National Semiconductor

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V 1.0

SC14408
Complete Baseband Processor for DECT Handsets

General Description

The SC14408 is a CMOS chip optimized to handle all the audio, signal and data processing needed within a DECT (1.9GHz) or in the 2.4GHz ISM digital band handset. An ADPCM transcoder, a very low power CODEC and Analog Frontend is integrated. Direct connections towards microphone and a (dynamical) loudspeaker are provided. Duplex quality handsfree operation is integrated.

The SC14408 is designed to fit to any radio design.

A dedicated TDMA controller handles all physical layer slot formats and radio control.

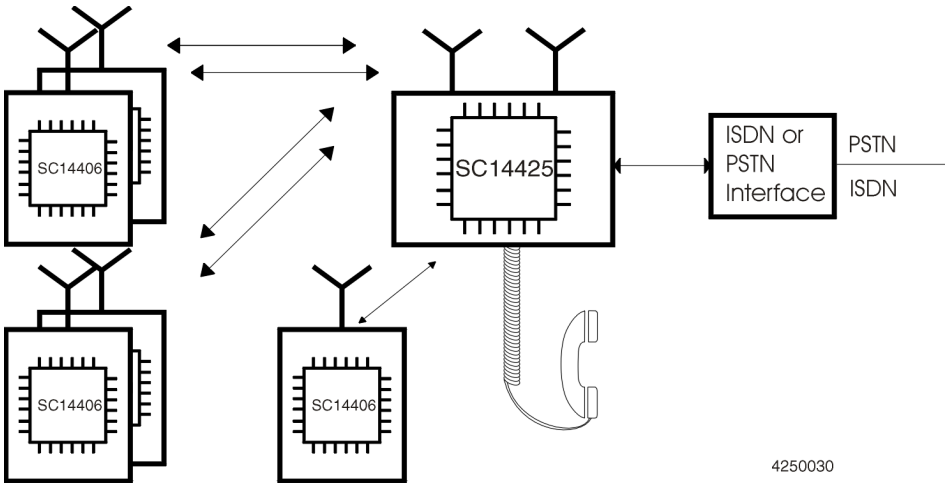
National Semiconductors standard CompactRISC™ CR16B 16 bit microcontroller takes care of all the higher protocol stack.

Features

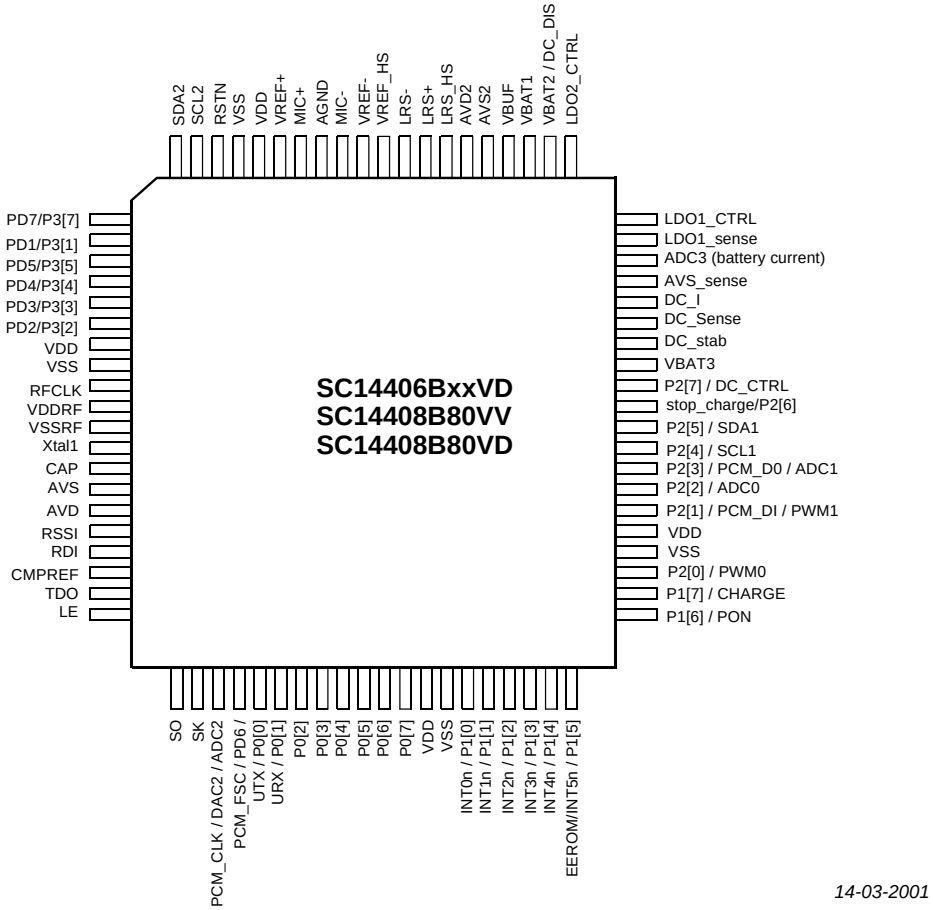
- Integrated DECT Baseband transceiver optimized for GAP handsets according to ETS 300 175-2, 175-3 & 175-8.
- Two on board low drop voltage regulators with 2.5V and 3.0- 3.8V (with external resistors the voltage can be determined) output.
- 2V upto 3.6V battery input with onboard step up converter.
- Advanced battery management unit
- Very low power in active and paging mode.
- Embedded 16 bit CompactRISC™ Micro Controller. (CR16B) with programmable clock speeds.
- 384 kbyte Flash.
- ACCESSBUS™ or MICROWIRE™ interfaces
- 6 kilobyte on-chip Data Memory.
- One full duplex ADPCM transcoder.
- On-chip 14-bit linear CODEC.
- 14 upto 44 dB gain differential microphone input buffer.
- 80 Ω loudspeaker driver.
- Software controlled gain on audio input and output.
- Peak hold ADC for RSSI measurement.
- Five general purpose inputs can be multiplexed on an 8 bit ADC with selectable ranges.
- On-chip dedicated TDMA instruction co-processor which supports DECT and ISM-bands providing 1.152 Mb/s, 1.024 Mb/s, 0.576 Mb/s, 0.512 Mb/s, 0.288 Mb/s and 0.256 Mb/s.
- Seven programmable control signals for radio front end.
- Full and double slot, protected and unprotected B-fields.
- Duplex quality handsfree operation.
- Tone generator. Tones consisting of 3 frequencies can be programmed
- Linear PCM interface for external codec.
- ISM band support with 8/9 x 10.368 Mc xtal = 9.216 Mc
- On chip LCD controller (6X30 segments)

