ST-NXP Wireless

IMPORTANT NOTICE

Dear customer,

As from August 2nd 2008, the wireless operations of STMicroelectronics have moved to a new company, ST-NXP Wireless.

As a result, the following changes are applicable to the attached document.

● **Company name - STMicroelectronics NV** is replaced with **ST-NXP Wireless.**

● **Copyright** - the copyright notice at the bottom of the last page "© STMicroelectronics 200x - All rights reserved", shall now read: "© ST-NXP Wireless 200x - All rights reserved".

● **Web site** - http://www.st.com is replaced with http://www.stnwireless.com

● **Contact information** - the list of sales offices is found at http://www.stnwireless.com under Contacts.

If you have any questions related to the document, please contact our nearest sales office. Thank you for your cooperation and understanding.
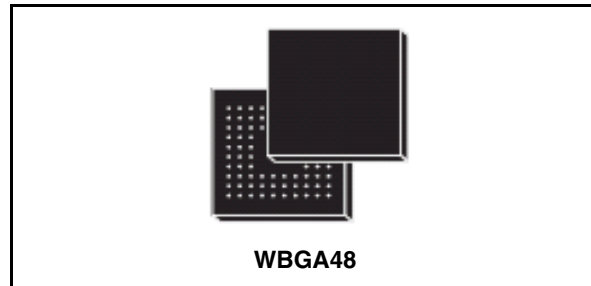
ST-NXP Wireless

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STLC2500D

Bluetooth V2.1 "Lisbon" + EDR

Data Brief

Features

- Based on Ericsson Technology Licensing Baseband Core (EBC)

- Bluetooth™ specification compliance: V2.1 ("Lisbon") + EDR

- HW support for packet types ACL, SCO, eSCO

- Adaptive Frequency Hopping (AFH)

- "Lisbon" features
    - Encryption Pause/Resume (EPR)
    - Extended Inquiry Response (EIR)
    - Link Supervision Time Out (LSTO)
    - Secure simple pairing
    - Sniff subrating
    - Quality of Service (QoS)
        - Packet boundary flag
        - Erroneous data delivery

- Channel Quality Driven Data Rate (CQDDR)

- Power Class 2 and Power Class 1.5 (above 4 dBm) transmit power

- HCI H4 and enhanced H4 Transport Layer

- Implements Pitch-Period Error Concealment (PPEC)

- Fully flexible support for a wide range of WLAN and other co-existence scenarios

- Low power consumption

- Ultra low power architecture with 3 different low-power levels

- Dual wake-up mechanism

- Communication interfaces: UART, SPI, PCM...

