



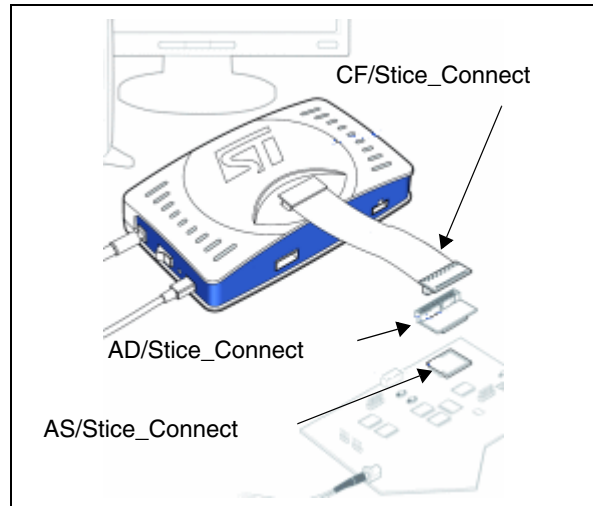
# STICE CF/Stice\_Connect AD/Stice\_Connect AS/Stice\_Connect

Full-featured cost-effective emulation system  
for ST microcontrollers

Data brief

## Features

- Emulation system
  - Real-time emulation of STM8 MCUs (CPU frequency from 250 Hz up to 50 MHz)
  - Application profiling for execution time or number of executions at instruction/source code/function level
  - Coverage analysis on code (at instruction/source code/function level) or data (memory locations or variables) for the entire memory space
  - Unlimited instruction breakpoints for the entire MCU memory space
  - Data breakpoints
  - Advanced breakpoints with up to 4 levels of user-configured conditions
  - Control of application memory accesses configurable at byte level
  - Trace of 128 K records with time stamp
  - Non-intrusive read/write on-the-fly to data memory during emulation
  - Power supply follower managing STM8 application voltages in range 1.65 to 5.5 V (0.8 V possible for MEB with specific TEB)
  - 8-bit probe analyzer
  - Input trigger and 2 output triggers
  - In-circuit debugging/programming via SWIM



- USB 2.0 (high-speed) interface to host PC

- Connection accessories

- CF/Stice\_Connect: 60- or 120-pin flexible cable to connect to the application
- AD/Stice\_Connect: connection adapter to adapt the connection flex to the target device package
- AS/Stice\_Connect: adapter socket soldered onto the application and receiving the AD/Stice\_connect

Table 1. Device summary

| Part numbers     | Contents   |
|------------------|--|
| STICE            | Emulation system   |
| CF/Stice_Connect | Connection flex  |
| AD/Stice_Connect | Connection adapter for target device package or SWIM connector |
| AS/Stice_Connect | Adapter socket   |

## Description

The STice is the advanced in-circuit emulation system from STMicroelectronics. It offers a complete range of proven debugging features such as advanced breakpoints and trace recording. In addition, it provides new profiling and coverage capabilities to help detect and eliminate dead code and bottlenecks in application execution.

In addition to emulation, the STice provides in-circuit debugging and programming capability for ST microcontrollers via the ST single wire interface module (SWIM). SWIM allows non-intrusive debugging of an application while it runs on the target microcontroller.

The STice is supported by the free STM8 toolset, which includes the ST Visual Develop (STVD) integrated development environment for building, debugging and fine-tuning applications, the ST Visual Programmer (STVP) microcontroller programming interface and the STM8 Assembler.

The STice offers improved cost-effectiveness by allowing users to order exactly what they need to meet their development requirements and to adapt their emulation system to support existing and future ST microcontrollers. All these connection accessories and the STice emulation boards can be ordered independently as replacement parts.

