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 ± 6000V
- Operating Ranges: from 2.7V to 3.3V and 4.5V to 5.5V
- Compliant with GSM, 3GPP and EMV Specifications
- Available in Wafers, Modules and Industry-standard Packages

Memory

- 32K Bytes of EEPROM, Including 64-byte OTP Area and 64-byte Bit-addressable Area
  - 1 to 128-byte Program/Erase
  - 2 ms Program, 2 ms Erase
  - Typically More than 500,000 Write/Erase Cycles
  - 10 Years Data Retention
- 64K Bytes of ROM Program Memory
- 2K Bytes RAM

Peripherals

- I/O Port
  - Configurable to Support Communication Protocols Including ISO 7816-3
- 16-bit Timer
- Random Number Generator (RNG)
- 2-level, 8-vector Interrupt Controller

Security

- Advanced Protection Against Physical Attack
- Environmental Protection Systems
- Voltage Monitor
- Frequency Monitor
- Secure Memory Management/Access Protection (Supervisor Mode)
- SPA/DPA Counter Measures

Development Tools

- Hardware Development Support on Voyager Emulation Platform (ATV1)
- IAR System C-Spy® Debugger
- Software Libraries and Application Notes

Secure Microcontroller for Smart Cards

AT90SC6432R

Summary

Rev. 1555BS–SMIC–11/02

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

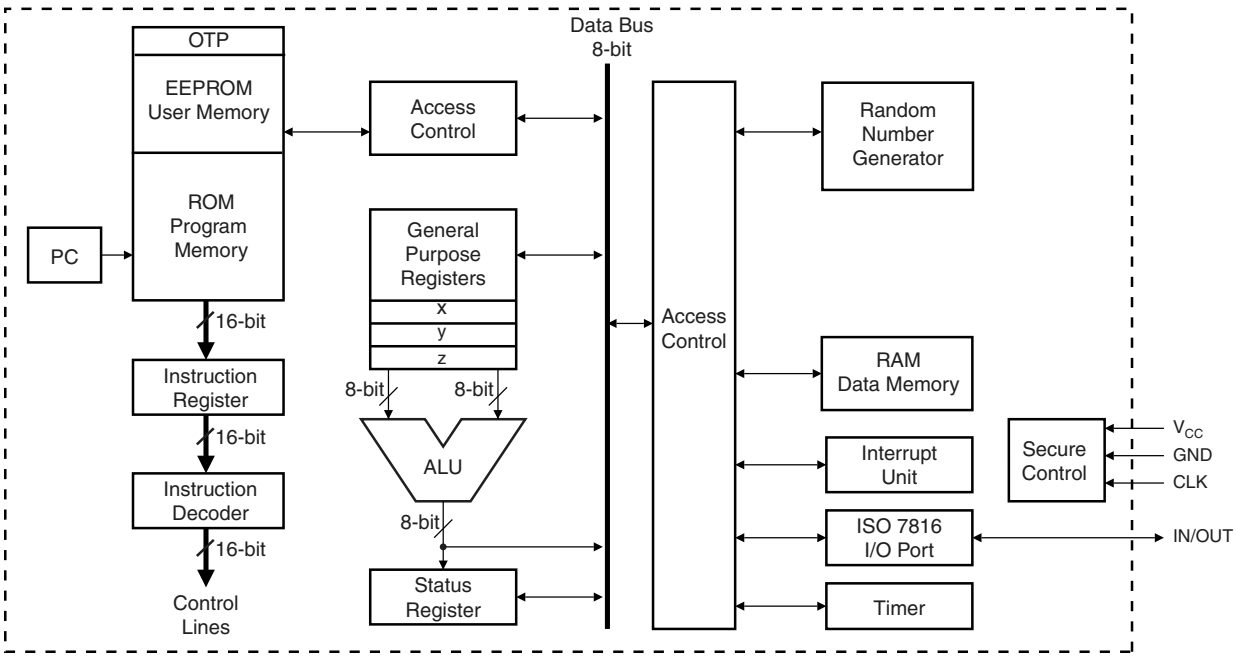
Description

The AT90SC6432R is a low-power, high-performance, 8-bit/16-bit microcontroller with ROM and EEPROM memory, based on the AVR enhanced RISC architecture. By executing powerful instructions in a single clock cycle, the AT90SC6432R 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.

On top of the 64K bytes of embedded ROM, the AT90SC6432R includes 32K 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/16-bit microcontroller provides a highly flexible and cost-effective solution to many smart card applications.

The 8-bit/16-bit microcontroller provides extended indirect addressing capabilities, including 16-bit Pointers, for large memory addressing.

Figure 1. The AT90SC6432R AVR Enhanced RISC Architecture



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