PRODUCT BRIEF

Zynq RFSoC DFE

OVERVIEW

Xilinx® Zynq® RFSoC DFE is a breakthrough adaptable radio platform that hardens the digital front-end (DFE) for 5G mass radio deployment and a breadth of other RF applications.

Built on the only production-proven, adaptive single-chip radio platforms that integrate the entire signal chain from RF to baseband, Zynq RFSoC DFE represents a new class of devices that integrates hardened DFE IP along with Xilinx's proven Programmable Logic. Zynq RFSoC DFE offers the best balance of technologies - the cost economies of an ASIC using hardened blocks with the flexibility, scalability and time-to-market benefits of a programmable and adaptive SoC.

HIGHLIGHTS

Fully Hardened Radio Subsystem for 5G NR Performance and Power

- Validated 3GPP Standards compliant radio cores
- Half the power of Zynq RFSoC Gen 3 for typical radio applications
- Up to 7.125GHz RF bandwidth
- Industry's only 400MHz iBW for 8T8R
- Supports both FR1 and FR2 radio DFE with flexible and scalable DFE
- Flexibility to enhance hardened IP with adaptive logic

Multi-Band, Multi-Mode Operation for Flexibility and Scalability

- Up to 8 component carrier per-antenna path (8T8R FDD/TDD)
- 400MHz iBW support enables RAN sharing (e.g., MORAN)
- Ability to support multi-mode, multi-band radios with a single device

Complete Adaptive SoC for Fully Software-Defined Radio

- Based on the proven 16nm UltraScale™ architecture
- Arm® processing subsystem for DFE configuration and control
- Adaptive logic for differentiation and future market requirements
- 32G transceivers with RS-FEC for CPRI, eCPRI, and ORAN FH interfaces
- 100G Ethernet integrated cores

TARGET APPLICATIONS

5G New Radio (5G NR)

- Massive MIMO Macrocell
- Multi-Mode (4G/5G) Macrocell
- Fixed Wireless Access
- Small Cell Nodes

Aerospace & Defense

- 5G for Government / Private Spectrum
- Digital Phased Array Radar
- Milcom and Satcom Modems
- Data Links
- Positioning, Navigation, and Timing (e.g., GPS Anti-Jam)

Test & Measurement

- Portable Test Equipment
- UE Emulation / RF Testers

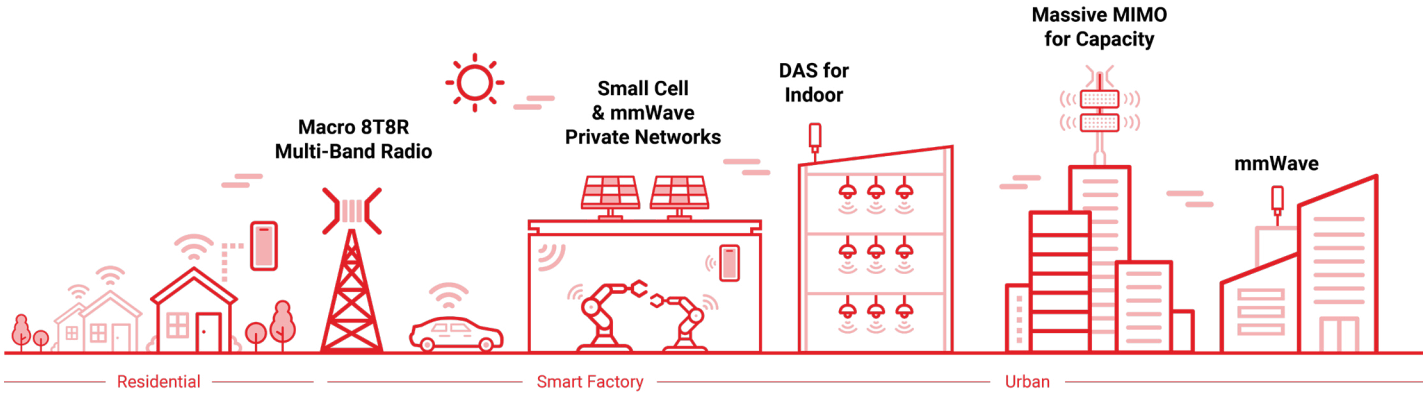
Adaptable. Intelligent.

FEATURES

Zynq RFSoC DFE integrates much of the DFE and RF processing required by both 4G and 5G NR.

HARDENED RADIO SUBSYSTEM	
Direct RF Data Converters	> 8x 10GSPS DACs | 8x 2.95GSPS ADCs and 2x 5.9GSPS ADCs > Direct RF support for all FR1 bands, optimal IF for mmWave FR2 bands > Up to 7.125GHz RF bandwidth > Integrated mixer, NCO, interpolation & decimation for digital frequency conversion
RF Signal Processing	> Specialist signal processing including resampling and equalization
Digital Pre-Distortion	> Supports up to 400MHz iBW and the latest RF power amplifier technologies > Reduced weight and thermal management complexity in the radio > Based on production-proven Xilinx IP
Crest Factor Reduction	> Supports up to 400MHz instantaneous bandwidth (iBW) > Based on production-proven Xilinx IP
Digital Up-Conversion (DUC) Digital Down-Conversion (DDC)	> Support for up to 8 component carriers (CCs) > Supports a wide range of carrier bandwidths and 400MHz iBW
Channel Filtering	> Support for up to 8 component carriers (CCs) > Supports a wide range of carrier bandwidths for 4G and 5G NR

Covering a wide range of radio requirements from small cell and DAS to macro and massive MIMO



TAKE THE NEXT STEP

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