

Features

General

- High-performance, Low-power AVR[®] Enhanced RISC Architecture
 - 120 Powerful Instructions (Most Executed in a Single Clock Cycle)
- Low Power Idle and Power-down Modes
- Bond Pad Locations Conforming to ISO 7816-2
- ESD Protection to $\pm 4000V$
- Operating Ranges: 2.7V to 5.50V
- Compliant with GSM, 3GPP and EMV 2000 Specifications
- Available in Wafers, Modules, and Industry-standard Packages

Memory

- 120K Bytes of ROM Program Memory
- 36K Bytes of EEPROM, Including 64 OTP Bytes and 64-byte Bit-addressable Bytes
 - 1 to 128-byte Program / Erase
 - 1ms Program / 1ms Erase
 - Typically 500,000 Write/Erase Cycles at a Temperature of 25°C
 - 10 Years Data Retention
- 3K bytes RAM Memory

Peripherals

- One I/O Port
- 16-bit Timer
- Random Number Generator (RNG)
- 2-level, 4-vector Interrupt Controller

Security

- Protection Against Physical Attack,
- Environmental Protection Systems
- Voltage Monitor
- Frequency Monitor
- Secure Memory Management/Access Protection (Supervisor Mode)

Development Tools

- Voyager Emulation Platform (ATV2 & ATV4) to Support Software Development
- IAR Embedded Workbench[®] V4.21 Debugger or Above
- Software Libraries and Application Notes



Secure Microcontroller for Smart Cards

AT90SC12036RU Summary

6547AS-SPD-29Mar07



Note: This is a summary document. A complete document will be available under NDA. For more information, please contact your local Atmel sales office.

Description

The AT90SC12036RU is a low-power, high-performance, 8-bit microcontroller with ROM and EEPROM memory, based on the AVR enhanced RISC architecture.

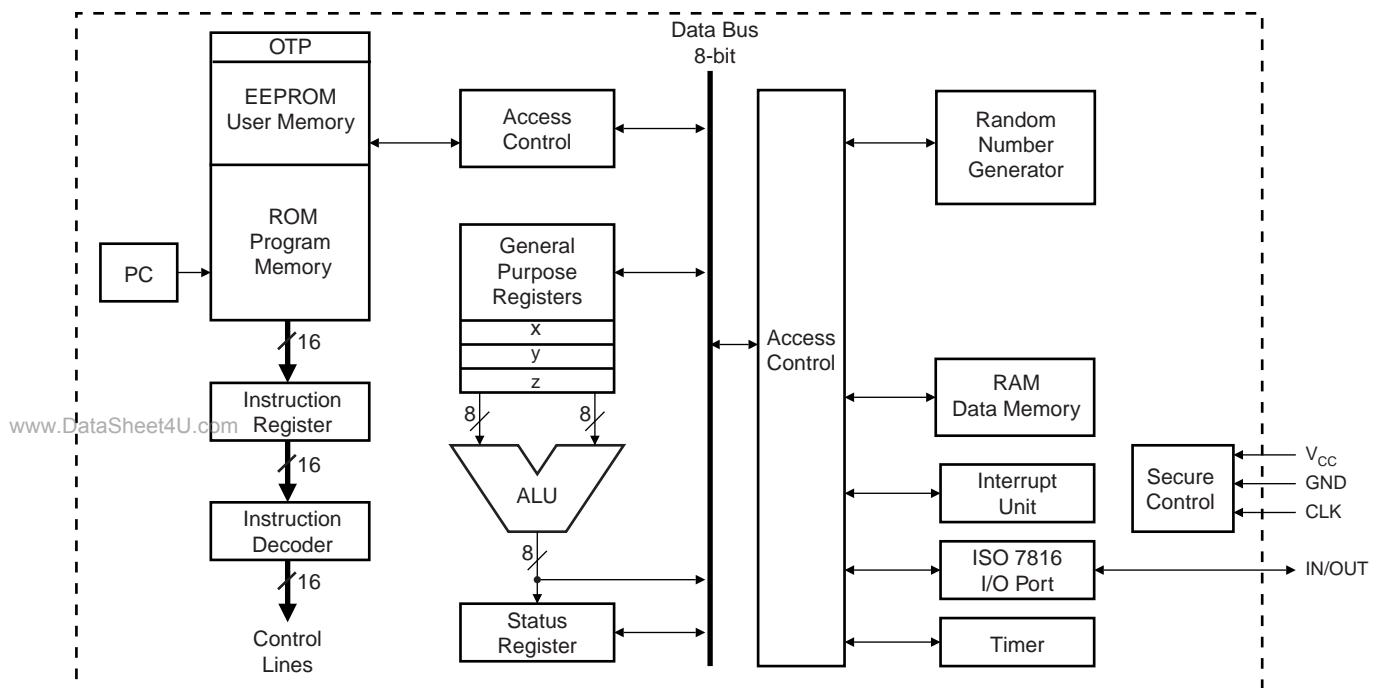
By executing powerful instructions in a single clock cycle, the AT90SC12036RU achieves throughputs close to 1 MIPS per MHz. Its Harvard architecture includes 32 general-purpose working registers directly connected to the ALU, allowing two independent registers to be accessed in one single instruction executed in one clock cycle.

In addition to the 120K bytes of embedded ROM, the AT90SC12036RU includes 36K bytes of Atmel's high density EEPROM. The ability to map the EEPROM in the code space allows parts of the program memory to be reprogrammed in-system. This technology combined with the versatile 8-bit CPU on a monolithic chip provides a highly flexible and cost-effective solution to many smart card applications.

The AT90SC12036RU can also be configured to offer compatibility with the AT90SC6436RT.

Figure 1 shows a block diagram of the AT90SC12036RU

Figure 1. AT90SC12036RU AVR Enhanced RISC Architecture





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