Multi-Cell/Sector LTE Base Station Modules and Reference Design

The MuLTEfleX series of baseband and RF modules form an LTE base station (eNodeB) supporting 1 to 4 sectors/cells and up to 128 users and 150 Mbps per sector/cell for applications including fixed wireless access, neutral host deployments, military communications, distributed antenna systems, emergency services and private networks.

Designed with these markets in mind, the MuLTEfleX series provides hardware flexibility, high capacity, high throughput and flexible management. MuLTEfleX modules are supplied ready for integration into third-party products and systems, providing OEMs and system integrators with a low barrier to entry. At higher volumes, the hardware and software are available as a reference design to allow customisation and cost reduction.

All signalling and user plane backhaul interfaces are standards-based (3GPP) and simple APIs are provided for management and fault reporting, allowing rapid and reliable integration. Collaborations with Accelleran and AttoCore provide carrier-grade management, vRAN, SON and EPC, and an S1 gateway for in-building deployments.

Built around the advanced Marvell (Cavium) CNF73xx system-on-a-chip, the MuLTEfleX baseband module integrates proven technology to deliver high-performance in a compact solution. Each baseband module supports up to 4 RF modules. The RF modules may be mixed and matched to combine different band, TX power and duplexing options.

Customisations are available on request.

For further information please contact sales on:
+44 (0) 1223 755 115
or email sales@cellXica.net
Benefits

Scalable engagement model
- Low to high volume manufacture options available
- Off-the-shelf modules for low to medium volume
- Full software and hardware reference designs for medium to high volume

High capacity and throughput
- Suitable for high user density deployments such as fixed wireless access, public spaces and large events
- Up to 128 users and 150 Mbps per sector/cell
- Users and throughput scale with number of sectors

Flexible RF
- Separate baseband and RF modules
- Multi-cell and multi-sector options
- Multiple bands and/or multiple carrier options
- 100 mW, 2 W and 5 W RF 2x2 MIMO (multiple bands) available off-the-shelf

Flexible management
- Simple management for easy integration with custom management systems
- Text-based command/response/event protocol over TCP
- Carrier-grade interfaces also available

Carrier-grade L3
- Advanced and market-proven L3 software from Accelleran
- Rich set of OAM protocols: TR-069, SNMP, Netconf, WebGUI, Kuha and more
- Centralised, distributed and hybrid SON deployments
- Flexible RAN-vRAN deployment architecture and splits
- Neutral host (MOCN, MORAN, GWNC)
- ORAN-ready (standardised interfaces)

Single-sector IP65 eNodeB

Multi-sector Development Platform
Key Features – Hardware

- Available as modules for OEMs and system integrators
- Also available as reference designs for customisation and higher volumes

Baseband Module

- LTE features provided by the advanced Cavium CNF73xx system-on-a-chip
- Separate management processor
- On-board GPS receiver for location determination and frequency synchronisation
- Type-A USB for mass storage device or WiFi/cellular dongle
- 2 x Gigabit Ethernet

RF Modules

- Multiple band options: 2, 4, 5, 8 (H1 2019)
- Multiple transmit power options: 100 mW, 2W and 5W (H1 2019)
- Single and multi-sector/cell (up to 4) options
- Duplexed 2x2 MIMO
- See separate datasheet for further details

Key Features – LTE

- 3GPP release 10 eNodeB (field-upgradeable to release 13)
- FDD and TDD
- Transmission modes: 1, 2, 3 and 4
- Bandwidths: 3, 5, 10, 15, 20 MHz
- Multi-sector/cell and CA
- Standard S1/GTP backhaul interface
- Active users: 128 per sector/cell
- Downlink data rate: up to 150 Mbps per sector/cell
- Uplink data rate: up to 100 Mbps per sector/cell

Applications

- Fixed Wireless Access
- Neutral host deployments (MOCN, MORAN, GWNC)
- Military and critical communications
- DAS signal source
- Emergency services
- Private networks

Key Features – Integration

- Linux kernel with support for running third-party software on-board
- May be supplied with core network on-board for standalone operation
- Compatible with AttoCore, Quortus and other standards-compliant core networks
MuLTEfleX Hardware

LTE eNodeB Baseband Module

A high-capacity, high-throughput LTE eNodeB baseband module supporting a single RF module directly, or up to four RF modules through an “interposer” card.

- Incorporates
  - Marvell (Cavium) CNF7345 as an LTE modem co-processor
  - Xilinx Zynq XC7Z045 (or 35) as a management processor
- Part: SC6487
- Power supply: 12 V, ~60 W
- Dimensions: 125 x 125 mm

100mW 2x2 RF Module

A low-power RF module, primarily for test and development use.

- Part: RF6100
- RFIC: AD9370 (“Mykonos”)
- TX power: 100 mW (20 dBm)
- RF: Band 5, duplexed, 2x2 MIMO
- Power supply: Multi-rail (from baseband or interposer card), < 20 W
- Dimensions: 64 x 75 mm

Interested?

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**2W 2x2 RF Modules**
- Part: RF6101 and RF6102
- RFIC: AD9370 ("Mykonos")
- TX power: 2 W (33 dBm)
- RF: Band 5 (RF6101) or Band 4 (RF6102), duplexed, 2x2 MIMO
- Power supply: 12 V, ~40 W
- Dimensions: 140 x 200 mm

**5W 2x2 RF Module**
*Coming Soon*

Supplied as kit consisting of low-power RF board, duplexers and power amplifiers.

- Part: RF6103, RF6104, RF6105 and RF6106
- RFIC: AD9370 ("Mykonos")
- TX power: 5 W (37 dBm)
- RF: Bands 2, 4, 5 and 8, duplexed, 2x2 MIMO
- Power supply: 28 V

**IP6040 100mW 4-Way Interposer**

Allows four RF6100 RF modules to be connected to the same baseband

**IP6020 2W 2-Way Interposer**
*Coming Soon*

Allows two 2 W RF modules (RF6101/2) to be connected to the same baseband.

**IP6041 5W 4-Way Interposer**
*Coming Soon*

Allows up to four RF6103/4/5/6 RF boards (part of 5 W module) to be connected to the same baseband.

**Interested?**

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