

- Compact and high-performance solution
- Wide support for MPLS switching mechanisms
- Redundant power supplies
- Availability of XFP ports



**ME5100 rev.X routers** are multifunctional devices with high port density, designed for use in telecommunication operators' networks as routers of IP/MPLS network core level: aggregation, edge, transport. The device can be used to build high-performance switching and routing nodes with a high level of reliability due to the use of redundancy functions, automatic switching and automatic restoration of network connectivity. The device can be used in the networks of large telecommunication operators.

ME5100 rev.X is a part of ME series routers with a unified software and management interfaces. ME5100 rev.X supports the entire set of features available on the series routers: IPv4/IPv6 routing, Layer2/Layer3 QoS, IP Multicast routing, as well as second and third layer MPLS services. The ME5100 rev.X router has a 2U chassis and contains a fixed set of 16 universal Ethernet network interfaces in SFP/SFP+ form factor, supporting Gigabit Ethernet (1000BASE-X) and 10 Gigabit Ethernet (10GBASE-R) modes, as well as 4 Ethernet network interfaces in XFP form factor, supporting 10GBASE-R mode.

The availability of XFP form factor interfaces allows the use of transceivers with increased range and, in some cases, eliminates the need for additional costs for DWDM systems to organize communication lines over long distances of fiber optic communication lines.

Fault tolerance of the device is ensured by redundant power supplies (1+1) and the use of replaceable fan modules. All redundant modules can be replaced while the device is in operation.

## Technical features

Interfaces	
<b>Built-in interfaces</b>	<ul style="list-style-type: none"> <li>– Network interfaces                             <ul style="list-style-type: none"> <li>• 16 × 10GBASE-R (SFP+)/1000BASE-X (SFP). Possible use of 1000BASE-T SFP transceivers</li> <li>• 4 × 10GBASE-R (XFP)</li> </ul> </li> <li>– Management interfaces                             <ul style="list-style-type: none"> <li>• Out Of Band (OOB) 1GE port (RJ-45)</li> <li>• RS-232 (RJ-45) console port</li> </ul> </li> <li>– 1 × USB 2.0</li> </ul>
Performance	
<b>Bandwidth</b>	200 Gbps, 300 Mpps
<b>RAM</b>	8 GB
<b>Buffer memory</b>	6 GB
<b>MAC address table</b>	Up to 262144 The resource is shared with MPLS switching tables and single-hop BFD session elements
<b>Number of bridge domains</b>	Up to 4k
<b>RIB capacity</b>	Up to 1M IPv4 or 512K IPv6, the resource is shared with ARP and IPv6 ND cache tables
<b>L3 interfaces</b>	Up to 4k
<b>MPLS VPN connections (L2/L3 service tunnels)</b>	Up to 12k
<b>MPLS LSP (transport tunnels)</b>	Up to 6k
<b>ARP table</b>	Up to 20k
<b>VRF (MPLS L3VPN)</b>	Up to 1000 (or up to 128 with BGP processes running in each VRF)
<b>Number of QoS queues</b>	96k

## Features and capabilities<sup>1</sup>

### Interfaces functions

- Link aggregation groups: LAG and LACP
- Tunnel interfaces with IP-GRE and IP-IP support
- IP unnumbered interfaces, Proxy ARP functionality
- Layer 3 interfaces (Bridge-domain Virtual Interfaces, BVI)
- Equal load balancing in group
- Multi-chassis LAG
- Support for BFDoverLAG, fault detection of a single connection (RFC 7130)
- SPAN, RSPAN traffic mirroring, including ACL-based mirroring

### L2 protocols and functions

- Providing Ethernet switching through bridge domains and cross-connects
- IEEE bridging (IEEE 802.1d)
- VLAN (IEEE 802.1q)
- Q-in-Q (IEEE 802.1ad) with push/pop/swap/replace tag operations
- Spanning Tree protocols (STP, RSTP, MSTP)
- DHCP Snooping for bridge domains
- LLDP protocol
- EVPN/MPLS
- EVPN/VPWS
- EVPN/VXLAN

### L3 protocols and functions

- IPv4, IPv6 Static Unicast Routing
- IS-IS protocol
- IS-IS multi-instance
- IS-IS multi-topology
- OSPFv2 and OSPFv3 protocols
- OSPFv2 and OSPFv3 multi-instance
- OSPF multi-area adjacency (RFC 5185)
- Border Gateway Protocol (BGP)
- BGP Route Reflector, BGP Additional Path
- BGP table policy, BGP AIGP
- BGP FlowSpec for IPv4/IPv6 unicast (control-plane and data-plane) and for VPNv4/VPNv6 (control-plane only)
- Route filtering (routemap, prefix-list)
- Policy-based routing (PBR)
- BFD protocol for routing protocols and static routes
- FastReroute/Loop Free Alternate for OSPF/IS-IS
- VRRP (version 3), DHCP relay agent, DHCPv4/DHCPv6 server
- IPv4 ACL (access control lists) for transit traffic
- ECMP load balancing
- VRF
- Inter-VRF routing with route filtering capability
- RIPv2 and RIPng protocols

