

Opti-X 24GT

24-Port 1Gbps (RJ45) Layer 2/3 Module

Opti-x 24GT module provides 24-ports electrical GigE (RJ45) connections for customer to extend their network access. This module will permit full Non-blocking connectivity through the entire port configuration allowing the absolute flexibility of defined QoS service guarantee. This module is an optional module to be used in the OptiCore 400 or 800 along with the capability of functioning as a stand alone device when configured as an OptiEdge product

Standards and Compliance

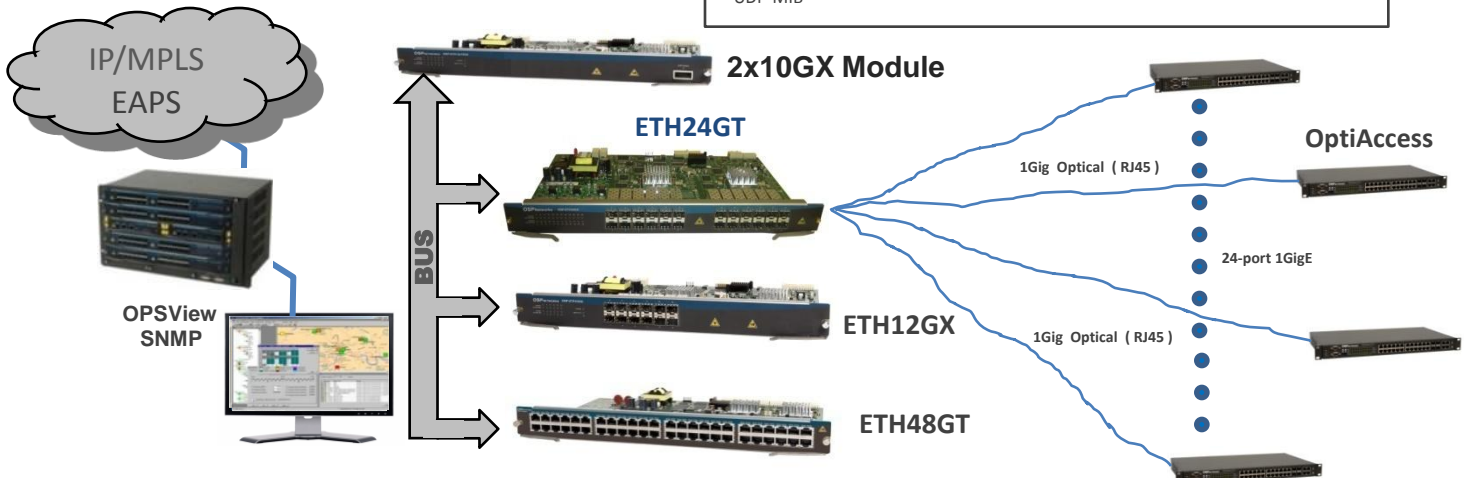
| IEEE | |
|---------------------|-------------------------------------|
| 802.3/802.3u/802.3z | 10Base-T, 100Base-TX, 1000Base-SX |
| 802.3ab | 1000Base-T |
| 802.3x | Flow Control |
| 802.3ac | Extension for VLAN Tagging |
| 802.1D | Bridging |
| 802.1Q | Virtual LAN |
| 802.1w | Rapid Spanning Tree |
| 802.1s | Multiple Spanning Tree |
| 802.3ad | Link Aggregation |
| 802.1p | Priority Support |
| 802.1x | Port Security |
| 802.3ah | Ethernet First Mile |
| 802.1AB | LLDP |
| 802.1v | MAC-based IP-Subnet, Protocol based |

| IETF | |
|-------------------|--|
| RFC1812 | IPv4 |
| RFC1157 | SNMP Protocol |
| RFC2819/2021/1757 | RMON I e RMON II |
| RFC2865/2138/2058 | RADIUS Authentication/Authorization |
| RFC2030 | Simple Network Time Protocol (SNTP) v4 |
| RFC3619 | EAPsv1 |
| RFC3164 | Syslog Protocol |
| RFC1058/1723 | RIP/RIPv2 |
| RFC1583/2178 | OSPFv2 |
| RFC1112/2236/3376 | IGMPv1/IGMPv2/IGMPv3 |
| RFC2474/2475 | DiffService |

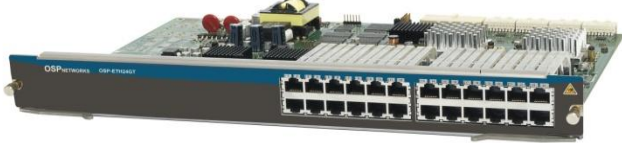
| MIBs | |
|---------------------|--------------------------------------|
| Bridge MIB | RFC1493 |
| Entity MIB | RFC2037 |
| Interface MIB | RFC1229/1573/2233/2863 |
| MIB-II | RFC1213 |
| ETHERLIKE-MIB | RFC1398/1623/1643/2665 |
| Extended Bridge MIB | RFC2674 (Q-Bridge-MIB, P-Bridge-MIB) |
| RMON-MIB | RFC1757 |
| RS-232-MIB | |
| SNMPv2-MIB | |
| SNMPv2-SMI | |
| SNMPv2-TC | |
| TCP-MIB | |
| UDP-MIB | |

