Features

• Installing Atmel CryptoAuthentication Utilities
• Configuring the board
• Powering the board
• Reading the HOST (Atmel AT88SA10HS) and CLIENT (Atmel AT88SA102S) devices

Contents

• Atmel AT88CK109BK3 modular Atmel CryptoAuthentication daughter board
• Atmel AT88Microbase for demos and development
• Common 10-PIN header for the Atmel STK and EVK platforms
• Atmel CryptoAuthentication Development Library
• JTAG, LED, and buzzer for debug and feedback
• Atmel CryptoAuthentication device assortment and USB cable

Introduction

Atmel® AT88CK109STK3 is an Atmel CryptoAuthentication™ Starter Kit, which can be used as a reference design and development system for the Atmel AT88SA100S, Atmel AT88SA102S and Atmel AT88SA10HS products.

Figure 0-1. Atmel AT88CK109STK3 Starter Kit
1. **Install the Atmel CryptoAuthentication Utilities**
   - Visit [www.atmel.com/cryptokits](http://www.atmel.com/cryptokits) to download and install the latest Atmel® CryptoAuthentication™ Utilities
   - Scroll down the webpage to Software Files and select the software icon for:
     - PC Application: CryptoAuthentication Utility Version x.x
     - Microcontroller Firmware: CryptoAuthentication Firmware AT88CK109STK3 Version x.x
       (The Atmel AT88Microbase is preloaded with the appropriate firmware image for your convenience)

2. **Configuring the board**

   Ensure there is a device in the HOST and CLIENT sockets.

   Figure 2-1. HOST and CLIENT sockets

   The kit is shipped with an Atmel AT88SA102S device in the CLIENT socket and an Atmel AT88SA10HS device in the HOST socket. To use this kit with the CryptoAuthentication Utilities software, the host and client devices must be in their respective sockets according to the texts (silkscreen) on the PCB.

   Also, ensure the jumpers are configured as follow:

   Figure 2-2. Jumper Configuration
3. **Powering up the board**

The Atmel® AT88CK109STK3 is a USB powered device. The Atmel AT88Microbase can be directly inserted into the USB port or be used with the six-inch USB cable provided.

Figure 3-1. Atmel AT88CK109STK3 USB Device

Upon receiving power, the blue power LED "LEDP" on the AT88Microbase and the two red LEDs on the AT88CK109BK3 will light.

4. **Reading the Device Configuration Information**

- Insert the Atmel AT88CK109STK3 into a USB port (Section 2)
- Launch the Atmel CryptoAuthentication Utilities
- Click *Start, All Programs, Atmel Crypto Solutions, CryptoAuthentication Utilities*

Figure 4-1. Atmel CryptoAuthentication Utilities
The Atmel® CryptoAuthentication™ Utilities will open to the AT88SA102S / Hardware Operation tab.

Figure 4-2. Hardware Operations Tab

If the following screen appears, then one of four problems exists.

1. No device has not been inserted into the socket
2. The devices are not in their respective sockets, HOST / CLIENT
3. The device is not seated properly
4. The firmware is outdated
   – See Section 8, “Firmware Upgrade”

Figure 4-3. No SA102S Device Detected Notification
• Click the Read button in the AT88SA102S Configuration Information section
  – The section will populate

Figure 4-4. Atmel AT88SA102S Configuration Information populated
5. Programming the Secret Fuse Value

- Click the **Hardware Setup** tab
  1. Select the **Client Socket** radio button
  2. Enter a **Secret Fuse Value** (remember this value)
     - This can be any arbitrary data
     - Length must equal 8-bytes
  3. Ensure the **Lock Device on Burn** is checked
  4. Click the **Burn** button
  5. Click **OK** on the popup box
  6. Select the **Host Socket** radio button
  7. Repeat steps two through five
     - The CLIENT and the HOST devices must have the same **Secret Fuse Value**

Figure 5-1. Hardware Setup tab
6. Executing the Message Authentication Command on the CLIENT device
   - Click the Hardware Operation tab
     1. Select Mode 20
     2. Enter KeyID FFFF
     3. Enter a Challenge (up to 32-bytes)
     4. Click the Send button to obtain the MAC (Atmel AT88SA102S response)

Figure 6-1. Hardware Operations tab
7. Verifying the CLIENT’s MAC with the HOST Device
   - Click the Host Verification tab
   - Click the Read button in the AT88SA10HS Host Values section
     - The section will populate
   - Click the Verify button and observe the Host Response, which should be true
     Response Summary: True is returned when both the HOST and CLIENT devices have the same Secret Fuse value and produce the same MAC to the same Challenge

Congratulations, your Atmel® AT88CK109STK3 is up and running

See the CryptoAuthentication Help shortcut on your desktop for additional information.

For additional samples, go to: http://www.atmel.com/forms/Samples.asp?family_id=699

8. Firmware Upgrade

To upgrade the firmware, click the Help tab and complete steps one through six.

The following steps enable the DFU mode:
1. Load the Atmel FLIP (FLexible In-System) Programming utility
3. Click the Firmware upgrade mode Enable button
4. Click OK in the popup box
5. All three LEDs will blink three times indicating the board is in DFU mode
6. Launch FLIP to load the new firmware
9. **References and further information**

A complete reference design including schematics, Gerber files, bill of materials (BOM), Hardware User Guide and development and demonstration software is conveniently downloadable from [www.atmel.com/cryptokits](http://www.atmel.com/cryptokits).

10. **EVALUATION BOARD/KIT IMPORTANT NOTICE**

This evaluation board/kit is intended for **ENGINEERING, DEVELOPMENT, DEMONSTRATION** or **EVALUATION PURPOSE ONLY**. It is not a finished product and may not (yet) comply with some or any technical or legal requirements that are applicable to finished products, including, without limitations, directives regarding electromagnetic compatibility, recycling (WEEE), FCC, CE or UL (except as may be otherwise noted on the board/kit). Atmel® supplied this board/kit “AS IS,” without any warranties, with all faults, at the buyer’s and further users’ sole risk. The user assumes all responsibly and liability for proper and safe handling of goods. Further, the user indemnifies Atmel from claims arising from the handling or use of goods. Due to open construction of the product, it is the user’s responsibility to take any and all appropriate precautions with regard to electrostatic discharge and any other technical or legal concerns.

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