Оценочное оборудование и программное обеспечение

Описание

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Evaluation & Development Platforms

Many evaluation boards require varing levels of register configuration, data storage, data processing, and graphical interfaces. Find which platform board you should use with your evaluation board.

Analysis | Control | Evaluation (ACE) Software

ADI's "Analysis, Control, Evaluation" (ACE) is a desktop software application which allows the evaluation and control of multiple evaluation systems, from across ADI's product portfolio. The application consists of a common framework and individual component specific plug-ins. ACE is designed to educate the user in the functional operation of the component and allow the user to access the system at a level of abstraction with which they are comfortable.

Robot Operating System (ROS) Development Platforms

These modules, reference designs, and development platforms combine the necessary technologies, tools, and software for rapid system integration of ROS elements in industrial applications.

High-Speed Converter Data Source/Capture Boards

Shorten design times by using evaluation boards that quickly showcase the features and performance of selected products. Each evaluation board mates to a data source/capture carrier board, to allow easily capture samples from an ADC or similarly source samples to a DAC. Two types of data capture kits available, FPGA-based and FIFO-based.

System Demonstration Platform (SDP)

The System Demonstration Platform (SDP) is a collection of controller boards, interposer boards, and daughter boards used for easy, low cost evaluation of ADI components and reference circuits. It is a reusable platform where by a single controller board can be reused in various daughter board evaluation systems. Platform elements can also be used to build, demonstrate, and prototype embedded systems connected to daughter evaluation boards, using interposer and 3rd party boards.

Linduino

Linduino is Analog Devices' Arduino compatible system for developing and distributing firmware libraries and example code for our integrated circuits.

Open Hardware Development Platforms

Analog Devices' family of ADICUP development platforms delivers industrial grade processing and sensing capabilities in an open design environment. Form-factor compatibility with interfaces such as Arduino, Pmod, and Grove coupled with signal chain and sensor shields provide flexibility in end-to-end application specific development.

Condition-based Monitoring (CbM) Development Platforms

Analog Devices condition-based monitoring development platforms combine sensor and signal chain technologies with the embedded software required to integrate these technologies and accelerate sensor data collection.

Inertial MEMS Sensor Evaluation Tools

iMEMS evaluation platforms, allow PC connectivity and data reading of Analog Devices accelerometers, gyroscopes, and inertial measurement units.

Signal Chain Power (SCP) Hardware Evaluation Platform

The Signal Chain Power (SCP) hardware platform enables signal chain designers to quickly develop, prototype, and evaluate complete power solutions for instrumentation, test & measurement, and industrial automation precision signal chains.

Data Pattern Generator (DPG) High-Speed DAC Evaluation Platform

The Data Pattern Generator is a bench-top instrument for driving vectors into Analog Devices' high-speed Digital-to-Analog converters.

LinearLab Tools

LinearLabTools is a collection of MATLAB® and Python programs that provide direct access to Linear Technology's data converter evaluation boards.

Converter Evaluation and Development Board (CED)

The converter evaluation board (CED) is designed to evaluation and demonstrate Analog Devices precision converter products.

Analysis | Control | Evaluation (ACE) Software

ADI's "Analysis, Control, Evaluation" (ACE) is a desktop software application which allows the evaluation and control of multiple evaluation systems, from across ADI's product portfolio. The application consists of a common framework and individual component specific plug-ins.

ACE is designed to educate the user in the functional operation of the component and allow the user to access the system at a level of abstraction with which they are comfortable.

ACE Evaluation Board Plug-ins

If the machine that ACE is installed on has internet access, you can find/install/update plug-ins directly from the ACE application. For environments without internet access, you can download these plug-ins to portable storage and install them into ACE.

System Requirements

The ACE Software Suite requires the following minimum PC requirements:

- Windows 7 SP1 (32/64-bit), Windows 8.1 (32/64-bit), Windows 10 (32/64-bit)
- At least one available USB 2.0 port
- At least 512MB or the recommended minimum for the OS if greater

- 250MB free hard drive space

Prerequisites (Included in ACE Installer)

- Microsoft .NET Framework 4 Client Profile
- SDP Drivers

Robot Operating System (ROS) Development Platforms

The Robot Operating System (ROS) is a framework to help robot developers and researchers build and reuse code between robotic applications. ROS is not an actual operating system but an open-source robotics middleware suite and a set of libraries and tools to enable robot development. The ROS global community of developers contributes to this growing repository of ROS nodes and other resources.

Analog Devices (ADI) creates semiconductors and total solutions that bridge the physical and digital worlds, including robotics systems and technologies. To enable seamless integration of these solutions into the robotics domain, ADI is providing ROS support for key technologies and platforms. ROS provides functionality for hardware abstraction, device drivers, communication between processes, simulation environments, and visualization.

ADI's hardware and sensor expertise combined with ROS 1 and ROS 2 support can accelerate our partners' time to market by solving the sensor, signal chain, communication, and software integration challenges in robotics with a holistic approach.

Motor Control Modules

Ease of implementation and use, support for on-demand changes and evolving device capabilities, and the ability to learn and respond to environment and context: These are the staples of motor control technology that turn repetitive automation into intelligent movement.

ADI Trinamic™ simplifies even the most advanced motion control with developer toolkits that place decades of motor experience at an engineer's fingertips. ADI's expertise in hardware building blocks removes complexity and ensures that even device developers without motion control experience can easily optimize motor designs. By providing ROS support for Trinamic motor control solutions, ADI enables developers to achieve rapid prototyping and development and improve time to market.

Robot Operating System (ROS) Development Platform Ecosystem

ADI's robotics modules, reference designs, and development platforms combine the necessary technologies, tools, and software for rapid system integration, enabling control, data collection, perception, analysis, and customization for robotics applications.

Hardware Evaluation
ADI combines signal chain hardware and development software to enable the evaluation of robotic solutions in industrial environments. Our hardware evaluation platforms serve requirements such as register configuration, data processing and storage, graphical interfaces, and more.

Software Integration

ADI's robotics solutions ecosystem offers open-source ROS nodes that contain software source code, enabling seamless integration and simulation capabilities.

Support

Find more information through the relevant Analog Devices GitHub pages, where all supporting documentation such as source code and setup guides can be found. Still have questions? Ask an ADI engineer on EngineerZone™.

High-Speed Converter Data Source/Capture Boards

Shorten design times by using evaluation boards that quickly showcase the features and performance of selected products. Each evaluation board mates to a data source/capture carrier board, to allow easily capture samples from an ADC or similarly source samples to a DAC. There are two types of data capture kits available, FPGA-based and FIFO-based. Refer to the charts below to determine which kit is the right one for you.

Analog Devices' pattern generators and high-speed DAC evaluation boards are designed and sold solely to support an efficient and thorough means by which to evaluate Analog Devices high speed DACs in a lab environment for a wide range of end applications. Any application or use of the pattern generators and/or high-speed DAC evaluation boards, other than specified above, will not be supported.

Controller Boards

ADS8-V1EBZ

- Xilinx Kintex Ultrascale XCKU040-3FFVA1156E FPGA.
- One (1) FMC+ connector.
- Twenty (20) 16Gbps transceivers supported by one (1) FMC+ connector.
- DDR4 SDRAM.
- Simple USB 3.0 port interface.

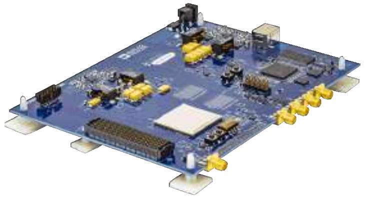
ADS7-V2EBZ

- Xilinx Virtex-7 XC7VX330T-3FFG1157E FPGA (326,400 logic cells).
- One (1) FMC-HPC connector.
- Ten (10) 13.1 Gbps transceivers supported.
- Two (2) DDR3-1866 DIMMs.
- Simple USB port interface (2.0).

ADS7-V1EBZ

- Based on Virtex-7 FPGA
- Two (2) FMC-HPC connectors
- Ten (10) 13.1 Gbps transceivers per FMC-HPC connector
- Two (2) DDR3-1866 DIMMs
- Simple USB port interface (2.0)

HSC-ADC-EVALEZ

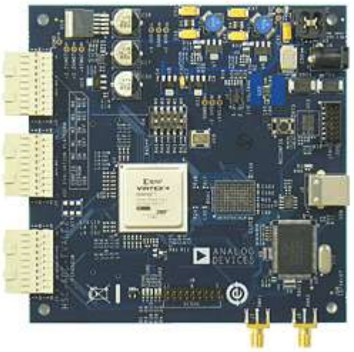


- 256kB FIFO Depth
- Supports multiple ADC channels via single FMC-HPC interface connector
- JESD-204B support for up to eight (8) 6.5Gbps Lanes
- Parallel input at 644 MSPS SDR and 1.2 GSPS DDR
- Use with VisualAnalog® software
- Based on Virtex-6 FPGA
- Simple USB port interface (2.0)

HSC-ADC-EVALDZ

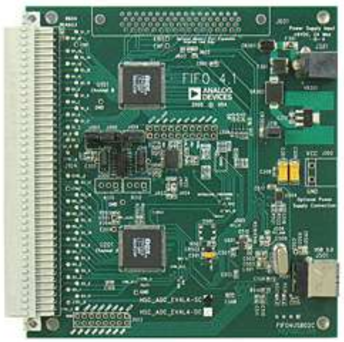
- 256kB FIFO Depth
- JESD-204B support for up to eight (8) 6.5Gbps Lanes
- Parallel input at 644 MSPS SDR and 1.2 GSPS DDR
- Use with VisualAnalog® software
- Based on Virtex-6 FPGA
- Supports multiple ADC channels up to 18 bits
- Simple USB port interface (2.0)

HSC-ADC-EVALCZ



- 64kB FIFO Depth
- Works with single and multi-channel ADCs
- Use with VisualAnalog® software
- Based on Virtex-4 FPGA
- May require adaptor to interface with some ADC eval boards
- Allows programming of SPI control Up to 644 MSPS SDR / 800MSPS DDR Encode Rates on each channel
- DDR Encode Rates on each channel

HSC-ADC-EVALB-DCZ



- 32kB FIFO Depth
- Works with single and dual-channel ADCs
- Use with VisualAnalog® software
- May require adaptor to interface with some ADC eval boards
- Allows programming of SPI control
- Up to 133MSPS Encode Rate

Interposer Boards

EVAL-ADC-FMC-INT

ADC Interposer

- Connects ADI evaluation pinout to FMC interfaces
- Low Pin Count (LPC) connector to connect with LPC or HPC ports
- Compatible with Eval C & Eval D daughter boards

COMPATIBLE PRODUCT EVALUATION BOARDS

The High Speed Data Capture and DPG controller boards were designed to be used in conjunction with various ADI component evaluation boards as part of a customer evaluation environment. The following evaluation boards are compatible with High Speed Data Capture and DPG controller boards.

Note: Different ADSx Controller Boards support different maximum transceiver bitrate. Select a Controller Board according to the maximum lanerate of the JESD204B link in your application. The lanerate is determined from the converter's target datarate; the maximum datarate will be only achievable by the fastest ADSx Controller Board that supports a particular product Evaluation Board.

Product

Clock Generation Devices (2)

HMC7044:
High Performance, 3.2 GHz, 14-Output Jitter Attenuator with JESD204B
ADS8-V1EBZ

HMC7044:
High Performance, 3.2 GHz, 14-Output Jitter Attenuator with JESD204B
ADS7-V2EBZ

IF/RF Receivers (13)

AD6688:
RF Diversity and 1.2GHz BW Observation Receiver
ADS7-V2EBZ

AD6679:
135 MHz BW IF Diversity Receiver

ADS7-V2EBZ

AD6677:
80 MHz Bandwidth, IF Receiver
HSC-ADC-EVALEZ

AD6674:
385 MHz BW IF Diversity Receiver
ADS7-V2EBZ

AD6673:
80 MHz Bandwidth, Dual IF Receiver
HSC-ADC-EVALEZ

AD6672:
IF Receiver
HSC-ADC-EVALCZ

AD6657A:
65MHz Bandwidth Quad IF Receiver
HSC-ADC-EVALCZ

AD6657:
Quad IF Receiver
HSC-ADC-EVALCZ

AD6655:
IF Diversity Receiver
HSC-ADC-EVALCZ

AD6649:
IF Diversity Receiver
HSC-ADC-EVALCZ

AD6643:
Dual IF Receiver
HSC-ADC-EVALCZ

AD6642:
Dual IF Receiver
HSC-ADC-EVALCZ

AD6641:
250 MHz Bandwidth DPD Observation Receiver
HSC-ADC-EVALCZ

Positive Linear Regulators (LDO) (2)

ADP1763:
3 A, Low V_{IN}, Low Noise, CMOS Linear Regulator
ADS8-V1EBZ

ADP1763:
3 A, Low V_{IN}, Low Noise, CMOS Linear Regulator
ADS7-V2EBZ

Precision Signal Chain µModule Solutions (1)

AD10200:
Dual Channel, 12-Bit, 105 MSPS IF Sampling A/D Converter With Analog Input Signal Conditioning
HSC-ADC-EVALB-DCZ

Standard High Speed A/D Converters (87)

AD9699:
14-Bit, 3 GSPS, JESD204B, Single Analog-to-Digital Converter
ADS8-V1EBZ

AD9699:
14-Bit, 3 GSPS, JESD204B, Single Analog-to-Digital Converter
ADS7-V2EBZ

AD9695:
14-Bit, 1300 MSPS/625 MSPS, JESD204B, Dual Analog-to-Digital Converter
ADS8-V1EBZ

AD9695:
14-Bit, 1300 MSPS/625 MSPS, JESD204B, Dual Analog-to-Digital Converter
ADS7-V2EBZ

AD9691:
14-Bit, 1.25 GSPS JESD204B, Dual Analog-to-Digital Converter

ADS7-V2EBZ

AD9690:
14-Bit, 500 MSPS / 1 GSPS JESD204B, Analog-to-Digital Converter
ADS7-V2EBZ

AD9689:
14-Bit, 2.0 GSPS/2.6 GSPS, JESD204B, Dual Analog-to-Digital Converter
ADS8-V1EBZ

AD9689:
14-Bit, 2.0 GSPS/2.6 GSPS, JESD204B, Dual Analog-to-Digital Converter
ADS7-V2EBZ

AD9684:
14-Bit, 500 MSPS LVDS, Dual Analog-to-Digital Converter

HSC-ADC-EVALEZ

AD9683:
14-Bit, 170 MSPS/250 MSPS, JESD204B, Analog-to-Digital Converter
HSC-ADC-EVALEZ

AD9681:
Octal, 14-Bit, 125 MSPS, Serial LVDS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALEZ

AD9680:
14-Bit, 1.25 GSPS/1 GSPS/820 MSPS/500 MSPS JESD204B, Dual Analog-to-Digital Converter
ADS7-V2EBZ

AD9656:
Quad, 16-Bit, 125 MSPS JESD204B 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALEZ

AD9653:
Quad, 16-Bit, 125 MSPS Serial LVDS 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9652:
16-bit, 310 MSPS, 3.3/1.8 V Dual Analog-to-Digital Converter (ADC)
HSC-ADC-EVALCZ

AD9650:
16-Bit, 25 MSPS/65 MSPS/80 MSPS/105 MSPS, 1.8 V Dual Analog-to-Digital Converter (ADC)

HSC-ADC-EVALCZ

AD9649:
14-Bit, 20/40/65/80 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9648:
14-Bit, 125 MSPS/105 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9643:
14-Bit, 170 MSPS/210 MSPS/250 MSPS, 1.8 V Dual Analog-to-Digital Converter (ADC)
HSC-ADC-EVALCZ

AD9642:
14-Bit, 170 MSPS/210 MSPS/250 MSPS, 1.8 V Analog-to-Digital Converter (ADC)
HSC-ADC-EVALCZ

AD9641:
14-Bit, 80 MSPS/155 MSPS, 1.8 V Serial Output Analog-to-Digital Converter (ADC)
HSC-ADC-EVALB-DCZ

AD9640:
14-Bit, 80/105/125/150 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALB-DCZ

AD9639:
Quad 12-Bit, 170/210 MSPS, Serial Output 1.8 V A/D Converter
HSC-ADC-EVALCZ

AD9637:
Octal, 12-Bit, 40/80 MSPS Serial LVDS 1.8 V A/D Converter
HSC-ADC-EVALCZ

AD9634:
12-Bit, 170 MSPS/210 MSPS/250 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9633:
Quad, 12-Bit, 80/105/125 MSPS, Serial LVDS 1.8 V ADC
HSC-ADC-EVALCZ

AD9629:
12-Bit, 20 MSPS/40 MSPS/65 MSPS/80 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9628:
12-Bit, 125/105 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9627-11:
11-Bit, 105 MSPS/150 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9627:
12-Bit, 80 MSPS/105 MSPS/125 MSPS/150 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9626:
12-Bit, 170 MSPS/210 MSPS/250 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9625:
12-Bit, 2.6 GSPS/2.5 GSPS/2.0 GSPS, 1.3 V/2.5 V Analog-to-Digital Converter
HSC-ADC-EVALEZ

AD9613:
12-bit, 170/210/250 MSPS, 1.8 V Dual Analog-to-Digital Converter (ADC)
HSC-ADC-EVALCZ

AD9609:
10-Bit, 20 MSPS/40 MSPS/65 MSPS/80 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9608:
10-Bit, 125/105 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9600:
10-Bit, 105 MSPS/125 MSPS/150 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9484:
8-Bit, 500 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9481:
8-Bit, 250 MSPS, 3.3 V A/D Converter
HSC-ADC-EVALB-DCZ

AD9461:
16-Bit, 130 MSPS A/D Converter
HSC-ADC-EVALB-DCZ

AD9460:
16-Bit, 80 MSPS/105 MSPS ADC
HSC-ADC-EVALB-DCZ

AD9446:
16-Bit, 80 MSPS / 100 MSPS A/D Converter
HSC-ADC-EVALB-DCZ

AD9287:
Quad, 8-Bit, 100 MSPS Serial LVDS 1.8 V A/D Converter
HSC-ADC-EVALCZ

AD9286:
8-Bit, 500 MSPS, 1.8 V Analog-to-Digital Converter (ADC)
HSC-ADC-EVALCZ

AD9284:
8-Bit, 250 MSPS, 1.8 V Dual Analog-to-Digital Converter (ADC)
HSC-ADC-EVALCZ

AD9279:
Octal LNA/VGA/AAF/ADC and CW I/Q Demodulator
HSC-ADC-EVALCZ

AD9278:
Octal LNA/VGA/AAF/ADC and CW I/Q Demodulator
HSC-ADC-EVALCZ

AD9277:
Octal LNA/VGA/AAF/14-Bit ADC and CW I/Q Demodulator
HSC-ADC-EVALCZ

AD9276:
Octal LNA/VGA/AAF/12-Bit ADC and CW I/Q Demodulator
HSC-ADC-EVALCZ

AD9273:
Octal LNA/VGA/AAF/ADC and Crosspoint Switch
HSC-ADC-EVALCZ

AD9272:
Octal LNA/VGA/AAF/ADC and Crosspoint Switch
HSC-ADC-EVALCZ

AD9269:
16-Bit, 20 MSPS/40 MSPS/65 MSPS/80 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9268:
16-Bit, 125 MSPS/105 MSPS/80 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9266:
16-Bit, 20/40/65/80 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9259:
Quad, 14-Bit, 50 MSPS Serial LVDS 1.8 V ADC
HSC-ADC-EVALCZ

AD9258:
14-Bit, 125 MSPS, 1.8 V Dual Analog-to-Digital Converter (ADC)
HSC-ADC-EVALCZ

AD9257:
Octal, 14-Bit, 40/65 MSPS Serial LVDS 1.8 V A/D Converter
HSC-ADC-EVALCZ

AD9255:
14-Bit, 125 MSPS/105 MSPS/80 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9253:
Quad, 14-Bit, 80 MSPS/105 MSPS/125 MSPS Serial LVDS 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9252:
Octal, 14-Bit, 50 MSPS, Serial LVDS, 1.8 V ADC
HSC-ADC-EVALCZ

AD9251:
14-Bit, 20 MSPS/40 MSPS/65 MSPS/80 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9250:
14-Bit, 170 MSPS/250 MSPS, JESD204B, Dual Analog-to-Digital Converter

HSC-ADC-EVALEZ

AD9248:
Dual 14-Bit, 20/40/65 MSPS, 3 V Analog-to-Digital Converter
HSC-ADC-EVALB-DCZ

AD9246S:
Aerospace 14-Bit, 125 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9246:
14-Bit, 80 MSPS/105 MSPS/125 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALB-DCZ

AD9245:
14-Bit, 20 MSPS/40 MSPS/65 MSPS/80 MSPS 3 V A/D Converter
HSC-ADC-EVALB-DCZ

AD9244:
14-Bit 40/65 MSPS IF Sampling Analog-To-Digital Converter
HSC-ADC-EVALB-DCZ

AD9238:
12-Bit, 20 MSPS/40 MSPS/65 MSPS, Dual A/D Converter
HSC-ADC-EVALB-DCZ

AD9235:
12-Bit, 20/40/65 MSPS, 3 V Analog-to-Digital Converter
HSC-ADC-EVALB-DCZ

AD9234:
12-Bit, 1 GSPS/500 MSPS JESD204B, Dual Analog-to-Digital Converter
ADS7-V2EBZ

AD9233:
12-Bit, 80 MSPS/105 MSPS/125 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALB-DCZ

AD9231:
12-Bit, 20 MSPS/40 MSPS/65 MSPS/80 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9230:
12-Bit, 170 MSPS/210 MSPS/250 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9228:
Quad, 12-Bit, 40/65 MSPS Serial LVDS 1.8 V A/D Converter
HSC-ADC-EVALCZ

AD9222:
Octal, 12-Bit, 40/50/65 MSPS Serial LVDS 1.8 V A/D Converter
HSC-ADC-EVALCZ

AD9219:
Quad, 10-Bit, 40/65 MSPS Serial LVDS 1.8 V A/D Converter
HSC-ADC-EVALCZ

AD9217:
12-Bit, 6 GSPS/10.25 GSPS, RF Analog-to-Digital Converter
ADS8-V1EBZ

AD9216:
10-Bit, 65/80/105 MSPS Dual A/D Converter
HSC-ADC-EVALB-DCZ

AD9215:
10-Bit, 65/80/105 MSPS 3 V A/D Converter
HSC-ADC-EVALB-DCZ

AD9213S:
12-Bit, 10.25 GSPS, JESD204B, RF Analog-to-Digital Converter
ADS8-V1EBZ

AD9213:
12-Bit, 10.25 GSPS, JESD204B, RF Analog-to-Digital Converter
ADS8-V1EBZ

AD9212:
Octal, 10-Bit, 40 MSPS/65 MSPS, Serial LVDS, 1.8 V ADC
HSC-ADC-EVALCZ

AD9211:
10-Bit, 200 MSPS/250 MSPS/300 MSPS, 1.8 V Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD9208:
14-Bit, 3GSPS, JESD204B, Dual Analog-to-Digital Converter
ADS8-V1EBZ

AD9208:
14-Bit, 3GSPS, JESD204B, Dual Analog-to-Digital Converter
ADS7-V2EBZ

AD9204:
10-Bit, 20 MSPS/40 MSPS/65 MSPS/80 MSPS, 1.8 V Dual Analog-to-Digital Converter
HSC-ADC-EVALCZ

AD6645:
14-Bit, 80 MSPS/105 MSPS A/D Converter
HSC-ADC-EVALB-DCZ

AD10465:
Dual Channel, 14-Bit, 65 MSPS A/D Converter With Analog Input Signal Conditioning
HSC-ADC-EVALB-DCZ

Standard High Speed D/A Converters (64)

AD9783:
Dual 16-Bit, LVDS Interface 500 MSPS DAC
ADS7-V2EBZ

AD9781:
Dual 14-Bit, LVDS Interface 500 MSPS DAC
ADS7-V2EBZ

AD9780:
Dual 12-Bit, LVDS Interface 500 MSPS DAC
ADS7-V2EBZ

AD9739A:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
ADS7-V2EBZ

AD9739:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter

ADS7-V2EBZ

AD9737A:
11-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
ADS7-V2EBZ

AD9736:
14-Bit, 1200 MSPS DACs
ADS7-V2EBZ

AD9735:
12-Bit, 1200 MSPS DACs
ADS7-V2EBZ

AD9734:
10-Bit, 1200 MSPS DACs
ADS7-V2EBZ

AD9176:
Dual, 16-Bit, 12.6 GSPS RF DAC with Wideband Channelizers
ADS8-V1EBZ

AD9176:
Dual, 16-Bit, 12.6 GSPS RF DAC with Wideband Channelizers
ADS7-V2EBZ

AD9176:
Dual, 16-Bit, 12.6 GSPS RF DAC with Wideband Channelizers
ADS7-V1EBZ

AD9175:
Dual, 11-Bit/16-Bit, 12.6 GSPS RF DAC with Wideband Channelizers
ADS8-V1EBZ

AD9175:
Dual, 11-Bit/16-Bit, 12.6 GSPS RF DAC with Wideband Channelizers
ADS7-V2EBZ

AD9175:
Dual, 11-Bit/16-Bit, 12.6 GSPS RF DAC with Wideband Channelizers
ADS7-V1EBZ

AD9174:
Dual, 16-Bit, 12.6 GSPS RF DAC and Direct Digital Synthesizer
ADS8-V1EBZ

AD9174:
Dual, 16-Bit, 12.6 GSPS RF DAC and Direct Digital Synthesizer
ADS7-V2EBZ

AD9174:
Dual, 16-Bit, 12.6 GSPS RF DAC and Direct Digital Synthesizer
ADS7-V1EBZ

AD9173:
Dual, 16-Bit, 12.6 GSPS RF DAC with Channelizers
ADS7-V1EBZ

AD9173:
Dual, 16-Bit, 12.6 GSPS RF DAC with Channelizers
ADS8-V1EBZ

AD9173:
Dual, 16-Bit, 12.6 GSPS RF DAC with Channelizers
ADS7-V2EBZ

AD9172:
Dual, 16-Bit, 12.6 GSPS RF DAC with Channelizers
ADS7-V1EBZ

AD9172:
Dual, 16-Bit, 12.6 GSPS RF DAC with Channelizers
ADS8-V1EBZ

AD9172:
Dual, 16-Bit, 12.6 GSPS RF DAC with Channelizers
ADS7-V2EBZ

AD9171:
Dual, 16-Bit, 6.2 GSPS RF DAC with Single Channelizer
ADS8-V1EBZ

AD9171:
Dual, 16-Bit, 6.2 GSPS RF DAC with Single Channelizer
ADS7-V1EBZ

AD9171:
Dual, 16-Bit, 6.2 GSPS RF DAC with Single Channelizer
ADS7-V2EBZ

AD9166:
DC to 9 GHz, Vector Signal Generator
ADS8-V1EBZ

AD9166:
DC to 9 GHz, Vector Signal Generator
ADS7-V1EBZ

AD9166:
DC to 9 GHz, Vector Signal Generator
ADS7-V2EBZ

AD9164:
16-Bit, 12 GSPS, RF DAC and Direct Digital Synthesizer
ADS8-V1EBZ

AD9164:
16-Bit, 12 GSPS, RF DAC and Direct Digital Synthesizer
ADS7-V1EBZ

AD9164:
16-Bit, 12 GSPS, RF DAC and Direct Digital Synthesizer
ADS7-V2EBZ

AD9163:
16-Bit, 12 GSPS, RF DAC and Digital Upconverter
ADS8-V1EBZ

AD9163:
16-Bit, 12 GSPS, RF DAC and Digital Upconverter
ADS7-V1EBZ

AD9163:
16-Bit, 12 GSPS, RF DAC and Digital Upconverter
ADS7-V2EBZ

AD9162:
16-Bit, 12 GSPS, RF Digital-to-Analog Converters
ADS8-V1EBZ

AD9162:
16-Bit, 12 GSPS, RF Digital-to-Analog Converters
ADS7-V1EBZ

AD9162:
16-Bit, 12 GSPS, RF Digital-to-Analog Converters
ADS7-V2EBZ

AD9161:
11-Bit, 12 GSPS, RF Digital-to-Analog Converters
ADS8-V1EBZ

AD9161:
11-Bit, 12 GSPS, RF Digital-to-Analog Converters
ADS7-V1EBZ

AD9161:
11-Bit, 12 GSPS, RF Digital-to-Analog Converters
ADS7-V2EBZ

AD9154:
Quad, 16-Bit, 2.4 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V2EBZ

AD9154:
Quad, 16-Bit, 2.4 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V1EBZ

AD9152:
Dual, 16-Bit, 2.25 GSPS, TxDAC+ Digital-to-Analog Converter
ADS7-V1EBZ

AD9152:
Dual, 16-Bit, 2.25 GSPS, TxDAC+ Digital-to-Analog Converter
ADS8-V1EBZ

AD9152:
Dual, 16-Bit, 2.25 GSPS, TxDAC+ Digital-to-Analog Converter
ADS7-V2EBZ

AD9148:
Quad 16-Bit,1GSPS DAC TxDAC+ Digital-to-Analog Converter
ADS7-V2EBZ

AD9146:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V2EBZ

AD9144:
Quad, 16-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V1EBZ

AD9144:
Quad, 16-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V2EBZ

AD9144:
Quad, 16-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS8-V1EBZ

AD9142A:
Dual, 16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
ADS7-V2EBZ

AD9139:
16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
ADS7-V2EBZ

AD9136:
Dual, 16-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS8-V1EBZ

AD9136:
Dual, 16-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V1EBZ

AD9136:
Dual, 16-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V2EBZ

AD9135:
Dual, 11-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS8-V1EBZ

AD9135:
Dual, 11-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V1EBZ

AD9135:
Dual, 11-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V2EBZ

AD9129:
14-Bit, 5.7 GSPS, RF Digital-to-Analog Converter
ADS7-V2EBZ

AD9122:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
ADS7-V2EBZ

AD9121:
Dual, 14-Bit, 1230 MSPS, TxDAC+ Digital-to-Analog Converter
ADS7-V2EBZ

AD9119:
11-Bit, 5.7 GSPS, RF Digital-to-Analog Converter
ADS7-V2EBZ

System Demonstration Platform (SDP)

The System Demonstration Platform (SDP) is a collection of controller boards, interposer boards, and daughter boards used for easy, low cost evaluation of ADI components and reference circuits. It is a reusable platform where by a single controller board can be reused in various daughter board evaluation systems. Platform elements can also be used to build, demonstrate, and prototype embedded systems connected to daughter evaluation boards, through the use of interposer and 3rd party boards.

Reusing the SDP Controller

See the full list of compatible Product Evaluation Boards and Circuits from the Lab Reference Circuit Boards that require a SDP Controller. All SDP-S compatible daughter boards can be used with the SDP-B.

Controller Boards

SDP-K1

Peripherals

- GPIO
- I2C
- SPI
- SPORT
- Timers
- QuadSPI

Connectors

- 1 × 120 Pin SDP
- Arduino headers

SDP-H1

Peripherals

- GPIO
- I^{2}C
- SPI
- SPORT
- Asynchronous Parallel
- PPI
- Timers
- LVDS
- SE LVCMOS

Connectors

- 1 x FMC LPC
- 1 × 120 Pin SDP

SDP-S

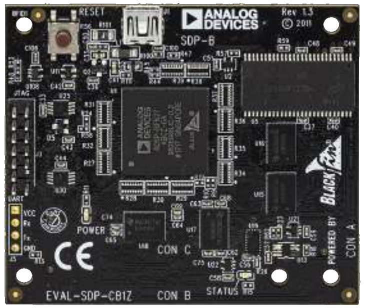
Peripherals

- GPIO
- I^{2}C
- SPI

Connectors

- 1 × 120 Pin SDP

SDP-B



Peripherals

- GPIO
- I^2C
- SPI
- SPORT
- Asynchronous Parallel
- PPI
- Timers

Connectors

- 2 × 120 Pin SDP

Interposer Boards

SDP-BEMICRO

BeMicro SDK/SDP Interposer
Connect SDP daughter boards to Arrow's BeMicro SDK, the Cyclone IV based FPGA embedded development kit, with the BeMicro SDK/SDP Interposer.

SDP-I-PMOD

SDP-I-PMOD
The SDP-I-PMD is be used to connect ADI PMOD boards directly to the System Demonstration Platform (SDP) controller boards.

SDP-I-FMC

SDP-I-FMC

Connect SDP daughter board to Xilinx® FPGA evaluation boards (3.3VIO Only), with the SDP-I-FMC interposer board.

SDP-BREAKOUT-BOARD

Signal Monitoring

- 120 Pin SDP Header
- 120 Pin SDP Receptacle

Daughter Boards

Product Evaluation Boards

SDP Controller boards are used for product evaluation in data converters, RF IC's and Mems products. See the full list of compatible evaluation boards.

Circuits from the Lab™

SDP controller boards are used to evaluation reference circuits across all applications areas, Aerospace & Defense , Automotive, communications, Consumer, Energy, Healthcare, Instrumentation & Measurement, Motor and Power Control, Process Control & Industrial Automation.

View SDP Compatible Reference Circuits

COMPATIBLE PRODUCT EVALUATION BOARDS

The SDP controller boards were designed to be used in conjunction with various ADI component evaluation boards as part of a customer evaluation environment. The following evaluation boards are compatible with SDP controller boards.

Product (57)

µModule Buck Regulators (1)

LTM8078:
Dual 1.4A, Single 2.8A Step-Down Silent Switcher µModule Regulator
SDP-H1

4-20mA Current Loop D/A Converters (4)

AD5755-1:
Quad Channel, 16-Bit, Serial Input, 4 mA to 20 mA and Voltage Output DAC, Dynamic Power Control, HART Connectivity

SDP-B

AD5755:
Quad Channel, 16-Bit, Serial Input, 4 mA to 20 mA and Voltage Output DAC, Dynamic Power Control
SDP-B

AD5735:
Quad-Channel, 12-Bit, Serial Input, 4 mA to 20 mA and Voltage Output DAC with Dynamic Power Control
SDP-B

AD5421:
16-Bit, Serial Input, Loop-Powered, 4mA to 20mA DAC
SDP-B

A/D and D/A Converter Combinations (4)

AD74115H:
Single-Channel, Software Configurable Input and Output with HART Modem
SDP-K1

AD74115:
Single-Channel, Software Configurable Input and Output
SDP-K1

AD7294-2:
12-Bit Monitor and Control System with Multichannel ADC, DACs, Temperature Sensor, and Current Sense
SDP-B

AD7292:
10-Bit Monitor & Control System with ADC, DACs, Temperature Sensor and GPIOs
SDP-B

Accelerometers (2)

ADXL357:
Low Noise, Low Drift, Low Power, 3-Axis MEMS Accelerometers with Digital Output

SDP-B

ADXL355:
Low Noise, Low Drift, Low Power, 3-Axis MEMS Accelerometers
SDP-B

Analog Sequencers (1)

ADM1185:
Quad Voltage Monitor and Sequencer
SDP-H1

Analog Temperature Sensors (3)

AD590:
2-Terminal IC Temperature Transducer
SDP-B

AD590:
2-Terminal IC Temperature Transducer
SDP-S

AD590:
2-Terminal IC Temperature Transducer
SDP-K1

Biopotential Sensors (5)

ADAS1000-4:
Low Power, 3-Electrode Electrocardiogram (ECG) Analog Front End with respiration measurement and pace detection
SDP-B

ADAS1000-3:
Low Power, 3-Electrode Electrocardiogram (ECG) Analog Front End
SDP-B

ADAS1000-2:
Low Power 5 electrode ECG Analog Front End Companion Chip
SDP-B

ADAS1000-1:
Low Power 5 electrode ECG Analog Front End
SDP-B

ADAS1000:
Low-Power, 5-Electrode Electrocardiogram (ECG) Analog Front End with respiration measurement and pace detection)
SDP-B

Blackfin Embedded Processors (4)

ADSP-BF609:
Blackfin Dual-Core Processor up to 1GHz with Hardware Support for HD Video Analytics
SDP-BREAKOUT-BOARD

ADSP-BF608:
Blackfin Dual-Core Processor up to 1GHz with Hardware Support for VGA Video Analytics
SDP-BREAKOUT-BOARD

ADSP-BF607:
Blackfin Dual-Core Processor up to 1GHz for High Performance Digital Signal Processing Applications
SDP-BREAKOUT-BOARD

ADSP-BF606:
Blackfin Dual-Core Processor up to 800 MHz for High Performance Digital Signal Processing Applications
SDP-BREAKOUT-BOARD

Clinical-Grade Temperature Sensors (3)

ADT7420:
±0.25°C Accurate, 16-Bit Digital I^2C Temperature Sensor
SDP-K1

ADT7420:
±0.25°C Accurate, 16-Bit Digital I^2C Temperature Sensor
SDP-B

ADT7420:
±0.25°C Accurate, 16-Bit Digital I^2C Temperature Sensor
SDP-S

Current Source-Sink D/A Converters (1)

AD5770R:
6-Channel, 14-Bit, Current Output DAC with On-Chip Reference, SPI Interface
SDP-B

Digital Control VGAs (4)

ADL6337:
35 dB Gain, 500 MHz to 5200 MHz Transmit VGA
SDP-S

ADL6317:
Transmit VGA for Use with RF DACs and Transceivers
SDP-S

ADL6316:
500 MHz to 1000 MHz Transmit VGA for Use with RF DACs and Transceivers
SDP-S

ADA4961:
Low Distortion, 3.2 GHz, RF DGA
SDP-S

Digital Potentiometers (DigiPOT) (51)

ADN2850:
Nonvolatile Memory, Dual 1024-Position Digital Resistor
SDP-B

AD8403:
4-Channel Digital Potentiometer
SDP-B

AD8402:
2-Channel Digital Potentiometer
SDP-B

AD8400:
Single-Channel Digital Potentiometer
SDP-B

AD5274:
256-Position, 1% Resistor Tolerance Error, I^2C Interface and 50-TP Memory Digital Rheostat
SDP-B

AD5273:
64-Position, One-Time-Programmable (OTP) Digital Potentiometer
SDP-B

AD5272:
1024-Position, 1% Resistor Tolerance Error, Single Channel I^2C Interface and 50-TP Memory Digital Rheostat
SDP-B

AD5271:
256-Position, 1% Resistor Tolerance Error, SPI Interface and 50-TP Memory Digital Rheostat
SDP-B

AD5270:
1024-Position, 1% Resistor Tolerance Error, SPI Interface and 50-TP Memory Digital Rheostat
SDP-B

AD5259:
Nonvolatile, I^2C Compatible 256-Position, Digital Potentiometer
SDP-B

AD5258:
Nonvolatile, I^2C®-Compatible 64-Position, Digital Potentiometer
SDP-S

AD5254:
Quad 256-Position I^2C Nonvolatile Memory, Digital Potentiometer
SDP-B

AD5253:
Quad 64-Position I^2C Nonvolatile Memory Digital Potentiometer
SDP-B

AD5252:
I^2C, Nonvolatile Memory, Dual 256-Position Digital Potentiometer
SDP-B

AD5251:
I^2C, Nonvolatile Memory, Dual 64-Position Digital Potentiometer
SDP-B

AD5248:
256-Position Dual Channel I^2C Compatible Digital Resistor
SDP-B

AD5247:
128-Position I^2C®-Compatible Digital Potentiometer
SDP-S

AD5246:
128 Position I^2C Compatible Programmable Resistor in SC70 Package
SDP-S

AD5245:
256 Position I^2C Compatible Digital Potentiometer
SDP-B

AD5243:
256-Position Dual Channel I^2C Compatible Digital Potentiometer
SDP-B

AD5242:
Dual-Channel, I^2C Compatible, 256 Position, Digital Potentiometer
SDP-B

AD5241:
I^2C Compatible Digital Potentiometer
SDP-B

AD5235:
Nonvolatile Memory, Dual 1024-Position Digital Potentiometer
SDP-B

AD5233:
Nonvolatile, Quad, 64-Position Digital Potentiometer
SDP-B

AD5232:
Nonvolatile Memory, Dual, 256-Position Digital Potentiometer
SDP-B

AD5228:
32-Position Manual Up/Down Control Potentiometer
SDP-B

AD5222:
Dual, Increment/Decrement Digital Potentiometer
SDP-B

AD5204:
4-Channel Digital Potentiometer
SDP-B

AD5173:
256-Position, One-Time Programmable, Dual Channel, I^2C Digital Potentiometer
SDP-B

AD5172:
256-Position, One-Time Programmable, Dual Channel, I^2C Digital Potentiometer
SDP-B

AD5171:
64 Position OTP Digital Potentiometer
SDP-S

AD5165:
256-Position, Ultralow Power 1.8 V Logic-Level Digital Potentiometer
SDP-B

AD5162:
256-Position Dual Channel SPI Digital Potentiometer
SDP-B

AD5161:
256 Position SPI/I^2C Selectable Digital Potentiometer
SDP-B

AD5144A:
Quad Channel, 256-Position, I^2C, Nonvolatile Digital Potentiometer
SDP-S

AD5144:
Quad Channel, 256-Position, I^2C / SPI, Nonvolatile Digital Potentiometer
SDP-S

AD5143:
Quad Channel, 256-Position, I^2C, Nonvolatile Digital Potentiometer
SDP-S

AD5142A:
Dual Channel, 256-Position, I^2C, Nonvolatile Digital Potentiometer
SDP-S

AD5142:
Dual Channel, 256-Position, SPI, Nonvolatile Digital Potentiometer
SDP-S

AD5141:
Single Channel, 256-Position, I^2C / SPI, Nonvolatile Digital Potentiometer
SDP-S

AD5124:
Quad Channel, 128-Position, SPI, Nonvolatile Digital Potentiometer
SDP-S

AD5123:
Quad Channel, 128-Position, I^2C, Nonvolatile Digital Potentiometer
SDP-S

AD5122A:
Dual Channel, 128-Position, I^2C, Nonvolatile Digital Potentiometer
SDP-S

AD5122:
Dual Channel, 128-Position, SPI, Nonvolatile Digital Potentiometer
SDP-S

AD5121:
Single Channel, 128-Position, I^2C / SPI, Nonvolatile Digital Potentiometer
SDP-S

AD5115:
Single Channel, 32-Position, Up/Down, ±8 % Resistor Tolerance, Nonvolatile Digital Potentiometer
SDP-S

AD5114:
Single Channel, 32-Position, I^2C, ±8% Resistor Tolerance, Nonvolatile Digital Potentiometer
SDP-S

AD5113:
Single Channel, 64-Position, Up/Down, ±8 % Resistor Tolerance, Nonvolatile Digital Potentiometer
SDP-S

AD5112:
Single Channel, 64-Position, I^2C, ±8% Resistor Tolerance, Nonvolatile Digital Potentiometer
SDP-S

AD5111:
Single Channel, 128-Position, Up/Down, ±8 % Resistor Tolerance, Nonvolatile Digital Potentiometer
SDP-S

AD5110:
Single Channel, 128-Position, I^2C, ±8% Resistor Tolerance, Nonvolatile Digital Potentiometer
SDP-S

Digital Temperature Sensors (12)

ADT7422:
±0.1°C Accuracy, 16-Bit, Digital I^2C Temperature Sensor for VSM Applications
SDP-K1

ADT7422:
±0.1°C Accuracy, 16-Bit, Digital I^2C Temperature Sensor for VSM Applications
SDP-B

ADT7422:
±0.1°C Accuracy, 16-Bit, Digital I^2C Temperature Sensor for VSM Applications
SDP-S

ADT7410:
±0.5°C Accurate, 16-Bit Digital I^2C Temperature Sensor
SDP-K1

ADT7410:
±0.5°C Accurate, 16-Bit Digital I^2C Temperature Sensor
SDP-B

ADT7410:
±0.5°C Accurate, 16-Bit Digital I^2C Temperature Sensor
SDP-S

ADT7320:
±0.25°C Accurate, 16-Bit Digital SPI Temperature Sensor
SDP-K1

ADT7320:
±0.25°C Accurate, 16-Bit Digital SPI Temperature Sensor
SDP-B

ADT7320:
±0.25°C Accurate, 16-Bit Digital SPI Temperature Sensor
SDP-S

ADT7310:
±0.5°C Accurate, 16-Bit Digital SPI Temperature Sensor
SDP-K1

ADT7310:
±0.5°C Accurate, 16-Bit Digital SPI Temperature Sensor
SDP-B

ADT7310:
±0.5°C Accurate, 16-Bit Digital SPI Temperature Sensor
SDP-S

Digital Tunable Filters (2)

ADMV8913:
X Band, Digitally Tunable, High-Pass and Low-Pass Filter

SDP-S

ADMV8526:
1.25 GHz to 2.60 GHz Digitally Tunable Band-Pass Filter
SDP-S

Direct Digital Synthesis (DDS) (9)

AD9838:
11 mW Power, 2.3 V to 5.5 V, Complete DDS
SDP-B

AD9837:
Low Power, 8.5 mW, 2.3 V to 5.5 V, Programmable Waveform Generator
SDP-B

AD9835:
50 MHz Direct Digital Synthesizer, Waveform Generator
SDP-B

AD9834:
20 mW Power, 2.3 V to 5.5 V, 75 MHz Complete DDS
SDP-S

AD9834:
20 mW Power, 2.3 V to 5.5 V, 75 MHz Complete DDS
SDP-B

AD9833:
Low Power, 12.65 mW, 2.3 V to 5.5 V, Programmable Waveform Generator
SDP-B

AD9832:
25 MHz Direct Digital Synthesizer Waveform Generator
SDP-B

AD9106:
Quad, Low Power, 12-Bit, 180 MSPS, Digital-to-Analog Converter and Waveform Generator
SDP-K1

AD9102:
Low Power, 14-Bit, 180 MSPS, Digital-to-Analog Converter and Waveform Generator

SDP-K1

Dual-Supply Analog Switches and Multiplexers (5)

ADG636:
1 pC Charge Injection, 100 pA Leakage, CMOS, ±5 V/+5 V/+3 V Dual SPDT Switch
SDP-H1

ADG1636:
1 Ω Typical On Resistance, ±5 V, +12 V, +5 V, and +3.3 V Dual SPDT Switches
SDP-H1

ADG1236:
Low Capacitance, Low Charge Injection, ±15 V/12 V iCMOS, Dual SPDT Switch
SDP-H1

ADG1209:
Low Capacitance, 4-Channel, ±15 V/+12 V *i*CMOS™ Multiplexer
SDP-H1

ADG1206:
Low Capacitance, 16-Channel, ±15 V/+12 V *i*CMOS Multiplexer
SDP-H1

Fast Precision D/A Converters (4)

AD3552R:
Dual Channel, 16-Bit, 33 MUPS, Multispan, Multi-IO SPI DAC
SDP-H1

AD3551R:
Single Channel, 16-Bit, 33 MUPS, Multispan, Multi-IO SPI DAC
SDP-H1

AD3542R:
Dual Channel, 12-/16-Bit, 16 MUPS, Multispan, Multi-IO SPI DAC
SDP-H1

AD3541R:
Single Channel, 12-/16-Bit, 16 MUPS, Multispan, Multi-IO SPI DAC
SDP-H1

Flyback, Forward, and Isolated Controller (1)

LT3999:
Low Noise, 1A, 1MHz Push-Pull DC/DC Driver with Duty Cycle Control
SDP-H1

Fractional-N PLL (12)

ADF5355:
Microwave Wideband Synthesizer with Integrated VCO
SDP-S

ADF4368:
Microwave Wideband Synthesizer with Integrated VCO
SDP-S

ADF4368:
Microwave Wideband Synthesizer with Integrated VCO
SDP-K1

ADF4355-3:
Microwave Wideband Synthesizer with Integrated VCO

SDP-S

ADF4355-2:
Microwave Wideband Synthesizer with Integrated VCO
SDP-S

ADF4196:
Low Phase Noise, Fast Settling 6 GHz PLL Frequency Synthesizer
SDP-S

ADF4193:
Low Phase Noise, Fast Settling PLL Frequency Synthesizer
SDP-S

ADF4157:
High Resolution 6 GHz Fractional-N Frequency Synthesizer
SDP-S

ADF4156:
6.2 GHz Fractional-N Frequency Synthesizer
SDP-S

ADF4154:
Fractional-N Frequency Synthesizer
SDP-S

ADF4153A:
Fractional-N Frequency Synthesizer
SDP-S

ADF4153:
Fractional-N Frequency Synthesizer
SDP-S

Fully Differential Amplifiers (3)

LTC6419:
Dual 10GHz GBW, 1.1nV/$\sqrt{Hz}$ Differential Amplifier/ADC Driver
SDP-H1

ADA4945-1:
High Speed, ±0.1 μV/˚C Offset Drift, Fully Differential ADC Driver
SDP-H1

AD8475:
Precision, Selectable Gain, Fully Differential Funnel Amplifier
SDP-H1

High Speed Op Amps (Bandwidth ≥ 50MHz) (2)

LTC6269:
Dual 500MHz Ultra-Low Bias Current FET Input Op Amp
SDP-H1

ADA4807-2:
3.1 nV/√Hz, 1 mA, 180 MHz, Rail-to-Rail Input/Output Amplifier

SDP-H1

I/Q Demodulators with Integrated LO (1)

ADRF6850:
100 MHz to 1000 MHz Integrated Broadband Receiver
SDP-S

I/Q Modulators (1)

ADRF6755:
100 MHz TO 2400 MHz I/Q Modulator with Integrated Fractional-N PLL and VCO
SDP-S

Instrumentation Amplifiers (1)

ADA4254:
Zero Drift, High Voltage, Low Power, Programmable Gain Instrumentation Amplifier
SDP-S

Integer-N PLL (12)

ADF4118:
Single, Integer-N, 3.0 GHz PLL
SDP-S

ADF4117:
Single, Integer-N 1.2 GHz PLL
SDP-S

ADF4116:
Single, Integer-N 550 MHz PLL
SDP-S

ADF4113HV:
High Voltage Charge Pump, PLL Synthesizer
SDP-S

ADF4113:
Single, Integer-N 4.0 GHz PLL With Programmable Prescaler And Charge Pump
SDP-S

ADF4112:
Single, Integer-N 3.0 GHz PLL With Programmable Prescaler And Charge Pump
SDP-S

ADF4111:
Single, Integer-N, 1.2 GHz PLL With Programmable Prescaler And Charge Pump
SDP-S

ADF4110:
Single, Integer-N, 550 MHz PLL With Programmable Prescaler And Charge Pump
SDP-S

ADF4107:
7 GHz integer-N PLL
SDP-S

ADF4106:
6 GHz integer-N PLL
SDP-S

ADF4002:
Phase Detector / PLL Frequency Synthesizer
SDP-S

ADF4001:
200 MHz Clock Generator PLL
SDP-S

Low Input Bias Current Op Amps (≤100 pA) (1)

ADA4627-1:
36 V, 19 MHz, Low Noise, Low Bias Current, JFET Op Amp
SDP-H1

Low Noise Op Amps (≤ 10nV/√Hz) (1)

ADA4896-2:
1 nV/√Hz, Low Power, Rail-to-Rail Output Amplifiers
SDP-H1

Low Power Op Amps (≤ 1mA/amp) (2)

OP2177:
Precision Low Noise, Low Input Bias Current Dual Operational Amplifier
SDP-H1

AD8031:
2.7 V, 800 μA, 80 MHz Rail-to-Rail I/O Single Amplifier
SDP-H1

Magnetic Field Sensors (1)

ADA4571:
Integrated AMR Angle Sensor and Signal Conditioner
SDP-S

MEMS Switches (5)

ADGM1144:
0 Hz/DC to 18 GHz, SP4T, MEMS Switch
SDP-B

ADGM1121:
0 Hz/DC to 18 GHz, DPDT, MEMS Switch
SDP-K1

ADGM1003:
0 Hz/DC to 16 GHz, SPDT MEMS Switches
SDP-B

ADGM1002:
0 Hz/DC to 20 GHz, SPDT MEMS Switches
SDP-B

ADGM1001:
0 Hz/DC to 34 GHz, SPDT MEMS Switches
SDP-B

Microwave and mmWave Transmitters (1)

ADF5901:
24 GHz VCO and PGA with 2-Channel PA Output

SDP-S

Microwave and mmWave Tx/Rx (1)

ADF5904:
4-Channel, 24 GHz, Receiver Downconverter
SDP-S

Multicell Battery Stack Monitor (1)

ADBMS6830B:
16-Channel Multicell Battery Monitor
SDP-K1

Multichannel Voltage Output D/A Converters (25)

AD5697R:
Dual 12-Bit *nano*DAC+™ with 2 ppm/°C Reference, I^2C Interface
SDP-S

AD5696R:
Quad 16-Bit *nano*DAC+ with 2 ppm/°C Reference, I^2C Interface

SDP-S

AD5696:
Quad, 16-Bit *nano*DAC+™ with I^2C Interface
SDP-S

AD5695R:
Quad 14-Bit *nano*DAC+ with 2 ppm/°C Reference, I^2C Interface

SDP-S

AD5694R:
Quad, 12-Bit *nano*DAC+ with 2 ppm/°C Reference, I^2C Interface
SDP-B

AD5694R:
Quad, 12-Bit *nano*DAC+ with 2 ppm/°C Reference, I^2C Interface
SDP-S

AD5694:
Quad, 12-Bit *nano*DAC+™ with I^2C Interface
SDP-B

AD5694:
Quad, 12-Bit *nano*DAC+™ with I^2C Interface
SDP-S

AD5689R:
Dual, 16-Bit *nano*DAC+ with 2 ppm/°C Reference, SPI Interface
SDP-S

AD5689:
Dual, 16-Bit *nano*DAC+™ with SPI Interface
SDP-S

AD5687R:
Dual, 12-Bit *nano*DAC+ with 2 ppm/°C Reference, SPI Interface

SDP-S

AD5687:
Dual, 12-Bit *nano*DAC+™ with SPI Interface
SDP-S

AD5686R:
Quad, 16-Bit *nano*DAC+™ with 2 ppm/°C On-Chip Reference and SPI Interface
SDP-S

