

XE1402

Ultra low power Bluetooth™ Baseband Controller for portable Data 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 XE1402 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.
- Medical, home surveillance and security applications.

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 up to seven simultaneously ACL (DM, DH, AUX packages) channels – SCO connections are NOT supported.
- 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. Generic Serial interface (SPI) to external peripherals.
- 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 XE1402 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 will manage 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 XE1402 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).

For specific applications e.g. Cable replacement (Serial Port communication) a software package can be provided including application layer Software in ANSI C format.

Radio

The XE1402 supports several 3rd party radio devices.

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

SPI

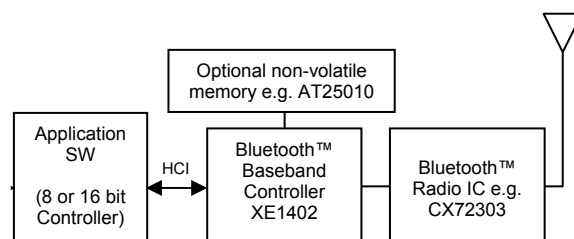
The on chip generic SPI is fully transparent via the HCI and allows to communicate to external peripherals like non-volatile memory and sensors. The on chip boot-loader can be used to automatically initialize the complete system up to the application layer.

Fast time to market

The XE1400 series is targeted for portable, battery powered Bluetooth™ wireless communication applications. The XE1402 allows easy prototyping to bring products with an already existing host controller rapidly on the market.

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

Complete Bluetooth™ solution – serial port communication



Bluetooth™ application example – Cable replacement

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

The ROM based Bluetooth™ baseband controller XE1402 autonomously handles all lower layer Bluetooth™ tasks and hence significantly eases the system development.

Reference designs using various form factors are available.

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