Product Brief
October 2004

WV8307 Wireless VoIP Phone Platform

Application

- 802.11 based wireless IP phone.

Features

- Extended battery life:
  - — Based on low power consumption IC technology, which allows for extended talk and standby time.
  - — Four hours talk time (800 mA battery).
  - — One hundred hours standby time (800 mA battery).
- Wireless connectivity to the LAN via 802.11b.
- USB 1.1 device controller.
- IrDA interface.
- Agere VoIP processing (G.7XX coders/decoders and packetizing/depacketizing of data).
- Proven architecture currently used in VoIP desktop, cellular, and *Wi-Fi*® platforms.
- Pixel-based user interface display.
- Supports hard and soft keys and navigation key.
- Microphone and speaker.
- Volume control and 2.5 mm headphone jack.
- Small form factor circuit board.
- Integrated linear Li-ION battery and charger.
- Silent ring (vibrate mode).

Description

This WV8307 reference design implements an 802.11-based wireless IP phone for transmitting and receiving voice over a wireless LAN. The wireless VoIP phone converts voice signals into IP packets for transmission over a *Wi-Fi* network following VoIP protocols. This complete hardware design combined with the supplied software allows for easy product development and fast time to market.

Extended battery life is a key feature of this solution and leverages Agere's expertise in developing low power consumption devices and architectures for mobile terminals.

The WV8307 platform provides superior audio quality with low end-to-end delay—advantages Agere extends from its origin as a telecommunications pioneer. Final products utilizing this design can be similar in size to today's mobile cellular terminals.

The WV8307 platform consists of the following highly integrated ICs:

- The Agere T8307 SoC, which implements the VoIP call control and voice processing. It has an integrated *ARM*®946E-S, Agere 16000 dual MAC DSP, and several I/O peripherals. All required DSP memory is contained within the T8307.
- The Agere CSP8307 IC, which includes the audio codecs, power management functions, battery charger, ringer/vibrator drivers, and low dropout voltage regulators.
- The Agere *WaveLAN*® WL60011 *Wi-Fi* media access controller (MAC).
- The Agere *WaveLAN* WL1141 baseband and radio IC MCM implements the *Wi-Fi* baseband and radio functions. The WL1141 encompasses two ICs in a multichip module.

Products using these ICs and software provide mobility for the traditional and vertical enterprise markets and the residential/SOHO cordless market.

This platform leverages Agere Systems leadership and experience in VoIP, *Wi-Fi*, and low power consumption GSM/GPRS technologies. The platform is also the foundation for Agere's roadmap of solutions for combination cellular/wireless VoIP phones.

Description (continued)

