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

## Features

- UART Receiver Enable
- UART Transmitter Enable
- UART 9-Bit Characters Enable

## Introduction

Atmel's AT94K UART Macros are provided to familiarize and assist customers in programming the AVR® micro-controller as part of the AT94K FPSLIC™ product offering. The UART Macros provide customers with a simple method for enabling, disabling and configuring various UART features on the AT94K device.

## Application

Atmel's AT94K UART 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 UART macros, the user must include the at94k\_uarte.h file available from the AT94K area of Atmel's web site. All of the AT94K UART macros require a parameter, either ENABLE or DISABLE. The AT94K UART macros are used in the following manner:

- To enable an UART feature: UART-MACRO-NAME(ENABLE);
- to disable an UART feature: UART-MACRO-NAME(DISABLE);



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**AT94K**

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**Application  
Note**

Rev. 2290A-04/01





## Description

**Macro Name:** UART1\_RX  
UART0\_RX

**Description:** When enabled (one), the corresponding UART receiver is enabled. When the receiver is disabled (zero), the TXCn, ORn, and FEn status flags cannot become set. If these flags are set, enabling the receiver does not cause them to be cleared.

**Macro Name:** UART1\_TX  
UART0\_TX

**Description:** When enabled (one), the corresponding UART transmitter is enabled. When disabling the transmitter while transmitting a character, the transmitter is not disabled before the character in the shift register plus any following character in UDRn has been completely transmitted.

**Macro Name:** UART1\_9BIT\_CHARACTERS  
UART0\_9BIT\_CHARACTERS

**Description:** When enabled (one) the transmitted/received characters are 9-Bits long plus start and stop bits. The 9th bit is read and written using the RXB8n and TXB8n bits in the corresponding UCSRnB. The 9th data bit can be used as an extra stop bit or parity bit.

## Sample Code Snippet

The following sample C code demonstrates the usage of the AT94K UART Macros. As previously stated the corresponding AT94K UART feature is either enabled or disabled based on the parameter passed to the macro.

```
void initUART0 ( void )
{
    UART0_TX (ENABLE)           /* Enable UART0 Transmit */
    UART0_RX (ENABLE)           /* Enable UART0 Receiver */
    UART0_9BIT_CHARACTERS (DISABLE) /* Disable 9Bit Characters */
}
```



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