

## 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.

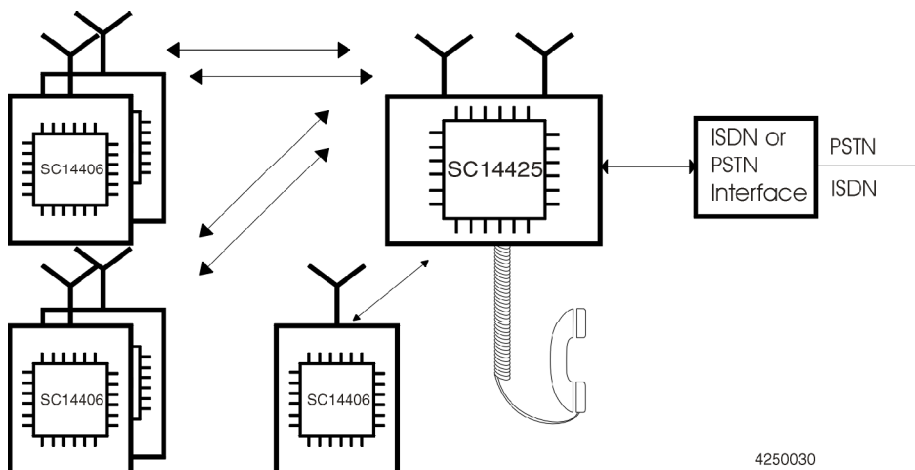
### Features

- 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  $\Rightarrow$  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)

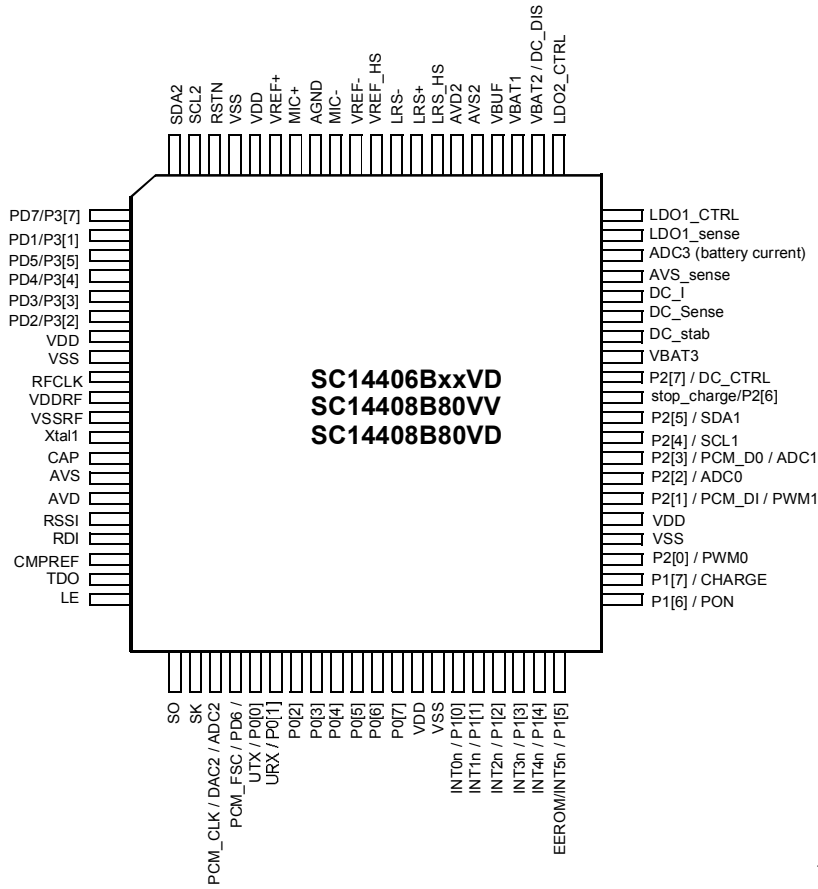
Note: ACCESSBUS™, MICROWIRE™ and CompactRISC™ are trademarks of National Semiconductor Corporation.