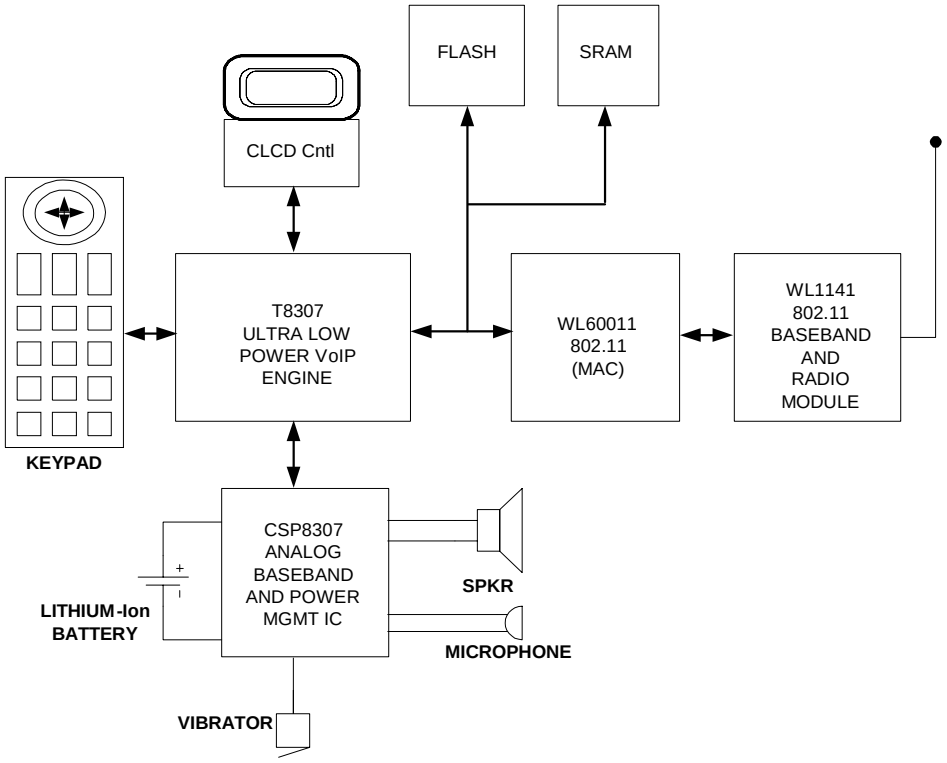

Figure 1. WV8307 Wireless VoIP Phone Block Diagram

Software Features

- Complete system solution using *Wind River*® PCD1.1 platform, which includes *Tornado*® IDE, *VxWorks*® RTOS, and necessary networking components.
- SIP stack from CCPU (formerly *Trillium*®) as sample demo application.
  — RADVISION SIP stack to be supported.
- Voice processing:
  — Agere's industry-proven voice compression codecs and adaptive, low delay jitter buffer.
  — User-configurable comfort noise insertion and handset and headset echo cancellation.
- Network processing:
  — Supports demo of SIP and RTP/RTCP protocol.
  — 802.1p/q—virtual LAN support.
  — Supports SNMP, TCP/IP, UDP, RTP, RTCP, ICMP, and ARP.
  — Supports static IP address configuration.
  — Supports IPV4.
- Network interface:
  — Conforms to *IEEE*® 802.11b specification.
  — Interoperates with other 802.11b *Wi-Fi* alliance compliant products.
  — Dynamic rate scaling (11 Mbits/s, 5.5 Mbits/s, 2 Mbits/s, or 1 Mbits/s).
  — Security support includes WPA, WEP (shared/dynamic key), 64-/128-bit RC4, SSL (https), and TKIP encryption.
  — ESSID authentication.
  — WPA (*Wi-Fi* protected access) enhanced security.

Software Features (continued)

- System software functions:
  - — Multiline capability (appears as two separate phone lines).
  - — Speed dial.
  - — Caller ID.
  - — Time, date, name, and number display.
  - — Battery and signal level metering.
  - — Number redial and predial (cell phone mode).
  - — API to allow development of custom ring tones.
  - — Keypad lock.
  - — Vibrate mode (ringer off).
  - — Support for user-downloadable ring tones.
  - — API to support user application development.
  - — 3-way calling.
  - — API to support voice recorder.
  - — Autoanswer.
  - — Dial from stored list.
  - — Call mute.
  - — API to support customer ring tones.
  - — Upload via serial port, *Wi-Fi*, or keypad.
  - — Factory reset and reboot with button.

Note: For software features not listed above, please contact your local Agere FAE.

T8307 IC

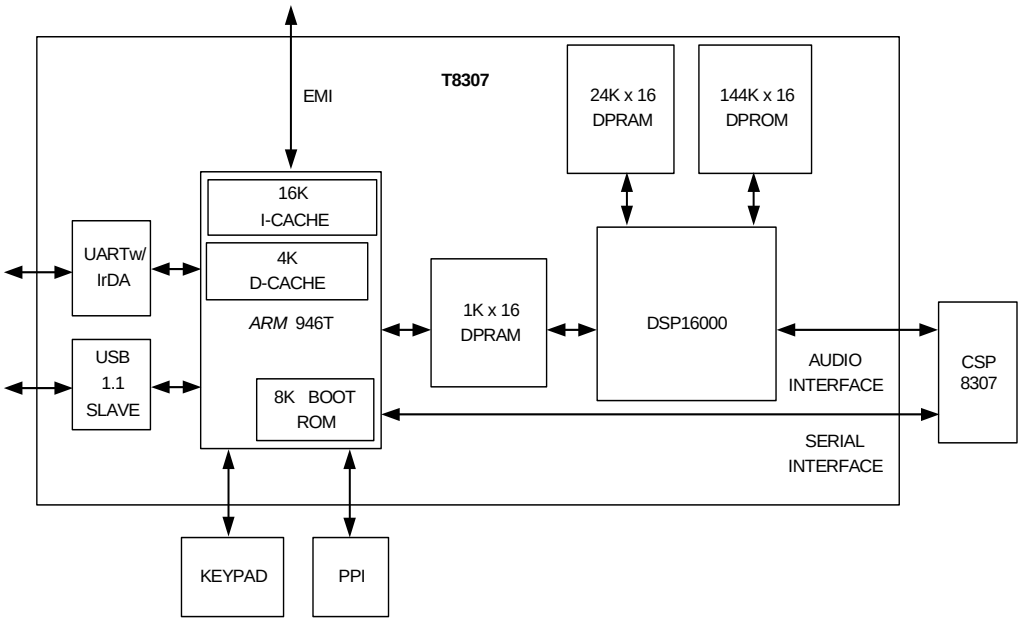

Figure 2. T8307 IC Block Diagram

T8307 IC (continued)