Note: ACCESSBUS™, MICROWIRE™ and CompactRISC™ are trademarks of National Semiconductor Corporation.

System Diagram



1.0 Pin type definitions



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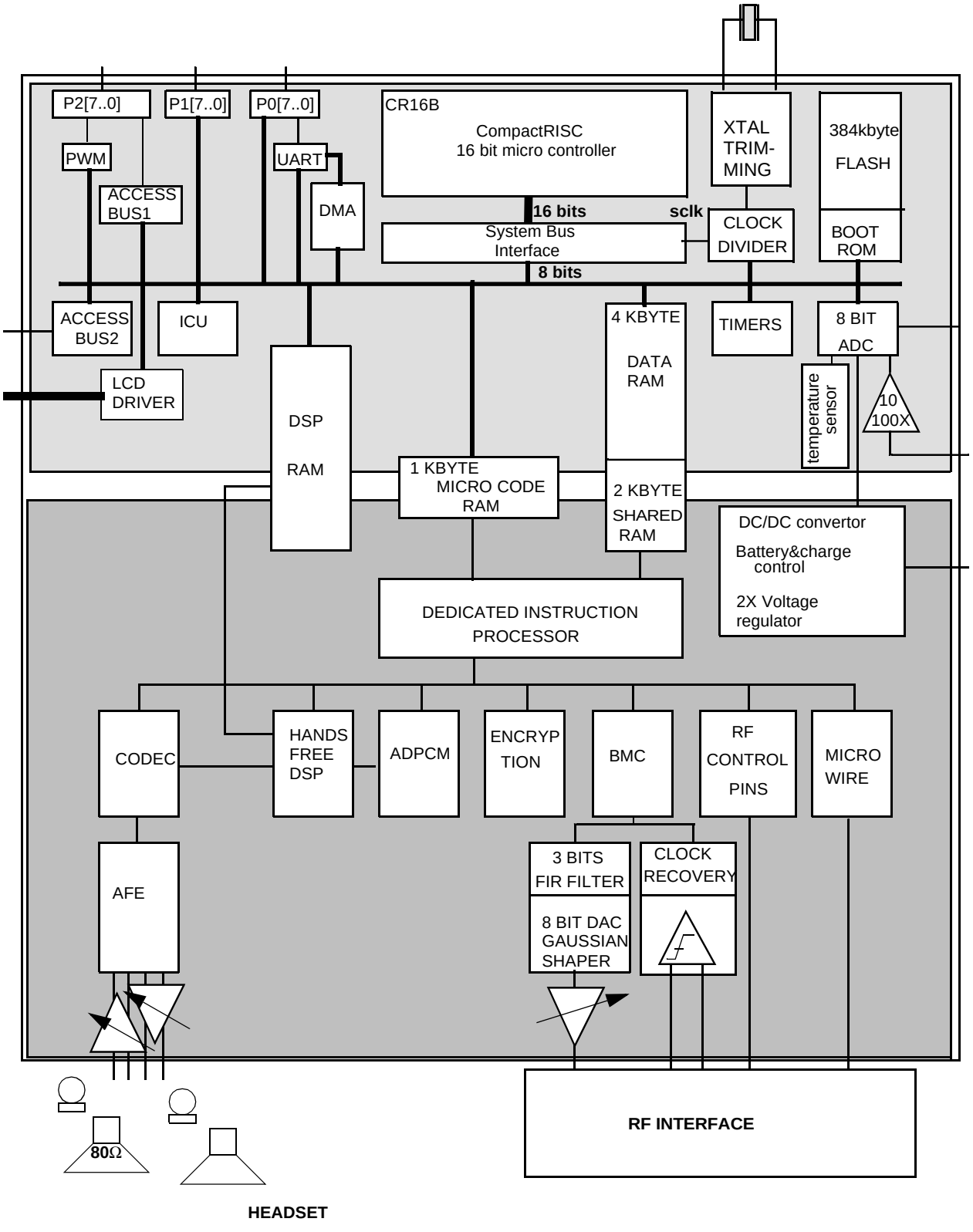

