HIGH SPEED CONVERTERS LEAD INDUSTRY WITH 28 nm CMOS TECHNOLOGY

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Introducing the first of a new class of high speed RF converters enabling GHz bandwidth applications such as 4G/5G multiband wireless communications base stations, multistandard production test systems, and defense electronics. Based on 28 nm CMOS technology, these converters represent an industry breakthrough with best-in-class bandwidth and dynamic range to cover the largest number of signal bands.

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

▶ Performance at –9 dBFS, 2.5 GHz A_{IN}
  - SFDR = 75 dBFS
  - SNR = 58.2 dBFS
▶ Performance at –3 dBFS, 2.5 GHz A_{IN}
  - SFDR = 65 dBFS
  - SNR = 57.5 dBFS
▶ 1.7 W total power per channel at 3 GSPS

▶ Integrated digital features include down-converters with phase coherent fast NCO switching and programmable finite impulse response filter blocks
▶ Flexible, 8-lane, 16 Gbps JESD204B interface
▶ Wide, full power bandwidth supports RF sampling beyond 6 GHz

AD9172: Dual, 16-Bit, 12 GSPS JESD204B Digital-to-Analog Converter

▶ Provides direct-to-RF synthesis up to 6 GHz
  - 3 bypassable, complex data input channels that support 1.25 GHz maximum signal bandwidth
  - Main DAC path supports 4 GHz maximum signal bandwidth
▶ Performance at –17 dBFS, 1.8 GHz, 12 GSPS
  - SFDR (single-tone): 70 dBc
  - IMD (two-tone): 75 dBc
  - NSD (single-tone): 160 dBm/Hz

▶ Integrated digital features include independent numerically controlled oscillator (NCO), digital gain control, and various interpolation filter combinations per input channel
▶ Flexible 8-lane, 15 Gbps JESD204B interface
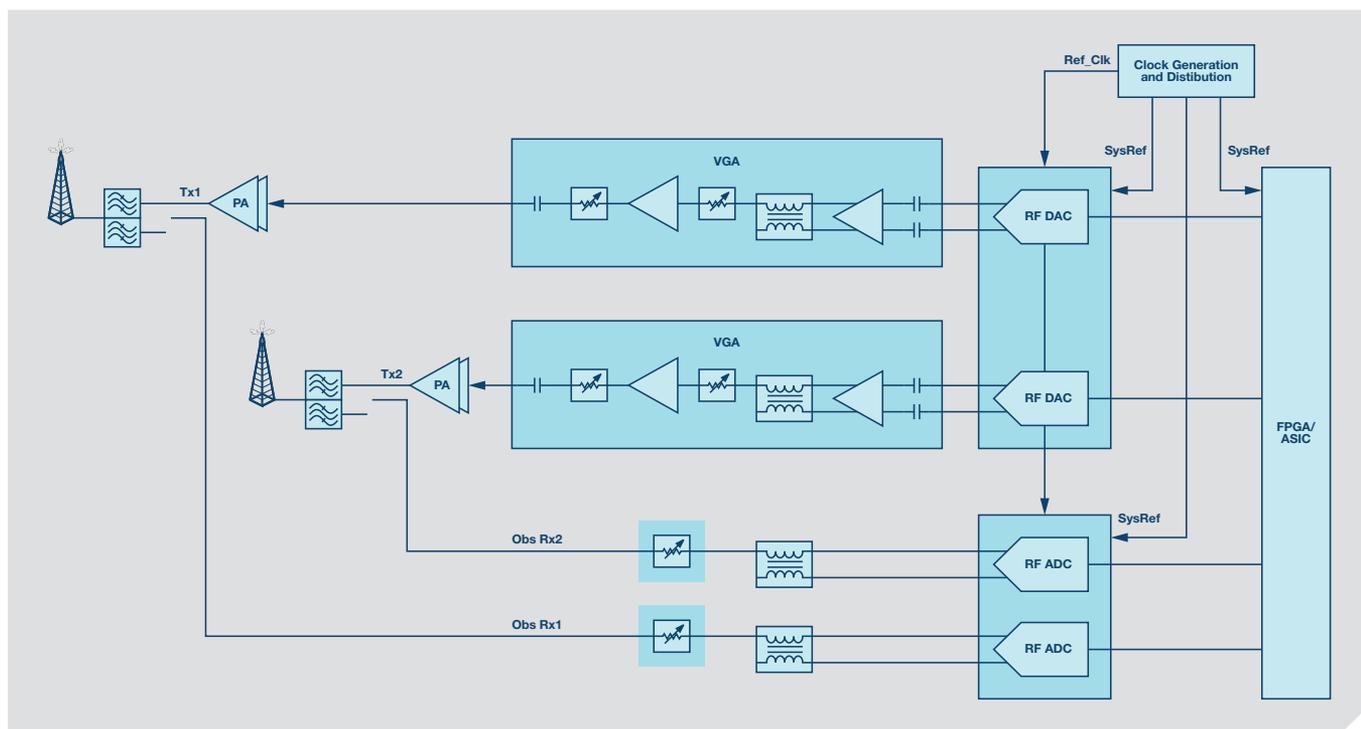 - Supports 12-bit high density mode for increased data throughput

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Analog-to-Digital Converters

Part Number	NSD (dBFS/Hz)	SNR (dBFS)	SFDR (dBFS)	Power	Full Power BW (GHz)	JESD204 Lane Rate (Gbps)
AD9208	−152	58.2	75	1.7 W/channel at 3 GSPS	9	16
AD9694	−151	66.8	82	415 mW/channel at 500 MSPS	1.4	15

Digital-to-Analog Converters

Part Number	NSD (dBm/Hz)	IMD (dBc)	SFDR (dBc)	Power	Full Power BW (GHz)	JESD204 Lane Rate (Gbps)
AD9172	−160	75 (2-tone IMD)	70	1.5 W/channel at 12 GSPS	6	15
AD9162	−162	78 (2-tone IMD)	75	2.4 W/channel at 12 GSPS	~7	12.5

Multiband Direct RF Sampling and Synthesis (AD9208/AD9172)

When wide signal bandwidths are required, gigasampling high speed data converters from ADI provide the direct RF conversion capabilities to support advanced multiband radios designs. Frequency agility and signal aggregation are necessary for ease of deployment in regions where service providers own fragmented frequency bands and desire a single radio design to cover them all. RF DACs and RF ADCs from ADI support wide signal bandwidths up to 1.5 GHz. Enhanced JESD204B serial lanes support rates up to 15 Gbps, reducing the number of lanes required for data transport. Outstanding linearity performance enables direct signal generation up to 4.2 GHz and direct signal capture up to 6 GHz.

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