D5205 TDMA Baseband Chipset

developer.intel.com

Product Description

The D5205 TDMA Baseband Chipset is designed and developed by DSPC†, an Intel company. It provides a compact two-chip solution for PCS band and dual-mode cellular applications. This TIA/EIA-136-B compliant solution improves upon DSPC's previous chipsets, providing lower power consumption, a higher level of integration, and additional performance enhancements to end-user features.

An integrated ARM* microprocessor core provides sufficient processing headroom to support high-end applications such as voice recognition, voice memo pad, Internet browsers, and video games. Reduced chipset power consumption delivers longer standby and talk times for end users—achieved by using multi-block power control, out-of-service suspend mode, and a very low frequency clock in sleep mode. Multiple UARTs, an IrDA, PWMs, PDMs, a clock controller, and serial interfaces all lend themselves to a versatile and compact solution for developers' design requirements.

Developer support includes a development kit with modular hardware and software that facilitates rapid development of mobile handsets. The kit provides a fully functional environment to enable immediate software development. It also provides a reliable test and verification platform for radio transceiver development.

Product Highlights

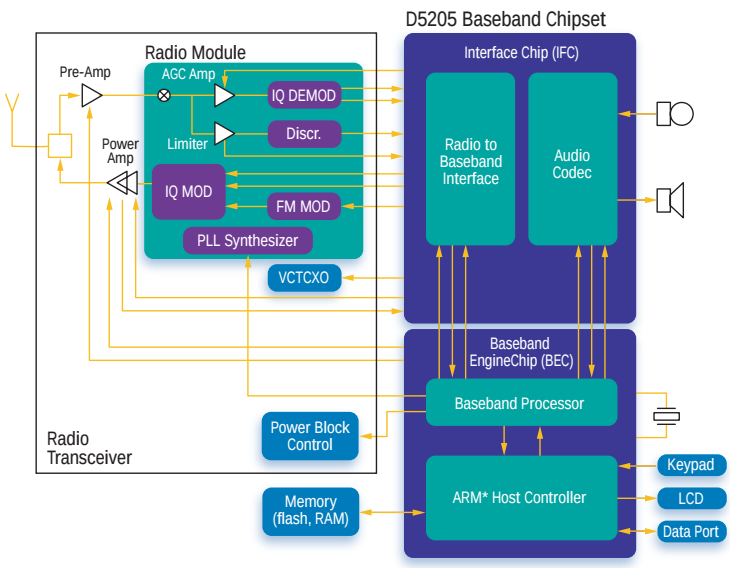
- TIA/EIA-136 compliance (exceeding TIA/EIA-136-270)
- Support for TIA/EIA-136-310, 136-350, data services, and SMS
- Three-volt operation
- Powerful 32-bit ARM7TDMI* microprocessor with Thumb* mode
- Acoustic echo canceller for handset and car kits
- Spectral noise suppressor
- Voice recognition and voice memo pad

Features	Benefits
■ Enhanced audio processing includes echo cancellation, echo suppression, and spectral noise suppression	■ Produces excellent voice quality in high-noise and car-kit environments. Exceeds TIA/EIA-136 echo requirements in small handset designs
■ Synchronous multi-block power control	■ Minimizes power consumption in all TDMA talk and standby modes
■ Integrated microphone amplifier and 32-ohm speaker driver	■ Reduces component count
■ Programmable analog gains and offsets	■ Allows calibration software to compensate for hardware component variations
■ MOD/DEMOD baseband interface for AMPS	■ Avoids residual AM problem and higher current consumption associated with an I-Q interface
■ Real-Time Clock with isolated low-voltage supply and power-on alarm function	■ Allows time-of-day and alarm clock functions, powered by a backup battery
■ Programmable external memory timing	■ Allows design flexibility in choice of LCD controller, flash, RAM, and other external devices
■ Extensive peripherals, including UARTs, serial interfaces, an IrDA interface, PWMs, PDMs, and a clock controller	■ Reduces component count and power consumption
■ Powerful ARM7TDMI* microprocessor core with Thumb* mode for reduced code size	■ Supports high-end applications such as Internet browsers and video games
■ Baseband processor firmware revisions provided via software upgrades	■ Provides design flexibility and upward compatibility
■ Intel® Wireless Development Kit for the D5205 TDMA Baseband Chipset	■ Minimizes development cost and reduces time-to-market

Model Handset Block Diagram with D5205 Baseband Chipset

The D5205 baseband chipset consists of a digital Baseband Engine Chip (BEC) and a mixed-signal Interface Chip (IFC). The BEC contains the baseband processor and the ARM host controller. The IFC contains the radio-to-baseband interface and an audio codec. The ARM host controller is an integrated ARM7TDMI microprocessor core, which implements call processing, system control, and the man-machine interface.

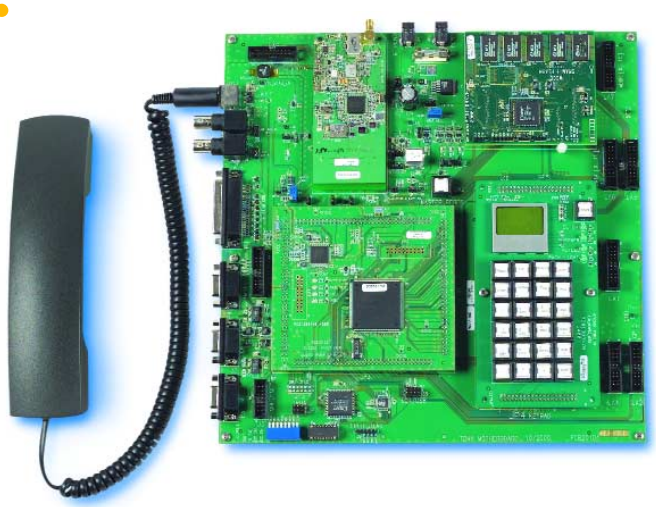
The chipset has been optimized to work with the NEC uPC8015* radio module, providing developers with a highly integrated off-the-shelf solution. When combined with a suitable radio transceiver, the chipset provides a compact solution for mobile phone designs.



Development Kit

The Intel® Wireless Development Kit for the D5205 TDMA Baseband Chipset includes these support features:

- Development Platform
  - —Radio transceiver (based on NEC uPC8015*)
  - —D5205 TDMA Baseband Chipset
  - —Memory boards
  - —SCI to USB interface board
  - —Keypad/LCD
  - —Telephone handset
- Mobile handset reference software
- Windows* based software development and test tools
- Documentation and schematics



Operating Conditions

Operating Conditions	
Operating Temperature Range	-40°C to +85°C
Power Supply	
Core	2.0 to 2.4V (2.2V typical)
I/O	2.7 to 3.3V (3.0V typical)
Power Consumption @ Typical Core and I/O	
Standby Mode (DCCH)	2.2 mW
Standby Mode (ACC)	6.3 mW
Analog Conversation	56 mW
Digital Conversation	80 mW
Real-Time Clock Backup Power Supply	1.5 to 3.6V (1.8V typical)
Real-Time Clock Frequency	14.4 or 19.44 MHz
	32.768 KHz (sleep mode)

Packaging

Device	Package	Pin Count	Pitch	Dimensions (mm)	Part Number
BEC	fpBGA	192	0.8mm	14x14	D5205-D31-BG
IFC	TQFP	80	0.5mm	12x12	D5204-22-ATI
	fpBGA	80	0.8mm	9x9	D5204-22-ABI

Intel Access

Wireless Solutions Home Page	http://developer.intel.com/design/wireless
Baseband Chipsets Home Page	http://developer.intel.com/design/wireless/baseband
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