Analog Devices and Marvell Showcase Next-Generation 5G Massive MIMO Radio Unit Platform at Mobile World Congress 2023

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Collaboration combines industry-leading digital beamforming and transceiver silicon to propel advanced massive MIMO into mainstream

WILMINGTON, Mass. & SANTA CLARA, Calif. & BARCELONA, Spain--(BUSINESS WIRE)--Feb. 23, 2023-- Analog Devices, Inc. (Nasdaq: ADI), a global semiconductor leader that bridges the physical and digital worlds to enable breakthroughs at the Intelligent Edge, and Marvell Technology, Inc. (Nasdaq: MRVL), a leader in data infrastructure semiconductor solutions, announced their next-generation 5G massive MIMO (mMIMO) reference design platform with support for Open RAN. The combination of ADI's latest RadioVerse® Transceiver SoC and the Marvell® OCTEON® 10 Fusion 5G baseband processor – the industry's first 5 nm digital beamforming solution for 5G, improves the time-to-market for advanced mMIMO radio units and O-RAN support with up to 40% lower energy consumption, smaller size, and lower weight. The OCTEON 10 Fusion baseband processor also provides flexible L1 implementation, with hardware and software reuse across the RU (Radio Unit) and DU (Distributed Unit) to facilitate evolving L1 splits among operators worldwide over the coming years, while the RadioVerse SoC provides extensive digital RF front end capabilities including field proven DPD.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20230223005331/en/

Analog Devices and Marvell showcase next-generation 5G massive MIMO radio unit platform at Mobile World Congress 2023. (Graphic: Business Wire)

"As mMIMO radio functionality grows in complexity, more specialized silicon approaches are required," said Alex Jinsung Choi, Chairman of the O-RAN ALLIANCE. "Reference designs like the one created by ADI and Marvell help catalyze the O-RAN market for 5G mMIMO radio units by enabling advanced configurations that meet network operators' high expectations for power efficiency and performance."

Together, the RadioVerse Transceiver SoC and the OCTEON 10 Fusion processor support the entire signal chain with unmatched RU system efficiency. The ADRV9040 RadioVerse Transceiver SoC includes substantial digital capabilities including linearization algorithms for boosting power amplifier efficiency and performance, as well as digital channel filters which reduce interface rates. The OCTEON 10 Fusion 5G baseband processor has specialized accelerators optimized for efficiently processing complex beamforming algorithms, along with dedicated processors for the low PHY baseband which can be configured for the various O-RAN split 7.2x configurations.

"Infrastructure vendors face many challenges when developing O-RAN mMIMO radio units, including access to optimized semiconductors," said Joe Barry, Vice President of Marketing, Systems & Technology in the Communication and Cloud Business Unit at ADI. "The performance and efficiency of this platform makes industry-leading technology available to both established and emerging vendors."

“Marvell is pleased to collaborate with ADI in taking mMIMO radios to the next level,” said Will Chu, Senior Vice President, Processors Business Group at Marvell. “The combination of Marvell’s OCTEON 10 Fusion 5G baseband processor and ADI’s leading RF transceiver technology provides OEMs a 5G Open Radio Unit reference design that scales the capabilities and performance of next-generation mMIMO beamforming at the lowest possible power.”

The reference design, which is expandable to support a 64T64R configuration, supports 32 transmit and receive antennas (32T32R) with 400 MHz of operational bandwidth and 300 MHz of instantaneous bandwidth. The OCTEON 10 Fusion 5G baseband processor and RadioVerse SoC leverage hardware accelerators as well as the industry-leading RF and digital baseband process nodes shipping commercially—16 nm and 5 nm respectively —delivering up to 40% reduction in energy consumption per bit as compared over the previous generation. The platform enables Network Energy Savings (NES) modes, which deliver additional power savings.

The platform is on display at Mobile World Congress within ADI’s booth (Hall 2, 2B18) and Marvell’s booth (Hall 2, 2F34).

About Analog Devices

Analog Devices, Inc. (NASDAQ: ADI) is a global semiconductor leader that bridges the physical and digital worlds to enable breakthroughs at the Intelligent Edge. ADI combines analog, digital, and software technologies into solutions that help drive advancements in digitized factories, mobility, and digital healthcare, combat climate change, and reliably connect humans and the world. With revenue of more than $12 billion in FY22 and approximately 25,000 people globally working alongside 125,000 global customers, ADI ensures today’s innovators stay Ahead of What’s Possible. Learn more at www.analog.com and on LinkedIn and Twitter.

About Marvell

To deliver the data infrastructure technology that connects the world, we’re building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world’s leading technology companies for over 25 years, we move, store, process and secure the world’s data with semiconductor solutions designed for our customers’ current needs and future ambitions. Through a process of deep collaboration and transparency, we’re ultimately changing the way tomorrow’s enterprise, cloud, automotive, and carrier architectures transform—for the better.

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