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# GPON ONT G-97RG3M Platform Briefing

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VERSION 3

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*Partnership for the Next Generation Broadband CPE*

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## ■ Overview

To deliver triple-play services to the subscriber in Fiber-to-the-Home or Fiber-to-the-Premises application, the GPON RGU (Residential Gateway Unit) G-97RG3M incorporates interoperability, key customers' specific requirements and cost-efficiency.

Equipped with ITU-T G.984 compliant 2.5G Downstream and 1.25G Upstream GPON interface, G-97RG3M supports the full Triple Play of services including voice, video, and high speed internet access service.

Compliant with standard OMCI definition, G-97RG3M is manageable at remote side and supports the full range FCAPS functions including supervision, monitoring and maintenance.

## ■ Services

### Data

The GPON RGU is delivered with four 10/100/1000 Base-T Ethernet data interfaces, supporting:

- Auto-negotiation and MDI/MDIX auto-sensing
- Built-in layer-2 switch
- Advanced data features such as VLAN tag manipulation, classification, and filtering
- Built-in layer-3 routing and residential gateway
- 802.11 b/g/n WLAN interface
- USB 2.0 storage

### Voice

The G-97RG3M ONT can optionally be delivered with up to two POTS interface ports for carrier-grade voice services, supporting:

- 3 REN per line, balanced Ring at 55V RMS, DTMF dialing and pulse dialing
- Multiple voice codec
- Echo Cancelling, VAD, CNG
- Supporting static or dynamic jitter buffer
- Various CLASS services - Caller ID, Call Waiting, Call Forwarding, Call Transfer, etc.
- SIP (RFC3261)
- MEGACO v2 (H.248)
- Common architecture, drop-in replacement

To enable VoIP access, the G-97RG3M ONT also supports interfacing external IAD box or Home Router with voice capability through the Ethernet Interface.

### Video

The G-97RG3M ONT supports delivered in form of data (by multicast or unicast).

In case where multicast technology is used for delivering video contents through data channel, the ONT

supports the dedicated multicast GEM port on the Downstream. So the video contents are received and processed by all the ONTs through the unified channel and this greatly improves the bandwidth efficiency.

In addition, the ONT supports IGMP snooping function to be applied for further optimization. When IGMP snooping is enabled, the ONT monitors the member joining and leaving activities at the Ethernet service port, and then selectively delivers the multicast streams.

## ■ Interfaces

Product	10/100/1000 Base-T Interface	POTS Interface	Wi-Fi Interface	USB Interface
G-97RG3M	4	2	1	1

## ■ Specifications

### Dimensions

- 180mm x130mm x 33.8mm

### Power Supply

- +12V (feed via external AC/DC adapter)
- 2-PIN power adaptor input
- Dying Gasp support
- Power switch
- Power Consumption: less than 10W

### Working Environment

- Temperature: 0°C ~ 40°C
- Humidity: 5% ~ 95% relative humidity

### Safety & EMI

- CE certificate
- FCC/UL compliant

### Installation

- Desktop mounting & wall mounting

### GPON Interface

- Compliant with ITU-T G.984 GPON standards
- SFF type laser, SC/APC connector
- CIG patented BoSA on board optical solution
- 1.244 Gbps Burst Mode Upstream Transmitter

- 2.488 Gbps Downstream Receiver
- Compliant with ITU-T G.984.2 Amd1, Class B+
  - 0.5dBm ~+5dBm launch power, -27dBm sensitivity, and -8dBm overload
- Wavelengths:
  - US 1310nm, DS 1490nm
- Laser compliant with FCC 47 CFR Part 15, Class B, and FDA 21 CFR 1040.10 and 1040.11, Class I, ONT support Class C or Class C+ optics as an option
- Support G.984.5 Blocking Filter as an option
- Multiple T-CONTs per device
- Multiple GEM Ports per device
- Flexible mapping between GEM Ports and T-CONT
- Activation with automatic discovered SN and password in conformance with ITU-T G.984.3
- AES-128 Decryption with key generation and switching
- FEC (Forward Error Correction) in both directions
- DBA reporting by piggyback reports in the DBRu (mode 0 and mode 1)
- 802.1p mapper service profile on U/S

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- Mapping of GEM Ports into a T-CONT with priority queues based scheduling
- Support Multicast GEM port and incidental broadcast GEM port..

