

### ADC FEATURES

#### High-speed single- and dual-channel ADCs

- Resolution: 8 to 16 bits
- Sampling rates: 20 to 250 Msps
- Optional input buffer
- LVDS DDR, LVCMOS, JESD204A, JESD204B digital interfaces
- Low power dissipation
- Excellent linearity and noise specifications
- Packages: HTQFP, HVQFN, LQFP, QFP, SSOP

### DAC FEATURES

#### High-speed dual-channel DACs

- Resolution: 10 to 16 bits
- Update rates: 125 Msps to 1.5 Gsps
- LVDS DDR, LVCMOS, JESD204A, JESD204B digital interfaces
- Interpolation : 2x, 4x, 8x
- Low power dissipation
- Excellent linearity and noise specifications
- Packages : HTQFP, HVQFN, LQFP



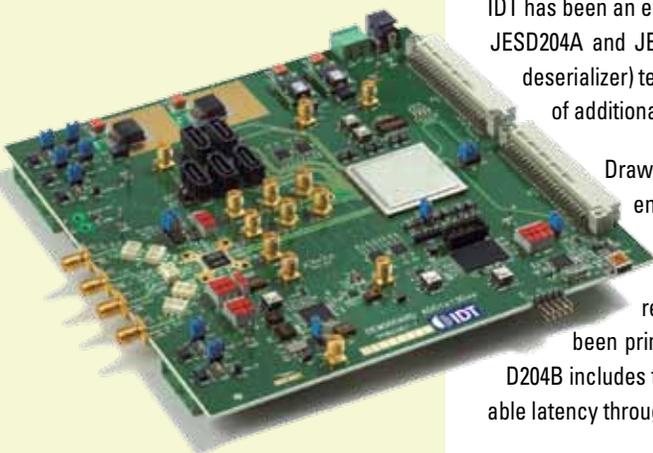
**Available with three different data interfaces (including JESD204A/JESD204B), our high-speed ADC/DAC solutions deliver best-in-class performance, size, and functional integration.**

As a leader in high-performance mixed-signal IC products, IDT offers an extensive selection of high-speed data converters with a variety of digital interfaces, including JESD204A and JESD204B, as well as LVCMOS and LVDS DDR. IDT's high-speed digital-to-analog converters (DACs) and analog-to-digital converters (ADCs) deliver best-in-class analog converter performance with ultra-stable dynamic behavior across a broad temperature range.

### HIGH-SPEED DATA CONVERTERS WITH SERDES-BASED INTERFACES

IDT has been an early adopter and leader in the development of high-speed data converters with the JEDEC JESD204A and JESD204B digital interfaces, both of which are based on high-speed SerDes (serializer/deserializer) technology using 8B/10B encoding. IDT JEDEC compliant implementations deliver a number of additional benefits for enhanced performance and ease-of-use.

Drawing on our deep expertise in RF, data conversion, and high-speed interface circuits our engineers contributed to the original standard JEDEC JESD204, released in 2006. Subsequently, we were instrumental in introducing the concept of multiple serial data lanes to allow additional synchronized interface bandwidth, which was incorporated in the second revision of this standardized interface JESD204A, released in 2008. More recently, we have been primary contributor to the latest revision of the standard JESD204B, released in 2011. JESD204B includes three major feature enhancements: harmonic clocking support; deterministic and repeatable latency through the interface; and higher data lane bandwidth, up to a maximum of 12.5 Gbps.



## The commercial and technical merits of JESD204A and JESD204B high-speed converters data converters include:

- Up to 10% reduction in PC board size due to lower pin count and minimized package outline sizes (converters and logic devices)
- Up to 10% increase in system reliability MTBF
  - Elimination of dozens of points of interconnect in typical systems – the majority of system failures occur at points of interconnect
- Up to 25% reduction in PC board cost by eliminating routing layers
  - Up to 80% fewer interconnect signal traces enabling simplified trace routing constraints
- Up to 20% reduction in PCB design effort and cost
  - No precisely calibrated signal wire lengths (no data signal and clock signal “deskewing”
  - Easier to escape high density, minimum ball pitch BGA grids
- Up to 10% reduction in BOM cost
  - Elimination of external synchronization logic devices and CMOS parallel bus buffers
- Flexible converter resolution (e.g., from 14- to 16-bit) with simple FPGA configuration change
  - No PCB redesign needed

### SINGLE- AND DUAL-CHANNEL ADCS

Our portfolio includes more than 80 ADCs, with resolutions from 8 to 16 bits, input samples rates from 20 to 250 Msps, an optional input buffer, and low-voltage CMOS, LVDS/DDR, or JEDEC JESD204A and JESD204B compliant digital outputs.

#### ADC1413D125 Highlight

The ADC1413D is a dual-channel 14-bit ADC optimized for high dynamic performance and low power at sample rates up to 125 Msps. A pipelined architecture and output error correction ensure the ADC1413D is accurate enough to guarantee zero missing codes over the entire operating range. Power is supplied from a 3 V source for the analog circuits and from a 1.8 V source for the digital output driver.

This ADC embeds two JESD204A serial outputs: each lane is differential CML and complies with the JESD204A standard. An integrated Serial Peripheral Interface (SPI) allows the user to easily configure the device. ADC configuration settings are also available via binary level control pins, which are used at power-up. The device also includes a flex-

ible input voltage range of 1 to 2 V (peak-to-peak). Excellent dynamic performance (SNR=71.4 dBFS, SFDR=87 dBc typ) is maintained to input frequencies of 170 MHz, making the ADC1413D ideal for use in communications, imaging, and medical applications.