AD5686:
Quad, 16-Bit *nano*DAC+ with SPI Interface
SDP-S

AD5685R:
Quad, 14-Bit *nano*DAC+ with 2 ppm/°C On-Chip Reference and SPI Interface
SDP-S

AD5684R:
Quad, 12-Bit *nano*DAC+ with 2 ppm/°C On-Chip Reference and SPI Interface
SDP-B

AD5684R:
Quad, 12-Bit *nano*DAC+ with 2 ppm/°C On-Chip Reference and SPI Interface
SDP-S

AD5684:
Quad, 12-Bit *nano*DAC+ with SPI Interface
SDP-B

AD5684:
Quad, 12-Bit *nano*DAC+ with SPI Interface
SDP-S

AD5676R:
Octal, 16-Bit nanoDAC+ with 2 ppm/°C Reference, SPI Interface
SDP-K1

AD5669R:
Octal, 16-bit, I^2C Voltage Output *dense*DAC with 5 ppm/°C On-Chip Reference
SDP-B

AD5668:
Octal, 16-Bit, SPI Voltage Output *dense*DAC With 5 ppm/°C On-Chip Reference
SDP-B

AD5648:
Octal, 14-Bit, SPI Voltage Output *dense*DAC With 5 ppm/°C On-Chip Reference
SDP-B

AD5629R:
Octal, 12-bit, I^2C Voltage Output *dense*DAC with 5 ppm/°C On-Chip Reference
SDP-B

AD5628:
Octal, 12-Bit, SPI Voltage Output *dense*DAC With 5 ppm/°C On-Chip Reference
SDP-B

Multiplexed A/D Converters (19)

AD7490:
16-Channel, 1 MSPS, 12-Bit ADC with Sequencer
SDP-B

AD7298:
8-Channel, 1MSPS, 12-Bit SAR ADC with Temperature Sensor
SDP-B

AD7291:
8-Channel, I^2C, 12-Bit SAR ADC with Temperature Sensor
SDP-B

AD7195:
4.8 kHz, Ultralow Noise, 24-Bit Sigma-Delta ADC with PGA and AC Excitation
SDP-B

AD7195:
4.8 kHz, Ultralow Noise, 24-Bit Sigma-Delta ADC with PGA and AC Excitation
SDP-K1

AD7194:
8-Channel, 4.8 kHz, Ultralow Noise, 24-Bit Sigma-Delta ADC with PGA
SDP-B

AD7194:
8-Channel, 4.8 kHz, Ultralow Noise, 24-Bit Sigma-Delta ADC with PGA
SDP-K1

AD7193:
4-Channel, 4.8 kHz, Ultralow Noise, 24-Bit Sigma-Delta ADC with PGA
SDP-B

AD7193:
4-Channel, 4.8 kHz, Ultralow Noise, 24-Bit Sigma-Delta ADC with PGA
SDP-K1

AD7192:
4.8 kHz Ultra-Low Noise 24-Bit Sigma-Delta ADC with PGA
SDP-B

AD7192:
4.8 kHz Ultra-Low Noise 24-Bit Sigma-Delta ADC with PGA
SDP-K1

AD7190:
4.8 kHz Ultralow Noise 24-Bit Sigma-Delta ADC with PGA
SDP-B

AD7190:
4.8 kHz Ultralow Noise 24-Bit Sigma-Delta ADC with PGA
SDP-K1

AD7176-2:
24-Bit, 250 kSPS Sigma Delta ADC with 20 µs Settling
SDP-B

AD7175-2:
24-Bit, 250 kSPS, Sigma-Delta ADC with 20 µs Settling and True Rail-to-Rail Buffers
SDP-B

AD7173-8:
Low Power, 8-/16-Channel, 31.25 kSPS, 24-Bit, Highly Integrated Sigma-Delta ADC

SDP-B

AD7172-2:
Low Power, 24-Bit, 31.25 kSPS, Sigma-Delta ADC with True Rail-to-Rail Buffers
SDP-B

AD4131-8:
32 µA, Ultra Low Power, 16-Bit Sigma-Delta ADC with Integrated PGA
SDP-K1

AD4130-8:
32 µA, Ultra Low Power, 24-Bit Sigma-Delta ADC with Integrated PGA and FIFO
SDP-K1

Multiplying Current Output D/A Converters (23)

AD5556:
Current-Output Parallel-Input, 14-Bit Digital-to-Analog Converter
SDP-B

AD5555:
Precision DUAL 16-Bit 14-Bit-DACs in Compact TSSOP Packages
SDP-B

AD5554:
Quad, Current-Output, Serial-Input 16-/14-Bit DACs
SDP-B

AD5553:
14-Bit DAC in µSOIC-8 Package
SDP-B

AD5546:
Current-Output Parallel-Input, 16-Bit Digital-to-Analog Converter
SDP-B

AD5545:
Precision DUAL 16-Bit and 14-Bit DACs in Compact TSSOP Packages
SDP-B

AD5544:
Quad, Current-Output, Serial-Input 16-/14-Bit DACs
SDP-B

AD5543:
16-Bit DAC in µSOIC-8 Package
SDP-B

AD5453:
14-Bit High Bandwidth Multiplying DACs with Serial Interface
SDP-S

AD5452:
12-Bit High Bandwidth Multiplying DACs with Serial Interface
SDP-S

AD5451:
10-Bit High Bandwidth Multiplying DACs with Serial Interface
SDP-S

AD5450:
8-Bit High Bandwidth Multiplying DACs with Serial Interface
SDP-S

AD5449:
Dual 12-Bit, High Bandwidth Multiplying DAC with Serial Interface
SDP-B

AD5446:
12-/14-Bit High Bandwidth Multiplying DACs with Serial Interface
SDP-S

AD5445:
High Bandwidth 12-Bit Parallel Interface Multiplying D/A Converter
SDP-B

AD5444:
12-/14-Bit High Bandwidth Multiplying DACs with Serial Interface
SDP-S

AD5443:
12-Bit High Bandwidth Multiplying DAC's with Serial Interface
SDP-S

AD5439:
Dual 10-Bit, High Bandwidth, Multiplying DAC with Serial Interface
SDP-B

AD5433:
High Bandwidth 10-Bit Parallel Interface Multiplying D/A Converter
SDP-B

AD5432:
10-Bit High Bandwidth Multiplying DACs with Serial Interface
SDP-S

AD5429:
Dual 8-Bit, High Bandwidth, Multiplying DAC with Serial Interface
SDP-B

AD5424:
High Bandwidth 8-Bit Parallel Interface Multiplying D/A Converter
SDP-B

AD5415:
Dual 12-Bit, High Bandwidth, Multiplying DAC with 4 Quadrant Resistors and Serial Interface
SDP-B

Negative Linear Regulators (LDO) (1)

ADP7182:
–28 V, −200 mA, Low Noise, Linear Regulator
SDP-H1

Phase Locked Loop with Integrated VCO (4)

ADF4378:
Microwave Wideband Synthesizer with Integrated VCO and Deterministic General-Purpose Pulse Retimer
SDP-S

ADF4378:
Microwave Wideband Synthesizer with Integrated VCO and Deterministic General-Purpose Pulse Retimer
SDP-K1

ADF4377:
Microwave Wideband Synthesizer with Integrated VCO
SDP-S

ADF4377:
Microwave Wideband Synthesizer with Integrated VCO
SDP-K1

PMIC (DC/DC, PowerPath, and Battery Charger) (1)

LTC3556:
High Efficiency USB Power Manager with Dual Buck and Buck-Boost DC/DCs
SDP-K1

Positive Linear Regulators (LDO) (12)

LT3032 Series:
Dual 150mA Positive/Negative Low Noise Low Dropout Linear Regulator
SDP-H1

LT1763:
500mA, Low Noise, LDO Micropower Regulators
SDP-K1

ADP7118:
20 V, 200 mA, Low Noise, CMOS LDO Linear Regulator
SDP-H1

ADP7112:
20 V, 200 mA, Low Noise, CMOS LDO Linear Regulator
SDP-H1

ADP7105:
20 V, 500 mA, Low Noise LDO Regulator with Soft Start
SDP-H1

ADP7104:
20 V, 500 mA, Low Noise, CMOS LDO
SDP-B

ADP1706:
1 A, Low Dropout, CMOS Linear Regulator
SDP-H1

ADP165:
Very Low Quiescent Current, 150 mA, with Output Discharge LDO Regulator
SDP-H1

ADP150:
Ultralow Noise, 150 mA CMOS Linear Regulator
SDP-H1

ADM7171:
6.5 V, 1 A, Ultralow Noise, High PSRR, Fast Transient Response CMOS LDO
SDP-H1

ADM7160:
Ultralow Noise, 200 mA, Linear Regulator
SDP-K1

ADM7154:
600 mA, Ultralow Noise, High PSRR, RF Linear Regulator
SDP-H1

PowerPath, Ideal Diodes, and Load Switches (1)

ADP196:
5 V, 3 A Logic Controlled High-Side Power Switch
SDP-H1

Precision Op Amps (Vos ≤1mV & TCVos ≤2uV/C) (2)

ADA4841-1:
Low Power, Low Noise and Distortion, Rail-to-Rail Output Amplifier
SDP-H1

AD8676:
Ultra Precision, 36 V, 2.8 nV/√Hz Dual RRO Op Amp
SDP-H1

Precision Resistor Network (1)

LT5400:
Quad Matched Resistor Network
SDP-H1

Precision Signal Chain μModule Solutions (4)

ADAQ7768-1:
24-Bit Single Channel Precision μModule Data Acquisition System
SDP-H1

ADAQ4003:
18-Bit, 2 MSPS, μModule Data Acquisition Solution
SDP-H1

ADAQ23878:
18-Bit, 15 MSPS, μModule Data Acquisition Solution
SDP-H1

ADAQ23876:
16-Bit, 15 MSPS, μModule Data Acquisition Solution
SDP-H1

Quad or More Supply Monitors (1)

LTC2962:
±0.5% Accurate Quad Configurable Supervisor
SDP-H1

Serial Bus Buffers, Extenders, and Accelerators (1)

LTC4306:
4-Channel, 2-Wire Bus Multiplexer with Capacitance Buffering
SDP-K1

Series Voltage References (7)

LTC6655:
0.25ppm Noise, Low Drift Precision References
SDP-H1

ADR4540:
Ultra-Low-Noise, High-Accuracy 4.096V Voltage Reference
SDP-H1

ADR4525:
Ultra-Low-Noise, High-Accuracy 2.5V Voltage Reference
SDP-K1

ADR444:
Ultralow Noise, LDO XFET® 4.096V Voltage Reference w/Current Sink and Source
SDP-H1

ADR421:
Ultraprecision, Low Noise, 2.500 V XFET® Voltage References
SDP-B

ADR130:
Precision Series Sub-Band Gap Voltage Reference
SDP-H1

ADR03:
Ultracompact, Precision 2.5 V Voltage Reference
SDP-H1

AD7768-4:
4-Channel, 24-Bit, Simultaneous Sampling ADC, Power Scaling, 110.8 kHz BW
SDP-H1

AD7768:
8-Channel, 24-Bit, Simultaneous Sampling ADC, Power Scaling, 110.8 kHz BW
SDP-H1

AD7761:
8-Channel, 16-Bit, Simultaneous Sampling ADC with Power Scaling, 110.8 kHz BW
SDP-H1

AD7658-1:
250 kSPS, 6-Channel, Simultaneous Sampling, Bipolar 12-Bit ADC
SDP-B

AD7658:
250 kSPS, 6-Channel,SimultaneousSampling, Bipolar 12-Bit A/D Converter
SDP-B

AD7657-1:
250 kSPS, 6-Channel, Simultaneous Sampling, Bipolar 14-Bit ADC
SDP-B

AD7656-1:
250 kSPS, 6-Channel, Simultaneous Sampling, Bipolar 16-Bit ADC
SDP-B

AD7656:
250 kSPS, 6-Channel, Simultaneous Sampling Bipolar 16-Bit ADC
SDP-B

AD7608:
8-Channel DAS with 18-Bit, Bipolar, Simultaneous Sampling ADC
SDP-B

AD7607:
8-Channel DAS with 14-Bit, Bipolar, Simultaneous Sampling ADC
SDP-B

AD7606-6:
6-Channel DAS with 16-Bit, Bipolar Input, Simultaneous Sampling ADC
SDP-B

AD7606-4:
4-Channel DAS with 16-Bit, Bipolar Input, Simultaneous Sampling ADC
SDP-B

AD7606:
8-Channel DAS with 16-Bit, Bipolar Input, Simultaneous Sampling ADC
SDP-B

AD7605-4:
4-Channel DAS with 16-Bit, Bipolar Input, Simultaneous Sampling ADC
SDP-B

AD7389-4:
Differential Input, Quad, Internal Reference Simultaneous Sampling, 16-Bit SAR ADC
SDP-H1

AD7388:
4-Channel, 4 MSPS, 12-Bit, Dual, Simultaneous Sampling SAR ADCs
SDP-H1

AD7387:
4-Channel, 4 MSPS, 14-Bit, Dual, Simultaneous Sampling SAR ADC
SDP-H1

AD7386:
4-Channel, 4 MSPS, 16-Bit Dual Simultaneous Sampling SAR ADC
SDP-H1

AD7384-4:
Pseudo Differential Input, Quad, 4 MSPS Simultaneous Sampling, 14-Bit, SAR ADC
SDP-H1

AD7383-4:
Pseudo Differential Input, Quad, 4 MSPS Simultaneous Sampling, 16-Bit, SAR ADC
SDP-H1

AD7381-4:
Differential Input, Quad,14-Bit, Simultaneous Sampling, SAR ADC
SDP-H1

AD7380-4:
Differential Input, Quad, External Reference Simultaneous Sampling, 16-Bit, SAR ADC
SDP-H1

AD7367:
True Bipolar Input, Dual 14-Bit, 2-Channel, Simultaneous Sampling SAR ADC
SDP-B

AD7366:
True Bipolar Input, Dual 12-Bit, 2-Channel, Simultaneous Sampling SAR ADC
SDP-B

AD7134:
24-Bit, 4-Channel Simultaneous Sampling 1.5 MSPS Precision Alias Free ADC
SDP-H1

AD4685:
500 kSPS, 4-Channel, 16-Bit Dual, Simultaneous Sampling SAR ADCs
SDP-H1

AD4684:
1 MSPS, 4-Channel, 16-Bit Dual, Simultaneous Sampling SAR ADCs
SDP-H1

Single Channel A/D Converters (46)

LTC2378-20:
20-Bit, 1Msps, Low Power SAR ADC with 0.5ppm INL
SDP-H1

AD7989-5:
18-Bit, 500 kSPS PulSAR ADCs in MSOP/LFCSP
SDP-B

AD7989-1:
18-Bit, 100 kSPS PulSAR ADCs in MSOP/LFCSP

SDP-B

AD7988-5:
16-Bit Lower Power PulSAR ADCs in MSOP/LFCSP
SDP-I-PMOD

AD7988-5:
16-Bit Lower Power PulSAR ADCs in MSOP/LFCSP
SDP-B

AD7988-1:
16-Bit Lower Power PulSAR ADCs in MSOP/LFCSP
SDP-B

AD7988-1:
16-Bit Lower Power PulSAR ADCs in MSOP/LFCSP
SDP-I-PMOD

AD7984:
18-Bit, 1.33 MSPS PulSAR 10.5 mW ADC in MSOP/QFN
SDP-B

AD7984:
18-Bit, 1.33 MSPS PulSAR 10.5 mW ADC in MSOP/QFN
SDP-I-PMOD

AD7983:
16-Bit, 1.33 MSPS PulSAR ADC in MSOP/LFCSP
SDP-B

AD7983:
16-Bit, 1.33 MSPS PulSAR ADC in MSOP/LFCSP
SDP-I-PMOD

AD7982:
18-Bit, 1 MSPS PulSAR ADC in MSOP/LFCSP
SDP-I-PMOD

AD7982:
18-Bit, 1 MSPS PulSAR ADC in MSOP/LFCSP
SDP-B

AD7980:
16-Bit, 1 MSPS, PulSAR ADC in MSOP/LFCSP
SDP-B

AD7980:
16-Bit, 1 MSPS, PulSAR ADC in MSOP/LFCSP
SDP-I-PMOD

AD7961:
16-Bit, 5 MSPS PULSAR® Differential ADC
SDP-H1

AD7960:
18-Bit, 5 MSPS PULSAR® Differential ADC
SDP-H1

AD7946:
14-Bit, 500 kSPS PulSAR® ADC in MSOP
SDP-B

AD7946:
14-Bit, 500 kSPS PulSAR® ADC in MSOP
SDP-I-PMOD

AD7942:
14-Bit, 250 kSPS PulSAR®, Pseudo Differential ADC in MSOP/LFCSP
SDP-B

AD7942:
14-Bit, 250 kSPS PulSAR®, Pseudo Differential ADC in MSOP/LFCSP
SDP-I-PMOD

AD7940:
3 mW, 100 kSPS, 14-Bit ADC in 6-Lead SOT-23
SDP-B

AD7768-1:
DC to 204 kHz, Dynamic Signal Analysis, Precision 24-Bit ADC with Power Scaling
SDP-H1

AD7694:
250 kSPS 16-BIT PulSAR® A/D Converter in µSOIC
SDP-B

AD7693:
16-Bit, ±0.5 LSB, 500 kSPS PulSAR® Differential A/D Converter in MSOP/QFN
SDP-B

AD7693:
16-Bit, ±0.5 LSB, 500 kSPS PulSAR® Differential A/D Converter in MSOP/QFN
SDP-I-PMOD

AD7691:
18-Bit, 1.5 LSB INL, 250 kSPS PulSAR® Differential ADC in MSOP/QFN
SDP-B

AD7691:
18-Bit, 1.5 LSB INL, 250 kSPS PulSAR® Differential ADC in MSOP/QFN
SDP-I-PMOD

AD7690:
18-Bit, 1.5 LSB INL, 400 kSPS PulSAR® Differential ADC in MSOP/QFN
SDP-B

AD7690:
18-Bit, 1.5 LSB INL, 400 kSPS PulSAR® Differential ADC in MSOP/QFN
SDP-I-PMOD

AD7688:
500 kSPS 16- BIT Differential PulSAR® A/D Converter in µSOIC/QFN
SDP-B

AD7688:
500 kSPS 16- BIT Differential PulSAR® A/D Converter in µSOIC/QFN
SDP-I-PMOD

AD7687:
16-Bit, 1.5 LSB INL, 250 kSPS PulSAR™ Differential ADC in MSOP/QFN
SDP-B

AD7687:
16-Bit, 1.5 LSB INL, 250 kSPS PulSAR™ Differential ADC in MSOP/QFN
SDP-I-PMOD

AD7686:
500 kSPS 16-BIT PulSAR® A/D Converter in MSOP/QFN
SDP-B

AD7686:
500 kSPS 16-BIT PulSAR® A/D Converter in MSOP/QFN
SDP-I-PMOD

AD7685:
16-Bit, 250 kSPS PulSAR® ADC in MSOP/QFN
SDP-B

AD7685:
16-Bit, 250 kSPS PulSAR® ADC in MSOP/QFN
SDP-I-PMOD

AD7684:
16-Bit, 100 kSPS PulSAR®, Differential ADC in MSOP
SDP-B

AD7683:
100 kSPS 16-BIT PulSAR® A/D Converter in µSOIC/QFN
SDP-B

AD7492:
1MSPS, 4mW Internal Ref & Clk, 12-Bit Parallel ADC
SDP-B

AD7450A:
Differential Input, 1 MSPS, 12- (AD7450A) & 10-Bit (AD7440) ADCs
SDP-B

AD7276:
3 MSPS, 12-Bit ADC in 8-Lead MSOP and 6-Lead TSOT

SDP-B

AD7274:
3 MSPS 12-Bit A/D Converter in TSOT and MSOP Packages
SDP-B

AD7091R:
1 MSPS, Ultralow Power, 12-Bit ADC in 10-Lead LFCSP and MSOP
SDP-B

AD7091:
1 MSPS, Ultralow Power 12-Bit ADC in 8-Lead LFCSP
SDP-B

Single, Double, and Triple Balanced Mixers (1)

ADRF6658:
Wideband, Dual Rx Mixers with Integrated IF Amplifiers
SDP-S

Single-Channel Voltage Output D/A Converters (9)

AD5791:
1 ppm, 20-Bit, ±1 LSB INL, Voltage Output DAC
SDP-B

AD5791:
1 ppm, 20-Bit, ±1 LSB INL, Voltage Output DAC
SDP-H1

AD5790:
System Ready 20-Bit, ±2 LSB INL, Voltage Output DAC
SDP-B

AD5781:
True 18-Bit, Voltage Output DAC ±0.5 LSB INL, ±0.5 LSB DNL
SDP-B

AD5780:
System Ready, 18-Bit ±1 LSB INL, Voltage Output DAC
SDP-B

AD5760:
Ultra Stable 16-Bit ±0.5 LSB INL, Voltage Output DAC
SDP-B

AD5570:
True Accuracy, 16-Bit ±12 V/±15 V, Serial Input Voltage Output D/A Converter
SDP-S

AD5542A:
2.7 V to 5.5 V, Serial-Input, Voltage-Output, 16-Bit *nano*DAC™ in 10-lead LFCSP, 16-lead 3 mm x 3 mm LFCSP, and 16-lead TSSOP
SDP-B

AD5541A:
2.7 V to 5.5 V, Serial-Input, Voltage-Output, 16-/12-Bit *nano*DAC™ in 8-lead 3 mm × 3 mm LFCSP
SDP-B

Single-Ended to Differential Amplifiers (1)

ADA4940-1:
Ultralow Power, Low Distortion ADC Driver
SDP-H1

Single-Supply Voltage Output D/A Converters (6)

AD5679R:
16-Channel, 12-/16-Bit *nano*DAC+ with 2 ppm/°C Voltage Reference Temperature Coefficient, SPI Interface
SDP-H1

AD5679R:
16-Channel, 12-/16-Bit *nano*DAC+ with 2 ppm/°C Voltage Reference Temperature Coefficient, SPI Interface
SDP-S

AD5679R:
16-Channel, 12-/16-Bit *nano*DAC+ with 2 ppm/°C Voltage Reference Temperature Coefficient, SPI Interface
SDP-B

AD5679:
16-Channel, 12-/16-Bit *nano*DAC+ with 2 ppm/°C Voltage Reference Temperature Coefficient, SPI Interface
SDP-B

AD5674R:
16-Channel, 12-Bit *nano*DAC+ with 2 ppm/°C Voltage Reference Temperature Coefficient, SPI Interface
SDP-B

AD5674:
16-Channel, 12-Bit *nano*DAC+ with 2 ppm/°C Voltage Reference Temperature Coefficient, SPI Interface
SDP-B

Standard Digital Isolators (2)

ADuM152N:
Robust 3.0 kV rms Five Channel Digital Isolators w/ Fail-Safe & 2 Reverse Channels

SDP-H1

ADuM120N:
3.0 kV rms, Dual-Channel Digital Isolators
SDP-H1

Standard High Speed A/D Converters (13)

HMCAD1520:
High Speed Multi-Mode 8/12/14-Bit 1000/640/105 MSPS A/D Converter
SDP-H1

HMCAD1520:
High Speed Multi-Mode 8/12/14-Bit 1000/640/105 MSPS A/D Converter
SDP-B

HMCAD1520:
High Speed Multi-Mode 8/12/14-Bit 1000/640/105 MSPS A/D Converter
SDP-S

HMCAD1511:
High Speed Multi-Mode 8-Bit 1 GSPS A/D Converter
SDP-H1

HMCAD1511:
High Speed Multi-Mode 8-Bit 1 GSPS A/D Converter
SDP-B

HMCAD1511:
High Speed Multi-Mode 8-Bit 1 GSPS A/D Converter
SDP-S

AD9467:
16-Bit, 200 MSPS/250 MSPS Analog-to-Digital Converter
SDP-H1

AD9434:
12-Bit, 370 MSPS/500 MSPS, 1.8 V Analog-to-Digital Converter
SDP-B

AD9434:
12-Bit, 370 MSPS/500 MSPS, 1.8 V Analog-to-Digital Converter
SDP-H1

AD9434:
12-Bit, 370 MSPS/500 MSPS, 1.8 V Analog-to-Digital Converter
SDP-S

AD9265:
16-Bit, 125 MSPS/105 MSPS/80 MSPS, 1.8 V Analog-to-Digital Converter
SDP-H1

AD9265:
16-Bit, 125 MSPS/105 MSPS/80 MSPS, 1.8 V Analog-to-Digital Converter
SDP-B

AD9265:
16-Bit, 125 MSPS/105 MSPS/80 MSPS, 1.8 V Analog-to-Digital Converter
SDP-S

Standard High Speed D/A Converters (121)

AD9788:
Dual 16-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-H1

AD9788:
Dual 16-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-S

AD9788:
Dual 16-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-B

AD9787:
Dual 14-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-H1

AD9787:
Dual 14-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-S

AD9787:
Dual 14-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-B

AD9785:
Dual 12-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-H1

AD9785:
Dual 12-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-S

AD9785:
Dual 12-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
SDP-B

AD9783:
Dual 16-Bit, LVDS Interface 500 MSPS DAC
SDP-H1

AD9781:
Dual 14-Bit, LVDS Interface 500 MSPS DAC
SDP-H1

AD9780:
Dual 12-Bit, LVDS Interface 500 MSPS DAC
SDP-H1

AD9779A:
Dual, 16-Bit, 1 GSPS, Digital-to-Analog Converter
SDP-H1

AD9779A:
Dual, 16-Bit, 1 GSPS, Digital-to-Analog Converter
SDP-S

AD9779A:
Dual, 16-Bit, 1 GSPS, Digital-to-Analog Converter
SDP-B

AD9778A:
Dual, 14-Bit, 1 GSPS, Digital-to-Analog Converter
SDP-H1

AD9776A:
Dual, 12-Bit, 1 GSPS, Digital-to-Analog Converter
SDP-H1

AD9776A:
Dual, 12-Bit, 1 GSPS, Digital-to-Analog Converter
SDP-S

AD9776A:
Dual, 12-Bit, 1 GSPS, Digital-to-Analog Converter
SDP-B

AD9767:
14-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-H1

AD9767:
14-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-B

AD9767:
14-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-S

AD9765:
12-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-H1

AD9765:
12-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-B

AD9765:
12-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-S

AD9763:
10-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-B

AD9763:
10-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-H1

AD9763:
10-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
SDP-S

AD9748:
8-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-H1

AD9748:
8-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-B

AD9748:
8-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-S

AD9747:
Dual 16-Bit 250 MSPS Digital-to-Analog Converters
SDP-H1

AD9747:
Dual 16-Bit 250 MSPS Digital-to-Analog Converters
SDP-S

AD9747:
Dual 16-Bit 250 MSPS Digital-to-Analog Converters
SDP-B

AD9746:
Dual 14-Bit 250 MSPS Digital-to-Analog Converters
SDP-H1

AD9746:
Dual 14-Bit 250 MSPS Digital-to-Analog Converters
SDP-S

AD9746:
Dual 14-Bit 250 MSPS Digital-to-Analog Converters
SDP-B

AD9745:
Dual 12-Bit 250 MSPS Digital-to-Analog Converters
SDP-H1

AD9745:
Dual 12-Bit 250 MSPS Digital-to-Analog Converters
SDP-S

AD9745:
Dual 12-Bit 250 MSPS Digital-to-Analog Converters
SDP-B

AD9744:
14-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-H1

AD9744:
14-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-B

AD9744:
14-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-S

AD9743:
Dual 10-Bit 250 MSPS Digital-to-Analog Converters
SDP-H1

AD9743:
Dual 10-Bit 250 MSPS Digital-to-Analog Converters
SDP-S

AD9743:
Dual 10-Bit 250 MSPS Digital-to-Analog Converters
SDP-B

AD9742:
12-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-H1

AD9742:
12-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-B

AD9742:
12-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-S

AD9741:
Dual 8-Bit 250 MSPS Digital-to-Analog Converters
SDP-H1

AD9741:
Dual 8-Bit 250 MSPS Digital-to-Analog Converters
SDP-B

AD9741:
Dual 8-Bit 250 MSPS Digital-to-Analog Converters
SDP-S

AD9740:
10-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-H1

AD9740:
10-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-S

AD9740:
10-Bit, 210 MSPS *TxDAC*® D/A Converter
SDP-B

AD9739A:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
SDP-H1

AD9739:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter

SDP-H1

AD9737A:
11-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
SDP-H1

AD9736:
14-Bit, 1200 MSPS DACs
SDP-H1

AD9735:
12-Bit, 1200 MSPS DACs
SDP-H1

AD9734:
10-Bit, 1200 MSPS DACs
SDP-H1

AD9717:
Dual, 14-Bit Low Power Digital-to-Analog Converters
SDP-H1

AD9717:
Dual, 14-Bit Low Power Digital-to-Analog Converters
SDP-S

AD9717:
Dual, 14-Bit Low Power Digital-to-Analog Converters
SDP-B

AD9716:
Dual, 12-Bit Low Power Digital-to-Analog Converters
SDP-H1

AD9716:
Dual, 12-Bit Low Power Digital-to-Analog Converters
SDP-S

AD9716:
Dual, 12-Bit Low Power Digital-to-Analog Converters
SDP-B

AD9715:
Dual, 10-Bit Low Power Digital-to-Analog Converters
SDP-H1

AD9715:
Dual, 10-Bit Low Power Digital-to-Analog Converters
SDP-S

AD9715:
Dual, 10-Bit Low Power Digital-to-Analog Converters
SDP-B

AD9714:
Dual, 8-Bit Low Power Digital-to-Analog Converters
SDP-H1

AD9714:
Dual, 8-Bit Low Power Digital-to-Analog Converters
SDP-S

AD9714:
Dual, 8-Bit Low Power Digital-to-Analog Converters
SDP-B

AD9709:
8-Bit, 125 MSPS Dual TxDAC+ Digital-to-Analog Converter
SDP-H1

AD9709:
8-Bit, 125 MSPS Dual TxDAC+ Digital-to-Analog Converter
SDP-S

AD9709:
8-Bit, 125 MSPS Dual TxDAC+ Digital-to-Analog Converter
SDP-B

AD9707:
14-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-H1

AD9707:
14-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-S

AD9707:
14-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-B

AD9706:
12-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-H1

AD9706:
12-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-S

AD9706:
12-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-B

AD9705:
10-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-H1

AD9705:
10-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-S

AD9705:
10-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-B

AD9704:
8-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-H1

AD9704:
8-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-S

AD9704:
8-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
SDP-B

AD9148:
Quad 16-Bit,1GSPS DAC TxDAC+ Digital-to-Analog Converter
SDP-H1

AD9148:
Quad 16-Bit,1GSPS DAC TxDAC+ Digital-to-Analog Converter
SDP-B

AD9148:
Quad 16-Bit,1GSPS DAC TxDAC+ Digital-to-Analog Converter
SDP-S

AD9146:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-B

AD9146:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-H1

AD9146:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-S

AD9142A:
Dual, 16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-H1

AD9142A:
Dual, 16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-B

AD9142A:
Dual, 16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-S

AD9139:
16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-H1

AD9139:
16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-B

AD9139:
16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-S

AD9125:
Dual, 16-Bit, 1000 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-H1

AD9125:
Dual, 16-Bit, 1000 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-B

AD9125:
Dual, 16-Bit, 1000 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-S

AD9122:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-H1

AD9122:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-B

AD9122:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
SDP-S

AD9121:
Dual, 14-Bit, 1230 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-H1

AD9121:
Dual, 14-Bit, 1230 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-B

AD9121:
Dual, 14-Bit, 1230 MSPS, TxDAC+ Digital-to-Analog Converter
SDP-S

AD9117:
Dual Low Power, 14-Bit TxDAC Digital-to-Analog Converters
SDP-H1

AD9117:
Dual Low Power, 14-Bit TxDAC Digital-to-Analog Converters
SDP-B

AD9117:
Dual Low Power, 14-Bit TxDAC Digital-to-Analog Converters
SDP-S

AD9116:
Dual Low Power, 12-Bit TxDAC Digital-to-Analog Converters
SDP-H1

AD9116:
Dual Low Power, 12-Bit TxDAC Digital-to-Analog Converters
SDP-B

AD9116:
Dual Low Power, 12-Bit TxDAC Digital-to-Analog Converters
SDP-S

AD9115:
Dual Low Power, 10-Bit TxDAC Digital-to-Analog Converters
SDP-H1

AD9115:
Dual Low Power, 10-Bit TxDAC Digital-to-Analog Converters
SDP-B

AD9115:
Dual Low Power, 10-Bit TxDAC Digital-to-Analog Converters
SDP-S

AD9114:
Dual Low Power, 8-Bit TxDAC Digital-to-Analog Converters
SDP-B

AD9114:
Dual Low Power, 8-Bit TxDAC Digital-to-Analog Converters
SDP-S

AD9114:
Dual Low Power, 8-Bit TxDAC Digital-to-Analog Converters
SDP-H1

Synchro/Resolver to Digital Converters (3)

AD2S1210:
Variable Resolution, 10-Bit to 16-Bit R/D Converter with Reference Oscillator
SDP-B

AD2S1205:
12-Bit R/D Converter with Reference Oscillator
SDP-B

AD2S1200:
12-Bit R/D Converter with Reference Oscillator
SDP-B

COMPATIBLE CIRCUITS FROM THE LAB™ EVALUATION BOARDS

The SDP controller boards were designed to be used in conjunction with various Circuits from the Lab™ evaluation boards. The following Circuits from the Lab™ evaluation boards are compatible with SDP controller boards.

Circuit from the Lab (8)

Aerospace and Defense Systems (7)

CN0365:
16-Bit, 600 kSPS, Low Power Data Acquisition System for High Temperature Environments
SDP-I-PMOD

CN0365:
16-Bit, 600 kSPS, Low Power Data Acquisition System for High Temperature Environments
SDP-B

CN0301:
Universal LVDT Signal Conditioning Circuit
SDP-B

CN0288:
LVDT Signal Conditioning Circuit
SDP-B

CN0276:
High Performance, 10-Bit to 16-Bit Resolver-to-Digital Converter
SDP-B

CN0178:
Software-Calibrated, 50 MHz to 9 GHz, RF Power Measurement System
SDP-B

CN0150:
Software Calibrated, 1 MHz to 8 GHz, 60 dB RF Power Measurement System Using the AD8318 Logarithmic Detector
SDP-B

CN0274:
Ultralow Power Standalone Motion Switch
SDP-S

Energy Solutions (12)

CN0372:
Ultralow Power, General-Purpose, Multichannel Data Acquisition System with Energy Harvesting Circuit and Alert Function

SDP-I-PMOD

CN0349:
Fully Isolated Conductivity Measurement Data Acquisition System
SDP-I-PMOD

CN0321:
Fully Isolated, Single Channel Voltage and 4 mA to 20 mA Output with HART
SDP-B

CN0241:
High-Side Current Sensing with Input Overvoltage Protection
SDP-B

CN0235:
Fully Isolated Lithium Ion Battery Monitoring and Protection System
SDP-S

CN0235:
Fully Isolated Lithium Ion Battery Monitoring and Protection System
SDP-B

CN0209:
Fully Programmable Universal Analog Front End for Process Control Applications
SDP-B

CN0198:
5 V Regulator Supplies High Transient Current for Dynamic Power Controlled DAC
SDP-B

CN0189:
Tilt Measurement Using a Dual Axis Accelerometer
SDP-B

CN0188:
Low Cost, Level Shifted Low Side Current Monitor for Negative High Voltage Rails
SDP-B

CN0187:
Crest Factor, Peak, and RMS RF Power Measurement Circuit Optimized for High Speed, Low Power, and Single 3.3 V Supply
SDP-B

CN0150:
Software Calibrated, 1 MHz to 8 GHz, 60 dB RF Power Measurement System Using the AD8318 Logarithmic Detector
SDP-B

CN0370:
16-Bit, Single-Supply LED Current Driver with Less than ±1 LSB Integral and Differential Nonlinearity
SDP-I-PMOD

CN0355:
Low Power, Temperature Compensated Bridge Signal Conditioner and Driver
SDP-I-PMOD

CN0349:
Fully Isolated Conductivity Measurement Data Acquisition System
SDP-I-PMOD

CN0346:
Relative Humidity Measurement System
SDP-I-PMOD

CN0326:
Isolated Low Power pH Monitor with Temperature Compensation
SDP-B

CN0326:
Isolated Low Power pH Monitor with Temperature Compensation
SDP-I-PMOD

CN0321:
Fully Isolated, Single Channel Voltage and 4 mA to 20 mA Output with HART
SDP-B

CN0308:
Powering an ECG Front End in Battery Powered Patient Monitoring Applications
SDP-B

CN0306:
16-Bit, 100k SPS Low Power Data Acquisition System Optimized for Sub-Nyquist Input Signals Up to 1 kHz
SDP-B

CN0290:
Extending the Low Frequency Range of a High Performance Phase Locked Loop
SDP-S

CN0287:
Isolated 4-Channel, Thermocouple/RTD Temperature Measurement System with 0.5°C Accuracy
SDP-B

CN0276:
High Performance, 10-Bit to 16-Bit Resolver-to-Digital Converter
SDP-B

CN0274:
Ultralow Power Standalone Motion Switch
SDP-S

CN0254:
16-Bit, 250 kSPS 8-Channel, Single Supply, Isolated Data Acquisition System
SDP-B

CN0253:
A Robust, Low Power, Battery Monitoring Circuit Front End
SDP-B

CN0234:
Single Supply, Micropower Toxic Gas Detector Using an Electrochemical Sensor
SDP-B

CN0218:
500 V Common-Mode Voltage Current Monitor
SDP-B

CN0216:
Precision Weigh Scale Design Using the AD7791 24-Bit Sigma-Delta ADC with External ADA4528-1 Zero-Drift Amplifiers
SDP-B

CN0209:
Fully Programmable Universal Analog Front End for Process Control Applications
SDP-B

CN0206:
Thermocouple Temperature Measurement System with Less Than 500 μA Current Drain
SDP-B

CN0204:
Flexible, High Voltage, High Accuracy, Low Drift PLC/DCS Analog Output Module
SDP-B

CN0202:
Flexible, High Accuracy, Low Drift, PLC/DCS Analog Output Module
SDP-B

CN0189:
Tilt Measurement Using a Dual Axis Accelerometer
SDP-B

CN0172:
3-Channel Thermocouple Temperature Measurement System with 0.25 ° C Accuracy
SDP-B

Industrial Automation Technology (IAT) (11)

CN0586:
Precision High Voltage Bipolar Analog Output Module
SDP-K1

CN0384:
Completely Integrated Thermocouple Measurement System using a Low Power, Precision, 24-Bit, Sigma-Delta ADC
SDP-B

CN0354:
Low Power Multichannel Thermocouple Measurement System with Cold Junction Compensation
SDP-I-PMOD

CN0326:
Isolated Low Power pH Monitor with Temperature Compensation
SDP-B

CN0326:
Isolated Low Power pH Monitor with Temperature Compensation
SDP-I-PMOD

CN0254:
16-Bit, 250 kSPS 8-Channel, Single Supply, Isolated Data Acquisition System
SDP-B

CN0218:
500 V Common-Mode Voltage Current Monitor
SDP-B

CN0216:
Precision Weigh Scale Design Using the AD7791 24-Bit Sigma-Delta ADC with External ADA4528-1 Zero-Drift Amplifiers
SDP-B

CN0206:
Thermocouple Temperature Measurement System with Less Than 500 μA Current Drain
SDP-B

CN0203:
Flexible PLC/DCS Analog Output Module Using Only Two Analog Components
SDP-B

CN0179:
4-20 mA Low Power, 14-Bit, Process Control Current Loop Transmitter
SDP-I-PMOD

Instrumentation and Measurement Solutions (34)

CN0586:
Precision High Voltage Bipolar Analog Output Module
SDP-K1

CN0384:
Completely Integrated Thermocouple Measurement System using a Low Power, Precision, 24-Bit, Sigma-Delta ADC
SDP-B

CN0383:
Completely Integrated 2-Wire, 3-Wire, or 4-Wire RTD Measurement System Using a Low Power, Precision, 24-Bit Σ-Δ ADC
SDP-B

CN0372:
Ultralow Power, General-Purpose, Multichannel Data Acquisition System with Energy Harvesting Circuit and Alert Function

SDP-I-PMOD

CN0370:
16-Bit, Single-Supply LED Current Driver with Less than ±1 LSB Integral and Differential Nonlinearity

SDP-I-PMOD

CN0350:
12-Bit, 1 MSPS, Single-Supply, Two-Chip Data Acquisition System for Piezoelectric Sensors

SDP-I-PMOD

CN0350:
12-Bit, 1 MSPS, Single-Supply, Two-Chip Data Acquisition System for Piezoelectric Sensors

SDP-B

CN0348:
16-Bit Single-Supply Buffered Voltage Output Digital-to Analog Conversion with Less Than ±1 LSB Integral and Differential Nonlinearity
SDP-B

CN0346:
Relative Humidity Measurement System
SDP-I-PMOD

CN0337:
12-Bit, 300 kSPS, Single-Supply, Fully Isolated RTD Temperature Measurement System with 3-Wire Compensation
SDP-I-PMOD

CN0336:
12-Bit, 300 kSPS, Single-Supply, Fully Isolated, Data Acquisition System for 4-20 mA Inputs
SDP-I-PMOD

CN0335:
12-Bit, 300 kSPS, Single-Supply, Fully Isolated, Data Acquisition System for ±10 V Inputs
SDP-I-PMOD

CN0318:
16-Bit, Linear, Ultra Stable, Low Noise, Bipolar ±10 V DC Voltage Source
SDP-B

CN0312:
Dual-Channel Colorimeter with Programmable Gain Transimpedance Amplifiers and Synchronous Detectors
SDP-B

CN0310:
24-Bit, 250 kSPS Single-Supply Data Acquisition System
SDP-B

CN0308:
Powering an ECG Front End in Battery Powered Patient Monitoring Applications
SDP-B

CN0306:
16-Bit, 100k SPS Low Power Data Acquisition System Optimized for Sub-Nyquist Input Signals Up to 1 kHz
SDP-B

CN0287:
Isolated 4-Channel, Thermocouple/RTD Temperature Measurement System with 0.5°C Accuracy
SDP-B

CN0277:
18-Bit, 5 MSPS, Data Acquisition System Optimized for AC Performance
SDP-H1

CN0272:
2 MHz Bandwidth PIN Photodiode Preamp with Dark Current Compensation
SDP-B

CN0271:
Thermocouple Temperature Measurement System with Amplifier - Based Cold Junction Compensation
SDP-B

CN0269:
18-Bit, 1.33 MSPS, 16-Channel Data Acquisition System
SDP-B

CN0255:
16-Bit, 100 kSPS, Single Supply, Low Power Data Acquisition System
SDP-B

CN0254:
16-Bit, 250 kSPS 8-Channel, Single Supply, Isolated Data Acquisition System
SDP-B

CN0251:
24-Bit, 4.7 Hz, 4-Channel Analog Data Acquisiton System
SDP-B

CN0247:
12-Bit ,1 MSPS, Single-Supply, Low Power Data Acquisition System
SDP-B

CN0240:
Bidirectional Isolated High-Side Current Sense with 270 V Common-Mode Rejection
SDP-B

CN0229:
4-Channel, Flexible, Configurable, Voltage, and Current Output Circuit for I/O Card and PLC Applications
SDP-B

CN0216:
Precision Weigh Scale Design Using the AD7791 24-Bit Sigma-Delta ADC with External ADA4528-1 Zero-Drift Amplifiers
SDP-B

CN0204:
Flexible, High Voltage, High Accuracy, Low Drift PLC/DCS Analog Output Module
SDP-B

CN0202:
Flexible, High Accuracy, Low Drift, PLC/DCS Analog Output Module
SDP-B

CN0194:
Galvanically Isolated, 2-Channel, 16-Bit, Simultaneous Sampling, Daisy-Chained Data Acquisition System
SDP-B

CN0191:
20-Bit, Linear, Low Noise, Precision, Bipolar ±10V DC Voltage Source
SDP-B

CN0172:
3-Channel Thermocouple Temperature Measurement System with 0.25 ° C Accuracy
SDP-B

Intelligent Building Solutions (5)

CN0326:
Isolated Low Power pH Monitor with Temperature Compensation
SDP-B

CN0326:
Isolated Low Power pH Monitor with Temperature Compensation
SDP-I-PMOD

CN0301:
Universal LVDT Signal Conditioning Circuit
SDP-B

CN0288:
LVDT Signal Conditioning Circuit
SDP-B

CN0276:
High Performance, 10-Bit to 16-Bit Resolver-to-Digital Converter
SDP-B

Wireless Communication Solutions (3)

CN0290:
Extending the Low Frequency Range of a High Performance Phase Locked Loop
SDP-S

CN0187:
Crest Factor, Peak, and RMS RF Power Measurement Circuit Optimized for High Speed, Low Power, and Single 3.3 V Supply
SDP-B

CN0178:
Software-Calibrated, 50 MHz to 9 GHz, RF Power Measurement System
SDP-B

Linduino

Linduino is Analog Devices' Arduino compatible system for developing and distributing firmware libraries and example code for our integrated circuits.

Linduino Code

The code is designed to be highly portable to other microcontroller platforms, and is written in C using as few processor specific functions as possible. These programs are written using Arduino and are called sketches. LTSketchbook is the entire code base that holds sketches to talk to Analog Devices's integrated circuits using Linduino. The Linduino One board (Demonstration Circuit DC2026) allows you to test out the code directly, using the standard demo board for the particular IC.

Linduino One Board

The Linduino One board is compatible with the Arduino Uno, using the Atmel ATMEGA328 processor. This board features a 14-pin "QuikEval" connector that can be plugged into nearly 100 daughter boards for various Analog Devices parts, including Analog to Digital converters, Digital to Analog Converters, high-voltage power monitors, temperature measurement devices, RF synthesizers, battery stack monitors, and more.

An LTM2884 USB Isolator breaks the ground connection to the PC, allowing projects to operate at a different ground potential than the computer that is controlling it.

Buy the DC2026 Linduino One Isolated Arduino-Compatible Demonstration Board

Setup

Setting up Linduino is very simple. The DC2026 Demo Manual provides detailed instructions on the setup procedure.

Here are the three files required to follow the complete procedure in the demo manual:
1. The latest Linduino sketchbook. If you are only interested in the code, stop here.
2. The QuikEval program. The Linduino board ships with firmware that allows it to communicate with the QuikEval program, which provides all of the GUIs for compatible demo boards. Installing QuikEval is also the recommended way to install the correct USB drivers for the Linduino One board.
3. The Arduino IDE. This is the development environment for the Arduino, and is required to modify the code, and to load programs into the Linduino One.

Additional Resources

Linduino Design Files (schematic, board, gerbers)
Linduino Schematic (PDF)
Notepad++ (Recommended code editor)
Atmel Studio (for more advanced development/debugging with Linduino hardware and Atmel processors)
Linduino Change Log

Power System Management

Linduino is a development platform that consists of an Arduino Uno microcontroller from Atmel and a boot-loader allowing for quick in-circuit firmware updates. The software is a simple programming environment based on the AVRGCC compiler. This platform is popular because it is easy to use, both the hardware and software are open source, and it can be programmed in C. We find it an ideal way to demonstrate and distribute libraries for integrated circuits that have digital interfaces such as Inter-Integrated Circuit (I2C) and Serial Peripheral Interface(SPI). Linduino PSM is meant to be used for PSM (Power System Management) devices and is a PMBus library plus sketches distributed with the Linduino software. The PMBus library stack makes writing reliable PMBus code easy by providing:

- I^{2}C/SMBus/PMBus API
- Block and Group Protocol
- L11/L16 – IEEE Float conversions
- Fault Log Decoding
- Code examples

Linduino PSM provides a mechanism to anyone that needs to learn PMBus, or learn how to write code for PSM devices. Linduino PSM also provides a safe environment for experimentation and confirmation of a design prior to implementation. Example firmware can be downloaded and compiled, giving users a head start in the development of a Analog Devices PSM part based design.

Open Hardware Development Platforms

Analog Devices' family of ADICUP development platforms delivers industrial grade processing and sensing capabilities in an open design environment.

Analog Devices' family of ADICUP development platforms delivers industrial grade processing and sensing capabilities in an open design environment.

Form-factor compatibility with interfaces such as Arduino, Pmod, and Grove coupled with signal chain and sensor shields provide flexibility in end-to-end application specific development.

A continuously evolving ecosystem offers new processing and sensor capabilities targeted at various applications and an expanding toolchain combined with hardware and software design files enables faster proof-of-concept testing, providing a streamlined path from prototype to production.

Choosing the Best Platform

Industrial IoT

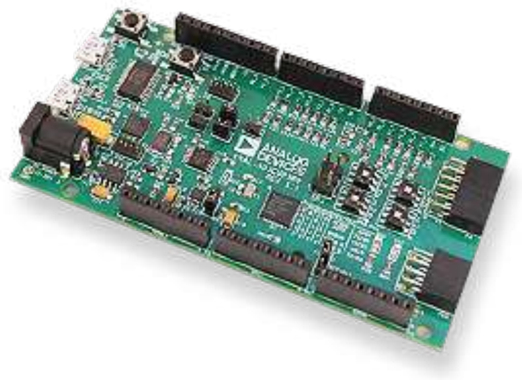
EVAL-ADICUP3029
Arduino based Wireless Development Platform for Internet of Things applications based on an ultra-low power ARM Cortex-M3 processor.

- Compatible with Arduino, PMOD and Grove form factors
- Ultra-low Power ARM Cortex M3

- Open Source IDE Tools
- No External Debugger/Emulator Tools needed

Precision Measurement

EVAL-ADICUP360
Arduino form factor compatible ARM Cortex-M3 Development Platform



- Compatible with Arduino and PMOD form factors
- Low Power ARM Cortex M3
- Open Source IDE Tools
- No External Debugger/Emulator Tools needed

Features	EVAL-ADICUP360	EVAL-ADICUP3029
Processor	ARM Cortex-M3	ARM Cortex-M3
Speed	16MHz	26MHz
Power	290uA/MHz	30uA/MHz
Typical Use-Case	• Precision measurement • Instrumentation • Industrial Automation	• Asset Health • Healthcare • IoT Edge Nodes
Hardware Connectors	• Arduino Uno • Arduino Due • SPI PMOD • I^2C PMOD	• Arduino Uno • I^2C Grove • SPI PMOD • I^2C PMOD
Wireless Connectivity	• External 3rd party hardware modules	• Bluetooth • Wi-Fi
IDE Support	• CrossCore Embedded Studio • IAR • Keil	• CrossCore Embedded Studio • IAR • Keil
Powering Options	• USB • DC Power	• USB • DC Power • Battery (AAA)
Onboard Debugger	Yes	Yes (breakaway)
Additional Features	Dual 24-bit integrated sigma-delta ADCs	Enhanced Security

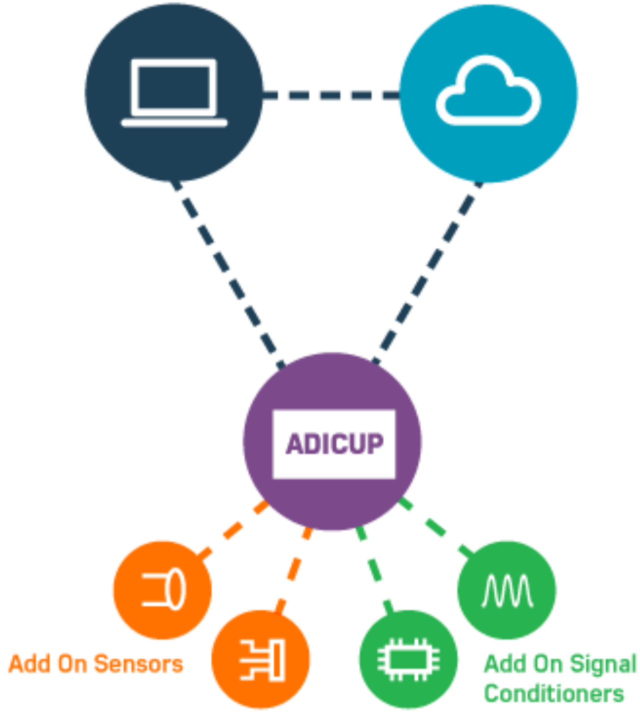
ADICUP Ecosystem

ADICUP development platforms feature integrated and comprehensive tools, software, hardware and detailed support.

Prototyping
Open hardware modules and software examples enable proof-of-concept testing and customizable options for application specific development around the entire signal chain. Examples include wireless toxic gas sensing and shock detection.

Open Source
Open source toolchain support through Eclipse and Eclipse-based CrossCore Embedded Studio provides designers with a common set of development tools to enable easier and more efficient code development with no restrictions. ADICUP development platforms also support GNU Toolchain (GCC/GDB), GNU ARM Eclipse Plugin and openOCD assist in code development and debug.

Support
Support is available through the Analog Devices Wiki where all supporting documentation such as hardware and software files, application code, and tutorials on how to setup examples can be found. Additional support and questions can be asked through EngineerZone, which is supported by Analog Devices engineers.