- ARM7TDMI™ CPU

- On-chip RAM, on-chip ROM

- Supports 1.65 V to 2.85 V I/O systems

- Auto calibration (VCO, Filters)
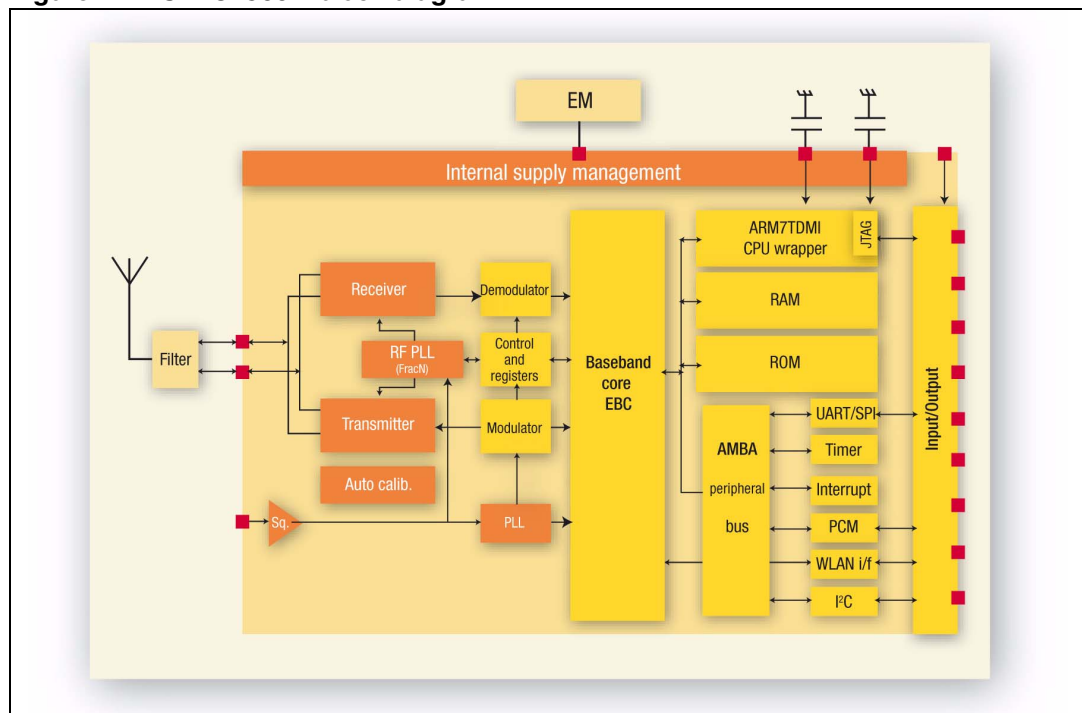

WBGA48

Description

The STLC2500D is a single-chip Bluetooth solution that is fully optimized for mobile applications such as mobile phones, smart phones, PDAs and portable media players. Power consumption levels are targeted for battery powered devices and the integration allows a cost-effective solution. Manufacturers can easily integrate the STLC2500D to achieve a rapid time to market. Compared to its successful predecessor, the STLC2500C, the STLC2500D supports the Bluetooth specification V2.1 ("Lisbon")+ EDR and further optimizes the RF performances and cost.

January 2008

Rev 1

For further information contact your local STMicroelectronics sales office.

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1   Overview

- Based on Ericsson Technology Licensing Baseband Core (EBC)
- Bluetooth™ specification compliance: V2.1 ("Lisbon") + EDR
    - Point-to-point, point-to-multi-point (up to 7 slaves) and scatternet capability
    - Support ACL and SCO links
    - Extended SCO (eSCO) links
    - Faster connection
- HW support for packet types
    - ACL: DM1, DM3, DM5, DH1, DH3, DH5, 2-DH1, 2-DH3, 2-DH5, 3-DH1, 3-DH3, 3-DH5
    - SCO: HV1, HV3 and DV
    - eSCO: EV3, EV4, EV5, 2-EV3, 2-EV5, 3-EV3, 3-EV5
- Adaptive Frequency Hopping (AFH)
- Channel Quality Driven Data Rate (CQDDR)
- "Lisbon" features
    - Encryption Pause/Resume (EPR)
    - Extended Inquiry Response (EIR)
    - Link Supervision Time Out (LSTO)
    - Secure simple pairing
    - Sniff subrating
    - Quality of Service (QoS)
      Packet boundary flag
    - Erroneous data delivery
- Transmit power
    - Power Class 2 and Power Class 1.5 (above 4 dBm)
    - Programmable output power
    - Power Class 1 compatible
- HCI
    - HCI H4 and enhanced H4 transport layer
    - HCI proprietary commands (for example peripherals control)
    - Single HCI command for patch/upgrade download
    - eSCO over HCI supported
- Implements Pitch-Period Error Concealment (PPEC)
- Fully flexible support for a wide range of WLAN and other co-existence scenarios

- Low power consumption
  - Ultra low power architecture with 3 different low-power levels
  - Deep sleep modes, including Host-power saving feature
  - Dual wake-up mechanism: initiated by the Host or by the Bluetooth device
- Communication interfaces
  - Fast UART up to 4 MHz
  - Flexible SPI interface up to 13 MHz
  - PCM interface
  - Up to 10 additional flexibly programmable GPIOs
  - External interrupts possible through the GPIOs
  - Fast I^2C interface as master
- Clock support
  - System clock input (digital or sine wave) at 9.6 MHz, 10 MHz, 13 MHz, 16 MHz, 16.8 MHz, 19.2 MHz, 26 MHz, 33.6 MHz or 38.4 MHz
  - Low power clock input at 3.2 kHz, 32 kHz or 32.768 kHz
- ARM7TDMI^{TM} CPU
- Memory organization
  - On chip RAM, including provision for patches
  - On chip ROM, preloaded with SW up to HCI
- Ciphering support up to 128-bit key
- Single power supply with internal regulators for core voltage generation
- Supports 1.65 V to 2.85 V I/O systems
- Auto calibration (VCO, Filters)

Figure 1.   STLC2500D block diagram

2 Ordering information

Table 1.   Ordering information

Order codes	Package	Packing
E-STLC2500D	WFBGA48	Tray
E-STLC2500DTR	WFBGA48	Tape-on-reel

3 Revision history

Table 2.   Document revision history

Date	Revision	Changes
22-Jan-2008	1	Initial release.

STLC2500D

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5/5