#### ADC1443D200 Highlight

The ADC1443D200 is a dual-channel, 14-bit, 200 Msps, 86 dBc typical SFDR ADC with two JESD204B-compliant lanes running at up to 5 Gbps. The typical SNR of the ADC1443D200 is 72 dBFS. It is available in an HLQFN56 (8x8 mm) package and is JESD204B Device Subclass 0, 1, and 2 compliant, with full harmonic clocking and deterministic latency support.

The device operates from a single 1.8 V supply, and typically dissipates 1.0 W at 200 MHz  $F_s$ . It features an SPI interface for configuration control, including sleep and power-down modes, plus status monitoring, including comprehensive JESD204B interface status. It is qualified for operation over the industrial temperature range (-40°C to +85°C).

### DUAL-CHANNEL DACs

Our DACs offer resolutions from 10 to 16 bits, output samples rates from 125 Msps to 1.5 Gsps, and low-voltage CMOS, LVDS/DDR, or JEDEC JESD204A and JESD204B compliant digital inputs.

#### DAC1408D750 Highlight

The DAC1408D750 is a high-speed 14-bit dual channel DAC with selectable 2x, 4x, or 8x interpolation filters optimized for multi-carrier transmitters up to 750 Msps. Thanks to its digital on-chip modulation, the DAC1408D750 allows the complex I/Q data provided through the differential data lanes to be converted up from baseband to IF. The mixing frequency is adjusted via SPI, with a 32-bit Numerically Controlled Oscillator (NCO) frequency control register and a 16-bit phase control register. The serial input digital interface (maximum data rate of 3.125 Gbps) is compliant with the JEDEC JESD204A standard. The Multiple Device Synchronization (MDS) enables several DAC device data streams to be sample synchronized and phase coherent.

#### DAC1658D1G5 Highlight

The DAC1658D1G5 is a dual-channel, 16-bit, 1.5 Gsps, 85 dBc typical SFDR (250 MHz bandwidth) DAC with four JESD204B-compliant lanes running at up to 10 Gbps. The typical NSD of the DAC1658D1G5 is -164 dBm/Hz, and meets the Multi-Carrier GSM spectral mask with comfortable design margin. The maximum input data rate is 750 Msps. It is JESD204B Device Subclass 0 and 1 compliant with full harmonic clocking and deterministic latency support, and has JESD204B receiver equalization options to maximize interconnect robustness. An on-chip digital IQ modulator is controlled with an NCO featuring a 40-bit programmable frequency and a 16-bit programmable phase adjust.

Ease-of-use features include RF enable/disable, RF automatic mute, sleep and power-down modes, SPI interface for control and status monitoring, dual 10-bit auxiliary DACs, on-chip voltage reference, and optional inverse sinc filtering. The DAC1658D1G5 operates on 1.2V and 3.3 V power supply rails, and is qualified for operation over the industrial temperature range (-40°C to +85°C). It is available in an HVQFN56 (8x8 mm) package.