Condition-based Monitoring (CbM) Development Platforms

Developing accurate, reliable condition monitoring solutions for industrial assets requires a combination of technologies and design considerations to capture and convert critical signals into actionable insights, enabling diagnostic and predictive maintenance solutions.

Analog Devices' condition-based monitoring platforms combine sensor and signal chain technologies with the embedded software required to integrate these technologies and accelerate sensor data collection.

These platforms deliver high quality, reliable data for asset evaluation and diagnostic solution development. Access to the critical design files accelerate time to market by solving the sensor, signal chain, and communication challenges required to monitor your critical assets.

Choosing the Best Solution

Integrated Vibration Sensor

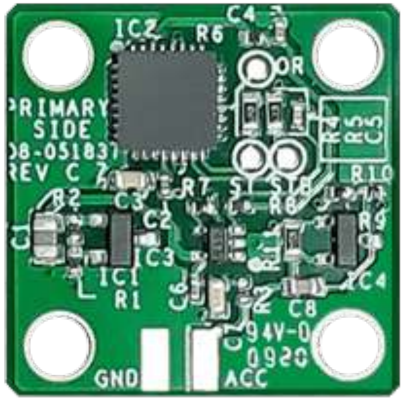
ADcmXL3021

Industrial grade, wideband, low noise triaxial vibration sensor with built-in signal processing for vibration data analysis

- Multi-axis vibration from dc to 10 kHz
- Mechanical design preserves vibration performance and simplifies sensor attachment
- Flexible SPI output simplifies connectivity
- Ideal for mechanical system fault and early bearing fault diagnostics on motors, pumps, bearings, and high rotational speed machinery such as CNC machine spindles

Vibration Sensor Reference Designs

EVAL-CN0532-EBZ
Reference design for converting the low noise, wideband ADXL1002 MEMS accelerometer’s output to an IEPE-compatible sensor interface



- Industrial grade vibration sensor and signal chain reference design
- Full dc to 10 kHz vibration response
- Compatible with existing piezoelectric IEPE data acquisition systems

EVAL-CN0533
Reference design for converting the low noise, wideband ADXL1002 MEMS accelerometer’s output to a 4-20 mA Current Loop sensor interface

- Industrial grade vibration sensor and signal chain design
- DC to 10 kHz, + 3dB bandwidth
- Compatible with 4-20mA current loop data acquisition systems

Vibration Sensor Data Acquisition Reference Designs

EVAL-CN0540-ARDZ

IEPE Sensor Data Acquisition Reference Design for Condition Based Monitoring Applications

- High Resolution, Low Noise Data Acquisition for Industrial Applications
- IEPE compatible interface with constant current source
- Suitable for Wide Bandwidth and Low Noise Sensors
- Arduino compatible interface and form factor

Voyager 3 Wireless Vibration Monitoring Platform

Wireless Platform
MEMS-based wireless vibration monitoring kit for accelerating asset monitoring and solution development

- Based on the ADXL356 MEMS vibration sensor
- Highly reliable, low power wireless mesh technology
- Mechanically designed to simplify sensor-to-asset attachment

Ideal for wireless monitoring of industrial assets, mechanical system faults and early bearing defect diagnosis on general-purpose machinery such as low/medium voltage motors, pumps, compressors, fans, conveyors, etc.

Wired Vibration Monitoring Platform

Wired Platform
Robust RS-485 communication interface combined with the ADcmXL3021 to enable higher bandwidth vibration monitoring solutions for industrial environments

- Converts SPI to RS-485 to provide immunity and enable longer data transmissions
- Power over data lines (phantom power) simplifies cable interface
- Multiple design options address cost, noise immunity, and design flexibility

Ideal for mechanical system fault and early bearing fault diagnostics on motors, pumps, bearings, and high rotational speed machinery such as CNC machine spindles.

Condition-based Monitoring (CbM) Development Platform

EVAL-CN0549

Provides high quality IEPE-compliant sensor data to accelerate condition-based monitoring algorithm development. Quickly stream high quality MEMS vibration sensor data directly into popular data analysis tools such as Tensorflow and MATLAB.

- Wide bandwidth MEMS IEPE sensor (CN0532)
- Characterized mechanical machine mount (XLMOUNT1)
- 24-Bit Data Acquisition System for IEPE Sensors (CN0540)
- ADI Kuiper Linux – Embedded OS with FPGA & RPI platform support
- IIO Oscilloscope GUI application for quick evaluation
- IIO data streaming for MATLAB and Python
- Data Analytics Example using MATLAB and Tensorflow

Ideal for condition-based monitoring algorithm development, both the hardware and software is provided to enable immediate access to high quality sensor data. The platform can also be used to benchmark piezo sensors and MEMS sensor performance by supporting IEPE-compliant sensor interface.

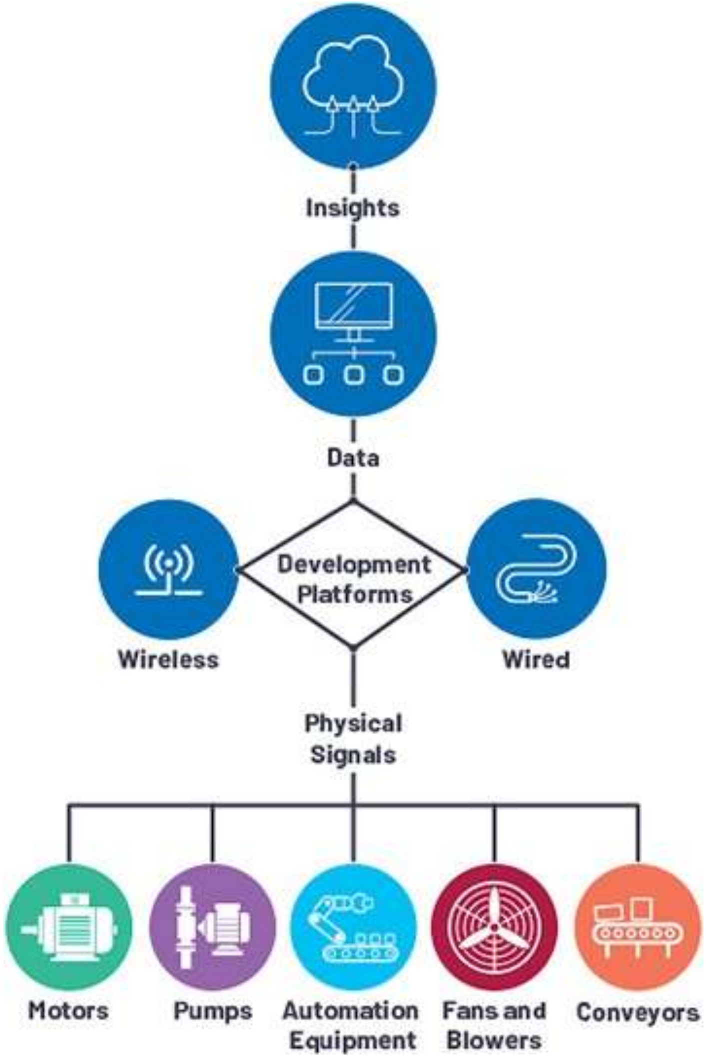
Condition-based Monitoring (CbM) Development Platforms Ecosystem

Condition-based monitoring reference designs and development platforms combine the necessary technologies with the tools and software required to quickly collect data, perform analysis, and customize solution designs for specific applications.

Evaluation
Our platforms combine signal chain hardware and development software that enable the evaluation of condition monitoring solutions in industrial environments.

Development
Hardware design files and firmware/software source code is made available, enabling customized development based on the underlying evaluation system.

Support
Support is available through the Analog Devices wiki, where all supporting documentation such as hardware and software files, application code, and setup guides. Additional support and questions can be asked through EngineerZone®, which is supported by Analog Devices engineers.



Inertial MEMS Sensor Evaluation Tools

The different iMEMS evaluation platform boards allow you to connect Analog Devices accelerometers, gyroscopes, and inertial measurement units up to the PC for product evaluation. Using software programs and GUI applications, you are able to quickly evaluate different iMEMS products and help simplify your design process.

Controller Boards

EVAL-ADIS-FX3

- Real-time sampling of IMU at full sample rate with no loss of data guaranteed.
- No external power needed. (Can be powered from USB port.)
- Completely open source API, Firmware, and Evaluation GUI.
- Schematics available
- API includes a wrapper library for interfacing to MATLAB, Python, LabView.

EVAL-MST-ISEB

ISEB:

- PC-USB Inertial MEMS Evaluation System
- Windows XP, Vista and 7 with 32-bit and 64-bit driver support
- Accelerometer and gyroscope software packages
- Compatible with ADXL3xx, ADXRS45x and ADXRS290
- Real-time output of acceleration, angular rate, temperature and other performance metrics such as noise and current consumption
- Register access for device configuration and validation

COMPATIBLE PRODUCT EVALUATION BOARDS

The Inertial MEMS Controller Boards come with PC/Windows-compatible application software and typically support multiple, product-specific, daughter boards. Please see the following list of Daughter Boards and the Controller Board that they are compatible with.

Product

Accelerometers (3)

ADIS16305:
Precision Four Degrees of Freedom Sensor
EVAL-ADIS

ADIS16006:
Dual-Axis ±5 *g* Accelerometer with SPI Interface
ADISUSB

ADIS16003:
Dual-Axis ±1.7 *g* Accelerometer with SPI Interface
ADISUSB

Accelerometers - Special Purpose (1)

ADIS16240:
Low Power Programmable Impact Sensor and Recorder
ADISUSB

Gyroscopes (9)

ADIS16266:
±14,000°/sec Digital Gyroscope Sensor
EVAL-ADIS

ADIS16265:
Programmable Digital Gyroscope Sensor
EVAL-ADIS-FX3

ADIS16260:
Programmable Low Power Gyroscope
EVAL-ADIS-FX3

ADIS16137:
±1000°/Sec Precision Angular Rate Sensor
EVAL-ADIS-FX3

ADIS16136:
±450°/Sec Precision Angular Rate Sensor
EVAL-ADIS-FX3

ADIS16135:
±300°/Sec Precision Angular Rate Sensor
EVAL-ADIS-FX3

ADIS16133:
±1200°/sec Precision Angular Rate Sensor
EVAL-ADIS-FX3

ADIS16080:
±80°/sec Yaw Rate Gyro with SPI Interface
ADISUSB

ADIS16060:
Wide Bandwidth Yaw Rate Gyroscope with SPI
EVAL-ADIS

Inertial Measurement Units (IMU) (36)

ADIS16550:
Autonomous Grade, Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16547:
Tactical Grade, Six Degrees of Freedom Inertial Sensors
EVAL-ADIS-FX3

ADIS16545:
Tactical Grade, Six Degrees of Freedom Inertial Sensors
EVAL-ADIS-FX3

ADIS16507:
Precision, Miniature MEMS IMU
EVAL-ADIS-FX3

ADIS16505-3:
EVAL-ADIS-FX3

ADIS16505-2:
EVAL-ADIS-FX3

ADIS16505-1:
EVAL-ADIS-FX3

ADIS16505:
Precision, Miniature MEMS IMU
EVAL-ADIS-FX3

ADIS16500:
Precision, Miniature MEMS IMU
EVAL-ADIS-FX3

ADIS16497:
Tactical Grade, Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16495:
Tactical Grade, Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16490:
Tactical Grade, Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16489:
Seven Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16488A:
Tactical Grade, Ten Degrees of Freedom Inertial Sensor

EVAL-ADIS-FX3

ADIS16488:
Tactical Grade Ten Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16487:
Six Degrees of Freedom Inertial Sensor Avionics Certification Support
EVAL-ADIS-FX3

ADIS16486:
Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16485:
Tactical Grade Six Degrees of Freedom MEMS Inertial Sensor
EVAL-ADIS-FX3

ADIS16480:
Ten Degrees of Freedom MEMS Inertial Sensor with Dynamic Orientation Outputs
EVAL-ADIS-FX3

ADIS16477:
Precision, Miniature MEMs IMU
EVAL-ADIS-FX3

ADIS16475:
Precision, Miniature MEMs IMU (2000dps, 8*g*)

EVAL-ADIS-FX3

ADIS16470:
Wide Dynamic Range, Miniature MEMs IMU
EVAL-ADIS-FX3

ADIS16467:
Precision MEMS IMU Module
EVAL-ADIS-FX3

ADIS16465:
Precision MEMS IMU Module

EVAL-ADIS-FX3

ADIS16460:
Compact, Precision, Six Degrees of Freedom Inertial Sensor

EVAL-ADIS-FX3

ADIS16448:
Compact, Precision Ten Degree of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16446:
Compact, Precision Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16445:
Compact, Precision Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16407:
Ten Degrees of Freedom Inertial Sensor
EVAL-ADIS

ADIS16407:
Ten Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16405:
Triaxial Inertial Sensor with Magnetometer
EVAL-ADIS-FX3

ADIS16375:
Low Profile, Low Noise Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16365:
Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16364:
Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16362:
Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16334:
Low Profile, Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

Product (6)

ADIS16400:
High Precision Tri-Axis Inertial Sensor Gyroscope, Magnetometer, Accelerometer
EVAL-ADIS

ADIS16367:
Six Degrees of Freedom Inertial Sensor
EVAL-ADIS-FX3

ADIS16360:
Six Degrees of Freedom Inertial Sensor
EVAL-ADIS

ADIS16300:
Four Degrees of Freedom Inertial Sensor
EVAL-ADIS

ADIS16220:
Programmable Digital Vibration Sensor
ADISUSB

ADIS16204:
Programmable High- g Digital Impact Sensor and Recorder
ADISUSB

Signal Chain Power (SCP) Hardware Evaluation Platform

The Signal Chain Power (SCP) hardware platform enables signal chain designers to quickly develop, prototype, and evaluate complete power solutions for instrumentation, test & measurement, and industrial automation precision signal chains. The central design philosophy behind SCP is to box up power management design expertise and share it with signal conditioning systems engineering groups using an easy-to-configure plug-and-play system. Along with the SCP hardware platform and SCP Configurator software tool, SCP includes complete schematics, BOM, and PCB artwork for the system designer.

The SCP hardware platform features:

- Easily produce multirail configurations via plug-and-play terminal boards
- Swap out boards in seconds for comparative testing and noise optimization
- Compact form factor keeps system small
- Configuration resistors are 0805 with oversized pads for easy rework
- Supported topologies include:
  - Boost, Buck, Buck-Boost, SEPIC, and Inverting switching regulators
  - Positive and negative linear regulators
- Silent Switcher® and ultra-high PSRR LDO products available for noise-critical applications

Signal Chain Power Platform Simplifies Evaluation

Developing custom power trees for instrumentation applications using modified standard demo boards can be time intensive. Signal Chain Power (SCP) is a specialty power supply evaluation system that snaps together for fast noise performance.

Switching Regulators

Step Down

SCP-LT1956-BEVALZ

- LT1956 in Buck configuration
- V_{IN}: 7.5 V to 25 V
- V_{OUT}: resistor programmable from 1.22 V to 24 V (5.0 V default)
- 1.0 A maximum load current
- Constant 500 kHz switching frequency

SCP-LT3470A-BEVALZ

- LT3470A in buck configuration
- V_{IN}: 4 V to 36 V
- V_{OUT}: resistor programmable from 3 V to 16 V (optimized for 3.3 V output at up to 250 mA load).
- Integrated boost and catch diodes
- Low output ripple: <10mV

SCP-LT8609S-BEVALZ

- LT8609S in buck configuration
- V_{IN}: 5.5 V to 42 V
- V_{OUT}: resistor programmable from 1.2 V to 39.5 V (5 V default)
- 2A maximum continuous output
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8618-BEVALZ

- LT8618 in buck configuration
- V_{IN}: 5.5 V to 60 V
- V_{OUT}: resistor programmable from 0.8 V to 48 V (5 V default voltage output at 100 mA)
- Feedback-compatible with VIOC-control linear regulators
- Default switching frequency: 2.0 MHz
- Adjustable switching frequency: 200 kHz to 2.2 MHz

SCP-LT8604C-BEVALZ

- LT8604C in buck configuration
- V_{IN}: 3.2 V to 42 V
- V_{OUT}: resistor programmable from 0.8 V to 34 V (5 V default voltage output)
- Maximum output current is 120 mA
- Feedback-compatible with VIOC-control linear regulators
- Default switching frequency: 2.0 MHz

- Adjustable switching frequency: 200 kHz to 2.2 MHz

Step Up

SCP-LT3461-EVALZ

- V_{IN}: 3 V to 6 V
- V_{OUT}: resistor programmable from 5 V to 38 V (12 V default).
- Maximum output current is 70 mA at 5.0 V input, 40 mA at 3.3 V input
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8330-EVALZ

- V_{IN}: 10 V to 36 V
- V_{OUT}: resistor programmable from 5 V to 59 V (48 V default)
- Maximum output current is 135 mA at 12 V input
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8362-B-EVALZ

- LT8362 in boost configuration

- V_{IN}: 10 V to 36 V
- V_{OUT}: resistor programmable from 5 V to 59 V (48 V default).
- Maximum output current is 135 mA at 12 V input
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8410-EVALZ

- V_{IN}: 3 V to 10 V
- V_{OUT}: resistor programmable from 5 V to 40 V (16 V default)
- Maximum output current is 1.6 mA at 16 V input

Step Up or Down

SCP-LT8362-S-EVALZ

- LT8362 in SEPIC configuration
- V_{IN}: 2.8 V to 60 V
- V_{OUT}: resistor programmable from 5 V to 48 V (12 V default)
- Maximum output current is 2 A
- Operates with a switching frequency of 2 MHz
- Feedback-compatible with VIOC-control linear regulators

SCP-LTC3114-1-EVALZ

- Synchronous monolithic buck-boost DC/DC converter
- V_{IN}: 2.2 V to 40 V
- V_{OUT}: resistor programmable from 3 V to 40 V (5 V default)
- 1A output current in buck mode
- Feedback-compatible with VIOC-control linear regulators

Invert

SCP-LT1956-IEVALZ

- LT1956 configured as an inverting buck
- V_{IN}: 5.5 V to 48 V
- V_{OUT}: resistor programmable from –1.22 V to –24 V (5 V default)
- 1.5 A peak switch current
- C Feedback-compatible with VIOC-control linear regulators

SCP-LT3470A-IEVALZ

- LT3470A configured as an inverting buck
- V_{IN}: 4 V to 36 V
- V_{OUT}: resistor programmable from –3 V to –16 V (–3.3 V default)

- Maximum output current is 250 mA
- Feedback-compatible with VIOC-control linear regulators

SCP-LT3483-EVALZ

- Inverting converter
- V_{IN}: 2.7 V to 12 V
- V_{OUT}: resistor programmable from –1 V to –39 V (–15 V default voltage output at 8 mA to 40 mA)
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8362-I-EVALZ

- LT8362 in a Cuk configuration
- V_{IN}: 4.5 V to 42 V.
- V_{OUT}: resistor programmable from –5 V to –40 V (–15 V default voltage output up to 1 A)
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8609S-IEVALZ

- LT8609S in an inverting configuration
- V_{IN}: –0.8 V to 24 V.
- V_{OUT}: resistor programmable from 1.2 V to 39.5 V (–5 V default)
- Maximum output current is 2 A
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8618-IEVALZ

- LT8618 configured as an inverting buck
- V_{IN}: 5.5 V to 60 V
- V_{OUT}: resistor programmable from –0.8 V to –48 V (–5 V default)
- Maximum output current is 100 mA
- Feedback-compatible with VIOC-control linear regulators

SCP-LT8604C-IEVALZ

LT8604 Signal Chain Evaluation Board | High Efficiency 42V/100mA Sync Inverting Buck

- LT8604C configured as an inverting buck
- V_{IN}: 3.2 V to 42 V
- V_{OUT}: resistor programmable from –0.8 V to –34 V (–5 V default voltage output)
- Maximum output current is 120 mA
- Default switching frequency: 2.0 MHz
- Adjustable switching frequency: 200 kHz to 2.2 MHz

Dual Supply (Step up and Step down)

SCP-ADP5070-EVALZ

- V_{IN}: 2.85 V to 15 V
- V_{OUT}: resistor programmable from ±5 V to ±39 V(15 V/1 A default output for positive rail; –15 V/300 mA default output for negative rail)
- Feedback-compatible with VIOC-control linear regulators

SCP-LT3463-EVAL

- V_{IN}: 2.4 V to 15 V
- V_{OUT}: resistor programmable from ±5 V to ±40 V (20 V default output for positive rail; –15 V default output for negative rail)
- Feedback-compatible with VIOC-control linear regulators

SCP-LT3471-EVALZ

- V_{IN}: 4.5 V to 10 V
- V_{OUT}: resistor programmable from ±5 V to ±40 V (12 V at 300 mA default output for positive rail; –12 V at 200 mA default output for negative rail)
- Feedback-compatible with VIOC-control linear regulators

SCP-LT3472-EVALZ

- V_{IN}: 4.5 V to 10 V
- V_{OUT}: resistor programmable from ±5 V to ±40 V (12 V at 300 mA default output for positive rail; –12 V at 200 mA default output for negative rail)
- Feedback-compatible with VIOC-control linear regulators

Linear Regulators

Positive

SCP-ADP150-EVALZ

- V_{IN}: 3.5 V to 5.5 V
- V_{OUT}: 3.3 V fixed voltage version of ADP150
- Low dropout voltage: 105 mV
- Maximum output current is 150 mA
- Ultralow noise: 9 μV rms

SCP-ADP7142-EVALZ

- V_{IN}: 2.7 V to 40 V
- V_{OUT}: resistor programmable from 1.2 V to 39.5 V (3.3 V default

- Low dropout voltage: 200mV
- Maximum output current is 200 mA
- Low noise: 11 μV rms

SCP-LT1962-EVALZ

- V_{IN}: 1.8 V to 20 V
- V_{OUT}: resistor programmable from 1.22 V to 19.5 V (3.3 V default)
- Low dropout voltage: 270 mV
- Maximum output current is 300 mA
- Low noise: 20 μV rms

SCP-LT3045-1-EVALZ

- V_{IN}: 1.8 V to 20 V
- V_{OUT}: resistor programmable from 0.8 V to 19.5 V (3.3 V default)
- Low dropout voltage: 260 mV
- Maximum output current is 500 mA
- Ultralow noise: 0.8 μV rms
- VIOC control of upstream switching regulator

Negative

SCP-ADP7182-EVALZ

- V_{IN}: –2.7 V to –28 V
- V_{OUT}: resistor programmable from –1.2 V to –27.5 V (–3.3 V default)
- Low dropout voltage: –185 mV
- Maximum output current is 200 mA
- Low noise: 18 μV rms

SCP-LT1964-EVALZ

- Up to –20 V maximum input voltage
- V_{OUT}: resistor programmable from –1.22 V to –19.5 V (–5 V default)
- Low dropout voltage: –340 mV
- Maximum output current is 200 mA
- Low noise: 30 μV rms

SCP-LT3094-EVALZ

- V_{IN}: –1.8 V to –20 V
- V_{OUT}: resistor programmable from 0 V to –19.5 V (–3.3 V default)
- Low dropout voltage: –235 mV
- Maximum output current is 500 mA
- Ultralow noise: 0.8 μV rms

Filter Boards

SCP-FILTER-EVALZ

SCP-FILTER-EVALZ

- Passive RCL filter networks
- Accommodates an N^{th}-order filter network as well as specialty 3-terminal feedthrough filters

SCP-THRUBRD-EVALZ

SCP-THRUBRD-EVALZ

- Acts as a spacer in systems where adjacent channels differ in the number of series connections

Interconnect Boards

SCP-1X2BKOUT-EVALZ

SCP-1X2BKOUT-EVALZ

- Expands an existing rail into two segments in a Signal Chain Power hardware evaluation matrix
- One input port and two output ports, along with passive filtering options

SCP-1X5BKOUT-EVALZ

SCP-1X5BKOUT-EVALZ

- Expands an existing rail into five segments in a Signal Chain Power hardware evaluation matrix
- One input port and five output ports, along with passive filtering options

SCP-5X1-EVALZ

SCP-5X1-EVALZ

- Integrates several voltage rails into a compact, single point terminal in a Signal Chain Power hardware evaluation matrix

- Five input ports and one output port, along with passive filtering options

SCP-INPUT-EVALZ

SCP-INPUT-EVALZ

- Allows for external connections when building power systems
- Accepts standard banana jacks and clip-lead type connectors to attach to power supplies and meters

SCP-OUTPUT-EVALZ

SCP-OUTPUT-EVALZ

- Allows for external connections when building power systems
- Accepts standard banana jacks and clip-lead type connectors to attach to DUTs, loads, and meters

Data Pattern Generator (DPG) High-Speed DAC Evaluation Platform

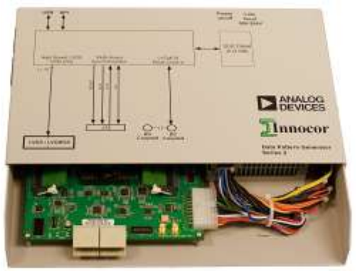
The Data Pattern Generator is a bench-top instrument for driving vectors into Analog Devices' high-speed Digital-to-Analog converters.

Controller Boards

DPG3

- CMOS and LVDS electrical standards, at data rates up to 1.2GSPS x 32-bits = 38.4Gbps (LVDS)
- Two channels of 16-bits each (in both CMOS and LVDS modes)
- 512MB on-board RAM, for up to 134 million samples per channel
- Support for interleaved data streams
- High-speed vector download

DPG2



- CMOS and LVDS electrical standards, at data rates up to 1.2GSPS x 32-bits = 38.4Gbps (LVDS)
- Two channels of 16-bits each (in both CMOS and LVDS modes)
- 512MB on-board RAM, for up to 134 million samples per channel
- Support for interleaved data streams

- High-speed vector download

Interposer Boards

AD-DAC-FMC

DAC Interposer

- Connects ADI evaluation pinout to FMC interfaces
- Low Pin Count (LPC) connector to connect with LPC or HPC ports
- Compatible with DPG2 daughter boards

COMPATIBLE PRODUCT EVALUATION BOARDS

The DPG controller boards were designed to be used in conjunction with various ADI component evaluation boards as part of a customer evaluation environment. The following evaluation boards are compatible with DPG controller boards.

Product

Mixed-Signal Front Ends (MxFE) (4)

AD9993:
Integrated Mixed Signal Front End MxFE
DPG2

AD9993:
Integrated Mixed Signal Front End MxFE
DPG3

AD9963:
10-/12-Bit, Low Power, Broadband MxFE
DPG2

AD9961:
10-/12-Bit, Low Power, Broadband MxFE
DPG2

Standard High Speed D/A Converters (97)

AD9789:
14-Bit, 2400 MSPS RF DAC with 4-Channel Signal Processing
DPG2

AD9788:
Dual 16-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
DPG2

AD9788:
Dual 16-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
DPG3

AD9787:
Dual 14-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
DPG3

AD9787:
Dual 14-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
DPG2

AD9785:
Dual 12-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO

DPG2

AD9785:
Dual 12-Bit 800 MSPS DAC with Low Power 32-Bit Complex NCO
DPG3

AD9783:
Dual 16-Bit, LVDS Interface 500 MSPS DAC
DPG2

AD9781:
Dual 14-Bit, LVDS Interface 500 MSPS DAC
DPG2

AD9780:
Dual 12-Bit, LVDS Interface 500 MSPS DAC
DPG2

AD9779A:
Dual, 16-Bit, 1 GSPS, Digital-to-Analog Converter
DPG2

AD9779A:
Dual, 16-Bit, 1 GSPS, Digital-to-Analog Converter
DPG3

AD9778A:
Dual, 14-Bit, 1 GSPS, Digital-to-Analog Converter
DPG3

AD9778A:
Dual, 14-Bit, 1 GSPS, Digital-to-Analog Converter

DPG2

AD9776A:
Dual, 12-Bit, 1 GSPS, Digital-to-Analog Converter
DPG2

AD9776A:
Dual, 12-Bit, 1 GSPS, Digital-to-Analog Converter
DPG3

AD9772A:
14-Bit, 160 MSPS TxDAC+® with 2x Interpolation Filter
DPG3

AD9767:
14-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
DPG2

AD9765:
12-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
DPG2

AD9764:
14-Bit, 100 MSPS+ TxDAC® D/A Converter
DPG3

AD9763:
10-Bit, 125 MSPS Dual TxDAC+® Digital-to-Analog Converter
DPG2

AD9762:
12-Bit, 100 MSPS+ TxDAC® D/A Converter

DPG3

AD9761:
10-Bit, Complete, 40 MSPS, dual Transmit D/A Converter
DPG3

AD9760:
10-Bit, 100 MSPS+ TxDAC® D/A Converter
DPG3

AD9755:
14-Bit, 300 MSPS High Speed TxDAC+® D/A Converter
DPG3

AD9754:
14-Bit, 100 MSPS+ TxDAC® D/A Converter
DPG3

AD9753:
12-Bit, 300 MSPS High Speed TxDAC+® D/A Converter
DPG3

AD9752:
12-Bit, 100 MSPS+ TxDAC® D/A Converter
DPG3

AD9751:
10-Bit, 300 MSPS High Speed TxDAC+® D/A Converter
DPG3

AD9750:
10-Bit, 100 MSPS+ TxDAC® D/A Converter

DPG3

AD9747:
Dual 16-Bit 250 MSPS Digital-to-Analog Converters
DPG3

AD9747:
Dual 16-Bit 250 MSPS Digital-to-Analog Converters
DPG2

AD9746:
Dual 14-Bit 250 MSPS Digital-to-Analog Converters
DPG3

AD9746:
Dual 14-Bit 250 MSPS Digital-to-Analog Converters
DPG2

AD9745:
Dual 12-Bit 250 MSPS Digital-to-Analog Converters
DPG3

AD9745:
Dual 12-Bit 250 MSPS Digital-to-Analog Converters
DPG2

AD9743:
Dual 10-Bit 250 MSPS Digital-to-Analog Converters
DPG2

AD9743:
Dual 10-Bit 250 MSPS Digital-to-Analog Converters

DPG3

AD9741:
Dual 8-Bit 250 MSPS Digital-to-Analog Converters
DPG3

AD9741:
Dual 8-Bit 250 MSPS Digital-to-Analog Converters
DPG2

AD9739A:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
DPG2

AD9739A:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
DPG3

AD9739:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter

DPG2

AD9739:
14-Bit, 2.5 GSPS, RF Digital-to-Analog Converter

DPG3

AD9737A:
11-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
DPG3

AD9737A:

11-Bit, 2.5 GSPS, RF Digital-to-Analog Converter
DPG2

AD9736:
14-Bit, 1200 MSPS DACs
DPG3

AD9736:
14-Bit, 1200 MSPS DACs
DPG2

AD9735:
12-Bit, 1200 MSPS DACs
DPG2

AD9735:
12-Bit, 1200 MSPS DACs
DPG3

AD9734:
10-Bit, 1200 MSPS DACs
DPG3

AD9734:
10-Bit, 1200 MSPS DACs
DPG2

AD9717:
Dual, 14-Bit Low Power Digital-to-Analog Converters
DPG3

AD9717:

Dual, 14-Bit Low Power Digital-to-Analog Converters
DPG2

AD9716:
Dual, 12-Bit Low Power Digital-to-Analog Converters
DPG2

AD9716:
Dual, 12-Bit Low Power Digital-to-Analog Converters
DPG3

AD9715:
Dual, 10-Bit Low Power Digital-to-Analog Converters
DPG2

AD9715:
Dual, 10-Bit Low Power Digital-to-Analog Converters
DPG3

AD9714:
Dual, 8-Bit Low Power Digital-to-Analog Converters
DPG3

AD9714:
Dual, 8-Bit Low Power Digital-to-Analog Converters
DPG2

AD9709:
8-Bit, 125 MSPS Dual TxDAC+ Digital-to-Analog Converter
DPG2

AD9708:

8-Bit, 100 MSPS+ TxDAC® D/A Converter
DPG3

AD9707:
14-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG2

AD9707:
14-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG3

AD9706:
12-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG2

AD9706:
12-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG3

AD9705:
10-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG2

AD9705:
10-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG3

AD9704:
8-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG2

AD9704:

8-Bit, 175 MSPS TxDAC Digital-to-Analog Converter
DPG3

AD9164:
16-Bit, 12 GSPS, RF DAC and Direct Digital Synthesizer
DPG3

AD9163:
16-Bit, 12 GSPS, RF DAC and Digital Upconverter
DPG3

AD9162:
16-Bit, 12 GSPS, RF Digital-to-Analog Converters
DPG3

AD9161:
11-Bit, 12 GSPS, RF Digital-to-Analog Converters
DPG3

AD9148:
Quad 16-Bit,1GSPS DAC TxDAC+ Digital-to-Analog Converter
DPG2

AD9148:
Quad 16-Bit,1GSPS DAC TxDAC+ Digital-to-Analog Converter
DPG3

AD9146:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
DPG2

AD9146:

Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
DPG3

AD9142A:
Dual, 16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
DPG3

AD9142:
Dual, 16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
DPG3

AD9139:
16-Bit, 1600 MSPS, TxDAC+ Digital-to-Analog Converter
DPG3

AD9129:
14-Bit, 5.7 GSPS, RF Digital-to-Analog Converter
DPG3

AD9125:
Dual, 16-Bit, 1000 MSPS, TxDAC+® Digital-to-Analog Converter
DPG3

AD9125:
Dual, 16-Bit, 1000 MSPS, TxDAC+® Digital-to-Analog Converter
DPG2

AD9122:
Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
DPG3

AD9122:

Dual, 16-Bit, 1230 MSPS, TxDAC+® Digital-to-Analog Converter
DPG2

AD9121:
Dual, 14-Bit, 1230 MSPS, TxDAC+ Digital-to-Analog Converter
DPG2

AD9121:
Dual, 14-Bit, 1230 MSPS, TxDAC+ Digital-to-Analog Converter
DPG3

AD9119:
11-Bit, 5.7 GSPS, RF Digital-to-Analog Converter
DPG3

AD9117:
Dual Low Power, 14-Bit TxDAC Digital-to-Analog Converters
DPG3

AD9117:
Dual Low Power, 14-Bit TxDAC Digital-to-Analog Converters
DPG2

AD9116:
Dual Low Power, 12-Bit TxDAC Digital-to-Analog Converters
DPG2

AD9116:
Dual Low Power, 12-Bit TxDAC Digital-to-Analog Converters
DPG3

AD9115:

Dual Low Power, 10-Bit TxDAC Digital-to-Analog Converters
DPG3

AD9115:
Dual Low Power, 10-Bit TxDAC Digital-to-Analog Converters
DPG2

AD9114:
Dual Low Power, 8-Bit TxDAC Digital-to-Analog Converters
DPG3

AD9114:
Dual Low Power, 8-Bit TxDAC Digital-to-Analog Converters
DPG2

Analog Devices' pattern generators and high-speed DAC evaluation boards are designed and sold solely to support an efficient and thorough means by which to evaluate Analog Devices high speed DACs in a lab environment for a wide range of end applications. Any application or use of the pattern generators and/or high-speed DAC evaluation boards, other than specified above, will not be supported.

LinearLab Tools

LinearLabTools is a collection of MATLAB® and Python programs that provide direct access to Linear Technology's data converter evaluation boards.

An evaluation board for a data converter will typically plug into an accompanying controller board, which is then connected to a host computer running a Linear supplied GUI program such as PScope for Analog-to-Digital converters or LTDACgen for Digital-to-Analog converters. The GUI allows basic performance measurements to be made, but it is not designed to run arbitrary sequences of tests or communicate with other hardware, as is often required by customers when evaluating a part for their own application. LinearLabTools allows customers to control Linear's data converter demo boards as they would any other piece of test equipment, using their own software.

There's more...

The LinearLabTools package also contains various application examples, simulations, and educational programs that demonstrate mixed signal concepts.

Quick Start

Complete MATLAB Installation Instructions

Complete Python Installation Instructions

1) Install the appropriate GUI (PScope for ADCs or LTDACgen for DACs) that goes along with the demo board being evaluated, which will be detailed in the board's demo manual. This ensures that the correct drivers are installed, and allows the system to be tested for basic functionality before attempting to access through LinearLabTools.

2) Follow the procedure in the board's demo manual. This will include powering up the board, applying appropriate clock

signals, and making the appropriate connections to analog inputs and outputs.

3) Download the LinearLabTools installer. Both 32-bit and 64-bit installers are provided. Choose the version that matches the calling software (for example, 32 or 64-bit MATLAB), not the operating system. Extract this file to any convenient location, but maintain the directory structure.

Download 32-bit installer

Download 64-bit installer

4m) **MATLAB Users:** All LinearLabTools MATLAB scripts are tested using the base version of MATLAB with some scripts requiring signal processing toolbox for extra features. These features can be commented out if needed."

Open MATLAB. In the MATLAB subdirectory, run Test_LinearLabTools_MATLAB.m. The following screen should appear:

4p) **Python Users:** Dependencies are kept to a minimum, but NumPy, SciPy, and Matplotlib are required for the test scripts. All LinearLabTools Python scripts are tested using the distribution provided by Continuum Analytics, avaliable at this URL:

(Anaconda is preconfigured with the required dependencies.)

Open the Spyder debugger or your Python environment. In the \python\Test_LinearLabTools_Python subdirectory, run the Test_LinearLabTools_Python.py file. The following screen should appear:

5m) Navigate to the \MATLAB\DemoBoardExamples\LTCxxxx directory, where xxxx is the part number of the device you are evaluating. Run the LTCxxxx_DCyyyy.m file, which will typically run through a series of operations demonstrating the various features of the demo board.

5p) Navigate to the \Python\DemoBoardExamples\LTCxxxx directory, where xxxx is the part number of the device you are evaluating. Run the LTCxxxx_DCyyyy.py file, which will typically run through a series of operations demonstrating the various features of the demo board.

5) Modify the example code as you see fit, or incorporate into your own test routines!

Controller Boards

Linduino DC2026C

- Based on Atmel 8-Bit AVR MCU
- Arduino Uno Form Factor Connector
- 14-pin Quik-Eval Connector for ADI Evaluation Boards
- Selectable I/O Voltage for Quik-Eval Connector
- Simple USB port interface for Power and Data
  - USB host is galvanically isolated

DC718C

- Based on Xilinx CoolRunner CPLD
- Supports CMOS/TTL ADC up to 135 MSPS
- Simple USB port interface for power and data
  - 6V External Supply must be used for fastest ADC’s
- Connects to ADC boards via 40-pin edge header
- Collects up to 128K Word Samples
- Can use external trigger via BNC Connector

DC890B

- Based on Xilinx Spartan-3 FPGA
- Supports CMOS/LVDS ADC up to 250 MSPS
- Simple USB port interface for power and data
  - 6V External Supply must be used for LVDS ADC’s
- Connects to ADC boards via 100-pin edge header
- Can use external trigger via BNC Connector

- Collects up to 256K Word Samples.

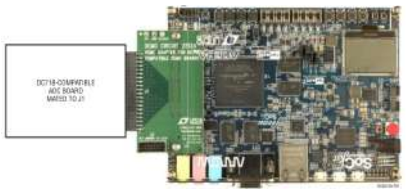
DC1371B

Interposer Boards

DC2511A

- Converts 100-Pin ADC Edge Connector to HSMC Connector
- Connects to SoCkit Cyclone 5 Board from Arrow Electronics
  - Based on Altera Cyclone 5 FPGA

DC2512A



- Converts 40-Pin ADC Edge Connector to HSMC Connector
- Connects to SoCkit Cyclone 5 Board from Arrow Electronics

- Based on Altera Cyclone 5 FPGA

COMPATIBLE PRODUCT EVALUATION BOARDS

This controller board was designed to be used in conjunction with various ADI component evaluation boards as part of a customer evaluation environment. The following boards are compatible with the LinearLabs tools and this controller board.

Recommended Controller

Product (49)

Baseband Differential Low-Pass Filters (1)

LTC6602:
Dual Matched, High Frequency Bandpass/Lowpass Filters
Linduino DC2026C

Battery Fuel Gauge and Coulomb Counter (4)

LTC2949:
Current, Voltage, and Charge Monitor for High Voltage Battery Packs
Linduino DC2026C

LTC2944:
60V Battery Gas Gauge with Temperature, Voltage and Current Measurement
Linduino DC2026C

LTC2943-1:
1A Multicell Battery Gas Gauge with Temperature, Voltage and Current Measurement
Linduino DC2026C

LTC2943:
Multicell Battery Gas Gauge with Temperature, Voltage and Current Measurement
Linduino DC2026C

Clock Distribution Devices (2)

LTC6954:
Low Phase Noise, Triple Output Clock Distribution Divider/Driver
Linduino DC2026C

LTC6953:
Ultralow Jitter, 4.5GHz Clock Distributor with 11 Outputs and JESD204B/JESD204C Support
Linduino DC2026C

Clock Generation Devices (3)

LTC6952:
Ultralow Jitter, 4.5GHz PLL with 11 Outputs and JESD204B / JESD204C Support
Linduino DC2026C

LTC6951:
Ultralow Jitter Multi-Output Clock Synthesizer with Integrated VCO
Linduino DC2026C

LTC6950:

1.4GHz Low Phase Noise, Low Jitter PLL with Clock Distribution
Linduino DC2026C

Current Sense Amplifiers (4)

LTC4151:
High Voltage I^{2}C Current and Voltage Monitor
Linduino DC2026C

LTC2990:
Quad I^{2}C Voltage, Current and Temperature Monitor
Linduino DC2026C

LTC2946:
Wide Range I^{2}C Power, Charge and Energy Monitor
Linduino DC2026C

LTC2945:
Wide Range I^{2}C Power Monitor
Linduino DC2026C

Digital Power System Managers (6)

LTM2987:
16-Channel µModule PMBus Power System Manager
Linduino DC2026C

LTC2980:
16-Channel PMBus Power System Manager
Linduino DC2026C

LTC2977:
8-Channel PMBus Power System Manager Featuring Accurate Output Voltage Measurement
Linduino DC2026C

LTC2975:
4-Channel PMBus Power System Manager Featuring Accurate Input Current and Energy Measurement
Linduino DC2026C

LTC2974:
4-Channel PMBus Power System Manager Featuring Accurate Output Current Measurement
Linduino DC2026C

LTC2970
LTC2970-1:
Dual I^2C Power Supply Monitor and Margining Controller
Linduino DC2026C

Digital Sequencers (1)

LTC2937:
Programmable Six Channel Sequencer and Voltage Supervisor with EEPROM
Linduino DC2026C

Digital Temperature Sensors (4)

LTC2991:
Octal I^2C Voltage, Current, and Temperature Monitor
Linduino DC2026C

LTC2986:
Multi-Sensor High Accuracy Digital Temperature Measurement System with EEPROM
Linduino DC2026C

LTC2984:
Multi-Sensor High Accuracy Digital Temperature Measurement System with EEPROM
Linduino DC2026C

LTC2983:
Multi-Sensor High Accuracy Digital Temperature Measurement System
Linduino DC2026C

Digitally Programmable Regulators (2)

LTC3676
LTC3676-1:
Power Management Solution for Application Processors
Linduino DC2026C

LTC3589
LTC3589-1
LTC3589-2:
8-Output Regulator with Sequencing and I^2C
Linduino DC2026C

Energy Monitors (1)

LTC2947-65:
65A+ Power/Energy Monitor with Integrated Sense Resistor
Linduino DC2026C

External Power Switch Buck Controllers (4)

LTC3887
LTC3887-1
LTC3887-2:
Dual Output PolyPhase Step-Down DC/DC Controller with Digital Power System Management
Linduino DC2026C

LTC3883
LTC3883-1:
Single Phase Step-Down DC/DC Controller with Digital Power System Management
Linduino DC2026C

LTC3882:
Dual Output PolyPhase Step-Down DC/DC Voltage Mode Controller with Digital Power System Management
Linduino DC2026C

LTC3828:
Dual, 2-Phase Step-Down Controller with Tracking
Linduino DC2026C

Fast Precision D/A Converters (1)

LTC1668:

16-Bit, 50Msps DAC
Linduino DC2026C

Fractional-N PLL (2)

LTC6948:
Ultralow Noise 0.37GHz to 6.39GHz Fractional-N Synthesizer with Integrated VCO
Linduino DC2026C

LTC6947:
Ultralow Noise 0.35GHz to 6GHz Fractional-N Synthesizer
Linduino DC2026C

Fully Differential Amplifiers (11)

LTC6416:
2GHz Low Noise Differential 16-Bit ADC Buffer
DC890B

LTC6412:
800MHz, 31dB Range Analog-Controlled VGA
DC890B

LTC6409:
10GHz GBW, 1.1nV/$\sqrt{Hz}$ Differential Amplifier/ADC Driver
DC890B

LTC6406:
3GHz, Low Noise, Rail-to-Rail Input Differential Amplifier/Driver
DC718C

LTC6404:
600MHz, Low Noise, High Precision Fully Differential Input/Output Amplifier/Driver
DC718C

LTC6403-1:
200MHz, Low Noise, Low Power Fully Differential Input/Output Amplifier/Driver
DC718C

LTC6362:
Precision, Low Power Rail-to-Rail Input/Output Differential Op Amp/SAR ADC Driver
Linduino DC2026C

LTC6362:
Precision, Low Power Rail-to-Rail Input/Output Differential Op Amp/SAR ADC Driver
DC718C

LT1994:
Low Noise, Low Distortion Fully Differential Input/Output Amplifier/Driver
DC718C

LT1993-4:
900MHz Low Distortion, Low Noise Differential Amplifier/ADC Driver (A_V = 4V/V)
DC718C

LT1993-2:
800MHz Low Distortion, Low Noise Differential Amplifier ADC Driver (Av = 2V/V)
DC718C

High Output Current Op Amps ≥ 100mA (1)

LT6411:
650MHz Differential ADC Driver/Dual Selectable Gain Amplifier
DC718C

High Speed Op Amps (Bandwidth ≥ 50MHz) (4)

LTC6360:
Very Low Noise Single-Ended SAR ADC Driver with True Zero Output
DC718C

LTC6360:
Very Low Noise Single-Ended SAR ADC Driver with True Zero Output
Linduino DC2026C

LT6201:
Dual 165MHz, Rail-to-Rail Input and Output, 0.95nV/$\sqrt{Hz}$ Low Noise, Op Amp Family
DC718C

LT1468:
90MHz, 22V/us 16-Bit Accurate Operational Amplifier
DC890B

High Voltage Hot Swap Controllers (3)

LTM9100:
Anyside™ High Voltage Isolated Switch Controller with I^2C Command and Telemetry
Linduino DC2026C

LTC4261:
Negative Voltage Hot Swap Controllers with ADC and I^2C Monitoring
Linduino DC2026C

LTC4260:
Positive High Voltage Hot Swap Controller with I^2C Compatible Monitoring
Linduino DC2026C

High Voltage Op Amps ≥12V (4)

LT6203:
Dual 100MHz, Rail-to-Rail Input and Output, Ultralow 1.9nV$\sqrt{Hz}$ Noise, Low Power Op Amps
Linduino DC2026C

LT6203:
Dual 100MHz, Rail-to-Rail Input and Output, Ultralow 1.9nV$\sqrt{Hz}$ Noise, Low Power Op Amps
DC890B

LT6202:
Single 100MHz, Rail-to-Rail Input and Output, Ultralow 1.9nV$\sqrt{Hz}$ Noise, Low Power Op Amps
DC718C

LT6202:
Single 100MHz, Rail-to-Rail Input and Output, Ultralow 1.9nV$\sqrt{Hz}$ Noise, Low Power Op Amps

Linduino DC2026C

I/Q Modulators (1)

LTC5599:
30MHz to 1300MHz Low Power Direct Quadrature Modulator
Linduino DC2026C

Integer-N PLL (2)

LTC6946:
Ultralow Noise and Spurious 0.37GHz to 6.39GHz Integer-N Synthesizer with Integrated VCO
Linduino DC2026C

LTC6945:
Ultralow Noise and Spurious 0.35GHz to 6GHz Integer-N Synthesizer
Linduino DC2026C

IO-Link (1)

LTC2874:
Quad IO-Link Master Hot Swap Controller and PHY
Linduino DC2026C

isoPower (1)

ADP1034:
3-Channel Isolated Micropower Management Unit with Seven Digital Isolators and Programmable Power Control
Linduino DC2026C

LED Driver Support Functions (1)

LT3967:
1.3A Eight-Switch Matrix LED Dimmer with CRC-8
Linduino DC2026C

LED Flash Drivers (2)

ADP1660:
Dual 750 mA LED Flash Driver with I^2C-Compatible Interface
Linduino DC2026C

ADP1650:
1.5 A LED Flash Driver with I^2C-Compatible Interface
Linduino DC2026C

Low Voltage Hot Swap Controllers (3)

LTC4282:
High Current Hot Swap Controller with I^2C Compatible Monitoring
Linduino DC2026C

LTC4280:
Hot Swap Controller with I^2C Compatible Monitoring
Linduino DC2026C

LTC4215
LTC4215-2:
Hot Swap Controller with I^2C Compatible Monitoring
Linduino DC2026C

Multicell Battery Stack Monitor (6)

LTC6811-2:
12 Channel Multicell Battery Monitor with Addressable Interface, Generation 4
Linduino DC2026C

LTC6811-1:
12 Channel Multicell Battery Monitor with Daisy Chain Interface, Generation 4
Linduino DC2026C

LTC6804-2:
12 Channel Multicell Battery Monitor with Addressable Interface, Generation 3
Linduino DC2026C

LTC6804-1:
12 Channel Multicell Battery Monitor with Daisy Chain Interface, Generation 3
Linduino DC2026C

LTC6803-2:
12 Channel Multicell Battery Monitor, Upgrade to LTC6802-2
Linduino DC2026C

LTC6803-1:
12 Channel Multicell Battery Monitor, Upgrade to LTC6802-1
Linduino DC2026C

Multichannel Voltage Output D/A Converters (10)

LTC2668:

16-Channel 16-/12-Bit ±10V V_{OUT} SoftSpan DACs with 10ppm/°C Max Reference
Linduino DC2026C

LTC2666:
Octal 16-Bit/12-Bit ±10V V_{OUT} SoftSpan DACs with 10ppm/°C Max Reference
Linduino DC2026C

LTC2664:
Quad 16-Bit/12-Bit ±10V V_{OUT} SoftSpan DACs with 10ppm/°C Max Reference
Linduino DC2026C

LTC2657:
Octal I^2C 16-/12-Bit Rail-to-Rail DACs with 10ppm/°C Max Reference
Linduino DC2026C

LTC2656:
Octal 16-/12-Bit Rail-to-Rail DACs with 10ppm/°C Max Reference
Linduino DC2026C

LTC2655:
Quad I^2C 16-/12-Bit Rail-to-Rail DACs with 10ppm/°C Max Reference
Linduino DC2026C

LTC2654:
Quad 16-/12-Bit Rail-to-Rail DACs with 10ppm/°C Max Reference
Linduino DC2026C

LTC2637:

Octal 12-/10-/8-Bit I^2C V_{OUT} DACs with 10ppm/°C Reference
Linduino DC2026C

LTC2634:
Quad 12-/10-/8-Bit Rail-to-Rail DACs with 10ppm/°C Reference
Linduino DC2026C

LTC2607:
16-Bit Dual Rail-to-Rail DACs with I^2C Interface
Linduino DC2026C

Multiple Output Buck Regulators (2)

LTM4644
LTM4644-1:
Quad DC/DC µModule (Power Module) Regulator with Configurable 4A Output Array
Linduino DC2026C

LTC3880:
Dual Output PolyPhase Step-Down DC/DC Controller with Digital Power System Management
Linduino DC2026C

Multiplexed A/D Converters (40)

LTC2499:
24-Bit 8-/16-Channel ΔΣ ADC with Easy Drive Input Current Cancellation and I^2C Interface
Linduino DC2026C

LTC2498:
24-Bit 8-/16-Channel ΔΣ ADC with Easy Drive Input Current Cancellation

Linduino DC2026C

LTC2497:
16-Bit 8-/16-Channel ΔΣ ADC with Easy Drive Input Current Cancellation and I²C Interface
Linduino DC2026C

LTC2496:
16-Bit 8-/16-Channel ΔΣ ADC with Easy Drive Input Current Cancellation
Linduino DC2026C

LTC2495:
16-Bit 8-/16-Channel ΔΣ ADC with PGA, Easy Drive and I²C Interface
Linduino DC2026C

LTC2494:
16-Bit 8-/16-Channel ΔΣ ADC with PGA and Easy Drive Input Current Cancellation
Linduino DC2026C

LTC2449:
24-Bit High Speed 8-/16-Channel Δ∑ ADCs with Selectable Speed/Resolution
Linduino DC2026C

LTC2442:
24-Bit High Speed 4-Channel ΔΣ ADC with Integrated Amplifier
Linduino DC2026C

LTC2422:
1-/2-Channel 20-Bit µPower No Latency ΔΣ™ ADCs in MSOP-10

Linduino DC2026C

LTC2418:
8-/16-Channel 24-Bit No Latency ΔΣ™ ADCs
Linduino DC2026C

LTC2374-16:
16-Bit, 1.6Msps, 8-Channel SAR ADC with 96dB SNR
Linduino DC2026C

LTC2374-16:
16-Bit, 1.6Msps, 8-Channel SAR ADC with 96dB SNR
DC890B

LTC2373-18:
18-Bit, 1Msps, 8-Channel SAR ADC with 100dB SNR
DC890B

LTC2373-18:
18-Bit, 1Msps, 8-Channel SAR ADC with 100dB SNR
Linduino DC2026C

LTC2373-16:
16-Bit, 1Msps, 8-Channel SAR ADC with 96dB SNR
DC890B

LTC2373-16:
16-Bit, 1Msps, 8-Channel SAR ADC with 96dB SNR

Linduino DC2026C

LTC2372-18:
18-Bit, 500ksps, 8-Channel SAR ADC with 100dB SNR
DC890B

LTC2372-18:
18-Bit, 500ksps, 8-Channel SAR ADC with 100dB SNR
Linduino DC2026C

LTC2372-16:
16-Bit, 500ksps, 8-Channel SAR ADC with 96dB SNR
Linduino DC2026C

LTC2372-16:
16-Bit, 500ksps, 8-Channel SAR ADC with 96dB SNR
DC890B

LTC2335-18:
18-Bit, 1Msps 8-Channel Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2335-18:
18-Bit, 1Msps 8-Channel Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2335-16:
16-Bit, 1Msps 8-Channel Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range

