UM1480
User manual

STM8SVLDISCOVERY quick start guide

Introduction

The STM8SVLDISCOVERY, based on the STM8S003K3T6, is a quick-start evaluation board for the 8-bit mainstream line of MCUs. It is the cheapest and quickest way to discover the STM8S Value line features and performance, to program and use the device, and to build and debug applications using the embedded debugger ST-LINK.

Simply connect the STM8SVLDISCOVERY to a PC through a standard USB cable, and run the pre-programmed example. Once the debugger is open, you can see the real-time execution of the code. Applications are provided to allow you to learn, reuse and modify their source code. This can be used for a quick proof-of-concept, evaluation or demonstration prototype.

The STM8SVLDISCOVERY is ideal for hobbyists, developers, students and support teams. By using this document as a guide and trying out the application examples, you can quickly familiarize yourself with the STM8SVLDISCOVERY and all its possibilities.

Visit www.st.com/stm8svldiscovery to access all related user manuals and application notes.

Reference documents

- STM8SVLDISCOVERY user manual (UM1482)
- Developing and debugging your STM8S-DISCOVERY application code (UM0834)
- ST Visual Develop (STVD) user manual (UM0036)
- Adjustable LED blinking speed using STM8SVLDISCOVERY (AN3996)
- STM8S reference manual (RM0016)
- STM8S003 datasheet

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1 Getting started

The present document provides a quick overview on how to get started with your STM8S Value line application.

For all details on application development and debugging refer to the user manual Developing and debugging your STM8S-DISCOVERY application code (UM0834).

Note: UM0834 is pertinent to the STM8S-DISCOVERY and may require adaptation to be used with the STM8SVLDISCOVERY.

1.1 System prerequisites

Before using the STM8SVLDISCOVERY, the following material is required:

- A Windows PC (XP, Vista, 7)
- A USB type A to B cable

1.2 Discover demo

The STM8SVLDISCOVERY comes pre-programmed with the Discover demo. This self-teaching demo makes LD1 LED blink at different speeds when the user push button is pressed.

1. Simply connect the STM8SVLDISCOVERY to your PC using a USB cable.
2. The application immediately starts and LD1 starts toggling slowly (every second).
3. Each time a user push button event is detected, LD1 blinking speed increases until:
4. The third time the button is pressed results in the LED being switched off.
5. You can then restart a blinking cycle from the 200ms blinking speed state (see *Table 1*).

For demo details, download application note AN3996 on www.st.com/stm8svldiscovery.

For details about the board, refer to STM8SVLDISCOVERY user manual UM1482.

Table 1. Application

Push button	LED1	Period
At application start-up (only)	Toggle	1 sec
1st press	Toggle	200 ms
2nd press	Toggle	100 ms
3rd press	Switched off	N/A

1.3 Quick start tutorial (less than 20 minutes)

This tutorial explains how to start running one of the STM8SVLDISCOVERY application examples from scratch in less than 20 minutes.

1.3.1 Software environment (optional)

1. Download your free software environment (IDE). Choose between:
   a) IAR Embedded Workbench® for STM8 available on www.iar.com, which includes its own compiler,
   b) STMicroelectronics MCU toolset composed of ST Visual Develop (STVD) and ST Visual Programer (STVP) available on http://www.st.com.
   STVD requires either Cosmic or Raisonance freeware compilers:
   - Cosmic for STM8 available on http://www.cosmicsoftware.com/download.php
   - Raisonance 32K for STM8 available on www.mcu-raisonance.com To install the Raisonance compiler, download both Ride7 and the Raisonance kit RKit-STM8 and follow the installation wizard instructions

Note: 1 A free license is required to use the compilers. You will receive the license file by e-mail, this procedure is not automatic so it may take a few hours or a few days (after the week-end), depending on your location and time zone, before you receive your license file.

2 For installation details of your IDE and/or your compilers, read Chapter 2 of UM0834 available on www.st.com/stm8s-discovery.

1.3.2 Running the STM8SVLDISCOVERY application examples

The STM8SVLDISCOVERY is provided with some application examples available on www.st.com/stm8svldiscovery.

Ensure your free software environment is correctly installed.

1. Download one of the application examples and its associated application note (available on www.st.com/stm8svldiscovery) and extract the directory STM8SVLDISCOVERY_*Example* on your PC.
2. Run the IDE of your choice: STVD or IAR.

