Texas Instruments

ADS5500: 14-Bit, 125-MSPS ADC. Next-Generation Performance. Today.

Features	
Specifications	**ADS5500**
Resolution	14 bits
Speed	125 MSPS
SNR	70 dB
SFDR	82 dB
Total Power	750 mW
Single Supply	3.3 V
Input Bandwidth	750 MHz
Availability	Today!

Performance at 100-MHz input frequency, typical values.

The **ADS5500** gives designers high resolution and performance at 125 MSPS with dramatic power savings—today.

Burr-Brown Products from Texas Instruments

Texas Instruments introduces the next generation of analog-to-digital converters (ADCs), offering designers outstanding performance of 14 bits at 125 mega-samples per second (MSPS), while consuming only 750 mW of power.

Available now—the unmatched performance at 125 MSPS allows increased system capabilities in advanced communications, industrial, test and measurement, medical, and video and imaging applications, while lowest total power dissipation (750 mW) reduces operating costs and enables design architectures never previously considered.

Key Applications Include:*

Industrial, Test and Measurement:

- Extends signal analysis capabilities
- Simplifies test equipment signal chain

Wireless Communications:

- Improves receiver performance
- Saves system costs

Medical Equipment:

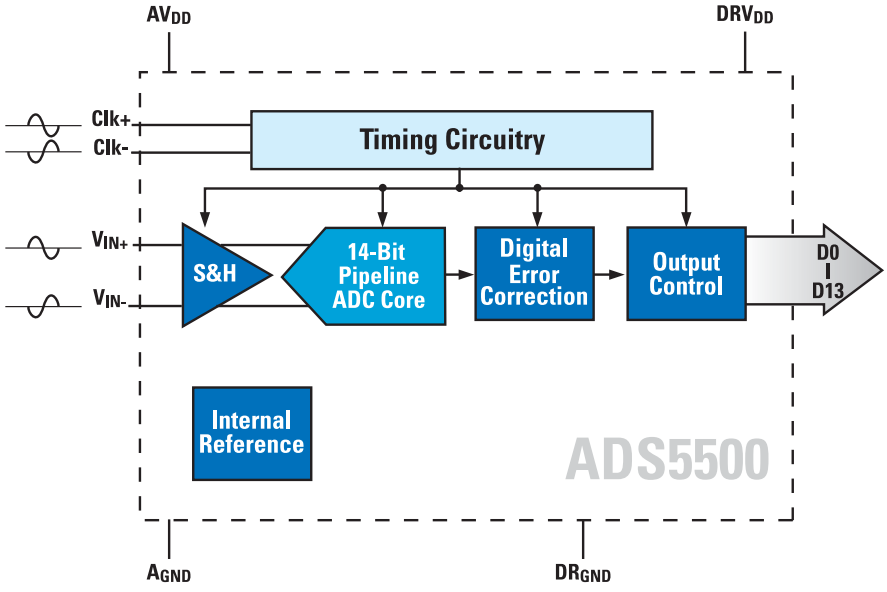
- Provides more precise MRI scanning and lower magnetic fields

Video and Imaging:

- Enables higher quality imaging capabilities

And Many Others

Inside the ADS5500



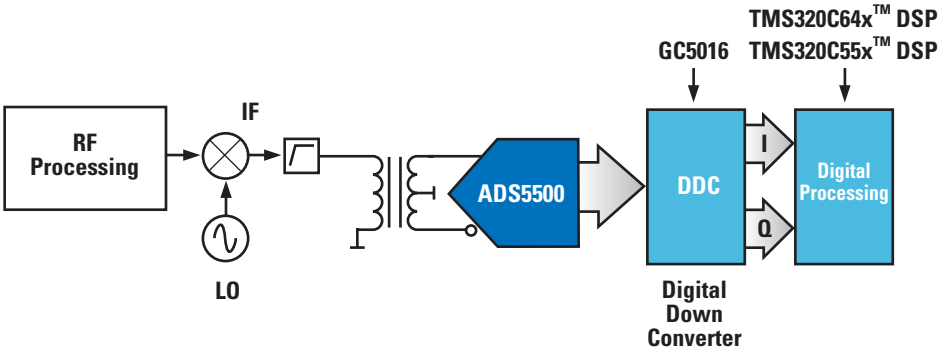
*System and equipment manufacturers are responsible for ensuring that the overall design meets all safety and other requirements for their applications that incorporate TI devices.

