

100 Mbit CPE

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The 100 Mbit CPE is a FTTH product offering fast ethernet-based networking with a SM singlefiber (BX10 compliant) uplink and 4 or 8 10/100Mbit LAN ports.

The 100 Mbit CPE performs wirespeed switching, with advanced QoS. QoS can either be done on a port level, or 802.1p (VLAN QoS) or ToS/DiffServ.

Besides normal ethernet networking the 100 Mbit CPE also offers two independent VoIP ports based on the SIP standard. Class 5 services like call forward and conference calls are also supported.

A full band CATV node is also in the package. As an option, we offer this node with a complete filter solution on the CATV side.

All this can be controlled by either the intergrated CLI, the SNMP system or by our fail-proof autoprovisioning system.

FEATURES

- Fiber based 100Mbit uplink
- 4/8 100Mbit LAN ports
- Wirespeed switching
- 2 independent VoIP ports
- VLAN tag/trunk support
- Layer 2+3 QoS
- Advanced CLI and SNMP
- Full band CATV
- Optional CATV filters

UPLINK INTERFACE

- Single mode fiber (ITU-T G.652)
- SC/PC connector
- 100Base-BX10 compliant
- Tx: 1310, Rx: 1550
- Full-duplex transmission
- Operating distance: 20km
- Class 1 laser product

DOWNLINK INTERFACES

- 4 x RJ45 connectors
- 10/100Base-TX
- Auto-negotiation for speed and duplex
- Auto MDI/MDX

PERFORMANCE

- Wire-speed switching on all ports
- 2048 MAC address table
- Hardware IGMP snooping

VLAN

- VLAN Tagging (802.1Q)
- VLAN trunking
- Port-based VLAN
- Up to 16 VLAN groups
- Full 12-bit VLAN matching

QOS

- 4 Queues
- Port based priority
- 802.1p priority
- 802.1p remapping
- ToS classification
- Diffserv classification

MANAGEMENT & MONITORING

- Telnet
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, MAXIMUM private MIB)
 - Interface status
 - VoIP status
 - Running configuration
 - Boot configuration
- All settings are stored locally in flash
- Full auto provisioning using DHCP/TFTP
- Full auto provisioning using TR-069*
- Automatic firmware update
- DHCP client
- Per-port 64Bit counters for bytes rx/tx, packets rx/tx, errors and discards
- Status LEDs
 - CATV status
 - CPE status
 - LAN status (link/traffic, duplex)
 - WAN status (link/traffic)
 - VoIP status, one LED per port

*= To be implemented in 2009

SECURITY

- Management can be secured by port or VLAN measures
- Broadcast storm suppression

CATV

- Optical 1550nm SM input
- One 750hm "F-connector"
- RF bandwidth from 45 to 860MHz

CATV

- 90dB output at -3dBm input
- High linearity
- CNR \geq 51dB
- CSO \leq -65dB
- CTB \leq -65dB
- Up to 4 RF filters (optional)

VOIP

- 2 RJ11 connectors
- 2 separate POTS lines
- SIP (RFC3261)
- 5 REN support
- DTMF signaling
 - SIP INFO
 - Inband
 - RFC 2833
- Adaptive jitter buffer
- Caller ID support (DTMF/FSK)
- CLIR
- Class 5 services
 - Forward all calls
 - Forward on busy
 - Forward on no answer
 - Call waiting
 - Build-in conference call
- T.38 FAX support

VOIP CODEC'S

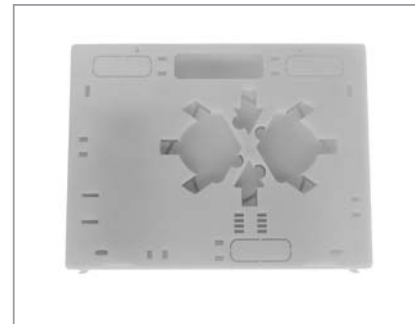
- G.711A
- G.711U
- G.723
- G.729
- Silence suppression (optional)
- LEC (line Echo cancellation)
- G.165 Echo cancellation

CASING

- Plastic casing
- Size: 200 x 150 x 45 mm (W x H x D)

POWER AND ENVIRONMENTAL SPECIFICATIONS

- DC12V input
- Power consumption < 6 watt
- Operating temperature: 0 – 50°C
- Storage temperature: -15 – 55°C
- Humidity: 10% - 90%
- Optional internal battery (8 hours standby, 4 hours runtime)



Gigabit CPE

Gigabit CPE

The Gigabit CPE is a FTTH product offering gigabit ethernet- based networking with a SM singlefiber (BX10 compliant) dual speed uplink, 4 or 8 10/100/1000Mbit LAN ports.

