5G / 5G-Advanced gNB RAN Blueprint Design by Arm, Ceva and SynaXG

arm

APPLICATION AREA

- 5G
- Connectivity
- Server and Infrastructure

OVERVIEW AND GOAL

This solution is created in collaboration with Arm, Ceva and SynaXG to redefine energy-efficient 5G NR Processing for sustainable LEO Satellites and 5G-advanced wireless infrastructure.

Leveraging Arm's Neoverse compute, Ceva's HW Accelerated 5G NR Baseband Platform and SynaXG's 5G NR RAN Expertise, customized solution delivers 10X better efficiency than X86-based solutions and 20X more efficient than FPGA-based alternatives

SOLUTION BLOCK DIAGRAM:

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ARM IP

- Neoverse
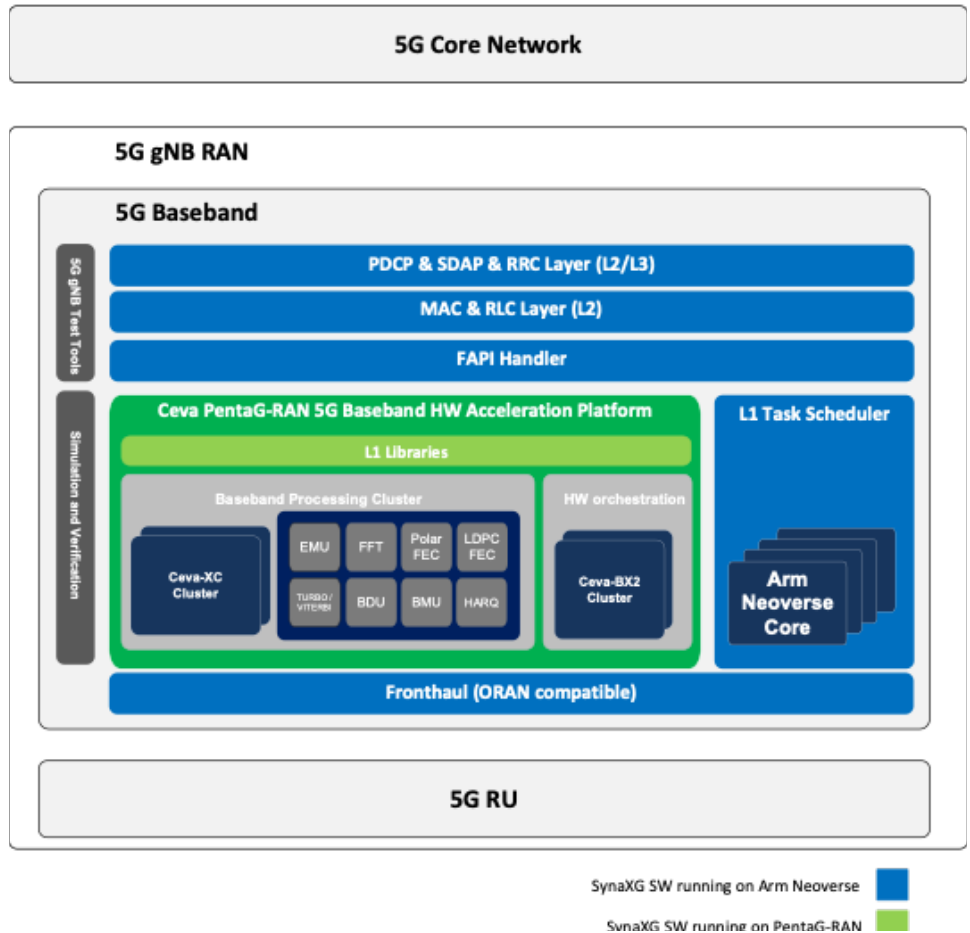
This collaborative 5G-Advanced solution combines carrier-grade software from SynaxG working seamlessly on power-efficient hardware provided by Arm and Ceva to deliver unparalleled energy efficiency for 5G NR processing. Ceva contributes its PentaG-RAN baseband processing platform, which includes Ceva vector and scalar DSP cores, optimized fixed-function hardware accelerators, and proven, optimized software modules. Arm provides the Neoverse N2 core, its first Armv9 infrastructure CPU, which delivers industry-leading performance-per-watt efficiency. SynaXG's software stack, runs on top of the Arm-Ceva Hardware, to deliver a full 5G baseband solution suitable for even the most challenging infrastructure use cases.

Ceva PentaG-RAN provides a groundbreaking platform for a complete L1 PHY (physical layer 1) solution with optimal hardware/software partitioning, incorporating powerful vector DSPs, PHY control DSPs, flexible 5G hardware accelerators and other specialized components required for modem processing chains. It delivers up to 20X savings in power and area compared to available FPGA and commercial-off-the-shelf (COTS) CPU based alternatives.

LINKS TO FURTHER RESOURCES

Ceva-PentaG-RAN:
https://www.ceva-ip.com/product/ceva-pentag-ran/

Arm Neoverse:
https://www.arm.com/products/silicon-ip-cpu/neoverse