- RFC 826 ARP

Physical parameters

Physical specifications and environmental parameters

| | |
|-----------------------------|---|
| Power supply | AC: 100–240 V, 50-60 Hz Power supply options: • 1 AC power supply; • 2 hot-swappable AC power supplies |
| Input current | 3–1.25 A |
| Maximum power consumption | 300 W |
| Heat dissipation | 300 W |
| Dying Gasp hardware support | no |
| Operating temperature | from 0 to +45 °C |
| Storage temperature | from -50 to +70 °C |
| Operating humidity | up to 80 % |
| Cooling | Front-to-Back, 5 double fans |
| Dimensions (W × H × D) | 440 × 44 × 536 mm |
| Weight | 12.1 kg |

Ordering information

| Name | Description |
|------------|--|
| MES5410-48 | MES5410-48 Ethernet switch, 1 × 10/100/1000BASE-T (OOB), 48 × 1000BASE-X (SFP)/10GBASE-R (SFP+)/25GBASE-R (SFP28), 6 × 40GBASE-R (QSFP+)/100GBASE-R (QSFP28), 1 × USB 2.0, L3 switch |

Related software

| | |
|-----------------|---|
| ECCM-MES5410-48 | ECCM-MES5410-48 option of Eltex ECCM management system for ELTEX network elements management and monitoring: 1 network element MES5410-48 |
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ELTEX Enterprise is a leading Russian developer and manufacturer of communication equipment with 30 years of history. Complete solutions and their seamless integrability into the Customer's infrastructure are the priority growth areas of the company.