The dual-speed 100/1000Mbit uplink enables the network operator to seamlessly upgrade the network from fast Ethernet to gigabit Ethernet without replacing all installed CPEs.

The Gigabit CPE performs wirespeed switching, with advanced QoS. QoS can either be done on a port level, or 802.1p (VLAN QoS) or ToS/DiffServ.

Besides normal ethernet networking the Gigabit CPE also offers two independent VoIP ports based on the SIP standard. Class 5 services like call forward and conference calls are also supported.

A full band CATV node is also in the package. As an option, we offer this node with a complete filter solution on the CATV side.

All this can be controlled by either the intergrated CLI, the SNMP system or by our fail-proof autoprovisioning system.

FEATURES

- Fiber based dual-speed uplink
- 4/8 1000Mbit LAN ports
- Wirespeed switching
- 2 independent VoIP ports
- VLAN tag/trunk support
- Layer 2+3 QoS
- Advanced CLI and SNMP
- Full band CATV
- Optional CATV filters

UPLINK INTERFACE

- Single mode fiber (ITU-T G.652)
- SC/PC connector
- Dual speed 100/1000Mbit w/ Auto-negotiation
- 100Base-BX10 / 1000Base-BX10 compliant
- Tx: 1310, Rx: 1550
- Full-duplex transmission
- Operating distance: 20km
- Class 1 laser product

DOWNLINK INTERFACES

- 4 x RJ45 connectors
- 10/100/1000 Base T (X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX

PERFORMANCE

- Wire-speed switching on all ports
- 2048 MAC address table

We make resevation for misprint. Specifications and functions may be changed for improvement without notice in advance

VLAN

- VLAN Tagging (802.1Q)
- VLAN trunking
- Port-based VLAN
- Up to 16 VLAN groups
- Full 12-bit VLAN matching

QOS

- 4 Queues
- Port based priority
- 802.1p priority
- 802.1p remapping
- ToS classification
- Diffserv classification

MANAGEMENT & MONITORING

- Telnet
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, MAXIMUM private MIB)
 - Interface status
 - VoIP status
 - Running configuration
 - Boot configuration
- All settings are stored locally in flash
- Full auto provisioning using DHCP/TFTP
- Full auto provisioning using TR-069*
- Automatic firmware update
- DHCP client
- Per-port 64Bit counters for bytes rx/tx, packets rx/tx, errors and discards
- Status LEDs
 - CATV status
 - CPE status
 - LAN status (link/traffic, duplex)
 - WAN status (link/traffic)
 - VoIP status, one LED per port

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SECURITY

- Management can be secured by port or VLAN measures
- Broadcast storm suppression

CATV

- Optical 1550nm SM input
- One 750hm "F-connector"
- RF bandwidth from 45 to 860MHz
- 90dB output at -3dBm input
- High linearity

CATV

- CNR >= 51dB
- CSO <= -65dB
- CTB <= -65dB
- Up to 4 RF filters (optional)

VOIP

- 2 RJ11 connectors
- 2 separate POTS lines
- SIP (RFC3261)
- 5 REN support
- DTMF signaling
 - SIP INFO
 - Inband
 - RFC 2833
- Adaptive jitter buffer
- Incoming CID support
 - FSK
 - DTMF
 - Denmark
- CLIR
- Advanced dialplan
- B-Number manipulation
- Class 5 services
 - Forward all calls
 - Forward on busy
 - Forward on no answer
 - Call waiting
 - Build-in conference call
- T.38 FAX support

VOIP CODEC'S

- G.711A
- G.711U
- G.723
- G.729
- Silence suppression (optional)
- LEC (line Echo cancellation)
- G.165 Echo cancellation

CASING

- Plastic casing
- Size: 200 x 150 x 45 mm (W x H x D)

POWER AND ENVIRONMENTAL SPECIFICATIONS

- DC12V input
- Power consumption < 10 watt
- Operating temperature: 0 – 50°C
- Storage temperature: -15 – 55°C
- Humidity: 10% - 90%
- Optional battery backup w/monitoring



