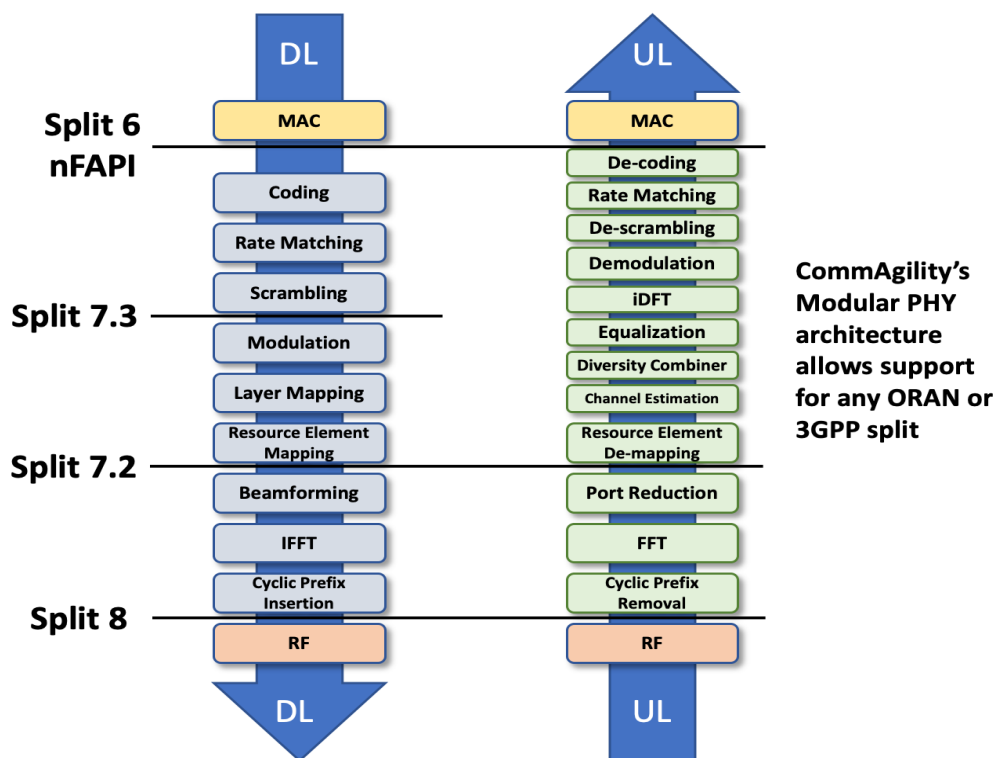


SmallCellPHY-5G

5G small cell base station (gNodeB) implementation of PHY layer for NXP wireless devices



CommAgility SmallCellPHY-5G is a 5G base station (next generation Node B, gNodeB) implementation of the physical layer for NXP Layerscape® wireless SoCs. Supported by a team of RAN experts, SmallCellPHY-5G is highly configurable with a modular architecture, allowing adaptation for maximum customer differentiation. Tailored to NXP's SoC architecture, it is scalable to allow maximum throughput, low latency or cost optimization.

The implementation makes use of NXP's hardware accelerators. SmallCellPHY-5G is multi-threaded, so can be partitioned across multiple DSP cores to scale to the

customers' product needs. The base configuration for small cells delivers maximum 5G performance for a small cell product. NXP's Layerscape LA12XX SoCs are supported, allowing customers to reuse their investment to address different market segments.

This robust software, with features complying to the 3GPP Releases 15 and future 16 specifications, benefits from CommAgility's physical layer reference chain developments, which validates algorithms and UL/DL chains for 3GPP compliance as well as to generate test vectors, which are used to validate real-time performance.

The nFAPI (SC222) compliant interface to the higher protocol layers is easy to integrate with either CommAgility's protocol stack software SmallCellSTACK-5G for gNodeBs or third party products with a

compliant API. Due to the flexible architecture, ORAN PHY Splits 6 and 7 are supported for either RU or DU architectures.

Key Features

- Small cell feature set compliant to 3GPP Releases 15 and future 16
- Based on modular architecture and standardised interfaces
- Entirely software defined
- Benefits from CommAgility's strong experience in high performance algorithms for multi-antenna system
- Highly configurable

Feature Set

- eMBB Small Cell, NSA, FR1
- 10/20/30/50/100MHz Bandwidths
- Up to 4TX/4RX
- TDD/FDD
- 6-8 UE/TTI
- For feature evolution (e.g. FR2), discuss with CommAgility Sales

Product Highlights

- Number of supported users scalable and depends on hardware platform
- Comprehensive and configurable debug infrastructure
- Small Cell Forum API (nFAPI) Compliant (SCF222)
- MAC Emulator and hundreds of test vectors available for validation of customer RF with CommAgility 5GVeriPHY tool

Resulting Benefits

- End products that work with all 3GPP compliant commercial terminals
- Enables fast porting and easy adaptation to specific system modules
- Increases flexibility and scalability
- Achieves efficient spectrum usage and maximal data throughput within the system
- Enables tailoring of required features and efficient utilization of hardware resources, thus minimizing the bill of materials for the end device

Supported NXP SOCs

- Layerscape LA12xx baseband processor family

Downlink Physical Channels and Reference Signals:

- SSB (PSS/SSS/PBCH), PDCCH, PDSCH
- PBCH DM-RS, PDCCH DM-RS, PDSCH DM-RS
- CSI-RS

Uplink Physical Channels and Reference Signals:

- PRACH, PUCCH, PUSCH
- PUCCH DM-RS, PUSCH DM-RS
- SRS



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