SiTime MEMS Timing Benefits

Precision Timing

- 50x better acceleration sensitivity
- ±0.5 ppm up to 105°C
- No activity dips

Most Robust in Harsh Conditions

- 20x better mechanical shock survivability
- 4x better vibration resistance
- Extended operating temperature range
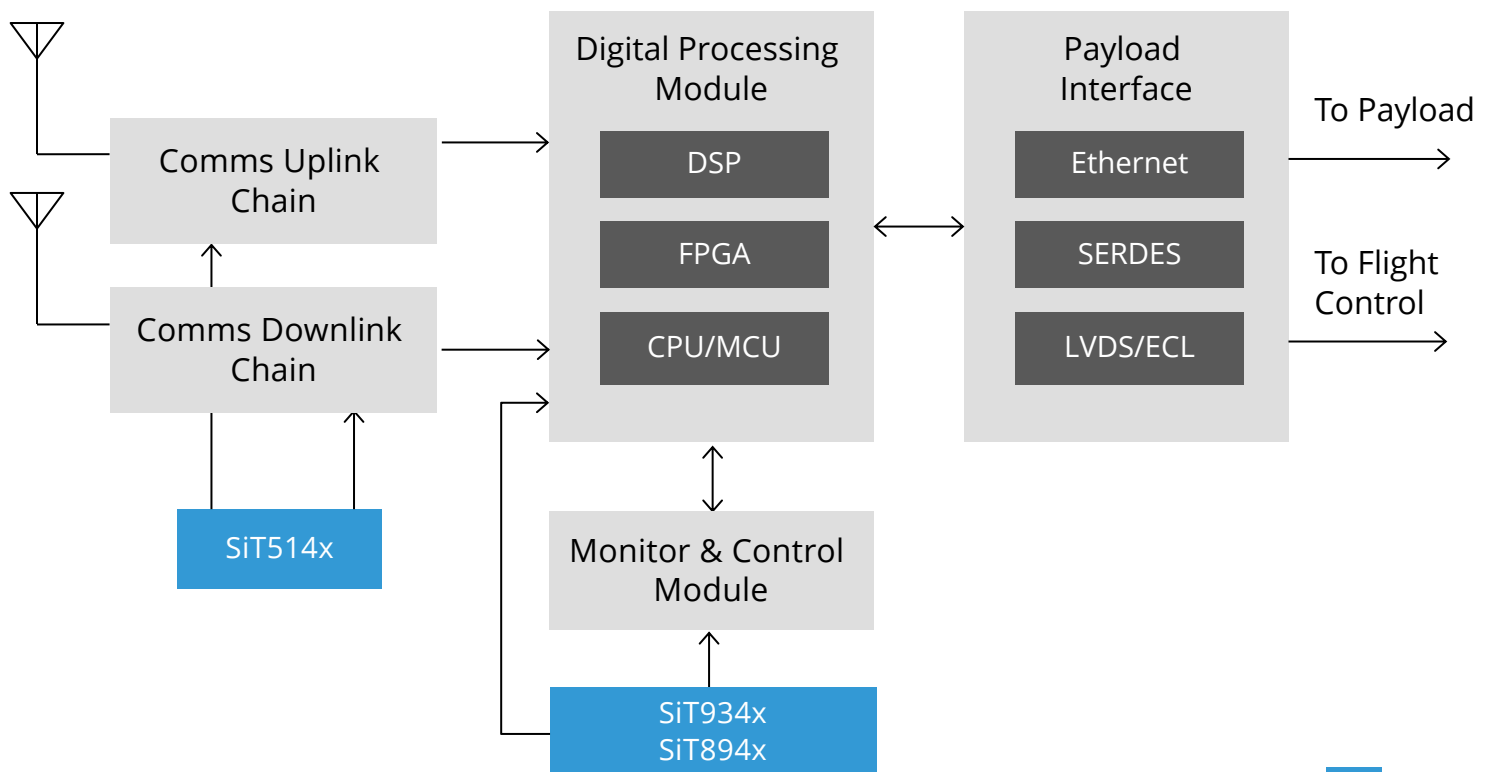
Higher Reliability

- Conforms to MIL-PRF-55310
- No quartz reliability issues
- No cover or shielding

With closer proximity to earth, low earth orbit (LEO) satellites provide lower latency and higher bandwidth compared to a geostationary satellite. LEO satellites offer efficient data transmission with high data transfer rates, stronger signal strength, and lower signal attenuation.

To achieve this, they depend on ruggedized reference clocks for uplink/downlink comms and clocking the processor. The timing components must withstand high levels of vibration during launch and continued extreme temperature variations in orbit. If timing fails, receivers lose lock to satellites and navigation systems won't receive critical data.

SiTime ruggedized Endura™ timing solutions are built to operate in harsh environments, overcoming the inherent weaknesses of quartz and delivering low failure rates, long-term reliability, and robust performance.

Block Diagram

Type	Product	Frequency	Key Features	Key Values
Super-TCXOs	SiT5146	1 to 60 MHz	• ±0.5 to ±2.5 ppm stability • 0.004 ppb/g, ±15 ppb/°C	• Reference clock for uplink/downlink comms
	SiT5147	60 to 220 MHz		
Differential XOs	SiT9346	1 to 220 MHz	• ±10 to ±50 ppm stability • 0.1 ps RMS phase jitter	• DSP, FPGA & processor clocking
	SiT9347	220 to 725 MHz		
LVCMOS XOs	SiT8944	1 to 110 MHz	• ±20 to ±50 ppm stability • -55°C to 125°C	• DSP, FPGA & processor clocking
	SiT8945	115 to 137 MHz		

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