### Multicast management

- PIM-SM, PIM-SSM, Anycast RP
- IGMP v2/v3, IGMP Snooping, SSM mapping
- MSDP
- MulticastVPN over mLDP
- MulticastVPN over RSVP-TE P2MP LSP
- VRF-lite technology, including for all protocols (PIM/IGMP/MSDP)
- BGP IPv4 multicast for PIM RPF

### MPLS functions

- Label Distribution Protocol (LDP)
- LDP FRR
- mLDP

- LDP authentication (MD5)
- RSVP-TE: automatic tunnel construction with specified bandwidth requirement, semi-automatic tunnel construction with indication of intermediate nodes
- RSVP-TE authentication
- RSVP-TE FRR (detour, facility)
- RSVP-TE end-to-end protection
- RSVP-TE autobandwidth
- RSVP-TE shared-link risk group
- Multiprotocol extensions for BGP-4
- BGP labeled unicast, BGP 6PE
- MPLS pseudowire with PW backup
- MPLS FAT PW (flow-aware transport)
- MPLS L2VPN
  - VPWS
  - VPLS LDP signalling («Martini»)
  - VPLS BGP autodiscovery/signalling («Kompella»)
  - VPLS BGP autodiscovery + LDP signalling
  - L2VPN Inter-AS option B, option C
- MPLS L3VPN
  - L3VPN for AFI/SAFI vpnv4 unicast and vpnv6 unicast
  - BGP 6VPE
  - L3VPN Inter-AS option A, option B, option C
  - Assigning labels in label-per-vrf mode
- LSP ping and LSP traceroute
- LDPoRSVP
- Carrier Supporting Carrier (CsC)

### QoS

- Ingress policing, egress policing/shaping
- Strict priority (SP) and Deficit weighted round-robin (DWRR) queue scheduling algorithms
- Up to 8 queues per logical interface, up to 3 SP queues
- QoS queue counters
- Configurable Hierarchical QoS (HQoS)
- Queue and burst size configuration
- Traffic classification based on the 802.1p, MPLS TC, IP DSCP fields with the ability to remark the corresponding fields
- QoS labeling and processing based on access control lists (ACLs), ACL policing
- Storm Control

### Management and monitoring

- Command Line Interface (CLI), SSH, Telnet for remote control
- Role model for access to the command interface
- SNMPv1/v2c/v3 for device status monitoring
- NETCONF protocol
- Static data export (Netflow v9, v5, IPFIX)<sup>2</sup>
- Configuration backup and restore (local, FTP, SFTP, TFTP)
- RADIUS, TACACS+ authentication and authorization, TACACS+ accounting
- Remote firmware change
- System parameters and resources monitoring
- Syslog
- Clock Synchronization, NTP, SNTP protocols
- Control-plane filtering
- Traffic rate limiting on CPU
- ELTEX IP SLA
- Support for script execution when events occur on the device (EEM, embedded event manager)

<sup>1</sup>For firmware version 3.12.0.

<sup>2</sup>A statistics collection module is required.

## Features and capabilities (continued)<sup>1</sup>

### Reliability functions

- Graceful Restart for routing protocols
- Non-stop forwarding
- Storage of two firmware versions on the internal drive
- Ability to restore the previous firmware version during update

### Physical parameters

#### Physical specifications and ambient parameters

Case ventilation	Front-to-back air flow 3 hot-swappable redundant fan modules
Power supply sources	2 hot-swappable power supplies AC: 150–250 V, 50 Hz DC: 36–72 V
Maximum power consumption	250 W
Operating temperature range	From 0 to 45 °C
Storage temperature	From -40 to 70 °C
Weight	9.5 kg
Dimensions (W × H × D)	440 × 87 × 500 mm

### Ordering information

Name	Description
ME5100 rev.X	ME5100 rev.X router with fan modules installed, without power supplies. Interfaces: 16 × 10GBASE-R (SFP+)/1000BASE-X (SFP), 4 × 10GBASE-R (XFP), 1 × OOB 1GE (10/100/1000BASE-T), RS-232 (RJ-45), 1 × USB 2.0
ME5100-FAN/ME5200-FAN	Fan module
ME5000-SM-STAT	Statistics module <sup>2</sup> for ME5100 rev.X

#### Related products

PM350-48/12 2vX	DC power supply
PM350-220/12 rev.B	AC power supply

<sup>1</sup>For firmware version 3.12.0.

<sup>2</sup>The statistics module is necessary to ensure the operation of NetFlow/IPFIX protocols and to maintain advanced statistics — counters for Pseudowire, QoS queues, etc.

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#### About Eltex



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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.