# Best-in-Class ADCs & DACs – IDT High-Speed ADC/DAC Selection Guide

## High-Speed ADC Selection Table

				Digital Interface								
Family	Type	Description	Input Buffer	TTL/CMOS	LVC MOS	LVDS/DDR	JESD204A JESD204B	Supply Voltage (V)	Power Dissipation per channel (mW)	SFDR (dBc)	SNR (dBFS)	Package
ADC1613D series	ADC1613D125	Dual 16-bit ADC up to 125 Msps					204A	1.8 / 3.0	635	89	71.6	HVQFN56 8x8
	ADC1613D105	Dual 16-bit ADC up to 105 Msps					204A	1.8 / 3.0	575	87	72.0	HVQFN56 8x8
	ADC1613D080	Dual 16-bit ADC up to 80 Msps					204A	1.8 / 3.0	495	88	72.2	HVQFN56 8x8
	ADC1613D065	Dual 16-bit ADC up to 65 Msps					204A	1.8 / 3.0	445	88	72.3	HVQFN56 8x8
ADC1613S series	ADC1613S125	Single 16-bit ADC up to 125 Msps					204A	1.8 / 3.0	690	87	71.4	HVQFN32 7x7
	ADC1613S105	Single 16-bit ADC up to 105 Msps					204A	1.8 / 3.0	625	85	71.8	HVQFN32 7x7
	ADC1613S080	Single 16-bit ADC up to 80 Msps					204A	1.8 / 3.0	490	86	72	HVQFN32 7x7
	ADC1613S065	Single 16-bit ADC up to 65 Msps					204A	1.8 / 3.0	495	86	72.1	HVQFN32 7x7
ADC1610S series	ADC1610S125	Single 16-bit ADC up to 125 Msps			•	•		1.8 / 3.0	630	89	71.6	HVQFN40 6x6
	ADC1610S105	Single 16-bit ADC up to 105 Msps			•	•		1.8 / 3.0	550	87	72.0	HVQFN40 6x6
	ADC1610S080	Single 16-bit ADC up to 80 Msps			•	•		1.8 / 3.0	430	88	72.2	HVQFN40 6x6
	ADC1610S065	Single 16-bit ADC up to 65 Msps			•	•		1.8 / 3.0	380	88	72.3	HVQFN40 6x6
ADC1443D series	ADC1443D200	Dual 14-bit ADC up to 200 Msps					204A/B	1.8	500	85	72	HVQFN56 8x8
	ADC1443D160	Dual 14-bit ADC up to 160 Msps					204A/B	1.8	450	86	72	HVQFN56 8x8
	ADC1443D125	Dual 14-bit ADC up to 125 Msps					204A/B	1.8	355	87	72.5	HVQFN56 8x8
ADC1440Q series	ADC1440Q200	Quad 14-bit ADC up to 200 Msps				•		1.8	410	85	72	LFBGA144 10x10
	ADC1440Q160	Quad 14-bit ADC up to 160 Msps				•		1.8	390	86	72	LFBGA144 10x10
	ADC1440Q125	Quad 14-bit ADC up to 125 Msps				•		1.8	360	87	72.5	LFBGA144 10x10
ADC1440D series	ADC1440D200	Dual 14-bit ADC up to 200 Msps				•		1.8	410	85	72	HLQFN64 9x9
	ADC1440D160	Dual 14-bit ADC up to 160 Msps				•		1.8	390	86	72	HLQFN64 9x9
	ADC1440D125	Dual 14-bit ADC up to 125 Msps				•		1.8	360	87	72.5	HLQFN64 9x9
ADC1415S series	ADC1415S125	Single 14-bit ADC up to 125 Msps	•		•	•		1.8/3.0/5.0	840	87	71.4	HVQFN40 6x6
	ADC1415S105	Single 14-bit ADC up to 105 Msps	•		•	•		1.8/3.0/5.0	770	85	71.8	HVQFN40 6x6
	ADC1415S080	Single 14-bit ADC up to 80 Msps	•		•	•		1.8/3.0/5.0	635	86	72.0	HVQFN40 6x6
	ADC1415S065	Single 14-bit ADC up to 65 Msps	•		•	•		1.8/3.0/5.0	580	86	72.1	HVQFN40 6x6
ADC1413D series	ADC1413D125	Dual 14-bit ADC up to 125 Msps					204A	1.8 / 3.0	635	87	71.4	HVQFN56 8x8
	ADC1413D105	Dual 14-bit ADC up to 105 Msps					204A	1.8 / 3.0	575	85	71.8	HVQFN56 8x8
	ADC1413D080	Dual 14-bit ADC up to 80 Msps					204A	1.8 / 3.0	495	86	72.0	HVQFN56 8x8
	ADC1413D065	Dual 14-bit ADC up to 65 Msps					204A	1.8 / 3.0	445	86	72.1	HVQFN56 8x8
ADC1413S series	ADC1413S125	Single 14-bit ADC up to 125 Msps					204A	1.8 / 3.0	690	87	71.4	HVQFN32 7x7
	ADC1413S105	Single 14-bit ADC up to 105 Msps					204A	1.8 / 3.0	625	85	71.8	HVQFN32 7x7
	ADC1413S080	Single 14-bit ADC up to 80 Msps					204A	1.8 / 3.0	550	86	72	HVQFN32 7x7
	ADC1413S065	Single 14-bit ADC up to 65 Msps					204A	1.8 / 3.0	495	86	72.2	HVQFN32 7x7
ADC1412D series	ADC1412D125	Dual 14-bit ADC up to 125 Msps			•	•		1.8 / 3.0	610	87	71.4	HVQFN64 9x9
	ADC1412D105	Dual 14-bit ADC up to 105 Msps			•	•		1.8 / 3.0	555	85	71.8	HVQFN64 9x9
	ADC1412D080	Dual 14-bit ADC up to 80 Msps			•	•		1.8 / 3.0	435	86	72.0	HVQFN64 9x9
	ADC1412D065	Dual 14-bit ADC up to 65 Msps			•	•		1.8 / 3.0	405	86	72.1	HVQFN64 9x9
ADC1410S series	ADC1410S125	Single 14-bit ADC up to 125 Msps			•	•		1.8 / 3.0	630	87	71.4	HVQFN40 6x6
	ADC1410S105	Single 14-bit ADC up to 105 Msps			•	•		1.8 / 3.0	550	85	71.8	HVQFN40 6x6
	ADC1410S080	Single 14-bit ADC up to 80 Msps			•	•		1.8 / 3.0	430	86	72.0	HVQFN40 6x6
	ADC1410S065	Single 14-bit ADC up to 65 Msps			•	•		1.8 / 3.0	380	86	72.1	HVQFN40 6x6
ADC1215S series	ADC1215S125	Single 12-bit ADC up to 125 Msps	•		•	•		1.8/3.0/5.0	840	87	69.6	HVQFN40 6x6
	ADC1215S105	Single 12-bit ADC up to 105 Msps	•		•	•		1.8/3.0/5.0	770	85	69.8	HVQFN40 6x6
	ADC1215S080	Single 12-bit ADC up to 80 Msps	•		•	•		1.8/3.0/5.0	635	86	69.9	HVQFN40 6x6
	ADC1215S065	Single 12-bit ADC up to 65 Msps	•		•	•		1.8/3.0/5.0	580	86	70.0	HVQFN40 6x6