## **Ethernet Interface**

- 10/100/1000 Base-T interface with RJ-45 connectors
- Ethernet port auto negotiation or manual configuration
- MDI/MDIX automatically sense
- Hardware priority queues on the downstream direction in support of CoS
- 802.1D bridging
- VLAN tagging/detagging per Ethernet port
- VLAN stacking (Q-in-Q) and VLAN Translation
- IP ToS/DSCP to 802.1p mapping
- Class of Service based on UNI, VLAN-ID, 802.1p bit, and combination
- Marking/remarking of 802.1p
- IGMP v2/v3 snooping and IGMP snooping with proxy report
- Broadcast/Multicast rate limiting

## **Gateway Features**

- Multiple WAN interfaces supporting
- WAN connection
  - Point-to-Point Protocol over Ethernet (PPPoE)
  - Dynamic Host Configuration Protocol (DHCP)
  - Static
- DHCP server for LAN devices
- DNS relay
- Network Address Translation (NAT) / Network Address Port Translation (NAPT)
- Port forwarding
- Static routing
- Traffic classification and QoS based on Layer

3 and Layer 4 Identifier

- Access Control List (ACL)
- VPN Pass thru for Point to Point Tunneling Protocol (PPTP), Layer 2 Tunneling Protocol (L2TP) and IP Security Protocol (IPSec)
- Firewall
- Application Layer Gateway (ALG)
- Demilitarized Zone (DMZ)
- Dynamic Domain Name Server (DDNS)
- Network Time Protocol (NTP)
- Universal Plug and Play (uPnP)
- IGMP proxy
- IPv6
  - Stateless Address Autoconfiguration (SLAAC)
  - DHCPv6
  - PPPoEv6
  - DNSv6

## **WLAN Interface**

- Compliant with IEEE 802.11 b/g/n
- 2.4GHz
- MIMO:2x2
- Multiple SSIDs
- 64 and 128 bit Wireless Encryption Protocol (WEP) support
- Wireless Protected Access support including Pre Shared Key (WPA-PSK)
- Radio switched on/off function Support WPS

## **POTS Interface**

- RJ-11 connectors
- 3-REN
- Balanced Ring, 55V RMS
- DTMF Dialing and Pulse Dialing
- Multiple Codecs:
  - G.711 ( $\mu$ -law and A-law)

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- G.729 (A and B)
- G.723.1
- Echo Cancellation
- Voice Activity Detection and Comfortable Noise Insertion
- SIP (RFC3261)
- MEGACO v2 (H.248)
- SDP (RFC2327)
- RTP (RFC3550/3551)
- DTMF encoding by RFC 2833 or SIP INFO method
- Support various CLASS services - Caller ID, Call Waiting, Call Forwarding, Call Transfer, Call Toggle, Three Way Calling, Distinctive Ringing, etc.
- G.711 for FAX, modem connection
- T.38 FAX
- Configurable dial plan
- Country specific ring tone generation
- DHCP Client or static IP configuration
- Metallic Loop Testing

### USB Interface

- 1 USB Host interface
- Compliant to USB 2.0

- Network storage

### LEDs

- POWER
- LOS
- PON
- LAN1~LAN4
- WPS
- WLAN
- INTERNET
- PHONE1~PHONE2

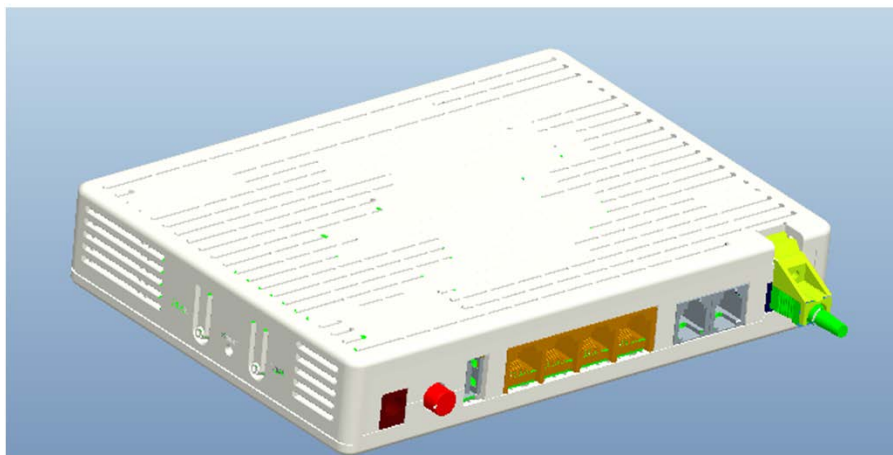
### OAM

- Standard compliant OMCI (the embedded operations channel) interface as defined by ITU-T G.984.4 and G.988
- Compliant to TR-069
- Provisioning all kinds of services including Ethernet, WLAN and VoIP, etc. by subset of TR-098 and TR-104
- Alarming and AVC report, performance monitoring
- Remotely software image download over OMCI, as well as activation and rebooting
- Hold two software sets with software image integrity checking and automatic rollback

## ■ Enclosure

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## ■ Contact Information

**Cambridge Industries USA Inc.**

**2445 Augustine Dr., 6th FL.**

**Santa Clara, CA 95054**

**Tel: +1(408)606-2200**

Email: [nasales@cigtech.com](mailto:nasales@cigtech.com)

**CIG Shanghai Co., Ltd.**

**5/F, Building 8, 2388 ChenHang Road**

**Shanghai, China 201114**

**Tel: +86-21-8023 3300**

Email: [sales@cigtech.com](mailto:sales@cigtech.com)

[www.cigtech.com](http://www.cigtech.com)

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