Gigabit to the Home

PON/G.fast/Ethernet Solution Brief
We help you deploy Gigabit broadband networks with ease
Why Gigabit to the Home?

The average number of Internet-connected devices per household is more than 5.7 today. People often simultaneously stream HD video from mobile devices to multiple TVs in the same household. Smart home services with sensors, gateways and machine-to-machine networks are also broadening the need of Internet connection. In Cloud services, the behavior between end-users and content providers are shifting while forecasts indicate that consumers will need 100 Mbps of bandwidth by 2020. This generates a tremendous demand on bandwidth access to the Internet.

As a leading networking solutions provider, Zyxel presents the PON E2E solution and G.fast solution to service providers for the increasing demand of bandwidth and various deployment requirements.

10G PON E2E Solution

Benefits
- Lower CAPEX: No physical switches are necessary as less space and rooms are needed
- Lower OPEX: Consuming less electricity and space, no need to maintain active equipment
- Dynamic bandwidth allocation: Offering Giga-grade bandwidth efficiently
- Future-proof network infrastructure from technical and investment points of view

GPON E2E Solution
Zyxel G.fast Solution

Benefits

- Provide time-to-market deployments based on the existing copper infrastructure
- Favorable solution for service providers who are looking for fiber-like service based on the existing copper infrastructure
- High Flexibility to deploy broadband services
## Zyxel Ethernet Solution

<table>
<thead>
<tr>
<th>Aggregation Network</th>
<th>Access Network</th>
<th>Premises Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>GbE L3 Switch</td>
<td>GbE L2 Switch</td>
<td>VMG8825-B50A</td>
</tr>
</tbody>
</table>

**Benefits**

- Flexible deployments based on the existing Ethernet cable infrastructure.
- Lower CAPEX compared with other networking technologies as Ethernet is ubiquitous and relatively inexpensive.
IES4204
2U 4-slot Temperature-Hardened Chassis MSAN

• Multi-service interfaces including VDSL2, GPON, 10G PON and fiber-based GbE
• 2 management card and switching cards for redundancy
• Temperature hardened design for remote deployment
• Comprehensive QoS to enhance users’ Triple-Play experience
• Field-proven IGMP snooping and proxy for IPTV deployments

Specifications

Extension slots 2 x line cards, 2 x management cards
Performance 8 queues with packet priority scheduling (SPQ/WRR), supports up to 1K IGMP multicast groups, DSCP to 802.1p priority mapping
Management SNMP v1/v2/v3, EMS (NetAtlas EMS), CLI, Web GUI

Security Rule-based ACL filtering, Anti-ARP-spoofing, Anti-ARP-flooding, IP Source Guard, Port Isolation, RADIUS and TACACS+, DHCP Option 82, Port Binding
VLAN 4096 IEEE 802.1Q compatible VLAN tagging, VLAN stacking (Q-in-Q), VLAN bridge function, VLAN trunking

PX730V
Dual-Band Wireless AX XGSPON HGU with 10G LAN support

• SFP+ Cage flexible design for 10G Active Fiber and XGSPON Support
• 10 Gigabit Ethernet LAN high performance support
• AX6000, dual-band WiFi with 2.4G 802.11ax 4x4+5G 802.11ax 4x4 technology delivering high WiFi performance for video streaming and IPTV
• Superior coverage with unique concurrent dual-band wireless circuit design

Specifications

WAN connection 1ITU-T G.9807.1 10–Gigabit-capable symmetric passive optical network (XGSPON)
Wireless IEEE 802.11a/n/a/ac/ax, (4x4) data rate: up to 4800 Mbps, frequency: 5 GHz
IEEE 802.11b/g/n/ax, (4x4) data rate: up to 1150 Mbps, frequency: 2.4 GHz
LAN 110/100/1000/10000 BASE-T port 4 10/100/1000BASE-T ports

VoIP SIP v2 (RFC 3261), 2 VoIP POTS phone ports, codecs: G.711, G.729a/b (optional), G.722, T.38 fax relay, supplementary services (Call transfer, call waiting, 3-way calling, etc.)
Security & Firewall SPI, content filtering
Management OMCI, TR-069, TR-181
VMG8825-B50B
Dual-Band Wireless AC/N VDSL2 Combo WAN Gigabit IAD

- Supports SFP for fiber applications
- ComboWAN-in-a-box for optimized CAPEX of FTTH/VDSL2 deployments
- AC2400, dual-band WiFi with 1.7 Gbps 802.11ac 4x4 Wave 2 technology delivering performance boosts for video streaming and IPTV
- Supports VoIP SIP protocol with 3-way conference calls
- Remote management through TR-181 issue-2

**Specifications**

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<tr>
<th>WAN connection</th>
<th>VDSL2 (up to 35b profile)/ADSL2+ Dual Mode, GbE</th>
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<tr>
<td>Wireless</td>
<td>IEEE 802.11ac, (4x4) data rate: up to 1.7 Gbps, frequency: 5 GHz</td>
</tr>
<tr>
<td></td>
<td>IEEE 802.11n, (3x3) data rate: up to 600 Mbps, frequency: 2.4 GHz</td>
</tr>
<tr>
<td>QoS</td>
<td>Triple-play QoS (802.1p/802.1q/ToS/DiffServ)</td>
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PMG1005-T20B
GPON SFU with 1-port GbE LAN

- Gigabit data access via fiber
- Simple bridge design for flexible deployments
- Field-proven interoperability with Zyxel OLT

