



STMPRIMER STM8L-PRIMER STM32-PRIMER STM3210B-PRIMER

Raisonance STM32 and STM8 Primers
for fun, easy evaluation and development with STM32 and STM8

Data brief

Features

- The versatile Primer range includes:
 - In-circuit debugging/programming via dedicated USB connection to the host PC
 - Evaluation features including USB connector and MEMs sensor
 - Comprehensive development software
 - Ergonomic design
 - MEMs-based controls
 - Touchscreen TFT display, color LCD
 - Joystick
 - Audio circuit/Jack
 - MEMS accelerometer
 - Li-Ion battery with charge management circuit
 - Micro SD Card™ connector
 - Add-on connector with USART, SPI, I2C and analog/digital I/Os
- **STM8L ultralow power EvoPrimer** has:
 - 32 Kbytes Flash
 - Low power consumption
 - LCD (7-segment)
 - Temperature sensor
 - Solar cells
- **STM32F connectivity line EvoPrimer** has:
 - 256 Kbytes Flash
 - Mini-USB OTG connector
- **STM32F performance line EvoPrimer** has:
 - 512 Kbytes Flash
 - Mini-USB connector
- **Primer2** and **Primer1** are replaced by the STM32F performance line EvoPrimer.



Table 1. Device summary

Part number	Order code
STM8L-PRIMER	STM8L1526PRIMER
STM32-PRIMER	STM3210EPRIMER
	STM3210CPRIMER
	STM3210E-PRIMER ⁽¹⁾
STMPRIMER (accessories)	STMPRIMER-BASE
	STMPRIMER-PROTO
	STM8L1526PRIM-D
	STM3210CPRIM-D
	STM3210EPRIM-D
STM3210B-PRIMER	Obsolete

1. Replaced by STM3210EPRIMER

Description

Raisonance's Primers are a uniquely fun, easy, low-risk solution for exploring, evaluating and developing applications for the STM32 and STM8 microcontrollers. They include everything that users need to better understand the STM32/STM8's peripheral implementation and operation.

The EvoPrimer range is an enhancement of the original Primer1 and Primer2 devices. It offers even more flexibility to evaluate a range of STM32 connectivity line and performance line microcontrollers and STM8L ultralow power line microcontrollers, using the same EvoPrimer base with interchangeable target boards (to test different microcontrollers) or extension boards.

- **The EvoPrimer base** has a removable transparent cover and USB cable which includes features such as the debugging/programming interface and most of the hardware features that you need to evaluate the capabilities of the target MCU. The base can also be extended by using its add-on connector to add components and circuitry.
- **The EvoPrimer target board(s)** include the target MCU and may also include additional hardware features for target MCU evaluation.

The Primers can be purchased as complete evaluation tools, which can then be modified by purchasing an accessory, or they can be created from the interchangeable accessories:

- The complete evaluation tools for the STM8L and STM32F microcontroller families consist of an EvoPrimer base with the relevant EvoPrimer target board.
- The EvoPrimer accessories permit the EvoPrimer base and EvoPrimer target boards (and extension boards) to be ordered separately.

Figure 1. EvoPrimer base

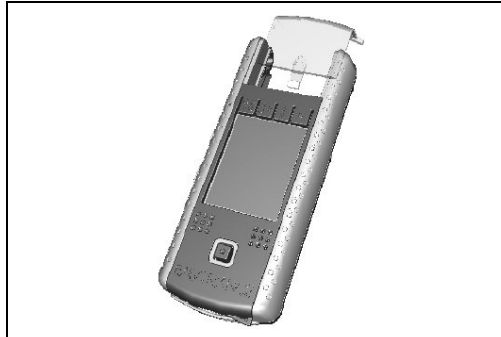
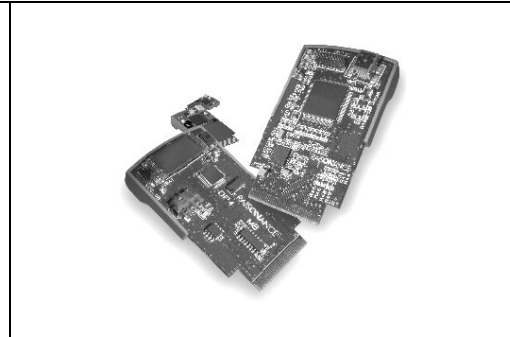


Figure 2. EvoPrimer target boards



Primer usage

Power up

If your EvoPrimer base and the target board are not connected, simply insert the target board into the EvoPrimer base, switch on the power switch and slide the transparent cover in place.

