

## **Analog-to-Digital and Digital-to-Analog Converters for Data Rates of 100 Gb/s and Beyond**

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At higher data rates advanced modulation concepts like quadrature phase shift keying (QPSK) and QAM or orthogonal frequency division multiplexing (OFDM) are presently investigated also for optical links by various research laboratories. Those modulation formats show excellent dispersion tolerance, however the transmitter will require a digital-to-analog converter (DAC) with 6 to 8 bit of resolution and an ADC with the same resolution in the receiver at sampling rates even beyond 100 GS/s. These demanding requirements are challenging especially for CMOS technologies. Due to the high data throughput, a highly parallel CMOS signal processing is expected. The low supply voltage of advanced CMOS technologies is limiting the voltage headroom of differential circuits and thus limiting the linear operating region in the mixed signal circuits. Circuit designs for ADC as well as DAC are presented with simulation as well as measurement results.