**Specifications**

<table>
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<tr>
<th>PON interfaces</th>
<th>1ITU-T G.984–compliant GPON port, GPON Class B+ type PMD specification (ITU-T G.984, G.984.2, G.984.3, G.984.4)</th>
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<td>Functionality</td>
<td>Bridge</td>
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<tr>
<th>LAN</th>
<th>10/100/1000 Mbps Giga Ethernet port</th>
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<tr>
<td>Management</td>
<td>OMCI</td>
</tr>
<tr>
<td>Power supply</td>
<td>100 to 220 V, 12 V DC/0.5 A</td>
</tr>
</tbody>
</table>
PMG3000-D20B
Gigabit GPON SFP-TYPE SFU

• One GPON WAN port with SC/APC connector
• Class B+ optics
• Complies with ITU-T G.984.1, G.984.2, G.984.3, G.984.4 and G.984.5 standards
• One SFP Electrical Footprint with MSA compliance
• Single fiber BiDi SC/APC receptacle

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<td>MSA SFP interface</td>
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Functionality | Bridge only |
Management | OMCI |

PMG5622GA/PMG5617GA
Dual-Band Wireless AC/N GPON HGU with 4-port GbE LAN

• Unlimited possibility with GPON fiber
• Lower OPEX with Zyxel OMCI & APS
• Superior coverage with unique concurrent dual-band wireless circuit design
• Zyxel OPAL firmware realizes the flexibility and faster time to market
• RF overlay enables traditional CATV video services through the GPON network (PMG5622GA)

Specifications

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<th>WAN connection</th>
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<td>IEEE 802.11ac/a/n, (2x2) data rate: up to 866 Mbps, frequency: 5 GHz</td>
<td>SIP (RFC3261)</td>
</tr>
<tr>
<td>IEEE 802.11b/g/n, (2x2) data rate: up to 300 Mbps, frequency: 2.4 GHz</td>
<td></td>
<td></td>
</tr>
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</table>

Security & Firewall | SPI firewall, MAC/IP/URL addresses filtering |
Networking | 802.1p (at least 8 priority queues), 802.3x flow control, IGMP v1/v2/v3, IGMP snooping, fast leave, NAT/ NAPT, DHCP Client/Server/ Relay, RIP I/II, ALG (SIP, RTSP), UPnP, DDNS/ DNS server/DNS client |
Management | Standard OMCI (G.984.4), PLOAM, TR-069, Zyxel Auto-Provisioning |
### GES2104-R55/A55

4-port Environmental-Hardened G.fast DPU

- G.fast with G.vectoring and VDSL2 fallback
- Environmental harden for flexible installation
- Reverse Power Feeding (RPF) or AC power
- Persistent Management Agent (PMA) for off-line management

#### Specifications

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<tr>
<th>Network interfaces</th>
<th>4 x quick connector for G.fast ports, 1 x SFP slot</th>
</tr>
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<tr>
<td>G.fast data throughput</td>
<td>Up to 1 Gbps for upstream and downstream aggregate</td>
</tr>
<tr>
<td>G.fast function</td>
<td>G.INP support, US/DS ratio configurable, on-line reconfiguration, UPBO, VDSL fallback</td>
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#### Management

- Web GUI, Telnet, FTP, CLI, SNMP, SSH, EMS support

#### System functions

- Band plan support, DHCP server/relay, VLAN, VLAN stacking, MVR, port mirroring, static route, IGMP, 802.1x RADIUS

#### Quality of Service

- 802.1p (8 priority queues per port), traffic shaping, rule-based bandwidth management, storm control, ACL, DSCP to 802.1p mapping, 802.3x flow control

### GES1116-FSA

16-port Temperature-Hardened G.fast DPU with Built-in Splitter

- G.fast with G.vectoring and VDSL2 fallback
- Temperature harden for flexible installation
- Flexible uplink interface
- Complete QoS for service differentiation

#### Specifications

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<tr>
<th>Network interfaces</th>
<th>2 x Telco-50 for up to 16 G.fast ports, 2 x 1/2.5/10 Gbps SFP uplink open slots</th>
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<tr>
<td>VDSL data throughput</td>
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<td>G.INP support, US/DS ratio configurable, on-line reconfiguration, UPBO, VDSL fallback</td>
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<td>Redundancy</td>
<td>802.3ad link aggregation, 802.1W RSTP, 802.1D STP</td>
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#### Management

- Web GUI, Telnet, FTP, CLI, SNMP, SSH, EMS support
XMG3927-B50A
Dual-Band Wireless AC/N G.fast Gateway

- G.fast supports up to bandwidth 106 MHz
- VDSL2 supports super vectoring up to profile 35b
- AC2400, dual-band WiFi with 1.7 Gbps 802.11ac 4x4 Wave 2 technology delivering performance boosts for video streaming and IPTV
- Remote management through TR-069/TR-181 issue-2

Specifications

| WAN connection | VDSL2 (up to 35b profile)/ADSL2+ Dual Mode, GbE |
| Wireless       | IEEE 802.11ac, (4x4) data rate: up to 1.7 Gbps, frequency: 5 GHz, IEEE 802.11n, (3x3) data rate: up to 600 Mbps, frequency: 2.4 GHz |
| QoS            | Triple-play QoS (802.1p/802.1q/ToS/DiffServ) |

VoIP
- SIP v2 (RFC 3261), 2 VoIP POTS phone ports, codecs: G.711, G.729a/b (optional), G.722, T.38 fax relay, supplementary services (Call transfer, call waiting, 3-way calling, etc.)

Security & Firewall
- SPI, content filtering

Management
- TR-069, TR-098, TR-181 i2 and TR-111

VMG8825-B50A/B60A
Dual-Band Wireless AC/N VDSL2 IAD with USB

- VDSL2 supports super vectoring up to profile 35b
- AC2400, dual-band WiFi with 1.7 Gbps 802.11ac 4x4 Wave 2 technology delivering performance boosts for video streaming and IPTV
- Supports VoIP SIP protocol with 3-way conference calls
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