

### Supply Voltage: 0.9 to 1.8 V

- Built-in dc-dc converter with 1.8 to 3.6 V output
- Typical sleep mode current < 0.1  $\mu$ A; retains state and RAM contents over full supply range; fast wakeup of < 2  $\mu$ s
- Two built-in brown-out detectors cover sleep and active modes

### 10-Bit Analog to Digital Converter

- Up to 300 ksps
- Up to 15 external inputs
- External pin or internal VREF (no external capacitor required)
- Built-in temperature sensor ( $\pm 3$   $^{\circ}$ C); no calibration required
- External conversion start input option
- Autonomous burst mode with 16-bit automatic averaging accumulator

### Dual Comparators

- Programmable hysteresis and response time
- Configurable as interrupt or reset source
- Low current (< 0.5  $\mu$ A)

### Memory

- 64 kB bytes Flash; in-system programmable in 1024-byte sectors; full read/write/erase functionality over the entire supply range
- 4352 bytes internal data RAM (256 + 4K)

### On-Chip Debug

- On-chip debug circuitry facilitates full speed, non-intrusive in-system debug (no emulator required)

### High-Speed 8051 $\mu$ C Core

- Pipe-lined instruction architecture; executes 70% of instructions in 1 or 2 system clocks
- 25 MIPS peak throughput with 25 MHz clock

### Development Kit: Si1000DK

### Transceiver Features

- Frequency range = 240–960 MHz
- Sensitivity =  $-121$  dBm
- FSK, GFSK, and OOK modulation
- Max output power = +13 dBm
- RF power consumption
  - 18.5 mA receive
  - 30 mA @ +13 dBm transmit
  - 18 mA @ +1 dBm transmit
- Data rate = 0.123 to 256 kbps
- Auto-frequency calibration (AFC)
- Antenna diversity and transmit/receive switch control
- Programmable packet handler
- TX and RX 64 byte FIFOs
- Frequency hopping capability
- On-chip crystal tuning

### Digital Peripherals

- 19 port I/O
- Hardware enhanced UART, SPI and I<sup>2</sup>C serial ports available concurrently
- Low power 32-bit smaRTClock
- Four general purpose 16-bit counter/timers; six channel programmable counter array (PCA)

### Clock Sources

- Precision internal oscillators: 24.5 MHz with  $\pm 2\%$  accuracy supports UART operation; spread-spectrum mode for reduced EMI
- Low power 20 MHz internal oscillator
- External oscillator: crystal, RC, C, CMOS clock
- smaRTClock oscillator: 32.768 kHz crystal or self-oscillate

### Ordering Part Number

- Si1004-C-GM, 42-pin QFN, 5 x 7 mm<sup>2</sup>

