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## Upgrading the Atmel CryptoAuthentication/Tempsensor Kit Firmware Using FLIP

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### Overview

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- Demonstrates how to upgrade the Atmel<sup>®</sup> CryptoAuthentication<sup>™</sup> and Atmel Tempsensor kit firmware via USB.
- Demonstrates the Atmel FLexible In-system Programming (FLIP) software utility.

### Introduction

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This document describes the steps required to program the following Atmel CryptoAuthentication and Atmel Tempsensor kits:

- AT88Microbase
- AT30TK175STK
- AT88CK101STK8
- AT88CK201STK
- AT88SC-ADK2
- AT88CK490
- AT88CK590

# 1 Firmware Upgrade Procedures

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## Step 1 Install the *FLexible In-system Programming (FLIP) Software Utility*

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The FLIP software utility can be downloaded at the following link:

[www.atmel.com/tools/flip.aspx?tab=overview](http://www.atmel.com/tools/flip.aspx?tab=overview)

Alternatively, if the Atmel Crypto Evaluation Studio (ACES) software is already installed, the FLIP installer is available in one of the following directories:

C:\Program Files\Atmel\Crypto Solutions\Firmware\Flip or  
C:\Program Files (x86)\Atmel\Crypto Solutions\Firmware\Flip

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## Step 2 Place the Atmel AVR® AT90USBxxx into the Device Firmware Upgrade (DFU) Mode

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All Atmel AVR AT90USBxxx-based kits are shipped with a default factory preprogrammed USB boot loader located in the on-chip boot section. There are two methods to enable the DFU mode on the crypto kits:

▶ **Method 1: AT88Microbase Board's *HWB* and *RESET* buttons**

This method uses the *HWB* and *RESET* buttons on the AT88Microbase board. The AT88Microbase serves as the base module for the AT30TK175STK, AT88CK101STK8, AT88CK201STK, and AT88SC-ADK2 kits.

Enable DFU mode with the *HWB* and *RESET* buttons by following the next three steps:



**These steps *must* be completed in the exact sequence.**

1. **Press** and **hold** the *HWB* button.
2. **Press** and **release** the *RESET* button.
3. **Release** the *HWB* button.

The kits which incorporate the AT88Microbase board as the base module will toggle all three LEDs prior to entering the DFU mode.

▶ **Method 2: DFU Enabling Application**



This method is the *only* way to place the AT88CK490/590 kit into the DFU mode as these kits do not have a **HWB** button.

This method involves a small DFU enabling application which is installed with ACES and CMES (Crypto Memory Evaluation Studio). The application is located at:

C:\Program Files\Atmel\Crypto Solutions\Firmware\DFU or  
C:\Program Files (x86)\Atmel\Crypto Solutions\Firmware\DFU.

1. Using this DFU enabling application, insert the kit into an available USB port.
2. Wait for enumeration, and then click the **Enable DFU** button as shown in the figure below.

**Figure 1-1. Device Firmware Upgrade (DFU) Window**



### Step 3 Install the Driver

After placing the kit into DFU mode, the **Found New Hardware Wizard** notification will appear.

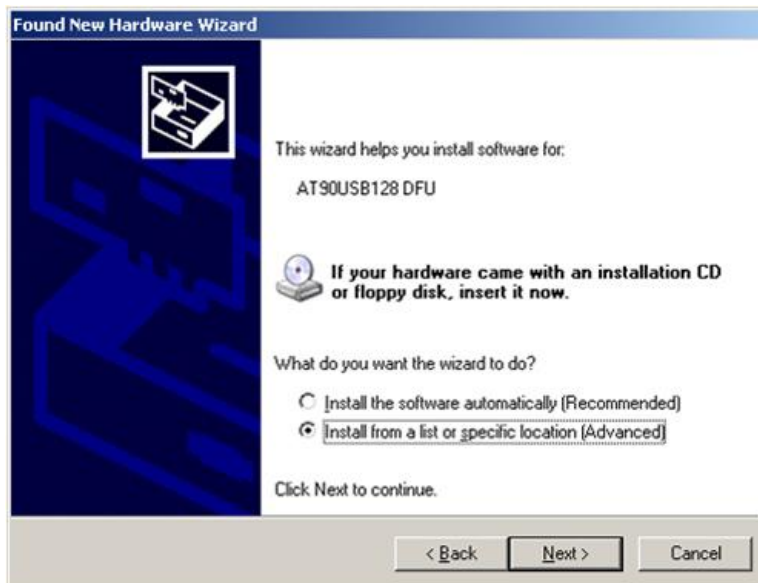
1. Select **Yes, this time only**, and then click **Next >** to continue.

