

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)

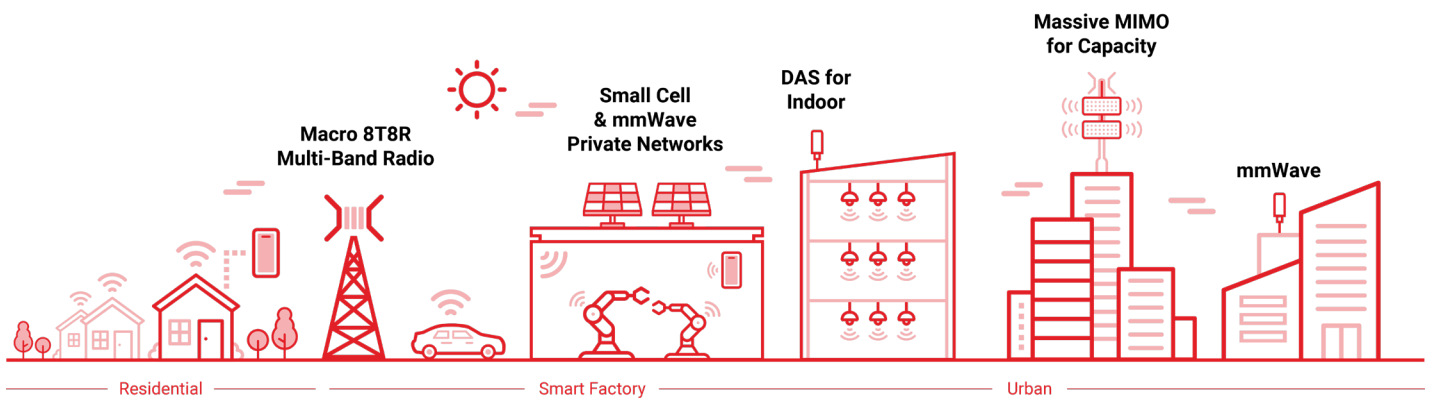
Test & Measurement

- > Portable Test Equipment
- > UE Emulation / RF Testers

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	<ul style="list-style-type: none"> > 8x 10GSPS DACs 8x 2.5GSPS 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	<ul style="list-style-type: none"> > Specialist signal processing including resampling and equalization
Digital Pre-Distortion	<ul style="list-style-type: none"> > 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	<ul style="list-style-type: none"> > Supports up to 400MHz instantaneous bandwidth (iBW) > Based on production-proven Xilinx IP
Digital Up-Conversion (DUC) Digital Down-Conversion (DDC)	<ul style="list-style-type: none"> > Support for up to 8 component carriers (CCs) > Supports a wide range of carrier bandwidths and 400MHz iBW
Channel Filtering	<ul style="list-style-type: none"> > 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

Visit www.xilinx.com/rfsoc-dfe

Corporate Headquarters
 Xilinx, Inc.
 2100 Logic Drive
 San Jose, CA 95124
 USA
 Tel: 408-559-7778
 www.xilinx.com

Xilinx Europe
 Xilinx Europe
 Bianconi Avenue
 Citywest Business Campus
 Saggart, County Dublin
 Ireland
 Tel: +353-1-464-0311
 www.xilinx.com

Japan
 Xilinx K.K.
 Art Village Osaki Central Tower 4F
 1-2-2 Osaki, Shinagawa-ku
 Tokyo 141-0032 Japan
 Tel: +81-3-6744-7777
 japan.xilinx.com

Asia Pacific Pte. Ltd.
 Xilinx, Asia Pacific
 5 Changi Business Park
 Singapore 486040
 Tel: +65-6407-3000
 www.xilinx.com

India
 Xilinx India Technology Services Pvt. Ltd.
 Block A, B, C, 8th & 13th floors,
 Meenakshi Tech Park, Survey No. 39
 Gachibowli(V), Seri Lingampally (M),
 Hyderabad -500 084
 Tel: +91-40-6721-4747
 www.xilinx.com