## High-Speed ADC Selection Table

				Digital Interface								
Family	Type	Description	Input Buffer	TTL/CMOS	LVC-MOS	LVDS/DDR	JES204A JES204B	Supply Voltage (V)	Power Dissipation per channel (mW)	SFDR (dBc)	SNR (dBFS)	Package
ADC1213D series	ADC1213D125	Dual 12-bit ADC up to 125 Msps					204A	1.8 / 3.0	635	87	69.6	HVQFN56 8x8
	ADC1213D105	Dual 12-bit ADC up to 105 Msps					204A	1.8 / 3.0	575	85	69.8	HVQFN56 8x8
	ADC1213D080	Dual 12-bit ADC up to 80 Msps					204A	1.8 / 3.0	495	86	69.9	HVQFN56 8x8
	ADC1213D065	Dual 12-bit ADC up to 65 Msps					204A	1.8 / 3.0	445	86	70.0	HVQFN56 8x8
ADC1213S series	ADC1213S125	Single 12-bit ADC up to 125 Msps					204A	1.8 / 3.0	690	87	71.4	HVQFN32 7x7
	ADC1213S105	Single 12-bit ADC up to 105 Msps					204A	1.8 / 3.0	625	85	71.8	HVQFN32 7x7
	ADC1213S080	Single 12-bit ADC up to 80 Msps					204A	1.8 / 3.0	550	86	72	HVQFN32 7x7
	ADC1213S065	Single 12-bit ADC up to 65 Msps					204A	1.8 / 3.0	495	86	72.1	HVQFN32 7x7
ADC1212D series	ADC1212D125	Dual 12-bit ADC up to 125 Msps			•	•		1.8 / 3.0	610	87	69.6	HVQFN64 9x9
	ADC1212D105	Dual 12-bit ADC up to 105 Msps			•	•		1.8 / 3.0	555	85	69.8	HVQFN64 9x9
	ADC1212D080	Dual 12-bit ADC up to 80 Msps			•	•		1.8 / 3.0	435	86	69.9	HVQFN64 9x9
	ADC1212D065	Dual 12-bit ADC up to 65 Msps			•	•		1.8 / 3.0	405	86	70.0	HVQFN64 9x9
ADC1210S series	ADC1210S125	Single 12-bit ADC up to 125 Msps			•	•		1.8 / 3.0	630	87	69.6	HVQFN40 6x6
	ADC1210S105	Single 12-bit ADC up to 105 Msps			•	•		1.8 / 3.0	550	85	69.8	HVQFN40 6x6
	ADC1210S080	Single 12-bit ADC up to 80 Msps			•	•		1.8 / 3.0	430	86	69.9	HVQFN40 6x6
	ADC1210S065	Single 12-bit ADC up to 65 Msps			•	•		1.8 / 3.0	380	86	70.0	HVQFN40 6x6
ADC1207S080	ADC1207S080	Single 12-bit ADC 80 Msps	•		•			5.0	840	90	71	HTQFP48 7x7
ADC1206S series	ADC1206S070	Single 12-bit ADC 70 Msps	•	•				3.3 / 5.0	550	70	64	QFP44
	ADC1206S050	Single 12-bit ADC 55 Msps	•	•				3.3 / 5.0	550	72	64	QFP44
	ADC1206S040	Single 12-bit ADC 40 Msps	•	•				3.3 / 5.0	550	72	64	QFP44
ADC1147Q200	ADC1147Q200	Quad 11-bit ADC up to 200 Msps with Noise Shaper						1.8	400	86	76.5	LFPGA144 10x10
ADC1143D200	ADC1143D200	Dual 11-bit ADC up to 200 Msps with Noise Shaper				204A/B	1.8	620	86	76.5	HVQFN56 8x8	
ADC1115S125	ADC1115S125	Single 11-bit ADC up to 125 Msps	•		•			1.8 / 3.0/5.0	840	87	66.2	HVQFN40 6x6
ADC1113D125	ADC1113D125	Dual 11-bit ADC up to 125 Msps				204A	1.8 / 3.0	635	87	66.2	HVQFN56 8x8	
ADC1113S125	ADC1113S125	Single 11-bit ADC up to 125 Msps				204A	1.8 / 3.0	690	86	71.4	HVQFN32 7x7	
ADC1112D125	ADC1112D125	Dual 11-bit ADC up to 125 Msps			•	•		1.8 / 3.0	610	87	66.2	HVQFN64 8x8
ADC1015S series	ADC1015S125	Single 10-bit ADC up to 125 Msps	•		•	•		1.8 / 3.0/5.0	840	87	61.6	HVQFN40 6x6
	ADC1015S105	Single 10-bit ADC up to 105 Msps	•		•	•		1.8 / 3.0/5.0	770	85	61.6	HVQFN40 6x6
	ADC1015S080	Single 10-bit ADC up to 80 Msps	•		•	•		1.8 / 3.0/5.0	635	86	61.7	HVQFN40 6x6
	ADC1015S065	Single 10-bit ADC up to 65 Msps	•		•	•		1.8 / 3.0/5.0	580	86	61.7	HVQFN40 6x6
ADC1010S series	ADC1010S125	Single 10-bit ADC up to 125 Msps			•	•		1.8 / 3.0	630	87	61.6	HVQFN40 6x6
	ADC1010S105	Single 10-bit ADC up to 105 Msps			•	•		1.8 / 3.0	550	85	61.6	HVQFN40 6x6
	ADC1010S080	Single 10-bit ADC up to 80 Msps			•	•		1.8 / 3.0	430	86	61.7	HVQFN40 6x6
	ADC1010S065	Single 10-bit ADC up to 65 Msps			•	•		1.8 / 3.0	380	86	61.7	HVQFN40 6x6
ADC1006S series	ADC1006S070	Single 10-bit ADC 70 Msps	•	•				3.3 / 5.0	550	71	59	QFP44
	ADC1006S050	Single 10-bit ADC 55 Msps	•	•				3.3 / 5.0	550	71	59	QFP44
ADC1005S060	ADC1005S060	Single 10-bit ADC 60 Msps		•				5.0	312	72	58	SSOP28
ADC1004S series	ADC1004S050	Single 10-bit ADC 50 Msps		•				5.0	175	72	58	SSOP28
	ADC1004S040	Single 10-bit ADC 40 Msps		•				5.0	175	72	58	SSOP28
	ADC1004S030	Single 10-bit ADC 30 Msps		•				5.0	175	72	58	SSOP28
ADC1003S series	ADC1003S050	Single 10-bit ADC 50 Msps with internal $V_{ref}$		•				5.0	235	70	58	SSOP28
	ADC1003S040	Single 10-bit ADC 40 Msps with internal $V_{ref}$		•				5.0	235	70	58	SSOP28
	ADC1003S030	Single 10-bit ADC 30 Msps with internal $V_{ref}$		•				5.0	235	70	58	SSOP28
ADC1002S020	ADC1002S020	Single 10-bit ADC 20 Msps		•				3 to 5.25	53	72	60	LQFP32
ADC0808S series	ADC0808D250	Single 8-bit ADC 250 Msps		•				1.8 / 3.3	215	56	48	HTQFP48 7x7
	ADC0808D125	Single 8-bit ADC 125 Msps		•				1.8 / 3.3	215	57	50	HTQFP48 7x7
ADC0804S series	ADC0804S050	Single 8-bit ADC 50 Msps		•				5.0	175	72	49	SSOP28
	ADC0804S040	Single 8-bit ADC 40 Msps		•				5.0	175	72	49	SSOP28
	ADC0804S030	Single 8-bit ADC 30 Msps		•				5.0	175	72	49	SSOP28
ADC0801S040	ADC0801S040	Single 8-bit ADC 40 Msps	•	•				2.7 to 5.5	30	59	47	SSOP20

