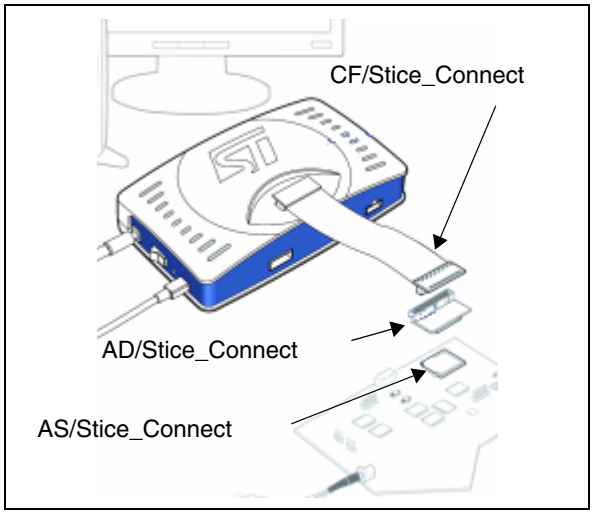
STICE CF/Stice_Connect AD/Stice_Connect AS/Stice_Connect

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.

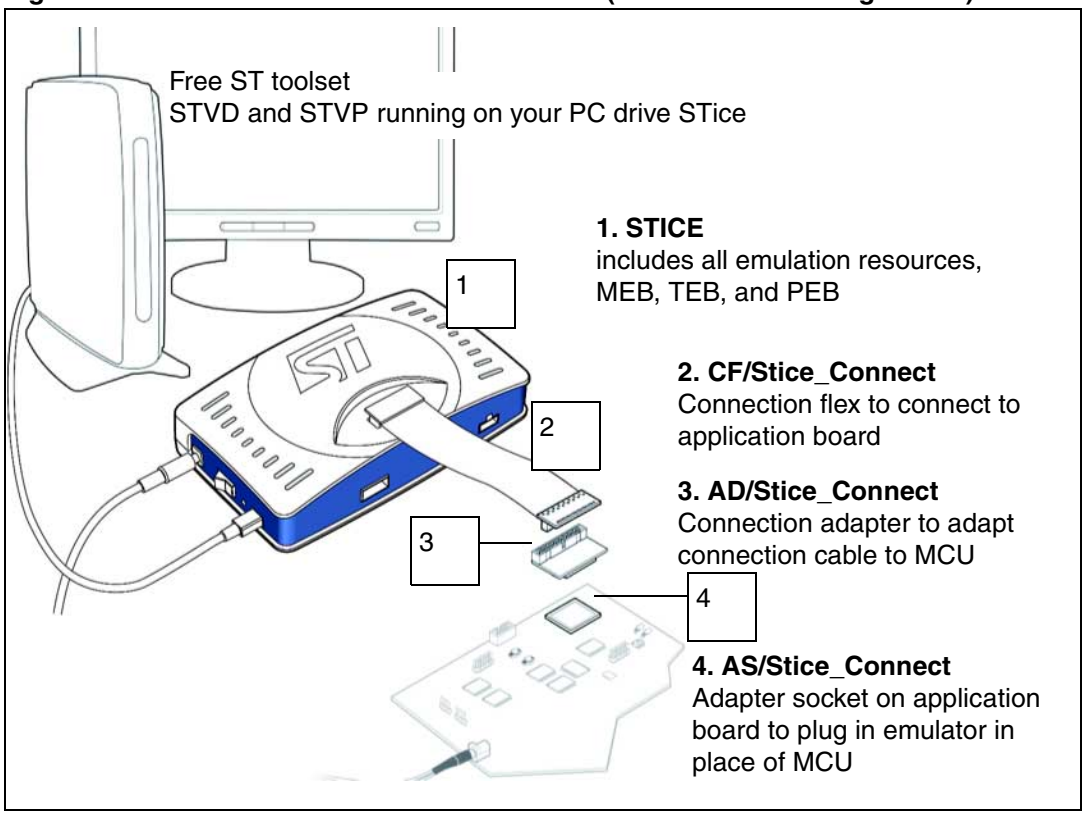
Working environment

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.