Press the joystick to power up the complete EvoPrimer and plug it directly into a host PC's USB port for in-circuit debugging and device programming.

Note: EvoPrimer bases are charged in the factory to ensure minimum operation upon reception. The battery needs charging as soon as possible via the EvoPrimer base's debug USB port.

Play

Start exploring the power of the STM32/STM8 by playing with the included applications. The base drives the fun, ergonomic hardware platform that combines a TFT graphical display with MEMS-based controls plus a tactile screen and joystick for navigating and controlling the GUI and game applications.

The Primers enable you to discover, edit and fine tune applications using Raisonance's Ride7 software toolset which drives the hardware and offers a full range of project management, source code editing and debugging features from an intuitive GUI.

The Primers can operate in standalone mode powered by a battery with power management circuit which is recharged via the USB connection to a host PC.

When the STM8L EvoPrimer target board is disconnected from the base, it has the unique feature of being able to run off its own battery which is recharged by its solar cells. It can use this feature to operate as a standalone temperature sensor application!

More resources

You can develop applications using sample applications from Raisonance or other engineers at www.mcu-circle.com as the starting point for new innovations. All the preloaded sample applications, new applications and the CircleOS task scheduler can be downloaded for free from the mcu-circle web site. This Primer dedicated internet site also provides FAQ, user forums, links to development resources and much more.

Note: Raisonance's Ride7 supports the complete range of STR7/9, STM32, STM8, ST7 and uPSD 8-bit microcontroller families. For details about available compilers and special features for each family, refer to the STMicroelectronics microcontroller support site on www.st.com.

Development software

The **EvoPrimers** require that the most recent versions of the following software (for compiling, programming and debugging) is downloaded from the mcu-circle web site:

- Ride7 development software toolset with an intuitive GUI for:
 - Project manager
 - Source code editor
 - High-level language debugger
- A compiler:
 - GNU C/C++ compiler, no code size limitations (STM32F)
 - Raisonance C compiler (STM8L)
- CircleOS task scheduler for dynamic loading and management of new applications.
- C source code for all sample applications and libraries including:
 - MEMs (GUI application controls)
 - TFT display (touchscreen, graphical interface, games, bitmap converter)
 - Audio record and playback (Primer2 and EvoPrimers)
- Complete documentation is provided with the software installation.

The STM32F EvoPrimers are preprogrammed with applications that allow use of the key features on the base. They include a USB connector and a circuit for implementing voice-quality audio record and playback in your applications. The STM32F connectivity line EvoPrimer includes additional CAN connectors.

The STM8L EvoPrimer contains a temperature sensor application in the target board's serial Flash which wakes up periodically to detect, store and display ambient temperature. To run this application on the target board in standalone, the TempLP application must be uploaded from the target board's serial Flash to the STM8L, and the solar cells should be connected to provide the power.

The Primer1 and Primer2 are preloaded with Ride7, a C/C++ compiler, CircleOS task scheduler and C source code for all sample applications and libraries.

For more software and ideas, take a look at the dedicated online community and resources at the mcu-circle web site.



Primer features comparison charts

This table compares the features of the various Primer complete evaluation tools.

