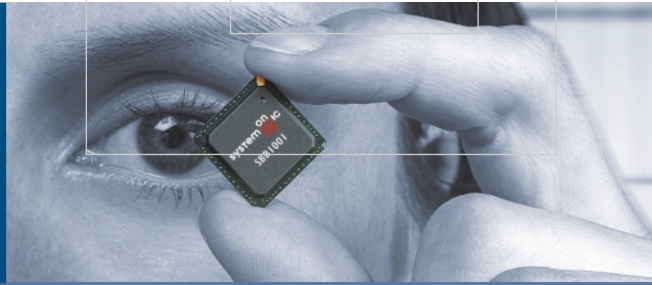


TONDELAYO™ 1 BASEBAND



A Configurable, Multi-protocol Silicon System Powering Wireless LANs, Across Standards, Across the World

SYSTEMONIC'S TONDELAYO 1 BASEBAND SBB1001 IS A **FULLY PROGRAMMABLE IEEE 802.11a AND 802.11b PHYSICAL LAYER SOLUTION**. IT IS AN APPLICATION-SPECIFIC STANDARD PRODUCT (ASSP) THAT IS BASED ON A SIGNAL PROCESSOR GENERATED BY MEANS OF SYSTEMONIC'S PATENTED OnDSP™ PLATFORM. THE TONDELAYO BASEBAND SBB1001 COMBINES THE **FLEXIBILITY** OF A PROCESSOR-ORIENTED ARCHITECTURE WITH THE EFFICIENCY OF A HARDWIRED SOLUTION.

Overview

The Tondelayo baseband SBB1001 architecture comes with an extremely flexible interface, greatly simplifying the system design and integration with components from various suppliers. High-performance 10 bit DACs and ADCs in the receive- and transmit-path allow an easy and robust connection to 5 GHz and 2.4 GHz RF devices via analog IQ or IF signals.

The Tondelayo baseband SBB1001 is part of the Tondelayo chipset, which implements a complete wireless LAN (W-LAN) subsystem for 2.4 GHz and 5 GHz frequency bands. This chipset makes it possible to create a low-cost, highly integrated, programmable W-LAN subsystem, which can be integrated both in mobile terminals and base stations. Switching between IEEE 802.11a and 802.11b is performed in the field simply by loading the corresponding firmware transparently to the user. Delivered in a small footprint package (µBGA176) and equipped with smart power save modes, the Tondelayo baseband SBB1001 helps cut costs and power dissipation for high-performance W-LAN products.

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Benefits

- : Reduced time-to-market through simple system integration.
- : Programmable architecture enables easy differentiation.
- : In field selectable 802.11a and 802.11b operation providing transparent connectivity.

- : In field updates to protocols and algorithms through driver upgrades.
- : Longer product life cycles by supporting latest wireless technology.
- : On-chip memory and flexible interfaces reduce overall system BoM.
- : Smart power save modes to provide longer battery life in mobile devices.
- : Suitable for both access points and client terminals.

W-LAN multi-protocol baseband integrated circuits silicon solutions multi-mode radio W-WAN

Features

- : Fully compliant with the IEEE 802.11a 5 GHz and 802.11b 2.4 GHz standards.
- : Based on Systemonic's OnDSP™ signal processing engine.
- : Complete physical layer.
- : Processing of time-critical functions within the 802.11 MAC layer (DCF, NAV calculations, error handling, RTS/CTS mechanism, CRC calculations, retransmission handling, etc.).
- : Smart standby features for power savings.
- : Data rates up to 54 Mbps.
- : Full digital synchronization (time, frequency, and phase).
- : Hardware accelerators for channel encoding/decoding, and receive and transmit filters.
- : Digital Rx and Tx filtering for increased adjacent channel performance and spectrum shaping.
- : On-chip high-performance 10 bit analog-to-digital and digital-to-analog converters.
- : Analog and digital gain control for the RF front end.
- : Support for Receive Signal Sensitivity Indicator (RSSI).

Applications

- : 5 GHz and 2.4 GHz multi-protocol wireless LAN devices.
- : Enterprise Wireless LAN systems.
- : PDAs and Notebook Computers.
- : 802.11a+b Card Bus wireless transceiver.
- : Protocol-configurable Access Points and Bridges for "hot-spots" or public-area W-LANs, and wireless building-to-building communications networks.
- : Wireless Home Networking systems.
- : Consumer electronic devices for Wireless Digital, Audio, Video, Multimedia and Telephony.
- : Routers, cable modems, and television set-top boxes with wireless LAN capability.

SPECIFICATIONS

Supported Standards	IEEE 802.11a and 802.11b
Modulations	802.11a: OFDM with BPSK, QPSK, 16-QAM and 64-QAM subcarrier modulation 802.11b: DBPSK, DQPSK, CCK (DSSS)
Media Access Technique	CSMA/CA
Data Rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps
Encryption	40- and 128-bit WEP DES and Triple DES
Operating Voltage	3.3 V and 1.8 V
Power Consumption	Transmit (Tx) mode: 700 mW Receive (Rx) mode: 887 mW
Antenna Diversity	Switched antenna diversity controlled by the Tondelayo baseband SBB1001
Development Platform	Available in PCI-card form factor, Linux and Windows based development software system
Reference Design	Available in PC Card form factor, Windows ME, 2000 and XP and Linux drivers, configuration utility
Process Technology	CMOS - 0.18μ
Packaging	176-pin μBGA
Packaging Dimensions	15mm x 15mm
Automatic Gain Control	Analog and digitally controlled

SBB1001 BLOCK DIAGRAM

