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## Features

### General

- High-performance, Low-power secureAVR™ Enhanced RISC Architecture
  - 135 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: 2.7 to 5.5V
- Compliant with GSM, 3GPP and EMV 2000 Specifications; PC Industry Compatible
- Available in Wafers, Modules, and Industry-standard Packages

### Memory

- 96K Bytes of ROM Program Memory
- 8K Bytes of EEPROM, Including 128 OTP Bytes and 384-byte Bit-addressable Area
  - 1 to 64-byte Program / Erase
  - 1.25 ms Program / 1.25 ms Erase
  - Typically More than 500,000 Write/Erase Cycles at a Temperature of 25°C
  - 10 Years Data Retention
- 4K Bytes of RAM

### Peripherals

- One ISO 7816 Controller
  - Up to 625 kbps at 5 MHz
  - Compliant with T=0 and T=1 Protocols
- One I/O Port
- Programmable Internal Oscillator (Up to 20 MHz for Internal CPU Clock)
- Two 16-bit Timers
- Random Number Generator (RNG)
- 2-level, 7-vector Interrupt Controller
- Hardware DES and Triple DES DPA Resistant
- Checksum Accelerator
- CRC 16 & 32 Engine (Compliant with ISO/IEC 3309)

### Security

- Dedicated Hardware for Protection Against SPA/DPA Attacks
- Advanced Protection Against Physical Attack, Including Active Shield
- Environmental Protection Systems
- Voltage Monitor
- Frequency Monitor
- Temperature Monitor
- Light Protection
- Secure Memory Management/Access Protection (Supervisor Mode)

### Development Tools

- Voyager Emulation Platform (ATV4) to Support Software Development
- IAR Embedded Workbench® V3.20 Debugger or Atmel's AVR Studio® Version 4.07 or Above
- Software Libraries and Application Notes



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## Secure Microcontroller for Smart Cards

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## AT90SC 9608RT Summary

6518AS-SMIC-28Jun05



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 AT90SC9608RT is a low-power, high-performance, 8/16-bit microcontroller with ROM program memory, EEPROM data memory and is based on the secureAVR enhanced RISC architecture. By executing powerful instructions in a single clock cycle, the AT90SC9608RT 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.

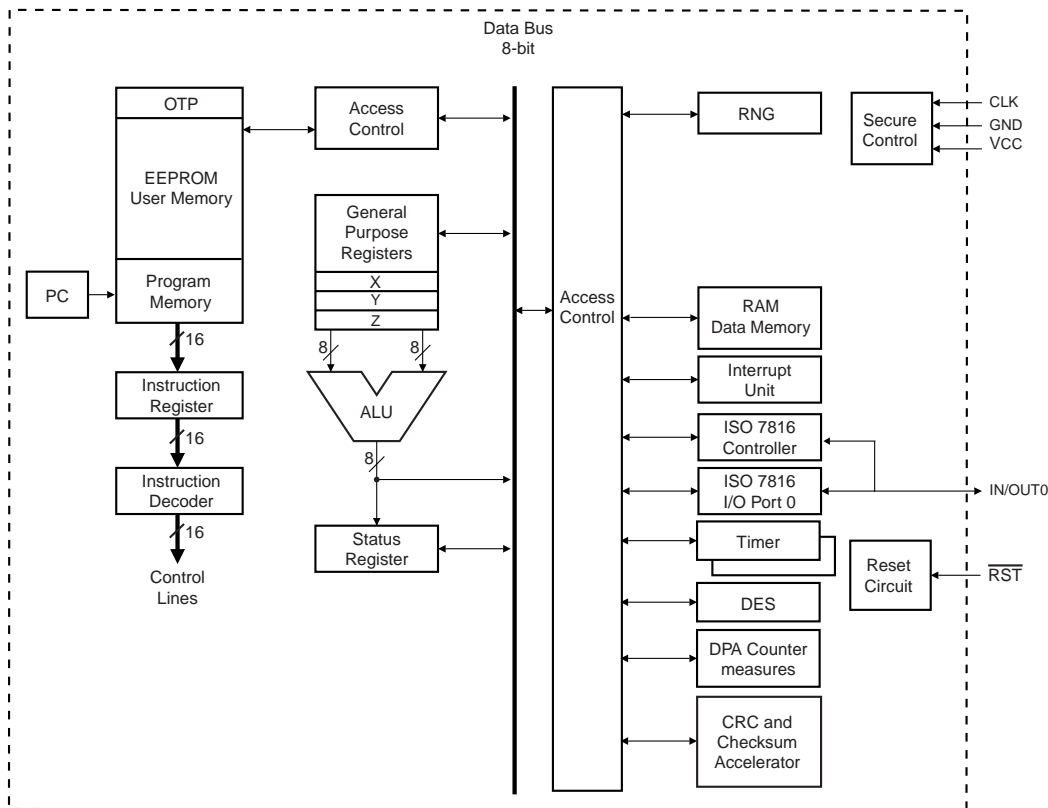
The AT90SC9608RT uses the secureAVR that allows the linear addressing of up to 8M bytes of code and up to 16M bytes of data as well as a number of new functional and security features.

The AT90SC9608RT includes 8K bytes of Atmel's high density, non volatile memory.

Additional security features include power and frequency protection logic, logical scrambling on program data and addresses, Power Analysis countermeasures and memory accesses controlled by a supervisor mode.

Figure 1 shows the AT90SC9608RT secureAVR Enhanced RISC Architecture.

**Figure 1.** AT90SC9608RT secureAVR Enhanced RISC Architecture





## Atmel Corporation

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

## Regional Headquarters

### Europe

Atmel Sarl  
Route des Arsenalux 41  
Case Postale 80  
CH-1705 Fribourg  
Switzerland  
Tel: (41) 26-426-5555  
Fax: (41) 26-426-5500

### Asia

Room 1219  
Chinachem Golden Plaza  
77 Mody Road Tsimshatsui  
East Kowloon  
Hong Kong  
Tel: (852) 2721-9778  
Fax: (852) 2722-1369

### 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

## Atmel Operations

### Memory

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 436-4314

### Microcontrollers

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 436-4314

### La Chantnerie

BP 70602  
44306 Nantes Cedex 3, France  
Tel: (33) 2-40-18-18-18  
Fax: (33) 2-40-18-19-60

### ASIC/ASSP/Smart Cards

Zone Industrielle  
13106 Rousset Cedex, France  
Tel: (33) 4-42-53-60-00  
Fax: (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd.  
Colorado Springs, CO 80906, USA  
Tel: 1(719) 576-3300  
Fax: 1(719) 540-1759

Scottish Enterprise Technology Park  
Maxwell Building  
East Kilbride G75 0QR, Scotland  
Tel: (44) 1355-803-000  
Fax: (44) 1355-242-743

### RF/Automotive

Theresienstrasse 2  
Postfach 3535  
74025 Heilbronn, Germany  
Tel: (49) 71-31-67-0  
Fax: (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd.  
Colorado Springs, CO 80906, USA  
Tel: 1(719) 576-3300  
Fax: 1(719) 540-1759

### Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Datacom

Avenue de Rochepleine  
BP 123  
38521 Saint-Egreve Cedex, France  
Tel: (33) 4-76-58-30-00  
Fax: (33) 4-76-58-34-80

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## Literature Requests

[www.atmel.com/literature](http://www.atmel.com/literature)

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6518AS-SMIC-28Jun05