

Innovative Technology to Support Network Densification



Microsemi PTP Solutions for Telecom Network

TimeProvider ePRTC

TimeProvider 5000

TimeProvider 4100

TimeProvider 2700

IGM-1100

1588/SyncE DPLL

Industry Leading Portfolio of PTP Systems Solutions

Microsemi is the leading provider of IEEE 1588 Precision Time Protocol (PTP) solutions for communications networks. The industry leading TimeProvider Family has been deployed in over 400 networks worldwide, and continues to expand with high capacity innovative solutions. As networks move to adopt phase synchronization, Microsemi has expanded the product line to address not only the network demands of today, but also of the future.

Core



TimeSource ePRTC

Generates time by producing its own time scale and delivers an autonomous, secure, and fault-tolerant reference for time, frequency, and phase synchronization.



TimeProvider® 5000

Fully redundant, carrier-grade IEEE 1588 PTP grandmaster with NTP, SyncE, and multiple other options.

Access



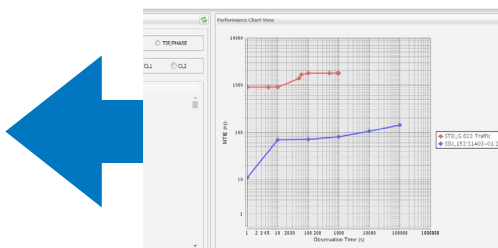
TimeProvider® 4100

Gateway Clock that accepts inputs from GNSS systems, SyncE, PTP, and E1/T1 digital transmission links and provides highly flexible fanout of PTP, SyncE, NTP, and E1/T1 synchronization references.



TimeProvider® 2700

PTP grandmaster clock designed for the edge to meet the stringent timing requirements of 4G/LTE networks.



TimePictra 10: End-to-End Next-Generat

TimePictra enables customers to assure that their networks keep performing within their SLAs when something goes wrong. TimePictra, along with Microsemi's scalable PTP clocks, builds a highly resilient network with backup methods that always deliver phase synchronization.

Scalable From Core to Edge to Support Demanding Applications

PTP Sync packets flow from grandmaster clocks over high speed network feeds to PTP slave clocks in application end points such as DOCSIS 3.1 remote PHY devices, or advanced wireless base stations. Microsemi solutions are field proven to meet the most stringent timing requirements today for DOCSIS 3.1, and LTE-Advanced wireless networks. Microsemi products are designed to be secure, reliable, and scalable to deliver robust field performance.

Edge



Indoor
IGM-1100i
IGM-1100x



Outdoor
IGM-1100o

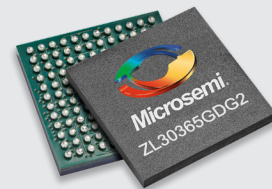
Small form-factor IEEE 1588 PTP grandmasters that deliver a cost-effective, precise timing master at the edge of the network. Ideally suited for applications such as small cells and backhaul to eNodeBs for wireless service delivery at the network edge

Applications

LTE-Advanced
5G
eNodeBs
DOCSIS



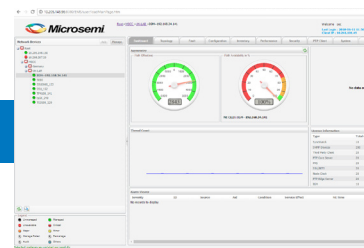
Integrated Chips



1588/SyncE DPLL

Industry's broadest timing portfolio focused on synchronization of packet networks and OTN systems.

ion Synchronization Management System



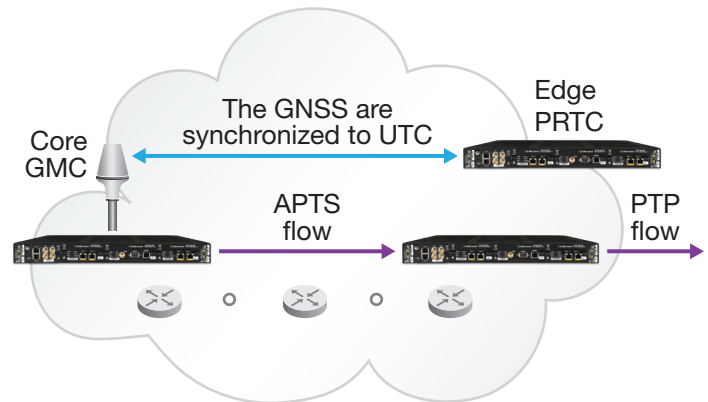
TimePictra provides the end to end synchronization network management including key PTP performance monitoring such as link asymmetry and Floor Packet Percentage (FPP) on a real-time basis. All this in the form of easy-to-read and actionable graphics.

