SILICON LABS C8051F34x Development Kit User Guide

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Contents

Kit Contents

The C8051F34x Development Kit contains the following items:

- C8051F340 Target Board
- C8051Fxxx Development Kit Quick-Start Guide
- AC to DC Power Adapter
- USB Debug Adapter (USB to Debug Interface)
- USB Cable
- CD-ROM

Hardware Setup Using a USB Debug Adapter

The target board is connected to a PC running the Silicon Laboratories IDE via the USB Debug Adapter as shown in **Figure 1.**

1. Connect the USB Debug Adapter to the DEBUG connector on the target board with the 10-pin ribbon cable.
2. Connect one end of the USB cable to the USB connector on the USB Debug Adapter.
3. Connect the other end of the USB cable to a USB Port on the PC.
4. Connect the ac/dc power adapter to power jack P1 on the target board.

Notes:

- Use the Reset button in the IDE to reset the target when connected using a USB Debug Adapter.
- Remove power from the target board before removing the ribbon cable from the target board. Connecting or disconnecting the cable when the devices have power can damage the device and/or the USB Debug Adapter.

Figure 1. Hardware Setup Using a USB Debug Adapter
Notes:The C8051F340 target board has the ability to be powered through the USB cable. To enable the USB-powered mode,
short the pins labeled VBUS and VREGIN on the J8 header. Do not short all 3 pins on the J8 header.

Software Setup

Simplicity Studio greatly reduces development time and complexity with Silicon Labs EFM32 and 8051 MCU products by providing a high-powered IDE, tools for hardware configuration, and links to helpful resources, all in one place.

Once Simplicity Studio is installed, the application itself can be used to install additional software and documentation components to aid in the development and evaluation process.

Figure 2. Simplicity Studio

The following Simplicity Studio components are required for the C8051F340 Development Kit:

- 8051 Products Part Support
- Simplicity Developer Platform

Download and install Simplicity Studio from **www.silabs.com/8bit-software** or **www.silabs.com/simplicity-studio**.
Once installed, run Simplicity Studio by selecting **Start>Silicon Labs>Simplicity Studio>Simplicity Studio** from the start menu or clicking the **Simplicity Studio** shortcut on the desktop. Follow the instructions to install the software and click Simplicity IDE to launch the IDE.
The first time the project creation wizard runs, the **Setup Environment** wizard will guide the user through the process of configuring the build tools and SDK selection.
In the **Part Selection** step of the wizard, select from the list of installed parts only the parts to use during development. Choosing parts and families in this step affects the displayed or filtered parts in the later device selection menus. Choose the C8051F34x family by checking the C8051F34x check box. Modify the **part selection**
at any time by accessing the **Part Management** dialog from the **Window>Preferences>Simplicity Studio >Part Management** menu item.
Simplicity Studio can detect if certain toolchains are not activated. If the **Licensing Helper** is displayed after completing the Setup Environment wizard, follow the instructions to activate the toolchain.

Running Blinky
Each project has its own source files, target configuration, SDK configuration, and build configurations such as the Debug and Release build configurations. The IDE can be used to manage multiple projects in a collection called a workspace. Workspace settings are applied globally to all projects within the workspace. This can include settings such as key bindings, window preferences, and code style and formatting options. Project actions, such as build and debug are context sensitive. For example, the user must select a project in the Project Explorer view in order to build that project.
To create a project based on the Blinky example:

1. Click the Simplicity IDE tile from the Simplicity Studio home screen.
2. Click the Create new project link from the welcome screen or go to File New Silicon Labs MCU Project.
3. In the Kit drop-down, select C8051F340 Development Kit, in the Part drop-down, select C8051F340, and in the SDK drop-down, select the desired SDK. Click Next.
4. Select Example and click Next.

5. Under C8051F340 Development Kit in the Blinky folder, select F34x Blinky and click Finish.
6. Click on the project in the Project Explorer and click Build, the hammer icon in the top bar. Alternatively, go to Project Build Project.
7. Click Debug to download the project to the hardware and start a debug session.
8. Press the Resume button to start the code running. The LED should blink.
9. Press the Suspend button to stop the code.
10. Press the Reset the device button to reset the target MCU.
11. Press the Disconnect button to return to the development perspective.

