How to Upgrade LF-RFID µC-boards: TMEB8704 and ATAK2270 1.0 for ISP/JTAG Programming

Upgrades are available via the Atmel® web site for application and evaluation kits controlled by an AVR® flash controller firmware to be programmed by the SPI/JTAG interface.

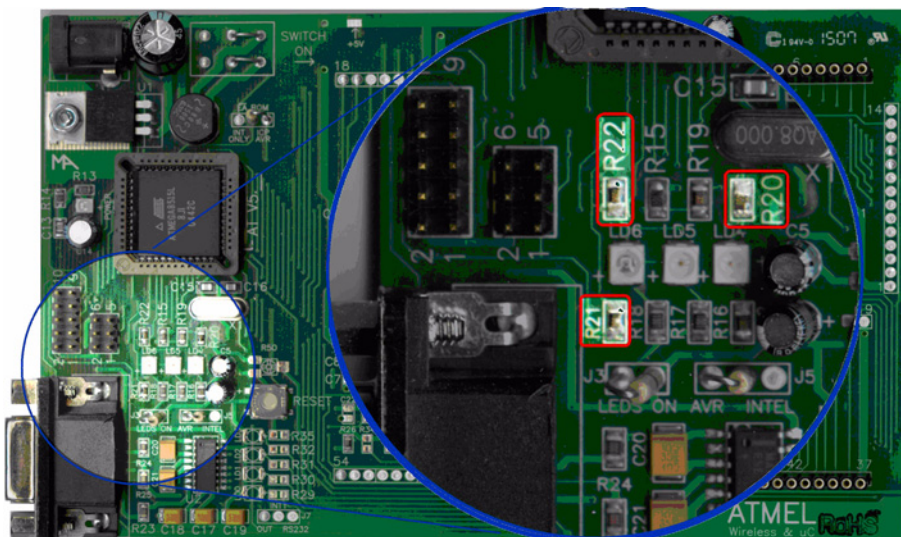## 1. Upgrade AVR Base Board µC-board 1.0

Previous boards were distributed without mounted ISP interface components on board. Customers using an older board that need to upgrade the AVR firmware have to assemble additional components as follows:

The µC-board 1.0, equipped with an AVR ATmega8515, is used for various application kits.

The following additional components are needed:

- ISP header connector 2 × 3 pole
- JTAG header connector 2 × 5 pole
- Resistors R20, R21, R22 with 100Ω each

Figure 1-1.

1.1 AVR Programming Guide

The AVR base board is equipped with two programming interfaces, ISP and JTAG, which allow reprogramming or updating the firmware of AVR flash memory.

ISP is a downloading method. Only six I/O lines are needed. The provided header works with the ATSTK®500 as well as the AVR ISP In-System Programmer. Both of these are available from Atmel or distributors for very low cost program development. To program the flash memory and the EEPROM, first connect the programming tool to the MB using a six-pin ribbon connector. Make sure that proper orientation is maintained by aligning pin1. The files types accepted use Intel Hex format.

To program a hex file into the target AVR device, select "Program AVR" and then "Connect..." from the "Tools" menu in AVR Studio®. Once AVR Studio has been opened, connect to the STK500 or AVRISP by selecting "STK500 or AVRISP" in the Platform List. Then select "Connect...". The driver for the STK500 and AVRISP is then started, and the STK500 dialog should appear. Note that the system supports other programming platforms such as the JTAGICE or the JTAGICE mkII.

Next select the AVR target device from the pull-down menu on the "Program" tab and locate the Intel-hex file to download. Select the "program" button. Repeat for the EEPROM section.

The same steps apply when using the JTAGICE MKII.

The JTAG Platform allows more control during software development by allowing real-time debugging of the source code. The JTAGICE MKII supports the setting of breakpoints and stepping through the code being executed on the target micro. This is particularly useful for more complex software projects.

1.2 Fuse Settings

Fuse bits must be set properly for the kit to function. The only fuse bits that should be set are listed below.

- JTAG interface enabled; (JTAGEN = 0)
- Serial program downloading (SPI) enabled; (SPIEN = 0)
- Boot flash section size = 512 words boot start address = $FE00; (BOOTSZ = 11)
- Brown-out detection level at VCC = 2.7V; (BODLEVEL = 1)
- Internal RC oscillator. 8 MHz; start-up time; 6CK + 64 ms; (CKSEL = 0100 SUT = 10)

All others should be unchecked.

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