### System Diagram



4250030

# 1.0 Pin type definitions



14-03-2001

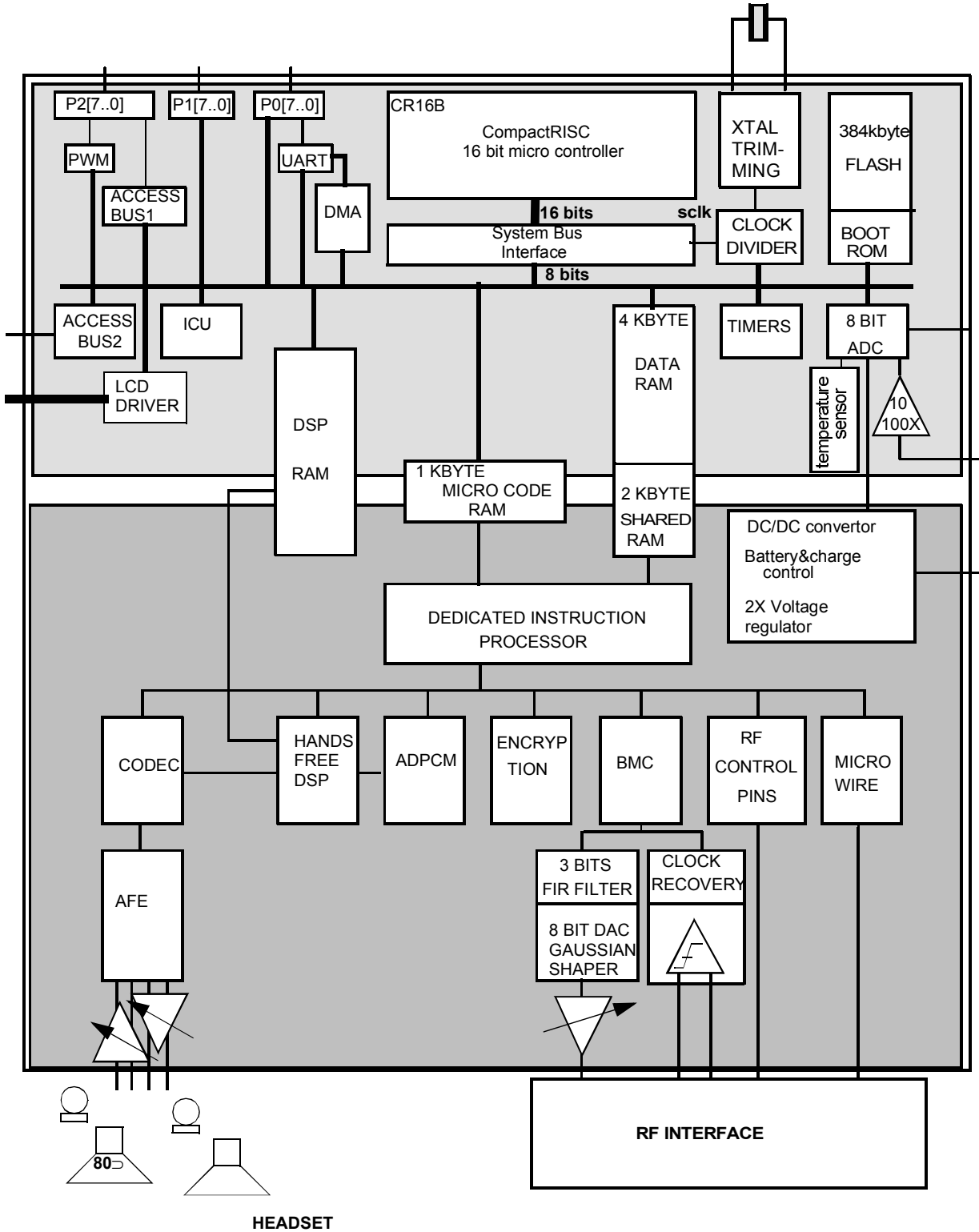


FIGURE 1. SC14408 Block diagram

2.0 Package information

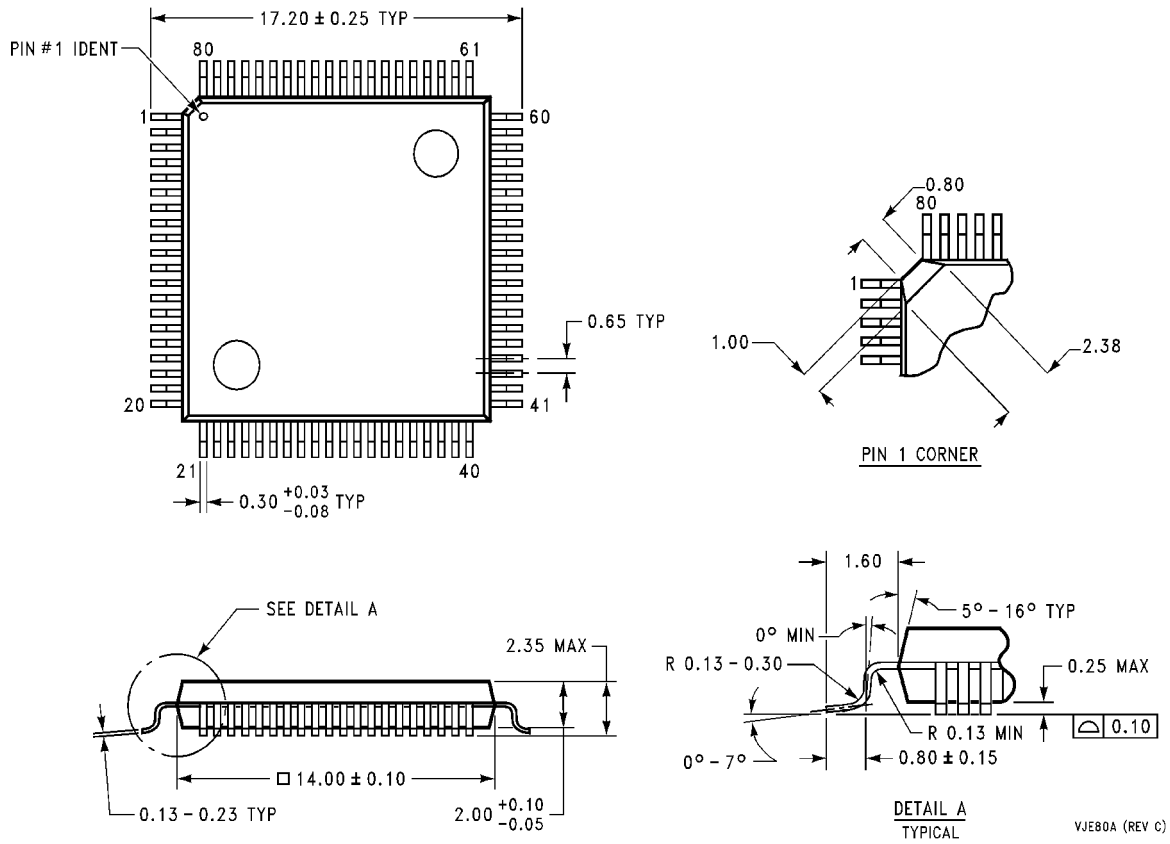


FIGURE 2. 80 pins Quad Flat Pack. NS Package: vje80a

### 3.0 Product status definitions

National Semiconductor B.V reserves the right to make changes without notice to any products herein to improve reliability, function or design. National does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the right of others.

---

#### LIFE SUPPORT POLICY

NATIONAL'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT AND GENERAL COUNCIL OF NATIONAL SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.



**National Semiconductor Corporation**  
 Tel: 1-800-272-9959  
 Fax: 1-800-737-7018  
 Email: support@nsc.com

**National Semiconductor Europe**  
 Fax: (+49) 0-180-530 85 86  
 Email: europe.support@nsc.com  
 Deutsch Tel: (+49) 0-180-530 85 85  
 English Tel: (+49) 0-180-532 78 32

**National Semiconductor Asia Pacific Customer Response Group**  
 Tel: 65-254-4466  
 Fax: 65-250-4466  
 Email: sea.support@nsc.com

**National Semiconductor Japan Ltd.**  
 Tel: 81-3-5620-6175  
 Fax: 81-3-5620-6179

National does not assume any responsibility for use of any circuitry described, no patent licences are implied and National reserves the right at any time without notice to change said circuitry and specifications