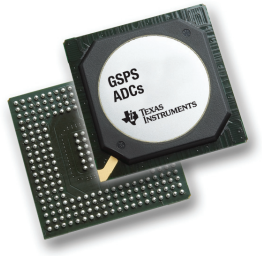
ADC12D1x00 12-bit ADC Family



Ultra High-Speed 12-bit ADCs up to 3.6 GSPS

Texas Instruments

Rethink Software Defined Radio

Texas Instruments' ADC12D1x00 family offers excellent dynamic performance over large input bandwidths and up to 3.6 GSPS sampling rates, enabling a new generation of software-defined radio (SDR) architectures and applications. The 12-bit ADC family delivers unparalleled performance in a small package at the industry's lowest power.

- **Highest Sampling Rate**
  12 bits at 3.6 GSPS and Nyquist bandwidth of 1.8 GHz enable wideband sampling applications
- **High Energy Efficiency**
  50% lower power per sample rate than any competitive solution
- **Wide Bandwidth**
  Flexibly supports everything from time domain applications to IQ sampling communications to high-IF applications in interleaved mode
- **Smallest Solution Size**
  Reduces board area and footprint providing for low-cost upgrades and weight reduction

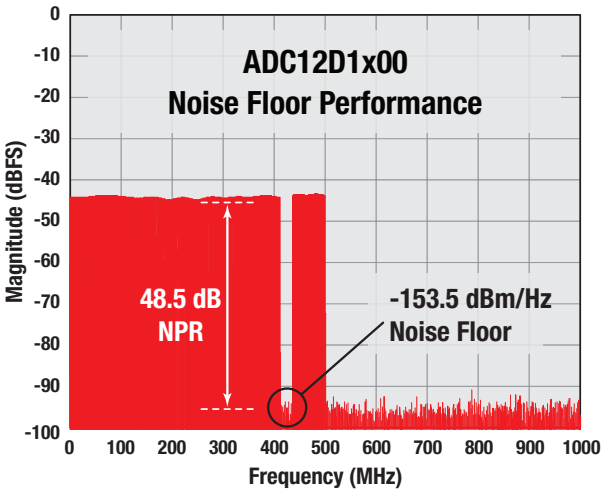
Optimal Performance

Wideband SDR applications are employed to digitize a wide bandwidth input spectrum. As such, noise-floor, noise power ratio (NPR) and intermodulation distortion (IMD) provide the best measure of a system's capability to extract narrowband information from the large input bandwidth.

- Noise Floor -153.5 dBm/Hz
- NPR 48.5 dB
- IMD3 -61 dBc

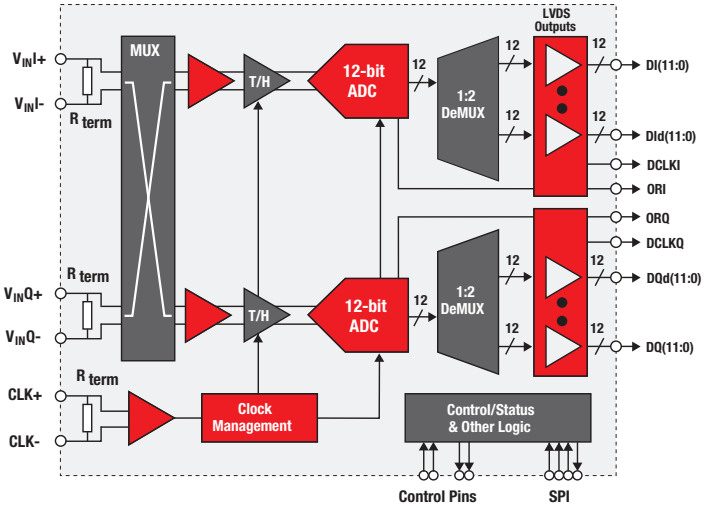
Key Product Features

- Configurable to interleaved or dual mode
- 1.9V power supply
- 292-ball, thermally enhanced BGA package (leaded or lead-free)
- Multi-chip synchronization, time-stamp feature, and internal track-and-hold amplifier
- Programmable gain and offset adjustment per channel
- Extended self-calibration scheme enables flat response of all dynamic parameters for input frequencies >2 GHz while providing low 10^{-18} code error rate
- Pin-compatible with ADC12Dxx00RF and ADC10D1x00 families – easy upgrade for higher resolution



ADC12D1x00 12-bit ADC Family

ADC12D1xx0 Simplified Block Diagram

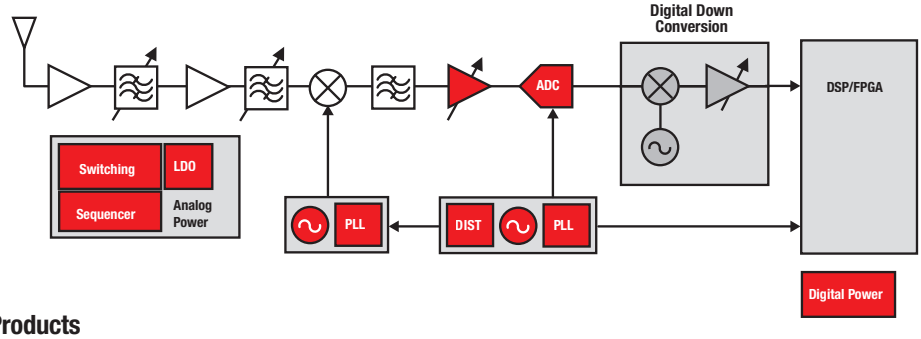


Ideal for use in applications requiring any of the following combinations:

- Wide input bandwidth
- Frequency flexibility / tuning
- Multiple mixing stages
- Simultaneous reception of multiple channels or band-limited signals

Key Applications

- **Wideband Communications**
  Replace multiple mixing stages and enable digitally-programmable frequency selection for easy system modeling
- **Data Acquisition**
  Achieve the highest sampling rate for excellent time domain performance
- **Optical Infrastructure and Microwave Backhaul**
  Enable higher throughput for larger data capacity and increase link budget while attaining the smallest solution size and cost
- **Set-Top Boxes (STB)**
  Replace all the multi-channel STB's tuners with one ADC12D1x00 and eliminate the need for RF redesign with a dramatically reduced solution size at minimal power consumption



ADC12D1x00 Family of Products

Device	Sampling Rate (MSPS)	Power (W)	NPR (dB)	IMD (dBFS)	Noise Floor (dBm/Hz)	ENOB (Bits)	SNR (dB)	SFDR (dBc)	THD (dB)
ADC12D1800	3600/1800	4.4	48.5	-61	-153.5	9.2	57.8	67	-67.5
ADC12D1600	3200/1600	3.9	48.5	-66	-153.6	9.3	58.6	68	-68.5
ADC12D1000	2000/1000	3.4	49.5	-59	-152.6	9.5	59.1	70.5	-70

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