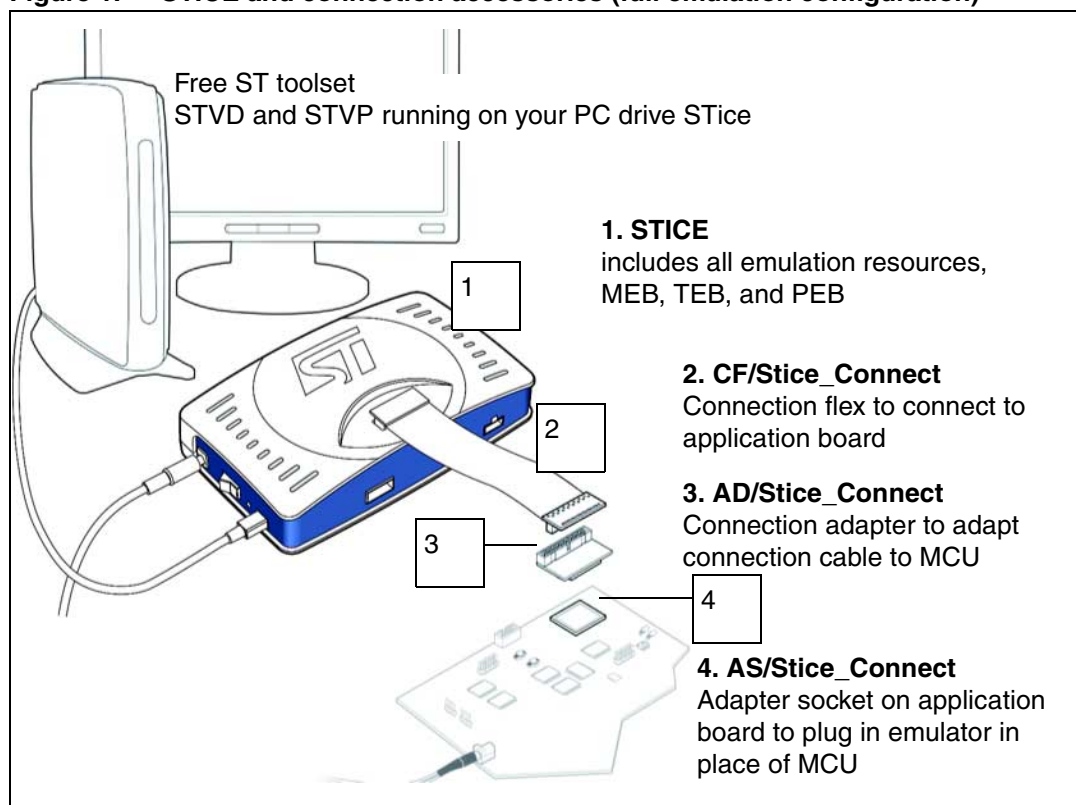
## Working environment

The STice is a modular emulation system that connects to a host PC via a USB interface, to an application board in place of the target microcontroller. It is made up of:

- A main emulation board (MEB) that provides interface and emulation resources common to all emulated MCU families,
- A target emulation board (TEB) that provides the analog emulation resources for a specific family of microcontrollers.

It may also include a peripheral emulation board (PEB) that provides emulation resources specific to an emulated peripheral for a microcontroller sub-family.

**Figure 1. STICE and connection accessories (full emulation configuration)**



For emulation, STice connects to an application board via connection accessories that you specify when ordering the STice.

The STice emulation system and connection accessories are shown in [Figure 1](#). The connection accessories for emulation are:

- Connection flex (CF/Stice\_Connect) – flexible cable (60- or 120-pin depending on the target MCU) that relays signals from the STice to your application board.
- Connection adapter (AD/Stice\_Connect) – adapts the connection flex either to the target microcontroller footprint or to the SWIM connector on your application board.
- Adapter socket (AS/Stice\_Connect) – socket that solders to your application board in place of your MCU and receives the connection adapter. Sockets also allow installation of your target microcontroller.

The free **STM8 toolset** provides all the software required to develop and debug applications with STice, and to program an application to a microcontroller. Software includes:

- **STVD** – Integrated development environment (IDE) that runs on the host PC connected to the emulator and allows users to edit, build and debug applications and then program them to the target STM8 microcontroller. STVD supports the full range of emulation and in-circuit debugging features for **STice**. It also offers a quick programming interface based on STVP, for programming microcontrollers without leaving STVD.
- **STVP** – Full-featured software programming interface that runs on the host PC connected to the emulator. Provides the full range of features for device programming including a project mode for saving programming configurations and automating programming sequences.

**Figure 2. In-circuit debugging/in-circuit programming configuration**



## Ordering STice

The STice emulation system is designed in a modular fashion so that you can order just the components that you need to emulate your target microcontroller.

To help you order what you need, refer to [Table 2](#) for a description of each component and to [Table 3](#) for the list of accessories required for your microcontroller. Make sure to use the correct order codes.