FIGURE 1. SC14408 Block diagram

2.0 Package information

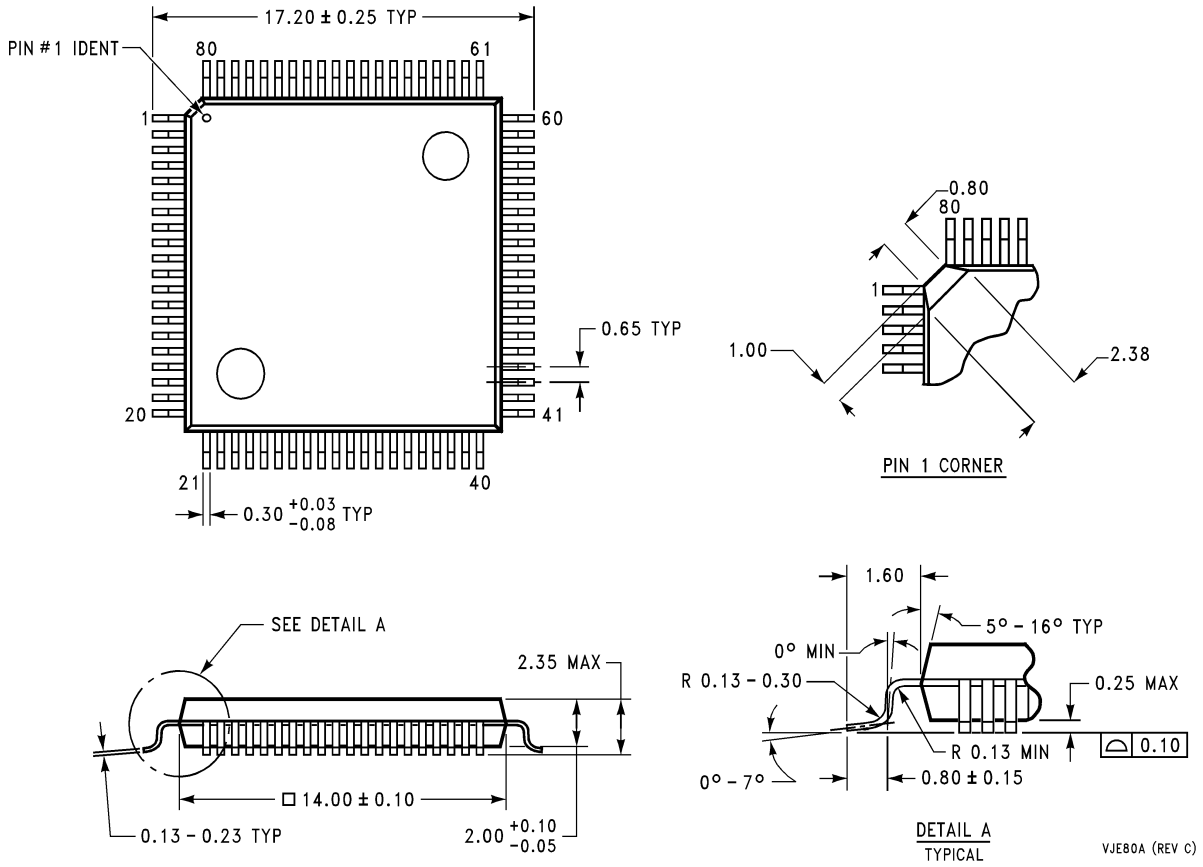

FIGURE 2. 80 pins Quad Flat Pack. NS Package: vje80a

3.0 Product status definitions

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