Linduino DC2026C

LTC2335-16:
16-Bit, 1Msps 8-Channel Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2333-18:
Buffered 8-Channel, 18-Bit, 800ksps Differential ±10.24V ADC with $30V_{P-P}$ Common Mode Range
DC890B

LTC2333-18:
Buffered 8-Channel, 18-Bit, 800ksps Differential ±10.24V ADC with $30V_{P-P}$ Common Mode Range
Linduino DC2026C

LTC2333-16:
Buffered 8-Channel, 16-Bit, 800ksps Differential ±10.24V ADC with $30V_{P-P}$ Common Mode Range
DC890B

LTC2333-16:
Buffered 8-Channel, 16-Bit, 800ksps Differential ±10.24V ADC with $30V_{P-P}$ Common Mode Range
Linduino DC2026C

LTC2309:
8-Channel, 12-Bit SAR ADC with I2C Interface
Linduino DC2026C

LTC2308:
Low Noise, 500ksps, 8-Channel, 12-Bit ADC

Linduino DC2026C

LTC2308:
Low Noise, 500ksps, 8-Channel, 12-Bit ADC
DC890B

LTC2305:
2-Channel, 12-Bit ADCs with I^2C Compatible Interface
Linduino DC2026C

LTC1867L:
Micropower, 3V, 16-Bit, 8-Channel 175ksps ADCs
Linduino DC2026C

LTC1867:
16-Bit, 8-Channel 200ksps ADCs
Linduino DC2026C

LTC1859:
8-Channel, 16-Bit, 100ksps SoftSpan A/D Converters with Shutdown
Linduino DC2026C

LTC1858:
8-Channel, 14-Bit, 100ksps SoftSpan A/D Converters with Shutdown
Linduino DC2026C

LTC1857:
8-Channel, 12-Bit, 100ksps SoftSpan A/D Converters with Shutdown

Linduino DC2026C

LTC1856:
8-Channel, ±10V Input 16-Bit, 100ksps ADC Converter with Shutdown
Linduino DC2026C

LTC1855:
8-Channel, ±10V Input 14-Bit, 100ksps ADC Converter with Shutdown
Linduino DC2026C

LTC1854:
8-Channel, ±10V Input 12-Bit, 100ksps ADC Converter with Shutdown
Linduino DC2026C

Multiplying Current Output D/A Converters (3)

LTC2758:
Dual Serial 18-Bit SoftSpan I_{OUT} DACs
Linduino DC2026C

LTC2752:
Dual 16-Bit Soft-Span I_{OUT} DACs
Linduino DC2026C

LTC1592:
16-Bit SoftSpan DACs with Programmable Output Range
Linduino DC2026C

Multiprotocol Transceivers (1)

LTC2873:
Single-Bus RS485/RS232 Multiprotocol Transceiver with Switchable Termination
Linduino DC2026C

PCI Hot Swap Controllers (1)

LTC4245:
Multiple Supply Hot Swap Controller with I^2C Compatible Monitoring
Linduino DC2026C

PoE Power Sourcing Equipment (PSE) (7)

LTC4291-1:
4-Port IEEE 802.3bt PoE PSE Controller
Linduino DC2026C

LTC4290:
8-Port PoE/PoE+/LTPoE++ PSE Analog Controller
Linduino DC2026C

LTC4274A
LTC4274C:
Single PoE/PoE+/LTPoE++ PSE Controller
Linduino DC2026C

LTC4274:
Single PoE+ PSE Controller
Linduino DC2026C

LTC4271:
12-Port PoE/PoE+/LTPoE++ PSE Controller
Linduino DC2026C

LTC4270:
12-Port PoE/PoE+/LTPoE++ PSE Analog Controller
Linduino DC2026C

LTC4266A
LTC4266C:
Quad PoE/PoE+/LTPoE++ PSE Controller
Linduino DC2026C

Power Monitors (2)

LTC2992:
Dual Wide Range Power Monitor
Linduino DC2026C

LTC2947:
30A Power/Energy Monitor with Integrated Sense Resistor
Linduino DC2026C

PWM to Voltage Output D/A Converters (2)

LTC2645:
Quad 12-/10-/8-Bit PWM to V_{OUT} DACs with 10ppm/°C Reference
Linduino DC2026C

LTC2644:

Dual 12-/10-/8-Bit PWM to V_{OUT} DACs with 10ppm/°C Reference
Linduino DC2026C

Quad or More Supply Monitors (2)

LTC2936:
Programmable Hex Voltage Supervisor with EEPROM and Comparator Outputs
Linduino DC2026C

LTC2933:
Programmable Hex Voltage Supervisor with EEPROM
Linduino DC2026C

Rail-to-Rail Op Amps (1)

LT1807:
325MHz, Dual, Rail-to-Rail Input and Output, Low Distortion, Low Noise Precision Op Amps
DC718C

Serial Bus Buffers, Extenders, and Accelerators (2)

LTC4316:
Single I^2C/SMBus Address Translator
Linduino DC2026C

LT3960:
I^2C to CAN-Physical Transceiver
Linduino DC2026C

Series Voltage References (3)

LTC6655:
0.25ppm Noise, Low Drift Precision References
DC718C

LTC6655:
0.25ppm Noise, Low Drift Precision References
Linduino DC2026C

LTC6655:
0.25ppm Noise, Low Drift Precision References
DC890B

Signal Chain µModule Receivers (5)

LTM9004:
14-Bit Direct Conversion Receiver Subsystem
DC890B

LTM9003:
12-Bit Digital Pre-Distortion µModule Receiver Subsystem
DC890B

LTM9002:
14-Bit, 125Msps Dual-Channel IF/Baseband Receiver Subsystem
DC890B

LTM9001-GA:
16-Bit, 25Msps IF/Baseband Receiver Subsystem
DC890B

LTM9001-A
LTM9001-B:
16-Bit IF/Baseband Receiver Subsystem
DC890B

Simultaneous Sampling A/D Converters (39)

LTC2358-18:
Buffered Octal, 18-Bit, 200ksps/Ch Differential ±10.24V ADC with 30V_{P-P} Common Mode Range
DC890B

LTC2358-18:
Buffered Octal, 18-Bit, 200ksps/Ch Differential ±10.24V ADC with 30V_{P-P} Common Mode Range
Linduino DC2026C

LTC2358-16:
Buffered Octal, 16-Bit, 200ksps/Ch Differential ±10.24V ADC with 30V_{P-P} Common Mode Range
Linduino DC2026C

LTC2358-16:
Buffered Octal, 16-Bit, 200ksps/Ch Differential ±10.24V ADC with 30V_{P-P} Common Mode Range
DC890B

LTC2351-14:

6 Channel, 14-Bit, 1.5Msps Simultaneous Sampling ADC with Shutdown
DC890B

LTC2348-18:
Octal, 18-Bit, 200ksps Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2348-18:
Octal, 18-Bit, 200ksps Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2348-16:
Octal, 16-Bit, 200ksps Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2348-16:
Octal, 16-Bit, 200ksps Differential ±10.24V Input SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2345-18:
Octal, 18-Bit, 200ksps Differential SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2345-18:
Octal, 18-Bit, 200ksps Differential SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2345-16:

Octal, 16-Bit, 200ksps Differential SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2345-16:
Octal, 16-Bit, 200ksps Differential SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2344-18:
Quad, 18-Bit, 400ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2344-18:
Quad, 18-Bit, 400ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2344-16:
Quad, 16-Bit, 400ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2344-16:
Quad, 16-Bit, 400ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2341-18:
Dual, 18-Bit, 666ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2341-18:

Dual, 18-Bit, 666ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2341-16:
Dual, 16-Bit, 666ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
Linduino DC2026C

LTC2341-16:
Dual, 16-Bit, 666ksps/ch Differential SoftSpan ADC with Wide Input Common Mode Range
DC890B

LTC2325-16:
Quad, 16-Bit, 5Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2325-14:
Quad, 14-Bit + Sign, 5Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2325-12:
Quad, 12-Bit + Sign, 5Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2324-16:
Quad, 16-Bit, 2Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2324-14:

Quad, 14-Bit + Sign, 2Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2324-12:
Quad, 12-Bit + Sign, 2Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2323-16:
Dual, 16-Bit, 5Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2323-14:
Dual, 14-Bit + Sign, 5Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2323-12:
Dual, 12-Bit + Sign, 5Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2321-16:
Dual, 16-Bit, 2Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2321-14:
Dual, 14-Bit + Sign, 2Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2321-12:

Dual, 12-Bit + Sign, 2Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2320-16:
Octal, 16-Bit, 1.5Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2320-14:
Octal, 14-Bit + Sign, 1.5Msps/Ch Simultaneous Sampling ADC
DC890B

LTC2320-12:
Octal, 12-Bit + Sign, 1.5Msps/Ch Simultaneous Sampling ADC
DC890B

LTC1408:
6 Channel, 14-Bit, 600ksps Simultaneous Sampling ADC with Shutdown
DC890B

LTC1407-1:
Serial 12-Bit/14-Bit, 3Msps Simultaneous Sampling ADCs with Shutdown
DC890B

LTC1407:
Serial 12-Bit/14-Bit, 3Msps Simultaneous Sampling ADCs with Shutdown
DC890B

Single Channel A/D Converters (133)

LTC2512-24:
24-Bit Over-Sampling ADC with Configurable Flat Passband Digital Filter
DC890B

LTC2512-24:
24-Bit Over-Sampling ADC with Configurable Flat Passband Digital Filter
Linduino DC2026C

LTC2508-32:
32-Bit Over-Sampling ADC with Configurable Digital Filter
Linduino DC2026C

LTC2508-32:
32-Bit Over-Sampling ADC with Configurable Digital Filter
DC890B

LTC2500-32:
32-Bit Over-Sampling ADC with Configurable Digital Filter
Linduino DC2026C

LTC2500-32:
32-Bit Over-Sampling ADC with Configurable Digital Filter
DC890B

LTC2484:
24-Bit ΔΣ ADC with Easy Drive Input Current Cancellation
Linduino DC2026C

LTC2473:
Selectable 208sps/833sps, 16-Bit I^2C ΔΣ ADCs with 10ppm/°C Max Precision Reference
Linduino DC2026C

LTC2461:
Differential Ultra-Tiny, 16-Bit I^2C ΔΣ ADCs with 10ppm/°C Max Precision Reference
Linduino DC2026C

LTC2460:
Ultra-Tiny, 16-Bit ΔΣ ADCs with 10ppm/°C Max Precision Reference
Linduino DC2026C

LTC2440:
24-Bit High Speed Differential ∆∑ ADC with Selectable Speed/Resolution
Linduino DC2026C

LTC2393-16:
16-Bit, 1Msps SAR ADC With 94dB SNR
DC718C

LTC2392-16:
16-Bit, 500ksps SAR ADC with 94dB SNR
DC718C

LTC2391-16:
16-Bit, 250ksps SAR ADC with 94dB SNR
DC718C

LTC2389-18:
18-Bit, 2.5Msps SAR ADC with Pin-Configurable Analog Input Range and 99.8dB SNR
DC718C

LTC2389-16:
16-Bit, 2.5Msps SAR ADC with Pin-Configurable Analog Input Range and 96dB SNR
DC718C

LTC2387-18:
18-Bit, 15Msps SAR ADC
DC718C

LTC2387-16:
16-Bit, 15Msps SAR ADC
DC718C

LTC2386-18:
18-Bit, 10Msps SAR ADC
DC718C

LTC2386-16:
16-Bit, 10Msps SAR ADC
DC718C

LTC2385-18:
18-Bit, 5Msps SAR ADC
DC718C

LTC2385-16:
16-Bit, 5Msps SAR ADC
DC718C

LTC2383-16:
16-Bit, 1Msps, Low Power SAR ADC with Serial Interface
DC718C

LTC2383-16:
16-Bit, 1Msps, Low Power SAR ADC with Serial Interface
Linduino DC2026C

LTC2382-16:
16-Bit, 500ksps, Low Power SAR ADC with Serial Interface
DC718C

LTC2382-16:
16-Bit, 500ksps, Low Power SAR ADC with Serial Interface
Linduino DC2026C

LTC2381-16:
16-Bit, 250ksps, Low Power SAR ADC with Serial Interface
DC718C

LTC2381-16:
16-Bit, 250ksps, Low Power SAR ADC with Serial Interface
Linduino DC2026C

LTC2380-24:
24-Bit, 1.5Msps/2Msps, Low Power SAR ADC with Integrated Digital Filter
Linduino DC2026C

LTC2380-24:
24-Bit, 1.5Msps/2Msps, Low Power SAR ADC with Integrated Digital Filter
DC890B

LTC2380-16:
16-Bit, 2Msps, Low Power SAR ADC with 96.2dB SNR
DC718C

LTC2380-16:
16-Bit, 2Msps, Low Power SAR ADC with 96.2dB SNR
Linduino DC2026C

LTC2379-18:
18-Bit, 1.6Msps, Low Power SAR ADC with 101.2dB SNR
Linduino DC2026C

LTC2379-18:
18-Bit, 1.6Msps, Low Power SAR ADC with 101.2dB SNR
DC718C

LTC2378-20:
20-Bit, 1Msps, Low Power SAR ADC with 0.5ppm INL
DC890B

LTC2378-20:
20-Bit, 1Msps, Low Power SAR ADC with 0.5ppm INL
Linduino DC2026C

LTC2378-18:
18-Bit, 1Msps, Low Power SAR ADC with 102dB SNR
DC718C

LTC2378-18:
18-Bit, 1Msps, Low Power SAR ADC with 102dB SNR
Linduino DC2026C

LTC2378-16:
16-Bit, 1Msps, Low Power SAR ADC with 97dB SNR
DC718C

LTC2378-16:
16-Bit, 1Msps, Low Power SAR ADC with 97dB SNR
Linduino DC2026C

LTC2377-20:
20-Bit, 500ksps, Low Power SAR ADC with 0.5ppm INL
Linduino DC2026C

LTC2377-20:
20-Bit, 500ksps, Low Power SAR ADC with 0.5ppm INL
DC890B

LTC2377-18:
18-Bit, 500ksps, Low Power SAR ADC with 102dB SNR
DC718C

LTC2377-18:
18-Bit, 500ksps, Low Power SAR ADC with 102dB SNR
Linduino DC2026C

LTC2377-16:
16-Bit, 500ksps, Low Power SAR ADC with 97dB SNR
Linduino DC2026C

LTC2377-16:
16-Bit, 500ksps, Low Power SAR ADC with 97dB SNR
DC718C

LTC2376-20:
20-Bit, 250ksps, Low Power SAR ADC with 0.5ppm INL
Linduino DC2026C

LTC2376-20:
20-Bit, 250ksps, Low Power SAR ADC with 0.5ppm INL
DC890B

LTC2376-18:
18-Bit, 250ksps, Low Power SAR ADC with 102dB SNR
DC718C

LTC2376-18:
18-Bit, 250ksps, Low Power SAR ADC with 102dB SNR
Linduino DC2026C

LTC2376-16:
16-Bit, 250ksps, Low Power SAR ADC with 97dB SNR
Linduino DC2026C

LTC2376-16:
16-Bit, 250ksps, Low Power SAR ADC with 97dB SNR
DC718C

LTC2370-16:
16-Bit, 2Msps, Pseudo- Differential Unipolar SAR ADC with 94dB SNR
DC718C

LTC2370-16:
16-Bit, 2Msps, Pseudo- Differential Unipolar SAR ADC with 94dB SNR
Linduino DC2026C

LTC2369-18:
18-Bit, 1.6Msps, Pseudo- Differential Unipolar SAR ADC with 96.5dB SNR
Linduino DC2026C

LTC2369-18:
18-Bit, 1.6Msps, Pseudo- Differential Unipolar SAR ADC with 96.5dB SNR
DC718C

LTC2368-24:
24-Bit, 1Msps, Pseudo- Differential Unipolar SAR ADC with Integrated Digital Filter
DC890B

LTC2368-24:
24-Bit, 1Msps, Pseudo- Differential Unipolar SAR ADC with Integrated Digital Filter
Linduino DC2026C

LTC2368-18:
18-Bit, 1Msps, Pseudo-Differential Unipolar SAR ADC with 97dB SNR
Linduino DC2026C

LTC2368-18:
18-Bit, 1Msps, Pseudo-Differential Unipolar SAR ADC with 97dB SNR
DC718C

LTC2368-16:
16-Bit, 1Msps, Pseudo-Differential Unipolar SAR ADC with 94.7dB SNR
Linduino DC2026C

LTC2368-16:
16-Bit, 1Msps, Pseudo-Differential Unipolar SAR ADC with 94.7dB SNR
DC718C

LTC2367-18:
18-Bit, 500ksps, Pseudo-Differential Unipolar SAR ADC with 97dB SNR
Linduino DC2026C

LTC2367-18:
18-Bit, 500ksps, Pseudo-Differential Unipolar SAR ADC with 97dB SNR
DC718C

LTC2367-16:
16-Bit, 500ksps, Pseudo-Differential Unipolar SAR ADC with 94.7dB SNR
DC718C

LTC2367-16:
16-Bit, 500ksps, Pseudo-Differential Unipolar SAR ADC with 94.7dB SNR
Linduino DC2026C

LTC2366:
3Msps, 12-Bit Serial Sampling ADCs in TSOT
Linduino DC2026C

LTC2366:
3Msps, 12-Bit Serial Sampling ADCs in TSOT
DC890B

LTC2365:
1Msps, 12-Bit Serial Sampling ADCs in TSOT
DC890B

LTC2365:
1Msps, 12-Bit Serial Sampling ADCs in TSOT
Linduino DC2026C

LTC2364-18:
18-Bit, 250ksps, Pseudo-Differential Unipolar SAR ADC with 97dB SNR
DC718C

LTC2364-18:
18-Bit, 250ksps, Pseudo-Differential Unipolar SAR ADC with 97dB SNR
Linduino DC2026C

LTC2364-16:
16-Bit, 250ksps, Pseudo-Differential Unipolar SAR ADC with 94.7dB SNR
Linduino DC2026C

LTC2364-16:
16-Bit, 250ksps, Pseudo-Differential Unipolar SAR ADC with 94.7dB SNR
DC718C

LTC2362:
500ksps, 12-Bit Serial ADCs in TSOT-23
DC890B

LTC2362:
500ksps, 12-Bit Serial ADCs in TSOT-23
Linduino DC2026C

LTC2361:
250ksps, 12-Bit Serial ADCs in TSOT-23
Linduino DC2026C

LTC2361:
250ksps, 12-Bit Serial ADCs in TSOT-23
DC890B

LTC2360:
100ksps, 12-Bit Serial ADCs in TSOT-23
DC890B

LTC2360:
100ksps, 12-Bit Serial ADCs in TSOT-23
Linduino DC2026C

LTC2356-14:
Serial 14-Bit, 3.5Msps Sampling ADC with Bipolar inputs
DC890B

LTC2356-12:
Serial 12-Bit, 3.5Msps Sampling ADC with Shutdown
DC890B

LTC2355-14:
Serial 14-Bit, 3.5Msps Sampling ADCs with Unipolar input
DC890B

LTC2355-12:
Serial 12-Bit, 3.5Msps Sampling ADCs with Shutdown
DC890B

LTC2338-18:
18-Bit, 1Msps, ±10.24V True Bipolar, Fully Differential Input ADC with 100dB SNR
Linduino DC2026C

LTC2338-18:
18-Bit, 1Msps, ±10.24V True Bipolar, Fully Differential Input ADC with 100dB SNR
DC718C

LTC2337-18:
18-Bit, 500ksps, ±10.24V True Bipolar, Fully Differential Input ADC with 100dB SNR
DC718C

LTC2337-18:
18-Bit, 500ksps, ±10.24V True Bipolar, Fully Differential Input ADC with 100dB SNR
Linduino DC2026C

LTC2336-18:
18-Bit, 250ksps, ±10.24V True Bipolar, Fully Differential Input ADC with 100dB SNR
DC718C

LTC2336-18:
18-Bit, 250ksps, ±10.24V True Bipolar, Fully Differential Input ADC with 100dB SNR
Linduino DC2026C

LTC2328-18:
18-Bit, 1Msps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 95dB SNR
DC718C

LTC2328-18:
18-Bit, 1Msps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 95dB SNR
Linduino DC2026C

LTC2328-16:
16-Bit, 1Msps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 93.5dB SNR
Linduino DC2026C

LTC2328-16:
16-Bit, 1Msps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 93.5dB SNR
DC718C

LTC2327-18:
18-Bit, 500ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 95dB SNR
Linduino DC2026C

LTC2327-18:
18-Bit, 500ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 95dB SNR
DC718C

LTC2327-16:
16-Bit, 500ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 93.5dB SNR
Linduino DC2026C

LTC2327-16:
16-Bit, 500ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 93.5dB SNR
DC718C

LTC2326-18:
18-Bit, 250ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 95dB SNR
DC718C

LTC2326-18:
18-Bit, 250ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 95dB SNR
Linduino DC2026C

LTC2326-16:
16-Bit, 250ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 93.5dB SNR
DC718C

LTC2326-16:
16-Bit, 250ksps, ±10.24V True Bipolar, Pseudo-Differential Input ADC with 93.5dB SNR
Linduino DC2026C

LTC2315-12:
12-Bit, 5Msps Serial Sampling ADC in TSOT
DC718C

LTC2315-12:
12-Bit, 5Msps Serial Sampling ADC in TSOT
Linduino DC2026C

LTC2314-14:
14-Bit, 4.5Msps Serial Sampling ADC in TSOT
Linduino DC2026C

LTC2314-14:
14-Bit, 4.5Msps Serial Sampling ADC in TSOT
DC718C

LTC2313-14:
14-Bit, 2.5Msps Serial Sampling ADC in TSOT
DC718C

LTC2313-14:
14-Bit, 2.5Msps Serial Sampling ADC in TSOT
Linduino DC2026C

LTC2313-12:
12-Bit, 2.5Msps Serial Sampling ADC in TSOT
Linduino DC2026C

LTC2313-12:
12-Bit, 2.5Msps Serial Sampling ADC in TSOT
DC718C

LTC2312-14:
14-Bit, 500ksps Serial Sampling ADC in TSOT
Linduino DC2026C

LTC2312-14:
14-Bit, 500ksps Serial Sampling ADC in TSOT
DC718C

LTC2312-12:
12-Bit, 500ksps Serial Sampling ADC in TSOT
Linduino DC2026C

LTC2312-12:
12-Bit, 500ksps Serial Sampling ADC in TSOT
DC718C

LTC2311-16:
16-Bit, 5Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2311-14:
14-Bit + Sign, 5Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2311-12:
12-Bit + Sign, 5Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2310-16:
16-Bit, 2Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2310-14:
14-Bit + Sign, 2Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2310-12:
12-Bit + Sign, 2Msps Differential Input ADC with Wide Input Common Mode Range
DC890B

LTC2302:
Low Noise, 500ksps, 1-/2-Channel, 12-Bit ADCs
DC890B

LTC2302:
Low Noise, 500ksps, 1-/2-Channel, 12-Bit ADCs
Linduino DC2026C

LTC2301:
1-Channel, 12-Bit ADCs with I^2C Compatible Interface
Linduino DC2026C

LTC1864L:
µPower, 3V, 16-Bit, 150ksps 1- and 2-Channel ADCs in MSOP
DC718C

LTC1864:
µPower, 16-Bit, 250ksps 1- and 2-Channel ADCs in SOIC
DC718C

LTC1740:
14-Bit, 6Msps, Sampling ADC
DC718C

LTC1608:
High Speed, 16-Bit, 500ksps Sampling A/D Converter with Shutdown
DC718C

LTC1606:
16-Bit, 250ksps, Single Supply ADC
DC718C

LTC1605:
16-Bit, 100ksps, Sampling ADC
DC718C

LTC1604:
High Speed, 16-Bit, 333ksps Sampling A/D Converter with Shutdown
DC718C

LTC1405:
12-Bit, 5Msps, Sampling ADC
DC718C

LTC1403A-1:
Serial 14-Bit, 2.8Msps Sampling ADCs with Shutdown
DC890B

LTC1403A:
Serial 14-Bit, 2.8Msps Sampling ADCs with Shutdown
DC890B

Single, Double, and Triple Balanced Mixers (1)

LTC5566:
300MHz to 6GHz Dual Programmable Gain Downconverting Mixer
Linduino DC2026C

Single-Channel Voltage Output D/A Converters (3)

LTC2642:
16-/14-/12-Bit V_{OUT} DACs in 3mm × 3mm DFN
Linduino DC2026C

LTC2641:
16-/14-/12-Bit V_{OUT} DACs in 3mm × 3mm DFN
Linduino DC2026C

LTC2640:
Single 12-/10-/8-Bit SPI V_{OUT} DACs with 10ppm/°C Reference
Linduino DC2026C

Single-Ended to Differential Amplifiers (2)

LT6350:
Low Noise Single-Ended to Differential Converter/ADC Driver
DC718C

LT6350:
Low Noise Single-Ended to Differential Converter/ADC Driver
Linduino DC2026C

SPI Isolators (3)

LTM2893:
100MHz Isolated ADC Serial Interface
DC890B

LTM2893:
100MHz Isolated ADC Serial Interface
Linduino DC2026C

LTC6820:
isoSPI Isolated Communications Interface
Linduino DC2026C

Standard High Speed A/D Converters (148)

LTC2299:
Dual 14-Bit, 80Msps Low Power 3V ADC
DC890B

LTC2298:
Dual 14-Bit, 65Msps Low Power 3V ADCs
DC718C

LTC2298:
Dual 14-Bit, 65Msps Low Power 3V ADCs
DC890B

LTC2297:

Dual 14-Bit, 40Msps Low Power 3V ADCs
DC890B

LTC2297:
Dual 14-Bit, 40Msps Low Power 3V ADCs
DC718C

LTC2296:
Dual 14-Bit, 25Msps Low Power 3V ADCs
DC890B

LTC2296:
Dual 14-Bit, 25Msps Low Power 3V ADCs
DC718C

LTC2295:
Dual 14-Bit, 10Msps Low Power 3V ADC
DC718C

LTC2295:
Dual 14-Bit, 10Msps Low Power 3V ADC
DC890B

LTC2294:
Dual 12-Bit, 80Msps Low Power 3V ADC
DC890B

LTC2293:

Dual 12-Bit, 65Msps Low Power 3V ADCs
DC718C

LTC2293:
Dual 12-Bit, 65Msps Low Power 3V ADCs
DC890B

LTC2292:
Dual 12-Bit, 40Msps Low Power 3V ADCs
DC718C

LTC2292:
Dual 12-Bit, 40Msps Low Power 3V ADCs
DC890B

LTC2291:
Dual 12-Bit, 25Msps Low Power 3V ADCs
DC718C

LTC2291:
Dual 12-Bit, 25Msps Low Power 3V ADCs
DC890B

LTC2290:
Dual 12-Bit, 10Msps Low Power 3V ADC
DC718C

LTC2290:

Dual 12-Bit, 10Msps Low Power 3V ADC
DC890B

LTC2289:
Dual 10-Bit, 80Msps Low Noise 3V ADC
DC890B

LTC2288:
Dual 10-Bit, 65Msps Low Noise 3V ADCs
DC718C

LTC2288:
Dual 10-Bit, 65Msps Low Noise 3V ADCs
DC890B

LTC2287:
Dual 10-Bit, 40Msps Low Noise 3V ADCs
DC890B

LTC2287:
Dual 10-Bit, 40Msps Low Noise 3V ADCs
DC718C

LTC2286:
Dual 10-Bit, 25Msps Low Noise 3V ADCs
DC718C

LTC2286:

Dual 10-Bit, 25Msps Low Noise 3V ADCs
DC890B

LTC2285:
Dual 14-Bit, 125Msps Low Power 3V ADC
DC890B

LTC2284:
Dual 14-Bit, 105Msps Low Power 3V ADC
DC890B

LTC2283:
Dual 12-Bit, 125Msps Low Power 3V ADC
DC890B

LTC2282:
Dual 12-Bit, 105Msps Low Power 3V ADC
DC890B

LTC2281:
Dual 10-Bit, 125Msps Low Power 3V ADC
DC890B

LTC2280:
Dual 10-Bit, 105Msps Low Noise 3V ADC
DC890B

LTC2274:

16-Bit, 105Msps Serial Output ADC (JESD204)
DC890B

LTC2273:
16-Bit, 80Msps Serial Output ADC (JESD204)
DC890B

LTC2272:
16-Bit, 65Msps Serial Output ADC (JESD204)
DC890B

LTC2270:
16-Bit, 20Msps Low Noise Dual ADC
DC890B

LTC2269:
16-Bit, 20Msps Low Noise ADC
DC890B

LTC2262-14:
14-Bit, 150Msps Ultralow Power 1.8V ADC
DC890B

LTC2262-12:
12-Bit, 150Msps Ultralow Power 1.8V ADC
DC890B

LTC2261-14:

14-Bit, 125Msps Ultra-Low Power 1.8V ADCs
DC890B

LTC2261-12:
12-Bit, 125Msps Ultralow Power 1.8V ADCs
DC890B

LTC2260-14:
14-Bit, 105Msps Ultra-Low Power 1.8V ADCs
DC890B

LTC2260-12:
12-Bit, 105Msps Ultralow Power 1.8V ADCs
DC890B

LTC2259-14:
14-Bit, 80Msps Ultra-Low Power 1.8V ADCs
DC890B

LTC2259-12:
12-Bit, 80Msps Ultralow Power 1.8V ADCs
DC890B

LTC2258-14:
14-Bit, 65Msps Ultralow Power 1.8V ADCs
DC890B

LTC2258-12:

12-Bit, 65Msps Ultralow Power 1.8V ADCs
DC890B

LTC2257-14:
14-Bit, 40Msps Ultralow Power 1.8V ADCs
DC890B

LTC2257-12:
12-Bit, 40Msps Ultralow Power 1.8V ADCs
DC890B

LTC2256-14:
14-Bit, 25Msps Ultralow Power 1.8V ADCs
DC890B

LTC2256-12:
12-Bit, 25Msps Ultralow Power 1.8V ADCs
DC890B

LTC2255:
14-Bit, 125Msps Low Power 3V ADCs
DC718C

LTC2254:
14-Bit, 105Msps Low Power 3V ADCs
DC718C

LTC2253:

12-Bit, 125Msps Low Power 3V ADCs
DC718C

LTC2252:
12-Bit, 105Msps Low Power 3V ADCs
DC718C

LTC2251:
10-Bit, 125Msps Low Noise 3V ADCs
DC718C

LTC2250:
10-Bit, 105Msps Low Noise 3V ADCs
DC718C

LTC2249:
14-Bit, 80Msps Low Power 3V ADC
DC718C

LTC2248:
14-Bit, 65Msps Low Power 3V ADCs
DC718C

LTC2247:
14-Bit, 40Msps Low Power 3V ADCs
DC718C

LTC2246H:

14-Bit, 25Msps 125°C ADC In LQFP
DC718C

LTC2246:
14-Bit, 25Msps Low Power 3V ADCs
DC718C

LTC2245:
14-Bit, 10Msps Low Power 3V ADC
DC718C

LTC2242-12:
12-Bit, 250Msps ADC
DC890B

LTC2242-10:
10-Bit, 250Msps ADC
DC890B

LTC2241-12:
12-Bit, 210Msps ADC
DC890B

LTC2241-10:
10-Bit, 210Msps ADC
DC890B

LTC2240-12:

12-Bit, 170Msps ADC
DC890B

LTC2240-10:
10-Bit, 170Msps ADC
DC890B

LTC2239:
10-Bit, 80Msps Low Noise 3V ADC
DC718C

LTC2238:
10-Bit, 65Msps Low Power 3V ADCs
DC718C

LTC2237:
10-Bit, 40Msps Low Noise 3V ADCs
DC718C

LTC2236:
10-Bit, 25Msps Low Noise 3V ADCs
DC718C

LTC2234:
10-Bit, 135Msps ADC
DC718C

LTC2233:

10-Bit, 80Msps ADCs
DC718C

LTC2232:
10-Bit, 105Msps ADCs
DC718C

LTC2231:
10-Bit, 135Msps ADCs
DC890B

LTC2230:
10-Bit, 170Msps ADCs
DC890B

LTC2229:
12-Bit, 80Msps Low Power 3V ADC
DC718C

LTC2228:
12-Bit, 65Msps Low Power 3V ADCs
DC718C

LTC2227:
12-Bit, 40Msps Low Power 3V ADCs
DC718C

LTC2226H:

12-Bit, 25Msps 125°C ADC in LQFP
DC718C

LTC2226:
12-Bit, 25Msps Low Power 3V ADC
DC718C

LTC2225:
12-Bit, 10Msps Low Power 3V ADC
DC718C

LTC2224:
12-Bit, 135Msps ADC
DC718C

LTC2223:
12-Bit, 80Msps ADCs
DC718C

LTC2222-11:
11-Bit, 105Msps ADC
DC718C

LTC2222:
12-Bit, 105Msps ADCs
DC718C

LTC2221:

12-Bit, 135Msps ADCs
DC890B

LTC2220-1:
12-Bit, 185Msps ADC
DC890B

LTC2220:
12-Bit, 170Msps ADCs
DC890B

LTC2217:
16-Bit, 105Msps Low Noise ADC
DC718C

LTC2217:
16-Bit, 105Msps Low Noise ADC
DC890B

LTC2216:
16-Bit, 80Msps Low Noise ADC
DC718C

LTC2216:
16-Bit, 80Msps Low Noise ADC
DC890B

LTC2215:

16-Bit, 65Msps Low Noise ADC
DC718C

LTC2215:
16-Bit, 65Msps Low Noise ADC
DC890B

LTC2209:
16-Bit, 160Msps ADC
DC890B

LTC2208-14:
14-Bit, 130Msps ADC
DC718C

LTC2208-14:
14-Bit, 130Msps ADC
DC890B

LTC2208:
16-Bit, 130Msps ADC
DC718C

LTC2208:
16-Bit, 130Msps ADC
DC890B

LTC2207-14:

14-Bit, 105Msps ADC
DC718C

LTC2207:
16-Bit, 105Msps ADC
DC718C

LTC2206-14:
14-Bit, 80Msps ADC
DC718C

LTC2206:
16-Bit, 80Msps ADC
DC718C

LTC2205-14:
14-Bit, 65Msps ADC
DC718C

LTC2205:
16-Bit, 65Msps ADCs
DC718C

LTC2204:
16-Bit, 40Msps ADC
DC718C

LTC2203:

16-Bit, 25Msps ADCs
DC718C

LTC2202:
16-Bit, 10Msps ADC
DC718C

LTC2201:
16-Bit, 20Msps ADC
DC718C

LTC2188:
16-Bit, 20Msps Low Power Dual ADC
DC890B

LTC2185:
16-Bit, 125Msps Low Power Dual ADCs
DC890B

LTC2184:
16-Bit, 105Msps Low Power Dual ADCs
DC890B

LTC2183:
16-Bit, 80Msps Low Power Dual ADCs
DC890B

LTC2182:

16-Bit, 65Msps Low Power Dual ADCs
DC890B

LTC2181:
16-Bit, 40Msps Low Power Dual ADCs
DC890B

LTC2180:
16-Bit, 25Msps Low Power Dual ADCs
DC890B

LTC2165:
16-Bit, 125Msps Low Power ADCs
DC890B

LTC2164:
16-Bit, 105Msps Low Power ADCs
DC890B

LTC2163:
16-Bit, 80Msps Low Power ADCs
DC890B

LTC2162:
16-Bit, 65Msps Low Power ADCs
DC890B

LTC2161:

16-Bit, 40Msps Low Power ADCs
DC890B

LTC2160:
16-Bit, 25Msps Low Power ADCs
DC890B

LTC2159:
16-Bit, 20Msps Low Power ADC
DC890B

LTC2145-14:
14-Bit, 125Msps Low Power Dual ADCs
DC890B

LTC2145-12:
12-Bit, 125Msps Low Power Dual ADCs
DC890B

LTC2144-14:
14-Bit, 105Msps Low Power Dual ADCs
DC890B

LTC2144-12:
12-Bit, 105Msps Low Power Dual ADCs
DC890B

LTC2143-14:

14-Bit, 80Msps Low Power Dual ADCs
DC890B

LTC2143-12:
12-Bit, 80Msps Low Power Dual ADCs
DC890B

LTC2142-14:
14-Bit, 65Msps Low Power Dual ADCs
DC890B

LTC2142-12:
12-Bit, 65Msps Low Power Dual ADCs
DC890B

LTC2141-14:
14-Bit, 40Msps Low Power Dual ADCs
DC890B

LTC2141-12:
12-Bit, 40Msps Low Power Dual ADCs
DC890B

LTC2140-14:
14-Bit, 25Msps Low Power Dual ADCs
DC890B

LTC2140-12:

12-Bit, 25Msps Low Power Dual ADCs
DC890B

LTC1750:
14-Bit, 80Msps Wide Bandwidth ADC
DC718C

LTC1749:
12-Bit, 80Msps Wide Bandwidth ADC
DC718C

LTC1748:
14-Bit, 80Msps Low Noise ADC
DC718C

LTC1747:
12-Bit, 80Msps Low Noise ADC
DC718C

LTC1746:
Low Power,14-Bit, 25Msps ADC
DC718C

LTC1745:
Low Noise,12-Bit, 25Msps ADC
DC718C

LTC1744:

14-Bit, 50Msps ADC
DC718C

LTC1743:
12-Bit, 50Msps ADC
DC718C

LTC1742:
14-Bit, 65Msps Low Noise ADC
DC718C

LTC1741:
12-Bit, 65Msps Low Noise ADC
DC718C

LTC1420:
12-Bit, 10Msps, Sampling ADC
DC718C

USB Power Manager (PowerPath, Battery Charger) (1)

LTC4155:
Dual Input Power Manager/ 3.5A Li-Ion Battery Charger with I^2C Control and USB OTG
Linduino DC2026C

Voltage Output D/A Converters (1)

LTC2688:
16-Channel, 12-/16-Bit Voltage Output SoftSpan DAC
Linduino DC2026C

Converter Evaluation and Development Board (CED)

The Converter Evaluation and Development Board (EVAL-CED1Z) board is part of a platform from Analog Devices, intended for use in evaluation, demonstration and development of systems using Analog Devices precision converters.

COMPATIBLE PRODUCT EVALUATION BOARDS

The CED controller boards were designed to be used in conjunction with various ADI component evaluation boards as part of a customer evaluation environment. The following evaluation boards are compatible with CED controller boards.

Product

Isolated A/D Converters (1)

AD7400:
Isolated Sigma-Delta Modulator
EVAL-CED

Multiplexed A/D Converters (4)

AD7949:
14-Bit, 8-Channel, 250 kSPS PulSAR ADC
EVAL-CED

AD7699:
16-Bit, 8-Channel, 500 kSPS PulSAR ADC
EVAL-CED

AD7689:
16-Bit, 8-Channel, 250 kSPS PulSAR ADC
EVAL-CED

AD7682:
16-Bit, 4-Channel, 250 kSPS PulSAR ADC
EVAL-CED

Simultaneous Sampling A/D Converters (9)

AD7655:
Low Cost, 4-Channel, 16-Bit, 500 kSPS PulSAR ADC
EVAL-CED

AD7654:
Dual, 2-Channel, Simultaneous Sampling, PulSAR®, 500 kSPS, 16-Bit ADC
EVAL-CED

AD7367:
True Bipolar Input, Dual 14-Bit, 2-Channel, Simultaneous Sampling SAR ADC
EVAL-CED

AD7357:
Differential Input, Dual, Simultaneous Sampling, 4.25 MSPS, 14-Bit, SAR ADC

EVAL-CED

AD7356:
Differential Input, Dual, Simultaneous Sampling, 5 MSPS, 12-Bit, SAR ADC
EVAL-CED

AD7352:
Differential Input, Dual, Simultaneous Sampling, 3 MSPS, 12-Bit, SAR ADC
EVAL-CED

AD7266:
Differential/Single-Ended Input, Dual 2 MSPS, 12-Bit, 3-Channel SAR ADC
EVAL-CED

AD7264:
1 MSPS, 14-Bit, Simultaneous Sampling SAR ADC with PGA and Four Comparators
EVAL-CED

AD7262:
1 MSPS, 12-Bit, Simultaneous Sampling SAR ADC with PGA and Four Comparators
EVAL-CED

Single Channel A/D Converters (40)

AD7767:
24-Bit, 15 mW, 109 dB, 128 kSPS/64 kSPS/32 kSPS ADCs
EVAL-CED

AD7766:
24-Bit, 8.5 mW, 109 dB, 128 kSPS/64 kSPS/32 kSPS ADCs
EVAL-CED

AD7765:
24-Bit, 156 kSPS, 112 dB Sigma-Delta ADC with On-Chip Buffers and Serial Interface
EVAL-CED

AD7764:
24-Bit, 312 kSPS, 109 dB Sigma-Delta ADC with On-Chip Buffers and Serial Interface

EVAL-CED

AD7763:
24-Bit, 625 kSPS, 109 dB Sigma-Delta ADC with On-Chip Buffers, Serial Interface
EVAL-CED

AD7762:
625 kSPS, 24-Bit, 109 dB Sigma-Delta ADC with On-Chip Buffer
EVAL-CED

AD7760:
2.5 MSPS, 24-Bit, 100 dB Sigma-Delta ADC with On-Chip Buffer
EVAL-CED

AD7679:
18-Bit, 570 kSPS PulSAR® A/D Converter
EVAL-CED

AD7678:
18-Bit,100 kSPS PulSAR® A/D Converter
EVAL-CED

AD7677:
16-Bit, 1 LSB INL, 1 MSPS Differential PulSAR® ADC
EVAL-CED

AD7676:
500 kSPS CMOS 16-Bit PulSAR® ADC with INL of 1 LSB Max
EVAL-CED

AD7675:
16-Bit, 100 kSPS Differential PulSAR® A/D Converter
EVAL-CED

AD7674:
18-Bit, 2.5 LSB INL, 800 kSPS, SAR ADC
EVAL-CED

AD7671:
16-Bit, 1 MSPS CMOS ADC
EVAL-CED

AD7667:
16-Bit, 1 MSPS PulSAR® Unipolar ADC with Ref
EVAL-CED

AD7666:
16-Bit, 500 kSPS PulSAR® Unipolar ADC with Ref
EVAL-CED

AD7665:
16-Bit 570 kSPS Bipolar PulSAR® ADC
EVAL-CED

AD7664:
16-Bit 570 kSPS CMOS Successive Approximation PulSAR® ADC with No Missing Codes
EVAL-CED

AD7663:
16-Bit Bipolar 250 kSPS PulSAR® CMOS ADC
EVAL-CED

AD7661:
16-Bit, 100 kSPS PulSAR® Unipolar ADC with Ref
EVAL-CED

AD7660:
16-Bit 100 kSPS CMOS Successive Approximation PulSAR® ADC with No Missing Codes
EVAL-CED

AD7653:
16-Bit 1 MSPS PulSAR® Unipolar ADC with Ref
EVAL-CED

AD7652:
16-Bit 500 kSPS PulSAR® Unipolar ADC with Ref
EVAL-CED

AD7651:
16-Bit 100 kSPS PulSAR® Unipolar ADC with Reference
EVAL-CED

AD7650:
16-Bit, 570 kSPS, Unipolar CMOS Successive Approximation ADC
EVAL-CED

AD7643:
18-Bit, 1.25 MSPS PulSAR® A/D Converter
EVAL-CED

AD7641:
18-Bit, 2 MSPS SAR ADC
EVAL-CED

AD7634:
18-Bit, 670 kSPS, Differential Programmable Input PulSAR® ADC
EVAL-CED

AD7623:
16-Bit, 1.33 MSPS PulSAR® A/D Converter
EVAL-CED

AD7622:
16-Bit, 1.5 LSB INL, 2 MSPS PulSAR® ADC
EVAL-CED

AD7621:
16-Bit, 2 LSB INL, 3 MSPS PulSAR® ADC
EVAL-CED

AD7612:
16-Bit, 750 kSPS, Unipolar/Bipolar Programmable Input PulSAR® ADC
EVAL-CED

AD7610:
16-Bit, 250 kSPS, Unipolar/Bipolar Programmable Input PulSAR® ADC
EVAL-CED

AD7477:
1MSPS, 10-Bit ADC in 6 Lead SOT-23
EVAL-CED

AD7476:
1MSPS, 12-Bit ADC in 6 Lead SOT-23
EVAL-CED

AD7468:
1.6 V Micro-Power 8-Bit ADC
EVAL-CED

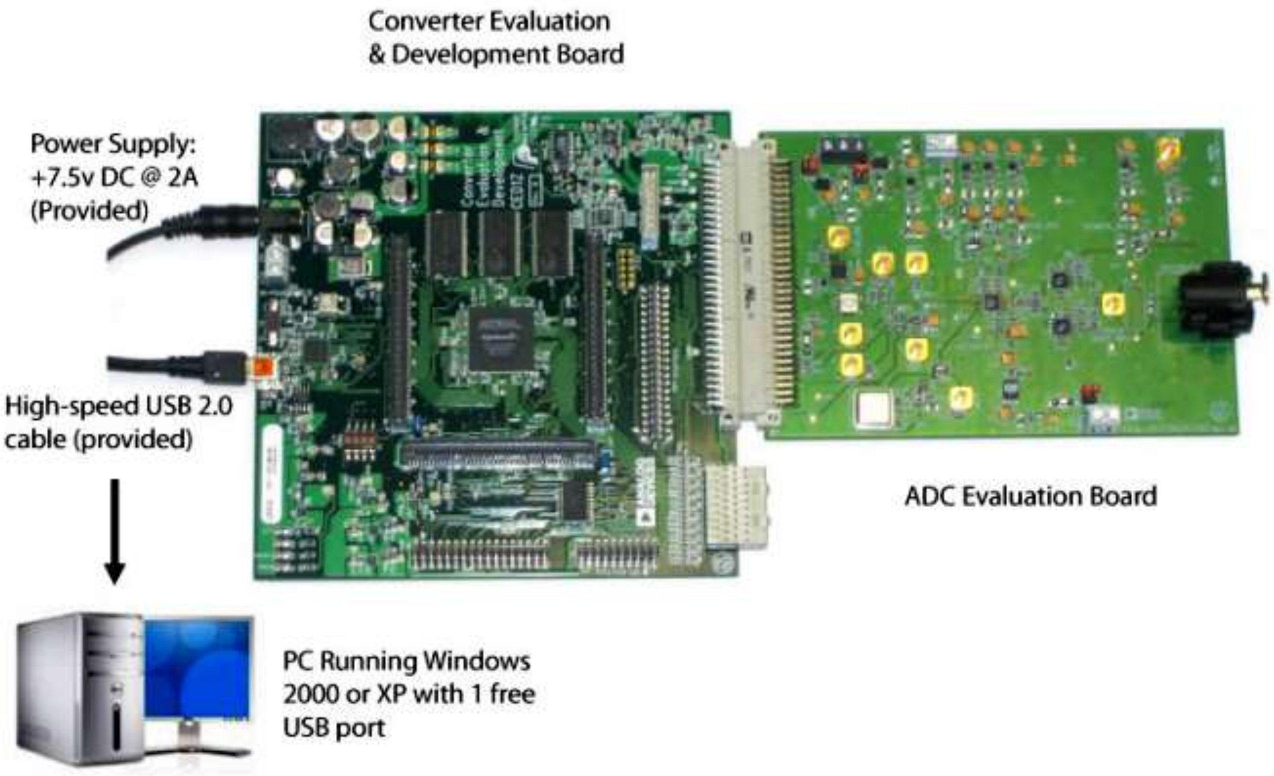
AD7467:
1.6 V Micro-Power 10-Bit ADC
EVAL-CED

AD7466:
1.6 V Micro-Power 12-Bit ADC
EVAL-CED

AD7276:
3 MSPS, 12-Bit ADC in 8-Lead MSOP and 6-Lead TSOT

EVAL-CED

AD7274:
3 MSPS 12-Bit A/D Converter in TSOT and MSOP Packages
EVAL-CED



Features:

- Interfaces to multiple serial and parallel precision converter evaluation boards
- USB 2.0 connection to PC (USB 1.1 compatible)
- Altera Cyclone FPGA
- Supports high-speed LVDS interface
- Provides 8 separate power supplies
- Connects directly to ADSP-BF537 Blackfin EZ-KIT Lite through the U connector
- Windows 2000/XP compatible

Product Evaluation Boards and Kits

Search or browse the library of available evaluation boards and kits to find the information and documents needed to evaluate a specific ADI product.

Software

Blackfin Processors Software and Tools

SHARC Processors Software and Tools

TigerSHARC Processors Software and Tools

ADSP-21xx Processors Software and Tools

ADSP-CM40x Mixed-Signal Control Processors Software and Tools

VisualDSP++ Development Software

SigmaStudio

SigmaStudio is our powerful and easy to use graphical development tools for programming, configuring and tuning software for Automotive Audio, Connectivity and Algorithm/IP applications. The latest generation of the tool, SigmaStudio+ offers an updated UI along with added features, customizations, and applications for ADI DSP audio processors and $A^2B^®$ transceivers. All SigmaStudio projects are compatible with SigmaStudio+ using the migration feature.

- SigmaStudio®+
- SigmaStudio®

Get customer support.

Algorithmic, Add-in and Plug-in Software Modules

Audio and video codecs, encoders, decoders, post processing code and other modules can speed development and help evaluate processors. View More

Code Examples

Use software code examples to get you started on your software and algorithm development. Often, years of development are represented in coding best practices in the example code View More

Operating Systems and Middleware

ADI and its partners have a broad range of middleware offerings that let you explore, evaluate and design with our processors. With middleware, Analog Devices can provide you with what you need to develop your next product. View More

Software and Tools Anomalies Search

Sometimes silicon or development tools have unintended features. Knowing about these anomalies eases your development, providing workarounds for known issues. View More

JESD204 Interface Framework

Integrated JESD204 software framework for rapid system-level development and optimization

Analog Devices' JESD204 Interface Framework is a system-level software and HDL package targeted at simplifying system development by providing a performance optimized IP framework that integrates complex hardware such as high speed converters, transceivers and clocks with various FPGA platforms.

The JESD204 Interface Framework provides an open platform that includes dynamic configuration capabilities to allow for system changes during operation and constraint handling to support built-in component models such as clocks and converters. These capabilities improve system-level integration and proof-of-concept testing leading to faster time-to-market.

Product Categories

- A/D Converters
- D/A Converters
- RF & Microwave
- Clock & Timing

Markets & Technology

- Aerospace and Defense
- Communications
- Instrumentation and Measurement

Features and Benefits

- System level JESD204 framework designed for faster system integration
- Optimized software package for rapid prototyping and proof-of-concept testing
    - HDL code interfaces JESD204 compliant converters and transceivers to FPGAs
- Dynamic configuration capabilities allow for system changes during operation
- Constraint handling supports built-in component models and configures clocks and converters easing system integration

- Commercial and Open Source Licenses available:

  GPL-2
  - Zero cost, but not public domain
  - Unlimited right to run program
  - Unlimited access to source code
  - Unlimited right to distribute verbatim copies of source
  - May create derivatives IF you agree to make the derivatives free and open (distribute your source)
  - License is “viral”
  - No warranties; disclaimer of consequential damages
  - Free EngineerZone support on ADI parts only

  Commercial License
  - Nominal cost outlined below
  - Unlimited use, modification, and distribution
  - Can distribute binaries without releasing source code
  - Perpetual, multi-project, multi-site
  - Must use with ADI devices
  - Can sub-license to end users of customer’s product for use on that product only
  - No warranties; disclaimer of consequential damages
  - Commercial support
  - One-on-one phone/email support for 10 hours
  - After that, EngineerZone
- **Additional features:**
  - Designed to JEDEC JESD204B specification
  - Supports 1-256 Octets per frame and 1-32 frames per multi-frame
  - Supports 1-32 lane configurations
  - Supports line rates up to 12.5Gbps certified to the JESD204B specification
  - Supports line rates up to 16.1Gbps
  - Provides Physical and Data link layer functions

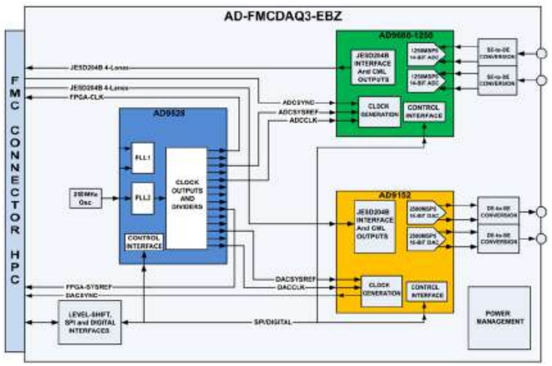
- AXI4-Stream interface for data
- AXI4-Lite for configuration interface

Supported Platforms and Products

Supported Platforms

EVAL-FMCDAQ3-EBZ	High speed data acquisition FMC board

EVAL-FMCDAQ3-EBZ



The AD-FMCDAQ3-EBZ module is comprised of the AD9680 dual, 14-bit, 1.25 GSPS, JESD204B ADC, the AD9152 dual, 16-bit, 2.5 GSPS, JESD204B DAC, the AD9528 clock, and power management components. It is clocked by an internally generated carrier platform via the FMC connector, comprising a completely self-contained data acquisition and signal synthesis prototyping platform. In an FMC footprint (84 mm × 69 mm), the module's combination of wideband data conversion, clocking, and power closely approximates real-world hardware and software for system prototyping and design, with no compromise in signal chain performance.

