

## XE1401

### Ultra low power Bluetooth™ Baseband Controller for portable Data and Voice Applications

#### General Description

The XE1400 series is a family of highly optimized Bluetooth™ integrated circuits. The XE1400 series offers a generic Bluetooth™ baseband solution to enable your battery operated applications with the Bluetooth™ wireless communication standard in the worldwide available 2.4 GHz ISM band. The easy to use XE1400 series is highly optimized for ultra low power consumption.

The XE1401 device is a stand alone Bluetooth™ baseband protocol-on-chip solution providing the full Bluetooth™ functionality up to the Host Controller Interface (HCI). This ultra low power "add-on" Bluetooth™ baseband solution targets all battery powered applications with an already existing host controller.

#### Applications

- PCs, PDAs, Cell Phones and wireless games, peripherals and accessories.
- Headset applications.
- Home surveillance and security.

#### Product Features

- ROM based, single chip Bluetooth™ baseband add-on solution - no external memory required.
- Fully integrated lower layer Bluetooth™ protocol, compliant to revision 1.1 based on qualified NewLogic™ IP. Already prepared for Bluetooth™ revision 1.2.
- Supports one SCO (HV, DV packages) and up to three simultaneously ACL (DM, DH, AUX packages) channels.
- Supports various Bluetooth™ radio chips, e.g. SiliconWave, Skyworks.
- Supports Class 1, Class 2 and Class 3 radio modules.
- High speed 4 wire UART for host processor interfacing. Glueless audio interface to XEMICS XE3000 CODECs.
- Supply voltage range 1.8V to 3.6V, core operating voltage 1.8V.
- Ultra low power consumption, e.g. total peak current of radio and XE1401 of below 25mA.

## Bluetooth™ Baseband Controller IC

The Bluetooth™ Controller IC is designed to be manufactured in a 0.18µm CMOS process. It includes all required hardware blocks to comply with the Bluetooth™ communication standard.

The embedded baseband sequencer manages all Bluetooth™ baseband tasks of the lower layer protocol up to the HCI (Host Controller Interface). The baseband controller insures a "transparent" usage of the Bluetooth™ wireless communication via the HCI. It receives the data directly from your application and then performs the various transmits, receive and protocol timing tasks without any interaction from the host controller.

The radio interface gluelessly links the Bluetooth™ baseband controller IC to various Radio ICs.

## Software

The XE1401 incorporates the complete lower layer protocol software. State of the art upper layer protocol Development Tools are provided through our partners like IAR Systems ([www.IAR.com](http://www.IAR.com)).

For specific applications e.g. Bluetooth™ Headsets a complete software package can be provided including application layer Software in ANSI C format.

## Radio

The XE1401 supports several 3<sup>rd</sup> party radio devices using a 13MHz or 16MHz clock and any supply voltage between 1.8V and 3.6V.

To benefit most from the low power features of the baseband chip, XEMICS recommends the Skyworks ([www.SkyworksInc.com](http://www.SkyworksInc.com)) Bluetooth™ radio CX72303.

## CODEC

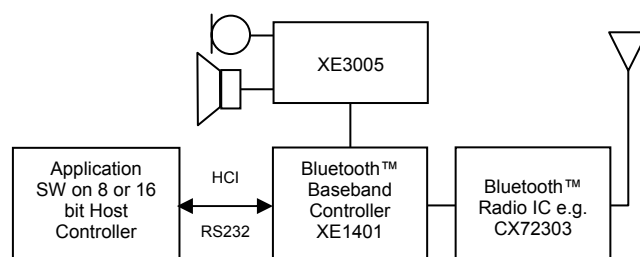
The XE1401 supports CODEC utilizing log. PCM as well as CVSD (Continuous Variable Slope Delta) coding.

## Fast time to market

The XE1400 series is targeted for portable, battery powered Bluetooth™ wireless communication applications. The Starter Kit for the XE1401 – XE1401SK - allows easy prototyping and to bring products with an already existing host controller rapidly on the market.

XEMICS teamed up with regional Bluetooth™ Competence Centers to support clients to rapidly bring Bluetooth™ products using the XEMICS XE1400 series on the market.

## Complete Bluetooth™ solution Headset



Bluetooth™ application example - Headset

This integration example shows your application enabled with the Bluetooth™ wireless communication standard.

The ROM based Bluetooth™ baseband controller XE1401 autonomously handles all lower layer Bluetooth™ tasks and hence significantly eases the system development.

Reference designs using various form factors are available.

## TRADEMARKS

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