# Best-in-Class ADCs & DACs – IDT High-Speed ADC/DAC Selection Guide

## High Speed DAC Selection Table

Family	Type	Description	LVC MOS	LVDS/ DDR	JESD204A JESD204B	Supply Voltage (V)	Power Dissipation per channel (mW)	SFDR (dBc)	Interpolation	Package
DAC1658D1G5	DAC1658D1G5	Dual 16-bit DAC 1.50 Gsps			204A/B	1.2 / 3.3	350	85	2x, 4x, 8x	HVQFN56 8x8
DAC1627D1G25	DAC1627D1G25	Dual 16-bit DAC 1.25 Gsps		•		1.8 / 3.3	890	85	2x, 4x, 8x	HVQFN72 10x10
DAC1617D1G0	DAC1617D1G0	Dual 16-bit DAC 1.0 Gsps		•		1.8 / 3.3	600	78	2x, 4x, 8x	HVQFN72 10x10
DAC1408D series	DAC1408D750	Dual 14-bit DAC 750 Msps			204A	1.8 / 3.3	700	76	2x, 4x, 8x	HVQFN64 9x9
	DAC1408D650	Dual 14-bit DAC 650 Msps			204A	1.8 / 3.3	700	76	2x, 4x, 8x	HVQFN64 9x9
DAC1405D series	DAC1405D750	Dual 14-bit DAC 750 Msps	•			1.8 / 3.3	435	77	2x, 4x, 8x	HTQFP100 14x14
	DAC1405D650	Dual 14-bit DAC 650 Msps	•			1.8 / 3.3	435	77	2x, 4x, 8x	HTQFP100 14x14
DAC1403D160	DAC1403D160	Dual 14-bit DAC 160 Msps	•			3.3	210	80	2x	HTQFP80 12x12
DAC1401D125	DAC1401D125	Dual 14-bit DAC 125 Msps	•			3.3	95	88	-	LQFP48
DAC1208D series	DAC1208D750	Dual 12-bit DAC 750 Msps			204A	1.8 / 3.3	700	76	2x, 4x, 8x	HVQFN64 9x9
	DAC1208D650	Dual 12-bit DAC 650 Msps			204A	1.8 / 3.3	700	76	2x, 4x, 8x	HVQFN64 9x9
DAC1205D series	DAC1205D750	Dual 12-bit DAC 750 Msps	•			1.8 / 3.3	435	80	2x, 4x, 8x	HTQFP100 14x14
	DAC1205D650	Dual 12-bit DAC 650 Msps	•			1.8 / 3.3	435	80	2x, 4x, 8x	HTQFP100 14x14
DAC1203D160	DAC1203D160	Dual 12-bit DAC 160 Msps	•			3.3	210	77	2x	HTQFP80 12x12
DAC1201D125	DAC1201D125	Dual 12-bit DAC 125 Msps	•			3.3	95	65	-	LQFP48
DAC1008D series	DAC1008D750	Dual 10-bit DAC 750 Msps			204A	1.8 / 3.3	700	76	2x, 4x, 8x	HVQFN64 9x9
	DAC1008D650	Dual 10-bit DAC 650 Msps			204A	1.8 / 3.3	700	76	2x, 4x, 8x	HVQFN64 9x9
DAC1005D series	DAC1005D750	Dual 10-bit DAC 750 Msps	•			1.8 / 3.3	435	77	2x, 4x, 8x	HTQFP100 14x14
	DAC1005D650	Dual 10-bit DAC 650 Msps	•			1.8 / 3.3	435	77	2x, 4x, 8x	HTQFP100 14x14
DAC1003D160	DAC1003D160	Dual 10-bit DAC 160 Msps	•			3.3	210	80	2x	HTQFP80 12x12
DAC1001D125	DAC1001D125	Dual 10-bit DAC 125 Msps	•			3.3	95	65	-	LQFP48