**Table 2. Device contents**

| Part numbers              | Order codes                                  | Contents  |
|---------------------------|--|---|
| <b>Emulation system</b>   |  |   |
| <b>STICE</b>              | <b>STICE-SYSxxx<sup>(1)</sup></b>            | Includes emulator case with: <ul style="list-style-type: none"> <li>– MEB, TEB and PEB<sup>(2)</sup> for a microcontroller sub-family</li> <li>– USB cable</li> <li>– Power supply</li> <li>– Trigger cables</li> <li>– Analyzer input cable</li> </ul> |
| <b>Connection flex</b>    |  |   |
| <b>CF/Stice_Connect</b>   | <b>CF/FP60</b>                               | 60-pin connection cable for connection to the application board   |
|                           | <b>CF/FP120</b>                              | 120-pin connection cable for connection to the application board  |
| <b>Connection adapter</b> |  |   |
| <b>AD/Stice_Connect</b>   | <b>AD/xxxxxx-xxx<sup>(1)</sup></b>           | A connection adapter that is specific to your microcontroller's package   |
|                           | <b>AD-ICD/ICP</b>                            | ICD/ICP adapter kit for <b>STice</b>  |
| <b>Adapter socket</b>     |  |   |
| <b>AS/Stice_Connect</b>   | <b>AS/xxxxxx<sup>(1)</sup><br/>AS-DIP-SO</b> | A socket that is specific to your microcontroller's package   |

1. Refer to [Table 3: Connection accessories for STice systems](#) for the order codes required for your microcontroller.
2. Peripheral emulation board (PEB) is provided only when required to emulate a specific sub-family of microcontrollers.

**Table 3. Connection accessories for STice systems**

| MCU                  | Package<br>(size, pitch in<br>mm) | Stice system | Connection<br>flex | Connection<br>adapter | Adapter<br>socket | In circuit<br>debug/program<br>adapters |
|----------------------|-----------------------------------|--------------|--------------------|-----------------------|-------------------|---|
| STM8AFxx             | LQFP32<br>(7x7, 0.8)              | STICE-SYS001 | CF/FP60            | AD/QFP32B-A03         | AS/QFP32BC        | AD-ICD/ICP                              |
|                      | LQFP48<br>(7x7, 0.5)              | STICE-SYS001 | CF/FP60            | AD/QFP48B-A03         | AS/QFP48BA        |   |
|                      | LQFP64<br>(10x10, 0.5)            | STICE-SYS001 | CF/FP120           | AD/QFP64C-B02         | AS/QFP64CA        |   |
|                      | LQFP80<br>(14x14, 0.65)           | STICE-SYS001 | CF/FP120           | AD/QFP80F-B01         | AS/QFP80FB        |   |
|                      | TSSOP20<br>(6.5x4.4,<br>0.65)     | STICE-SYS001 | CF/FP60            | AD/TSSO20A-A02        | AS/TSSO20AB       |   |
| STM8L101             | QFN20<br>(3x3, 0.5)               | STICE-SYS005 | .(1)               | AD/QFN20J-Z01         | AS/QFN20JA        |   |
|                      | QFN28<br>(4x4, 0.5)               | STICE-SYS005 |                    | AD/QFN28H-Z01         | AS/QFN28HA        |   |
|                      | QFN32<br>(5x5, 0.5)               | STICE-SYS005 |                    | AD/QFN32A-Z01         | AS/QFN32AA        |   |
|                      | LQFP32<br>(7x7, 0.8)              | STICE-SYS005 | CF/FP60            | AD/QFP32B-A04         | AS/QFP32BC        |   |
|                      | TSSOP20<br>(6.5x4.4,<br>0.65)     | STICE-SYS005 | CF/FP60            | AD/TSSO20A-A01        | AS/TSSO20AB       |   |
| STM8L15x<br>STM8L16x | QFN28<br>(4x4, 0.5)               | STICE-SYS009 | .(1)               | AD/QFN28H-Z01         | AS/QFN28HA        |   |
|                      | QFN32<br>(5x5, 0.5)               | STICE-SYS009 |                    | AD/QFN32A-Z01         | AS/QFN32AA        |   |
|                      | QFN48<br>(7x7, 0.8)               | STICE-SYS009 |                    | AD/QFN48B-Z02         | AS/QFN48BA        |   |
|                      | LQFP32<br>(7x7, 0.8)              | STICE-SYS009 | CF/FP60            | AD/QFP32B-A04         | AS/QFP32BC        |   |
|                      | LQFP48<br>(7x7, 0.5)              | STICE-SYS009 | CF/FP60            | AD/QFP48B-A04         | AS/QFP48BA        |   |
|                      | LQFP64<br>(10x10, 0.5)            | STICE-SYS009 | CF/FP120           | AD/QFP64C-B03         | AS/QFP64CA        |   |
|                      | LQFP80<br>(14x14, 0.65)           | STICE-SYS009 | CF/FP120           | AD/QFP80F-B02         | AS/QFP80FB        |   |
|                      | TSSOP20<br>(6.5x4.4,<br>0.65)     | STICE-SYS009 | .(1)               | (2)                   | AS/TSSO20AB       |   |

