

OBSAI RP3/RP3-01 v.4.0 IP CORES

PRODUCT BRIEF

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Overview

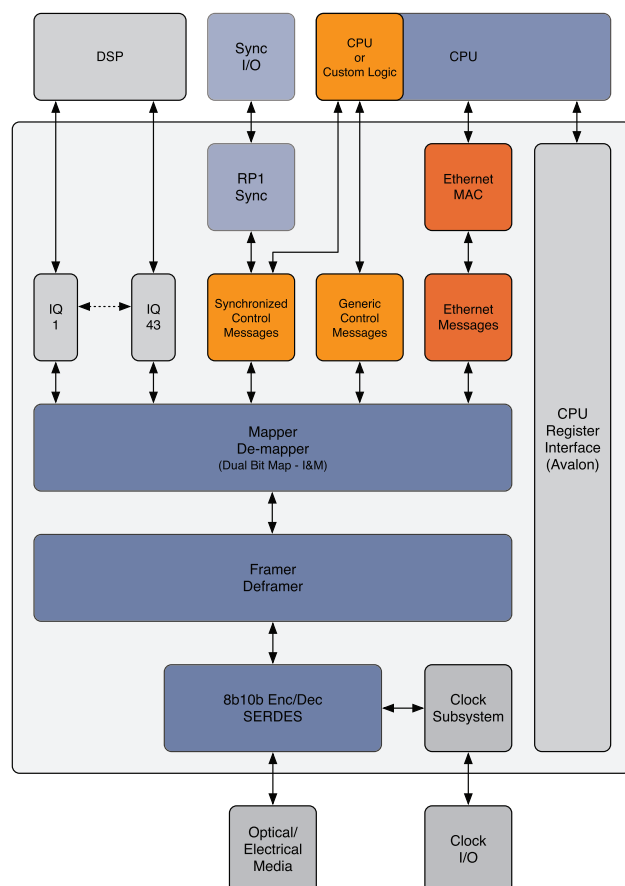
The OBSAI (Open Base Station Architecture Initiative) RP3 is an interfacing standard for high-speed communication of digital radio and control data between wireless infrastructure base station modules.

Radiocomp OBSAI RP3/RP3-01 v.4.0 Intellectual Property Cores enable the quick and flexible deployment of both BTS (Base Transceiver Station) and RRH (Remote Radio Head) interfaces. They include all features required to support WiMAX 802.16e-2005, WCDMA/LTE, GSM/EDGE, and CDMA2000 applications. Radiocomp OBSAI Cores are compliant with the latest OBSAI RP3 v.4.0 specifications.

Description

The Radiocomp OBSAI RP3/RP3-01 Cores are compliant with the latest OBSAI RP3-01 v.4.0 specifications and supports either BTS or RRH functionality. They constitute a complete solution for FPGA/ASIC applications and are optimized for Altera Stratix II GX, Arria GX, Cyclone II, and Cyclone III FPGA devices.

The IP Cores are highly compact with a usage of less than 4k LE and are also flexible, as they support all OBSAI RP3-01 v.4.0 line rates.



The cores can use either Altera GXB or external transceiver solutions to implement the Physical Layer. The framer/de-framer (Data Link Layer) and the upper layers (Transport and Application Layers) including mapper/de-mapper, control and synchronization message interfaces, and Ethernet MAC, are implemented into the FPGA logic.

The mapper/de-mapper block is generic and supports WiMAX 802.16 and WCDMA/LTE mapping formats. Mapping support for standards like CDMA2000 and GSM/EDGE is available as an option. The Control Message slot interface supports both Generic and Synchronized messages. RP1 synchronization processing and signals I/Os are provided to enable synchronization of the communication with the BTS global timing.

The core includes an optimized Ethernet MAC 10/100, which is integrated into the design, and is fully configurable via a register interface (Avalon). Accurate measurement and calibration of the internal delays for synchronization recovery are also supported and compliant with OBSAI RP3-01 v.4.0 RTT requirements.

The IP also supports different loop-backs (Serial, Full Link, I&Q, Ethernet) for link verification and debugging. The simple structure of the interfaces makes them straightforward to integrate into existing designs.

Benefits

- Compact & complete package
- Ethernet MAC layer included
- Support of multiple communications standards
- Support of multiple OBSAI line rates
- Simplified and quick implementation of OBSAI interfaces for OEMs

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TECHNICAL DATA SHEET

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IP Technical description

OBSAI RP3/RP3-01 Key Features

- Support 768 / 1.536 / 3.072 Gbps line rates. (The design is ready to support future 6.144 Gbps line rate extensions).
- Support WiMAX and WCDMA/LTE
- Support for GSM/EDGE, CDMA2000 is optional
- Up to 43 Antenna Carrier Interfaces
- Ethernet MAC 10/100 Integrated
- RP1 Synchronization Processing Block integrated

Interfaces Overview:

- High Speed Serial Interface
- Altera GXB or external SERDES
- IQ samples Interfaces
- Up to 43 IQ interfaces according to the wireless standard used.
- Ethernet Interface
- Direct Avalon interface to CPU supporting 10/100 rates.
- Control Messages Interface
- Direct interface to process headers and payload of Generic Control Messages.
- RP1 Synchronization Interface I/Os
- I/O used to process the RP1 Timing
- Clock Interface I/Os Delivery Package

Delivery Package

- IP Core for BTS/RRH
- User Interface Specifications
- User Guide

Design Resources Usage

- IP size is as in table below assuming a single antenna carrier interface.
- Size may vary according to other specific interface configurations.

Comb. ALUTs:	2915
Logic Registers:	2288
M512s:	3
M4K:	9

References

- OBSAI RP3 v.4.0 Specifications

Delivery

- The IPs for RP3/RP3-01 BTS/RRH interfaces are available today.

Optimized for



The OBSAI RP3/RP3-01 4.0 IP is optimized for Altera CycloneII, CycloneIII, Stratix II GX and Arria GX devices, which devices names and logo all are registered trademarks of Altera Corporation.