Hardware Specifications

| | |
|----------------------------|----------------------|
| Switch Layer 2 | Wire Speed |
| Switch Layer 3 | Wire Speed |
| QoS | L2-L4 |
| MPLS | L2-L4 |
| PoE | N/A |
| Packet Buffer | 128 MB |
| Ports | 24x10/100/1000BaseTX |
| Switch Fabric (internal) | 48Gbit/s |
| Flash | 64 MB |
| SDRAM | 128 MB |
| MAC address table | 512k* |
| L3 hosts (IPv4) | 32k* |
| L3 hosts (IPv6) | 16k* |
| L3 Routes (IPv4) | 240k* |
| L3 Routes (IPv6) | 240k* |
| L2 Multicast groups | 1k |
| L3 Multicast groups (IPv4) | 4k |
| L3 Multicast groups (IPv6) | 1k |
| Filters | 4k |
| Meters | 4k |
| Counters | 4k |



* Non blocking is dependent on the amount of ports and on the MPU type utilized.



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24-Port 1Gbp/s (RJ45) Layer 2/3 Module

| | |
|--|--|
| Management | Command Line Interface (CLI) via SSH, Telnet and Console |
| | Web Server with SSLv3 |
| | SNMP v1/v2c/v3 |
| | RMON grupos 1, 2, 3 and 9 |
| | Configuration of ACLs with multiple comparisons and actions |
| | Network diagnosing tools for (telnet, traceroute and Ping) |
| | Cabling diagnostics tools |
| | Up to 2 firmwares flash, with upgrade via TFTP or HTTP/HTTPS |
| | 4 Flash settings with upload and download via TFTP or HTTP / HTTPS |
| | Link OAM (EFM – IEEE 802.3ah) |
| | Link Layer Discovery Protocol (LLDP – IEEE 802.1AB) |
| | Static or dynamic IP address (DHCP / BOOTP) |
| | DHCP relay with option 82 |
| | SNMP filters for controlling access to Web, Telnet and SSH |
| | Security |
| MAC addresses configuration limit per port and VLAN | |
| Local and Remote Syslog | |
| Authentication, authorization and accounting with RADIUS & TACACS + | |
| E-mail notification (SMTP) | |
| Mechanisms for protecting against attacks from Denial of Service (DoS) | |
| SNTP | |
| VLAN | Tagging for up to 4096 simultaneous VIDs (IEEE 802.1Q) |
| | MAC-based, IP-Subnet based, Protocol-based (IEEE 802.1v) |
| | Q-in-Q double tagging |
| | Private VLAN |
| | Dynamic VLAN (GVRP) |
| Link Aggregation | 32 logical groups, with up to 8 ports in each active group |
| | Static or dynamic way settings LACP (IEEE 802.3ad) |
| | Configuration criterion for load balancing . |

| | |
|---|--|
| Auto-negotiation | Speed, duplex mode, flow control and MDI/MDIX |
| Flow Control | Backpressure in half duplex; PAUSE (IEEE 802.3x) in full duplex |
| Protection | Classic Spanning Tree (IEEE 802.1D) |
| | Rapid Spanning Tree (IEEE 802.1w) |
| | Per-VLAN Rapid Spanning Tree |
| | Multiple Spanning Tree (IEEE 802.1s) |
| | BPDU Guard, EAPsv1, Link flap detection, Loopback detection |
| QoS (marking, classification and prioritization) | 8 queues per port |
| | TCI tagging (IEEE 802.1p) |
| | IP Precedence/TOS or DSCP/TOS |
| | Source/Destination IP or MAC |
| | TCP ports ou UDP ports |
| | Generic L2-L7 filter match |
| | Rate Shapping (Ingress and Egress), communications granularity of 64 Kbit/s per port and flow via definition of CIR and PIR |
| | Weighted Round Robin, Weighted Fair Queuing, Strict priority or combination of these techniques and algorithms for scheduling queues |
| Dual WRED configurations, one for in-profile and one for out-of-profile | |
| Additional Layer 2 Functionality | Maximum rate of Broadcast, Multicast and DLF controlled by port |
| | Head of Line Blocking protection |
| | Up to 9Kb Jumbo Frame support |
| | IGMP (v1/v2/v3). Snooping Query functionality may be used |
| | Ageing global Layer 2 or by VLAN |
| Additional Layer 3 Functionality | Layer 2 Protocol Tunneling |
| | Traffic Monitor per port and / or flow of packets |
| | Static Routing |
| | RIP v1/v2, OSPF v2 and BGP v4 |
| | Redundancy via VRRP |
| | PIM (SM, DM and SD) |
| | Proxy ARP |



OptiCore 400 Chassis

Order Information

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|--|----------------------|
| OptiCore 800 Chassis | OptiCore-800-Chassis |
| OptiCore 400 Chassis | OptiCore-400-Chassis |
| OptiEdge 100 Chassis with Power Supply | OptiEdge-100 Chassis |
| Dual-port 10Gbp's Optical (XFP) module | 2x10GX |
| Quad –port 10Gig's Optical (XFP) module | 4x10GX |
| 12-port GigE (SFP) optical module | 12GX |
| 12-port GigE (SFP) + 10Gbp's (XFP) module | 1x10+12GX |
| 24-port GigE (SFP) + Dual 10Gbp's (XFP) module | 2x10+24GX |
| 24-port GigE (SFP) optical module | 24GX |
| 24-port GigE (RJ45) electrical module | 24GT |
| 48-port GigE (RJ45) electrical module | 48GT |
| 48-port GigE (SFP) optical module | 48GX |
| Enhanced HQoS Module | HQoS-M |