

Precision Timing in Endoscopes

With minimal downtime for patients compared to invasive surgical procedures, endoscopy has found use in a wide variety specialties. An aging population, sport injuries, rising cases of chronic diseases and the large number of specialties using endoscopes are major contributors to the growth of this segment.

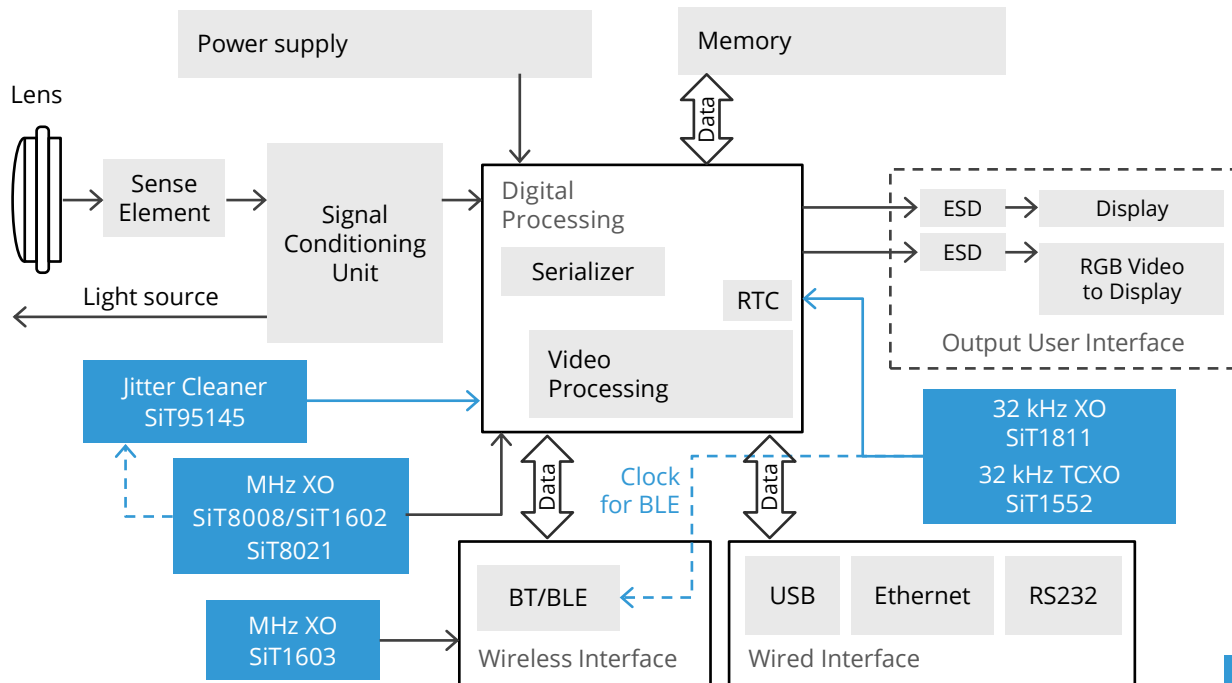
Key Considerations

- Precision timing for camera and DSP
- Reliable performance across environmental conditions
- Rugged and resilient
- Compact footprint

Endoscopes come in different shapes and sizes as indicated below. All types require a camera, a DSP, and a display. Additionally, capsule endoscopes require a wireless interface.

- Rigid endoscopes
- Disposable endoscopes
- Flexible endoscopes
- Robot assisted endoscopes
- Capsule endoscopes

Block Diagram



SiTime advantages:

SiTime devices offer the following advantages over quartz, which are particularly important for medical:

- Up to 2x better stability, 10x lower jitter in the presence of PCB noise
- Performance with EMI up to 50x better
- 30x better shock and vibration resistance
- Industry-leading small package sizes down to 1508 CSP

Featured products – please refer to [SiTime.com](https://www.sitime.com) or [contact us](#) for more options.

Type	Product	Frequency	Key Features	Key Values
Jitter cleaner	SiT95145	8 kHz to 2.1 GHz	<ul style="list-style-type: none"> -40°C to +85°C ±45 ppm stability Fully configurable outputs 10 differential or 20 LVCMOS outputs 4 differential inputs 	<ul style="list-style-type: none"> High reliability Stable output, no frequency jumps Excellent immunity to system noise Integrated resonator avoids XTAL capacitive matching issues
MHz oscillator	SiT8008	1 to 110 MHz	<ul style="list-style-type: none"> -40°C to +85°C ±20 ppm stability 5 std package sizes 	<ul style="list-style-type: none"> High reliability Flexible frequency options Excellent stability over temperature
	SiT1602	52 std freqs from 3.57 to 77.76 MHz		
	SiT8021	1 to 26 MHz	<ul style="list-style-type: none"> -40°C to +85°C ±50 ppm stability 1.5 x 0.8 CSP package 	<ul style="list-style-type: none"> High reliability Extended temperature range Small footprint Wide programmable freq range
	SiT1603 ¹	8 to 76.8 MHz (various specific frequencies)	<ul style="list-style-type: none"> -40°C to +85°C ±25 ppm stability 2 mA current consumption 0.75 fs rms phase jitter 	<ul style="list-style-type: none"> High reliability Low power Various standard package options
32.768 kHz oscillator	SiT1811 ¹	32.768 kHz	<ul style="list-style-type: none"> ±20, ±50 ppm stability 1.14 to 3.3 V supply 490 nA current consumption Up to -40°C to +105°C 1.2 x 1.1 mm QFN 	<ul style="list-style-type: none"> Low power Small footprint Excellent stability
32.768 kHz TCXO	SiT1552	32.768 kHz	<ul style="list-style-type: none"> ±5, ±10, ±20 ppm stability 1 µA current consumption Up to -40°C to +85°C 1.5 x 0.8 CSP package 	<ul style="list-style-type: none"> Small footprint Excellent stability

¹ Please [contact SiTime](#) for availability.



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