



# GSM/GPRS Digital Baseband Processor For Smartphone and Wireless Handheld Devices

## Preliminary Technical Data

## AD6528

### FEATURES

Complete Single Chip Programmable Digital Baseband Processor divided into three main subsystems:

**Control Processor Subsystem including:**

32-bit MCU ARM7TDMI® Control Processor  
On-chip System SRAM Memory

**DSP Subsystem including**

16-bit Fixed Point DSP Processor  
Expanded Data and Program SRAM  
Program Instruction Cache  
Full Rate, Enhanced Full Rate and Half Rate  
Speech Encoding/Decoding

**DMA Subsystem including**

16/32 channel chaining DMA

**Peripheral Functions**

Parallel and Serial Display Interface  
Fast USB slave interface/ Fast IrDA  
SPI slave/master  
MMC/SD-Card support  
Keypad Interface  
FLASH Memory Interface  
Pseudo SRAM support  
13/26 MHz clock detection  
1.8V and 3.0V, 64 kbps SIM Interface  
Universal System Connector Interface  
Baseband Converter Interface  
Data Services Interface

**Control of Radio Subsystem**

Three independent programmable backlight outputs  
Real Time Clock with Alarm  
Programmable Power and Clock Management  
Slow Clocking Scheme for Low Idle Mode Current  
Power Down modes

On-chip support for GSM Data Services up to  
14.4kbts/sec, Class 12 GPRS, HSCSD

JTAG Interface for Test and In-Circuit Emulation

1.8V Typical Operating Voltage

Operating Voltage Range 1.7V - 1.9V

Independent I/O and Memory Voltages

160-Ball LFBGA (mini-BGA) package

### APPLICATIONS

GSM850/900/DCS1800/PCS1900 Smartphone and  
Wireless PDA/Handheld Computers

GSM Phase 2 & GPRS Compliant

Full support for Java™, M-Services, and Multimedia  
Messaging Services (MMS)

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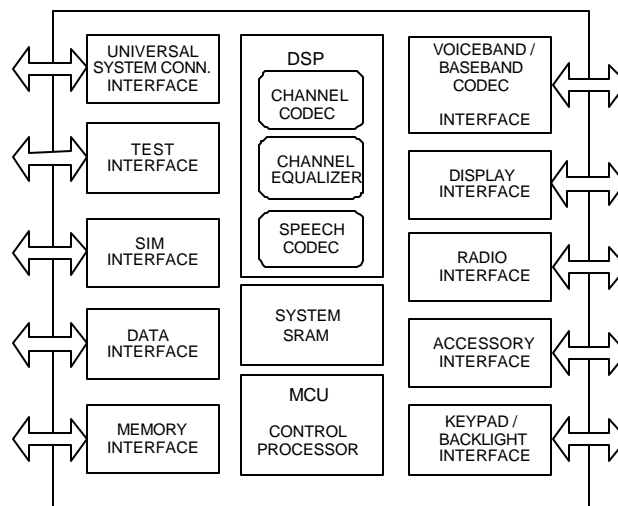


FIGURE 1. AD6528 FUNCTIONAL BLOCK DIAGRAM

### GENERAL DESCRIPTION

The AD6528 is the third device in the Analog Devices AD20msp430 series of SoftFone® GSM Baseband Processors. The AD6528 is intended for use in feature-rich Smartphone and Wireless PDA/handheld computer applications with GSM/GPRS connectivity. It is designed to interface easily to an application processor in such systems.

The AD6528 integrates full rate, enhanced full rate and half rate speech codecs as well as a full range of data services including circuit-switched 14.4kb/s, GPRS to Class 12, and HSCSD. In addition, it supports A5/1 and A5/2 encryption algorithms as well as operation in non-encrypted mode.

The highly programmable architecture and sophisticated internal communication channels of the AD6528 offer maximum flexibility to system designers. It can adapt to tighter requirements led by changes in standards and multi-standard handset implementation.

A complete data sheet is available under Non-Disclosure Agreement to pre-qualified developers of GSM/GPRS terminal equipment. Contact your local Analog Devices Sales Office.