MAXIMUM WiFi Gigabit CPE

The smallest box on the market with built-in WiFi and router function.
Size: 200 x 150 x 45 mm (W x H x D)

FEATURES

- High performance solution
- Optional CATV filter
- Optional external battery backup
- Gigabit box
- Low power consumption 15 watt
- Danish design

UPLINK INTERFACE

- Single mode fiber (ITU-T G.652)
- SC/PC connector
- 1000Base-BX10 compliant
- Tx: 1310, Rx: 1550
- Full-duplex transmission
- Operating distance: 20km

DOWNLINK INTERFACE

- 4 x RJ45 connectors
- 10/100/1000 Base T(X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX

LAYER 2

- Wire-speed switching on all LAN ports
- 2048 MAC address table
- IGMP snooping

QOS

- 4 Queues
- Port based priority
- 802.1p priority
- 802.1p remapping
- ToS classification
- Diffserv classification

LAYER 3

- DHCP server
- IGMP proxy
- P2P filters/rate-limiting
- Multicast
- NAT (up to 900Mbit/sec)
- SPI
- IPv4
- IPv6
- IP firewall
- Layer 3 QoS features
 - Packet classification
 - Marking
 - Queuing
 - Scheduling
 - Rate Limiting

WIFI

- IEEE 802.11b, IEEE 802.11g and IEEE 802.11n
- IEEE802.11i
 - WEP64/WEP128
- WPA / WPA2
 - MAC filtering
- MIMO

USB

- 2 x USB port (Master or Slave 2.0)

VLAN

- VLAN Tagging (802.1Q)
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- Port-based VLAN
- Up to 16 VLAN groups
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MANAGEMENT & MONITORING

- Telnet
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, MAXIMUM private MIB)
 - Interface status
 - VoIP status
 - Running configuration
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- Full auto provisioning using DHCP/TFTP
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- Automatic firmware update
- DHCP client
- Per-port 64 bit counters for bytes rx/tx, packets rx/tx, errors and discards
- Status LEDs
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 - LAN status (link/traffic, duplex)
 - WAN status (link/traffic)
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SECURITY

- Management can be secured by port or VLAN measures
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CATV

- Optical 1550nm SM input
- One 750hm "F-connector"
- RF bandwidth from 45 to 860MHz
- 90dB output at -3dBm input
- High linearity
- CNR \geq 51 dB
- CSO \leq -65dB
- CTB \leq -65dB
- Up to 4 RF filters (optional)
- Standard Single Mode fiber (ITU-T G.652)
- Connector: SC/APC
- F-female (IEC 169-24)
- 90 dBuV at -3 dBm



VOIP

- 2 RJ11 connectors
- 2 separate POTS lines
- SIP (RFC3261)
- 5 REN support
- DTMF signaling
 - SIP INFO
 - Inband
 - RFC 2833
- Adaptive jitter buffer
- DNS SRV
- Incoming CID support
 - FSK
 - DTMF
 - Denmark
- CLIR
- Advanced dialplan
- B-Number manipulation
- Class 5 services
 - Forward all calls
 - Forward on busy
 - Forward on no answer
 - Call waiting

VOIP CODEC'S

- G.711A a-law
- G.711U μ -law
- G.729
- Silence suppression (optional)
- LEC (line Echo cancellation)
- G.165 Echo cancellation
- Comfort noise generation

CASING

- Plastic casing
- Size: 200 x 150 x 45 mm (W x H x D)

POWER AND ENVIRONMENTAL SPECIFICATIONS

- DC12V input
- Power consumption < 15 watt
- Operating temperature: 0 – 50⁰ C
- Storage temperature: -15 – 55⁰ C
- Humidity: 10% - 90%
- Optional external battery PSU



OPTICAL SWITCH LM-AS-3124-S

Optical Switch LM-AS-3124-S

LM-AS-3124-S is a layer 3 intelligent switch, offering high security and Quality-Of-Service, while still delivering wire speed throughput. This is achieved by high-speed ASIC chips, and a powerful CPU. The LM-AS-3124-S is equipped with 24 FE SFP downlink and 4 GE combo uplink ports. The switch can be managed by Telnet, SSH, Web and SNMP v1/v2/v3. Each of these can be protected by VLAN and a Layer 2-4 filter. RMON is implemented for monitoring purposes.

802.1q/p, QinQ and VLAN trunking is supported and the used VLAN can be determined by port, MAC, protocol or IP address – offering a very flexible solution for separation. SuperVLAN, GVRP and PVLAN is also supported.