- *ARM* 946E microcontroller core.
- DSP16000 dual MAC DSP core with internal RAM and ROM.
- IrDA.
- USB 1.1 device controller.
- Shared 1K x 16 interprocessor communication memory.
- Ultralow power consumption design.

CSP8307 IC

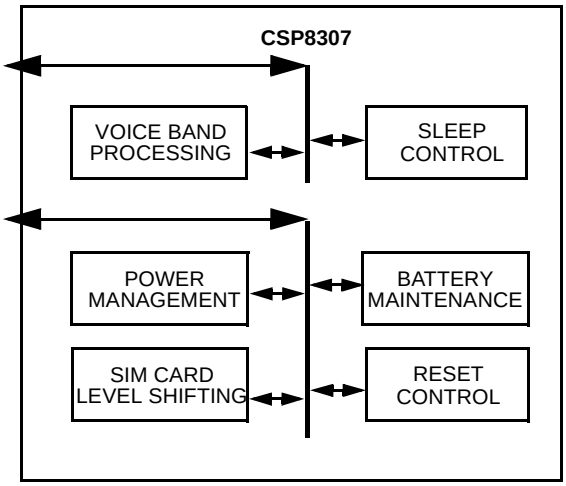

Figure 3. CSP8307 Physical Block Diagram

- Voice band codec.
- Two analog inputs and outputs.
- Li-ION battery charger.
- Voltage reference generator.
- Ringer/vibrator driver.
- Digital audio I/O.
- Serial I/O.
- Seven low-dropout (LDO) regulators.

