TimeFabric™ Holdover Extension

Scalable 24-Hour Holdover for Reliable Network Synchronization

Up to 24 hours of holdover with no hardware modifications to SiT5811

2X longer holdover extensions on all SiTime OCXO and TCXO platforms

Platform agnostic, scalable software solution

Holdover is essential for maintaining accurate timing during GNSS signal loss or reference clock failure. Without reliable holdover, networked systems risk desynchronization, dropped packets, and degraded service. Infrastructure such as centralized units in 5G RAN, datacenter time servers, and core routers require local oscillators with long-duration stability to ensure uninterrupted operation. The SiTime TimeFabric™ Holdover Extension delivers a scalable, software-driven approach that extends holdover performance up to 24 hours—without increasing size, power consumption, or hardware complexity.

Benefits

- Maintains synchronization during GNSS or PTP outages for up to 24 hours
- Supports service continuity across multi-node infrastructure
- Avoids costly redesigns by extending holdover without hardware upgrades
- Improves reliability in temperature- and airflow-sensitive environments
- Accelerates deployment with a software-driven upgrade path

Applications

- Datacenter switches, NICs, and primary reference time servers
- 5G centralized units (CUs) and distributed units (DUs)
- Core and edge routers in carrier and enterprise networks
- Industrial automation, robotics, and edge computing systems
- Aerospace and defense timing subsystems requiring local holdover

Features

- Software-enabled 24-hour holdover under real-world operating conditions
- Adaptive drift compensation via I²C digital interface
- ±1.5 µs time error over extended (24-hour) holdover
- ±0.01 ppb/°C frequency slope ensures industrial-range temperature stability
- Provides 5E-14 frequency pull resolution for precise compensation
- 0.01 ppb/day aging; 4E-12 HDEV at 10-second averaging time
- No activity dips or microjumps; stable under dynamic environmental conditions
- Support for existing SiT5811/SiT5812 (Epoch OCXOs) and SiT7101 (Endura Epoch OCXO)
- Feature support to be available on all SiTime OCXO and TCXO platforms

TimeFabric™ Holdover Extension

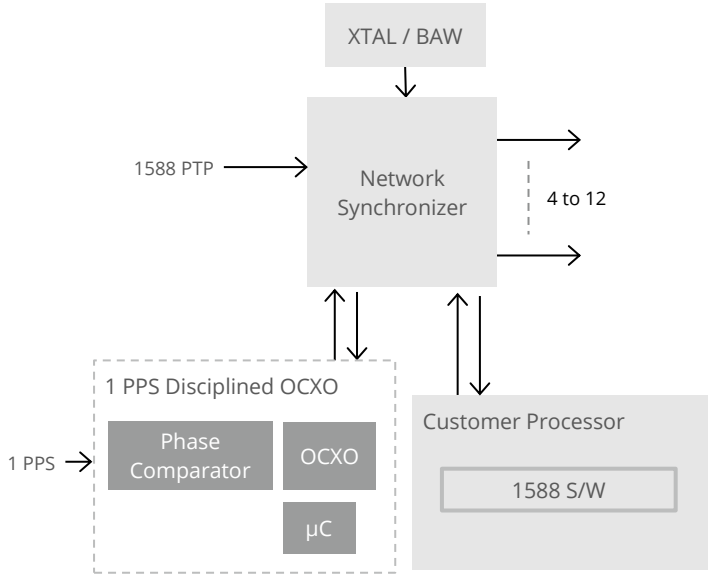
Scalable 24-Hour Holdover for Reliable Network Synchronization

Reliable Sync With Industry Leading Holdover – 25X Smaller, 3X Lower Power

Legacy Holdover Solution

Large and power hungry 1PPSDO

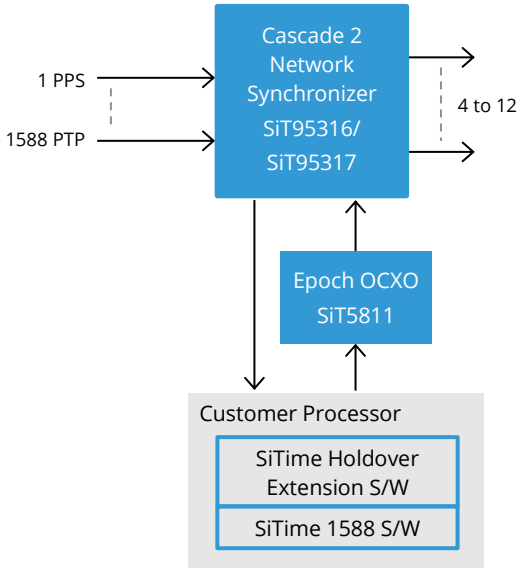
External XTAL/BAW



SiTime Holdover Solution

OCXO 25X less volume and 3X lower power

No XTAL/BAW



Compatible Hardware Platforms

TimeFabric™ Holdover Extension works with the following SiTime components:

SiT5811 | SiT5812 | SiT7101 Epoch OCXO

Alcom electronics
A STELIAU TECHNOLOGY COMPANY

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SiTime is a leader in MEMS timing solutions. We combine innovative MEMS and programmable analog technologies with our systems expertise to deliver industry-best products that overcome the limitations of legacy quartz products. Our configurable products provide ultra-stable timing that enables customers to differentiate their systems with higher performance, small size, and better reliability.