Simplicity Studio Help
Simplicity Studio includes detailed help information and device documentation within the tool. The help contains descriptions for each dialog window. To view the documentation for a dialog, click the question mark icon in the window:
This will open a pane specific to the dialog with additional details.
The documentation within the tool can also be viewed by going to **Help>Help Contents or Help>Search.**

Legacy 8-bit IDE
Note: Using the Simplicity Studio tools with the C8051F340 Development Kit is recommended. See section 3. “Software
Setup,” on page 2 for more information.
Download the 8-bit software from the website (www.silabs.com/8bit-software) or use the provided installer on the CD-ROM to install the software tools for the C8051F34x devices. After installation, examples can be found in **…\Examples\C8051F34x** in the installation directory. At a minimum, the C8051F340 DK requires:

- **Silicon Labs IDE—**Software enabling initial evaluation, development, and debugging.
- **Configuration Wizard 2—**Initialization code generation software for the C8051F34x devices.
- **Keil C51 Tools—**Keil 8051 Compiler/Assembler/Linker toolchain.

  Other software available includes:
- **Keil µVision Driver—**Driver for the Keil µVision IDE that enables development and debugging on C8051Fxxx MCUs.
- **Flash Programming Utilities and MCU Production Programmer—**Programming utilities for the production line. More information on the available programming options can be found on the **website:** **http://www.silabs.com/products/mcu/Pages/ProgrammingOptions.aspx**.
- **ToolStick Development Tools—**Software and examples for the ToolStick development platform. More information on this platform can be found at **www.silabs.com/toolstick**.

  The development kit includes the latest version of the C51 Keil 8051 toolset. This toolset is initially limited to a code

  size of 2 kB and programs start at code address 0x0800. After registration, the code size limit is removed entirely

  and programs will start at code address 0x0000.

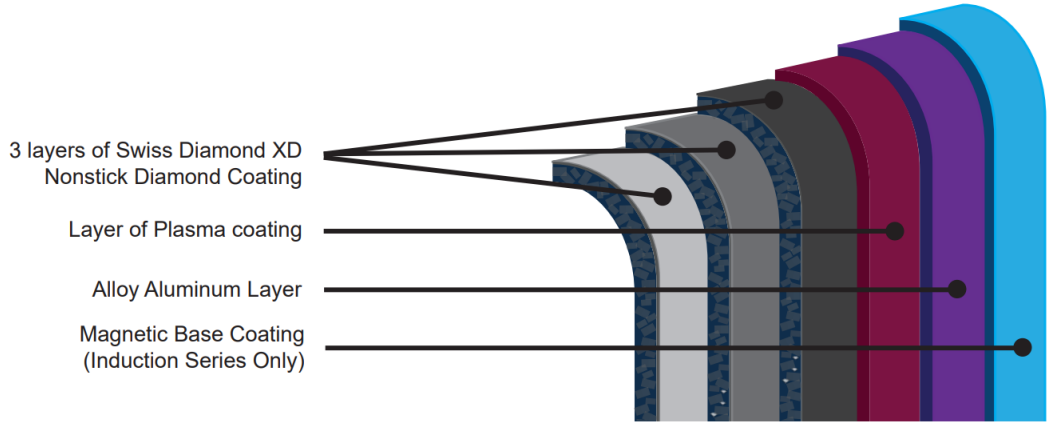
  To register the Keil toolset:

  1. Find the Product Serial Number printed on the CD-ROM. If you no longer have this serial number, register on the Silicon Labs website (**www.silabs.com/8bit-software**) to obtain the serial number.
  2. Open the Keil µVision4 IDE from the installation directory with administrative privileges.
  3. Select **File>License Management** to open the License Management window.

Swiss Diamond XD Sauteerpan Non Stick Frying Pan User Guide

USE & CARE INSTRUCTIONS

Classic XD is constructed of multiple layers of specially developed and carefully selected materials. Our XD series cookware begins with a cast aluminum alloy foundation. Liquid metal is cast into molds under high pressure so it will never warp. This produces a perfectly flat base resulting in even heat distribution. The foundation is then sand-blasted to prepare it for a layer of plasma coating. Plasma coating eliminates oxidation and forms an extremely strong bond with our proprietary nonstick coating. Finally, each piece is finished with three layers of our latest, diamond reinforced, PFOA free, patented, XD nonstick coating.