Figure 1-2. Found New Hardware Wizard Notification



2. Select the **Install from a list or specific location (Advanced)**, and then click **Next >** to continue.

Figure 1-3. Install Software



3. Select **Browse** and locate the most recent downloaded FLIP version, and then select the **usb** subdirectory. Click **Next >** to continue.

Figure 1-4. Browse for Driver



4. The driver installation is now complete. Click **Finish**.

Figure 1-5. Wizard Complete



## Step 4 Load New Firmware

1. Launch the FLIP utility, and then click on the **Device Selection** icon.
2. In the **Device Selection** pop-up window, select the target device, i.e. AT90USB1287, and then click the **OK** button.

Figure 1-6. Device Selection

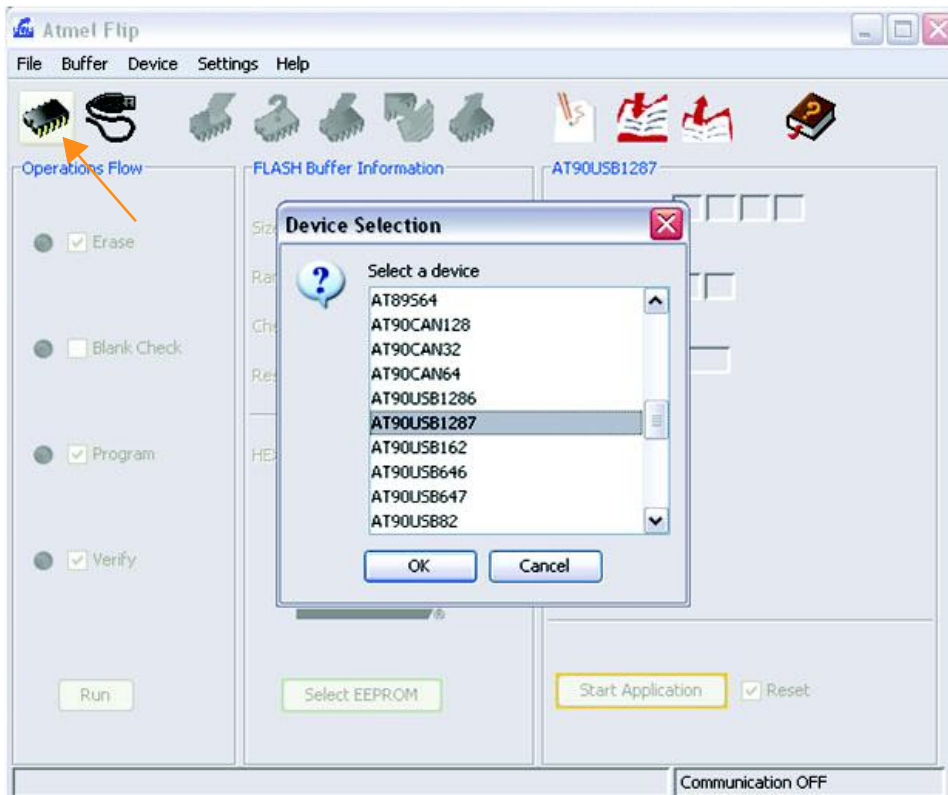
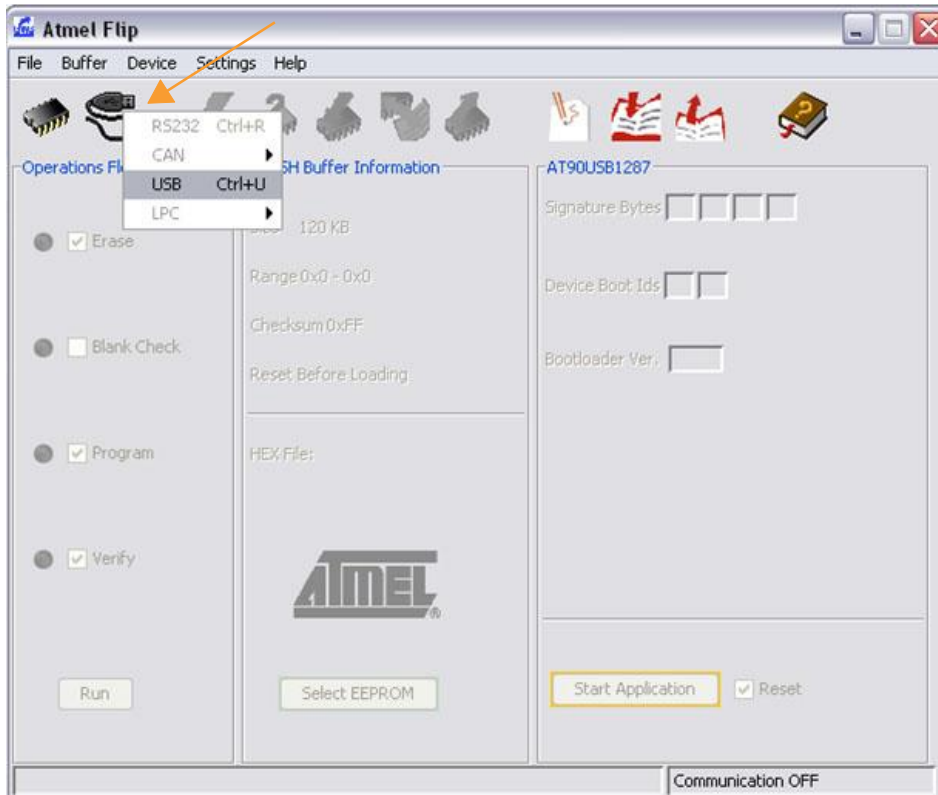