Table 2. Primer features

Primer name	EvoPrimer			Primer2	Primer1 (for information only as product is obsolete)	
	STM32F connectivity line	STM32F performance line	STM8L ultralow power line			
Order code	STM3210CPRIMER	STM3210EPRIMER	STM8L1526PRIMER	STM3210E-PRIMER	STM3210B-PRIMER	
Feature						
Application development	C compiler	Unlimited	Unlimited	Up to 32 Kbytes	Unlimited	Unlimited
	Programming of target MCU	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
	Debugging	64 Kbytes, RAM, Flash	64 Kbytes, RAM, Flash	Unlimited	32 Kbytes, RAM, Flash	32 Kbytes, RAM, Flash
	Program / debug USB port	Yes	Yes	Yes	Yes	Yes
Target board based features	Target microcontroller	STM32F107VC	STM32F103VE	STM8L152C6	The target board features are an integral part of the Primer2 and Primer1. They do not have independent features.	
	User USB connector	Yes (USB OTG)	Yes	N/A		
	CAN	2	N/A	N/A		
	Audio codec	Yes	Yes	N/A		
	Display	N/A	N/A	3 char, 8 segments		
	Temperature sensor	N/A	N/A	Yes		
	MEMS accelerometer	N/A	N/A	Yes		
	Rechargeable battery	N/A	N/A	Yes		
	Solar cells	N/A	N/A	Yes		
	Push buttons	N/A	N/A	1		



Table 2. Primer features (continued)

Primer name	EvoPrimer			Primer2	Primer1 (for information only as product is obsolete)	
	STM32F connectivity line	STM32F performance line	STM8L ultralow power line			
Order code	STM3210CPRIMER	STM3210EPRIMER	STM8L1526PRIMER	STM3210E-PRIMER	STM3210B-PRIMER	
Feature						
Evaluation features	Target microcontroller	STM32F107VC	STM32F103VE	STM8L152C6	STM32F103VE	STM32F103RB
	Target board based MCU	Yes	Yes	Yes	No	No
	Color LCD	240 X 320 pixels	240 X 320 pixels	240 X 320 pixels	128 X 160 pixels	128 X 128 pixels
	Touchscreen	Yes	Yes	Yes	Yes	No
	MEMS accelerometer-based user controls	Yes	Yes	Yes	Yes	Yes
	Voice quality audio	Yes	Yes	No	Yes	No
	Audio buzzer	Yes	Yes	Yes	Yes	Yes
	Joystick	Yes	Yes	Yes	Yes	No
	Push buttons	5	5	5 + 1 ⁽¹⁾	5	1
	Micro SD card connector	Yes	Yes	Yes	Yes	Yes
	User USB connector	Yes (USB OTG) ⁽¹⁾	Yes ⁽¹⁾	No	Yes	Yes
	IrDA transceiver	Yes	Yes	Yes	Yes	Footprint only
	Standard 20-pin add-on connector (SPI, I2C, USART, CAN, ADC)	Yes	Yes	Yes	Yes	Pads only

1. On target board

Ordering information

The Primers are available from STMicroelectronics' sales offices and distributors. For more information and complete documentation please visit www.mcu-circle.com or the STMicroelectronics microcontroller support site www.st.com.

Table 3. Order codes

Order code	Description			
	Base	Target MCU	Flash	Notes
Complete evaluation tool - includes base + target board				
STM8L1526PRIMER	EvoPrimer	STM8L152C6	32 KB	
STM3210CPRIMER	EvoPrimer	STM32F107VC	256 KB	
STM3210EPRIMER	EvoPrimer	STM32F103VE	512 KB	
STMPRIMER accessories				
STMPRIMER-BASE	EvoPrimer	N/A	N/A	EvoPrimer base for use with EvoPrimer MCU target boards and extension boards.
STMPRIMER-PROTO	N/A	Prototype	N/A	5 prototyping extension boards ⁽¹⁾
STM8L1526PRIM-D	N/A	STM8L152C6	32 KB	MCU target board ⁽¹⁾
STM3210CPRIM-D	N/A	STM32F107VC	256 KB	MCU target board ⁽¹⁾
STM3210EPRIM-D	N/A	STM32F103VE	512 KB	MCU target board ⁽¹⁾

1. For use with the EvoPrimer base.

Revision history

Table 4. Document revision history

Date	Revision	Changes
26-Sep-2007	1	Initial release.
30-Oct-2008	2	Added the STM3210E-PRIMER details.
21-Jun-2010	3	Added EvoPrimer details. Removed Primer1 and Primer2 details as they are replaced by the STM32F performance line EvoPrimer.
15-Jul-2010	4	Changed STM8L-PRIMER order code.

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2010 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com