## ADC Demo Boards

Type	Related demoboard	Description
ADC0801S040	ADC0801S040-DB	ADC0801S040 demo board; both CMOS and TTL outputs
ADC0804S series	ADC0804S030-DB	ADC0804S030 demo board; both CMOS and TTL outputs
	ADC0804S040-DB	ADC0804S040 demo board; both CMOS and TTL outputs
	ADC0804S050-DB	ADC0804S050 demo board; both CMOS and TTL outputs
ADC0808S series	ADC0808S125-DB	ADC0808S125 demo board; CMOS outputs
	ADC0808S250-DB	ADC0808S250 demo board; CMOS outputs
ADC1002S020	ADC1002S020-DB	ADC1002S020 demo board; both CMOS and TTL outputs
ADC1003S series	ADC1003S030-DB	ADC1003S030 demo board; both CMOS and TTL outputs
	ADC1003S040-DB	ADC1003S040 demo board; both CMOS and TTL outputs
	ADC1003S050-DB	ADC1003S050 demo board; both CMOS and TTL outputs
ADC1004S series	ADC1004S030-DB	ADC1004S030 demo board; both CMOS and TTL outputs
	ADC1004S040-DB	ADC1004S040 demo board; both CMOS and TTL outputs
	ADC1004S050-DB	ADC1004S050 demo board; both CMOS and TTL outputs
ADC1005S060	ADC1005S060-DB	ADC1005S060 demo board; both CMOS and TTL outputs
ADC1006S series	ADC1006S055-DB	ADC1006S055 demo board; both CMOS and TTL outputs
	ADC1006S070-DB	ADC1006S070 demo board; both CMOS and TTL outputs
	ADC1010S065F1-DB	ADC1010S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1010S065F2-DB	ADC1010S065 demo board; LVDS output with SAMTEC connector; SPI, Regulators on board
	ADC1010S080F1-DB	ADC1010S080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1010S080F2-DB	ADC1010S080 demo board; LVDS output with SAMTEC connector; SPI, Regulators on board
	ADC1010S105F1-DB	ADC1010S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1010S105F2-DB	ADC1010S105 demo board; LVDS output with SAMTEC connector; SPI, Regulators on board
	ADC1010S125F1-DB	ADC1010S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1010S125F2-DB	ADC1010S125 demo board; LVDS output with SAMTEC connector; SPI, Regulators on board
	ADC1015S065F1-DB	ADC1015S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board;
	ADC1015S065F2-DB	ADC1015S065 demo board; SPI, Regulators on board; LVDS output with SAMTEC connector
	ADC1015S080F1-DB	ADC1015S080 demo board; SPI, Regulators and CMOS buffer on board; CMOS output only
	ADC1015S080F2-DB	ADC1015S080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
ADC1015S series	ADC1015S105F1-DB	ADC1015S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1015S105F2-DB	ADC1015S105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1015S125F1-DB	ADC1015S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1015S125F2-DB	ADC1015S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
ADC1112D125	ADC1112D125F1-DB	ADC1112D125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1112D125F2-DB	ADC1112D125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector

**ADC Demo Boards**

Type	Related demoboard	Description
ADC1113D125	ADC1113D125W1-DB	ADC1113D125 demo board; VIRTEX 5 FPGA on board
	ADC1113D125W0-DB	ADC1113D125 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
ADC1113S125	ADC1113S125W1-DB	ADC1113S125 demo board; VIRTEX 5 FPGA on board
ADC1115S125	ADC1115S125F1-DB	ADC1115S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1115S125F2-DB	ADC1115S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
ADC1143D200	ADC1143D200W0-DB	ADC1143D200 demo board; SPI, Regulators on board; JESD204B output; HSMC connector
	ADC1143D200W1-DB	ADC1143D200 demo board; SPI, Regulators on board; Arria II GX FPGA on board
ADC1147Q200	ADC1147Q200-DB	ADC1147Q200 demo board; SPI, Regulators on board; LVDS/DDR output; SAMTEC connector
ADC1206S series	ADC1206S040-DB	ADC1206S040 demo board; both CMOS and TTL outputs
	ADC1206S055-DB	ADC1206S055 demo board; both CMOS and TTL outputs
	ADC1206S070-DB	ADC1206S070 demo board; both CMOS and TTL outputs
ADC1207S080	ADC1207S080-DB	ADC1207S080 demo board; both CMOS and TTL outputs
	ADC1210S065F1-DB	ADC1210S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1210S065F2-DB	ADC1210S065 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1210S080F1-DB	ADC1210S080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1210S080F2-DB	ADC1210S080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1210S105F1-DB	ADC1210S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1210S105F2-DB	ADC1210S105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1210S125F1-DB	ADC1210S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1210S125F2-DB	ADC1210S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
ADC1212D series	ADC1212D065F1-DB	ADC1212S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1212D065F2-DB	ADC1212S065 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1212D080F1-DB	ADC1212S080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1212D080F2-DB	ADC1212S080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1212D105F1-DB	ADC1212S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1212D105F2-DB	ADC1212S105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1212D125F1-DB	ADC1212S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1212D125F2-DB	ADC1212S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
ADC1213D series	ADC1213D065W1-DB	ADC1213D065 demo board; VIRTEX 5 FPGA on board
	ADC1213D065W0-DB	ADC1213D065 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1213D080W1-DB	ADC1213D080 demo board; VIRTEX 5 FPGA on board
	ADC1213D080W0-DB	ADC1213D080 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1213D105W1-DB	ADC1213D105 demo board; VIRTEX 5 FPGA on board
	ADC1213D105W0-DB	ADC1213D105 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1213D125W1-DB	ADC1213D125 demo board; VIRTEX 5 FPGA on board
	ADC1213D125W0-DB	ADC1213D125 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
ADC1213S series	ADC1213D080W2-DB	ADC1213D080 demo board; Lattice ECP3 FPGA on board
	ADC1213S065W1-DB	ADC1213S065 demo board; VIRTEX 5 FPGA on board
	ADC1213S080W1-DB	ADC1213S080 demo board; VIRTEX 5 FPGA on board
	ADC1213S105W1-DB	ADC1213S105 demo board; VIRTEX 5 FPGA on board
ADC1215S series	ADC1213S125W1-DB	ADC1213S125 demo board; VIRTEX 5 FPGA on board
	ADC1215S065F1-DB	ADC1215S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1215S065F2-DB	ADC1215S065 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1215S080F1-DB	ADC1215S080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1215S080F2-DB	ADC1215S080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1215S105F1-DB	ADC1215S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1215S105F2-DB	ADC1215S105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1215S125F1-DB	ADC1215S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
ADC1410S series	ADC1215S125F2-DB	ADC1215S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1410S065F1-DB	ADC1410S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1410S065F2-DB	ADC1410S065 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1410S080F1-DB	ADC1410S080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1410S080F2-DB	ADC1410S080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1410S105F1-DB	ADC1410S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1410S105F2-DB	ADC1410S105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1410S125F1-DB	ADC1410S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
ADC1412D series	ADC1410S125F2-DB	ADC1410S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1412D065F1-DB	ADC1412D065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1412D065F2-DB	ADC1412D065 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1412D080F1-DB	ADC1412D080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1412D080F2-DB	ADC1412D080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1412D105F1-DB	ADC1412D105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1412D105F2-DB	ADC1412D105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1412D125F1-DB	ADC1412D125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
ADC1412D125F2-DB	ADC1412D125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector	

