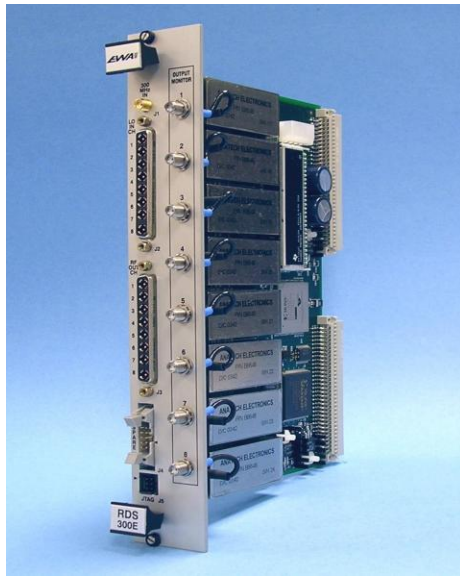


RDS-300E 8-Channel DDS Module

Features



- 8 Independent DDS Channels
- Direct Digital Synthesis up to 120 MHz
- Onboard I/Q Up Conversion from 140 MHz to 1 GHz
- 6U x 160 mm VME Module
- 48-bit Frequency Resolution
- 14-bit Phase Resolution
- 12-bit Amplitude Resolution
- CW, FSK, BPSK, PSK, CHIRP, and AM

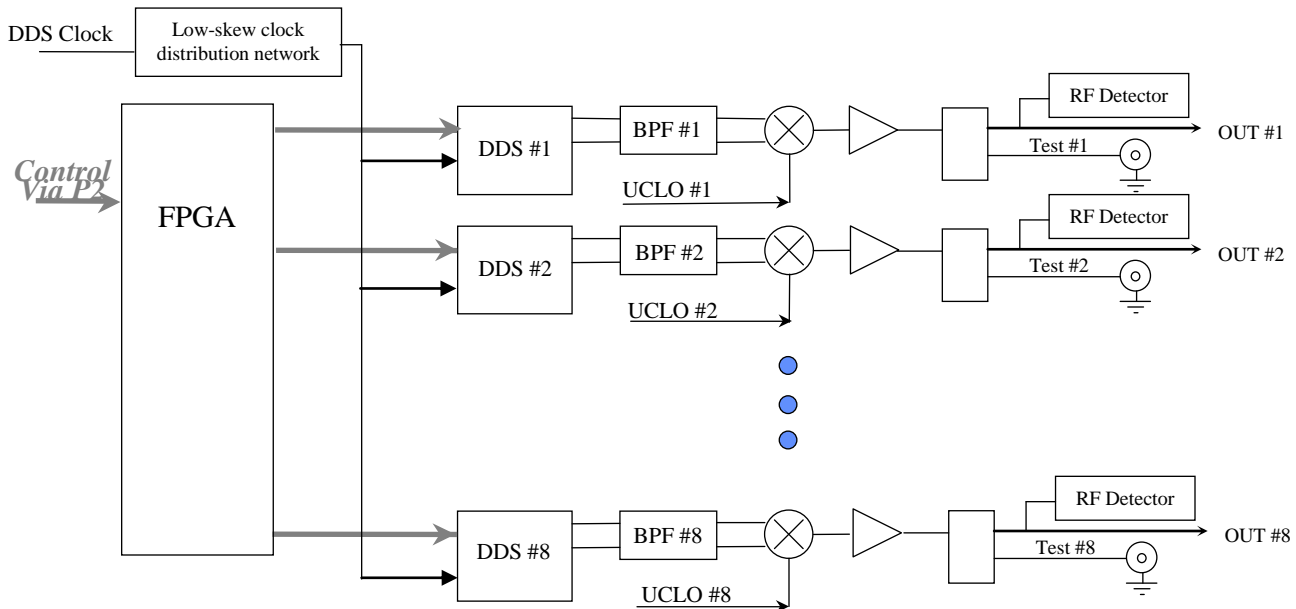
General Description

The model RDS-300E offers eight 300 MHz Direct Digital Synthesis (DDS) channels on a single 6U VME Module. All channels are independently controlled and are identical in hardware configuration. Each DDS channel consists of a user specified BPF, a differential I/Q modulator, an amplifier, a coupled test port (optional double-wide front panel brings test ports to the front), and an external independent LO input for signal up-conversion.

Based on the Analog Devices AD9854 DDS chip, the RDS-300E offers independent, channel-to-channel frequency, amplitude and phase agility. All channels are controlled in real-time via a front panel differential control bus or the VME P2 backplane. Real-time commands are processed in a high speed, high capacity Xilinx Virtex-II FPGA and guided to the appropriate DDS device. Each of the eight dedicated control busses between the FPGA and DDS devices operates at up to 50 MHz to facilitate fine time control of the real-time waveforms.

RDS-300E 8-Channel DDS Module

Block Diagram



Applications

The RDS-300E was developed for use as a real-time waveform generator in a multi-channel radar system. The RDS-300E can provide clocks, pulse modulated waveforms, and frequency-hopped waveforms for real-time applications. It is also an excellent solution for test beds requiring multiple IF synthesized signals. Specifically, the RDS-300E is capable of generating CW, FSK, BPSK, PSK, CHIRP, and AM waveforms.