TimeProvider® Expansion Platform

Key Features
- Expands TimeProvider 5000 PTP Grandmaster system capabilities
  - Simultaneous PTP and SyncE support
  - Aligned with ITU-T G.8275.1 standard for time and phase profile
  - E1/2.048MHz and 1PPS/TOD
- Rack and stack architecture
- Carrier grade design
  - Redundant shelf connections
  - High precision DTI interconnection
  - Dual power inputs
- Hardware-based packet processing
- SNMP and CLI management

Key Benefits
- Supports evolving network needs for frequency, phase, and TOD synchronization
- Add capabilities and capacity only if and when needed
- Supports both FDD (frequency division duplex) and TDD (time division duplex) at 4G/LTE mobile sites

Applications
- 2G, 3G, 4G/LTE mobile networks
- Carrier Ethernet networks
- Circuit Emulation Service (CES)
- Passive Optical Networks (PON)
- WiMax

With the rapid transition from traditional TDM networks to IP-based technologies, the IEEE 1588-2008 Precision Time Protocol (PTP) has been widely adopted for packet network synchronization. Network evolution, particularly in mobile backhaul applications, has driven new demands on the timing systems being deployed. The TimeProvider® Expansion platform dramatically expands the synchronization capabilities of Microsemi’s TimeProvider portfolio. Deployed in a “rack and stack” configuration with the TimeProvider 5000 IEEE 1588 Grandmaster, these products provide a flexible technology suite to match the needs of rapidly changing networks.

TimeProvider Expansion 10 adds Ethernet ports that support SyncE as well as PTP, allowing mobile operators, for example, to synchronize the backhaul network with SyncE while delivering PTP to base station end points.

TimeProvider Expansion 30
Even as networks transition, the requirement remains to synchronize elements using the frequency and interfaces of the traditional TDM network. The TimeProvider Expansion 30 has 12 1PPS/TOD output ports and 12 E1/2.048MHz output ports — allowing carriers to provide synchronization for all of their equipment from one TimeProvider stacked configuration.

TimeProvider Expansion units can be managed remotely and locally via CLI or by SNMP.
TimeProvider® Expansion Platform

Specifications

TimeProvider Expansion 10 Ethernet Expansion Shelf – PTP/SyncE

OUTPUTS
- 16x GigE output, SFP- Electrical or Optical

TimeProvider Expansion 30 E1 & PPS/TOD Expansion Shelf

OUTPUTS
- 12x1PPS+TOD, RJ45 connector
- 12xE[2.048 Mbps and 2.048MHz], SMB connector

OUTPUTS
- 12xE1[2.048 Mbps and 2.048MHz], SMB connector
- 12x1PPS+TOD, RJ45 connector

TIME ACCURACY
While connected to the TimeProvider 5000 main shelf:
- Tracking to GPS: PRS/PRC quality
- Holdover (over constant temperature):
  - Rubidium [Type II]: <1x10^-11)/day
  - Quartz [Type I]: <1x10^-8)/day

TIME ACCURACY
While connected to the TimeProvider 5000 main shelf:
- Tracking to GPS: <100 ns when locked to GPS
- Holdover (over constant temperature):
  - Rubidium [Type II]: 10 µsec over 5 days
  - Quartz [Type I]: 10 µsec over 1 day

FREQUENCY ACCURACY
While connected to the TimeProvider 5000 main shelf:
- Tracking to GPS: PRS/PRC quality
- Holdover (over constant temperature):
  - Rubidium [Type II]: <1x10^-11)/day
  - Quartz [Type I]: <1x10^-8)/day

POWER REQUIREMENT
- TimeProvider Expansion 10 Ethernet/SyncE
  - 38.4VDC to -75VDC @ 20 Watts, typical consumption
- TimeProvider Expansion 30 E1 & PPS/TOD
  - 38.4VDC to -75VDC @ 40 Watts, typical consumption

ENVIRONMENTAL SPECIFICATIONS
- Operating temperature: -5°C to +55°C
- Storage temperature: -40°C to +70°C
- Humidity: 5% to 100% w/condensation

PROTOCOLS
- IEEE 1588-2008 [PTP]
- Synchronous Ethernet
- VLAN
- G.703, 0.704 [E1, 2.048MHz]

MANAGEMENT
(Through TimeProvider 5000 main shelf)
- CLI – TELNET, SSH
- SNMP v2c, v3

CERTIFICATIONS
- CE certified
- CISPR22
- Safety – CB Scheme 60950-1 2nd edition
- EMC
  - FCC part 15 AS/NZS Class B, EN300 386, EN55022/24, CISPR22, KN55022/24
  - NEBS GR-1089 section 2 and 3
- ENVIRONMENTAL
  - ETSI (EN55022/EN55024) EN300019, Class T3.2
  - NEBS GR-1089 section 2 and 3
- Safety
  - UL/UL 60950-1, IEC 60950-1/CB, EN60950-1 2nd edition
- RoHS
  - 6 of 6 RoHS

PHYSICAL SPECIFICATION
- Dimensions: 44mm H x 483mm W x 236mm D
  [1.75” H x 19” W x 9.37” D]
- Weight: 8.4 lbs