Applications

- Electronic test and measurement equipment
- General-purpose software radios
- Radar systems
- Ultra-wideband satellite receivers
- Signals intelligence (SIGINT)
- Point to point communication systems
- DOCSIS 3.0 CMTS and HFC networks
- Multiple input/multiple output (MIMO) radios
- Automated test equipment

Applicable Parts

Applications

Energy Solutions

- Smart Meter Technology

Aerospace and Defense Systems

- Electronic Surveillance and Countermeasures
- Aerospace and Defense Radar Systems

Healthcare Solutions

- Body Temperature Measurement Solutions
- Therapy Device Solutions for Healthcare

- Ultrasound Solutions
- Digital X-Ray Solutions
- Wearable Health Monitor Solutions
- Oxygen Saturation (SpO2) Measurement Solutions
- Respiration Rate Measurement Solutions
- Non-Invasive Blood Pressure (NIBP) Solutions
- Electrocardiogram (ECG) Measurement Solutions

EVAL-ADRV9008/9 ADRV9008/ADRV9009 Evaluation Board

EVAL-ADRV9008/9

Applicable Parts

Applications

Wireless Communication Solutions

- 4G / 5G Radio Unit Systems

Energy Solutions

The ADRV9009-W/PCBZ is a radio card designed to showcase the ADRV9009, the widest bandwidth, highest performance RF integrated transceiver. The radio card provides a single 2×2 transceiver platform for device evaluation and rapid prototyping of radio solutions. All peripherals necessary for the radio card to operate including a high efficiency switcher only power supply solution, and a high performance clocking solution are populated on the board. The ADRV9009-W/PCBZ is a single-chip TDD solution of dual receivers, dual transmitters with observation receiver.

The ADRV9009-W/PCBZ operates over a wide tuning range 75MHz – 6GHz, however the RF performance is tempered by the very wide band front end match. This board is primarily intended for system investigation and bringing up various waveforms from a software team before custom hardware is complete. The objective being for designers to see waveforms, but not being concerned about the last 1dB or 1% EVM of performance.

The ADRV9008-1W/PCBZ is an evaluation kit to showcase the ADRV9008-1, offering dual receivers over a tuning range 75MHz – 6GHz. The ADRV9008-2W/PCBZ is an evaluation kit to showcase the ADRV9008-2, offering dual transmitters with observation receiver over a tuning range 75MHz – 6GHz.

ADRV9008/ADRV9009 Evaluation and Prototyping Platforms
ADI provides a full set of software and hardware tools for evaluation, prototyping and reference design. The following table outlines the available hardware and software tools.

	Carrier Boards	Software & Driver
Evaluation Platform	• EVAL-TPG-ZYNQ3	Evaluation Software: • API Library • Windows GUI for configuration and data capture
Prototyping Platform	• Xilinx ZCU102 Evaluation Kit • Intel® Arria® 10 SoC Development Kit	Prototyping Software: • Open-source Linux driver • Open-source Linux IIO Scope for data capture • Compatible with GNU Radio • Publicly available reference design on GitHub, using ADI JESD204B Interface Framework

- Energy Transmission and Distribution Solutions

Aerospace and Defense Systems

- Electronic Surveillance and

Countermeasures
- Aerospace and Defense Radar Systems

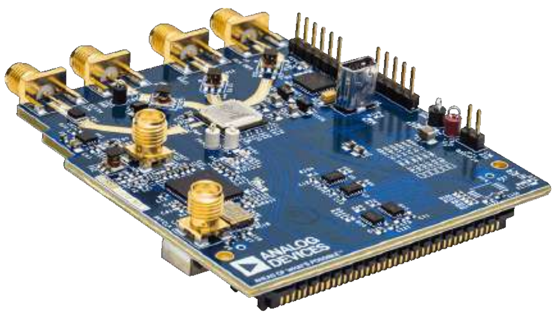
Healthcare Solutions
- Body Temperature Measurement Solutions
- Therapy Device Solutions for Healthcare
- Ultrasound Solutions

Instrumentation and Measurement Solutions

EVAL-AD917x

AD917x Evaluation Board

EVAL-AD917x



The AD9171, AD9172, and AD9173 evaluation boards are FMC form-factor boards with FMC connectors that comply to the Vita 57.1 standard. The FMC boards use a Mini-Circuits balun on the DAC output.

To operate the evaluation board, the user must attach the board to a compatible FMC carrier board, such as those provided by FPGA vendors. Analog Devices produces an FPGA carrier called the ADS7-V2, which serves as a digital pattern generator or data source as well as the power supply for the boards. The AD917x board has an option to be powered from a lab power supply when used in a special NCO-only mode. This operation is described in more detail in the User's Guide, linked on the wiki site. The user must be able to observe the DAC output on a spectrum analyzer. A low noise clock source is provided on the evaluations boards, the HMC7044 clock synthesizer, and an option exists for the user to supply a low jitter external sine or square wave clock as a clock source instead. The evaluation board comes with software, called ACE, which allows the user to program the SPI port. Via the SPI port, the DUT (and clock circuitry) can be programmed into any of its various operating modes. It also comes with the DAC Software Suite which includes the DPGDownloader for vector generation, download, and transmission to the evaluation board when using the ADS7-V2.

Applicable Parts

Applications

Wireless Communication Solutions

- Wireless Infrastructure Solutions
- Wideband RF Signal Processing
- Instrumenting 5G

Instrumentation and Measurement Solutions

- Communications Test Equipment Solutions
- Signal Generator (Audio through RF) Solutions

Aerospace and Defense Systems

- Electronic Surveillance and Countermeasures
- Military Communication Solutions
- Aerospace and Defense Radar Systems

AD-FMCADC2-EBZ	AD9625 Evaluation and Synchronization

AD-FMCADC2-EBZ

The AD-FMCADC2-EBZ is a high-speed data acquisition board featuring the AD9625 single channel ADC at 2500 MSPS, in a FMC form factor which supports the JESD204B high speed serial interface. The AD9625 is a 12-bit monolithic sampling analog-to-digital converter (ADC) that operates at conversion rates of up to 2.5 GSPS. This product is designed for sampling wide bandwidth analog signals up to the second Nyquist zone. The combination of wide input bandwidth, high sampling rate, and excellent linearity of the AD9625 is ideally suited for spectrum analyzers, data acquisition systems, and a wide assortment of military electronics applications, such as radar and jamming/anti-jamming measures.

The board meets most of the FMC specifications in terms of mechanical size, mounting hole locations, and more. Although this board does meet most of the FMC specifications, it's not meant as a commercial off-the-shelf (COTS) board. If you want a commercial, ready to integrate product, please refer to one of the many FMC manufacturers and the FMC specification (ANSI/VITA 57.1).

This board is targeted to use the ADI reference designs that work with Xilinx development systems. ADI provides complete source (HDL and software) to re-create those projects (minus the IP provided by the FPGA vendors, which we use), but may not provide enough info to port this to your custom platform

The design of the board is specifically tailored to synchronizing multiple AD-FMCADC2-EBZ boards together. For more information on synchronization please refer to A Test Method for Synchronizing Multiple GSPS Converters.

The reference design includes the device data capture via the JESD204B serial interface and the SPI interface. The samples are written to the external DDR-DRAM. It allows programming the device and monitoring its internal registers via SPI.

Applicable Parts

Applications

Healthcare Solutions

- Point of Care (PoC) Diagnostic

Solutions
- In Vitro Diagnostic Solutions
- Life Sciences & Medical Instrumentation
- Body Temperature Measurement Solutions
- Therapy Device Solutions for Healthcare
- Ultrasound Solutions
- Digital X-Ray Solutions
- Computed Tomography Solutions
- Respiration Rate Measurement Solutions
- Electrocardiogram (ECG) Measurement Solutions

Instrumentation and Measurement Solutions
- Protocol Analyzer Solutions
- Data Acquisition Solutions
- Communications Test Equipment Solutions

Aerospace and Defense Systems
- Missiles and Precision Munitions
- Aerospace and Defense Radar Systems
- Electronic Surveillance and Countermeasures

Energy Solutions

- Energy Storage Systems
- Smart Meter Technology

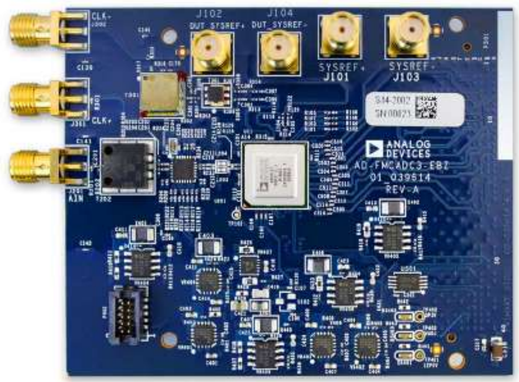
Industrial Automation Technology (IAT)

- Programmable Logic Controllers (PLC) and Distributed Control Systems (DCS)
- Predictive Maintenance Solutions

AD-FMCADC3-EBZ

ADA4961 & AD9625 Analog Signal Chain Evaluation and Converter Synchronization

AD-FMCADC3-EBZ



The AD-FMCADC3-EBZ is a high speed data acquisition board featuring AD9625 single channel ADC at 2500 MSPS and the ADA4961 Low Distortion, 3.2 GHz, RF DGA driving the converter. The FMC form factor supports the JESD204B high speed serial interface. This product is designed for sampling wide bandwidth analog signals up to the second Nyquist zone. The combination of wide input bandwidth, high sampling rate, and excellent linearity of the AD9625 is ideally suited for spectrum analyzers, data acquisition systems, and a wide assortment of military electronics applications, such as radar and jamming/anti-jamming measures.

The board meets most of the FMC specifications in terms of mechanical size, mounting hole locations, and more. Although this board does meet most of the FMC specifications, it’s not meant as a commercial off the shelf (COTS) board. If you want a commercial, ready to integrate product, please refer to one of the many FMC manufacturers and the FMC specification (ANSI/VITA 57.1). This board is targeted to use the ADI reference designs that work with Xilinx development systems. ADI provides complete source (HDL and software) to re-create those projects (minus the IP provided by the FPGA vendors, which we use), but may not provide enough info to port this to your custom platform.

The design of the board is specifically tailored to synchronizing multiple AD-FMCADC3-EBZ boards together. For more information on synchronization please refer to A Test Method for Synchronizing Multiple GSPS Converters.

The reference design includes the device data capture via the JESD204B serial interface and the SPI interface. The samples are written to the external DDR-DRAM. It allows programming the device and monitoring it’s internal registers via SPI.

Applicable Parts

Applications

Healthcare Solutions

- Point of Care (PoC) Diagnostic Solutions

- In Vitro Diagnostic Solutions
- Life Sciences & Medical Instrumentation
- Body Temperature Measurement Solutions
- Therapy Device Solutions for Healthcare
- Ultrasound Solutions
- Digital X-Ray Solutions
- Computed Tomography Solutions
- Respiration Rate Measurement Solutions
- Electrocardiogram (ECG) Measurement Solutions

Instrumentation and Measurement Solutions

- Protocol Analyzer Solutions
- Data Acquisition Solutions

Energy Solutions

- Energy Storage Systems
- Smart Meter Technology

Aerospace and Defense Systems

- Missiles and Precision Munitions
- Military Communication Solutions
- Electronic Surveillance and Countermeasures
- Aerospace and Defense Radar

Systems

Industrial Automation Technology (IAT)

- Programmable Logic Controllers (PLC) and Distributed Control Systems (DCS)
- Predictive Maintenance Solutions

AD-FMCADC4-EBZ	ADA4961 & AD9680 Analog Signal Chain Evaluation and AD9528 Converter Synchronization

AD-FMCADC4-EBZ

The AD-FMCADC4-EBZ is a high speed 4-channel data acquisition board featuring two AD9680 dual channel ADC at 1000 MSPS and four ADA4961 low distortion, 3.2 GHz, RF DGA driving each converter. The FMC form factor supports the JESD204B high speed serial interface. All clocking and channel synchronization is support on-board using the AD9528 clock generator. This product is designed for sampling wide bandwidth analog signals up to the second Nyquist zone. The combination of wide input bandwidth, high sampling rate, and excellent linearity of the AD9680 is ideally suited for spectrum analyzers, data acquisition systems, and a wide assortment of military electronics applications, such as radar and jamming/anti-jamming measures.

The board meets most of the FMC specifications in terms of mechanical size, mounting hole locations, and more. Although this board does meet most of the FMC specifications, it's not meant as a commercial off the shelf (COTS) board. If you want a commercial, ready to integrate product, please refer to one of the many FMC manufacturers and the FMC specification (ANSI/VITA 57.1).

This board is targeted to use the ADI reference designs that work with Xilinx development systems. ADI provides complete source (HDL and software) to re-create those projects (minus the IP provided by the FPGA vendors, which we use), but may not provide enough info to port this to your custom platform.

The design of the board is specifically tailored to synchronizing multiple AD-FMCADC4-EBZ boards together. For more information on synchronization please refer to A Test Method for Synchronizing Multiple GSPS Converters. The reference design includes the device data capture via the JESD204B serial interface and the SPI interface. The samples are written to the external DDR-DRAM. It allows programming the device and monitoring its internal registers via SPI.

Applicable Parts

Applications

Energy Solutions

- Solar Inverter Solutions
- Smart Meter Technology

Industrial Automation

Technology (IAT)

- Field Instrument Systems

Intelligent Building Solutions

- Surveillance Camera Solutions
- Building Lighting Technology Solutions

Aerospace and Defense Systems

- mmWave Sensing and Imaging
- Aerospace and Defense Radar Systems
- Military Communication Solutions
- Electronic Surveillance and Countermeasures
- Missiles and Precision Munitions

Consumer Technology Solutions

- Home Theater and Gaming Solutions

Healthcare Solutions

- In Vitro Diagnostic Solutions
- Life Sciences & Medical Instrumentation
- Body Temperature Measurement Solutions
- Therapy Device Solutions for Healthcare
- Ultrasound Solutions
- Digital X-Ray Solutions

Wireless Communication Solutions

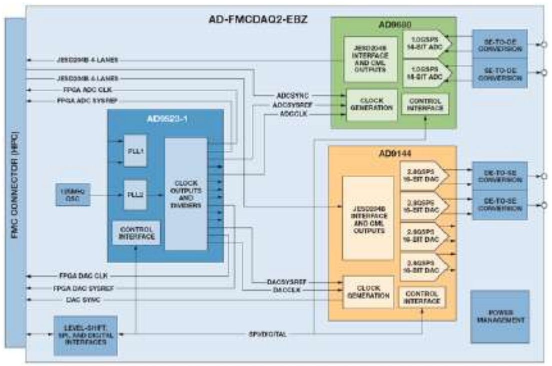
- Wireless Infrastructure Solutions

Instrumentation and Measurement Solutions

- Analytical Instruments

AD-FMCDAQ2-EBZ AD-FMCDAQ2-EBZ Evaluation Board

AD-FMCDAQ2-EBZ



The AD-FMCDAQ2-EBZ module is comprised of the AD9680 dual, 14-bit, 1.0 GSPS, JESD204B ADC, the AD9144 quad, 16-bit, 2.8 GSPS, JESD204B DAC, the AD9523-1 14-output, 1GHz clock, and power management components. It is clocked by an internally generated carrier platform via the FMC connector, comprising a completely self-contained data acquisition and signal synthesis prototyping platform. In an FMC footprint (84 mm × 69 mm), the module's combination of wideband data conversion, clocking, and power closely approximates real-world hardware and software for system prototyping and design, with no compromise in signal chain performance.

Applications

- Electronic test and measurement equipment

- General-purpose software radios
- Radar systems
- Ultra wideband satellite receivers
- Point-to-point communication systems

Applicable Parts

Applications

Wireless Communication Solutions

- Wideband RF Signal Processing

Healthcare Solutions

- Body Temperature Measurement Solutions
- Therapy Device Solutions for Healthcare
- Ultrasound Solutions
- Digital X-Ray Solutions
- Computed Tomography Solutions
- Wearable Health Monitor Solutions
- Oxygen Saturation (SpO2) Measurement Solutions
- Respiration Rate Measurement Solutions
- Non-Invasive Blood Pressure (NIBP) Solutions
- Electrocardiogram (ECG)

Measurement Solutions

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems
- Electronic Surveillance and Countermeasures
- Missiles and Precision Munitions

AD-FMCJESDADC1-EBZ AD-FMCJESDADC1-EBZ Rapid Development Board

AD-FMCJESDADC1-EBZ

The AD-FMCJESDADC1-EBZ is an easy-to-use FMC-based rapid development board comprising four 14-bit, 250 MSPS, A/D conversion channels and featuring a JESD204B high-speed serial output interface. The board contains two AD9250 dual-channel ADC ICs with on-board clocking and power supplies to facilitate seamless connectivity with the Xilinx ML605, KC705 or VC707 development platform.

Note

The AD-FMCJESDADC1-EBZ Rapid Prototyping module's primary purpose is to facilitate understanding/validating/verifying the JESD204B interface within the FPGA development platform ecosystem. This module was designed to comply with all of the FMC physical specifications in terms of mechanical size and mounting hole locations, and as such, PCB layout tradeoffs were made which impact wideband ac performance in the first Nyquist zone. If your objective is AD9250 performance evaluation, please refer to the performance-optimized evaluation boards; their information can be found here.

Applicable Parts

Applications

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD-FMCOMMS11-EBZ

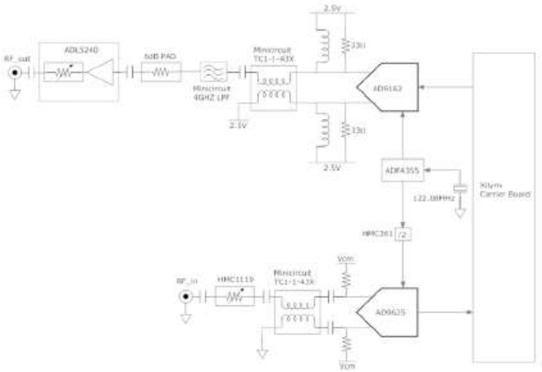
Direct RF to Baseband Transmit Radio

AD-FMCOMMS11-EBZ

Applicable Parts

Applications

Aerospace and Defense Systems



The AD-FMComms11-EBZ board is a system platform board for communication infrastructure applications that demonstrates the Direct to RF (DRF) transmitter and observation receiver architecture. Using high sample rate RFDAC(s) and RFADC(s), a number of components in previous generation transmitters can be eliminated, such as mixers, modulators, IF amplifiers and filters. The objective being to bring the ADC or DAC as close to the antenna as possible, leading to possibly more cost effective and efficient communications solution.

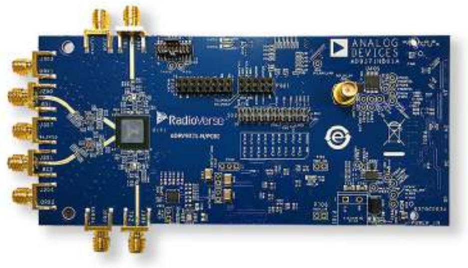
It is composed of multi-GSPS RF ADC and DAC, AD9625 and AD9162 respectively. The transmit path contains a balun, low pass filter, gain block and variable attenuation to produce an output appropriate for a power amplifier module. Along the observation path, the PA output is coupled back into the board through a variable attenuator, a balun and finally the ADC. Clock management is taken care of on board; all the necessary clocks are generated from a reference. Power management is present as well.

- Missiles and Precision Munitions
- Electronic Surveillance and Countermeasures
- Aerospace and Defense Radar Systems

ADRV9371

ADRV9371-N/PCBZ and ADRV9371-W/PCBZ Boards

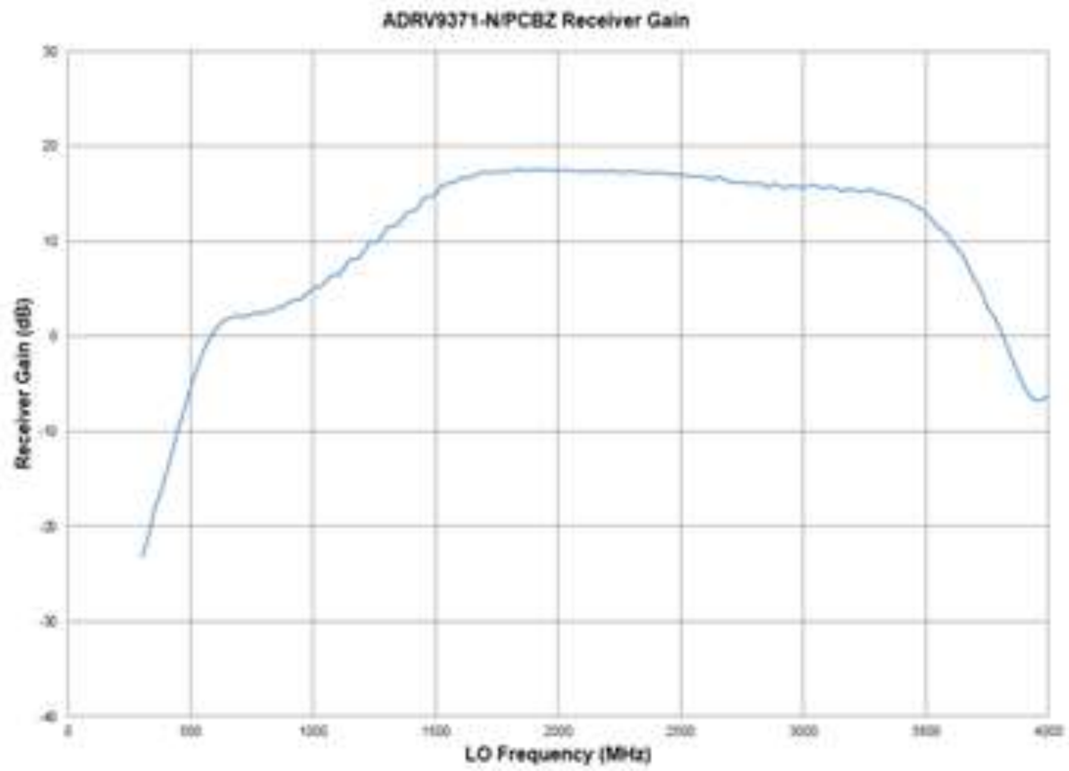
ADRV9371



The ADRV9371-N/PCBZ and ADRV9371-WPCBZ are radio cards designed to showcase the AD9371, a high performance wideband integrated RF transceiver intended for use in RF applications such as 4G base station, test and measurement applications and software defined radios. The radio cards provide hardware engineers, software engineers and system architects with a single 2×2 transceiver platform for device evaluation and rapid prototyping of radio solutions. All peripherals necessary for the radio card to operate including a high efficiency switcher only power supply solution, and a high performance clocking solution are populated on the board.

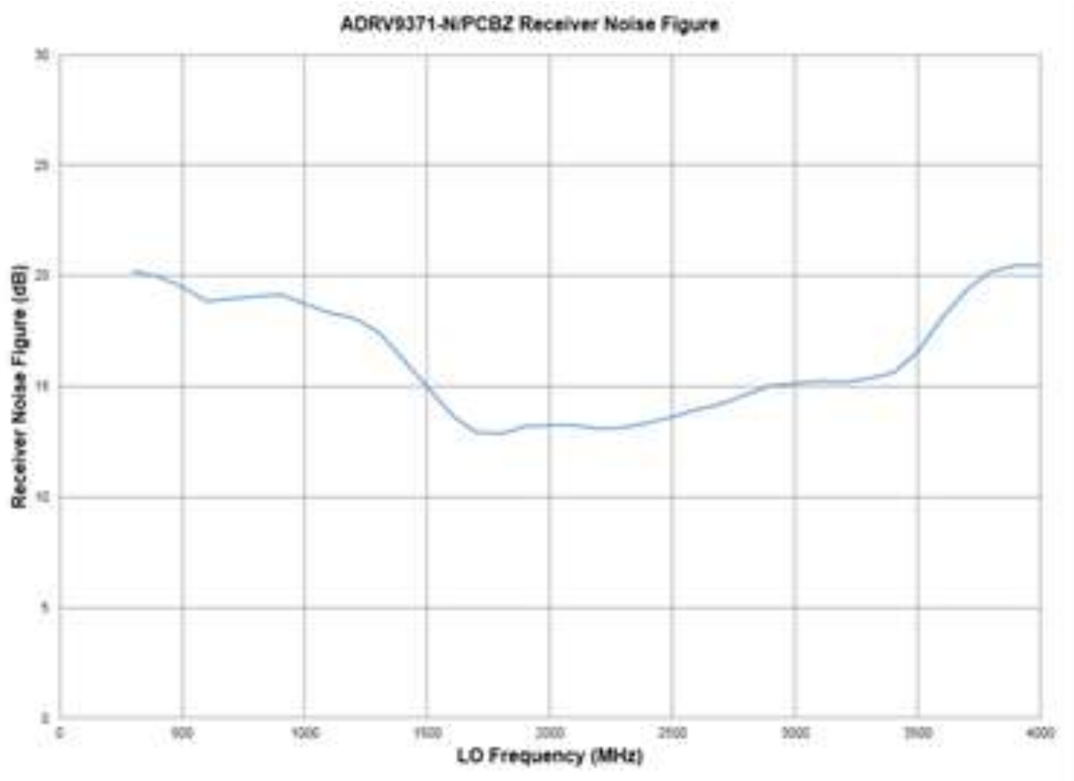
Both narrow tuning range and wide tuning range options exist.

The ADRV9371-N/PCBZ is optimized for performance over a narrow tuning range1.8GHz – 2.6GHz. It will exhibit diminished RF performance on tuned RF frequencies outside of this band. This board is primarily intended to provide RF engineers with the ability to connect the AD9371 to an RF test bench (Vector Signal Analyzer, Signal Generator, etc.) and achieve its optimum performance.

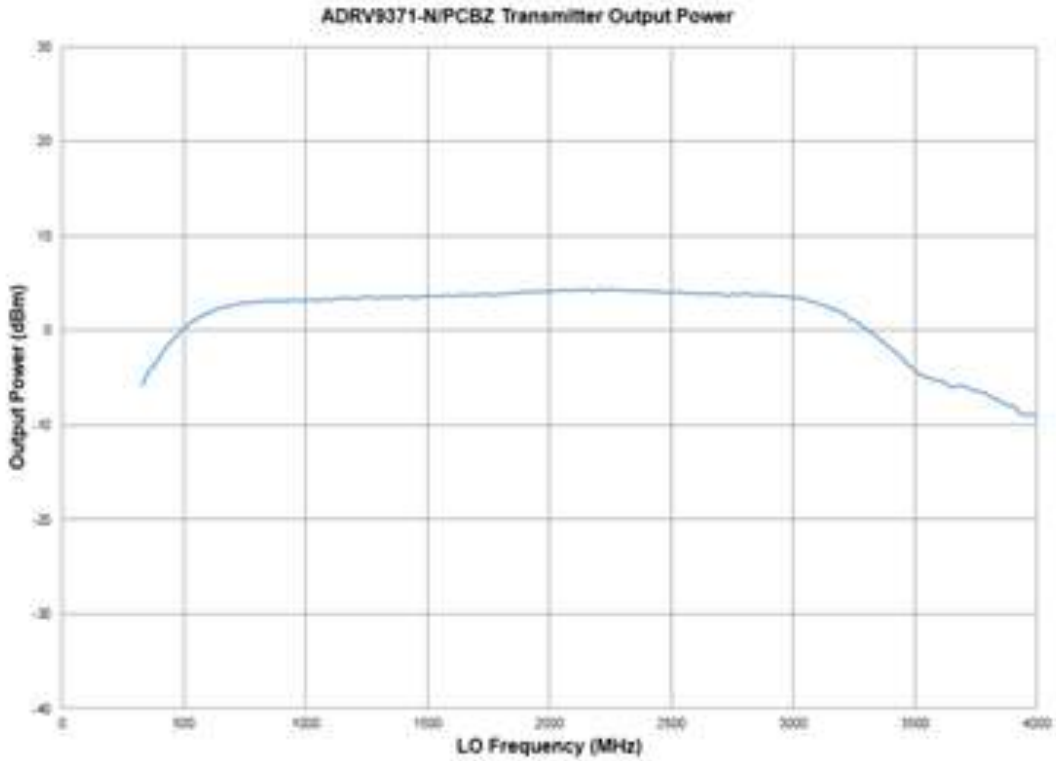


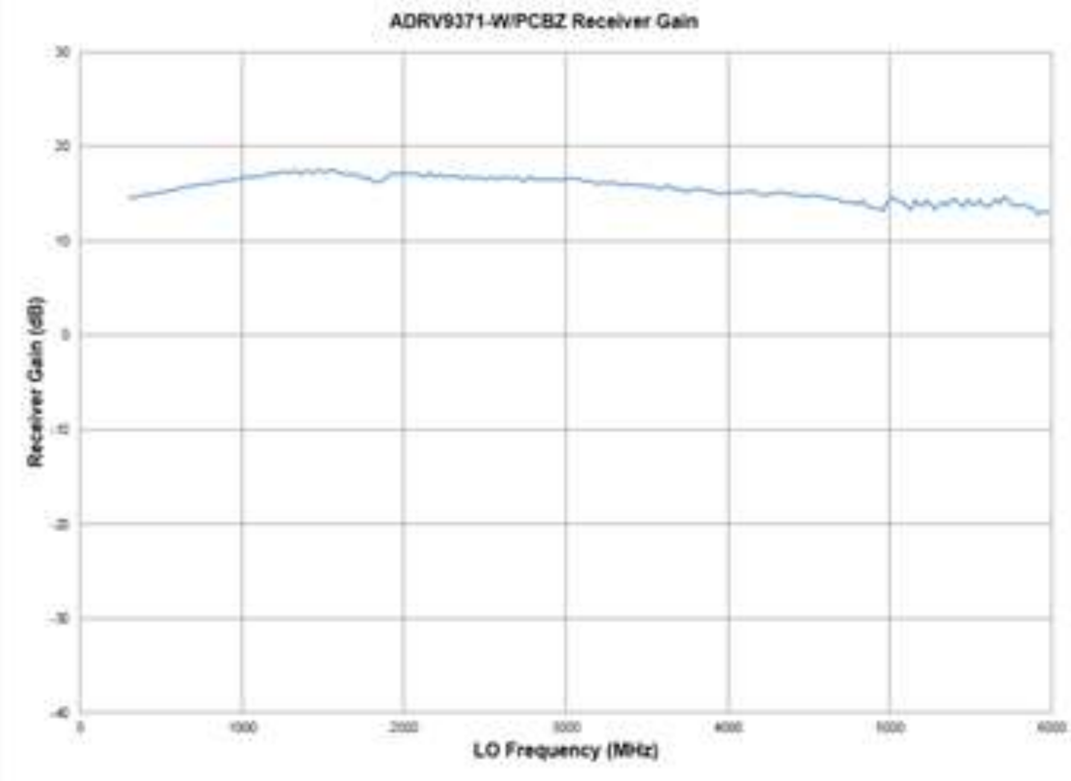
The ADRV9371-W/PCBZ operates over a wide tuning range 300MHz – 6GHz, however the RF performance is tempered by the very wide band front end match. This board is primarily intended for system investigation and bringing up various waveforms from a software team before custom hardware is complete. The objective being for designers to see waveforms, but not being concerned about the last 1dB or 1% EVM of performance.

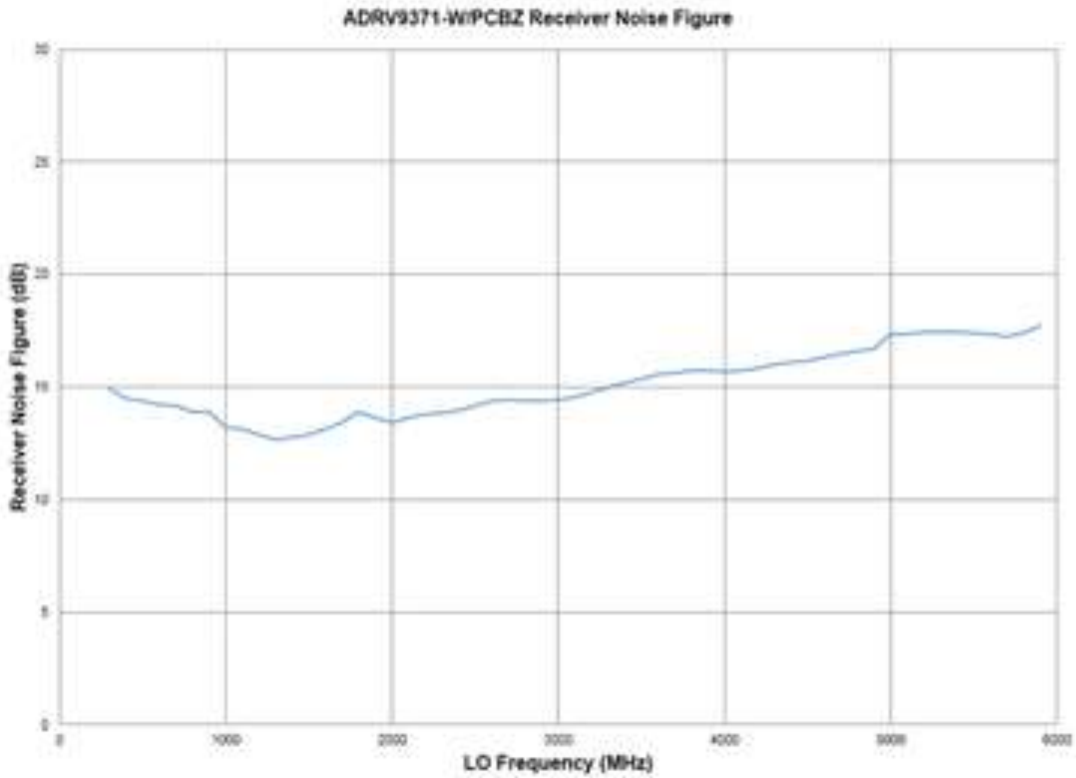
The board interfaces to the Xilinx ZC706 motherboard (EK-Z7-ZC706-G)

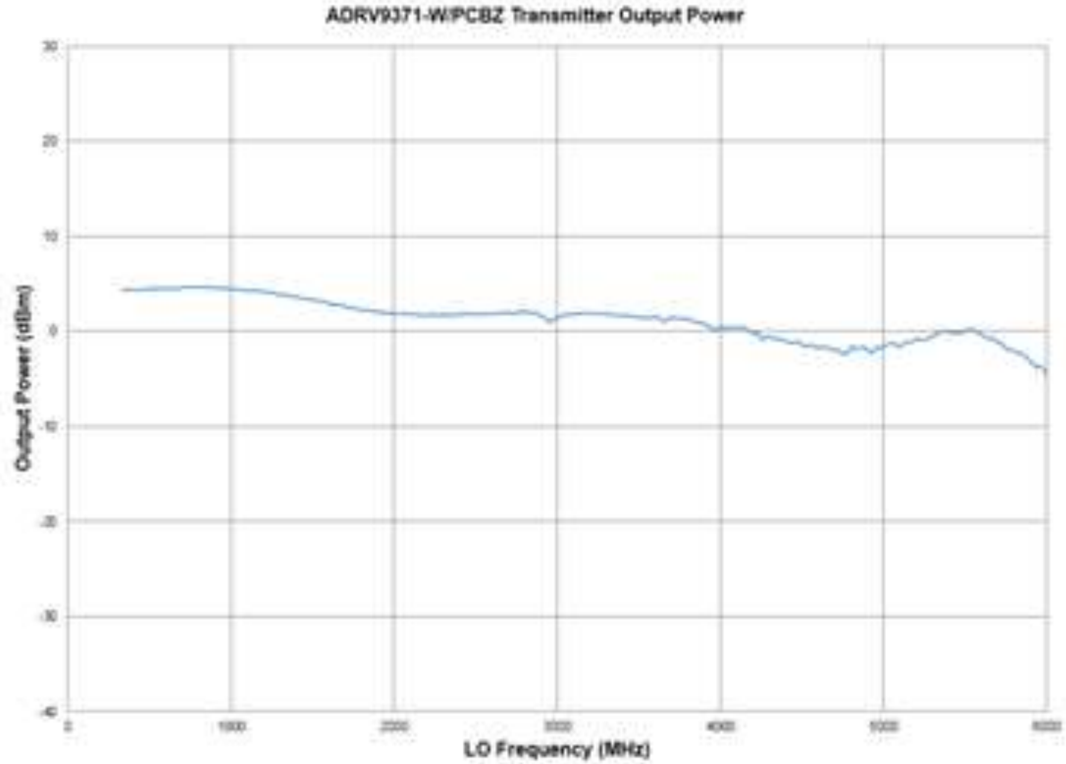


(ordered separately).


ADRV9371-N/PCBZ Transmitter Output Power
Output Power (dBm)
LO Frequency (MHz)


ADRV9371-W/PCBZ Receiver Gain
Receiver Gain (dB)
LO Frequency (MHz)
30
20
10
0
-10
-20
-30
-40
0
1000
2000
3000
4000
5000
6000


ADRV9371-W/PCBZ Receiver Noise Figure
Receiver Noise Figure (dB)
LO Frequency (MHz)



Applicable Parts

Applications

Intelligent Building Solutions

- Surveillance Camera Solutions

Aerospace and Defense Systems

- mmWave Sensing and Imaging
- Missiles and Precision Munitions

- Avionic Systems
- Aerospace and Defense Radar Systems
- Military Communication Solutions
- Electronic Surveillance and Countermeasures
- Unmanned Aerial Vehicles (UAV)

Consumer Technology Solutions

- Unified Communications (UC) and ProAV

Healthcare Solutions

- In Vitro Diagnostic Solutions
- Life Sciences & Medical Instrumentation
- Body Temperature Measurement Solutions
- Therapy Device Solutions for Healthcare
- Ultrasound Solutions

Wireless Communication Solutions

- Wireless Infrastructure Solutions

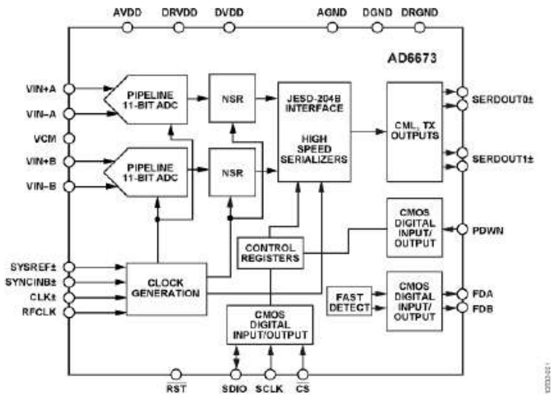
Energy Solutions

- Energy Transmission and Distribution Solutions

A/D Converters

AD6673 80 MHz Bandwidth, Dual IF Receiver

AD6673



The AD6673 is an 11-bit, 250 MSPS, dual-channel intermediate frequency (IF) receiver specifically designed to support multi-antenna systems in telecommunication applications where high dynamic range performance, low power, and small size are desired.

The device consists of two high performance analog-to-digital converters (ADCs) and noise shaping requantizer (NSR) digital blocks. Each ADC consists of a multistage, differential pipelined architecture with integrated output error correction logic, and each ADC features a wide bandwidth switched capacitor sampling network within the first stage of the differential pipeline. An integrated voltage reference eases design considerations. A duty cycle stabilizer (DCS) compensates for variations in the ADC clock duty cycle, allowing the converters to maintain excellent performance.

Each ADC output is connected internally to an NSR block. The integrated NSR circuitry allows for improved SNR performance in a smaller frequency band within the Nyquist bandwidth. The device supports two different output modes selectable via the SPI. With the NSR feature enabled, the outputs of the ADCs are processed such that the AD6673 supports enhanced SNR performance within a limited portion of the Nyquist bandwidth while maintaining an 11-bit output resolution.

The NSR block can be programmed to provide a bandwidth of either 22% or 33% of the sample clock. For example, with a sample clock rate of 250 MSPS, the AD6673 can achieve up to 76.3 dBFS SNR for a 55 MHz bandwidth in the 22% mode and up to 73.5 dBFS SNR for a 82 MHz bandwidth in the 33% mode.

When the NSR block is disabled, the ADC data is provided directly to the output at a resolution of 11 bits. The AD6673 can achieve up to 65.9 dBFS SNR for the entire Nyquist bandwidth when operated in this mode. This allows the AD6673 to be used in telecommunication applications such as a digital predistortion observation path where wider bandwidths are required.

By default the ADC output data is routed directly to the two external JESD204B serial output lanes. These outputs are at current mode logic (CML) voltage levels. Two modes are supported such that output coded data is either sent through one lane or two (L = 1; F = 4 or L = 2; F = 2). Single lane operation supports converter rates up to 125 MSPS. Synchronization input controls (SYNCINB± and SYSREF±) are provided.

PRODUCT HIGHLIGHTS

1. The configurable JESD204B output block with an integrated phase-locked loop (PLL) to support up to 5 Gbps per lane with up to two lanes.
2. IF receiver includes two, 11-bit, 250 MSPS ADCs with programmable noise shaping requantizer (NSR) function that allows for improved SNR within a reduced bandwidth of 22% or 33% of the sample rate.
3. Support for an optional RF clock input to ease system board design.

4. Proprietary differential input maintains excellent SNR performance for input frequencies of up to 400 MHz.
5. An on-chip integer, 1-to-8 input clock divider and SYNC input allows synchronization of multiple devices.
6. Operation from a single 1.8 V power supply.
7. Standard serial port interface (SPI) that supports various product features and functions, such as controlling the clock DCS, power-down, test modes, voltage reference mode, overrange fast detection, and serial output configuration.

APPLICATIONS

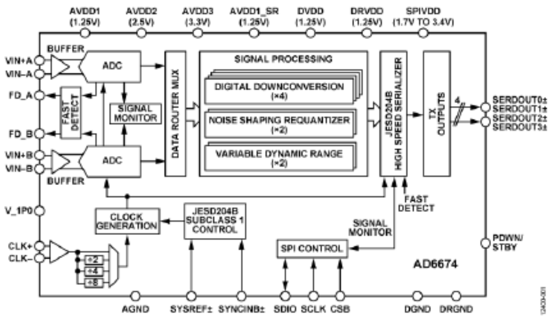
- Communications
- Diversity radio and smart antenna (MIMO) systems
- Multimode digital receivers (3G)
  TD-SCDMA, WiMAX, WCDMA, CDMA2000, GSM, EDGE, LTE
- I/Q demodulation systems
- General-purpose software radios

Applications

Wireless Communication Solutions

- Wireless Infrastructure Solutions

AD6674



The AD6674 is a 385 MHz bandwidth mixed-signal intermediate frequency (IF) receiver. It consists of two, 14-bit 1.0 GSPS/750 MSPS/500 MSPS analog-to-digital converters (ADC) and various digital signal processing blocks consisting of four wideband DDCs, an NSR, and VDR monitoring. It has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. This product is designed to support communications applications capable of sampling wide bandwidth analog signals of up to 2 GHz. The AD6674 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations.

Applications

- Diversity multiband, multimode digital receivers 3G/4G, TD-SCDMA, W-CDMA, GSM, LTE, LTE-A
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers

Applications

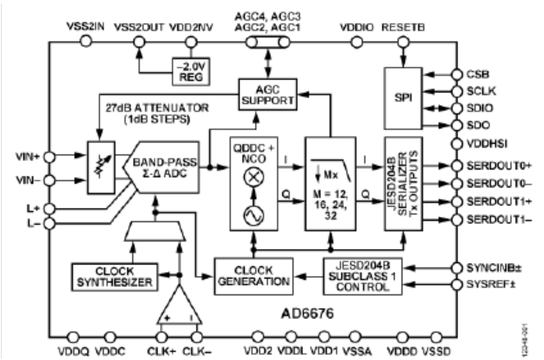
Aerospace and Defense Systems

- Air Data, Altitude, Heading Reference Systems (ADAHRS)
- Avionic Systems

Wireless Communication Solutions

AD6676 Wideband IF Receiver Subsystem

AD6676



The AD6676 is a highly integrated IF subsystem that can digitize radio frequency (RF) bands up to 160 MHz in width centered on an intermediate frequency (IF) of 70 MHz to 450 MHz. Unlike traditional Nyquist IF sampling ADCs, the AD6676 relies on a tunable band-pass Σ-Δ ADC with a high oversampling ratio to eliminate the need for band specific IF SAW filters and gain stages, resulting in significant simplification of the wideband radio receiver architecture. On-chip quadrature digital downconversion followed by selectable decimation filters reduces the complex data rate to a manageable rate between 62.5 MSPS to 266.7 MSPS. The 16-bit complex output data is transferred to the host via a single or dual lane JESD204B interface supporting line rates of up to 5.333 Gbps.

Applications

- Wideband cellular infrastructure equipment and repeaters
- Point-to-point microwave equipment
- Instrumentation
  - Spectrum and communication analyzers
- Software defined radio

Applications

Wireless Communication Solutions

- Wireless Infrastructure Solutions
- Instrumenting 5G

Instrumentation and Measurement Solutions

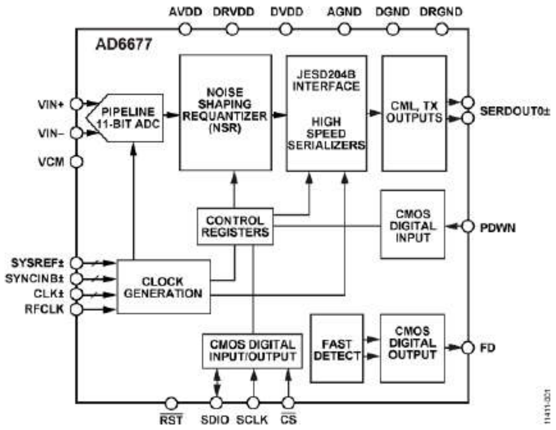
- Communications Test Equipment Solutions
- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions

Aerospace and Defense Systems

- Missiles and Precision Munitions
- Aerospace and Defense Radar Systems
- Electronic Surveillance and Countermeasures
- Military Communication Solutions

AD6677 80 MHz Bandwidth, IF Receiver

AD6677



The AD6677 is an 11-bit, 250 MSPS, intermediate frequency (IF) receiver specifically designed to support multi-antenna systems in telecommunication applications where high dynamic range performance, low power, and small size are desired.

The device consists of a high performance analog-to-digital converter (ADC) and a noise shaping requantizer (NSR) digital block. The ADC consists of a multistage, differential pipelined architecture with integrated output error correction logic, and each ADC features a wide bandwidth switched capacitor sampling network within the first stage of the differential pipeline. An integrated voltage reference eases design considerations. A duty cycle stabilizer (DCS) compensates for variations in the ADC clock duty cycle, allowing the converters to maintain excellent performance.

The ADC output is connected internally to an NSR block. The integrated NSR circuitry allows for improved SNR performance in a smaller frequency band within the Nyquist bandwidth. The device supports two different output modes selectable via the SPI. With the NSR feature enabled, the output of the ADC are processed such that the AD6677 supports enhanced SNR performance within a limited portion of the Nyquist bandwidth while maintaining an 11-bit output resolution.

The NSR block can be programmed to provide a bandwidth of either 22% or 33% of the sample clock. For example, with a sample clock rate of 250 MSPS, the AD6677 can achieve up to 76.3 dBFS SNR for a 55 MHz bandwidth in the 22% mode and up to 73.5 dBFS SNR for a 82 MHz bandwidth in the 33% mode.

When the NSR block is disabled, the ADC data is provided directly to the output at a resolution of 11 bits. The AD6677 can achieve up to 65.9 dBFS SNR for the entire Nyquist bandwidth when operated in this mode. This allows the AD6677 to be used in telecommunication applications such as a digital predistortion observation path where wider bandwidths are required.

The output data is routed directly to an external JESD204B serial output lane. This output is at current mode logic (CML) voltage levels. One mode is supported such that the output coded data is sent through one lane (L = 1; F = 4). Synchronization input controls (SYNCINB± and SYSREF±) are provided.

The AD6677 receiver digitizes a wide spectrum of IF frequencies. This IF sampling architecture greatly reduces component cost and complexity compared with traditional analog techniques or less integrated digital methods.

Flexible power-down options allow significant power savings, when desired. Programmable overrange level detection is supported via dedicated fast detect pins.

PRODUCT HIGHLIGHTS

1. The configurable JESD204B output block with an integrated phase-locked loop (PLL) to support lane rates up to 5 Gbps.
2. IF receiver includes an 11-bit, 250 MSPS ADC with programmable noise shaping requantizer (NSR) function that allows for improved SNR within a reduced bandwidth of 22% or 33% of the sample rate.
3. Support for an optional RF clock input to ease system board design.
4. Proprietary differential input maintains excellent SNR performance for input frequencies of up to 400 MHz.
5. An on-chip integer, 1 to 8 input clock divider and SYNC input allows synchronization of multiple devices.
6. Operation from a single 1.8 V power supply.
7. Standard serial port interface (SPI) that supports various product features and functions, such as controlling the clock DCS, power-down, test modes, voltage reference mode, overrange fast detection, and serial output configuration.

APPLICATIONS

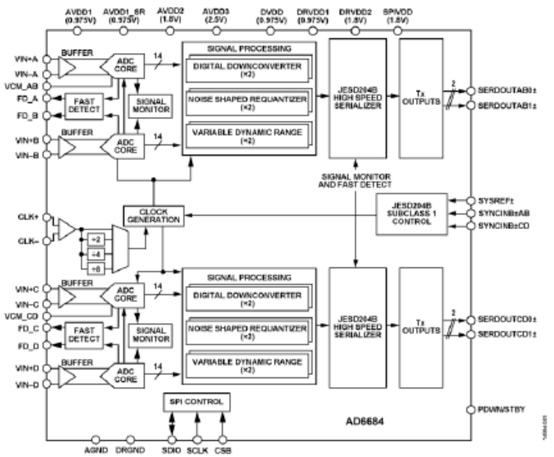
- Communications
- Diversity radio and smart antenna (MIMO) systems
- Multimode digital receivers (3G)
  TD-SCDMA, WiMAX, WCDMA,
  CDMA2000, GSM, EDGE, LTE
- I/Q demodulation systems
- General-purpose software radios

Applications

Wireless Communication
Solutions

AD6684 135 MHz Quad IF Receiver

AD6684



The AD6684 is a 135 MHz bandwidth, quad intermediate frequency (IF) receiver. It consists of four 14-bit, 500 MSPS ADCs and various digital processing blocks consisting of four wideband DDCs, an NSR, and VDR monitoring. The device has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. This device is designed to support communications applications. The analog full power bandwidth of the device is 1.4 GHz.

The quad ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. The AD6684 is optimized for wide input bandwidth, excellent linearity, and low power in a small package.

The analog inputs and clock signal input are differential. Each pair of ADC data outputs are internally connected to two DDCs through a crossbar mux. Each DDC consists of up to five cascaded signal processing stages: a 48-bit frequency translator, NCO, and up to four half-band decimation filters.

Each ADC output is connected internally to an NSR block. The integrated NSR circuitry allows improved SNR performance in a smaller frequency band within the Nyquist bandwidth. The device supports two different output modes selectable via the serial port interface (SPI). With the NSR feature enabled, the outputs of the ADCs are processed such that the AD6684 supports enhanced SNR performance within a limited portion of the Nyquist bandwidth while maintaining a 9-bit output resolution.

Each ADC output is also connected internally to a VDR block. This optional mode allows full dynamic range for defined input signals. Inputs that are within a defined mask (based on DPD applications) are passed unaltered. Inputs that violate this defined mask result in the reduction of the output resolution.

With VDR, the dynamic range of the observation receiver is determined by a defined input frequency mask. For signals falling within the mask, the outputs are presented at the maximum resolution allowed. For signals exceeding defined power levels within this frequency mask, the output resolution is truncated. This mask is based on DPD applications andsupports tunable real IF sampling, and zero IF or complex IF receive architectures.

Operation of the AD6684 in the DDC, NSR, and VDR modes is selectable via SPI-programmable profiles (the default mode is NSR at startup).

In addition to the DDC blocks, the AD6684 has several functions that simplify the AGC function in the communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect output bits of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input.

Users can configure each pair of IF receiver outputs onto either one or two lanes of Subclass 1 JESD204B-based high speed serialized outputs, depending on the decimation ratio and the acceptable lane rate of the receiving logic device. Multiple device synchronization is supported through the SYSREF±, SYNCINB±AB, and SYNCINB±CD input pins.

The AD6684 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using the 1.8 V capable, 3-wire SPI.

The AD6684 is available in a Pb-free, 72-lead LFCSP and is specified over the −40°C to +105°C junction temperature range.

Product Highlights

1. Low power consumption per channel.
2. JESD204B lane rate support up to 15 Gbps.
3. Wide full power bandwidth supports IF sampling of signals up to 1.4 GHz.
4. Buffered inputs ease filter design and implementation.
5. Four integrated wideband decimation filters and NCO blocks supporting multiband receivers.
6. Programmable fast overrange detection.

