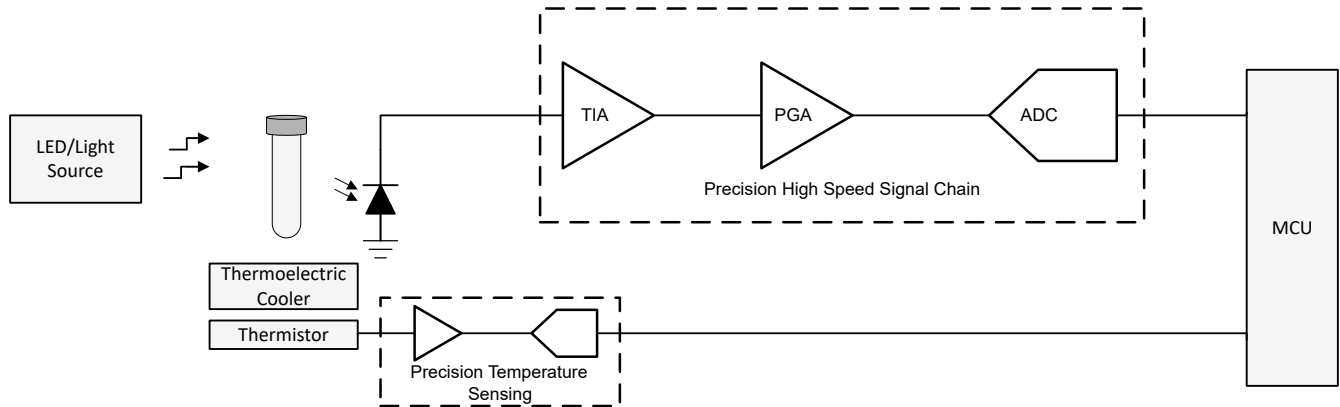


Jiyah Starks



Example: Optical Signal Chain Block Diagram

Precision Optical Receiver Discrete Design

In-Vitro Diagnostics (IVD) utilizes blood, fluids, and tissue to detect diseases or medical conditions in patients. IVD equipment has many different uses throughout the healthcare industry, spanning hundreds of different equipment types such as: Immunoassay, polymerase chain reaction (PCR) and quantitative PCR (qPCR) analyzers, and Fluorescence Flow Cytometer. Despite this wide range of clinical uses, the electrical subsystems of many equipment use the analysis of light for measurements.

Design Considerations

- qPCR tests require a sensitive limit of detection (LoD) to maintain that the patient is being properly diagnosed.
- Higher channel count ADCs with smaller packages achieve more samples per reaction increasing the throughput and multiplexing capabilities.

What are the Key Specifications for Analog-to-Digital Converters (ADCs) in IVD?

- High Precision and Resolution: Highly accurate ADCs with a wide bandwidth are crucial to capture the subtle variations being measured during IVD test.
- High Sampling Rate: The ADC must have enough speed to capture the real-time fluctuations in the output signal.
- Low Noise: IVD systems require minimization of noise to maintain accuracy of the measurements.

Need additional assistance? Ask our engineers a question on the TI [E2E™ Data Converters Support Forum](#).

Recommended Parts

Part Number	Channel Count	Resolution	Sampling Rate (kSPS)	Input Type	Features
Optical Signal Chain					
ADS9217	2	18	5000	Differential	Integrated ADC Driver, Precision Reference, Common-mode Voltage Output Buffer, Wide Bandwidth
ADS9110	1		2000	Differential	Daisy Chainable, Internal Oscillator
ADS8900B	1	20	1000	Differential	Internal Oscillator
ADS7066	8	16	250	Single-ended	GPIOs, Programmable Averaging Filters, Low Leakage MUX with Channel Sequencer
ADS7067			800		
ADS127L11	1	24	400	Differential Pseudo-differential Single-ended	Internal Oscillator, Wide Bandwidth
Temperature Sensing					
ADS124S08	12	24	4	Differential Single-ended	Integrated PGA, Integrated IDACs, Internal Reference and Temperature Sensor
ADS1220	4		2		

For more devices, browse through the [online parametric tool](#) where you can sort by desired sampling rate, channel count, and other features.

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