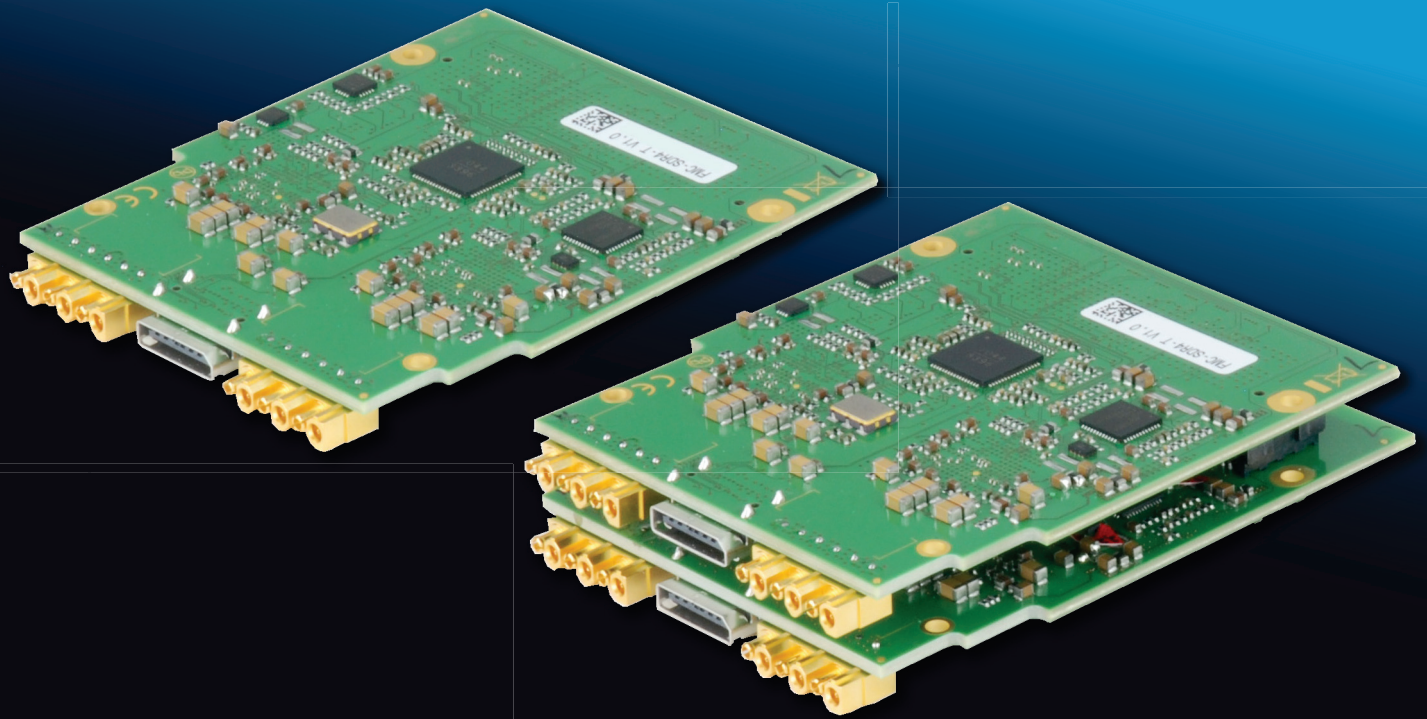




NAT-FMC-SDR4

Radio Frequency (RF) Front-end Mezzanine



The NAT-FMC-SDR4 is a radio frequency (RF) front-end FMC module that provides eight front panel ports for connection to antennas in wireless networks (4x transmit, 4x receive). ADRV9009 RF transceivers provide the transmit/receive functionality, with 200 MHz instantaneous bandwidth per channel. It provides a platform for wireless applications, such as mobile cellular systems with massive MIMO or radio beamforming, which require a large number of phase-coherent antennas.

Two modules may be stacked to provide 8 Rx/Tx channels. When combined with a processing carrier AMC, such as the NAMC-ZYNQUP-FMC, the combination of large bandwidth RF-transceivers and a powerful FPGA allows you to create 5G radio units with on-board PHY layer processing or full-network single-board solutions as well as high-speed, low-latency I/Q streaming interfaces.