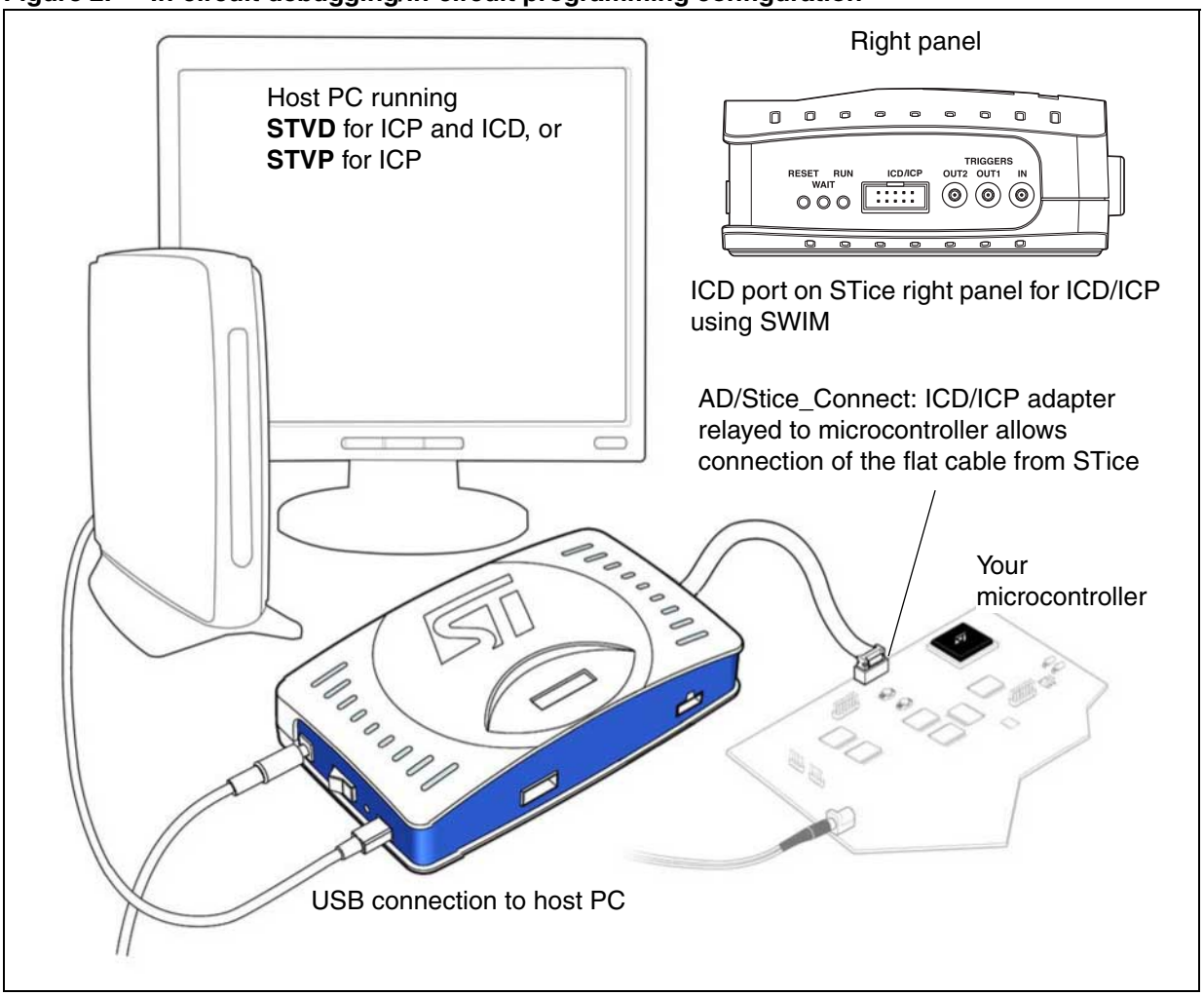
The STice emulation system and connection accessories are shown in *Figure 1*. The connection accessories for emulation are:

- 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
Emulation system		
STICE	**STICE-SYSxxx**(1)	Includes emulator case with: – MEB, TEB and PEB(2) for a microcontroller sub-family – USB cable – Power supply – Trigger cables – Analyzer input cable
Connection flex		
CF/Stice_Connect	**CF/FP60**	60-pin connection cable for connection to the application board
	CF/FP120	120-pin connection cable for connection to the application board
Connection adapter		
AD/Stice_Connect	**AD/xxxxxx-xxx**(1)	A connection adapter that is specific to your microcontroller's package
	AD-ICD/ICP	ICD/ICP adapter kit for **STice**
Adapter socket		
AS/Stice_Connect	**AS/xxxxxxx**(1) **AS-DIP-SO**	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 (size, pitch in mm)	Stice system	Connection flex	Connection adapter	Adapter socket	In circuit debug/program adapters
STM8AFxx	LQFP32 (7x7, 0.8)	STICE-SYS001	CF/FP60	AD/QFP32B-A03	AS/QFP32BC	AD-ICD/ICP
	LQFP48 (7x7, 0.5)	STICE-SYS001	CF/FP60	AD/QFP48B-A03	AS/QFP48BA	
	LQFP64 (10x10, 0.5)	STICE-SYS001	CF/FP120	AD/QFP64C-B02	AS/QFP64CA	
	LQFP80 (14x14, 0.65)	STICE-SYS001	CF/FP120	AD/QFP80F-B01	AS/QFP80FB	
	TSSOP20 (6.5x4.4, 0.65)	STICE-SYS001	CF/FP60	AD/TSSO20A-A02	AS/TSSO20AB	
STM8L101	QFN20 (3x3, 0.5)	STICE-SYS005	-(1)	AD/QFN20J-Z01	AS/QFN20JA	
	QFN28 (4x4, 0.5)	STICE-SYS005		AD/QFN28H-Z01	AS/QFN28HA	
	QFN32 (5x5, 0.5)	STICE-SYS005		AD/QFN32A-Z01	AS/QFN32AA	
	LQFP32 (7x7, 0.8)	STICE-SYS005	CF/FP60	AD/QFP32B-A04	AS/QFP32BC	
	TSSOP20 (6.5x4.4, 0.65)	STICE-SYS005	CF/FP60	AD/TSSO20A-A01	AS/TSSO20AB	
STM8L15x STM8L16x	QFN28 (4x4, 0.5)	STICE-SYS009	-(1)	AD/QFN28H-Z01	AS/QFN28HA	
	QFN32 (5x5, 0.5)	STICE-SYS009		AD/QFN32A-Z01	AS/QFN32AA	
	QFN48 (7x7, 0.8)	STICE-SYS009		AD/QFN48B-Z02	AS/QFN48BA	
	LQFP32 (7x7, 0.8)	STICE-SYS009	CF/FP60	AD/QFP32B-A04	AS/QFP32BC	
	LQFP48 (7x7, 0.5)	STICE-SYS009	CF/FP60	AD/QFP48B-A04	AS/QFP48BA	
	LQFP64 (10x10, 0.5)	STICE-SYS009	CF/FP120	AD/QFP64C-B03	AS/QFP64CA	
	LQFP80 (14x14, 0.65)	STICE-SYS009	CF/FP120	AD/QFP80F-B02	AS/QFP80FB	
	TSSOP20 (6.5x4.4, 0.65)	STICE-SYS009	-(1)	(2)	AS/TSSO20AB	

Table 3. Connection accessories for STice systems (continued)

MCU	Package (size, pitch in mm)	Stice system	Connection flex	Connection adapter	Adapter socket	In circuit debug/program adapters
STM8Sx0x	SDIP32 (400 mils, 1.778)	STICE-SYS001	CF/FP60	AD/DIP32C-A03(3)	AS-DIP-SO	AD-ICD/ICP
	SDIP32 (400 mils, 1.778)	STICE-SYS001	CF/FP60	AD/DIP32C-A02(4)	AS-DIP-SO	
	QFN20 (3x3, 0.5)	STICE-SYS001	-(1)	AD/QFN20J-Z01	AS/QFN20JA	
	QFN32 (5x5, 0.5)	STICE-SYS001		AD/QFN32A-Z03 (3)	AS/QFN32AA	
	QFN32 (5x5, 0.5)	STICE-SYS001		AD/QFN32A-Z02 (4)	AS/QFN32AA	
	LQFP32 (7x7, 0.8)	STICE-SYS001	CF/FP60	AD/QFP32B-A05 (3)	AS/QFP32BC	
	LQFP32 (7x7, 0.8)	STICE-SYS001	CF/FP60	AD/QFP32B-A03 (4)(5)	AS/QFP32BC	
	LQFP44 (10x10, 0.8)	STICE-SYS001	CF/FP60	AD/QFP44C-A02	AS/QFP44CC	
	LQFP48 (7x7, 0.5)	STICE-SYS001	CF/FP60	AD/QFP48B-A03	AS/QFP48BA	
	LQFP64 (10x10, 0.5)	STICE-SYS001	CF/FP120	AD/QFP64C-B02	AS/QFP64CA	
	LQFP64 (14x14, 0.8)	STICE-SYS001	CF/FP120	AD/QFP64F-B01	AS/QFP64FC	
	LQFP80 (14x14, 0.65)	STICE-SYS001	CF/FP120	AD/QFP80F-B01	AS/QFP80FB	
	TSSOP20 (6.5x4.4, 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 *Table 1*, *Table 2* and *Figure 1* as part numbers changed: – AS/xxxxxx became AS/Stice_Connect – AD/xxxxxx-xxx and AD-ICD/ICP became AD/Stice_Connect – CF/FPxxx became CF/Stice_Connect Order code AS-DIP-SO added to *Table 2*.
24-May-2011	4	Removed CB-xxx part numbers from the whole document. Added STice accessories description and ordering information.

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