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Assisted Partial Timing Support (APTS) with Automatic Asymmetry Compensation (AAC): A Microsemi Advantage!

APTS allows the Edge clocks needed to support densification in LTE and 5G networks to rely on the already deployed core PTP clocks for network based back up to protect against localized GNSS outages.

Microsemi uses a patented technology called automatic asymmetry compensation (AAC) in which APTS (using AAC) synchronizes the time/phase of the edge PRTC with the core PRTC using the PTP APTS back up flow. The edge PRTC uses it's local GNSS reference to profile and calibrate out the network asymmetry based timing errors to allow it to be used as an accurate and calibrated synchronization back up if the local GPS is lost at any time.

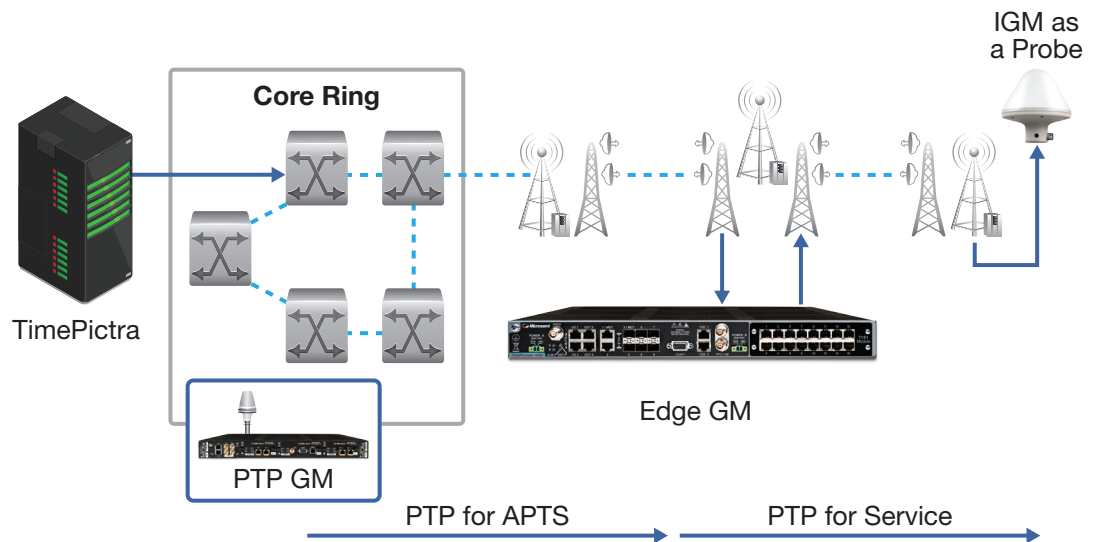


IGM as a Smart Probe in Real-Time Network Monitoring

The IGM portfolio is a smart antenna bundled with a 1588v2 grandmaster. It offers the same ability to distribute time from GPS/GNSS, but also offers the ability to leverage Ethernet rather than COAX cabling for a much more scalable and cost-effective solution. It offers backup in case the GPS signal goes down, management capabilities (including monitoring), and the ability to evolve with standards—to serve legacy base stations and also new technologies.

Some advantages include:

- Verification of network timing SLAs on a real-time basis with historic data for 1 year
- Full monitoring of GNSS
- APTS with phase asymmetry correction
- Densification and 5G capable (Ethernet)
- Full and multiple PTP profile support
- Location, automation, SDN



Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo, CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Fax: +1 (949) 215-4996
Email: sales.support@microsemi.com
www.microsemi.com

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