



# Bluetooth Core IP EBCP Comm Telecom

Bluetooth Core Product, two-processor solution, data and voice, 7 slaves, scatternet



## Key features

- Low power consumption
- Very low processor load
- Ideal for integration of Bluetooth Baseband in custom circuits
- For two-processor applications
- Supports all profiles in the Bluetooth Specification

## Target Products

- Desktop computers
- Communicators
- Advanced access points

## Description

This product is an ideal Bluetooth™ Baseband Software and Hardware IP product for low-cost and low-power applications. It is a two-processor solution enabling Bluetooth functionality in a great variety of products.

The concept is a mixed hardware and software solution. The Baseband is implemented in hardware for optimal low power operation.

ARM's support and knowledge will guarantee portability to various silicon processes.

## Profiles

The software will be optimized for high data rates. The following profiles are recommended for the target products:

- LAN Access profile
- Dial up networking profile
- Fax profile
- Cordless Telephony profile

## Development

The Licensee will be able to install and run a complete working system. A generic Design Simulation Model (DSM) of the ARM7TDMI is also supplied, so the deliverables include a complete working simulation system.

## Qualification

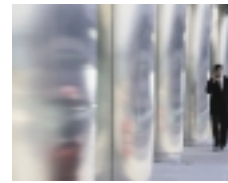
The EBCP Comm Telecom is considered to be a component and can therefore be prequalified. A reference design will be submitted to specific tests and a test report will be generated. In addition there will be an Implementation Conformance Statement for the EBCP. This will therefore give seamless development and qualification for the SoC (System On Chip) developer.

## Hardware Design

- Processor: ARM 7TDMI
- Bus: AMBA

## Additional Required Modules

- FLASH Memory
- RAM
- Bluetooth Radio
- Oscillator and PLL



## Hardware Architecture

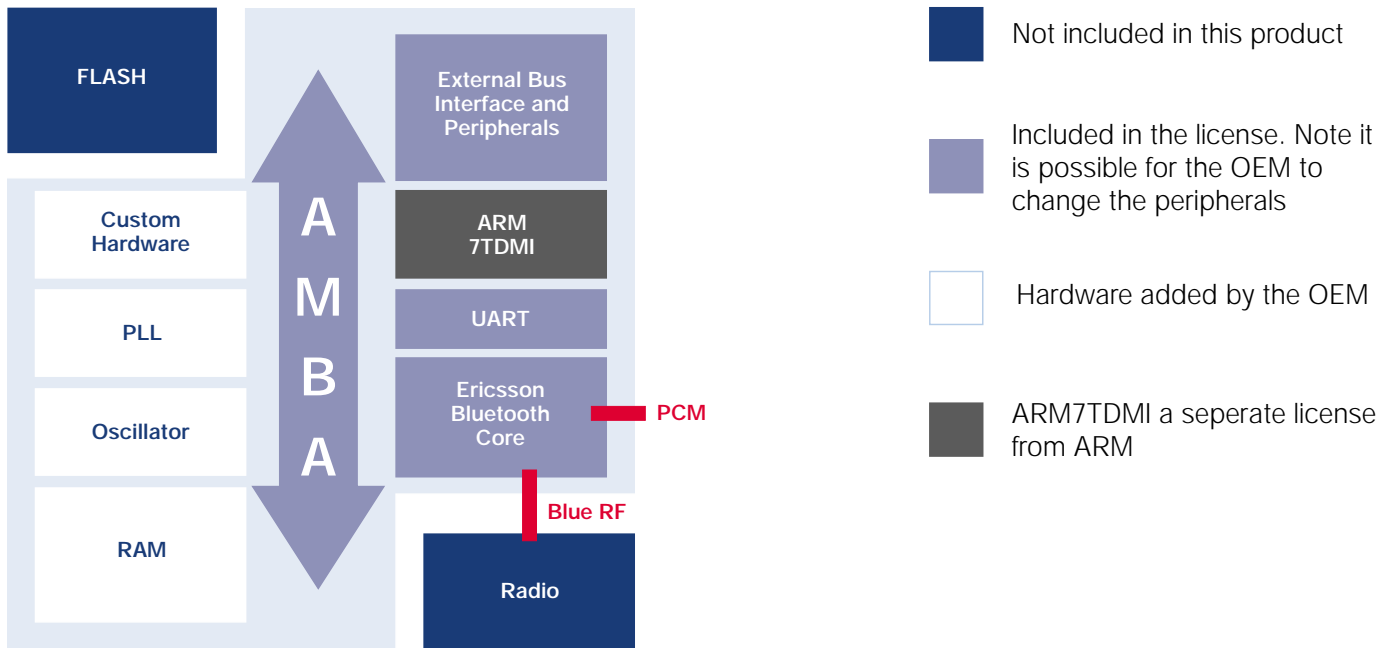
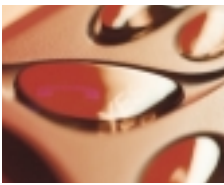


Figure 1. Hardware components



## Deliverables

The licensable product (EBCP) supports the Bluetooth Specification v1.0 and consists of the following hardware and software components combined to implement a Bluetooth system:

### Hardware comprises these two System-on-chip components:

The Bluetooth Core (EBC). This is a System-on-Chip communication peripheral macrocell which performs the baseband function.