7. On-chip temperature diode for system thermal management.

Applications

- Communications
- Diversity multiband, multimode digital receivers 3G/4G, W-CDMA, GSM, LTE, LTE-A
- HFC digital reverse path receivers
- Digital predistortion observation paths
- General-purpose software radios

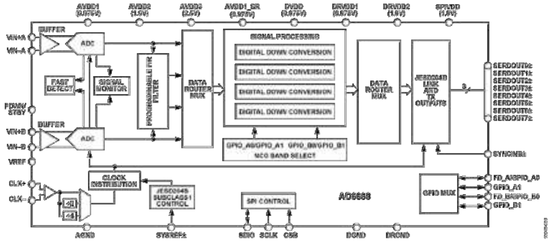
Applications

Wireless Communication Solutions

AD6688 RF Diversity and 1.2GHz BW Observation Receiver

AD6688

Applications



The AD6688 is a 1.2 GHz bandwidth, mixed-signal, direct radio frequency (RF) sampling receiver. It consists of two 14-bit, 3.0 GSPS analog-to-digital converters (ADCs) and various digital signal processing blocks consisting of four wideband digital downconverters (DDCs). The AD6688 has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. This product is designed to support communications applications capable of direct sampling wide bandwidth analog signals of up to 5 GHz. The 3 dB bandwidth of the ADC input is greater than 9 GHz. The AD6688 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. The analog input and clock signals are differential inputs. The ADC data outputs are internally connected to four DDCs through a crossbar mux. Each DDC consists of up to five cascaded signal processing stages: a 48-bit numerically controlled oscillator (NCO) and up to four half-band decimation filters. The NCO has the option to select preset bands over the general-purpose input/output (GPIO) pins, which enables selection of up to three bands. Operation of the AD6688 between the DDC modes is selectable via SPI-programmable profiles.

In addition to the DDC blocks, the AD6688 has several functions that simplify the automatic gain control (AGC) function in a communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect control bits in Register

0×0245 of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input. Besides the fast detect outputs, the AD6688 also offers signal monitoring capability. The signal monitoring block provides additional information about the signal being digitized by the ADC.

The user can configure the Subclass 1 JESD204B-based high speed serialized output in a variety of one-lane, two-lane, four-lane, six-lane, and eight-lane configurations, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multidevice synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD6688 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 3-wire serial port interface (SPI).

The AD6688 is available in a Pb-free, 196-ball BGA specified over the −40°C to +85°C ambient temperature range.

Product Highlights

1. Wide full power bandwidth supports IF sampling of signals up to 9GHz (-3dB point).
2. Four Integrated wide-band decimation filter and NCO blocks supporting multi-band receivers.
3. Fast NCO switching enabled through GPIO pins.
4. Flexible SPI interface controls various product features and functions to meet specific system requirements.
5. Programmable fast overrange detection and signal monitoring.

6. On-chip temperature dioide for system thermal management.
7. 12mm x 12mm 196-Lead BGA

Applications

- Diversity multiband, multimode digital receivers
- 3G/4G, TD-SCDMA, W-CDMA, GSM, LTE, LTE-A
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers

Wireless Communication Solutions

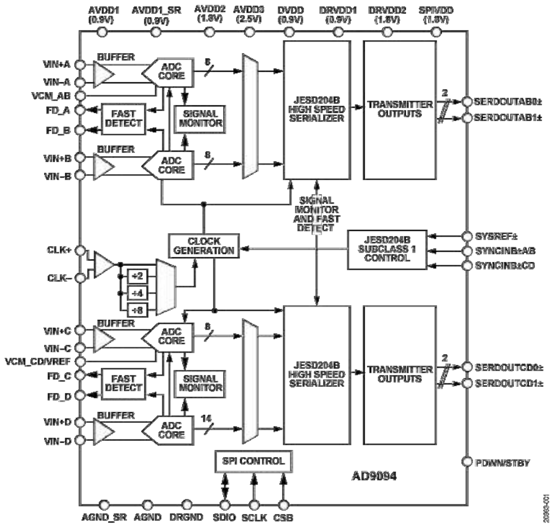
- Wireless Infrastructure Solutions
- Wideband RF Signal Processing

Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions

AD9094

Applications



The AD9094 is an 8-bit, 1 GSPS, quad analog-to-digital converter (ADC). The device has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. The device is designed to sample wide bandwidth analog signals up to 1.4 GHz. The AD9094 is optimized for wide input bandwidth, a high sampling rate, high works linearity, and low power in a small package.

The quad-ADC cores feature multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs that support a variety of user-selectable input ranges. An integrated voltage reference facilitates design considerations. The analog inputs and clock signals are differential inputs.

Users can configure each pair of intermediate frequency (IF) receiver outputs onto either one or two lanes of JESD204B Subclass 1 or Subclass 0, high speed, serialized outputs, depending on the sample rate and the acceptable lane rate of the receiving logic device. Multiple device synchronization is supported through the SYSREF±, SYNCINB±AB, and SYNCINB±CD input pins.

The AD9094 has flexible power-down options that allow significant power savings when desired. To program the power down options, use the 1.8 V capable, serial port interface (SPI).

The AD9094 is available in a Pb-free, 72-lead, lead frame chip scale package (LFCSP) and is specified over a junction temperature range of −40°C to +105°C. This product may be protected by one or more U.S. or international patents.

Note that throughout the data sheet, multifunction pins, such as

PDWN/STBY, are referred to either by the entire pin name or by a single function of the pin, for example, PDWN, when only that function is relevant.

Product Highlights

1. Low power consumption per channel.
2. JESD204B lane rate support up to 15 Gbps.
3. Wide, full power bandwidth supports IF sampling of signals up to 1.4 GHz.
4. Buffered inputs ease filter design and implementation.
5. Four integrated wideband decimation filters and numerically controlled oscillator (NCO) blocks supporting multiband receivers.
6. Programmable fast overrange detection.
7. On-chip temperature diode for system thermal management.

Applications

- Laser imaging, detection, and ranging (LIDAR)
- Communications
- Digital oscilloscope (DSO)
- Ultrawideband satellite receivers
- Instrumentation

Aerospace and Defense Systems

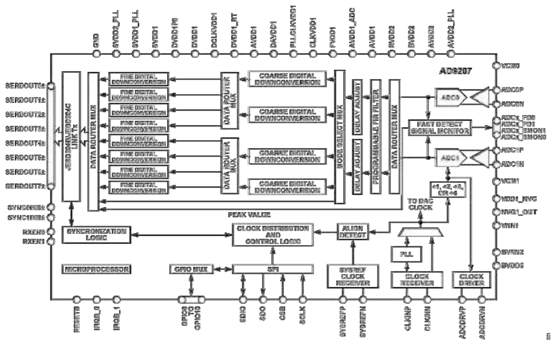
- Missiles and Precision Munitions

Instrumentation and Measurement Solutions

- Electronic Test and Measurement Solutions
- Data Acquisition Solutions

- Oscilloscopes and Digitizer Solutions

AD9207



The AD9207 is a dual, 12-bit, 6 GSPS analog-to-digital converter (ADC). The ADC input features an on-chip wideband buffer with overload protection. This device is designed to support applications capable of direct sampling wideband signals up to 8 GHz. An onchip, low phase noise, phase-locked loop (PLL) clock synthesizer is available to generate the ADC sampling clock, which simplifies the printed circuit board (PCB) distribution of a high frequency clock signal. A clock output buffer is available to transmit the ADC sampling clock to other devices.

The dual ADC cores have code error rates (CER) better than 2×10^{-15}. Low latency fast detection and signal monitoring are available for automatic gain control (AGC) purposes. A flexible 192-tap programmable finite impulse response filter (PFIR) is available for digital filtering and/or equalization. Programmable integer and fractional delay blocks support compensation for analog delay mismatches.

The digital signal processing (DSP) block consists of two coarse digital downconverters (DDCs) and four fine DDCs per ADC pair. Each ADC can operate with one or two main DDC stages in support of multiband applications. The four additional fine DDC stages are available to support up to four bands per ADC. The 48-bit numerically controlled oscillators (NCOs) associated with each DDC support fast frequency hopping (FFH) while maintaining synchronization with up to 16 unique frequency assignments selected via the general-purpose input and output (GPIOx) pins or the serial port interface (SPI).

The AD9207 supports one or two JTx links that can be configured for either JESD204B or JESD204C subclass operation, which allows different datapath configurations for each ADC. Multidevice synchronization is supported through the SYSREF± input pins.

See the Outline Dimensions section and the Ordering Guide section of the data sheet for more information.

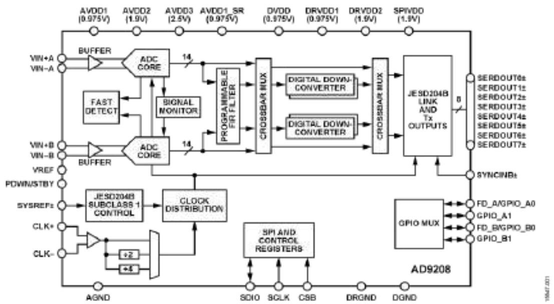
APPLICATIONS

- Wireless communications infrastructure
- Microwave point to point, E-band, and 5G mmWave
- Broadband communications systems, satellite communications
- DOCSIS 3.1 and 4.0 CMTS
- Electronic warfare
- Electronic test and measurement systems

AD9208

14-Bit, 3GSPS, JESD204B, Dual Analog-to-Digital Converter

AD9208



The AD9208 is a dual, 14-bit, 3 GSPS analog-to-digital converter (ADC). The device has an on-chip buffer and a sample-and- hold circuit designed for low power, small size, and ease of use. This product is designed to support communications applications capable of direct sampling wide bandwidth analog signals of up to 5 GHz. The −3 dB bandwidth of the ADC input is 9 GHz. The AD9208 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. The analog input and clock signals are differential inputs. The ADC data outputs are internally connected to four digital downconverters (DDCs) through a crossbar mux. Each DDC consists of up to five cascaded signal processing stages: a 48-bit frequency translator (numerically controlled oscillator (NCO)), and up to four half-band decimation filters. The NCO has the option to select preset bands over the general-purpose input/output (GPIO) pins, which enables the selection of up to three bands. Operation of the AD9208 between the DDC modes is selectable via SPI-programmable profiles.

In addition to the DDC blocks, the AD9208 has several functions that simplify the automatic gain control (AGC) function in a communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect control bits in Register 0×0245 of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input. In addition to the fast detect outputs, the AD9208 also offers signal monitoring capability. The signal monitoring block provides additional information about the signal being digitized by the ADC.

The user can configure the Subclasss 1 JESD204B-based high speed serialized output in a variety of one-lane, two-lane, four- lane, and eight-lane configurations, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multidevice synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD9208 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 3-wire serial port interface (SPI).

The AD9208 is available in a Pb-free, 196-ball BGA, specified over the −40°C to +85°C ambient temperature range. This product is protected by a U.S. patent.

Note that throughout this data sheet, multifunction pins, such as FD_A/GPIO_A0, are referred to either by the entire pin name or by a single function of the pin, for example, FD_A, when only that function is relevant.

Product Highlights

1. Wide, input −3 dB bandwidth of 9 GHz supports direct radio frequency (RF) sampling of signals up to about 5 GHz.
2. Four integrated, wideband decimation filter and NCO blocks supporting multiband receivers.
3. Fast NCO switching enabled through GPIO pins.
4. A SPI controls various product features and functions to meet specific system requirements.
5. Programmable fast overrange detection and signal monitoring.
6. On-chip temperature dioide for system thermal management.
7. 12mm × 12mm 196-Lead BGA

   Applications

   - Diversity multiband, multimode digital receivers
   - 3G/4G, TD-SCDMA, W-CDMA, GSM, LTE, LTE-A
   - Electronic test and measurement systems
   - Phased array radar and electronic warfare
   - DOCSIS 3.0 CMTS upstream receive paths
   - HFC digital reverse path receivers

Applications

Aerospace and Defense Systems

- Military Communication Solutions
- Phased Array Technology
- Electronic Surveillance and Countermeasures
- Missiles and Precision Munitions

- Aerospace and Defense Radar Systems

Wireless Communication Solutions

- Wireless Infrastructure Solutions
- Wideband RF Signal Processing
- Software Defined Radio (SDR)
- Instrumenting 5G

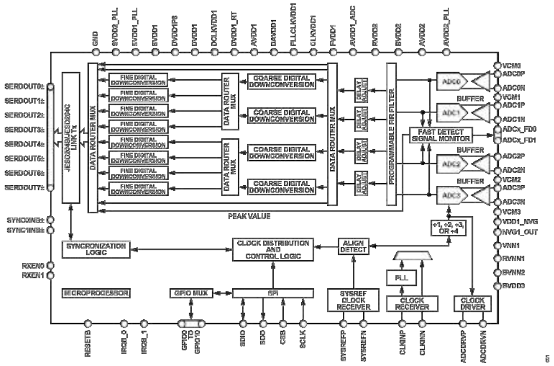
Instrumentation and Measurement Solutions

- Communications Test Equipment Solutions
- Oscilloscopes and Digitizer Solutions
- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions
- Data Acquisition Solutions
- Electronic Test and Measurement Solutions

Radio Frequency (RF) Solutions

- Radio Frequency (RF) Solutions

AD9209



The AD9209 is a quad, 12-bit, 4 GSPS analog-to-digital converter (ADC). The ADC input features an on-chip wideband buffer with overload protection. This device is designed to support applications capable of direct sampling wideband signals up to 8 GHz. An on-chip, low phase noise, phase-locked loop (PLL) clock synthesizer is available to generate the ADC sampling clock, simplifying the printed circuit board (PCB) distribution of a high frequency clock signal. A clock output buffer is available to transmit the ADC sampling clock to other devices.

The quad ADC cores have code error rates (CER) better than 1 × 10−20. Low latency fast detection and signal monitoring are available for automatic gain control (AGC) purposes. A flexible 192-tap programmable finite impulse response filter (PFIR) is avail-able for digital filtering and/or equalization. Programmable integer and fractional delay blocks support compensation for analog delay mismatches.

The digital signal processing (DSP) block consisting of two coarse digital down converters (DDCs) and four fine DDCs per pair of ADCs. Each ADC can operate with one or two main DDC stages in support of multiband applications. The four additional fine DDC stages are available to support up to four bands per ADC The 48-bit numerically controlled oscillators (NCOs) associated with each DDC support fast frequency hopping (FFH) while maintaining synchronization with up to 16 unique frequency assignments selected via the general-purpose input and output (GPIOx) pins or the serial port interface (SPI).

The AD9209 supports one or two JTx links that can be configured for either JESD204B or JESD204C subclass operation, thus allowing for different datapath configurations for each ADC. Multidevice synchronization is supported through the SYSREF± input pins.

APPLICATIONS

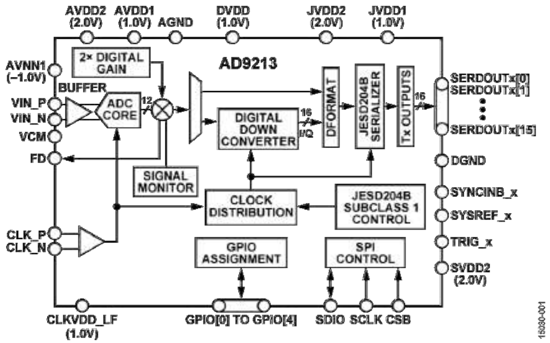
- Wireless communications infrastructure
- Microwave point-to-point, E-band, and 5G mm wave
- Broadband communications systems
- DOCSIS 3.1 and 4.0 CMTS
- Phased array radar and electronic warfare
- Electronic test and measurement systems

AD9213 12-Bit, 10.25 GSPS, JESD204B, RF Analog-to-Digital Converter

AD9213

Applications

Wireless Communication Solutions



The AD9213 is a single, 12-bit, 6 GSPS/10.25 GSPS, radio frequency (RF) analog-to-digital converter (ADC) with a 6.5 GHz input bandwidth. The AD9213 supports high dynamic range frequency and time domain applications requiring wide instantaneous bandwidth and low conversion error rates (CER). The AD9213 features a 16-lane JESD204B interface to support maximum bandwidth capability.

The AD9213 achieves dynamic range and linearity performance while consuming <4.6 W typical. The device is based on an interleaved pipeline architecture and features a proprietary calibration and randomization technique that suppresses interleaving spurious artifacts into its noise floor. The linearity performance of the AD9213 is preserved by a combination of on-chip dithering and calibration, which results in excellent spurious-free performance over a wide range of input signal conditions.

Applications that require less instantaneous bandwidth can benefit from the on-chip, digital signal processing (DSP) capability of the AD9213 that reduces the output data rate along with the number of JESD204B lanes required to support the device. The DSP path includes a digital downconverter (DDC) with a 48-bit, numerically controlled oscillator (NCO), followed by an I/Q digital decimator stage that allows selectable decimation rates that are factors of two or three. For fast frequency hopping applications, the AD9213 NCO supports up to 16 profile settings with a separate trigger input, allowing wide surveillance frequency coverage at a reduced JESD204B lane count.

The AD9213 supports sample accurate multichip synchronization that includes synchronization of the NCOs. The AD9213 is offered in a 192-ball ball grid array (BGA) package and is specified over a junction temperature range of −20°C to +115°C.

- Instrumenting 5G

Instrumentation and Measurement Solutions

- Communications Test Equipment Solutions
- Oscilloscopes and Digitizer Solutions
- Data Acquisition Solutions
- Electronic Test and Measurement Solutions
- Analytical Instruments
- Automated Test Equipment

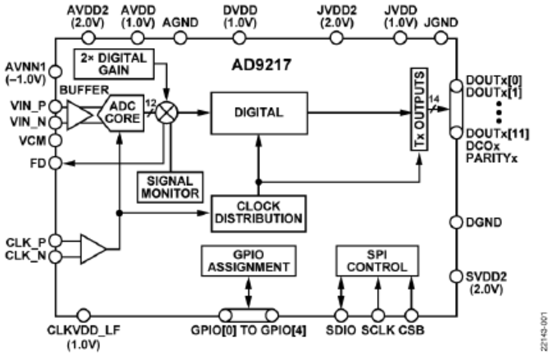
Aerospace and Defense Systems

- Missiles and Precision Munitions
- Unmanned Aerial Vehicles (UAV)
- Electronic Surveillance and Countermeasures
- Military Communication Solutions
- Aerospace and Defense Radar Systems
- Phased Array Technology
- Missiles and Precision Munitions Solutions

Radio Frequency (RF) Solutions

- Radio Frequency (RF) Solutions

AD9217



The AD9217 is a single, 12-bit, 6 GSPS/10.25 GSPS, radio frequency (RF) analog-to-digital converter (ADC) with a 6.5 GHz input bandwidth. The AD9217 supports high dynamic range frequency and time domain applications requiring wide instantaneous bandwidth and low conversion error rates (CER).

The AD9217 features a low latency, high speed, parallel CML output interface that supports full bandwidth operation with compatible FPGA/ASIC receivers. The AD9217 can be reconfigured to operate in native AD9213 mode for applications requiring additional digital processing and JESD204B output support. Refer to the AD9213 data sheet when operating the AD9217 in AD9213 mode.

The AD9217 achieves dynamic range and linearity performance while consuming 4.2 W typical. The device is based on an interleaved pipeline architecture and features a proprietary calibration and randomization technique that suppresses interleaving spurious artifacts into its noise floor. The linearity performance of the AD9217 is preserved by a combination of on-chip dithering and calibration, which results in excellent spurious-free performance over a wide range of input signal conditions.

The AD9217 is offered in a 192-ball ball grid array (BGA) package and is specified over a junction temperature range of −20°C to +115°C.

Applications

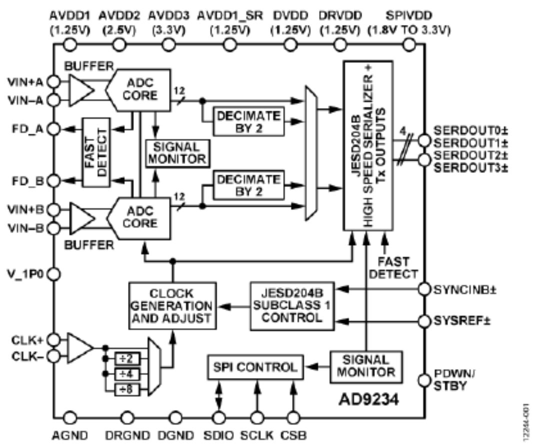
Aerospace and Defense Systems

- Electronic Surveillance and Countermeasures
- Aerospace and Defense Radar Systems
- Phased Array Technology
- Missiles and Precision Munitions
- Integrated Microwave Assemblies (IMA)

Instrumentation and Measurement Solutions

- Oscilloscopes and Digitizer Solutions
- Data Acquisition Solutions
- Electronic Test and Measurement Solutions
- Automated Test Equipment

AD9234



The AD9234 is a dual, 12-bit, 1 GSPS/500 MSPS ADC. The device has an on-chip buffer and sample-and-hold circuit designed for low power, small size, and ease of use. This product is designed for sampling wide bandwidth analog signals. The AD9234 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth buffered inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. Each ADC data output is internally connected to an optional decimate-by-2 block. The AD9234 has several functions that simplify the automatic gain control (AGC) function in a communications receiver.

The programmable threshold detector allows monitoring of the incoming signal power using the fast detect output bits of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input. In addition to the fast detect outputs, the AD9234 also offers signal monitoring capability. The signal monitoring block provides additional information about the signal being digitized by the ADC.

Users can configure the Subclass 1 JESD204B-based high speed serialized output in a variety of one-, two-, or four-lane configurations, depending on the acceptable lane rate of the receiving logic device and the sampling rate of the ADC. Multiple device synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD9234 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 1.8 V to 3.3 V capable 3-wire SPI.

The AD9234 is available in a Pb-free, 64-lead LFCSP and is specified over the −40°C to +85°C industrial temperature range. This product is protected by a U.S. patent.

PRODUCT HIGHLIGHTS

1. Low power consumption analog core, 12-bit, 1.0 GSPS dual analog-to-digital converter (ADC) with 1.5 W per channel.
2. Wide full power bandwidth supports IF sampling of signals up to 2 GHz.
3. Buffered inputs with programmable input termination eases filter design and implementation.
4. Flexible serial port interface (SPI) controls various product features and functions to meet specific system requirements.
5. Programmable fast overrange detection.
6. 9 mm × 9 mm 64-lead LFCSP.
7. Pin compatible with the AD9680 14-bit, 1 GSPS dual ADC.

APPLICATIONS

- Communications
- Diversity multiband, multimode digital receivers
- 3G/4G, TD-SCDMA, W-CDMA, GSM, LTE

- Point-to-point radio systems
- Digital predistortion observation path
- General-purpose software radios
- Ultrawideband satellite receiver
- Instrumentation (spectrum analyzers, network analyzers, integrated RF test solutions)
- Digital oscilloscopes
- High speed data acquisition systems
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers

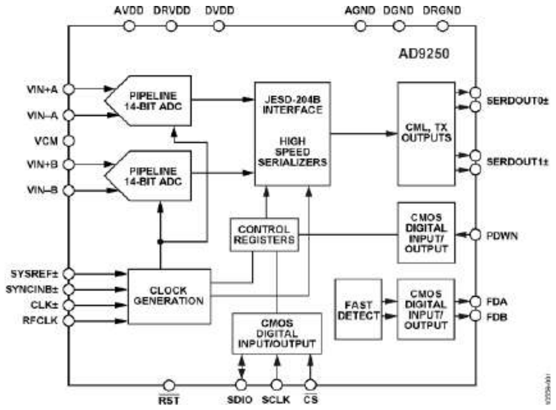
AD9250	14-Bit, 170 MSPS/250 MSPS, JESD204B, Dual Analog-to-Digital Converter

AD9250

Applications

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems



The AD9250 is a dual, 14-bit ADC with sampling speeds of up to 250 MSPS. The AD9250 is designed to support communications applications where low cost, small size, wide bandwidth, and versatility are desired.

The ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. The ADC cores feature wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. A duty cycle stabilizer is provided to compensate for variations in the ADC clock duty cycle, allowing the converters to maintain excellent performance. The JESD204B high speed serial interface reduces board routing requirements and lowers pin count requirements for the receiving device.

By default, the ADC output data is routed directly to the two JESD204B serial output lanes. These outputs are at CML voltage levels. Four modes support any combination of M = 1 or 2 (single or dual converters) and L = 1 or 2 (one or two lanes). For dual ADC mode, data can be sent through two lanes at the maximum sampling rate of 250 MSPS. However, if data is sent through one lane, a sampling rate of up to 125 MSPS is supported. Synchronization inputs (SYNCINB± and SYSREF±) are provided.

Flexible power-down options allow significant power savings, when desired. Programmable overrange level detection is supported for each channel via the dedicated fast detect pins.

Programming for setup and control are accomplished using a 3-wire SPI-compatible serial interface.

The AD9250 is available in a 48-lead LFCSP and is specified over the industrial temperature range of −40°C to +85°C.

Product Highlights

1. Integrated dual, 14-bit, 170 MSPS/250 MSPS ADC.
2. The configurable JESD204B output block supports up to 5 Gbps per lane.
3. An on-chip, phase-locked loop (PLL) allows users to provide a single ADC sampling clock; the PLL multiplies the ADC sampling clock to produce the corresponding JESD204B data rate clock.
4. Support for an optional RF clock input to ease system board design.
5. Proprietary differential input maintains excellent SNR performance for input frequencies of up to 400 MHz.
6. Operation from a single 1.8 V power supply.
7. Standard serial port interface (SPI) that supports various product features and functions such as controlling the clock DCS, power-down, test modes, voltage reference mode, over range fast detection, and serial output configuration.

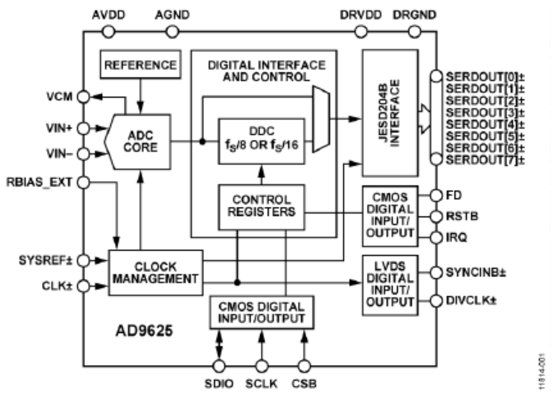
Applications

- Diversity radio systems
- Multimode digital receivers (3G)
  - TD-SCDMA, WiMAX, W-CDMA, CDMA2000, GSM, EDGE, LTE
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers
- I/Q demodulation systems
- Smart antenna systems
- Electronic test and measurement equipment
- Radar receivers
- COMSEC radio architectures

- IED detection/jamming systems
- General-purpose software radios
- Broadband data applications

AD9625 12-Bit, 2.6 GSPS/2.5 GSPS/2.0 GSPS, 1.3 V/2.5 V Analog-to-Digital Converter

AD9625



The AD9625 is a 12-bit monolithic sampling analog-to-digital converter (ADC) that operates at conversion rates of up to 2.6 giga samples per second (GSPS). This product is designed for sampling wide bandwidth analog signals up to the second Nyquist zone. The combination of wide input bandwidth, high sampling rate, and excellent linearity of the AD9625 is ideally suited for spectrum analyzers, data acquisition systems, and a wide assortment of military electronics applications, such as radar and jamming/antijamming measures.

The analog input, clock, and SYSREF± signals are differential inputs. The JESD204B-based high speed serialized output is configurable in a variety of one-, two-, four-, six-, or eight-lane configurations. The product is specified over the industrial temperature range of −40°C to +85°C.

PRODUCT HIGHLIGHTS

1. High performance: exceptional SFDR in high sample rate applications, direct RF sampling, and on-chip reference.
2. Flexible digital data output formats based on the JESD204B specification.
3. Control path SPI interface port that supports various product features and functions, such as data formatting, gain, and offset calibration values.

APPLICATIONS

- Spectrum analyzers
- Military communications
- Radar
- High performance digital storage oscilloscopes
- Active jamming/antijamming
- Electronic surveillance and countermeasures

Applications

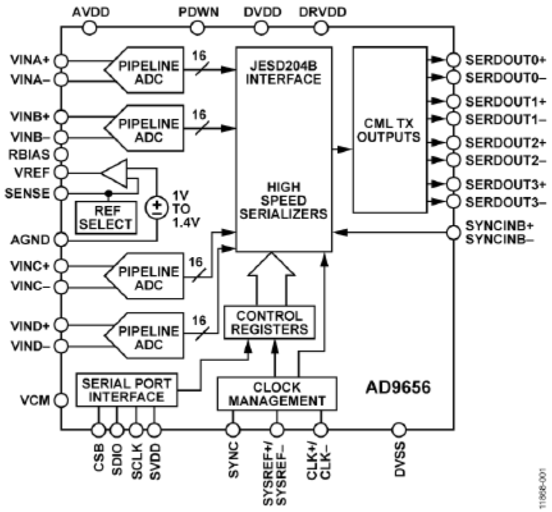
Instrumentation and Measurement Solutions

- Analytical Instruments

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems
- Electronic Surveillance and Countermeasures

AD9656



The AD9656 is a quad, 16-bit, 125 MSPS analog-to-digital converter (ADC) with an on-chip sample and hold circuit designed for low cost, low power, small size, and ease of use. The device operates at a conversion rate of up to 125 MSPS and is optimized for outstanding dynamic performance and low power in applications where a small package size is critical.

The ADC requires a single 1.8 V power supply and LVPECL-/CMOS-/LVDS-compatible sample rate clock for full performance operation. An external reference or driver components are not required for many applications.

Individual channel power-down is supported and typically consumes less than 14 mW when all channels are disabled. The ADC contains several features designed to maximize flexibility and minimize system cost, such as a programmable output clock, data alignment, and digital test pattern generation. The available digital test patterns include built-in deterministic and pseudo-random patterns, along with custom user-defined test patterns entered via the serial port interface (SPI).

The AD9656 is available in an RoHS compliant, nonmagnetic, 56-lead LFCSP. It is specified over the −40°C to +85°C industrial temperature range.

Product Highlights

1. It has a small footprint. Four ADCs are contained in a small, 8 mm × 8 mm package.
2. An on-chip phase-locked loop (PLL) allows users to provide a single ADC sampling clock; the PLL multiplies the ADC sampling clock to

produce the corresponding JESD204B data rate clock.

3. The configurable JESD204B output block supports up to 8.0 Gbps per lane.
4. JESD204B output block supports one, two, and four lane configurations.
5. Low power of 198 mW per channel at 125 MSPS, two lanes.
6. The SPI control offers a wide range of flexible features to meet specific system requirements.

Applications

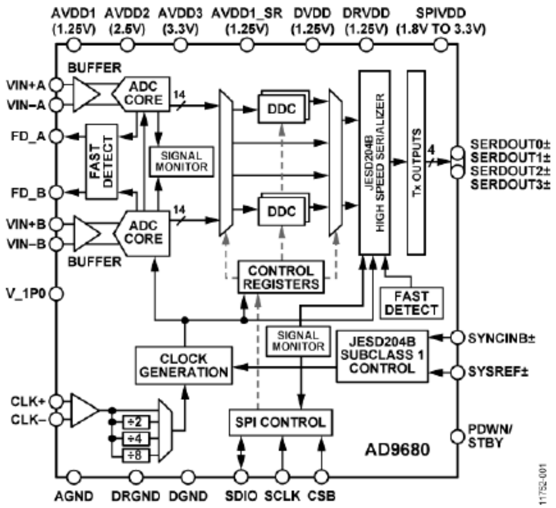
- Medical imaging
- High speed imaging
- Quadrature radio receivers
- Diversity radio receivers
- Portable test equipment

Applications

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9680



The AD9680 is a dual, 14-bit, 1.25 GSPS/1 GSPS/820 MSPS/500 MSPS analog-to-digital converter (ADC). The device has an on-chip buffer and sample-and-hold circuit designed for low power, small size, and ease of use. This device is designed for sampling wide bandwidth analog signals of up to 2 GHz. The AD9680 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations.

The analog input and clock signals are differential inputs. Each ADC data output is internally connected to two digital down-converters (DDCs). Each DDC consists of up to five cascaded signal processing stages: a 12-bit frequency translator (NCO), and four half-band decimation filters. The DDCs are bypassed by default.

In addition to the DDC blocks, the AD9680 has several functions that simplify the automatic gain control (AGC) function in the communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect output bits of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input.

Users can configure the Subclass 1 JESD204B-based high speed serialized output in a variety of one-, two-, or four-lane configurations, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multiple device synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD9680 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 1.8 V to 3.3 V capable, 3-wire SPI.

The AD9680 is available in a Pb-free, 64-lead LFCSP and is specified over the −40°C to +85°C industrial temperature range. This product is protected by a U.S. patent.

PRODUCT HIGHLIGHTS

1. Wide full power bandwidth supports IF sampling of signals up to 2 GHz.
2. Buffered inputs with programmable input termination eases filter design and implementation.
3. Four integrated wideband decimation filters and numerically controlled oscillator (NCO) blocks supporting multiband receivers.
4. Flexible serial port interface (SPI) controls various product features and functions to meet specific system requirements.
5. Programmable fast overrange detection.
6. 9 mm × 9 mm, 64-lead LFCSP.

APPLICATIONS

- Communications
- Diversity multiband, multimode digital receivers
  - 3G/4G, TD-SCDMA, W-CDMA, GSM, LTE
- General-purpose software radios
- Ultrawideband satellite receivers
- Instrumentation
- Radars
- Signals intelligence (SIGINT)
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers

Applications

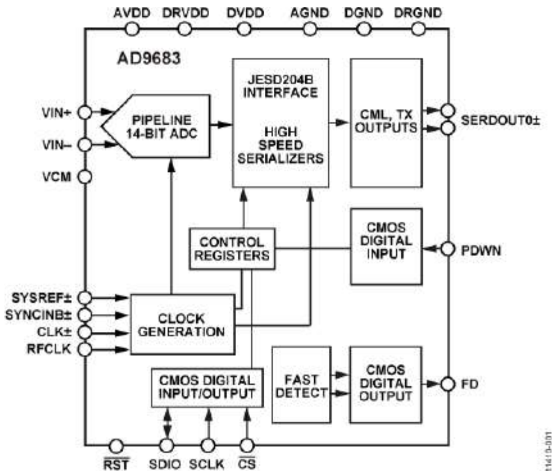
Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems
- Electronic Surveillance and Countermeasures
- Missiles and Precision Munitions

AD9683



The AD9683 is a 14-bit ADC with sampling speeds of up to 250 MSPS. The AD9683 supports communications applications where low cost, small size, wide bandwidth, and versatility are desired. The ADC core features a multistage, differential pipelined architecture with integrated output error correction logic. The ADC core features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. A duty cycle stabilizer (DCS) is provided to compensate for variations in the ADC clock duty cycle, allowing the converter to maintain excellent performance. The JESD204B high speed serial interface reduces board routing requirements and lowers pin count requirements for the receiving device. The ADC output data is routed directly to the JESD204B serial output lane. These outputs are at CML voltage levels. Data can be sent through the lane at the maximum sampling rate of 250 MSPS, which results in a lane rate of 5 Gbps. Synchronization inputs (SYNCINB± and SYSREF±) are provided. Flexible power-down options allow significant power savings, when desired. Programmable overrange level detection is supported via the dedicated fast detect pins. Programming for setup and control is accomplished using a 3-wire SPI-compatible serial interface. The AD9683 is available in a 32-lead LFCSP and is specified over the industrial temperature range of −40°C to +85°C.

Product Highlights

1. Integrated 14-bit, 170 MSPS/250 MSPS ADC.
2. The configurable JESD204B output block supports lane rates up to 5 Gbps.
3. An on-chip, phase-locked loop (PLL) allows users to provide a single ADC sampling clock; the PLL multiplies the ADC sampling clock to produce the corresponding JESD204B data rate clock.
4. Support for an optional radio frequency (RF) clock input to ease system board design.
5. Proprietary differential input maintains excellent SNR performance for input frequencies of up to 400 MHz.
6. Operation from a single 1.8 V power supply.
7. Standard serial port interface (SPI) that supports various product features and functions, such as controlling the clock DCS, power-down, test modes, voltage reference mode, overrange fast detection, and serial output configuration.

Applications

- Communications
- Diversity radio systems
- Multimode digital receivers (3G)
  TD-SCDMA, WiMAX, W-CDMA, CDMA2000, GSM, EDGE, LTE
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers
- Smart antenna systems
- Electronic test and measurement equipment
- Radar receivers
- COMSEC radio architectures
- IED detection/jamming systems

- General-purpose software radios
- Broadband data applications
- Ultrasound equipment

Applications

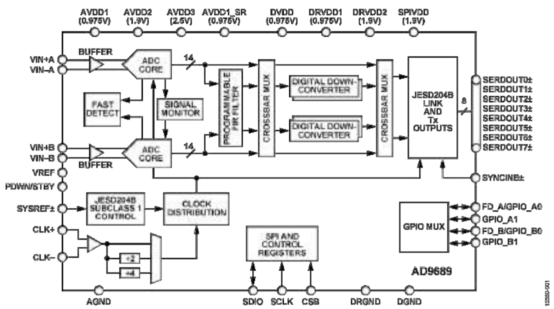
Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9689

14-Bit, 2.0 GSPS/2.6 GSPS, JESD204B, Dual Analog-to-Digital Converter

AD9689



The AD9689 is a dual, 14-bit, 2.0 GSPS/2.6 GSPS analog-to-digital converter (ADC). The device has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. This product is designed to support communications applications capable of direct sampling wide bandwidth analog signals of up to 5 GHz. The −3 dB bandwidth of the ADC input is 9 GHz. The AD9689 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. The analog input and clock signals are differential inputs. The ADC data outputs are internally connected to four digital downconverters (DDCs) through a crossbar mux. Each DDC consists of multiple cascaded signal processing stages: a 48-bit frequency translator (numerically controlled oscillator (NCO)), and decimation rates. The NCO has the option to select preset bands over the general-purpose input/output (GPIO) pins, which enables the selection of up to three bands. Operation of the AD9689 between the DDC modes is selectable via SPI-programmable profiles.

In addition to the DDC blocks, the AD9689 has several functions that simplify the automatic gain control (AGC) function in a communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect control bits in Register 0×0245 of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input. In addition to the fast detect outputs, the AD9689 also offers signal monitoring capability. The signal monitoring block provides additional information about the signal being digitized by the ADC.

The user can configure the Subclasss 1 JESD204B-based high speed serialized output in a variety of one-lane, two-lane, four-lane, and eight-lane configurations, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multidevice synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD9689 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 3-wire serial port interface (SPI).

The AD9689 is available in a Pb-free, 196-ball BGA, specified over the −40°C to +85°C ambient temperature range. This product is protected by a U.S. patent.

Note that throughout this data sheet, multifunction pins, such as FD_A/GPIO_A0, are referred to either by the entire pin name or by a single function of the pin, for example, FD_A, when only that function is relevant.

Product Highlights

1. Wide, input −3 dB bandwidth of 9 GHz supports direct radio frequency (RF) sampling of signals up to about 5 GHz.
2. Four integrated, wideband decimation filters and NCO blocks supporting multiband receivers.
3. Fast NCO switching enabled through the GPIO pins.
4. SPI controls various product features and functions to meet specific system requirements.
5. Programmable fast overrange detection and signal monitoring.
6. On-chip temperature diode for system thermal management.
7. 12 mm × 12 mm, 196-ball BGA.
8. Pin, package, feature, and memory map compatible with the AD9208 14-bit, 3.0 GSPS, JESD204B dual ADC.

Applications

- Diversity multiband and multimode digital receivers
- 3G/4G, TD-SCDMA, W-CDMA, and GSM, LTE, LTE-A
- Electronic test and measurement systems
- Phased array radar and electronic warfare
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers

Applications

Wireless Communication Solutions

- Wireless Infrastructure Solutions
- Wideband RF Signal Processing
- Software Defined Radio (SDR)
- Instrumenting 5G

Aerospace and Defense Systems

- Phased Array Technology
- Missiles and Precision Munitions
- Aerospace and Defense Radar Systems
- Military Communication Solutions
- Unmanned Aerial Vehicles (UAV)
- Electronic Surveillance and Countermeasures

Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions
- Radio Frequency (RF) and Power Measurement Solutions
- Oscilloscopes and Digitizer Solutions
- Data Acquisition Solutions
- Electronic Test and Measurement Solutions

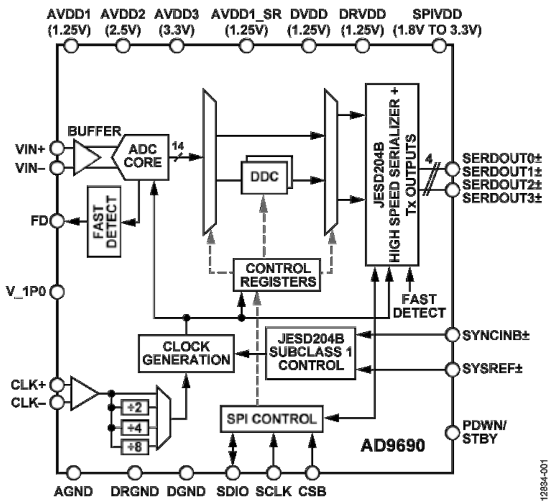
AD9690	14-Bit, 500 MSPS / 1 GSPS JESD204B, Analog-to-Digital Converter

AD9690

Applications

Aerospace and Defense Systems

- Missiles and Precision Munitions



The AD9690 is a 14-bit, 1 GSPS/500 MSPS analog-to-digital converter (ADC). The device has an on-chip buffer and sample-and-hold circuit designed for low power, small size, and ease of use. This device is designed for sampling wide bandwidth analog signals of up to 2 GHz. The AD9690 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The ADC core features a multistage, differential pipelined architecture with integrated output error correction logic. The ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations.

The analog input and clock signals are differential inputs. The ADC data output is internally connected to two digital down-converters (DDCs). Each DDC consists of four cascaded signal processing stages: a 12-bit frequency translator (NCO), and four half-band decimation filters.

In addition to the DDC blocks, the AD9690 has several functions that simplify the automatic gain control (AGC) function in the communications receiver.

The programmable threshold detector allows monitoring of the incoming signal power using the fast detect output bits of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input.

Users can configure the Subclass 1 JESD204B-based high speed serialized output in a variety of one-, two-, or four-lane con-figurations, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multiple device synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD9690 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 1.8 V to 3.3 V capable 3-wire SPI.

p>
The AD9690 is available in a Pb-free, 64-lead LFCSP and is specified over the −40°C to +85°C industrial temperature range. This product may be protected by one or more U.S. or international patents.

Product Highlights

1. Wide full power bandwidth supports IF sampling of signals up to 2 GHz.
2. Buffered inputs with programmable input termination eases filter design and implementation.
3. Two integrated wideband decimation filters and numerically controlled oscillator (NCO) blocks supporting multiband receivers.
4. Flexible serial port interface (SPI) controls various product features and functions to meet specific system requirements.
5. Programmable fast overrange detection.
6. 9 mm × 9 mm 64-lead LFCSP.

Applications

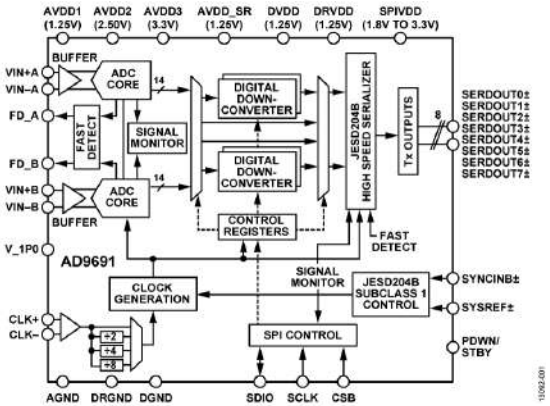
- Communications
- Multiband, multimode digital receivers 3G/4G, TD-SCDMA, W-CDMA, GSM, LTE
- General-purpose software radios
- Ultrawideband satellite receivers
- Instrumentation

- Radars
- Signals intelligence (SIGINT)
- DOCSIS 3.0 CMTS upstream receive paths
- HFC digital reverse path receivers

AD9691

14-Bit, 1.25 GSPS JESD204B, Dual Analog-to-Digital Converter

AD9691



The AD9691 is a dual, 14-bit, 1.25 GSPS analog-to-digital converter (ADC). The device has an on-chip buffer and sample-and-hold circuit designed for low power, small size, and ease of use. The device is designed for sampling wide bandwidth analog signals of up to 1.5 GHz.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations.

Each ADC data output is internally connected to two digital downconverters (DDCs). Each DDC consists of four cascaded signal processing stages: a 12-bit frequency translator (NCO) and four half-band decimation filters.

In addition to the DDC blocks, the AD9691 has a programmable threshold detector that allows monitoring of the incoming signal power using the fast detect output bits of the ADC. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input.

Users can configure the Subclass 1 JESD204B-based high speed serialized output in a variety of one-, two-, four- or eight-lane configurations, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multiple device synchronization is supported through the SYSREF± input pins.

The AD9691 is available in a Pb-free, 88-lead LFCSP and is specified over the −40°C to +85°C industrial temperature range. This product is protected by a U.S. patent.

Product Highlights

1. Low power consumption analog core, 14-bit, 1.25 GSPS dual analog-to-digital converter (ADC) with 1.9 W per channel.
2. Wide full power bandwidth supports IF sampling of signals up to 1.5 GHz.
3. Buffered inputs with programmable input termination eases filter design and implementation.
4. Flexible serial port interface (SPI) controls various product features and functions to meet specific system requirements.
5. Programmable fast overrange detection.
6. 12 mm × 12 mm 88-lead LFCSP.

Applications

- Communications (wideband receivers and digital predistortion)

- Instrumentation (spectrum analyzers, network analyzers, integrated RF test solutions)
- DOCSIS 3.x CMTS upstream receive paths
- High speed data acquisition systems

Applications

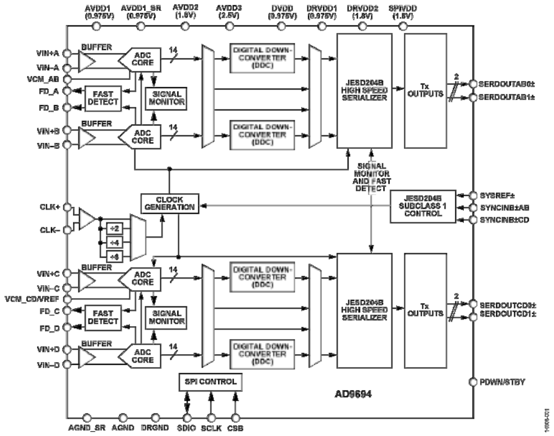
Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems
- Missiles and Precision Munitions

AD9694



The AD9694 is a quad, 14-bit, 500 MSPS analog-to-digital converter (ADC). The device has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. This device is designed for sampling wide bandwidth analog signals of up to 1.4 GHz. The AD9694 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The quad ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations.

The analog inputs and clock signals are differential inputs. Each pair of ADC data outputs is internally connected to two DDCs through a crossbar mux. Each DDC consists of up to five cascaded signal processing stages: a 48-bit frequency translator, NCO, and up to four half-band decimation filters.

In addition to the DDC blocks, the AD9694 has several functions that simplify the automatic gain control (AGC) function in the communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect output bits of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input.

Users can configure each pair of intermediate frequency (IF) receiver outputs onto either one or two lanes of Subclass 1 JESD204B-based high speed serialized outputs, depending on the decimation ratio and the acceptable lane rate of the receiving logic device. Multiple device synchronization is supported through the SYSREF±, SYNCINB±AB, and SYNCINB±CD input pins.

The AD9694 has flexible power-down options that allow significant power savings when desired. All of these features can be pro-grammed using the 1.8 V capable, 3-wire SPI.

The AD9694 is available in a Pb-free, 72-lead LFCSP and is specified over the −40°C to +105°C junction temperature range.

PRODUCT HIGHLIGHTS

1. Low power consumption per channel.
2. JESD204B lane rate support up to 15 Gbps.
3. Wide full power bandwidth supports IF sampling of signals up to 1.4 GHz.
4. Buffered inputs ease filter design and implementation.
5. Four integrated wideband decimation filters and numerically controlled oscillator (NCO) blocks supporting multiband receivers.
6. Flexible serial port interface (SPI) controls various product features and functions to meet specific system requirements.
7. Programmable fast overrange detection.
8. On-chip temperature diode for system thermal management.

APPLICATIONS

- Communications
- Diversity multiband, multimode digital receivers 3G/4G, W-CDMA, GSM, LTE, LTE-A
- General-purpose software radios
- Ultrawideband satellite receivers

- Instrumentation
- Radars
- Signals intelligence (SIGINT)

Applications

Wireless Communication Solutions

- Wireless Infrastructure Solutions
- Wideband RF Signal Processing
- Software Defined Radio (SDR)

Aerospace and Defense Systems

- Missiles and Precision Munitions
- Phased Array Technology
- Military Communication Solutions
- Electronic Surveillance and Countermeasures
- Avionic Systems
- Aerospace and Defense Radar Systems

Instrumentation and Measurement Solutions

- Electronic Test and Measurement Solutions

Automotive Solutions

- Advanced Driver Assistance

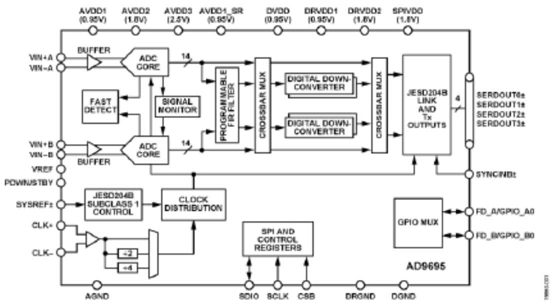
Systems (ADAS) and Safety Solutions

Radio Frequency (RF) Solutions

- Radio Frequency (RF) Solutions

AD9695 14-Bit, 1300 MSPS/625 MSPS, JESD204B, Dual Analog-to-Digital Converter

AD9695



The AD9695 is a dual, 14-bit, 1300 MSPS/625 MSPS analog-to-digital converter (ADC). The device has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. This product is designed to support communications applications capable of direct sampling wide bandwidth analog signals of up to 2 GHz. The −3 dB bandwidth of the ADC input is 2 GHz. The AD9695 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The dual ADC cores feature a multistage, differential pipelined architecture with integrated output error correction logic. Each ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. The analog input and clock signals are differential inputs. The ADC data outputs are internally connected to four digital downconverters (DDCs) through a crossbar mux. Each DDC consists of multiple signal processing stages: a 48-bit frequency translator (numerically controlled oscillator (NCO)), and decimation filters. The NCO has the option to select up to 16 preset bands over the general-purpose input/output (GPIO) pins, or use a coherent fast frequency hopping mechanism for band selection. Operation of the AD9695 between the DDC modes is selectable via SPI-programmable profiles.

In addition to the DDC blocks, the AD9695 has several functions that simplify the automatic gain control (AGC) function in a communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect control bits in Register 0×0245 of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input. In addition to the fast detect outputs, the AD9695 also offers signal monitoring capability. The signal monitoring block provides additional information about the signal being digitized by the ADC.

The user can configure the Subclasss 1 JESD204B-based high speed serialized output using either one lane, two lanes, or four lanes, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multidevice synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD9695 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 3-wire serial port interface (SPI) and or PDWN/STBY pin.

The AD9695 is available in a Pb-free, 64-lead LFCSP and is specified over the −40°C to +105°C junction temperature range. This product may be protected by one or more U.S. or international patents.

Note that, throughout this data sheet, multifunction pins, such as FD_A/GPIO_A0, are referred to either by the entire pin name or by a single function of the pin, for example, FD_A, when only that function is relevant.

Product Highlights

1. Low power consumption per channel.
2. JESD204B lane rate support up to 16 Gbps.
3. Wide, full power bandwidth supports intermediate frequency (IF) sampling of signals up to 2 GHz.
4. Buffered inputs ease filter design and implementation.
5. Four integrated wideband decimation filters and NCO blocks supporting multiband receivers.
6. Programmable fast overrange detection.
7. On-chip temperature diode for system thermal management.

Applications

- Communications
- Diversity multiband, multimode digital receivers
  - 3G/4G, TD-SCDMA, WCDMA, GSM, LTE
- General-purpose software radios
- Ultrawideband satellite receiver
- Instrumentation
  - Oscilloscopes
  - Spectrum analyzers
  - Network analyzers

    - Integrated RF test solutions
- Radars
- Electronic support measures, electronic counter measures, and electronic counter-counter measures
- High speed data acquisition systems
- DOCSIS 3.0 CMTS upstream receive paths
- Hybrid fiber coaxial digital reverse path receivers
- Wideband digital predistortion

Applications

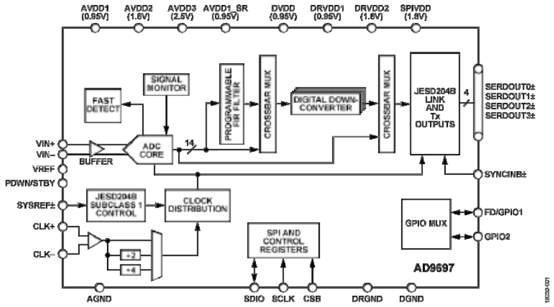
Aerospace and Defense Systems

- Phased Array Technology

AD9697 14-Bit, 1300 MSPS, JESD204B, Analog-to-Digital Converter

AD9697

Applications



The AD9697 is a single, 14-bit, 1300 MSPS analog-to-digital converter (ADC). The device has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. This product is designed to support communications applications capable of direct sampling wide bandwidth analog signals of up to 2 GHz. The −3 dB bandwidth of the ADC input is 2 GHz. The AD9697 is optimized for wide input bandwidth, high sampling rate, excellent linearity, and low power in a small package.

