

General Features

- High Performance, Low Power AVR® 8-Bit Microcontroller
- Advanced RISC Architecture
 - 132 Powerful Instructions - Most Single Clock Cycle Execution
 - 32 x 8 General Purpose Working Registers
 - Up to 16MIPS Throughput at 16Mhz
 - On-chip 2-cycle Multiplier
- Memories
 - 16K Bytes of ROM Program Memory
 - 768 Bytes Internal SRAM
- ISO7816 UART Interface Fully compliant with EMV, GIE-CB and WHQL Standards
 - Programmable ISO clock from 1 Mhz to 12 Mhz
 - Card insertion/removal detection with automatic deactivation sequence
 - Programmable Baud Rate Generator from 372 to 3 clock cycles
 - Synchronous/Asynchronous Protocols T=0 and T=1 with Direct or Inverse Convention
 - Automatic character repetition on parity errors
 - 32 Bit Waiting Time Counter
 - 16 Bit Guard Time Counter/Block Guard Time Counter
 - Internal Step Up/Down Converter with Programmable Voltage Output if DC/DC embedded:
 - Class A: 5V +/-8% at 60mA, Vcc>2.85 (50mA if Vcc >2.7)
 - Class B: 3V +/-8% at 60mA, Vcc>2.85 (50mA if Vcc >2.7)
 - Class C: 1.8V +/-8% at 35mA
 - 4 kV ESD (MIL/STD 833 Class 3) protection on whole Smart Card Interface
- USB 2.0 Full-speed Device Module
 - Complies fully with:
 - Universal Serial Bus Specification Rev 2.0
 - Supports data transfer rates up to 12 Mbit/s
 - Endpoint 0 for Control Transfers : up to 64-bytes
 - 4 Programmable Endpoints with IN or OUT Directions and with Bulk, Interrupt or Isochronous Transfers
 - Suspend/Resume Interrupts, and Remote Wake-up Support
 - Power-on Reset and USB Bus Reset
 - 48 Mhz clock for Full-speed Bus Operation
 - USB Bus Disconnection on Microcontroller Request
- Peripheral Features
 - One 8-bit Timer/Counter with Separate Prescaler and Compare Mode
 - One 16-bit Timer/Counter with Compare Mode
 - Hardware Watchdog
- Communication Peripherals
 - USART interface (up to 2Mbps)
 - USART in SPI mode
- Special Microcontroller Feature
 - Power-on Reset and Brown-out Detection
 - External and Internal Interrupt Sources
 - Three Sleep Modes: Idle, Power-down and Standby



8-bit AVR® Microcontroller for Smart Card Readers

AT90SCR050

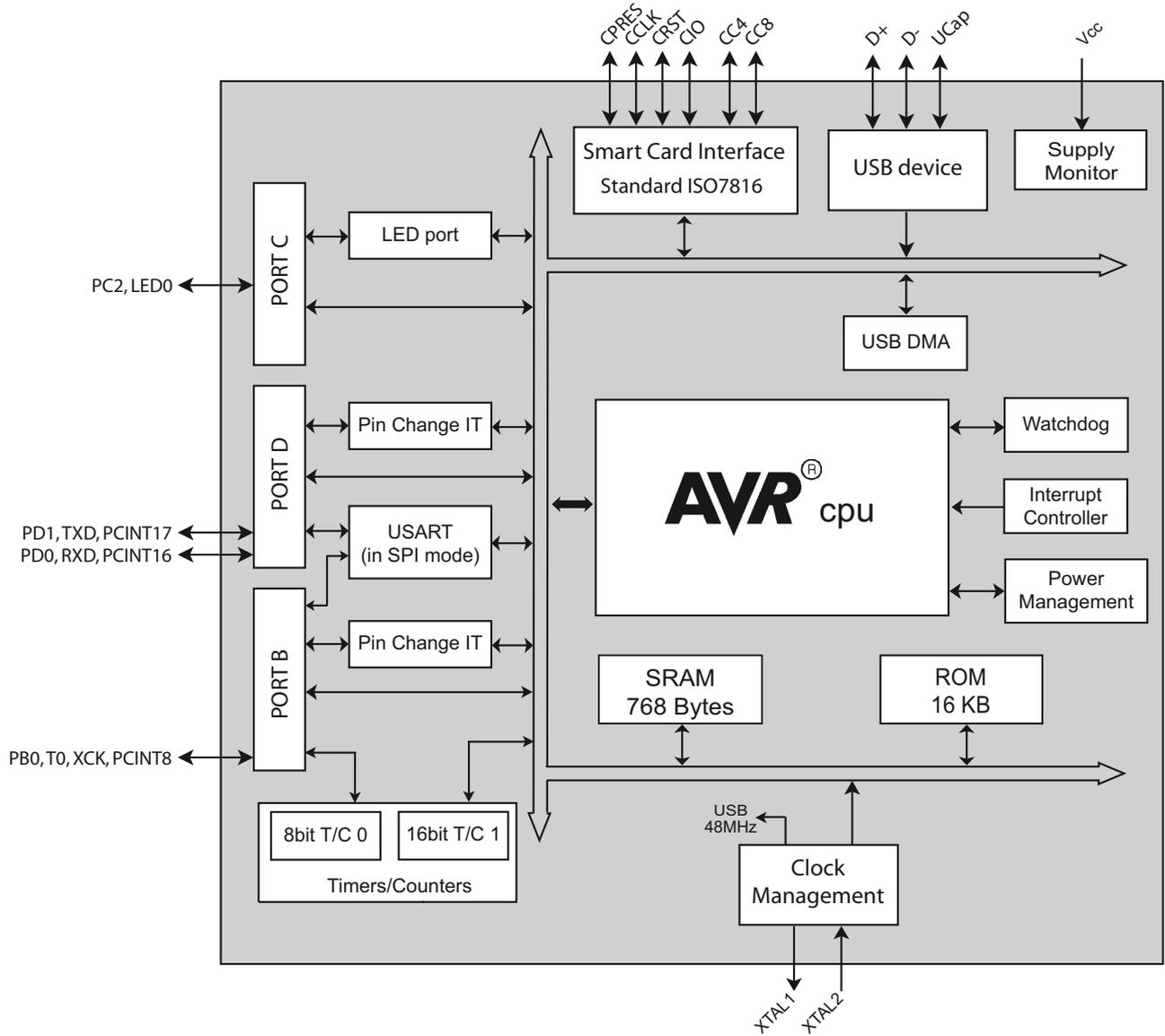
Datasheet Summary



- **Up to 4 x I/O Programmable Pins**
- **One LED Output with Programmable Current Sources: 2 or 4 mA**
- **Operating Temperature**
 - Industrial (-40°C to +85°C)
- **Core Operating Voltages**
 - 2.4 - 5.5V
- **DC/DC Operating Voltages**
 - 2.7 - 5.5V
- **Maximum Frequency**
 - 8MHz Clock Input

1. Block Diagram

Figure 1-1. Block Diagram





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