

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 883 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

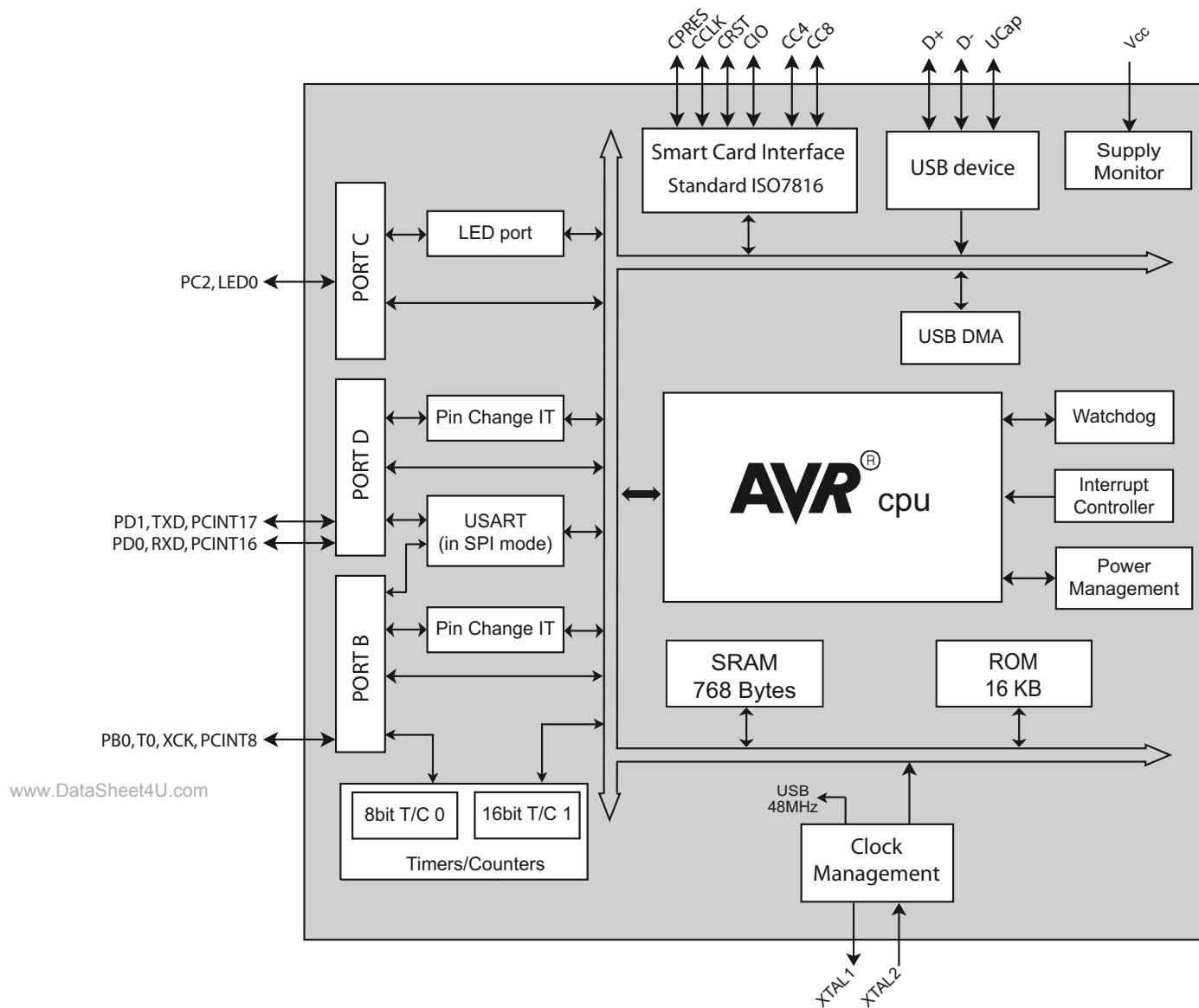


- Up to 4 x I/O Programmable Pins
- One LED Output with Programmable Current Sources: 2 or 4 mA
- Operating Temperature
 - Industrial (-40°C to +85°C)
- Core Operating Voltages
 - 2.4 - 5.5V
- DC/DC Operating Voltages
 - 2.7 - 5.5V
- Maximum Frequency
 - 8MHz Clock Input

www.DataSheet4U.com

1. Block Diagram

Figure 1-1. Block Diagram



www.DataSheet4U.com



Headquarters

Atmel Corporation
2325 Orchard Parkway
San Jose, CA 95131
USA
Tel: 1(408) 441-0311
Fax: 1(408) 487-2600

International

Atmel Asia
Unit 01-05 & 16, 19/F
BEA Tower, Millennium City 5
418 Kwun Tong Road
Kwun Tong, Kowloon
Hong Kong
Tel: (852) 2245-6100
Fax: (852) 2722-1369

Atmel Europe
Le Krebs
8, Rue Jean-Pierre Timbaud
BP 309
78054 Saint-Quentin-en-
Yvelines Cedex
France
Tel: (33) 1-30-60-70-00
Fax: (33) 1-30-60-71-11

Atmel Japan
9F, Tonetsu Shinkawa Bldg.
1-24-8 Shinkawa
Chuo-ku, Tokyo 104-0033
Japan
Tel: (81) 3-3523-3551
Fax: (81) 3-3523-7581

Product Contact

Web Site
www.atmel.com

Technical Support
scr@atmel.com

Sales Contact
www.atmel.com/contacts

Literature Requests
www.atmel.com/literature

Disclaimer: The information in this document is provided in connection with Atmel products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Atmel products. **EXCEPT AS SET FORTH IN ATMEL'S TERMS AND CONDITIONS OF SALE LOCATED ON ATMEL'S WEB SITE, ATMEL ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL ATMEL BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF ATMEL HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.** Atmel makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Atmel does not make any commitment to update the information contained herein. Unless specifically provided otherwise, Atmel products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not intended, authorized, or warranted for use as components in applications intended to support or sustain life.

© Atmel Corporation 2008. All Rights Reserved. Atmel®, Atmel logo and combinations thereof, AVR® and others are registered trademarks or trademarks of Atmel Corporation or its subsidiaries. Other terms and product names may be trademarks of others.