14Bits 125

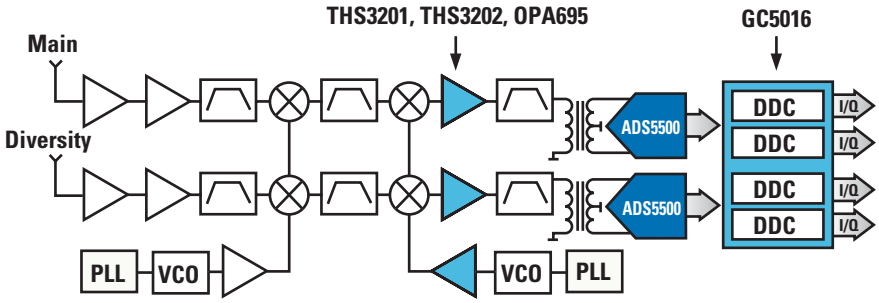
ADS5500 in Action

Application Highlight: Wireless Communications

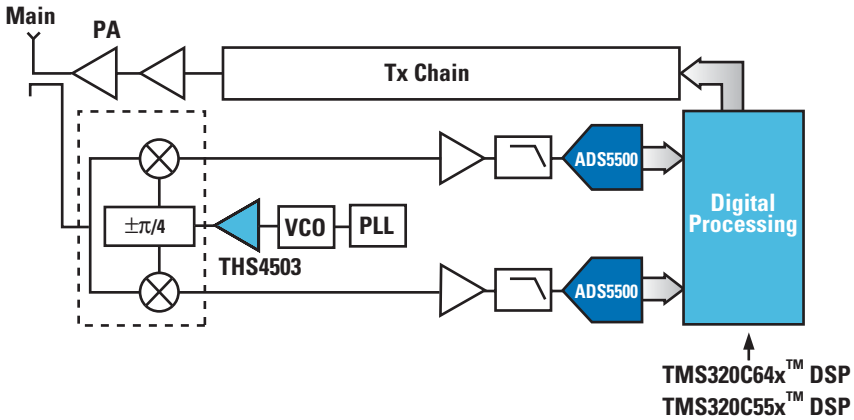
ADS5500 in a Software-Defined Radio Application



ADS5500 in a Multicarrier Receiver



ADS5500 in a Power Amplifier Linearization Application



The **ADS5500** is designed for use in communication systems. The key ADS5500 performance benefits for these systems are wide dynamic range, wide input bandwidth and high sampling rate. The high sampling rate also can simplify the analog input circuitry for these systems, saving board space and cost.

Software-Defined Radio

Software-defined radio (SDR) requires a high-speed ADC that samples the input IF signal at a rate that is much greater than the signal bandwidth. This oversampling is used to improve signal quality and, along with the digital down converter (such as TI's GC5016), to dynamically adapt to different types of signals.

Multicarrier Receiver

In communications receivers, the ADS5500's high dynamic range with high sampling rate enables the simultaneous sampling of wider bandwidths containing several communication carriers. This method allows designers to reduce the number of receive chains, resulting in lower system cost.

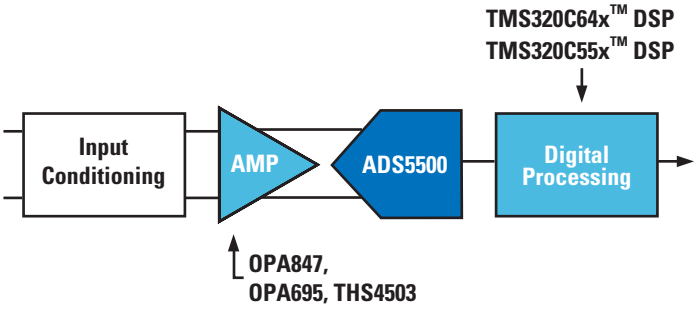
Power Amplifier Linearization

In power amplifier linearization applications, the high bandwidth of the ADS5500 enables the sampling of several harmonic orders. The ensuing analysis of these harmonics by the digital signal processor (DSP) results in a greater ability to correct for the distortions in the transmit path. This ultimately results in a higher performing system with a more cost-effective implementation of the power amplifier.

Application Highlight: Industrial, Test and Measurement

The ADS5500 is designed for use in instruments and systems that make precision measurements. The key ADS5500 specifications for these systems are high signal-to-noise ratio and high sampling rate. The higher sampling rate expands the range of products that can be tested by including higher bandwidth signals. Low power extends these benefits to portable test equipment applications. Examples include integrated circuit test equipment, production test equipment, portable test instruments and laboratory instruments.

