



# SoftFone<sup>®</sup>-LCR Chipset for TD-SCDMA Mobile Terminals

## Features:

- Complete chipset for low chip rate (LCR) 3G terminals
- High performance Blackfin<sup>®</sup> Processor core
- Single- or dual-mode (TD-SCDMA/GSM) operation
- Support for multimedia applications including MP3 audio
- Othello<sup>®</sup>-W direct-conversion RF chipset
- Software provided by Datang Mobile
- Release 4 TDD low chip rate



## Overview

The SoftFone-LCR chipset provides a complete solution for developers of 3G mobile terminals based on the 3GPP TDD Low Chip Rate standard. The chipset includes four chips for the baseband signal-processing and control, RF, and analog-interface functions. Dual-mode TD-SCDMA/GSM operation is achieved by adding the AD6549 Othello-G GSM transceiver.

The baseband signal processing in the chipset including joint detection and decoding is performed entirely in software running on the embedded Blackfin<sup>®</sup> Processor core instead of a hardware implementation. This allows terminal developers to quickly and easily adapt to evolutionary changes in the LCR standard.

The software for the chipset is provided by Datang Telecom Technology and Industry Group, which has been using the Analog Devices Blackfin Processor in development platforms and the prototype mobile terminals for network trials.

The TD-SCDMA standard, originally proposed by the China Wireless Telecommunication Standards group (CWTS) and developed further by CATT (China Academy of Telecom Technology, majority owner of Datang Telecom) and Siemens, is included in 3GPP Release 4. Using unpaired bands, TD-SCDMA supports both symmetric and asymmetric packet-switched voice and data services. TD-SCDMA is the low chip rate UTRA TDD air interface, using 1.6 MHz channels.

## SoftFone-LCR Chipset Overview

The SoftFone-LCR chipset is based on the popular RAM-based SoftFone architecture used in Analog Devices GSM/GPRS and EDGE chipsets.

### Digital Baseband Processor: AD6901 Monaco-LCR

- Blackfin Processor plus 32-bit ARM® MCU
- Joint detection and decoding performed in software
- Interfaces for camera, displays, IR, USB, SD/MMC
- Validated software for single- or dual-mode TD-SCDMA/GSM available from Datang Mobile

### Analog Baseband IC:

AD6854 Stratos-L (single-mode)

AD6857 Stratos-T (dual-mode)

- Oversampled A/D and D/A converters
- Audio codec with microphone and line inputs
- 48 kHz stereo audio D/A converters
- Speaker and headphone driver amplifiers
- All required regulators and battery-charge circuits

### Radio Section: Othello-W RF Chipset

- AD6547 Othello-W direct-conversion receiver
- 2.0 GHz and 2.1 GHz operation
- Programmable baseband channel bandwidth
- Autocalibrated dc offset and filter cutoff
- >80 dB gain range
- AD6541 Othello-W “Virtual-IF” transmitter
- 1.9 GHz and 2.0 GHz operation
- >80 dB gain control range
- Fast-locking fractional-N synthesizer

AD6549 Othello-G GSM transceiver (required for dual-mode operation)

- 850/900/1800/1900 MHz GSM/GPRS operation direct-conversion receiver
- -110 dBm sensitivity
- Integrated VCOs, loop filter

### Software for the SoftFone-LCR Chipset

Software for both single-mode TD-SCDMA and dual-mode TD-SCDMA/GSM is available from Datang Mobile, one of the key developers of the TD-SCDMA standard.

### About Analog Devices in Wireless

Analog Devices has been a leading supplier of chips and chipsets for digital wireless systems since 1990. Analog Devices has built a vast portfolio of products for the design of mobile devices that has evolved from catalog DSPs and analog components, to sophisticated digital baseband processors, advanced mixed signal, power-management and radio frequency ICs to complete chipsets and reference designs. These products include a number of industry firsts including the Othello family—the world’s first open-market direct-conversion radio chipset; and Analog Devices’ SoftFone platform, the first RAM-based digital baseband processor, which enables wireless terminal device manufacturers to easily customize user features and options entirely in software, while incorporating breakthrough advancements in power consumption, cost, and size. SoftFone chipsets are available for GSM, GPRS, EDGE, and TD-SCDMA standards.

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