# Fast CMOS DAC launched for data conversion at up to 2Tbps

ECN Europe

A fast CMOS DAC for optical transport systems has been launched by Fujitsu Semiconductor Europe [1]. The new 8-bit, 4-channel DAC is in 40nm CMOS technology and its sampling rate is 55-65 GSa/s per channel. This technology supports long-haul optical transport systems providing data links of 100Gbps and higher over a single lambda.

[2]

Picture: Fujitsu Semiconductor Europe

Having this high-performance converter in standard CMOS allows for its integration on a single die together with a complex DSP and high-speed serial OTN framer interfaces to form a 100Gbps DP-QPSK transceiver. For such a device with 4 ADC and 4 DAC channels running at 65GSa/s, the sheer volume of data (2 Tbps) being converted to and from the analogue to the digital domain dictates a single die solution.  For transmission to the optical line, the use of high-speed, high resolution DACs instead of standard digital interfaces offers a number of advantages. Management of skew among the four signal component lanes is done in the digital domain allowing precision control that is very stable across processing, temperature or voltage variations in the transceiver device. Signal processing in the digital domain allows for compensation of non-linearities in the transmit optics chain, as well as mitigating signal reflections at the device IOs. Integration of the 4-channel DAC into a transceiver device also removes the requirement for a separate multiplexer/encoder device.

A development kit for the 65GSa/s DAC will be available from November 2011.

SOURCE [3]

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