

VEGA DAC II

34GS/s, 6-bit UltraFast Digital to Analog Converter

MICRAM

Type: Module	Technology: SiGe	f_T / f_{max} : 170/250 GHz	Metallization: 4	Ref.-No.: R1030
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Brief description

The Micram VEGA DAC II is an up to 34 GS/s, 6-bit digital to analog converter with >20 GHz bandwidth.

Main features are:

- variable sampling rate 1 to 34 GS/s
- programmable max output amplitude
- FPGA compatible 24 channel data interface
- programmable FPGA reference clock divider
- SONET-PRBS de-scrambling option for inputs
- on-chip SerDes synchronization
- single-ended and differential operation
- serial configuration/calibration register (LVTTTL)

The DAC II analog differential output, which can also be used single ended, has a full scale amplitude of 800 mV swing. The analog output path has a bandwidth of 20 GHz to generate the best possible signal slopes at maximum amplitude.

Conversion is driven by a half-rate clock (i.e. 15 GHz for 30 GS/s). To adjust the sampling points or to synchronize two DAC II, the sampling phase can be adjusted in a 100 ps range.

The 6-bit binary conversion inputs are multiplexed by 4 and sent via a 24 channel LVDS/PCML interface. This interface is compatible to e.g. Virtex 4/5 and Stratix-IV FPGA with high-speed SerDes. For channel synchronization as well as DC-balancing an on-chip SONET de-scrambler can be enabled.

The DAC II provides a programmable reference clock divider to drive the FPGA and a LVTTTL register interface for configuration and calibration.

Main fields of application for the DAC II are:

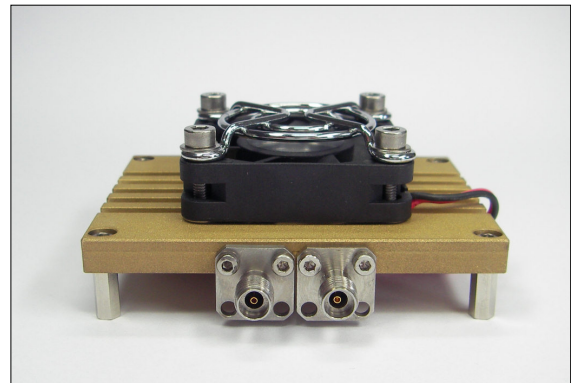
- 100G Ethernet applications for DQPSK/OFDM
- Test & measurement applications
- Arbitrary Waveform Generation
- Preemphasis

Package

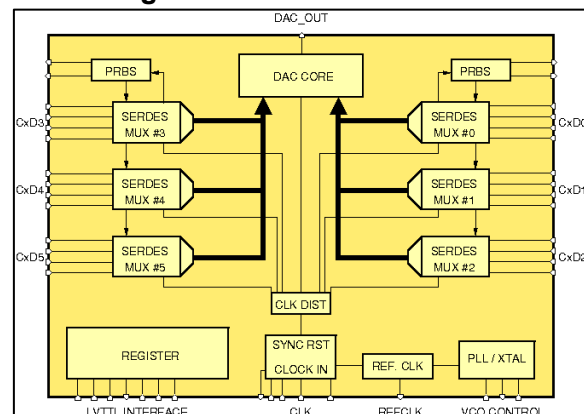
The DAC II module is equipped with K-connectors for clock and analog outputs. All other signals are carried out on four Samtec connectors.

For further information on the DAC II please contact your Micram sales representative.

VEGA DAC II module



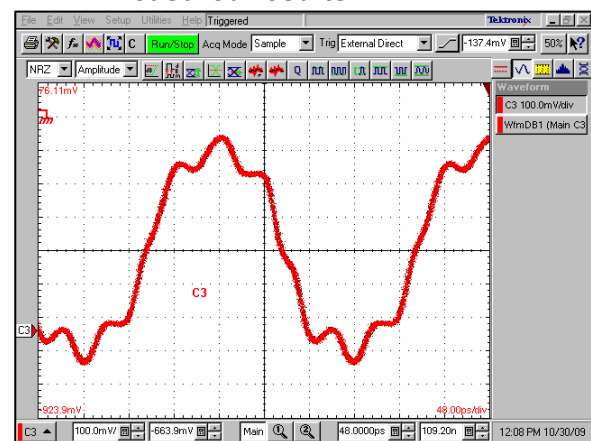
Block diagram of the DAC II



DAC II electrical data

Power supplies	+3.3V / +1.5V / -3.3V / -4.5V
Power dissipation	10 ... 13 W
Clock rate	0.5 ... 17 GHz
Full analog output swing	800 mV se
Effective bits (ENOB)	> 4.5 @ 14 GHz
Bandwidth	> 20 GHz

DAC II measured results



Generated, unfiltered 3.5 GHz sine wave @ 28 GS/s

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