Omni Design
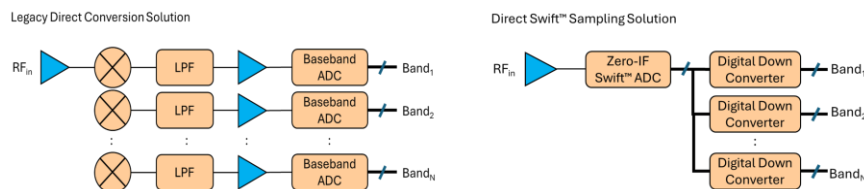
High-speed Swift™ data converters and AFEs are critical enables of next generation software-defined radio (SDR) and high speed comms connectivity technology.

Multi-Link Operation (MLO) and MIMO (Multiple Inputs Multiple Outputs) require high speed, low power and area efficient DACs and ADCs to enable multi-frequency transmission channels and dynamical adjusted Zero-IF receive capability.

The use of high-speed Swift ™ data converters and AFEs deliver lower size, weight and power for multi-frequency, multi-channel advance software defined radio applications.

SATCOM, 5G, 6G, Wi-Fi 6/6E/7, and Software Defined Radio utilizing multi-channel 16-32 GSPS low power Swift™ ADCs and DACs with extended dynamic range, enable direct RF conversion. Broadband integrated LNAs allow system level noise figure and gain specs to provide full front-end solutions. High bitrate and multi-frequency band requirements are driving advances in MIMO architectures leading to exponential use of high-speed data converters in advanced communication systems.
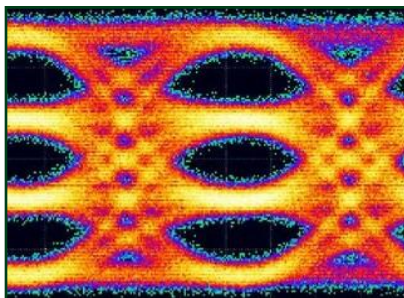
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Omni Design Technologies is a leading provider of high-performance, ultra-low power IPs, from 28nm down through advanced FinFET nodes, which enable differentiated system-on-chip (SoC), in applications ranging from 5G, 6G, wireless, wireline and optical communications, LiDAR, radar, automotive networking, AI, image sensors, mil/aero and the internet-of-things (IoT). Our Swift™ ADC and DAC data converter IP cores range from 6-bit to 14-bit resolution and from a few MSPS to more than 100 GSPS sampling rates. Omni Design, founded in 2015 by semiconductor industry veterans, has an excellent track record of innovation and collaboration with customers to enable their success. The company is headquartered in Milpitas, California with five additional design centers globally.

High-speed operation often leads to increased power consumption. Omni Design Technologies' research and development is focused on energy-efficient low power high-performance Swift™ ADC, DAC and AFE architectures for communications applications.

Type	Resolution	Sample Rate	Features	Node	I/O	Part Name	Quick View
ADC	12-Bit	4GSPS	IQ, Low Power	22nm	0.8V(p-p)	ODT-ADS-12B4GIQ-22	
ADC	12-Bit	32GSPS	Low power	5nm	0.8V(p-p)	ODT-ADS-12B32G-5	
ADC	12-Bit	6GSPS	Low power	16nm	0.8V(p-p)	ODT-ADS-12B6G-16	
DAC	12-Bit	7GSPS	Low Power	16nm	Current Steering	ODT-DAC-12B7G-16	
DAC	14-Bit	7GSPS	IQ, Low Power	22nm	Current Steering	ODT-DAC-14B8GIQ-22	
AFE	12-Bit	2GSPS ADC 2GSPS DAC	Rx/Tx 4 IQ Pairs	12nm	2 x IQ Freq1 2 x IQ Freq2	ODT-AFE-4T4R-12	

Table 1. A sample of some of the advance solutions for communications applications

Additionally, Omni Design offers a family of OmniTRUST™ Voltage, Temperature, and Process monitors in a range of process nodes with compact size, low power consumption, and capable of operating over the entire temperature range of -40°C to 150°C. The temperature monitor achieves ±4°C temperature accuracy without trim and ±1°C temperature accuracy after a single room temperature trim. The voltage monitors support four differential or single-ended inputs with a voltage range up to ±1.8V. The included process monitor provides information on process variation of core P, N as well as I/O P, N MOS devices in an easily readable digital format. Available in advanced FinFET nodes to 28nm.

Scan the QR code to see all product options:

OmniDesign
Current Output 12-bit 7-GSPS RF DAC