A peripheral subsystem which provides the hardware resources for the software. It allows a silicon vendor to realize a working micro controller (with the addition of their custom cells such as RAM, PLL, etc., and CPU).

### Development boards:

Three boards are supplied (as this forms a piconet with one master and two slaves).

### Low-level software (or firmware):

Bluetooth real-time software which performs the Link Manager function and HCI layer. It includes a Real-Time Operating System (RTOS) as linkable libraries.

### Bluetooth test software (PC-Hosted)

Provides various test functions to test and exercise the Bluetooth link.

## Low Level API

- ARM BIOS for adding own drivers.

## Interface

- HCI interface
- PCM (8/16 bit) a-law or  $\mu$ -law
- Blue RF

## Software Architecture

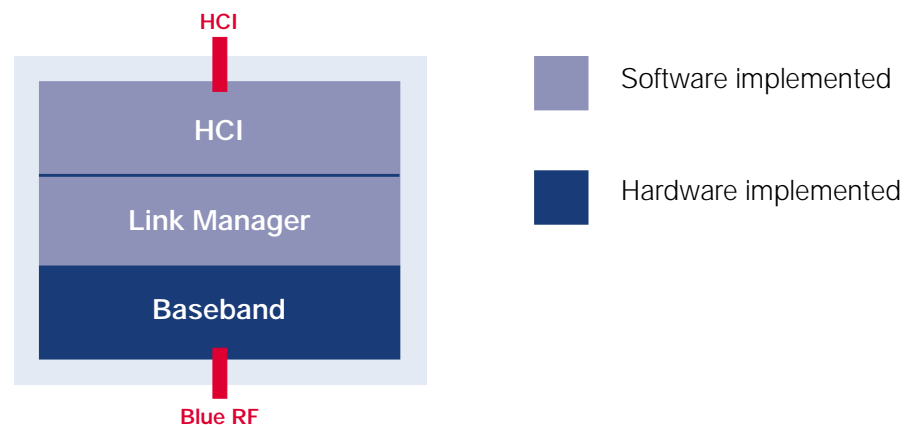


Figure 2. Protocol Stacks and Interfaces

## Data

Hardware delivered as: \_\_\_\_\_ HDL code  
Software delivered as: \_\_\_\_\_ object code  
Bluetooth Specification: \_\_\_\_\_ Release 1.0b  
RTOS: \_\_\_\_\_ OSE  
Code Size: \_\_\_\_\_ 200K  
RAM requirement: \_\_\_\_\_ 62 Kbyte  
Gate count Bluetooth Baseband core: \_\_\_\_\_ 280 K Gates  
Silicon size Bluetooth Baseband core: \_\_\_\_\_ 2.8 mm<sup>2\*</sup>  
Silicon size complete solution<sup>\*\*</sup>: \_\_\_\_\_ ~7 mm<sup>2\*</sup>  
Power consumption<sup>1\*\*\*</sup>: \_\_\_\_\_ 0.03mW  
Power consumption<sup>2\*\*\*\*</sup>: \_\_\_\_\_ 30mW  
Processor load: \_\_\_\_\_ below 20%  
Protocol Stacks and Interfaces: \_\_\_\_\_ se Figures  
Number of supported slaves: \_\_\_\_\_ 7  
Voice Channels: \_\_\_\_\_ 3  
Radio interface: \_\_\_\_\_ Blue RF (8 pin and 17 pin modes)

\*) Silicon size in typical 0.18 mm process

\*\*) With RAM, CPU and Baseband peripherals

\*\*\*) Baseband power in scan mode

\*\*\*\*) Baseband power in normal mode sending DH3 package (390Kb/s)

## Complementary Products

- Bluetooth HOST stack- an OS-independent source code stack that can be ported to any Host environment.
- Bluetooth PC Reference Stack – a Windows porting of the above, for Lab/ Demo purposes only.

For more info see [bluetooth.ericsson.se](http://bluetooth.ericsson.se)



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