If you chose STVD

1. Select **File** -> **Open Workspace** and browse for the *Example.stw* project that you intend to run:
   – Cosmic:
   STM8SVLDISCOVERY_*Example*/Project/*Example*/STVD/Cosmic/*Example*.stw.
   – Raisonance:
   STM8SVLDISCOVERY_*Example*/Project/*Example*/STVD/Raisonance/*Example*.stw.
2. Configure STVD to use ST-LINK as the debug instrument:
   a) Click **Debug Instrument -> Target Settings**.
   b) Select target **Swim ST-LINK** in the target list.
3. Click **Build -> Rebuild All** to build your application.
4. Click **Debug -> Start Debugging** to download your application to the STM8S program memory and start the debug session.
5. Run the application code in Debug or Stand-alone mode:
   a) Click **Debug -> Run** to run your application in debug mode.
   b) Click **Debug -> Stop Debugging** to disconnect the debugger; then the application starts running immediately in stand-alone mode.

If you chose IAR

1. Select **File -> Open -> Workspace** and browse for the *Example.eww* project that you intend to run:
   STM8SVLDISCOVERY_*Example*/Project/*Example*/EWSTM8/Cosmic/*Example.eww*
2. Configure EWSTM8 to use ST-LINK as the debug instrument:
   a) Right-click on the project name *Example* in the Workspace window and select **Options...**
   b) In Category Debugger, select target **ST-LINK** in the menu Driver.
3. Click **Project -> Rebuild All** to build your application
4. Click **Project -> Download and Debug** to download your application to the STM8S program memory and start the debug session
5. Run the application code in Debug or Stand-alone mode:
   a) Click **Debug -> Go** to run your application in debug mode
   b) Click **Debug -> Stop Debugging** to disconnect the debugger; then the application starts running immediately in stand-alone mode.

Once the selected application is running in one of the above IDEs, check whether it operates as described in the application note associated with the example.

Note: Some of the examples require additional components to work properly. See the application note associated with the example to find out more.

1.3.3 Developing your own application

1. Ensure the free software environment of your choice (IDE and/or compilers) is correctly installed. If this is not already done, refer to *Section 1.3.1*.
2. Install one of the STM8SVLDISCOVERY application examples:
   a) Download ANxxxx.zip from www.st.com/stm8svldiscovery (zip file available together with this ANxxxx) and extract the directory structure on your PC.
   b) Duplicate the project_template directory and rename it (*My_own_project)*.
3. Run the Integrated Development Environment of your choice.
4. Select **File -> Open Workspace**.
5. Open the project *My_own_project* following the procedure explained in section *Section 1.3.2*:
   – STVD with Cosmic:
   STM8SVLDISCOVERY_*My_own_project*/Project/*My_own_project*/STVD/Cosmic/STVD_workspace.stw
   – STVD with Raisonance:
   STM8SVLDISCOVERY_*My_own_project*/Project/*My_own_project*/STVD/Raisonance/STVD_workspace.stw
   – IAR Embedded Workbench (EWSTM8):
   STM8SVLDISCOVERY_*My_own_project*/Project/*My_own_project*/STVD/EWSTM8/workspace.eww

If you chose STVD

1. Check that appropriate MCU is selected:
   a) Go to **Projects>Settings>MCU** and check that **STM8S003K3** is displayed in the **selected MCU** field.
   b) If not already done, select it from the MCU list and ensure that this MCU is displayed in the **selected MCU** field before clicking **OK**.
2. Add your project files to the STVD workspace windows then build and debug your application code.

If you chose IAR with IAR Embedded Workbench for STM8

1. Check that appropriate MCU is selected:
   a) Right-click on the project name *My_own_project* in the Workspace window and select **Options**...
   b) In **General Options** category, select **STM8S003K3U** as Target Device.
2. Check that all the path of your project include directories are defined
   a) Right-click on the project name *My_own_project* in the Workspace window and select **Options**...
   b) In **C/C++ Compile** Category, select **Preprocessor** tab.
   c) If not already set, add your relative include directory paths using **$PROJ_DIR$** key world as follow for instance:
   – $PROJ_DIR$\..\inc
   – $PROJ_DIR$\..\..\..\Libraries\STM8S_StdPeriph_Driver\inc
3. Add your project files to the IAR EWSTM8 workspace window then build and debug your application code.

This procedure provides for a prestructured project workspace and simplifies your project design.

Detailed instructions on project creation are provided in the user manual UM0834, Developing and debugging your STM8S-Discovery application code, available for download from www.st.com/stm8s-discovery.

2 Support

For support go to www.st.com, select the **Support** button and choose either:

- ST e2e Communities and visit our STM8SVLDISCOVERY forum (or access directly from www.st.com/e2e).
- Online Support, and contact our technical support.

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
24-Nov-2011	1	Initial release.