Table 1-1. Kit Device Selection

Atmel Kit	Atmel AVR Device Selection
AT88Microbase AT30TK175STK AT88CK101STK8 AT88CK201STK AT88CK490 AT88CK590	AT90USB1287
AT88SC-ADK2	AT90USB647

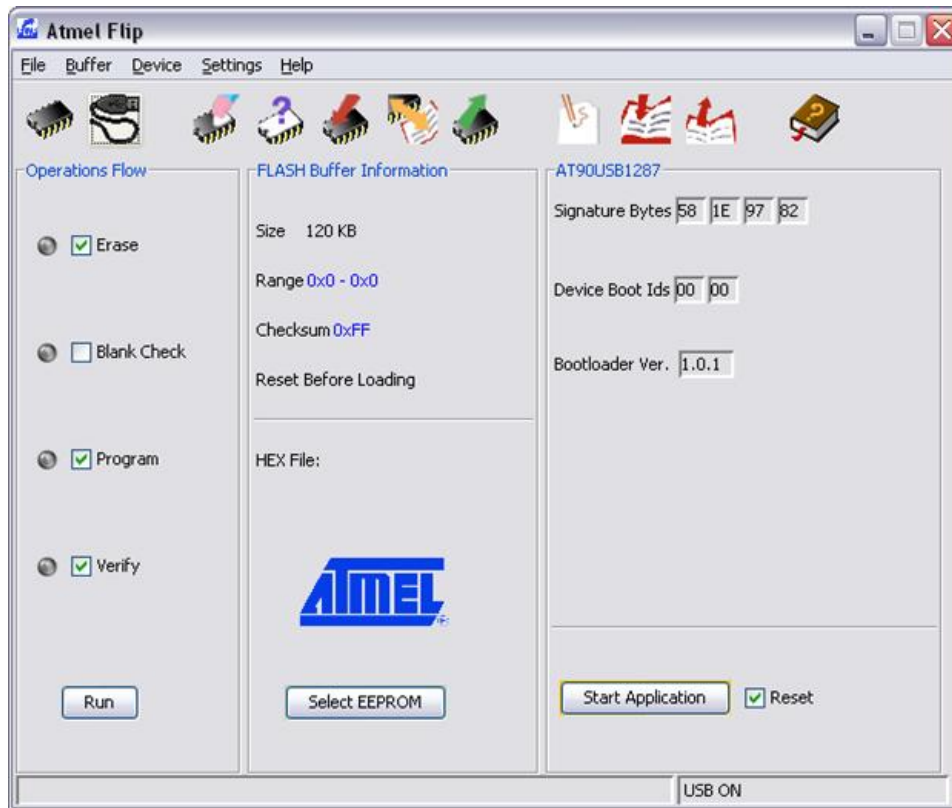
3. Click on the Communication Medium icon. Then, from the pop-up window, select USB.

Figure 1-7. Communication Medium Selection



4. On the toolbar, select **File** to select the hex file for downloading.
5. Click the **Run** button to download the hex file.
6. After a successful download, all the checked options in the **Operations Flow** column will change to green check marks.
7. Click the **Start Application** button.

**Figure 1-8. Start the Application**



## 2 Revision History

Doc Rev.	Date	Comments
8726C	11/2015	Corrected FLIP link address and hyperlink. Removed the AT88CK101STK3, AT88CK109STK3, AT88CK109STK8, AT88CK440RED, AT88CKBLACK, and AT88CK427GREEN. Added the AT88CK590 kit.
8746B	01/2014	Added the AT88CK490 kit and update document template.
8746A	05/2011	Initial document release.





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