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[openradiosystems.com/
orsaurora.pdf](https://openradiosystems.com/orsaurora.pdf)

Performance

Outstanding hardware acceleration of the heaviest RAN functions for 5G and beyond.

Cost saving

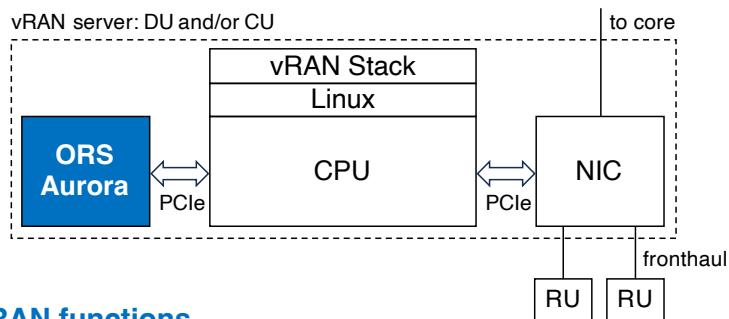
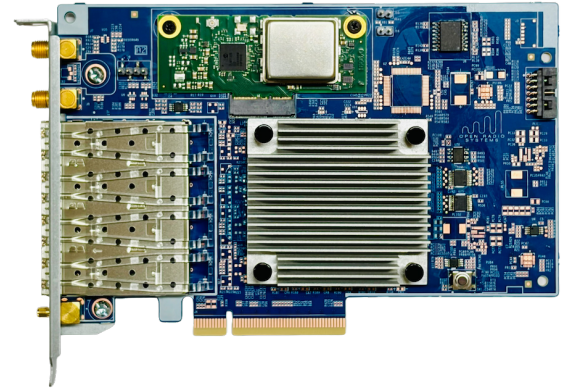
Reducing the CPU load by 45% at a maximum of 20 W saves CPU cost, power, and heat.

Future-proof

Firmware updates will turn ORS Aurora into an inline accelerator and fronthaul bus controller for 6G in Split 7 and Split 8 configurations.

Application

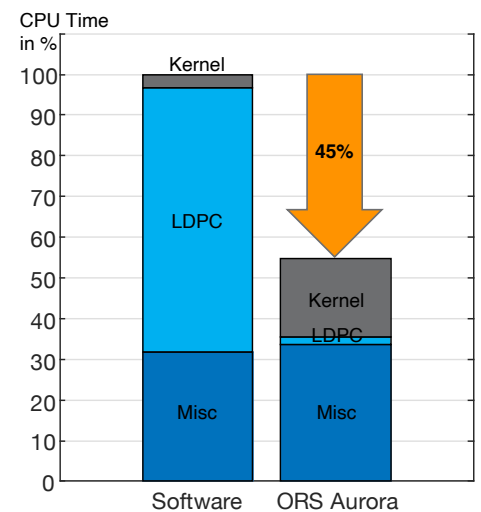
ORS Aurora is a fully programmable radio processing platform and fronthaul bus controller for 5G NR virtual RAN (vRAN) servers in Split 7.2 configuration. It offers hardware acceleration for various RAN functions at the Distributed Unit (DU). Radio Units (RUs) can directly connect to its four SFP28 ports without the need of a fronthaul switch. It provides RAN developers with an API and integrates with commercial and open-source stack directly and via DPDK.



Offloaded RAN functions

- FEC: LDPC hardware decoders, LDPC hardware encoder
- Scrambling and descrambling
- Precoding for 4x4 MIMO
- Rate matching
- HARQ timers

Left plot: With the open-source 5G stack srsRAN, ORS Aurora reduces the CPU load for processing the Physical Uplink Shared Channel (PUSCH) by 45%.



Specifications

Dimensions	PCIe full height, half length (FHHL)
Operating Temperature	-5 to 55°C (NEBS 3)
Power supply	PCIe connector or ATX 6-pts connector, max. 20 W
Hardware	FPGA-based Radio Processing Unit (RPU) PCIe Gen. 3x8 interface to host (128 Gbit/s) 4xSFP28: 25 Gbit/s Ethernet per port Internal OCXO, 1PPS reference in/out, PTP
Software Support	Linux high-performance driver DPDK/BBDEV and native interface to open-source vRAN stacks: OCUDU, srsRAN, Duranta and OAI API for RAN developers
Compatibility	5G NR 3GPP Release 17+ SA/NSA Open RAN Split 7.2 and Split 8 x86, Intel and AMD
Performance	5G NR throughput: Up to 2.4 Gbit/s decode