Table 3. Connection accessories for STice systems (continued)

| MCU      | Package<br>(size, pitch in<br>mm) | STice system | Connection<br>flex | Connection<br>adapter        | Adapter<br>socket | In circuit<br>debug/program<br>adapters |
|----------|-----------------------------------|--------------|--------------------|------------------------------|-------------------|---|
| STM8Sx0x | SDIP32<br>(400 mils,<br>1.778)    | STICE-SYS001 | CF/FP60            | AD/DIP32C-A03 <sup>(3)</sup> | AS-DIP-SO         | AD-ICD/ICP                              |
|          | SDIP32<br>(400 mils,<br>1.778)    | STICE-SYS001 | CF/FP60            | AD/DIP32C-A02 <sup>(4)</sup> | AS-DIP-SO         |   |
|          | QFN20<br>(3x3, 0.5)               | STICE-SYS001 | _(1)               | AD/QFN20J-Z01                | AS/QFN20JA        |   |
|          | QFN32<br>(5x5, 0.5)               | STICE-SYS001 |                    | AD/QFN32A-Z03<br>(3)         | AS/QFN32AA        |   |
|          | QFN32<br>(5x5, 0.5)               | STICE-SYS001 |                    | AD/QFN32A-Z02<br>(4)         | AS/QFN32AA        |   |
|          | LQFP32<br>(7x7, 0.8)              | STICE-SYS001 | CF/FP60            | AD/QFP32B-A05<br>(3)         | AS/QFP32BC        |   |
|          | LQFP32<br>(7x7, 0.8)              | STICE-SYS001 | CF/FP60            | AD/QFP32B-A03<br>(4)(5)      | AS/QFP32BC        |   |
|          | LQFP44<br>(10x10, 0.8)            | STICE-SYS001 | CF/FP60            | AD/QFP44C-A02                | AS/QFP44CC        |   |
|          | LQFP48<br>(7x7, 0.5)              | STICE-SYS001 | CF/FP60            | AD/QFP48B-A03                | AS/QFP48BA        |   |
|          | LQFP64<br>(10x10, 0.5)            | STICE-SYS001 | CF/FP120           | AD/QFP64C-B02                | AS/QFP64CA        |   |
|          | LQFP64<br>(14x14, 0.8)            | STICE-SYS001 | CF/FP120           | AD/QFP64F-B01                | AS/QFP64FC        |   |
|          | LQFP80<br>(14x14, 0.65)           | STICE-SYS001 | CF/FP120           | AD/QFP80F-B01                | AS/QFP80FB        |   |
|          | TSSOP20<br>(6.5x4.4,<br>0.65)     | STICE-SYS001 | CF/FP60            | AD/TSSO20A-A02               | AS/TSSO20AB       |   |

1. “\_”: no accessories required.

2. Contact your nearest ST Sales offices.

3. STM8Sx03xx.

4. STM8S105xx.

5. STM8S207xx.

## Revision history

**Table 4. Document revision history**

| Date        | Revision | Changes  |
|-------------|----------|--|
| 31-Mar-2008 | 1        | Initial release.   |
| 10-May-2010 | 2        | Modified as CB-xx parts are now obsolete.  |
| 08-Nov-2010 | 3        | Modified <a href="#">Table 1</a> , <a href="#">Table 2</a> and <a href="#">Figure 1</a> as part numbers changed:<br>– AS/xxxxxx became AS/Stice_Connect<br>– AD/xxxxxx-xxx and AD-ICD/ICP became AD/Stice_Connect<br>– CF/FPxxx became CF/Stice_Connect<br>Order code AS-DIP-SO added to <a href="#">Table 2</a> . |
| 24-May-2011 | 4        | Removed CB-xxx part numbers from the whole document.<br>Added STice accessories description and ordering information.  |



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