Every port supports 8 priority queues and the used queue can be determined based on 802.1p, DSCP or Access Lists. Ingress traffic can be limited (throttled) by access lists in 64kbit steps. Egress is set per port in 630k steps. IGMP v1/v2/v3, PIM-DM, and PIM-SM is supported. A maximum of 4K multicast flows is supported. The switch supports layer 2-4 access lists and access list- based mirroring. Furthermore ARP protection, Synflood attack, Smurf and ICMP attack prevention is implemented.

PHYSICAL INTERFACES

- 24 FE SFP ports for optical modules
- 4 GE SFP or 10/100/1000Base-T combo ports
- Auto-negotiation for speed and duplex mode
- Auto MDI/MDX
- Port mirroring

FEATURES

- 24 100Mbit SFP ports
- 4 GE combo ports
- 38.4Gbps of switching
- 16K mac address table
- STP, RSTP and MSTP
- VRRP
- Layer 2 switching
- Layer 3 routing
- VLAN tag/trunk/port
- Private/Public VLANs
- SSHv2 and SNMP v1/v2/v3

PERFORMANCES

- Switching capacity 38,4Gbps
- Transmission rate 9,6Mpps
- MAC address table 16K

AVAILABILITY

- Spanning-Tree (STP, RSTP and MSTP)
- Virtual Router Redundancy Protocol (VRRP)
- Optional redundant PSU (external)
- LACP load balancing Layer 3 routing protocols
- Static routes
- RIP v1/v2
- 8K host routing
- 16K network routing
- 4K routing interfaces
- 4K SuperVLANs
- GARP
- DHCP server
- DHCP relay w/ option 82 rewrite support

VLAN

- VLAN support for tagging and port-based (802.1q)
- VLAN can be division based on MAC, protocol, port or IP address
- Private VLAN
- Stack VLANs (QinQ)
- 4K 802.1q and VLAN trunks
- GVRP (GARP VLAN registration protocol)

MULTICAST

- L3 Multicast IGMP v1/v2/v3, PIM-DM, PIM-SM
- L2 Multicast IGMP Snooping v1/v2/v3
- IGMP Policy/Fast Leave
- 4K multicast routing/switching table

QoS

- VLAN QoS (802.1p)
- Every port supports 8 priority queues
- 3 different queue mechanisms
 - Strict priority
 - Weighted round Robin
 - Strict weighted round Robin
- 802.1p remarking
- DSCP priority remarking
- Standard sFlow
- CAR

SECURITY

- AAA/Radius authentication
- 802.1x based authentication
- SSHv2
- ACL flow filters
- Broadcast message control
- Management binding to IP address, VLAN ID and interface
- Management ACLs
- DoS protection

MANAGEMENT

- SSHv2
- Telnet
- Serial console
- Auto completion CLI
- SNMP v1/v2/v3
- RMON (groups 1,2,3,9)



OPTICAL SWITCH LM-AS-3124-S

MANAGEMENT

- Web
- System log
- Syslog
- Alarm classification
- Interface statistics
- Firmware update with Serial, TFTP or FTP
- Ping and traceroute for debugging

PHYSICAL

- Size: 440 x 320 x 44 mm (WxDxH)
- 1U, rack-mounting included
- Weight 4.5 Kg

ENVIRONMENTAL SPECIFICATIONS

- Operating temperature: 0 – 50°C
- Storage temperature: -15 – 70°C
- Operating humidity: 10% to 90%
- Storage humidity: 10% to 95%

POWER

- 100-240VAC, 50-60Hz
- -36 - -72VDC (optional)
- Power consumption < 45 w

RELATED PRODUCTS

- M-SFP-1-2-5-3-FE (SM single fiber 20km FE SFP tx: 1550, rx: 1310)
- M-SFP-1-2-3-5-FE (SM single fiber 20km FE SFP tx: 1310, rx: 1550)
- M-SFP-2-2-3-3-FE (SM dual fiber 20km FE SFP tx: 1310, rx: 1310)
- M-SFP-1-2-5-3-GE (SM single fiber 20km GE SFP tx: 1550, rx: 1310)
- M-SFP-1-2-3-5-GE (SM single fiber 20km GE SFP tx: 1310, rx: 1550)
- M-SFP-2-2-3-3-GE (SM dual fiber 20km GE SFP tx: 1310, rx: 1310)