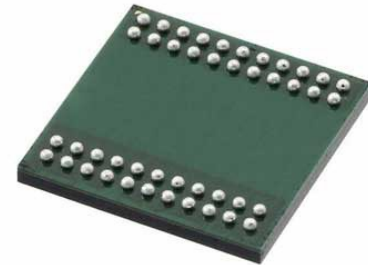


## 16-BIT 12GSPS RF DAC

Manufacturers	<a href="#">Analog Devices, Inc</a>
Package/Case	144-FBGA
Product Type	Data Conversion ICs
RoHS	Pb-free Halide free
Lifecycle	



Images are for reference only

Please submit RFQ for AD9176BBPZ or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

## General Description

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.

## Features

Supports multiband wireless applications

3 bypassable, complex data input channels per RF DAC

3.08 GSPS maximum complex input data rate per input channel

1 independent NCO per input

## Application

Wireless communications infrastructure

Multiband base station radios

Microwave/E-band backhaul systems

Instrumentation, automatic test equipment (ATE)

Radars and jammers

channel

## Product Highlights

Proprietary, low spurious and distortion design

A low power, multichannel, dual DAC design reduces power consumption in higher bandwidth and multichannel applications, while maintaining performance.

2-tone>

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.

SFDR <-80 dBc at 1.84 GHz, -7 dBFS RF output

Flexible 8-lane, 15.4 Gbps JESD204B interface

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.

Supports single-band and multiband use cases

Ultrawide bandwidth single-DAC modes, supporting up to 6.16 GSPS data rates with 16-bit resolution.

Supports 12-bit high density mode for increased data throughput

Multiple chip synchronization

Supports JESD204B Subclass 1

Selectable interpolation filter for a complete set of input data rates

1×, 2×, 3×, 4×, 6×, and 8× configurable data channel interpolation

1×, 2×, 4×, 6×, 8×, and 12× configurable final interpolation

Final 48-bit NCO that operates at the DAC rate to support frequency synthesis up to 6 GHz

Transmit enable function allows extra power saving and downstream circuitry protection

High performance, low noise PLL clock multiplier

Supports 12.6 GSPS DAC update rate

Observation ADC clock driver with selectable divide ratios

Low power

2.51 W with 2 DACs at 12

GSPS, DAC PLL on

10 mm × 10 mm, 144-ball  
BGA\_ED with metal enhanced  
thermal lid, 0.80 mm pitch

## Related Products



[ADAS3022BCPZ](#)  
Analog Devices, Inc  
LFCSP-40



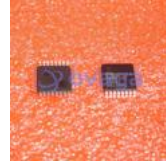
[AD574AJNZ](#)  
Analog Devices, Inc  
PDIP-28



[AD7938BSUZ](#)  
Analog Devices, Inc  
TQFP-32



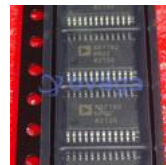
[AD7124-8BCPZ-RL7](#)  
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[AD9680BCPZ-500](#)  
Analog Devices, Inc  
LFCSP-64