SiTime MEMS timing benefits

Complete MEMS clock tree
- Precision MEMS TCXO
- Stratum 3E MEMS OCXO
- MEMS clock IC/PLL

Most robust in real world conditions
- 4x better dF/dT for accurate IEEE 1588
- Resistant to airflow, heat, vibration
- Smart clock monitoring and hit switching for redundancy

Integrated MEMS, easy to use
- No external quartz
- No quartz reliability issues
- No cover or shielding needed

Top-of-the-Rack or Chassis (Timing Card) Based Switch

- Elite Super-TXCO SiT535x
  or Emerald OCXO SiT57xx
- SyncE

- Cascade Network Synchronizer SiT95147/8
- IEEE 1588 Processing

Fronthaul or IP RAN switch

- **SiT535x**: Super-TXCO
  - Reference clock for jitter cleaner and IEEE 1588
  - 1 to 220 MHz, ±100 ppb, ±1 ppb/°C 105°C

- **SiT57xx**: OCXO
  - 1 to 60 MHz, ±5 ppb, ±0.04 ppb/°C

- **SiT9514x**: Network synchronizer, jitter cleaner
  - Ethernet, processor
  - 4-in, 11-out, 4-PLL, 8 kHz to 2.1GHz

- **SiT9501, SiT936x**: Differential XO
  - Ethernet, FPGA
  - 1 to 725 MHz, 0.07 to 0.25 ps jitter, 105°C
MEMS Timing Outperforms Quartz

Better Stability

- Emerald OCXO
  - +3 ppb
  - -3 ppb

Temperature (°C)
Frequency Stability (ppb)

Better Frequency Slope

- Emerald OCXO
  - +0.1 ppb/°C
  - -0.1 ppb/°C

Temperature (°C)

Better Vibration Resistance

- Quartz TCXO
  - -120 dBc/Hz
- Elite Super-TCXO
  - -160 dBc/Hz

Frequency Offset (Hz)
Phase Noise (dBc/Hz)

Better Aging

- Emerald and Elite Oscillators
  - 20 Year

Frequency at 105°C (ppb)
Aging Time (hr)

Better Allan Deviation

- Quartz TCXO
  - 38x
- Elite Super-TCXO
  - 2x

ADEV
Averaging Time τ (s)

Better PSNR (Power Supply Noise Rejection)

- Elite Differential Oscillator
- Quartz Differential Oscillator

Jitter (ps/mV)
Injected Noise Frequency (Hz)

Learn more about SiTime's Comms-Enterprise timing solutions

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