ADS5500 in Test and Measurement Applications



Application Highlight: Medical Equipment

The ADS5500 can be designed into medical MRI equipment. The 14-bit resolution provides higher SNR, which allows the designer to lower the magnetic field energy necessary for high-image quality. Additionally, 125 MSPS allows for oversampling, resulting in higher image quality. Higher speed also can simplify the filter requirements of the system.

ADS5500 in an MRI System

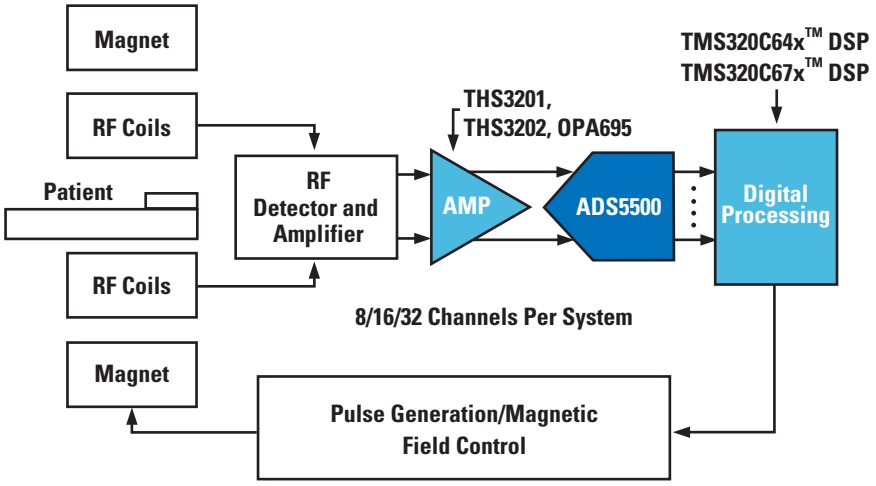


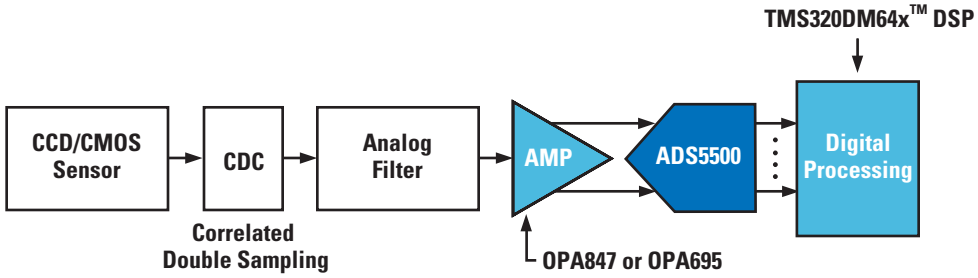
Photo Courtesy of Siemens Medical Solutions

Texas Instruments

Application Highlight: Video and Imaging

ADS5500 in Video and Imaging Applications

Video and imaging applications are also well-suited for the ADS5500. These applications include broadcast cameras, scanners and video inspection equipment. The ADS5500's 14-bit resolution provides higher SNR to process high-quality images accurately, and simplifies the analog input circuitry by reducing the need for Programmable Gain Amplifiers. Also, its high sample rate allows designers to scan images faster or oversample the input signal, which simplifies analog filter design and lowers system cost. Furthermore, the ADS5500's low power dissipation extends battery life in portable systems and provides cost savings due to the lower power supply and system thermal management requirements.



Increased imaging capabilities with higher imaging quality, longer battery life and simplified system design are just a few of the benefits of implementing the ADS5500 ADC in video and imaging applications.

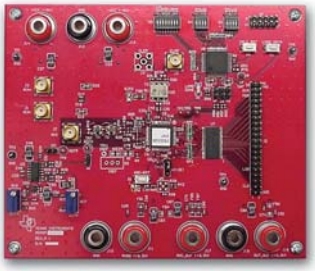
Get started today!

The ADS5500 evaluation module (EVM) provides design engineers with an easy-to-use development tool to evaluate product performance and ensure that your application requirements are met. To order an EVM, call your local TI sales representative.

For technical information on other high-speed data converters and amplifiers from TI, get the new High-Speed Products catalog. Download it at:

www.ti.com/ads5500

or order it by calling 1-800-477-8924 ext. 5500, in North America or the Product Information Center in your country. See listing on the back of this brochure.



Get started today with the ADS5500 EVM!

High-Speed Products Catalog

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