The ADC core features a multistage, differential pipelined architecture with integrated output error correction logic. The ADC features wide bandwidth inputs supporting a variety of user-selectable input ranges. An integrated voltage reference eases design considerations. The analog input and clock signals are differential inputs. The ADC data outputs are internally connected to four digital downconverters (DDCs) through a crossbar mux. Each DDC consists of multiple signal processing stages: a 48-bit frequency translator (numerically controlled oscillator (NCO)), and decimation filters. The NCO has the option to select up to 16 preset bands over the general-purpose input/ output (GPIO) pins, or to use a coherent fast frequency hopping mechanism for band selection. Operation of the AD9697 between the DDC modes is selectable via serial port interface (SPI)programmable profiles.

In addition to the DDC blocks, the AD9697 has several functions that simplify the automatic gain control (AGC) function in a communications receiver. The programmable threshold detector allows monitoring of the incoming signal power using the fast detect control bits in Register 0×0245 of the ADC. If the input signal level exceeds the programmable threshold, the fast detect indicator goes high. Because this threshold indicator has low latency, the user can quickly turn down the system gain to avoid an overrange condition at the ADC input. In addition to the fast detect outputs, the AD9697 also offers signal monitoring capability. The signal monitoring block provides additional information about the signal being digitized by the ADC.

The user can configure the Subclasss 1 JESD204B-based high speed serialized output using either one lane, two lanes, or four lanes, depending on the DDC configuration and the acceptable lane rate of the receiving logic device. Multidevice synchronization is supported through the SYSREF± and SYNCINB± input pins.

The AD9697 has flexible power-down options that allow significant power savings when desired. All of these features can be programmed using a 3-wire SPI and or PDWN/STBY pin.

The AD9697 is available in a Pb-free, 64-lead LFCSP and is specified over the −40°C to +105°C junction temperature (TJ) range. This product may be protected by one or more U.S. or international patents.

Note that, throughout this data sheet, a multifunction pin, FD/GPIO1, is referred to either by the entire pin name or by a single function of the pin, for example, FD, when only that function is relevant.

Product Highlights

1. Low power consumption
2. JESD204B lane rate support up to 16 Gbps
3. Wide, full power bandwidth supports intermediate frequency (IF) sampling of signals up to 2 GHz
4. Buffered inputs ease filter design and implementation
5. Four integrated wideband decimation filters and NCO blocks supporting

multiband receivers
6. Programmable fast overrange detection
7. On-chip temperature diode for system thermal management

Applications

- Communications
- Diversity multiband, multimode digital receivers 3G/4G, TD-SCDMA, W-CDMA, GSM, LTE
- General-purpose software radios
- Ultrawideband satellite receiver
- Instrumentation
  - Oscilloscopes
  - Spectrum analyzers
  - Network analyzers
  - Integrated RF test solutions
- Radars
- Electronic support measures, electronic counter measures, and electronic counter to counter measures
- High speed data acquisition systems
- DOCSIS 3.0 CMTS upstream receive paths
- Hybrid fiber coaxial digital reverse path receivers
- Wideband digital predistortion

Wireless Communication Solutions

- Wireless Infrastructure Solutions
- Wideband RF Signal Processing
- Software Defined Radio (SDR)

Instrumentation and Measurement Solutions

- Data Acquisition Solutions
- Oscilloscopes and Digitizer Solutions
- Radio Frequency (RF) and Power Measurement Solutions
- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions

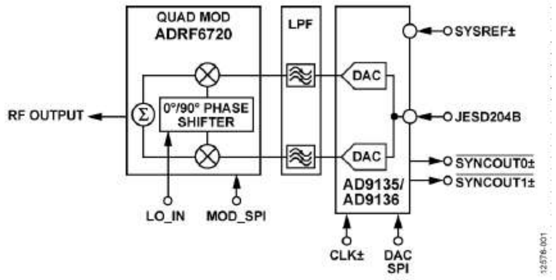
Aerospace and Defense Systems

- Electronic Surveillance and Countermeasures
- Aerospace and Defense Radar Systems
- Unmanned Aerial Vehicles (UAV)
- Military Communication Solutions
- Missiles and Precision Munitions

D/A Converters

AD9135	Dual, 11-Bit, 2.8 GSPS, TxDAC+® Digital-to-Analog Converter

AD9135



The AD9135/AD9136 are dual, 11-/16-bit, high dynamic range digital-to-analog converters (DACs) that provide a maximum sample rate of 2800 MSPS, permitting a multicarrier generation over a very wide bandwidth. The DAC outputs are optimized to interface seamlessly with the ADRF6720, as well as other analog quadrature modulators (AQMs) from Analog Devices, Inc. An optional 3-wire or 4-wire serial port interface (SPI) provides for programming/readback of many internal parameters. The full-scale output current can be programmed over a typical range of 13.9 mA to 27.0 mA. The AD9135/AD9136 are available in an 88-lead LFCSP.

Product Highlights

1. Greater than 2 GHz, ultrawide complex signal bandwidth enables emerging wideband and multiband wireless applications.
2. Advanced low spurious and distortion design techniques provide high quality synthesis of wideband signals from baseband to high intermediate frequencies.
3. JESD204B Subclass 1 support simplifies multichip synchronization in software and hardware design.
4. Fewer pins for data interface width with a serializer/deserializer (SERDES) JESD204B eight-lane interface.
5. Programmable transmit enable function allows easy design balance between power consumption and wake-up time.

6. Small package size with 12 mm × 12 mm footprint.

Applications

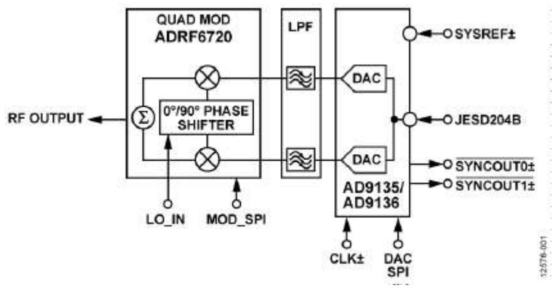
- Wireless communications
  - 3G/4G W-CDMA base stations
  - Wideband repeaters
  - Software defined radios
- Wideband communications
  - Point to point
  - Local multipoint distribution service (LMDS) and multichannel multipoint distribution service (MMDS)
- Transmit diversity, multiple input/multiple output (MIMO)
- Instrumentation
- Automated test equipment

Applications

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9136



The AD9135/AD9136 are dual, 11-/16-bit, high dynamic range digital-to-analog converters (DACs) that provide a maximum sample rate of 2800 MSPS, permitting a multicarrier generation over a very wide bandwidth. The DAC outputs are optimized to interface seamlessly with the ADRF6720, as well as other analog quadrature modulators (AQMs) from Analog Devices, Inc. An optional 3-wire or 4-wire serial port interface (SPI) provides for programming/readback of many internal parameters. The full-scale output current can be programmed over a typical range of 13.9 mA to 27.0 mA. The AD9135/AD9136 are available in an 88-lead LFCSP.

Product Highlights

1. Greater than 2 GHz, ultrawide complex signal bandwidth enables emerging wideband and multiband wireless applications.
2. Advanced low spurious and distortion design techniques provide high quality synthesis of wideband signals from baseband to high intermediate frequencies.
3. JESD204B Subclass 1 support simplifies multichip synchronization in software and hardware design.
4. Fewer pins for data interface width with a serializer/deserializer (SERDES) JESD204B eight-lane interface.
5. Programmable transmit enable function allows easy design balance between power consumption and wake-up time.

6. Small package size with 12 mm × 12 mm footprint.

Applications

- Wireless communications
  - 3G/4G W-CDMA base stations
  - Wideband repeaters
  - Software defined radios
- Wideband communications
  - Point to point
  - Local multipoint distribution service (LMDS) and multichannel multipoint distribution service (MMDS)
- Transmit diversity, multiple input/multiple output (MIMO)
- Instrumentation
- Automated test equipment

Applications

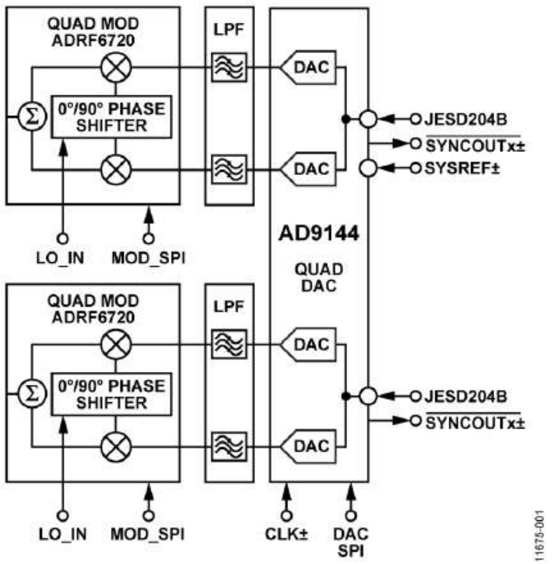
Wireless Communication Solutions

- Wireless Infrastructure Solutions

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9144



The AD9144 is a quad, 16-bit, high dynamic range digital-to-analog converter (DAC) that provides a maximum sample rate of 2.8 GSPS, permitting a multicarrier generation up to the Nyquist frequency. The DAC outputs are optimized to interface seamlessly with the ADRF6720 analog quadrature modulator (AQM) from Analog Devices, Inc. An optional 3-wire or 4-wire serial port interface (SPI) provides for programming/readback of many internal parameters. Full-scale output current can be programmed over a typical range of 13.9 mA to 27.0 mA. The AD9144 is available in an 88-lead LFCSP.

Product Highlights

1. Greater than 1 GHz, ultrawide complex signal bandwidth enables emerging wideband and multiband wireless applications.
2. Advanced low spurious and distortion design techniques provide high quality synthesis of wideband signals from baseband to high intermediate frequencies.
3. JESD204B Subclass 1 support simplifies multichip synchronization in software and hardware design.
4. Fewer pins for data interface width with a serializer/deserializer (SERDES) JESD204B eight-lane interface.
5. Programmable transmit enable function allows easy design balance between power consumption and wake-up time.
6. Small package size with 12 mm × 12 mm footprint.

Applications

- Wireless communications
  - 3G/4G W-CDMA base stations
  - Wideband repeaters
  - Software defined radios
- Wideband communications
  - Point-to-point
  - Local multipoint distribution service (LMDS) and multichannel multipoint distribution service (MMDS)
- Transmit diversity, multiple input/multiple output (MIMO)
- Instrumentation
- Automated test equipment

Applications

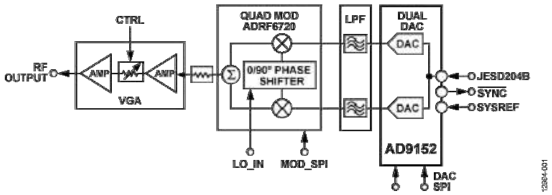
Instrumentation and Measurement Solutions

- Signal Generator (Audio through RF) Solutions

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9152



The AD9152 is a dual, 16-bit, high dynamic range digital-to-analog converter (DAC) that provides a maximum sample rate of 2.25 GSPS, permitting a multicarrier generation up to the Nyquist frequency. The DAC outputs are optimized to interface seamlessly with the ADRF6720 analog quadrature modulator (AQM) from Analog Devices, Inc. An optional 3-wire or 4-wire serial port interface (SPI) provides for programming/readback of many internal parameters. The full-scale output current can be programmed over a range of 4 mA to 20 mA. The AD9152 is available in a 56-lead LFCSP. The AD9152 is a member of the TxDAC+® family.

PRODUCT HIGHLIGHTS

1. Ultrawide signal bandwidth enables emerging wideband and multiband wireless applications.
2. Advanced low spurious and distortion design techniques provide high quality synthesis of wideband signals from baseband to high intermediate frequencies.
3. JESD204B Subclass 1 support simplifies multichip synchronization in software and hardware design.
4. Fewer pins for data interface width with the serializer/deserializer (SERDES) JESD204B four-lane interface.
5. Programmable transmit enable function allows easy design balance between power consumption and wake-up time.

6. Small package size with an 8 mm × 8 mm footprint.

APPLICATIONS

- Wireless communications
  - Multicarrier LTE and GSM base stations
  - Wideband repeaters
  - Software defined radios
- Wideband communications
  - Point to point microwave radios
  - LMDS/MMDS
- Transmit diversity, multiple input/multiple output (MIMO)
- Instrumentation
- Automated test equipment

Applications

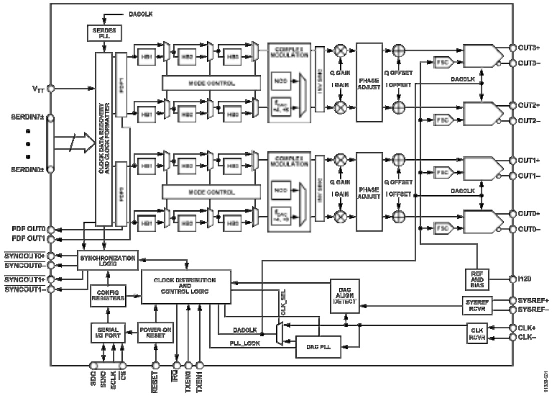
Wireless Communication Solutions

- Wireless Infrastructure Solutions

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9154



The AD9154 is a quad, 16-bit, high dynamic range digital-to-analog converter (DAC) that provides a maximum sample rate of 2.4 GSPS, permitting multicarrier generation up to the Nyquist frequency in baseband mode. The AD9154 includes features optimized for direct conversion transmit applications including complex digital modulation, input signal power detection, and gain, phase, and offset compensation. The DAC outputs are optimized to interface seamlessly with the ADRF6720-27 radio frequency quadrature modulator (AQM) from Analog Devices, Inc. In mix mode, the AD9154 DAC can reconstruct carriers in the second and third Nyquist Zones. A serial port interface (SPI) provides the programming/readback of internal parameters. The full-scale output current can be programmed over a range of 4 mA to 20 mA. The AD9154 is available in two different 88-lead LFCSP packages.

PRODUCT HIGHLIGHTS

1. Ultrawide signal bandwidth enables emerging wideband and multiband wireless applications.
2. Advanced low spurious and distortion design techniques provide high quality synthesis of wideband signals from baseband to high intermediate frequencies.
3. JESD204B Subclass 1 support simplifies multichip synchronization.
4. Small package size with a 12 mm × 12 mm footprint.

APPLICATIONS

- Wireless communications
  Multicarrier LTE and GSM base stations
  Wideband repeaters
  Software defined radios
- Wideband communications
  Point to point microwave radio
- Transmit diversity, multiple input/multiple output (MIMO)
- Instrumentation
- Automated test equipment

Applications

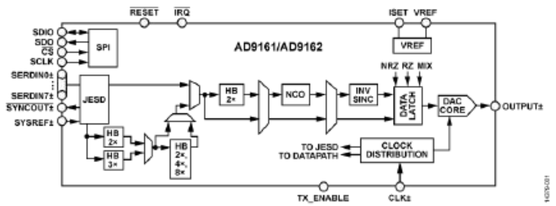
Wireless Communication Solutions

- Wireless Infrastructure Solutions

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9161



The AD9161 is a high performance, 11-bit digital-to-analog converter (DAC) that supports data rates to 6 GSPS. The DAC core is based on a quad-switch architecture coupled with a 2× interpolator filter that enables an effective DAC update rate of up to 12 GSPS in some modes. The high dynamic range and bandwidth makes these DACs ideally suited for the most demanding high speed radio frequency (RF) DAC applications.

In baseband mode, wide bandwidth capability combines with high dynamic range to support DOCSIS 3.1 cable infrastructure compliance from the minimum of two carriers to full maximum spectrum of 1.794 GHz. A 2× interpolator filter (FIR85) enables the AD9161/AD9162 to be configured for lower data rates and converter clocking to reduce the overall system power and ease the filtering requirements. In Mix-Mode™ operation, the AD9161/AD9162 can reconstruct RF carriers in the second and third Nyquist zones up to 7.5 GHz while still maintaining exceptional dynamic range. The output current can be programmed from 8 mA to 38.76 mA. The AD9161/AD9162 data interface consists of up to eight JESD204B serializer/deserializer (SERDES) lanes that are programmable in terms of lane speed and number of lanes to enable application flexibility.

A serial peripheral interface (SPI) can configure the AD9161/AD9162 and monitor the status of all registers. The AD9161/AD9162 are offered in an 165-ball, 8.0 mm × 8.0 mm, 0.5 mm pitch, CSP_BGA package and in an 169-ball, 11 mm × 11 mm, 0.8 mm pitch, CSP_BGA package, including a leaded ball option for the AD9162.

Product Highlights

1. High dynamic range and signal reconstruction bandwidth supports RF

signal synthesis of up to 7.5 GHz.
2. Up to eight lanes JESD204B SERDES interface flexible in terms of number of lanes and lane speed.
3. Bandwidth and dynamic range to meet DOCSIS 3.1 compliance with margin.

Applications

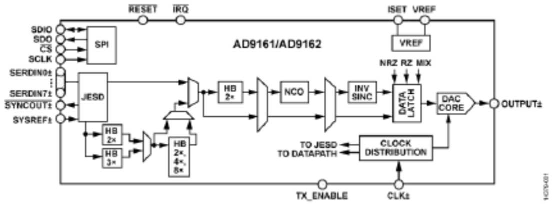
- Broadband communications systems
  - DOCSIS 3.1 cable modem termination system (CMTS)/video on demand (VOD)/edge quadrature amplitude modulation (EQAM)
- Wireless communications infrastructure
  - W-CDMA, LTE, LTE-A, point to point
- Instrumentation, automatic test equipment (ATE)
- Radars and jammers

Applications

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9162



The AD9162 is a high performance, 16-bit digital-to-analog converter (DAC) that supports data rates to 6 GSPS. The DAC core is based on a quad-switch architecture coupled with a 2× interpolator filter that enables an effective DAC update rate of up to 12 GSPS in some modes. The high dynamic range and bandwidth makes these DACs ideally suited for the most demanding high speed radio frequency (RF) DAC applications.

In baseband mode, wide bandwidth capability combines with high dynamic range to support DOCSIS 3.1 cable infrastructure compliance from the minimum of two carriers to full maximum spectrum of 1.794 GHz. A 2× interpolator filter (FIR85) enables the AD9161/AD9162 to be configured for lower data rates and converter clocking to reduce the overall system power and ease the filtering requirements. In Mix-Mode™ operation, the AD9161/AD9162 can reconstruct RF carriers in the second and third Nyquist zones up to 7.5 GHz while still maintaining exceptional dynamic range. The output current can be programmed from 8 mA to 38.76 mA. The AD9161/AD9162 data interface consists of up to eight JESD204B serializer/deserializer (SERDES) lanes that are programmable in terms of lane speed and number of lanes to enable application flexibility.

A serial peripheral interface (SPI) can configure the AD9161/AD9162 and monitor the status of all registers. The AD9161/AD9162 are offered in an

165-ball, 8.0 mm × 8.0 mm, 0.5 mm pitch, CSP_BGA package and in an 169-ball, 11 mm × 11 mm, 0.8 mm pitch, CSP_BGA package, including a leaded ball option for the AD9162.

Product Highlights

1. High dynamic range and signal reconstruction bandwidth supports RF signal synthesis of up to 7.5 GHz.
2. Up to eight lanes JESD204B SERDES interface flexible in terms of number of lanes and lane speed.
3. Bandwidth and dynamic range to meet DOCSIS 3.1 compliance with margin.

Applications

- Broadband communications systems
  - DOCSIS 3.1 cable modem termination system (CMTS)/video on demand (VOD)/edge quadrature amplitude modulation (EQAM)
- Wireless communications infrastructure
  - W-CDMA, LTE, LTE-A, point to point
- Instrumentation, automatic test equipment (ATE)
- Radars and jammers

Applications

Aerospace and Defense Systems

- Phased Array Technology
- Aerospace and Defense Radar Systems

- Electronic Surveillance and Countermeasures

Instrumentation and Measurement Solutions

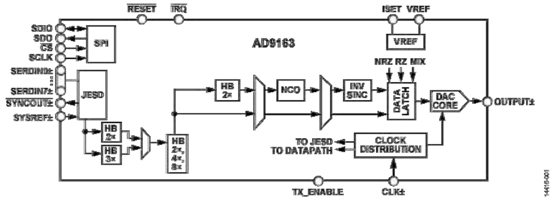
- Electronic Test and Measurement Solutions

Radio Frequency (RF) Solutions

- Radio Frequency (RF) Solutions

AD9163 16-Bit, 12 GSPS, RF DAC and Digital Upconverter

AD9163



The AD9163[1] is a high performance, 16-bit digital-to-analog converter (DAC) that supports data rates to 6 GSPS. The DAC core is based on a quad-switch architecture coupled with a 2× interpolator filter that enables an effective DAC update rate of up to 12 GSPS in some modes. The high dynamic range and bandwidth makes this DAC ideally suited for the most demanding high speed radio frequency (RF) DAC applications.

Superior RF performance and deep interpolation rates enable use of the AD9163 in many wireless infrastructure applications, including MC-GSM, W-CDMA, LTE, and LTE-A.

The wide bandwidth of up to 1 GHz and the complex NCO and digital upconverter enable dual band and triple band direct RF synthesis of wireless infrastructure signals, eliminating costly analog upconverters.

Wide analog bandwidth capability combines with high dynamic range to support DOCSIS 3.1 cable infrastructure compliance from the minimum of one carrier up to 1 GHz of signal bandwidth, making it ideal for cable multiple dwelling unit (MDU) applications. A 2× interpolator filter (FIR85) enables the AD9163 to be configured for lower data rates and converter clocking to reduce the overall system power and ease the filtering requirements. In Mix-Mode™ operation, the AD9163 can reconstruct RF carriers in the second and third Nyquist zones up to 7.5 GHz while still maintaining exceptional dynamic range. The output current can be programmed from 8 mA to 38.76 mA. The AD9163 data interface consists of up to eight JESD204B serializer/deserializer (SERDES) lanes that are programmable in terms of lane speed and number of lanes to enable application flexibility.

A serial peripheral interface (SPI) configures the AD9163 and monitors the status of all the registers. The AD9163 is offered in a 169-ball, 11 mm × 11 mm, 0.8 mm pitch CSP_BGA package.

Product Highlights

1. High dynamic range and signal reconstruction bandwidth supports RF signal synthesis of up to 7.5 GHz.
2. Up to eight lanes JESD204B SERDES interface, flexible in terms of number of lanes and lane speed.
3. Bandwidth and dynamic range to meet multiband wireless communications standards with margin.

Applications

- Broadband communications systems
  - DOCSIS 3.1 cable modem termination system (CMTS)/ video on demand (VOD)/edge quadrature amplitude modulation (EQAM)
- Wireless communications infrastructure
  - MC-GSM, W-CDMA, LTE, LTE-A, point to point

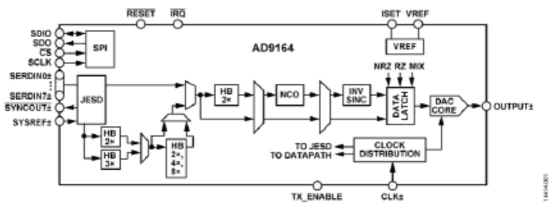
Applications

Aerospace and Defense Systems

- Aerospace and Defense Radar Systems

AD9164 16-Bit, 12 GSPS, RF DAC and Direct Digital Synthesizer

AD9164



The AD9164[1] is a high performance, 16-bit digital-to-analog converter (DAC) and direct digital synthesizer (DDS) that supports update rates to 6 GSPS. The DAC core is based on a quad-switch architecture coupled with a 2× interpolator filter that enables an effective DAC update rate of up to 12 GSPS in some modes. The high dynamic range and bandwidth makes these DACs ideally suited for the most demanding high speed radio frequency (RF) DAC applications.

The DDS consists of a bank of 32, 32-bit numerically controlled oscillators (NCOs), each with its own phase accumulator.

When combined with a 100 MHz serial peripheral interface (SPI) and fast hop modes, phase coherent fast frequency hopping (FFH) is enabled, with several modes to support multiple applications.

In baseband mode, wide analog bandwidth capability combines with high dynamic range to support DOCSIS 3.1 cable infrastructure compliance from the minimum of one carrier up to the full maximum spectrum of 1.791 GHz of signal bandwidth. A 2× interpolator filter (FIR85) enables the AD9164 to be configured for lower data rates and converter clocking to reduce the overall system power and ease the filtering requirements. In Mix-Mode™ operation, the AD9164 can reconstruct RF carriers in the second and third Nyquist zones up to 7.5 GHz while still maintaining exceptional dynamic range. The output current can be programmed from 8 mA to 38.76 mA. The AD9164 data interface consists of up to eight JESD204B serializer/deserializer (SERDES) lanes that are programmable in terms of lane speed and number of lanes to enable application flexibility.

An SPI interface configures the AD9164 and monitors the status of all registers. The AD9164 is offered in a 165-ball, 8 mm × 8 mm, 0.5 mm pitch CSP_BGA package, and a 169-ball, 11 mm × 11 mm, 0.8 mm pitch, CSP_BGA package, including a leaded ball option.

Product Highlights

1. High dynamic range and signal reconstruction bandwidth supports RF

signal synthesis of up to 7.5 GHz.

2. Up to eight lanes JESD204B SERDES interface flexible in terms of number of lanes and lane speed.
3. Bandwidth and dynamic range to meet DOCSIS 3.1 compliance and multiband wireless communications standards with margin.

Applications

- Broadband communications systems
  - DOCSIS 3.1 CMTS/ video on demand (VOD)/edge quadrature amplitude modulation (EQAM)
- Wireless communications infrastructure
  - W-CDMA, LTE, LTE-A, point to point

Applications

Aerospace and Defense Systems

- Military Communication Solutions
- Phased Array Technology
- Missiles and Precision Munitions
- Electronic Surveillance and Countermeasures
- Aerospace and Defense Radar Systems

Wireless Communication Solutions

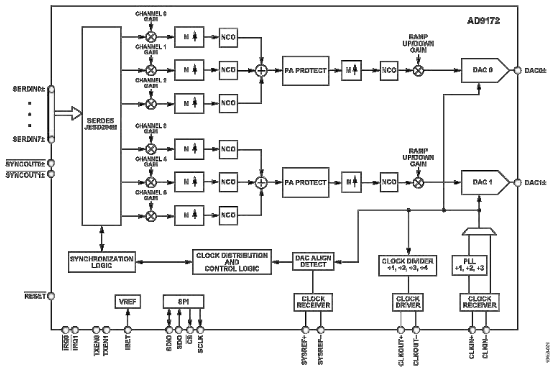
- Instrumenting 5G

Instrumentation and Measurement Solutions

- Communications Test Equipment Solutions
- Signal Generator (Audio through RF) Solutions

AD9172 Dual, 16-Bit, 12.6 GSPS RF DAC with Channelizers

AD9172



The AD9172 is a high performance, dual, 16-bit digital-to-analog converter (DAC) that supports DAC sample rates to 12.6 GSPS. The device features an 8-lane, 15 Gbps JESD204B data input port, a high performance, on-chip DAC clock multiplier, and digital signal processing capabilities targeted at single-band and multiband direct to radio frequency (RF) wireless applications.

The AD9172 features three complex data input channels per RF DAC that are bypassable. Each data input channel includes a configurable gain stage, an interpolation filter, and a channel numerically controlled oscillator (NCO) for flexible, multiband frequency planning. The device supports up to a 1.5 GSPS complex data rate per input channel and is capable of aggregating multiple complex input data streams up to a maximum complex data rate of 1.5 GSPS. Additionally, the AD9172 supports ultrawide bandwidth modes bypassing the channelizers to provide maximum data rates of up to 3.08 GSPS (with 16-bit resolution) and 4.1 GSPS (with 12-bit resolution).

The AD9172 is available in a 144-ball BGA_ED package.

PRODUCT HIGHLIGHTS

1. Supports single-band and multiband wireless applications with three bypassable complex data input channels per RF DAC at a maximum complex input data rate of 1.5 GSPS. One independent NCO per input channel.
2. Ultrawide bandwidth channel bypass modes supporting up to 3 GSPS data rates with 16-bit resolution and 4 GSPS with 12-bit resolution.
3. Low power dual converter decreases the amount of power consumption needed in high bandwidth and multichannel applications.

APPLICATIONS

- Wireless communications infrastructure
  - Multiband base station radios
  - Microwave/E-band backhaul systems
- Instrumentation, automatic test equipment (ATE)
- Radars and jammers

Applications

Wireless Communication

Solutions

- Wireless Infrastructure Solutions
- Wideband RF Signal Processing
- Instrumenting 5G

Instrumentation and Measurement Solutions

- Signal Generator (Audio through RF) Solutions
- Communications Test Equipment Solutions
- Electronic Test and Measurement Solutions

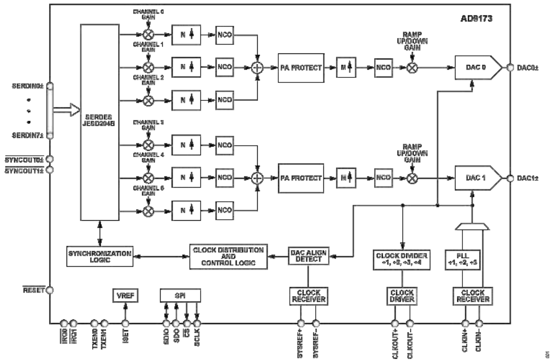
Aerospace and Defense Systems

- Phased Array Technology
- Aerospace and Defense Radar Systems
- Military Communication Solutions
- Unmanned Aerial Vehicles (UAV)
- Electronic Surveillance and Countermeasures

Radio Frequency (RF) Solutions

- Radio Frequency (RF) Solutions

AD9173



The AD9173 is a high performance, dual, 16-bit digital-to-analog converter (DAC) that supports DAC sample rates to 12.6 GSPS. The device features an 8-lane, 15.4 Gbps JESD204B data input port, a high performance, on-chip DAC clock multiplier, and digital signal processing capabilities targeted at single-band and multiband direct to radio frequency (RF) wireless applications.

The AD9173 features three complex data input channels per RF DAC that are bypassable. Each data input channel includes a configurable gain stage, an interpolation filter, and a channel numerically controlled oscillator (NCO) for flexible, multiband frequency planning. The device supports up to a 1.54 GSPS complex data rate per input channel and is capable of aggregating multiple complex input data streams up to a maximum complex data rate of 1.54 GSPS. Additionally, the AD9173 supports ultrawide bandwidth modes bypassing the channelizers to provide maximum data rates of up to 3.08 GSPS (with 11-bit resolution using 16-bit serializer/deserializer (SERDES) packing) and 3.4 GSPS (with 11-bit resolution using 12-bit SERDES packing).

The AD9173 is available in a 144-ball BGA_ED package.

APPLICATIONS

- Wireless communications infrastructure
  - Multiband base station radios

  - Microwave/E-band backhaul systems
- Instrumentation, automatic test equipment (ATE)

PRODUCT HIGHLIGHTS

1. Supports single-band and multiband wireless applications with three bypassable complex data input channels per RF DAC at a maximum complex input data rate of 1.54 GSPS with 11-bit resolution and 1.23 GSPS with 16-bit resolution. One independent NCO per input channel.
2. Ultrawide bandwidth channel bypass modes supporting up to 3.08 GSPS data rates with 11-bit resolution, 16-bit SERDES packing and 3.4 GSPS with 11-bit resolution, 12-bit SERDES packing.
3. Low power dual converter decreases the amount of power consumption needed in high bandwidth and multichannel applications.

Applications

Wireless Communication Solutions

- Wireless Infrastructure Solutions
- Software Defined Radio (SDR)

Aerospace and Defense Systems

- Electronic Surveillance and Countermeasures
- Aerospace and Defense Radar Systems
- Unmanned Aerial Vehicles (UAV)
- Military Communication Solutions

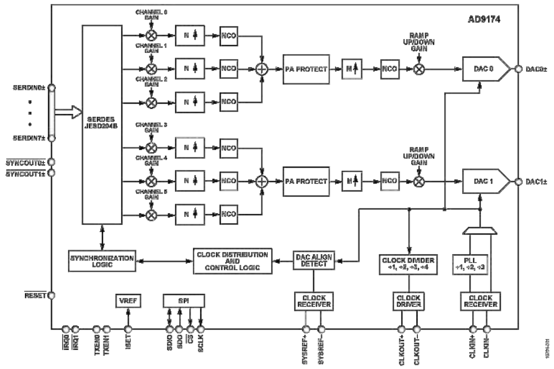
- Avionic Systems

Instrumentation and Measurement Solutions

- Signal Generator (Audio through RF) Solutions

AD9174 Dual, 16-Bit, 12.6 GSPS RF DAC and Direct Digital Synthesizer

AD9174



The AD9174 is a high performance, dual, 16-bit digital-to-analog converter (DAC) that supports DAC sample rates up to 12.6 GSPS. The device features an 8-lane, 15.4 Gbps JESD204B data input port, a high performance, on-chip DAC clock multiplier, and digital signal processing capabilities targeted at single-band and multiband direct to radio frequency (RF) wireless applications.

The AD9174 features three complex data input channels per RF DAC datapath. Each input channel is fully bypassable. Each data input channel (or channelizer) includes a configurable gain stage, an interpolation filter, and a channel numerically controlled oscillator (NCO) for flexible, multiband frequency planning. The AD9174 supports an input data rate of up to a 3.08 GSPS complex (inphase/quadrature (I/Q)), or up to 6.16 GSPS non-complex (real), and is capable of allocating multiple complex input data streams to the assigned channels for individual processing. Each group of three channelizers is summed into a respective main datapath for additional processing when needed. Each main datapath includes an interpolation filter and one 48-bit main NCO ahead of the RF DAC core. Using the modulator switch, the outputs of a main datapath can be either routed to DAC0 alone for operating as a single DAC, or routed to both DAC0 and DAC1 for operating as a dual, intermediate frequency DAC (IF DAC).

The AD9174 also supports ultrawide data rate modes that allow bypassing the channelizers and main datapaths to provide maximum data rates of up to 6.16 GSPS as a single, 16-bit DAC, up to 3.08 GSPS as a dual, 16-bit DAC, or up to 4.1 GSPS as a dual, 12-bit DAC.

Additionally, the main NCO blocks in the AD9174 contain a bank of 31, 32-bit NCOs, each with an independent phase accumulator. Combined with a 80 MHz serial peripheral interface (SPI) for programming the NCOs, this bank allows a phase coherent, fast frequency hopping (FFH) for applications where the NCO frequencies are continuously adjusted during operation.

The AD9174 is available in a 144-ball BGA_ED package.

Applications

- Wireless communications infrastructure
  - Multiband base station radios
  - Microwave/E-band backhaul systems
- Instrumentation, automatic test equipment (ATE)
- Radars and jammers

Product Highlights

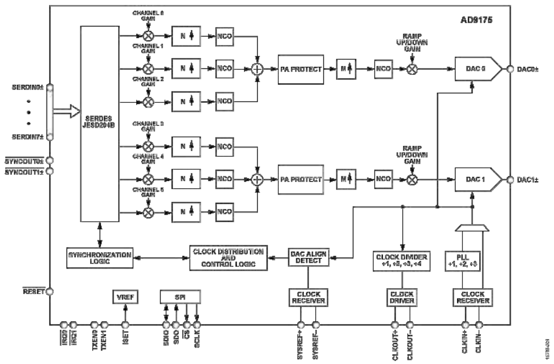
1. A low power, multichannel, dual DAC design reduces power consumption in higher bandwidth and multichannel applications, while maintaining performance.
2. Supports single-band and multiband wireless applications with three bypassable complex data channels per RF DAC, or configurations that use the two main datapaths as two wideband complex data channels when using the built in modulator switch.
3. A maximum complex data rate (per I or Q) of up to 3.08 GSPS with 16-bit resolution, and up to 4.1 GSPS with 12-bit resolution. The AD9174 can be alternatively configured as a dual DAC, with each DAC operating across an independent JESD204B link, at the previously described data rates.
4. Ultrawide bandwidth single-DAC modes, supporting up to 6.16 GSPS data rates with 16-bit resolution.

Applications

Aerospace and Defense Systems
- Military Communication Solutions

Radio Frequency (RF) Solutions
- Radio Frequency (RF) Solutions

AD9175



The AD9175 is a high performance, dual, 16-bit digital-to-analog converter (DAC) that supports DAC sample rates up to 12.6 GSPS. The device features an 8-lane, 15.4 Gbps JESD204B data input port, a high performance, on-chip DAC clock multiplier, and digital signal processing capabilities targeted at single-band and multiband direct to radio frequency (RF) wireless applications.

The AD9175 features three complex data input channels per RF DAC datapath. Each input channel is fully bypassable. Each data input channel (or channelizer) includes a configurable gain stage, an interpolation filter, and a channel numerically controlled oscillator (NCO) for flexible, multiband frequency planning. The AD9175 supports an input data rate of up to 3.08 GSPS complex (in-phase/quadrature (I/Q)), or up to 3.4 GSPS noncomplex (real), and is capable of allocating multiple complex input data streams to the assigned channels for individual processing. Each group of three channelizers is summed into a respective main datapath for additional processing when needed. Each main datapath includes an interpolation filter and one 48-bit main NCO ahead of the RF DAC core. Using the modulator switch, the outputs of a main datapath can be either routed to DAC0 alone for operating as a single DAC, or routed to both DAC0 and DAC1 for operating as a dual, intermediate frequency DAC (IF DAC).

The AD9175 also supports ultrawide data rate modes that allow bypassing the channelizers and main datapaths to provide maximum data rates of up to 3.4 GSPS as a dual, 11-bit DAC.

The AD9175 is available in a 144-ball BGA_ED package.

Applications

- Wireless communications infrastructure
  - Multiband base station radios
  - Microwave/E-band backhaul systems
- Instrumentation, automatic test equipment (ATE)
- Radars and jammers

Product Highlights

1. A low power, multichannel, dual DAC design reduces power consumption in higher bandwidth and multichannel applications, while maintaining performance.
2. Supports single-band and multiband wireless applications with three bypassable complex data channels per RF DAC, or configurations that use the two main datapaths as two wideband complex data channels when using the built in modulator switch.
3. A maximum complex data rate (per I or Q) of up to 3.08 GSPS with 11-bit resolution, and up to 1.23 GSPS with 16-bit resolution. The AD9175 can be alternatively configured as a dual DAC, with each DAC operating across an independent JESD204B link, at the previously described data rates.
4. Ultrawide bandwidth single DAC modes supporting up to 3.4 GSPS with 11-bit resolution, 12-bit SERDES packing.

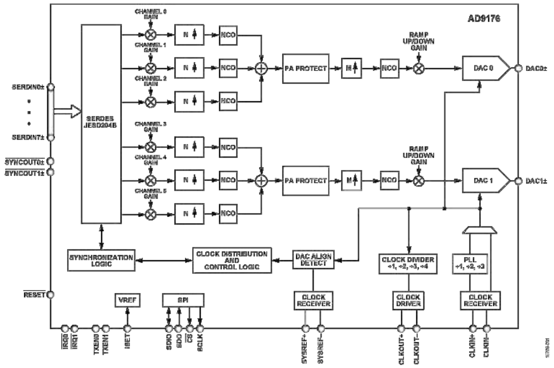
Applications

Aerospace and Defense Systems

- Military Communication Solutions

AD9176 Dual, 16-Bit, 12.6 GSPS RF DAC with Wideband Channelizers

AD9176



The AD9176 is a high performance, dual, 16-bit digital-to-analog converter (DAC) that supports DAC sample rates up to 12.6 GSPS. The device features an 8-lane, 15.4 Gbps JESD204B data input port, a high performance, on-chip DAC clock multiplier, and digital signal processing capabilities targeted at single-band and multiband direct to radio frequency (RF) wireless applications.

The AD9176 features three complex data input channels per RF DAC datapath. Each input channel is fully bypassable. Each data input channel (or channelizer) includes a configurable gain stage, an interpolation filter, and a channel numerically controlled oscillator (NCO) for flexible, multiband frequency planning. The AD9176 supports an input data rate of up to a 3.08 GSPS complex (inphase/quadrature (I/Q)), or up to 6.16 GSPS non-complex (real), and is capable of allocating multiple complex input data streams to the assigned channels for individual processing. Each group of three channelizers is summed into a respective main datapath for additional processing when needed. Each main datapath includes an interpolation filter and one 48-bit main NCO ahead of the RF DAC core. Using the modulator switch, the outputs of a main datapath can be either routed to DAC0 alone for operating as a single DAC, or routed to both DAC0 and DAC1 for operating as a dual, intermediate frequency DAC (IF DAC).

The AD9176 also supports ultrawide data rate modes that allow bypassing the channelizers and main datapaths to provide maximum data rates of up to 6.16 GSPS as a single, 16-bit DAC, up to 3.08 GSPS as a dual, 16-bit DAC, or up to 4.1 GSPS as a dual, 12-bit DAC.

The AD9176 is available in a 144-ball BGA_ED package.

Applications

- Wireless communications infrastructure
  - Multiband base station radios
  - Microwave/E-band backhaul systems
- Instrumentation, automatic test equipment (ATE)
- Radars and jammers

Product Highlights

1. A low power, multichannel, dual DAC design reduces power consumption in higher bandwidth and multichannel applications, while maintaining performance.
2. Supports single-band and multiband wireless applications with three bypassable complex data channels per RF DAC, or configurations that use the two main datapaths as two wideband complex data channels

when using the built in modulator switch.

3. A maximum complex data rate (per I or Q) of up to 3.08 GSPS with 16-bit resolution, and up to 4.1 GSPS with 12-bit resolution. The AD9176 can be alternatively configured as a dual DAC, with each DAC operating across an independent JESD204B link, at the previously described data rates.
4. Ultrawide bandwidth single-DAC modes, supporting up to 6.16 GSPS data rates with 16-bit resolution.

Applications

Aerospace and Defense Systems

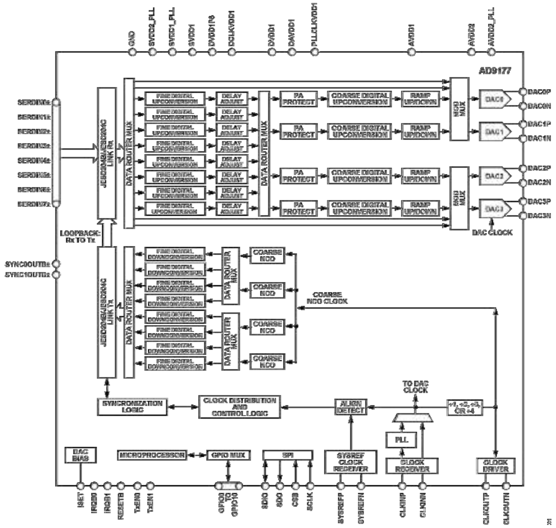
- Military Communication Solutions

Radio Frequency (RF) Solutions

- Radio Frequency (RF) Solutions

AD9177

Applications



The AD9177 is a highly integrated device with four 16-bit, 12 GSPS maximum sample rate, RF digital-to-analog converter (DAC) cores supporting up to eight baseband channels. The device is well suited for applications requiring wideband DACs to process signals of wide instantaneous bandwidth. The device features an 8-lane, 24.75 Gbps JESD204C or 15.5 Gbps JESD204B data receiver (JRx) port, an on-chip clock multiplier, and digital signal processing (DSP) datapaths capable of processing complex signals for wide-band or multiband direct to RF applications, phase array radar systems, and electronic warfare applications. The DSP datapaths can be bypassed to allow a direct connection between the data receiver port and the DAC cores.

For direct digital synthesis (DDS) applications, the AD9177 can be operated without a data receiver port to generate multiple sine wave tones of varying frequencies. The main numerically controlled oscillator (NCO) block inside each of the four course digital upconverters (DUCs) contains one 48-bit NCO and a bank of thirty one 32-bit NCOs, each with an independent phase accumulator. Similarly, the main NCO block inside each of the course and fine digital downconverters (DDCs) in the receive datapath contains a bank of sixteen 48-bit NCOs that can be looped into the transmit datapath for processing ahead of the course DUCs and DAC outputs. Combined with general-purpose input/output (GPIO) controls for frequency hopping, preconfigurable profile selection, and the ability to synchronize the NCOs to a common trigger using the SYSREF input port, this bank allows phase coherent fast frequency hopping (FFH) for applications where multiple devices are synchronized or where NCO frequencies are continuously adjusted during operation.

APPLICATIONS

- Wireless communications infrastructure
- Microwave point-to-point, E-band, and 5G mm wave
- Broadband communications systems
- DOCSIS 3.1 and 4.0 CMTS
- Phased array radar and electronic warfare
- Electronic test and measurement systems

Aerospace and Defense Systems

- Military Communication Solutions

RF & Microwave

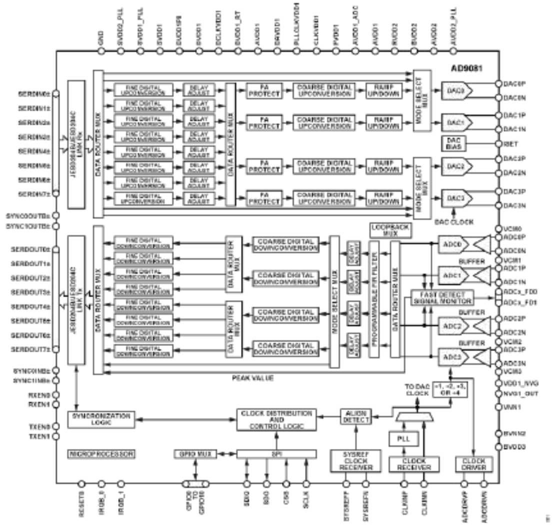
AD9081	MxFE™ Quad, 16-Bit, 12GSPS RFDAC and Quad, 12-Bit, 4GSPS RFADC

AD9081

Applications

Aerospace and Defense Systems

- Aircraft Communication Systems



The AD9081 mixed signal front end (MxFE®) is a highly integrated device with four 16-bit, 12 GSPS maximum sample rate, RF digital-to-analog converter (DAC) cores, and four 12-bit, 4 GSPS rate, RF analog-to-digital converter (ADC) cores. The AD9081 is well suited for applications requiring both wideband ADCs and DACs to process signal(s) that have wide instantaneous bandwidth. The device features eight transmit and eight receive lanes that support 24.75 Gbps/lane JESD204C or 15.5 Gbps/lane JESD204B standards. The device also has an on-chip clock multiplier, and a digital signal processing (DSP) capability targeted at either wideband or multiband direct to RF applications. The DSP datapaths can be bypassed to allow a direct connection between the converter cores and the JESD204 data transceiver port. The device also features low latency loopback and frequency hopping modes targeted at phase array radar system and electronic warfare applications. Two models for the AD9081 are offered. The 4D4AC model supports the full instantaneous channel bandwidth, whereas the 4D4AB model supports a maximum instantaneous bandwidth of 600 MHz per channel by automatically configuring the DSP to limit the instantaneous bandwidth at startup.

APPLICATIONS

- Wireless communications infrastructure
- Microwave point-to-point, E-band and 5G mmWave
- Broadband communications systems
- DOCSIS 3.1 and 4.0 CMTS
- Phased array radar and electronic warfare
- Electronic test and measurement systems

- Avionic Systems

- Missiles and Precision Munitions
- Aerospace and Defense Radar Systems
- Phased Array Technology
- Military Communication Solutions
- Electronic Surveillance and Countermeasures

Wireless Communication Solutions

- mmWave Communication Solutions
- Instrumenting 5G
- Software Defined Radio (SDR)
- Wideband RF Signal Processing
- Wireless Infrastructure Solutions

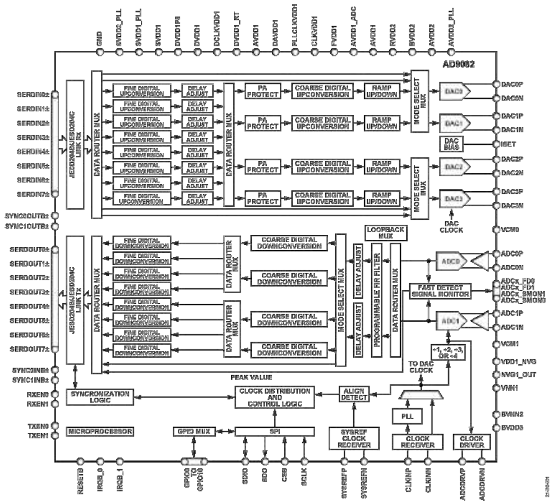
Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions
- Data Acquisition Solutions
- Electronic Test and Measurement Solutions

Radio Frequency (RF) Solutions

- Radio Frequency (RF) Solutions

AD9082



The AD9082 mixed signal front-end (MxFE®) is a highly integrated device with a 16-bit, 12 GSPS maximum sample rate, RF digital-to-analog converter (DAC) core, and 12-bit, 6 GSPS maximum sample rate, RF analog-to-digital converter (ADC) cores. The AD9082 is well suited for applications requiring both wideband ADCs and DACs to process signal(s) having wide instantaneous bandwidth. The device features eight transmit lanes and eight receive lanes that support 24.75 Gbps/lane JESD204C or 15.5 Gbps/lane JESD204B standards. The device also has an on-chip clock multiplier and digital signal processing (DSP) capability targeted at either wideband or multiband, direct to RF applications. The DSP datapaths can be bypassed to allow a direct connection between the converter cores and the JESD204B/C data transceiver port. The device also features low latency loopback, frequency hopping modes, and datapath multiplexer (mux) configurations useful for phase array radar system and electronic warfare applications. Two models for the AD9082 are offered. The 4D2AC model supports four DACs and two ADCs. The 2D2AC model supports two DACs and two ADCs.

APPLICATIONS

- Wireless communications infrastructure
- Microwave point-to-point, E-band and 5G mmWave
- Broadband communications systems
- DOCSIS 3.1 and 4.0 CMTS

- Phased array radar and electronic warfare
- Electronic test and measurement systems

Applications

Aerospace and Defense Systems

- Missiles and Precision Munitions
- Aerospace and Defense Radar Systems
- Phased Array Technology
- Military Communication Solutions
- Electronic Surveillance and Countermeasures

Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions
- Data Acquisition Solutions
- Electronic Test and Measurement Solutions

Wireless Communication Solutions

- Instrumenting 5G
- Wireless Infrastructure Solutions
- Wideband RF Signal Processing
- Software Defined Radio (SDR)

Gigabit Multimedia Serial Link (GMSL) Technology

- Gigabit Multimedia Serial Link (GMSL) Solutions

Radio Frequency (RF) Solutions

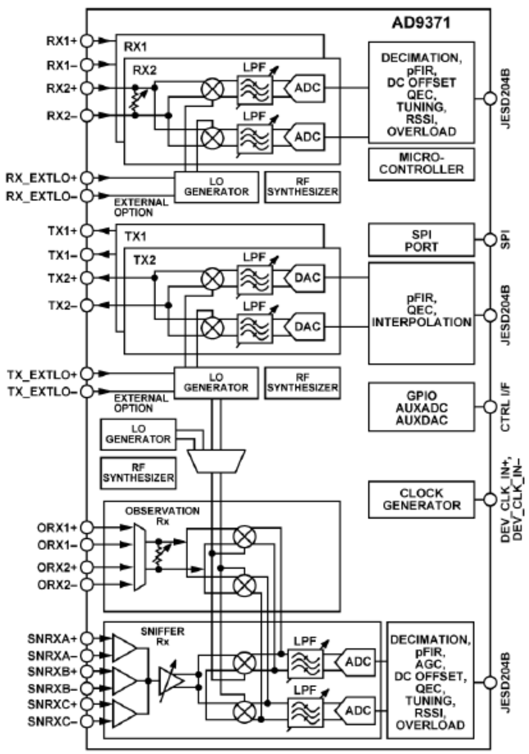
- Radio Frequency (RF) Solutions

AD9371

Applications

Aerospace and Defense Systems

- Missiles and Precision Munitions
- Avionic Systems
- Phased Array Technology
- Military Communication Solutions
- Unmanned Aerial Vehicles (UAV)
- Electronic Surveillance and Countermeasures



NOTES
1. FOR JESD204B PINS, SEE FIGURE 4.

The AD9371 is a highly integrated, wideband RF transceiver offering dual channel transmitters and receivers, integrated synthesizers, and digital signal processing functions. The IC delivers a versatile combination of high performance and low power consumption required by 3G/4G micro and macro BTS equipment in both FDD and TDD applications. The AD9371 operates from 300 MHz to 6000 MHz, covering most of the licensed and unlicensed cellular bands. The IC supports receiver bandwidths up to 100 MHz. It also supports observation receiver and transmit synthesis bandwidths up to 250 MHz to accommodate digital correction algorithms.

The transceiver consists of wideband direct conversion signal paths with state-of-the-art noise figure and linearity. Each complete receiver and transmitter subsystem includes dc offset correction, quadrature error correction (QEC), and programmable digital filters, eliminating the need for these functions in the digital baseband. Several auxiliary functions such as an auxiliary analog- to-digital converter (ADC), auxiliary digital-to-analog converters (DACs), and general-purpose input/outputs (GPIOs) are integrated to provide additional monitoring and control capability.

An observation receiver channel with two inputs is included to monitor each transmitter output and implement interference mitigation and calibration applications. This channel also connects to three sniffer receiver inputs that can monitor radio activity in different bands.

The high speed JESD204B interface supports lane rates up to 6144 Mbps. Four lanes are dedicated to the transmitters and four lanes are dedicated to the receiver and observation receiver channels.