Swiss Diamond pioneered award winning, PFOA free, diamond reinforced, nonstick cookware nearly two decades ago. Diamonds are durable, a superior heat conductor, and naturally nonstick. Our next generation, XD nonstick diamond reinforced coating has been developed after many years of research. The enhanced formula results in significantly improved durability and cooking performance for perfect food release every time.

XD Series cookware is available in both a Classic and a Classic Induction series to accommodate all cooktops and can easily be transferred to the oven, with our lids being oven safe up to 500°F (260°C). The handles are ergonomically designed to stay cool. Key pieces feature a helper handle for additional ease.

The Swiss Diamond brand is 100% Swiss owned. Our Classic XD cookware is made and designed in Switzerland.

General Use

Use the right cookware for your cooktop.

- For best results and to maximize energy efficiency, match the base diameter of your cookware to the correct size burner or hot plate.
- For gas cooktops, ensure the flame is centered beneath the pan. DO NOT allow the flame to extend up the sides of the pan.
- For electric cooktops, always make sure the base of your cookware and your cooktop are clean prior to use. Never drag or push your cookware asthis may scratch your cooking surface.
- For Induction cooktops, always make sure the base of your cookware and your cooktop are clean prior to use. Permanent marks may occur if this is not done. The “boost” function should not be used for searing or frying, as its purpose is to bring large quantities of liquid to a boil. While cooking with Classic Induction XD, you may detect a low vibration noise.
  This is normal and will not affect the cooking performance.

- **Use low to medium heat.** High heat is never required due to the excellent thermal conductivity of Swiss Diamond cookware. Start with low heat and adjust gently upward as needed. Always place your pan on the center of the heating surface. Do not overheat as this will damage the cooking surface. Overheating is a common occurrence and is easily recognizable as the exterior will change color. Damage from overheating is not covered under warranty.

NOTE: Swiss Diamond cookware is oven safe up to 500°F (260°C), including lids and ergonomic handles. Never put Swiss Diamond in a microwave oven.

- **Preheating.** For optimal performance, place the pan on low and gently increase to medium heat and preheat for 3 minutes, after this time you can add your food, you can turn down the heat during the cooking process. Note that the cookware has been specially design to spread the heat evenly across the base and up the sides of the pans, so there is no need for high heat.
- **Use proper utensils.** Silicone and wooden tools are highly recommended. Any tool with a sharp point or edge should not be used. Do not chop or cut in the pan. Small scratches do not decrease the performance of the cookware and are not covered under warranty. Do not leave utensils in cookware while cooking. Use a spoon rest.
- **If you must use cooking oil, use it properly.** Swiss Diamond is designed for cooking with little or no oil. If you choose to use oil, heating it above its smoke point, or to the point at which the oil will burn, will gradually

lead to a thin layer of oil residue build-up on the surface of your cookware which may become carbonized over time. Carbonization can be difficult to remove and interfere with your cookware's nonstick properties. Refer to the chart below for smoke points for commonly used oils as well as the section entitled Removing Stubborn Food & Oil Build-Up from the Nonstick Surface. Avoid using cooking sprays which may cause carbonization at even relatively low temperatures.

Oil	Smoke Point	
Avocado Oil (Virgin)	375-400°F	190-205°C
Butter	350°F	175°C
Butter (Clarified)	450°F	230°C
Canola Oil	400°F	205°C
Coconut Oil	350°F	175°C
Corn Oil	450°F	230°C
Grapeseed Oil	390°F	195°C
Lard	370°F	185°C
Olive Oil (Extra-Virgin)	325-375°F	165-190°C
Olive Oil (Light/Refined)	465°F	240°C
Peanut Oil	450°F	230°C
Safflower Oil	510°F	265°C
Sesame Oil	350-410°F	175-210°C
Soybean Oil	450°F	230°C
Sunflower Oil	440°F	225°C
Vegetable Oil	400-450°F	205-230°C
Vegetable Shortening	360°F	180°C

- **Use cookware safely.** Never leave cookware unattended on a hot cooktop. Never allow cookware to reach boiling temperature without water. Turn handles away from the edge of the cooktop to prevent accident or injury. Be sure to use oven mitts/gloves when handling hot cookware.
- **Food storage.** Never store food in your cookware.

