CommAgility

LTE UE/eNodeB System-in-a-Box
Flexible reference design in enclosure

The LTE UE/eNodeB system-in-a-box is a pre-integrated solution, including both hardware and 3GPP Rel. 10 LTE software. It is available in two versions, UE and eNodeB, both based on the same hardware platform, but with different software and FPGA firmware loads.

This flexible system is ideal for eNodeB, UE and network development and testing, particularly in non-standard frequency bands.

The reference design is useful to eNodeB and UE product developers, 4G/5G researchers and LTE network engineers. The software and hardware are fully integrated and tested, saving time and reducing risk.

Based on the Texas Instruments' TCI6638 SoC, the system provides up to 300Mbps download throughput and supports any frequency between 410MHz and 6GHz.

Proven Foundation for Customization

The system is based on technology proven at tier 1 communications equipment vendors and research institutes.

Because CommAgility developed the entire hardware and software, customers can have the platform highly customized for specialized applications. As well as customization, CommAgility can provide source code and test vectors/test cases, as well as integrated applications. Initial support is included in the purchase price.

Radio Front End Modules

The base board can be used in a cabled configuration. Transmit power is 0dBm in this setup, and, for TDD use, additional switching circuitry is needed. For Over The Air (OTA) use, a radio Front End Module (FEM) is required for filtering and power amplification. CommAgility has developed a selection of FEMs for certain frequency bands. If an appropriate FEM is not already available, a customer may design their own FEMs, or CommAgility can design a FEM.
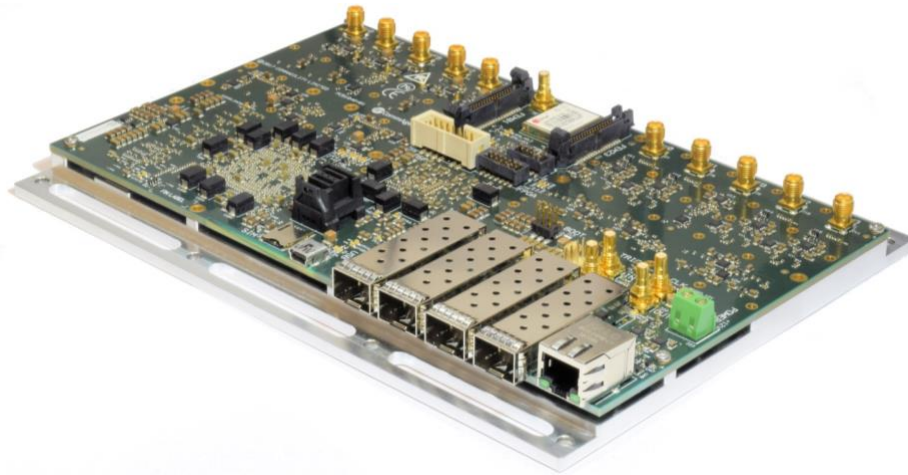
Hardware: CA-D8A4-RF4

The CA-D8A4-RF4 is a baseband processing and RF card for eNodeB and UE, based on a TCI6638K2K SoC and a Kintex-7 FPGA, with four RF channels and is the foundation for commercial products, offering high performance for demanding applications.

It combines 4 Arm® Cortex®-A15 cores with 8 TI C66x+ DSP cores, accelerators and shared memory, plus FPGA, RF and CPRI interfaces. It is supported by CommAgility small cell and UE, PHY and stack software.

The card's RF channels are tuneable in pairs over a very wide frequency range to cover LTE and unlicensed frequency bands. With CommAgility's LTE software, up to two carrier components are supported. Hundreds of parameters are configurable via the graphical user interface LTE Management Tool.

Product Package

The standard product includes the following components:

Software
- Binary LTE PHY + Stack for UE or eNodeB as appropriate
- LTE Management Tool software

Hardware
- Chassis (2U 19" rack mount)
- 130W power supply
- CA-D8A4-RF4 processing card (see separate datasheet for details)
- Radio FEM module (band 38 or other options available)

Over the Air operation is only allowed with proper spectrum license.

Key Features:

eNodeB:
- 1 or 2 20MHz Carrier Components
- TDD or FDD
- 5, 10, 20 MHz bandwidths
- Any band from 400-6000MHz
- Up to 120 active UEs

User Equipment:
- 1 20MHz or 2x10MHz Carrier Components
- TDD or FDD

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