

# SmallCellPHY-TI

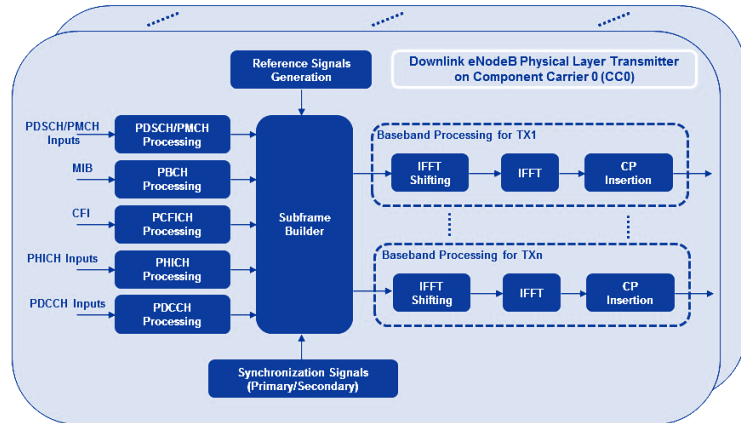
## DATASHEET

LTE small cell base station (eNodeB) implementation of PHY layer for TI wireless DSPs

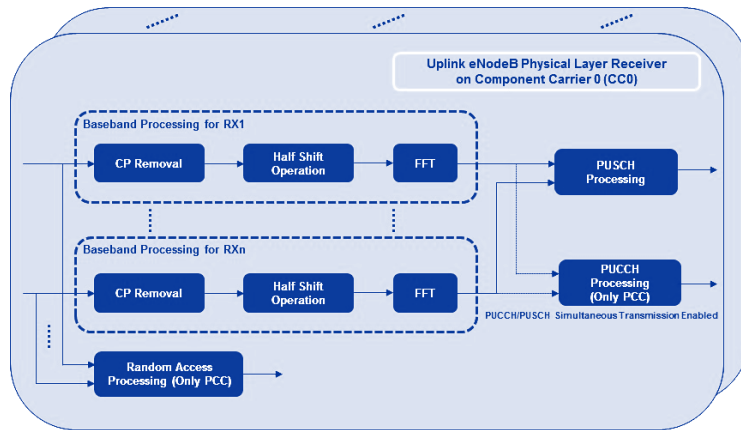
3GPP Releases 8, 9 and 10 small cell feature sets

Robust, widely tested, and validated at Tier 1 infrastructure vendors

Optimized for low memory, processing power, and power consumption



LTE DL PHY Transmitter on Multiple Carriers



LTE UL PHY Receiver on Multiple Carriers

**CommAgility SmallCellPHY-TI is an LTE base station (enhanced Node B, eNB) implementation of the PHY layer for TI wireless SoCs. Supported by a team of LTE experts, SmallCellPHY-TI is highly configurable with a modular architecture, allowing adaptation for maximum customer differentiation. Tailored to TI's Keystone I and Keystone II SoC architecture, it delivers maximum performance.**

The implementation makes use of TI's bit processing libraries and hardware accelerators. SmallCellPHY-TI 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 LTE performance for a small cell product. Texas Instruments' TCI6614, TCI6630 and TCI6636/8 SoCs are supported, allowing customers to reuse their investment to address different market segments.

This robust software, with features complying to the 3GPP Releases 8, 9 and 10 specifications, benefits from CommAgility's close collaboration with leading test houses, testing against LTE test equipment, LSTI- (LTE/SAE Trial Institute) like test vectors, and commercial LTE terminal products. The PHY has been tested and validated at Tier 1 infrastructure vendors. Bug fixes and other improvements are brought into the core product.

The FAPI (Rel. 8/9) and SCAPI (Rel. 10)-compliant interface to the higher protocol layers is modular and therefore easy to integrate with either CommAgility's protocol stack software SmallCellSTACK for eNBs or third party products with a compliant API.

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## KEY FEATURES

- Small cell feature set compliant to 3GPP Releases 8, 9 and 10
- Based on modular architecture and standardised interfaces
- Entirely software defined
- Highly configurable
  
- Benefits from CommAgility's strong experience in high performance algorithms for multi-antenna system
- Available integrated on CommAgility hardware

## PRODUCT HIGHLIGHTS

- Number of supported users scalable and depends on hardware platform
- Comprehensive and configurable debug infrastructure
- Femto Forum API (FAPI) Compliant (Rel. 8/9)
- Small Cell Forum API (SCAPI) Compliant (Rel. 10)
- MAC Emulator and over 1000 test vectors available for validation of customer RF with CommAgility VeriPHY 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
- ⇒ Enables tailoring of required features and efficient utilization of hardware resources, thus minimizing the bill of materials for the end device
- ⇒ Achieves efficient spectrum usage and maximal data throughput within the system
- ⇒ Reduces risk and cuts development time

## SUPPORTED TEXAS INSTRUMENTS SOCS

- TCI6614 "Appleton"
- TCI6630 "Lamarr"
- TCI6636 "Hawking"
- TCI6638 "Kepler"

## COMMAGILITY HARDWARE SUPPORT

- Integrated and validated on CommAgility's AMC-D24A4-RF2/RF4 and AMC-K2L-RF2 boards.

## CONTAINS END-TO-END IMPLEMENTATION OF ENB OF PHYSICAL CHANNELS DEFINED IN LTE 3GPP SPECIFICATIONS

### Physical downlink:

- DL Shared Channel (PDSCH)
- Multicast Channel (PMCH)
- Downlink Control Channel (PDCCH)
- Broadcast Channel (PBCH)
- Control Format Indicator Channel (PCFICH)
- Hybrid ARQ Indicator Channel (PHICH)

### Physical uplink:

- Uplink Shared Channel (PUSCH)
- Random Access Channel (PRACH)
- Uplink Control Channel (PUCCH)
- Sounding Reference Signal (SRS)



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