WL60011 IC

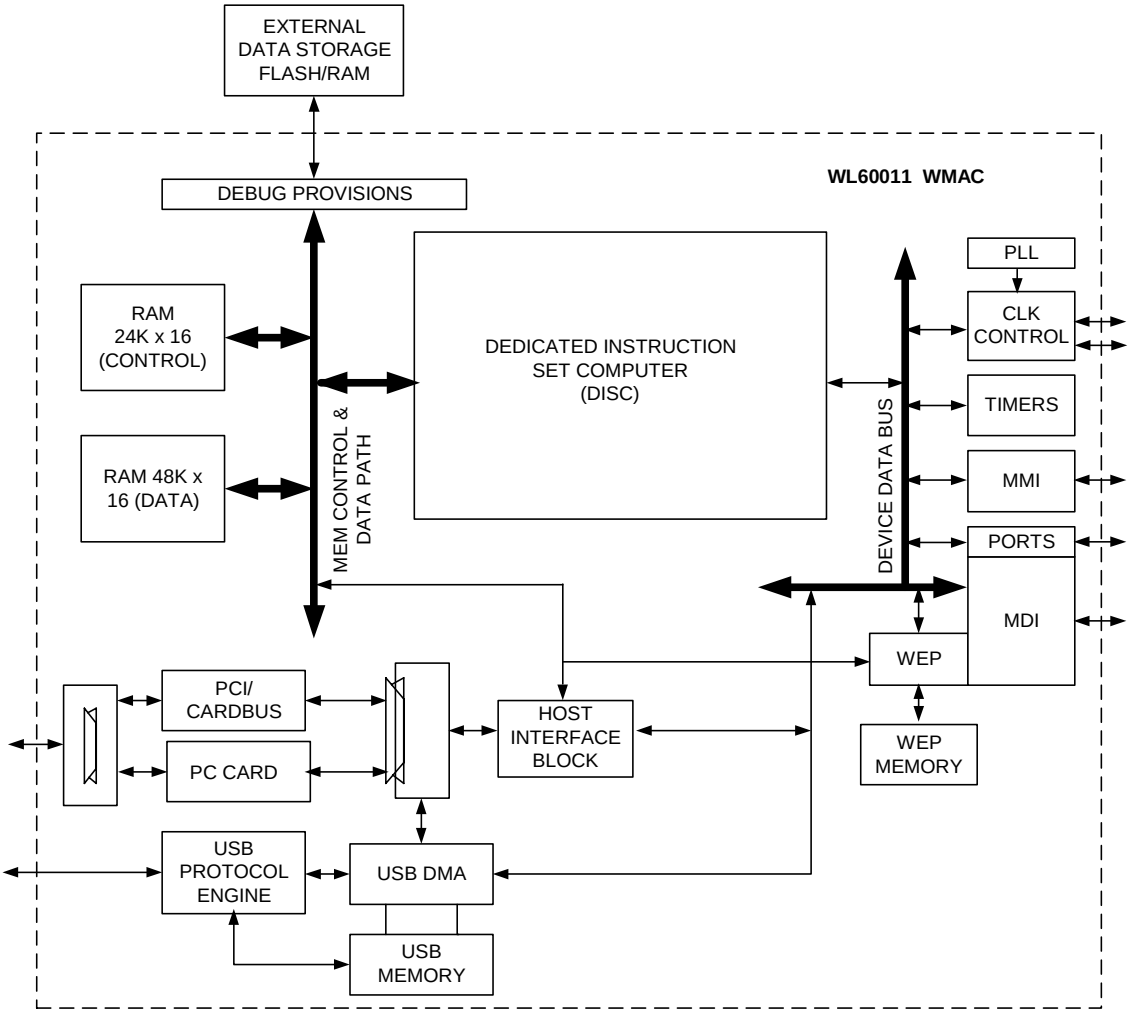

Figure 4. WL60011 IC Block Diagram

- Full implementation of the 802.11 WMAC protocol including the following:
  — *IEEE* 802.11b standard data rates.
- Full 802.11 standard is implemented on chip:
  — Protocol fully implemented in firmware.
- High-performance hardware acceleration encryption engine supporting up to 128-bit wired equivalent privacy (WEP).

WL1141 MCM

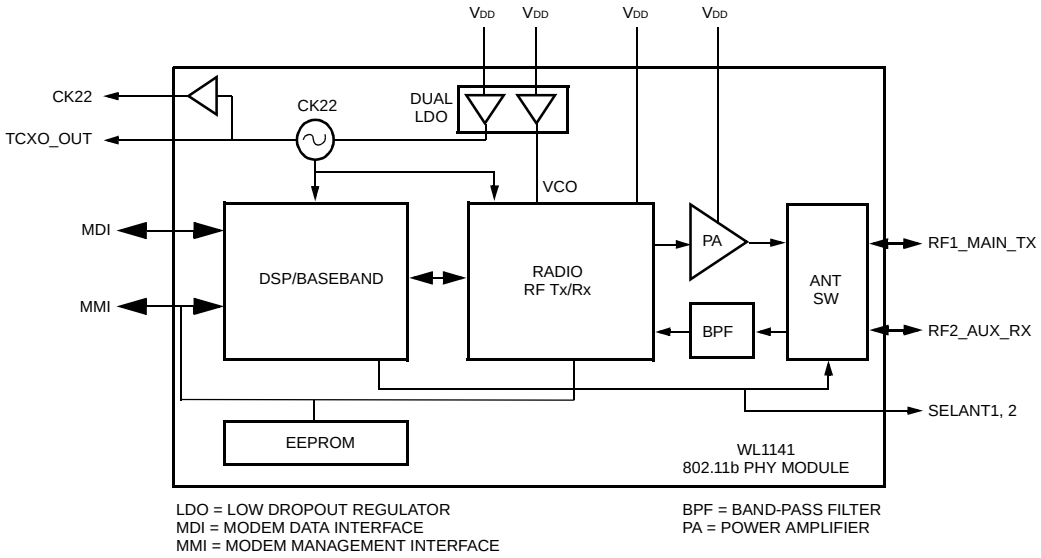

Figure 5. WL1141 Block Diagram

- Complete physical layer for a 2.4 GHz wireless LAN device.
- Supplied with RF transmit and receive paths precalibrated to simplify design-in and production test.
- Glueless interface with the WL600xx family of MAC controllers.
- Supports receive antenna diversity.
- 15 dBm output power.
- Very small package: 25 mm x 25 mm BGA.
- Single supply voltage 3.0 Vdc—3.6 Vdc.
- Low power consumption supports 32 kHz sleep mode of the MAC.

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