Cleaning

Before Using New Cookware

- Hand-wash cookware thoroughly with hot, soapy water using a nylon brush, a nylon scourer, or a soft clean dish cloth or sponge.

- **Note:** Swiss Diamond cookware is considered dishwasher safe, but werecommend avoiding the dishwasher due to the harsh chemicals in dishwashing detergent.

- Never use a metal or abrasive scourer or harsh chemicals.
- Hand dry with a soft clean towel and ensure cookware is completely dry prior to storage.

Removing Stubborn Food & Oil Build-Up from the Nonstick Surface

Over time, you may notice a dark build-up on the surface of the pan. A thin layer of food and oil residue may remain on the surface and may become carbonized when reheated. This can occur gradually when cooking oil is used above its smoke point. This doesn't damage the pan but it can be very difficult to remove. We recommend the following baking soda treatment:

1. Mix a solution of baking soda and water about the consistency of toothpaste.
2. Rub this solution into the pan wherever you see the dark build-up.
3. Scrub vigorously with a nylon brush or scourer, or a soft clean dish cloth or sponge.
4. Rinse clean, wash with hot soapy water and dry thoroughly
5. Never use oven cleaner or other harsh chemicals as these will degrade the nonstick surface.

Cleaning the Exterior and Base

The following homemade solution can be used to remove build up on the exterior and base:

1. Mix a solution of 1 quart (1 liter) water + 3 Tbsp. (45 ml) of a natural acid like lemon juice, cream of tartar or white vinegar.
2. Bring this solution to a boil and then carefully use it on a nylon brush or scourer to clean the exterior and the base. Rinse, wash with warm soapy water, rinse again and dry thoroughly.

Everyday Maintenance & Storage

- Remove your food, carefully fill your hot cookware with about 2 inches of cold water and place your pan on a heat resistant surface.
- Empty the pan and hand-wash it thoroughly with hot, soapy water using a nylon brush, a nylon scourer, or a

soft clean dish cloth or sponge.

- Never use a metal or abrasive scourer or harsh chemicals.
- Hand dry with a soft clean towel and ensure cookware is completely dry prior to storage.
- If you nest your pans one on top of the other, place a clean paper towel, cloth towel or felt pan protectors between your cookware pieces prior to storage to preserve the nonstick surface.
- If need be, the handles may be tightened with a #2 Phillips head screwdriver.

Limited Lifetime Warranty

SWISS DIAMOND warrants to the original owner of the cookware that it is free of defects in materials and workmanship for the lifetime of the product. This warranty does not cover glass lids or handles.

This warranty does not apply if the Use and Care instructions published in our literature have not been followed. This warranty does not cover damage or destruction caused by misuse, abuse, accident, overheating, alterations or commercial use. This warranty does not cover stains, discoloration, scratch marks or dents. Incidental or consequential damages are expressly excluded by this warranty.

SWISS DIAMOND will repair or replace, at SWISS DIAMOND's discretion, any item found to be defective. Should the defective item no longer be available, for any reason, an item of similar function and value will be substituted. This warranty is expressly not a money-back guarantee.

In the event the cookware needs to be returned for repair or replacement, it must be mailed back prepaid.

SWISS DIAMOND® is a registered trademark.

DIAMOND CERTIFICATION

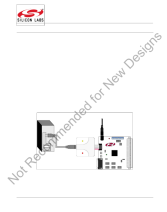
SWISS DIAMOND hereby certifies that the nonstick coating used on our products contains diamond crystals. Additionally, we certify that the diamonds used in our products are purchased from a non-conflict source through a reputable supplier, subject to all international regulations.

If your SWISS DIAMOND cookware is found to be defective in materials or workmanship, please visit www.swissdiamond.com or e-mail **warranty@swissdiamond.com**.

Product Registration
Please take a moment to register your product so that we can best support you. Simply go to: **www.swissdiamond.com/register** and fill out the short form to complete your registration.

Swiss Diamond®

Documents / Resources

	**SILICON LABS C8051F34x Development Kit** [pdf] User Guide C8051F34x, C8051F34x Development Kit, Development Kit, Kit