# Best-in-Class ADCs & DACs – IDT High-Speed ADC/DAC Selection Guide

## ADC Demo Boards

Type	Related demoboard	Description
ADC1413D series	ADC1413D065W1-DB	ADC1413D065 demo board; VIRTEX 5 FPGA on board
	ADC1413D065W0-DB	ADC1413D065 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1413D080W1-DB	ADC1413D080 demo board; VIRTEX 5 FPGA on board
	ADC1413D080W0-DB	ADC1413D080 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1413D105W1-DB	ADC1413D105 demo board; VIRTEX 5 FPGA on board
	ADC1413D105W0-DB	ADC1413D105 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1413D125W1-DB	ADC1413D125 demo board; VIRTEX 5 FPGA on board
	ADC1413D125W0-DB	ADC1413D125 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
ADC1413S series	ADC1413S065W1-DB	ADC1413S065 demo board; VIRTEX 5 FPGA on board
	ADC1413S080W1-DB	ADC1413S080 demo board; VIRTEX 5 FPGA on board
	ADC1413S105W1-DB	ADC1413S105 demo board; VIRTEX 5 FPGA on board
	ADC1413S125W1-DB	ADC1413S125 demo board; VIRTEX 5 FPGA on board
ADC1415S series	ADC1415S065F1-DB	ADC1415S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1415S065F2-DB	ADC1415S065 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1415S080F1-DB	ADC1415S080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1415S080F2-DB	ADC1415S080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1415S105F1-DB	ADC1415S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1415S105F2-DB	ADC1415S105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1415S125F2-DB	ADC1415S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
ADC1440D series	ADC1440D200-DB	ADC1440D200 demo board; SPI, Regulators on board; LVDS output
	ADC1440D160-DB	ADC1440D160 demo board; SPI, Regulators on board; LVDS output
	ADC1440D125-DB	ADC1440D125 demo board; SPI, Regulators on board; LVDS output
ADC1440Q series	ADC1440Q200-DB	ADC1440Q200 demo board; SPI, Regulators on board; LVDS output
	ADC1440Q160-DB	ADC1440Q160 demo board; SPI, Regulators on board; LVDS output
	ADC1440Q125-DB	ADC1440Q125 demo board; SPI, Regulators on board; LVDS output
ADC1443D series	ADC1443D200W0-DB	ADC1443D200 demo board; SPI, Regulators on board; JESD204B output; HSMC connector
	ADC1443D160W0-DB	ADC1443D160 demo board; SPI, Regulators on board; JESD204B output; HSMC connector
	ADC1443D125W0-DB	ADC1443D125 demo board; SPI, Regulators on board; JESD204B output; HSMC connector
	ADC1443D200W1-DB	ADC1443D200 demo board; Arria II GX FPGA on board; HSMC connector
	ADC1443D160W1-DB	ADC1443D160 demo board, Arria II GX FPGA on board; HSMC connector
ADC1610S series	ADC1610S065F1-DB	ADC1610S065 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1610S065F2-DB	ADC1610S065 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1610S080F1-DB	ADC1610S080 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1610S080F2-DB	ADC1610S080 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1610S105F1-DB	ADC1610S105 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1610S105F2-DB	ADC1610S105 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
	ADC1610S125F1-DB	ADC1610S125 demo board; CMOS version; SPI, Regulators and CMOS buffer on board
	ADC1610S125F2-DB	ADC1610S125 demo board; SPI, Regulators on board; LVDS output only SAMTEC connector
ADC1613D series	ADC1613D065W1-DB	ADC1613D065 demo board; VIRTEX 5 FPGA on board
	ADC1613D065W0-DB	ADC1613D065 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1613D080W1-DB	ADC1613D080 demo board; VIRTEX 5 FPGA on board
	ADC1613D080W0-DB	ADC1613D080 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1613D105W1-DB	ADC1613D105 demo board; VIRTEX 5 FPGA on board
	ADC1613D105W0-DB	ADC1613D105 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	ADC1613D125W1-DB	ADC1613D125 demo board; VIRTEX 5 FPGA on board
	ADC1613D125W0-DB	ADC1613D125 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
ADC1613S series	ADC1613S065W1-DB	ADC1613S065 demo board; VIRTEX 5 FPGA on board
	ADC1613S080W1-DB	ADC1613S080 demo board; VIRTEX 5 FPGA on board
	ADC1613S105W1-DB	ADC1613S105 demo board; VIRTEX 5 FPGA on board
	ADC1613S125W1-DB	ADC1613S125 demo board; VIRTEX 5 FPGA on board