The fully integrated phase-locked loops (PLLs) provide high performance, low power fractional-N frequency synthesis for the transmitter, the receiver, the observation receiver, and the clock sections. Careful design and layout techniques provide the isolation demanded in high performance base station applications. All voltage controlled oscillator (VCO) and loop filter components are integrated to minimize the external component count.

A 1.3 V supply is required to power the core of the AD9371, and a standard 4-wire serial port controls it. Other voltage supplies provide proper digital interface levels and optimize transmitter and auxiliary converter performance. The AD9371 is packaged in a 12 mm × 12 mm, 196-ball chip scale ball grid array (CSP_BGA).

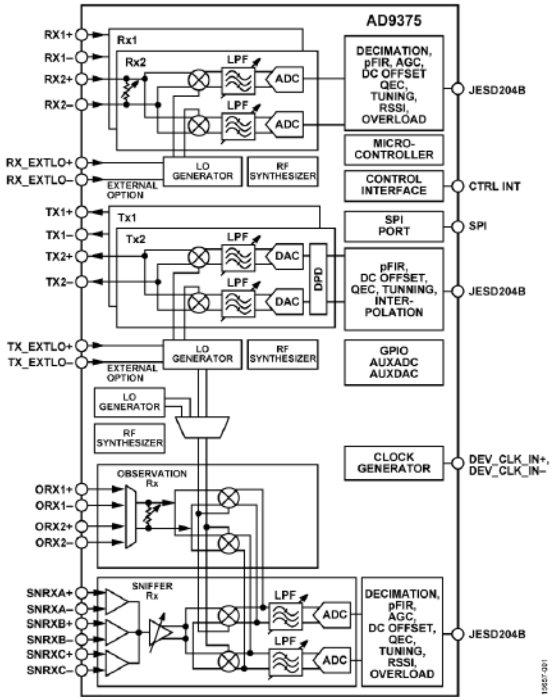
Applications

- 3G/4G micro and macro base stations (BTS)
- 3G/4G multicarrier picocells
- FDD and TDD active antenna systems
- Microwave, nonline of sight (NLOS) backhaul systems

Instrumentation and Measurement Solutions

- Signal Generator (Audio through RF) Solutions
- Communications Test Equipment Solutions
- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions

AD9375



The AD9375 is a highly integrated, wideband radio frequency (RF) transceiver offering dual-channel transmitters (Tx) and receivers (Rx), integrated synthesizers, a fully integrated digital predistortion (DPD) actuator and adaptation engine, and digital signal processing functions. The IC delivers a versatile combination of high performance and low power consumption required by 3G/4G small cell and massive multiple input, multiple output (MIMO) equipment in both frequency division duplex (FDD) and time division duplex (TDD) applications. The AD9375 operates from 300 MHz to 6000 MHz, covering most of the licensed and unlicensed cellular bands. The DPD algorithm supports linearization on signal bandwidths up to 40 MHz depending on the power amplifier (PA) characteristics (for example, two adjacent 20 MHz carriers). The IC supports Rx bandwidths up to 100 MHz. It also supports observation receiver (ORx) and Tx synthesis bandwidths up to 250 MHz to accommodate digital correction algorithms.

The transceiver consists of wideband direct conversion signal paths with state-of-the-art noise figure and linearity. Each complete Rx and Tx subsystem includes dc offset correction, quadrature error correction (QEC), and programmable digital filters, eliminating the need for these functions in the digital baseband. Several auxiliary functions such as an auxiliary analog-to-digital converter (ADC), auxiliary digital-to-analog converters (DACs), and general-purpose input/outputs (GPIOs) are integrated to provide additional monitoring and control capability.

An ORx channel with two inputs is included to monitor each Tx output and implement calibration applications. This channel also connects to three sniffer receiver (SnRx) inputs that can monitor radio activity in different bands.

The high speed JESD204B interface supports lane rates up to 6144 Mbps. Four lanes are dedicated to the transmitters and four lanes are dedicated to the receiver and observation receiver channels.

The fully integrated phase-locked loops (PLLs) provide high performance, low power, fractional-N frequency synthesis for the Tx, the Rx, the ORx, and the clock sections. Careful design and layout techniques provide the isolation demanded in high performance base station applications. All voltage controlled oscillator (VCO) and loop filter components are integrated to minimize the external component count.

The device contains a fully integrated, low power DPD actuator and adaptation engine for use in PA linearization. The DPD feature enables use of high efficiency PAs, significantly reducing the power consumption of small cell base station radios while also reducing the number of JESD204B lanes necessary to interface with baseband processors.

A 1.3 V supply is required to power the AD9375 core, and a standard 4-wire serial port controls it. Other voltage supplies provide proper digital interface levels and optimize transmitter and auxiliary converter performance. The AD9375 is packaged in a 12 mm × 12 mm, 196-ball chip scale ball grid array (CSP_BGA).

Applications

- 3G/4G small cell base stations (BTS)

- 3G/4G massive MIMO/active antenna systems

Applications

Aerospace and Defense Systems

- Avionic Systems
- Phased Array Technology
- Phased Array Solutions

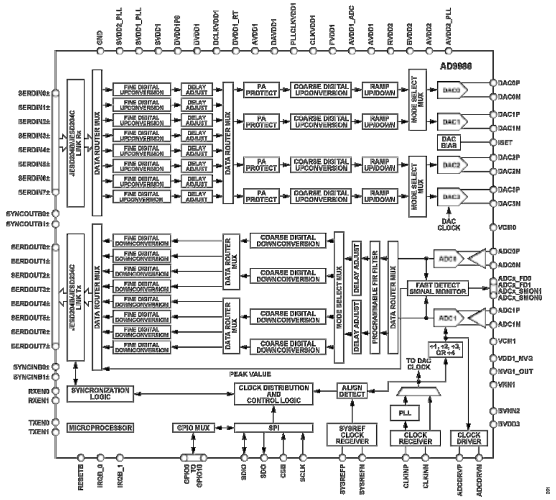
Wireless Communication Solutions

- Wireless Infrastructure Solutions

AD9986

Applications

Wireless Communication Solutions



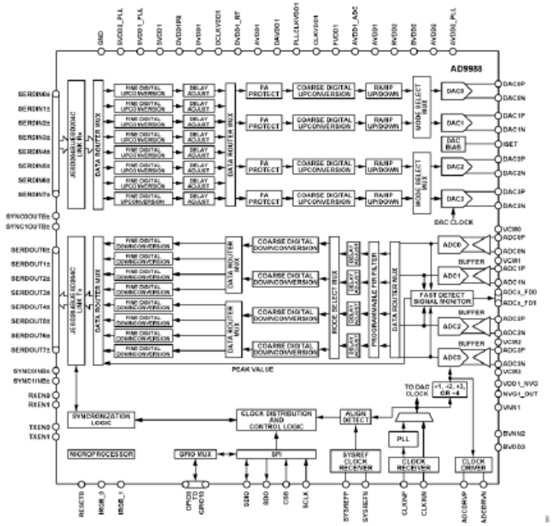
The AD9986 is a highly integrated device with a 16-bit, 12 GSPS maximum sample rate RF DAC core, and a 12-bit, 6 GSPS rate RF ADC core. The AD9986 supports four transmitter channels and two receiver channels with four transmitter, two receiver (4T2R) configuration. The AD9986 is well suited for 2-antenna and 4-antenna transmitter applications requiring a wide bandwidth observation receiver path for the digital predistortion. The AD9986 supports up to a 6 GSPS complex transmit and receive data rate in single channel mode. The maximum radio channel bandwidth supported is 1.2 GHz and 2.4 GHz for the transmit and receive paths, respectively (4T2R). The AD9986 features a 16 lane, 24.75 Gbps JESD204C or 15.5 Gbps JESD204B serial data port, an on-chip clock multiplier, and digital signal processing capability targeted at multiband, direct-to-RF radio applications.

APPLICATIONS

- Wireless communications infrastructure
- W-CDMA, LTE, LTE-A, Massive-MIMO
- Microwave point-to-point, E-band, and 5G mm Wave
- Broadband communications systems
- DOCSIS 3.1 and 4.0 CMTS
- Communications test and measurement system

- E-Band Radio
- mmWave Communication Solutions
- Software Defined Radio (SDR)
- Wideband RF Signal Processing
- Wireless Infrastructure Solutions

AD9988



The AD9988 is a highly integrated device with four 16-bit, 12 GSPS maximum sample rate, RF digital-to-analog converter (DAC) cores, and four 12-bit, 4 GSPS rate, RF analog-to-digital converter (ADC) cores. The device supports four transmitter channels and four receiver channels with a 4T4R configuration. This product is well suited for four-antenna TDD transmitter applications, where the receiver path can be shared between receiver and observation modes. The GPIO pins can be configured and toggled to support different user modes, while phase coherency is maintained. The maximum radio channel bandwidth supported is 1.2 GHz in a 4T4R configuration and a sample resolution of 16 bits. The AD9988 features a 16-lane 24.75 Gbps JESD204C or 15.5 Gbps JESD204B serial data port that allows up to eight lanes per transmit/receive link, an on-chip clock multiplier, and digital signal processing capability targeted at multiband direct to RF radio applications.

APPLICATIONS

- Wireless communications infrastructure
- W-CDMA, LTE, LTE-A, massive multiple input multiple output (MIMO)
- Point to point microwave, E-band, and 5G mmWave
- Broadband communications systems

- DOCSIS 3.0+ cable modem termination system (CMTS)
- Communication test and measurement systems

Applications

Wireless Communication Solutions

- mmWave Communication Solutions
- Software Defined Radio (SDR)
- Wideband RF Signal Processing
- Wireless Infrastructure Solutions

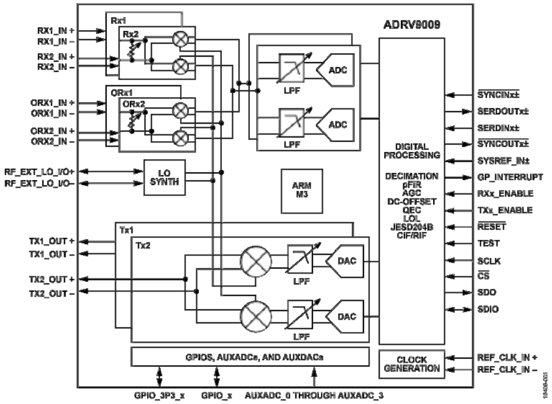
ADRV9009 Integrated Dual RF Tx, Rx, and Observation Rx

ADRV9009

Applications

Aerospace and Defense Systems

- Avionic Systems
- Missiles and Precision Munitions



The ADRV9009 is a highly integrated, radio frequency (RF), agile transceiver offering dual transmitters and receivers, integrated synthesizers, and digital signal processing functions. The IC delivers a versatile combination of high performance and low power consumption demanded by 3G, 4G, and 5G macro cell time division duplex (TDD) base station applications.

The receive path consists of two independent, wide bandwidth, direct conversion receivers with state-of-the-art dynamic range. The device also supports a wide bandwidth, time shared observation path receiver (ORx) for use in TDD applications. The complete receive subsystem includes automatic and manual attenuation control, dc offset correction, quadrature error correction (QEC), and digital filtering, thus eliminating the need for these functions in the digital baseband. Several auxiliary functions, such as analog-to-digital converters (ADCs), digital-to-analog converters (DACs), and general-purpose inputs/outputs (GPIOs) for the power amplifier (PA), and RF front-end control are also integrated.

In addition to automatic gain control (AGC), the ADRV9009 also features flexible external gain control modes, allowing significant flexibility in setting system level gain dynamically.

The received signals are digitized with a set of four high dynamic range, continuous time Σ-Δ ADCs that provide inherent antialiasing. The combination of the direct conversion architecture, which does not suffer from out of band image mixing, and the lack of aliasing, relaxes the requirements of the RF filters when compared to traditional intermediate frequency (IF) receivers.

The transmitters use an innovative direct conversion modulator that achieves high modulation accuracy with exceptionally low noise.

The observation receiver path consists of a wide bandwidth, direct conversion receiver with state-of-the-art dynamic range.

The fully integrated phase-locked loop (PLL) provides high performance, low power, fractional-N RF frequency synthesis for the transmitter (Tx) and receiver (Rx) signal paths. An additional synthesizer generates the clocks needed for the converters, digital circuits, and the serial interface. A multichip synchronization mechanism synchronizes the phase of the RF local oscillator (LO) and baseband clocks between multiple ADRV9009 chips. Precautions are taken to provide the isolation required in high performance base station applications. All voltage controlled oscillators (VCOs) and loop filter components are integrated.

The high speed JESD204B interface supports up to 12.288 Gbps lane rates, resulting in two lanes per transmitter and a single lane per receiver in the widest bandwidth mode. The interface also supports interleaved mode for lower bandwidths, thus reducing the total number of high speed data interface lanes to one. Both fixed and floating point data formats are supported. The floating point format allows internal AGC to be invisible to the demodulator device.

The core of the ADRV9009 can be powered directly from 1.3 V regulators and 1.8 V regulators, and is controlled via a standard 4-wire serial port. Comprehensive power-down modes are included to minimize power consumption in normal use. The ADRV9009 is packaged in a 12 mm × 12 mm, 196-ball chip scale ball grid array (CSP_BGA).

Applications

- 3G, 4G, and 5G TDD macrocell base stations
- TDD active antenna systems
- Massive multiple input, multiple output (MIMO)

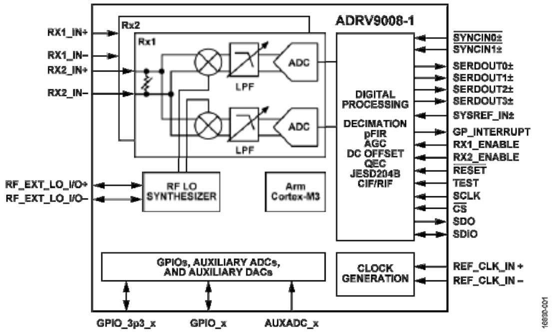
- Phased array radar
- Electronic warfare
- Military communications
- Portable test equipment

- Electronic Surveillance and Countermeasures
- Unmanned Aerial Vehicles (UAV)
- Military Communication Solutions
- Phased Array Technology
- Missiles and Precision Munitions Solutions

Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions
- Communications Test Equipment Solutions
- Signal Generator (Audio through RF) Solutions

ADRV9008-1



The receive path consists of two independent, wide bandwidth (BW), direct conversion receivers with state-of-the-art dynamic range. The complete receive subsystem includes automatic and manual attenuation control, dc offset correction, quadrature error correction (QEC), and digital filtering, eliminating the need for these functions in the digital baseband. RF front-end control and several auxiliary functions such as analog-to-digital converters (ADCs), digital-to-analog converters (DACs), and general-purpose input/outputs (GPIOs) for the power amplifier (PA) are also integrated.

In addition to automatic gain control (AGC), the ADRV9008-1 also features flexible external gain control modes, allowing significant flexibility in setting system level gain dynamically.

The received signals are digitized with a set of four high dynamic range, continuous time, sigma-delta (Σ-Δ) ADCs that provide inherent antialiasing. The combination of the direct conversion architecture, which does not suffer from out of band image mixing, and the lack of aliasing relaxes the requirements of the RF filters compared to traditional intermediate frequency (IF) receivers.

The fully integrated phase-locked loop (PLL) provides high performance, low power, fractional-N, RF synthesis for the receiver signal paths. An additional synthesizer generates the clocks needed for the converters, digital circuits, and the serial interface. A multi-chip synchronization mechanism synchronizes the phase of the RF local oscillator (LO) and baseband clocks between multiple ADRV9008-1 chips. Precautions are taken to provide the isolation required in high performance base station applications. All voltage controlled oscillators (VCOs) and loop filter components are integrated.

The high speed JESD204B interface supports up to 12.288 Gbps lane rates, resulting in two lanes per transmitter and a single lane per receiver in the widest bandwidth mode. The interface also supports interleaved mode for lower bandwidths, reducing the total number of high speed data interface lanes to one. Both fixed and floating point data formats are supported. The floating point format allows internal AGC to be invisible to the demodulator device.

The core of the ADRV9008-1 can be powered directly from 1.3 V and 1.8 V regulators and is controlled via a standard 4-wire serial port. Comprehensive power-down modes are included to mini-mize power consumption during normal use. The ADRV9008-1 is packaged in a 12 mm × 12 mm, 196-ball chip scale ball grid array (CSP_BGA).

Applications

- 3G, 4G, and 5G FDD, macrocell base stations
- Wide band active antenna systems
- Massive multiple input, multiple output (MIMO)
- Phased array radar
- Electronic warfare
- Military communications
- Portable test equipment

Applications

Aerospace and Defense Systems

- Avionic Systems

- Electronic Surveillance and Countermeasures
- Unmanned Aerial Vehicles (UAV)
- Military Communication Solutions
- Phased Array Technology

Instrumentation and Measurement Solutions

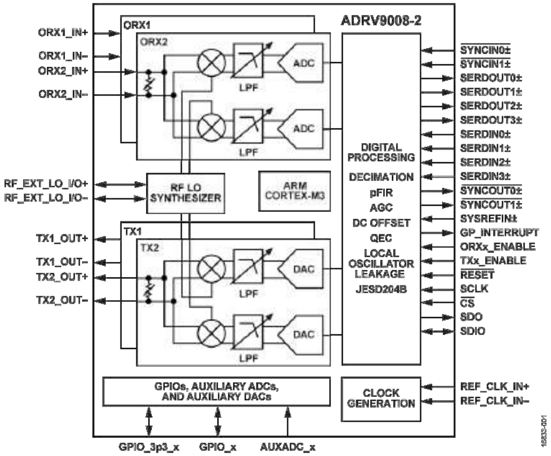
- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions
- Communications Test Equipment Solutions
- Signal Generator (Audio through RF) Solutions

ADRV9008-2

Applications

Aerospace and Defense Systems

- Avionic Systems



The ADRV9008-2 is a highly integrated, RF agile transmit subsystem offering dual channel transmitters, observation path receiver, integrated synthesizers, and digital signal processing functions. The IC delivers a versatile combination of high performance and low power consumption demanded by 2G, 3G and 4G macro-cell base stations, and active antenna, applications.

The transmitters use an innovative direct conversion modulator that achieves multi-carrier macro-base-station quality performance and very low power. In 3G/4G mode, the maximum large-signal bandwidth is 200MHz. In MC-GSM mode, which has higher in-band SFDR, the maximum large-signal bandwidth is 75MHz.

The observation path consists of a wide bandwidth direct-conversion receiver with state-of-the-art dynamic range. The complete receive subsystem includes dc offset correction, quadrature correction, and digital filtering thus eliminating the need for these functions in the digital baseband. Several auxiliary functions such as ADCs, DACs, and GPIOs for PA and RF-front-end control are also integrated.

The fully integrated phase locked loops (PLLs) provide high performance, low power fractional-N RF frequency synthesis for the transmitter and receiver sections. An additional synthesizer is used to generate the clocks needed for the converters, digital circuits, and the serial interface. Special precautions have been taken to provide the isolation demanded in high performance base station applications. All VCO and loop filter components are integrated.

The high-speed JESD204B interface supports up to 12.288 Gbps lane rates resulting in two lanes per transmitter in the widest bandwidth mode and two lanes for the observation path receiver in the widest bandwidth mode.

The core of the ADRV9008-2 can be powered directly from 1.3 V and 1.8 V regulators and is controlled via a standard 4 wire serial port. Comprehensive power-down modes are included to minimize power consumption in normal use. The ADRV9008-2 is packaged in a 12mm × 12 mm, 196-ball chip scale ball grid array (CSP_BGA).

- Electronic Surveillance and Countermeasures
- Unmanned Aerial Vehicles (UAV)
- Military Communication Solutions
- Phased Array Technology

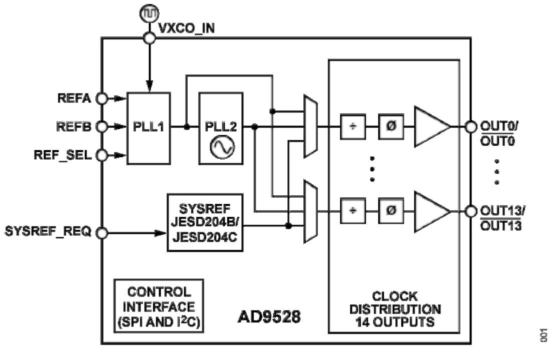
Instrumentation and Measurement Solutions

- Radio Frequency (RF) Signal and Vector Network Analyzer Solutions
- Communications Test Equipment Solutions
- Signal Generator (Audio through RF) Solutions

Clock & Timing

AD9528 JESD204B/JESD204C Clock Generator with 14 LVDS/HSTL Outputs

AD9528



The AD9528 is a two-stage PLL with an integrated JESD204B/JESD204C SYSREF generator for multiple device synchronization. The first stage phase-locked loop (PLL) (PLL1) provides input reference conditioning by reducing the jitter present on a system clock. The second stage PLL (PLL2) provides high frequency clocks that achieve low integrated jitter as well as low broadband noise from the clock output drivers. The external VCXO provides the low noise reference required by PLL2 to achieve the restrictive phase noise and jitter requirements necessary to achieve acceptable performance. The on-chip VCO tunes from 3.450 GHz to 4.025 GHz. The integrated SYSREF generator outputs single shot, N-shot, or continuous signals synchronous to the PLL1 and PLL2 outputs to time align multiple devices.

The AD9528 generates six outputs (Output 0 to Output 3, Output 12, and Output 13) with a maximum frequency of 1.25 GHz, and eight outputs with a maximum frequency of up to 1 GHz. Each output can be configured to output directly from PLL1, PLL2, or the internal SYSREF generator. Each of the 14 output channels contains a divider with coarse digital phase adjustment and an analog fine phase delay block that allows complete flexibility in timing alignment across all 14 outputs. The AD9528 can also be used as a dual input flexible buffer to distribute 14 device clock and/or SYSREF signals. At power-up, the AD9528 sends the VCXO signal directly to Output 12 and Output 13 to serve as the power-up ready clocks.

Applications

- High performance wireless transceivers
- LTE and multicarrier GSM base stations
- Wireless and broadband infrastructure
- Medical instrumentation
- Clocking high speed ADCs, DACs, DDSs, DDCs, DUCs, MxFEs; supports JESD204B/JESD204C
- Low jitter, low phase noise clock distribution
- ATE and high performance instrumentation

Applications

Aerospace and Defense Systems

- mmWave Sensing and Imaging
- Military Communication Solutions
- Missiles and Precision Munitions
- Phased Array Technology
- Electronic Surveillance and Countermeasures

Wireless Communication Solutions

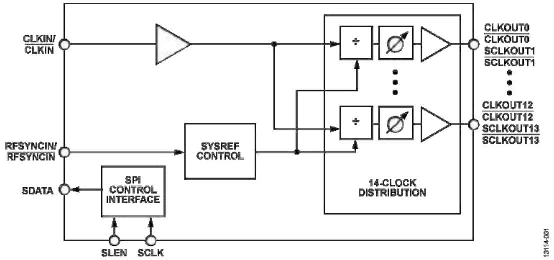
- Wireless Infrastructure Solutions

Healthcare Solutions

- Ultrasound Solutions

HMC7043	High Performance, 3.2 GHz, 14-Output Fanout Buffer with JESD204B/JESD204C

HMC7043



The HMC7043 is designed to meet the requirements of multicarrier GSM and LTE base station designs, and offers a wide range of clock management and distribution features to simplify baseband and radio card clock tree designs.

The HMC7043 provides 14 low noise and configurable outputs to offer flexibility in interfacing with many different components in a base transceiver station (BTS) system, such as data converters, local oscillators, transmit/receive modules, field programmable gate arrays (FPGAs), and digital front-end ASICs. The HMC7043 can generate up to seven DCLK and SYSREF clock pairs per the JESD204B/JESD204C interface requirements.

The system designer can generate a lower number of DCLK and SYSREF pairs, and configure the remaining output signal paths for independent phase and frequency. Both the DCLK and SYSREF clock outputs can be configured to support different signaling standards, including CML, LVDS, LVPECL, and LVCMOS, and different bias conditions to adjust for varying board insertion losses.

One of the unique features of the HMC7043 is the independent flexible phase management of each of the 14 channels. All 14 channels feature both frequency and phase adjustment. The outputs can also be programmed for 50 Ω or 100 Ω internal and external termination options.

The HMC7043 device features an RF SYNC feature that synchronizes multiple HMC7043 devices deterministically, that is, ensures that all clock outputs start with the same edge. This operation is achieved by rephrasing the nested HMC7043 or SYSREF control unit/divider, deterministically, and then restarting the output dividers with this new phase.

The HMC7043 is offered in a 48-lead, 7 mm × 7 mm LFCSP package with an exposed pad connected to ground.

Applications

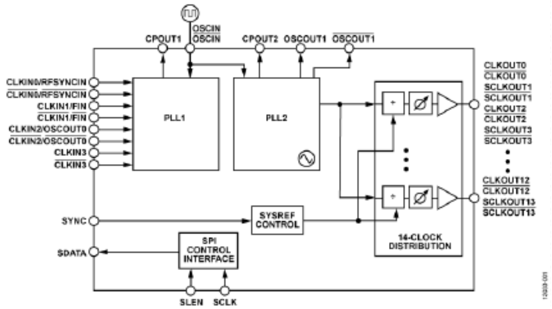
- JESD204B/JESD204C clock generation
- Cellular infrastructure (multicarrier GSM, LTE, W-CDMA)
- Data converter clocking
- Phase array reference distribution
- Microwave baseband cards

Applications

Aerospace and Defense Systems

- Missiles and Precision Munitions
- Phased Array Technology
- Aerospace and Defense Radar Systems
- Electronic Surveillance and Countermeasures

HMC7044



The HMC7044 is a high performance, dual-loop, integer-N jitter attenuator capable of performing reference selection and generation of ultralow phase noise frequencies for high speed data converters with either parallel or serial (JESD204B type) interfaces. The HMC7044 features two integer mode PLLs and overlapping on-chip VCOs that are SPI-selectable with wide tuning ranges around 2.5 GHz and 3 GHz, respectively. The device is designed to meet the requirements of GSM and LTE base station designs, and offers a wide range of clock management and distribution features to simplify baseband and radio card clock tree designs. The HMC7044 provides 14 low noise and configurable outputs to offer flexibility in interfacing with many different components including data converters, field-programmable gate arrays (FPGAs), and mixer local oscillators (LOs).

The DCLK and SYSREF clock outputs of the HMC7044 can be configured to support signaling standards, such as CML, LVDS, LVPECL, and LVCMOS, and different bias settings to offset varying board insertion losses.

Applications

- JESD204B clock generation
- Cellular infrastructure (multicarrier GSM, LTE, W-CDMA)
- Data converter clocking

- Microwave baseband cards
- Phase array reference distribution

Applications

Aerospace and Defense Systems

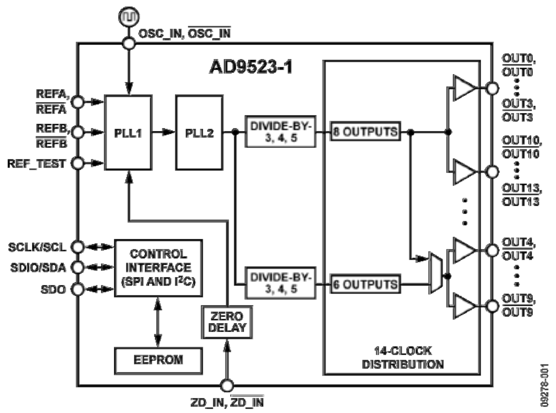
- Missiles and Precision Munitions
- Phased Array Technology
- Aerospace and Defense Radar Systems
- Electronic Surveillance and Countermeasures
- Military Communication Solutions

Wireless Communication Solutions

- Wireless Infrastructure Solutions

AD9523-1 Low Jitter Clock Generator with 14 LVPECL/LVDS/HSTL/29 LVCMOS Outputs

AD9523-1



The AD9523-1 provides a low power, multi-output, clock distribution function with low jitter performance, along with an on-chip PLL and VCO with two VCO dividers. The on-chip VCO tunes from 2.94 GHz to 3.1 GHz.

The AD9523-1 is designed to support the clock requirements for long term evolution (LTE) and multicarrier GSM base station designs. It relies on an external VCXO to provide the reference jitter cleanup to achieve the restrictive low phase noise requirements necessary for acceptable data converter SNR performance.

The input receivers, oscillator, and zero delay receiver provide both single-ended and differential operation. When connected to a recovered system reference clock and a VCXO, the device generates 14 low noise outputs with a range of 1 MHz to 1 GHz, and one dedicated buffered output from the input PLL (PLL1). The frequency and phase of one clock output relative to another clock output can be varied by means of a divider phase select function that serves as a jitter-free, coarse timing adjustment in increments that are equal to half the period of the signal coming out of the VCO.

An in-package EEPROM can be programmed through the serial interface to store user-defined register settings for power-up and chip reset.

APPLICATIONS

- LTE and multicarrier GSM base stations
- Wireless and broadband infrastructure
- Medical instrumentation
- Clocking high speed ADCs, DACs, DDSs, DDCs, DUCs, MxFEs
- Low jitter, low phase noise clock distribution

- Clock generation and translation for SONET, 10Ge, 10G FC, and other 10 Gbps protocols
- Forward error correction (G.710)
- High performance wireless transceivers
- ATE and high performance instrumentation

Applications

Wireless Communication Solutions

- Wireless Infrastructure Solutions

Healthcare Solutions

- Ultrasound Solutions

Motor and Motion Control Software

Regardless of your MCU and programming style, Analog Devices offers an extensive set of tools to set up and fine-tune their products. Ranging from the free and intuitive integrated development environment to CANopen tools to the technology access package including the ADI Trinamic™ API, ADI offers everything you need to integrate industry-leading solutions into your own firmware project.

Landungsbrücke Eval System

Modular evaluation system. Get started with your design with the Landungsbrücke evaluation kit and choose from a variety of motor and motion control evaluation boards.

TMCL-IDE

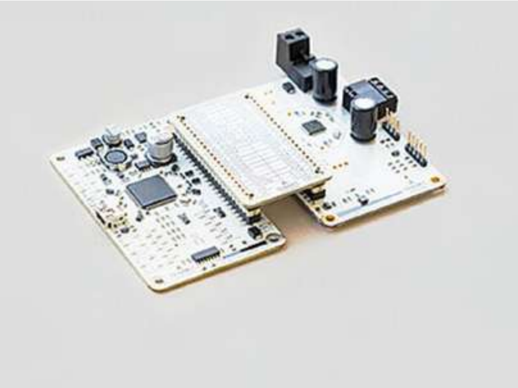
TMC Tech Access Package

Speed up firmware development. Part of the ADI Trinamic technology access package, or TTAP, ADI Trinamic API supports your firmware development and quick integration of chip-level solutions.

Landungsbrücke Eval System

The Most Advanced Motion Control Is As Easy As 1-2-3

Whatever your application, start your design easily using ADI Trinamic™ toolkits that shorten design cycles and improve product experience. Each evaluation kit gives you direct access to all registers using the ADI Trinamic software, allowing you to develop your own firmware.

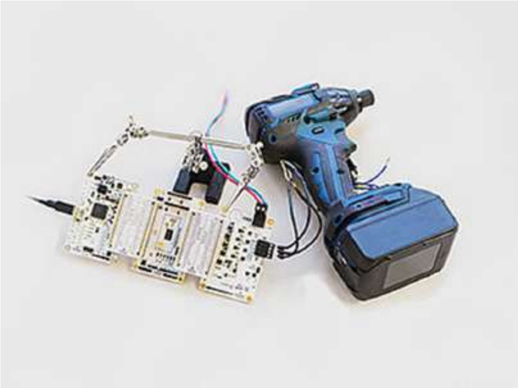


Start with the Landungsbrücke

Depending on the kit of your choice, the Landungsbrücke or Startrampe interface board forms the bridge between your PC and ADI Trinamic powerful ICs.

Connect the Evaluation Board

Connect the preferred evaluation board with the interface board using the Eselsbrücke connector board. You can even link a few evaluation boards together!



Discover Powerful Technologies

Explore the full potential of ADI Trinamic solutions using the free TMCL-IDE software. This GUI allows for easy programming and features ready-to-use code libraries.

Open-Source Hardware Designs

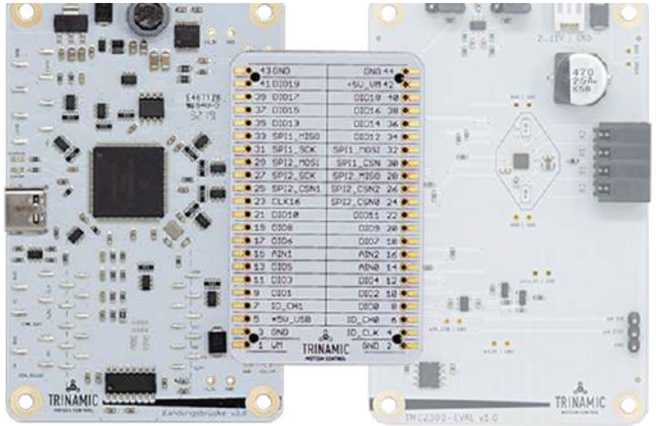
All ADI Trinamic evaluation boards and breakout boards are proven, open-source designs, including the interface board. Simply download files for a quick design-in and your prototype will be ready in no time. Embedding the ADI Trinamic reference design in commercial products does not require you to disclose or open source your own design.

Free Graphical User Interface

The ADI Trinamic free and easy to use graphical user interface (GUI) is perfect for developing stand-alone TMCL™ applications. The flexible integrated development environment supports the use of commands in direct mode, monitors real-time behavior visualized in graphs, as well as logs and stores data. All settings can quickly be exported for your own firmware project.

Interface and Connector Boards

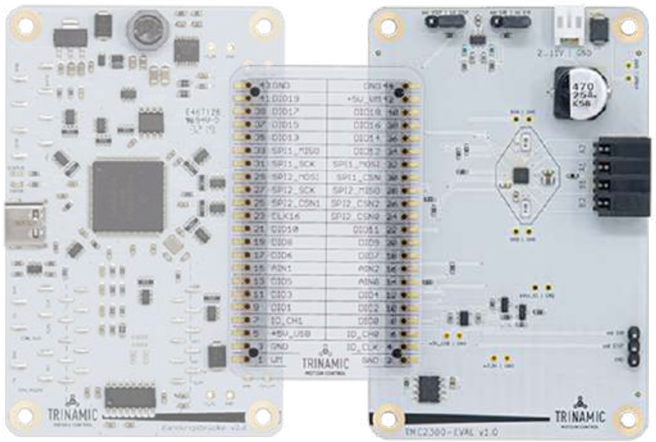
Each ADI Trinamic evaluation board needs a Landungsbrücke or Startrampe interface board and Eselsbrücke connector board. You can even combine multiple boards to copy your application’s setup, such as motion controller and motor driver boards, or add power stages. Once connected to your computer, the complete evaluation kit setup can easily be tested and tuned using the TMCL-IDE, the ADI Trinamic free and easy to use GUI.



Name	PWM	RS232	SPI	Step/Dir	UART	USB
Eselsbrücke						
Landungsbrücke	•	•	•	•	•	•
Startrampe	•	•	•	•	•	•

Evaluation Boards

The ADI Trinamic modular evaluation system allows you to quickly discover the chip’s powerful feature set. For a simple start, you need the Landungsbrücke interface board and Eselsbrücke connector board. Hook it up to the TMCL-IDE and you’re ready to use commands in direct mode, monitor real-time behavior visualized in graphs, as well as log and store data. All settings can be integrated directly into your own firmware project.



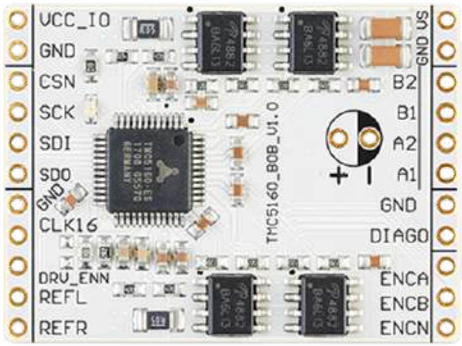
Name	a/b/n Incremental	CAN	RS-232	RS-485	USB	Step/Dir	SPI	UART	Direct Phase Control	Temperature Sensor	Single-Wire UART	SSI	PWM	PWM (Internal)	Current Limiter	Single-and Dual-Motor Option	EtherCAT®	IIC
BB-163x	•	•	•	•	•													

TMC2100-EVAL						•												
TMC2130-EVAL						•	•											
TMC2160-EVAL						•	•											
TMC2208-EVAL						•		•										
TMC2209-EVAL						•		•										
TMC2210-EVAL						•												
TMC2224-EVAL						•		•										
TMC2225-EVAL						•		•										
TMC2226-EVAL								•										
TMC2240-EVAL	•					•	•		•	•	•							
TMC2300-EVAL						•		•										
TMC2660-EVAL						•	•											
TMC4361A-EVAL	•					•	•					•						
TMC5031-EVAL			•			;	•											
TMC5041-EVAL					•		•											
TMC5062-EVAL					•													
TMC5072-EVAL	•				•	•	•											
TMC5130-EVAL	•					•	•	•										
TMC5160-EVAL	•					•	•	•										
TMC5240-EVAL	•					•	•		•	•	•							
TMC6100-EVAL							•						•					
TMC6140-EVAL													•					
TMC6200-EVAL							•						•					

TMC6300-EVAL													•					
TMC7300-EVAL								•	•					•	•	•		
TMC8462A-EVAL						•	•						•				•	•
TMCM-1617-BB		•		•													•	

Breakout Boards

Besides Evaluation Kits, most ADI Trinamic chips are also available as breakout boards (BOBs). These small PCBs contain everything needed for rapid prototyping and can be used on a breadboard or with flying wires, as all sensitive signals such as sense lines are routed on the BOBs themselves. Moreover, the BOBs are open-source, meaning you can copy the design and tweak it to your own specific needs.

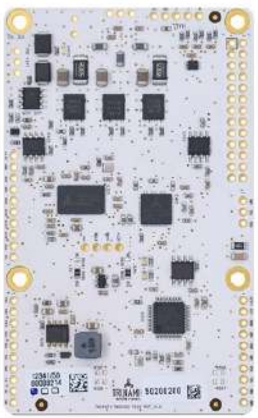


Name	SPI	CANStep/Dir	UART	a/b/n Incremental	Direct Phase Control	Temperature Sensor	SPI Single-Wire UART	Analog Hall	PWM	GPIO	PWM (internal)	Current Limiter	Single- and Dual-Motor Option	EtherCAT®
TMC2160-BOB	•	•												
TMC2209-BOB		•	•											
TMC2225-BOB		•	•											
TMC2226-BOB		•	•											
TMC2240-BOB	•	•		•	•	•	•							
TMC2300-BOB		•	•											
TMC261-BOB	•	•												
TMC262-BOB30	•	•												
TMC262-BOB40	•	•												
TMC262-BOB60	•	•												
TMC2660-BOB	•	•												
TMC429-BOB	•													
TMC4361A-BOB	•	•		•										

TMC4671+TMC6100-BOB	•		•	•				•	•	•				
TMC4671-BOB	•		•	•										
TMC5041-BOB	•													
TMC5072-BOB	•			•										
TMC5130A-BOB	•			•										
TMC5160-BOB	•	•		•										
TMC5240-BOB	•	•		•	•	•	•							
TMC6200-BOB	•								•					
TMC6300-BOB	•								•					
TMC7300-BOB			•		•						•	•	•	
TMC8462A-BOB-ETH	•													•

Reference Designs

ADI Trinamic open-source reference designs provide validated layouts for specific applications to shorten time to market. Ranging from PCBs for small IoT applications to medical ventilators, they show the possibilities of ADI Trinamic solutions. All designs are optimized to ensure best results, including heat dissipation, minimized form factor, and reliable designs. Speed up your development process with these open-source solutions.

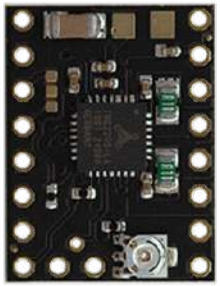


Name	UART	USB	Analog Hall	CAN	GPIO	Torque Sensor	RS-485	HomeBus	Temperature Sensor	a/b/n Incremental	EtherCAT®	Digital Hall	TMCL	CoE
TMC2300-IOT-REF	•	•												
TMC4671-LEV-REF			•	•	•	•							•	

TMC5130-HBS-KIT							•	•	•				•	
TMCM-1617-GRIP-REF							•			•	•	•	•	•

SilentStepSticks

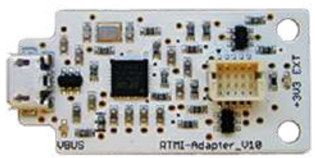
The SilentStepStick is a stepper driver board for 2-phase motors, based on ADI Trinamic industry-leading stepper driver ICs. Widely popular in the 3D printing and maker communities, the driver boards are compatible with StepSticks of the same familiar size and drop-in replacements for some of them. Just like the evaluation boards and BOBs, SilentStepSticks are open-source designs.


Name	Step/Dir	SPI	UART	Microsteps	SpreadCycle™	StealthChop™	ChopSync™	CoolStep™	Passive Braking	Short Detection	Stall Detection	StallGuard2™	StealthChop2™	StallGuard4™
TMC SilentStepStick (TMC2100)	•			1...256	•	•								
TMC SilentStepStick SPI (TMC2130)	•	•		1...256	•	•	•	•	•	•	•	•		
TMC2208 SilentStepStick	•		•	1...256									•	
TMC2209 SilentStepStick	•		•	1...256	•			•		•	•		•	•
TMC5160 SilentStepStick	•	•		1...256	•			•	•	•	•	•	•	

Interface Adapters and Lab Tools

ADI Trinamic interface adapters are the master key to world-leading technology. Whether it’s to send step direction signals via your PC or for real-time monitoring via RTMI, these adapters give you the access you need. The lab tools allow for even easier testing of your concept and add flexibility to setups using the evaluation boards.



Name	PWM	SPI	CAN	RS-485	UART	USB	RTMI	Microsteps	Use with TMC4671-EVAL	Use with TMC8670-EVAL
TMC-Schraubstock	•	•							•	
TMC-UPS-10A70V-A-EVAL										
TMC-UPS-10A70V-EVAL	•	•								•
TMC-UPS-2A24V-A-EVAL	•	•							•	
TMC-UPS-2A24V-EVAL	•	•								•
TMCM-0013-2A										
TMCM-0013-3A										
TMCM-0013-6A										
TMCM-0960-MotionPy V21		•	•	•	•					
USB-2-RTMI						•	•			

TMCL-IDE

Short for Trinamic Motion Control Language-Integrated Development Environment, the TMCL-IDE is an integrated development environment made for developing applications using ADI Trinamic™ modules and chips. The GUI provides tools for easily setting parameters, for visualizing data in real-time, and for developing and debugging stand-alone applications with TMCL.

“The TMCL is a really flexible language, which is a key point if you want to develop something in a short timeline and still be flexible. That’s really important for us because it allows you to try out one solution and if you find out it’s not the right solution, you can easily change and adapt the behavior of the components since it’s not hard-coded.”

Jonathan Aubert, Electronic Engineer at Andrew Alliance

Free and Easy to Use

The ADI Trinamic free and easy to use GUI is perfect for developing applications based on ADI Trinamic industry-leading solutions. The flexible integrated development environment has a wizard to guide you and supports the use of commands in direct mode, monitors real-time behavior visualized in graphs, as well as logs and stores data. All settings can quickly be exported for your own firmware project. Dedicated to motion control, the development program allows you to use simple commands for positioning and setting all relevant parameters of the motion controller to accelerate firmware and application development.

Supporting Popular Interfaces

Various interfaces can be used to connect an ADI Trinamic module or evaluation board, including USB, RS-232, RS-485, CAN, and ADI Trinamic real-time monitoring interface (RTMI). If the product has a USB interface, it can be connected directly via USB. The IDE will automatically recognize the product. Modules equipped with RS-232, RS-485, or CAN interface require the corresponding interface to be installed on the PC, for which many standard off-the-shelf interfaces can be used. Lastly, some products support the RTMI interface that allows for real-time monitoring and on-the-fly debugging, requiring the USB-2-RTMI adapter.

TMCLAsm

TMCLAsm is a command line tool for all products running TMCL, allowing you to convert TMCL program files into binary files. While this function is also integrated into the TMCL-IDE, where you can select to write output to binary file using the TMCL Creator, TMCLAsm meets the demands of production environments where TMCL programs need to be compiled to automatically program many TMCL modules at once, without using the standard programs offered by ADI Trinamic.

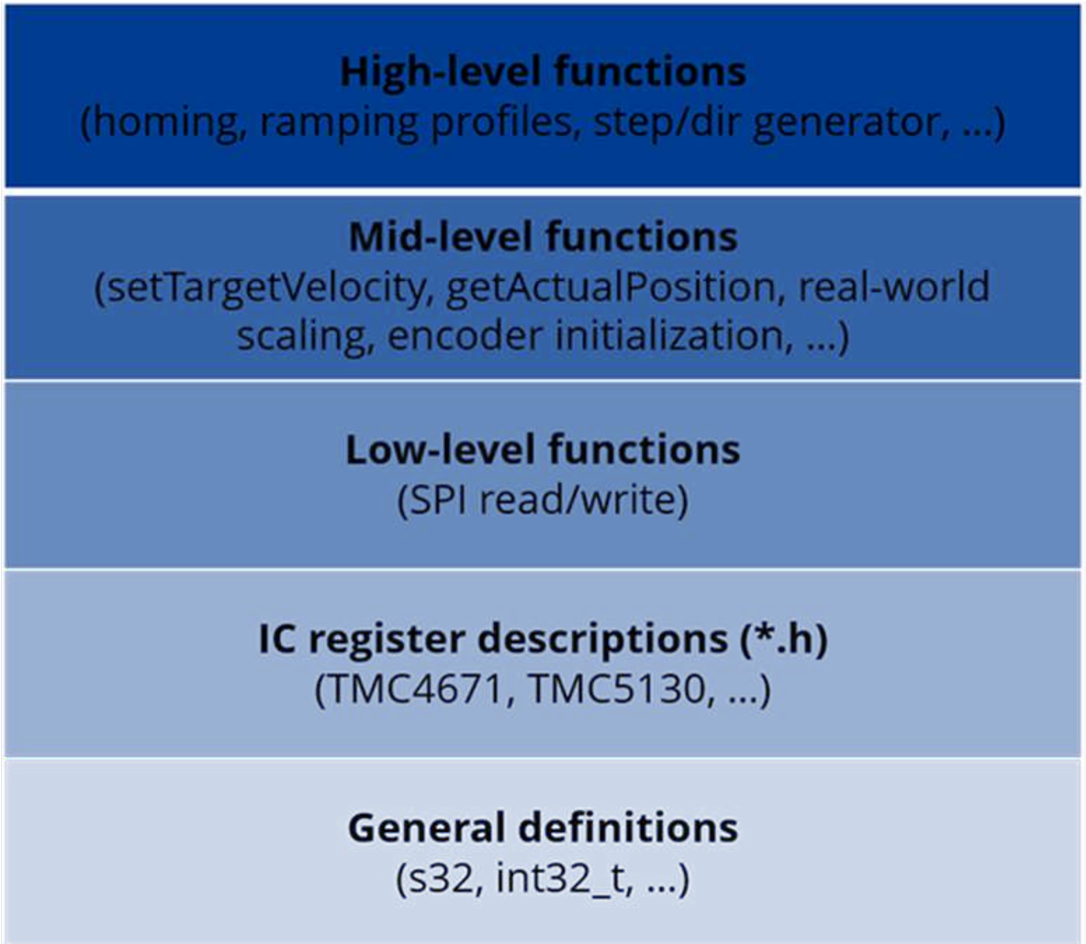
TMC Tech Access Package

Open-Source IC Software API

The ADI Trinamic™ application programming interface simplifies use of ADI Trinamic ICs in C or C++ and can be used for different CPU types, including the ones featured on the Landungsbrücke and Startrampe interface boards that are part of the modular evaluation system. These boards contain respectively the Freescale MK20 Cortex® M4 processor and the STM-F205 Cortex M3 processor, but other CPUs are supported as well. The open-source C-code allows a seamless integration into your own firmware project.

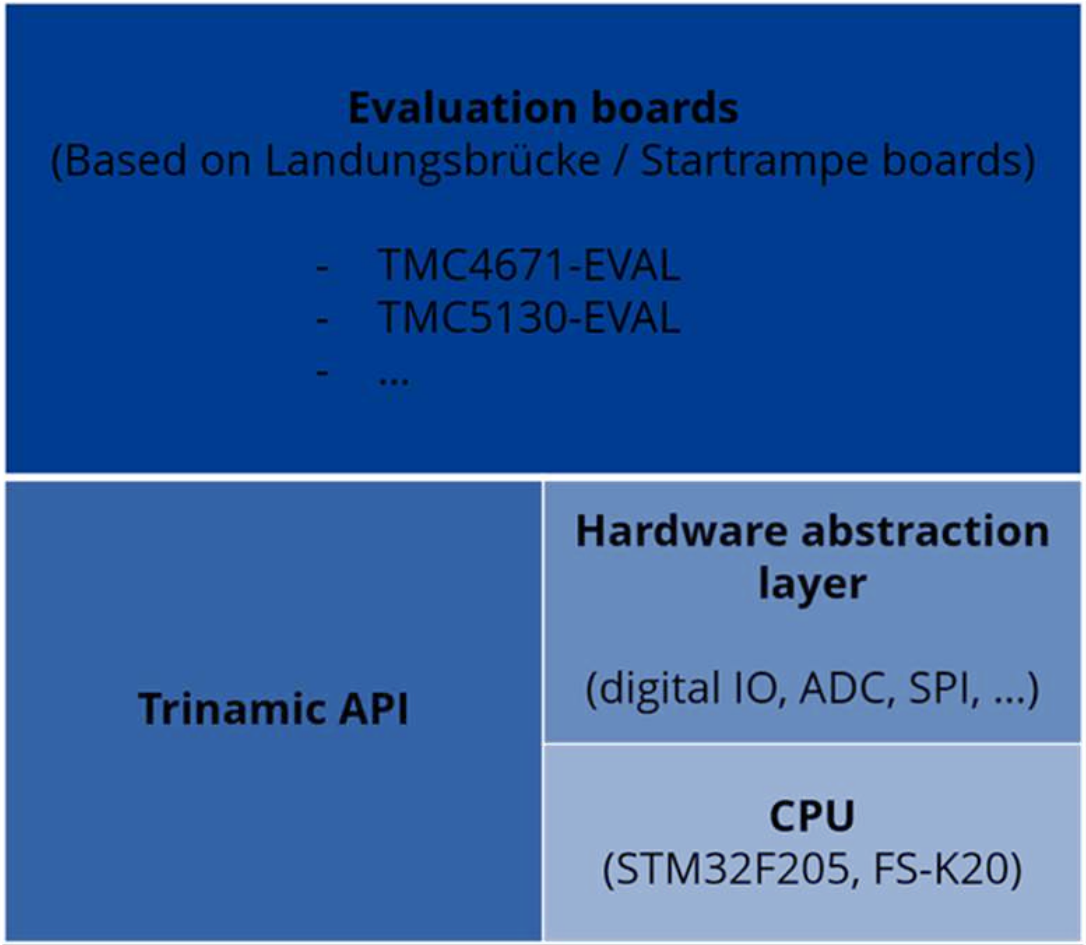
Software API Project Structure

The API is structured in various layers ranging from general definitions, such as s32 and int32_t, to high level functions including homing and software ramps. Each layer is represented with its own folder: The folder tmc/helpers contains general definitions for data types and bit handling, independent of the processor used. The folder tmc/ic contains a folder for each ADI Trinamic chip, for example, tmc/ic/TMC4671. Each of these folders contain a header file with the chip's register address list (for example, TMC4671_Register.h). Another .h and .c file (for example, TMC4671.h/.c) provide low level, mid level, and high level functions for the specific chip. Low level functions are necessary for SPI read and write access. Mid level functions like setTargetVelocity(...) or getActualPosition() demonstrate the typical register access for different application scenarios, for example, velocity or position mode. For some chips, there are also functions for encoder initialization and real-world current scaling available.



Evaluation Board Project Structure

The evaluation board project demonstrates the usage of the API and serves as a starting point for your own firmware development. Serving as an example, it helps you simplify and speed up firmware development based on ADI Trinamic motion control ICs. The project is a makefile and supports the two processor types used in the modular evaluation system. A build-command for the makefile allows processor selection and the complete firmware project is free to use and adapt to your needs. It uses the Eclipse IDE for C or C++ developers and can easily be extended for further processor types and evaluation boards. On top of the CPU-specific firmware part, a hardware abstraction layer is used to abstract access to digital IO, ADC measurement, SPI, communication, PWM, and evaluation board detection from the CPU-specific firmware part. Using the hardware abstraction layer, each eval board has access to a wide range of CPU functions independent of the CPU.



Download the Latest API and Evaluation System Firmware

File	Type	Size	Date
TMC-EvalSystem Project	zip	1.9 MB	Jul 7, 2020, 4:26 PM
Application Note 038—Using ADI Trinamic IC Software API and Examples	html	520 KB	Feb 7, 2022, 3:41 PM

Requirements and Installation

To use the API in your own project, there are a few software packages needed. First, the Eclipse software, which is an open-source integrated development environment. Second, the GNU Arm® Embedded Toolchain is needed, which is a prebuilt GNU toolchain for Arm Cortex-M processors. Third, you need the TMCL-IDE, which is the ADI Trinamic GUI to control and update ADI Trinamic modules and evaluation kits.

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