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# AT94K, Field Programmable System Level Integration Chip (FPSLIC), System Macros

## Features

- Clearing External Reset Flag
- Creating a Software Reset
- Enabling/Disabling and Configuring Sleep Mode

## Introduction

Atmel's AT94K System Macros are provided to familiarize and assist customers in programming the AVR® micro-controller as part of the AT94K FPSLIC product offering. The System Macros provide customers with a simple method for using system-level features of the AT94K device.

## Application

Atmel's AT94K System Macros are implemented in such a way that they can be used interchangeably between embedded C compilers, assuming that the proper register definitions have been made in the ioat94k.h file. The ioat94k.h file must declare the register names corresponding to the names found in the Atmel AT94K device datasheet. These macros have been extensively tested with ImageCraft ICCAVR v6.13a and above and IAR Systems IAR Embedded Workbench AT90S v1.50B/WIN compilers.

A software macro is essentially a name with a corresponding text string, which is commonly referred to as the body. When a macro is called, the compiler replaces the name with the corresponding macro body.

To use the AT94K System Macros, the user must include the at94k\_system.h file available from the AT94K area of the Atmel WWW site. Furthermore, some of the AT94K System Macros require a parameter, either ENABLE/DISABLE or a value. The AT94K System Macros are used in the following manner:

- System feature without a parameter: SYSTEM\_MACRO();
- System feature with a value parameter: SYSTEM\_MACRO(PARAMETER);

## Description

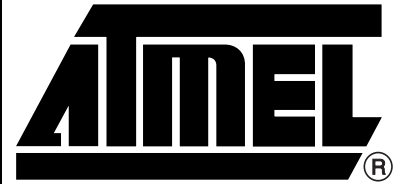
**Macro Name:** CLEAR\_EXT\_RESET

**Parameter:** None

**Description** When set (one), an external reset has occurred. It is cleared by writing a logic zero to the flag.

**Macro Name:** SLEEP\_MODE

**Parameter:** ENABLE or DISABLE



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## AT94K FPSLIC

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## Application Note





**Description:** When enabled (one), the MCU will enter Sleep mode when the SLEEP instruction is executed. To avoid entering Sleep mode unless it is the programmer's purpose, it is recommended to enable Sleep mode just prior to the execution of the SLEEP instruction.

**Macro Name:** SLEEP\_MODE\_SELECT

**Parameter:** IDLE, POWER\_DOWN, or POWER\_SAVE

**Description:** Selects between the three available Sleep modes.

**Macro Name:** SOFTWARE\_RESET

**Parameter:** None

**Description:** When enabled (one), a reset request is sent to the system configuration. Appropriate reset signals are generated and the configuration download is initiated. During the AVR reset, this signal is cleared by the hardware.

**Sample Code Snippet** The following sample C code demonstrates the usage of the AT94K System Macros.

```
/* Including AT94K System Macro File */
#include "at94k_system.h"

/* Main Entry Point of Software */
void main(void)
{
    /* Clearing External Reset Flag */
    CLEAR_EXT_RESET();

    /* Configuring Sleep Mode */
    SLEEP_MODE(ENABLE);
    SLEEP_MODE_SELECT(IDLE);

    /* Creating a Software Reset */
    SOFTWARE_RESET();
}
```



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