Key features

- 8 RX/TX channels with 200 MHz instantaneous bandwidth each
- Synchronizable for creating large phased arrays
- Observation channel for DPD and PA
- High-speed, low-latency I/Q streaming solution available
- FMC form factor (VITA 57.1)

Applications

- 4G/5G base station
- 5G radio unit (RU) with PHY processing
- Cellular prototyping
- Phased arrays
- Radio direction finding and tracking
- Frequency scanner and signal intelligence
- Radio astronomy
- Advanced wireless research
- Prototyping

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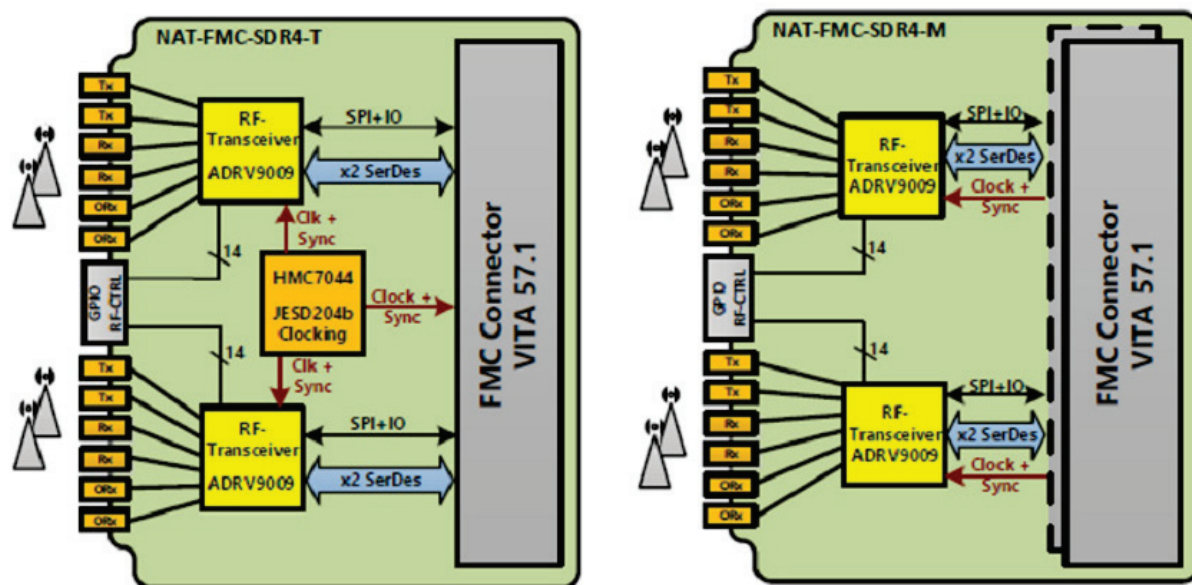
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Technical Data

NAT-FMC-SDR4



NAT-FMC-SDR4 + NAMC-ZYNQUP-FMC = NAT-AMC-ZYNQUP-SDR4 (or 8)



Specifications

- 4x Analog Devices ADRV9009 dual RF transmitter, receiver and observation receiver
- Maximum receiver bandwidth: 200 MHz
- Maximum tuneable transmitter synthesis bandwidth: 450 MHz
- Maximum observation receiver bandwidth: 450 MHz
- Multichip phase synchronization for RF- and baseband signals
- Multiboard synchronization
- JESD204B I/Q sample data interface to FPGA
- Tuning range (center frequency): 75 MHz to 6000 MHz
- RX gain range: 30dB in 0.5dB steps
- RX Noise Figure: 2dB @ 800 MHz
3dB @ 2.4 GHz
3.8 dBm @ 5.5 GHz
- Maximum output power: 9 dBm @ 75 MHz < f ≤ 600 MHz
7 dBm @ 600 MHz < f ≤ 4000 MHz
6 dBm @ 4000 MHz < f ≤ 4800 MHz
4.5 dBm @ 4800 MHz < f ≤ 6000 MHz
- TX Error Vector Magnitude (EVM): 0.5% @ 75 MHz LO
0.7% @ 1900 MHz LO
0.7% @ 3800 MHz LO
1.1% @ 5900 MHz LO
- 3rd order output intermodulation OIP3: 23 dBm @ 800 MHz
19 dBm @ 2.4 GHz
17 dBm @ 5.5 GHz

NAT-AMC-ZYNQUP-SDR4 (or 8)

Mounting one or two NAT-FMC-SDR4 RF transceiver FMC module(s) to the NAMC-ZYNQUP-FMC creates the NAT-AMC-ZYNQUP-SDR4 (or 8), which combines high performance FPGA processing with RF front-end antenna connections.

The nature of the mezzanine connectors means that, for an 8-channel module, the variants to mount on the FPGA carrier board are NAT-FMC-SDR4-M and NAT-FMC-SDR4-T.