# Best-in-Class ADCs & DACs – IDT High-Speed ADC/DAC Selection Guide

POWER MANAGEMENT | ANALOG & RF | INTERFACE & CONNECTIVITY | CLOCKS & TIMING | MEMORY & LOGIC | TOUCH & USER INTERFACE | DATA CONVERTER

## DAC Demo Boards

Type	Related demoboard	Description
DAC1001D125	DAC1001D125-DB	DAC1001D125 demo board; LVCMOS inputs
DAC1003D160	DAC1003D160-DB	DAC1003D160 demo board; LVCMOS inputs
DAC1005D series	DAC1005D650-DB	DAC1005D650 demo board; LVCMOS inputs
	DAC1005D750-DB	DAC1005D750 demo board; LVCMOS inputs
DAC1008D series	DAC1008D650W0-DB	DAC1008D650 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	DAC1008D650W1-DB	DAC1008D650 demo board with Virtex 5 FPGA
	DAC1008D750W0-DB	DAC1008D750 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	DAC1008D750W1-DB	DAC1008D750 demo board with Virtex 5 FPGA
DAC1201D125	DAC1201D125-DB	DAC1201D125 demo board; LVCMOS inputs
DAC1203D160	DAC1203D160-DB	DAC1203D160 demo board; LVCMOS inputs
DAC1208D series	DAC1208D650W0-DB	DAC1208D650 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	DAC1208D650W1-DB	DAC1208D650 demo board with Virtex 5 FPGA
	DAC1208D750W0-DB	DAC1208D750 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	DAC1208D750W1-DB	DAC1208D750 demo board with Virtex 5 FPGA
DAC1401D125	DAC1401D125-DB	DAC1401D125 demo board; LVCMOS inputs
DAC1205D series	DAC1205D650-DB	DAC1205D650 demo board; LVCMOS inputs
	DAC1205D750-DB	DAC1205D750 demo board; LVCMOS inputs
DAC1403D160	DAC1403D160-DB	DAC1403D160 demo board; LVCMOS inputs
DAC1405D series	DAC1405D650-DB	DAC1405D650 demo board; LVCMOS inputs
	DAC1405D750-DB	DAC1405D750 demo board; LVCMOS inputs
DAC1408D series	DAC1408D650W0-DB	DAC1408D650 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	DAC1408D650W1-DB	DAC1408D650 demo board with Virtex 5 FPGA
	DAC1408D750W0-DB	DAC1408D750 demo board; compliant with Lattice, Altera, Xilinx FPGA boards through specific connectors
	DAC1408D750W1-DB	DAC1408D750 demo board with Virtex 5 FPGA
	DAC1408D650W2-DB	DAC1408D650 demo board with Lattice ECP3 FPGA
DAC1617D1G0	DAC1617D1G0-DB	DAC1617D1G0 demo board; LVDS DDR inputs; SAMTEC connector
	DAC1617D1G0IQMOD-DB	DAC1617D1G0 + IQMod demo board; LVDS DDR inputs; SAMTEC connector
DAC1627D1G25	DAC1627D1G25/DB	DAC1627D1G25 demo board; LVDS DDR inputs; SAMTEC connector
	DAC1627D1G25IQMOD/DB	DAC1627D1G25 + IQMod demo board; LVDS DDR inputs; SAMTEC connector
DAC1658D1G5	DAC1658D1G5-DB	DAC1658D1G5 demo board; JESD204B inputs; HSMC connector
	DAC1658D1G5IQMOD-DB	DAC1658D1G5 + IQMod demo board; JESD204B inputs; HSMC connector
KIT ECP3	HSDC-JAKIT1W2-DB	ADC1413D080+DAC1408D650 with Lattice ECP3 FPGA demo kit

HSDC-EXTMOD01-DB	Extension module	Extension module for ADC and DAC demo boards; Clock Generator; Pattern Generator for DAC and Data Acquisition for ADC
HSDC-EXTMOD02A-DB	Extension module	Extension module for DAC1627D, DAC1617D, ADC1X43D, DAC1658D demo boards
		Pattern Generator for DAC and Data Acquisition for ADC JESD204B Acquisition and Generation up to 5 Gbps
HSDC-EXTMOD02B-DB	Extension module	Extension module for DAC1658D demo boards
		Pattern Generator for JESD204B DAC JESD204B Generation up to 6.6 Gbps
HSDC-EXTMOD03A-DB	Extension module	Extension module for DAC1658D demo boards
		Pattern Generator for JESD204B DAC JESD204B Generation up to 10 Gbps

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