



# STM32-SK/KEIL STR91X-SK/KEI, STR7-SK/KEIL

Keil™ starter kits for ST ARM core-based microcontrollers

Data brief

## Features

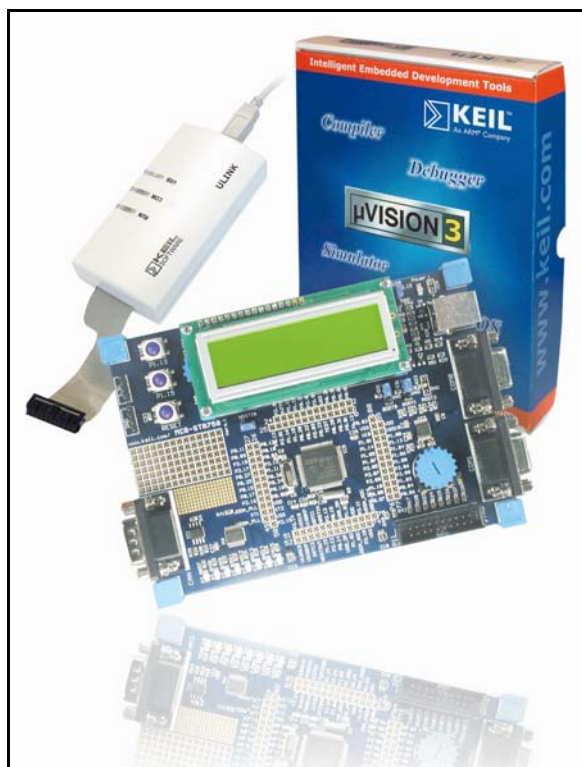
- The ARM® RealView™ Microcontroller Development Kit complete development software package with:
  - $\mu$ Vision3™ integrated development environment for application programming and debugging
  - ARM RealView Compilation Tools C/C++ compilation tools for output of code up to 16 Kbytes
  - RTX real-time kernel, a multi-tasking operating system for embedded applications
- ULINK™ in-circuit debugger/programmer with USB interface to host PC and 20-pin JTAG application interface
- Full-featured Keil evaluation board with target microcontroller. On-board features are listed in [Table 1](#).

## Description

The **Keil starter kits** are complete solutions for starting application development and evaluating STMicroelectronics' ARM core-based microcontrollers.

They come with all the hardware and software you need to start developing applications for the STM32, STR9 and STR7 ARM core-based families of microcontrollers. The kits come complete with Keil's *uVision3* integrated development environment for ARM and the 16 Kbyte code-size limited version of the ARM RealView Compilation Tools, a full-featured evaluation board (including USB, USART, SPI, ADC) and target microcontroller, with the ULINK (USB/JTAG) in-circuit debugger/programmer.

Keil starter kits are available for a full range of ST ARM core-based microcontrollers.



## Starter kit architecture

**Keil development software** is a suite of software development tools for creating and debugging microcontroller applications that includes:

- **uVision3** integrated development environment, which integrates the ARM RealView Compilation Tools and Keil’s debugging software so that users can quickly and easily develop and debug their applications while they run on a target microcontroller.
- **ARM RealView Compilation Tools (RVCT)** 16K code-size limited version of the optimizing C/C++ compiler for ARM™ core-based microcontrollers.
- **ULINK™** USB/JTAG in-circuit debugger / programmer, which integrates fully with *uVision3*, allowing users to download the application to the target and debug it while it runs on the ST ARM core-based microcontroller on the evaluation board.
- **Keil evaluation board**, an application board that provides a full range of features to help users evaluate and start developing applications for the included microcontroller.

**Table 1. Evaluation board key features**

Feature	Starter kit						
	STM3210C -SK/KEIL	STM3210E -SK/KEIL	STM3210B -SK/KEIL	STR91X -SK/KEI	STR750 -SK/KEIL	STR73xF	STR71xF
Included microcontroller	STM32F107C	STM32F103E	STM32F103B	STR912FAW4	STR750FV2	STR730FZ2	STR710FZ2
20-pin JTAG connector	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10-pin ARM Cortex-debug connector	Yes	No	No	No	No	No	No
Trace tool connector	20-pin	20-pin	N/A	38-pin (footprint)	N/A	N/A	N/A
External power supply included	No	No	No	No	No	No (7-12V DC)	No (7-9V DC)
Power supply from USB	Yes	Yes	Yes	Yes	Yes	No	No
USART connector(s)	1	1	1	2	2	4	2
SPI	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I <sup>2</sup> C	Yes	Yes	Yes	Yes	Yes	Yes	No
CAN connector	Yes (2)	Yes	Yes	Yes	Yes	Yes	Yes
USB connector	Yes (micro)	Yes	Yes	Yes	Yes	No	Yes
Ethernet connector	Yes	N/A	N/A	Yes	N/A	N/A	N/A
User LEDs	8	8	8	8	8	16	8
LCD display	QVGA with touchscreen	QVGA	Yes (2x16)	Yes (2x16)	Yes (2x16)	No	No
SD/MMC card connector	Yes (Micro)	Yes (Micro)	Yes	Yes	Yes	No	No

Table 1. Evaluation board key features (continued)

Feature	Starter kit						
	STM3210C-SK/KEIL	STM3210E-SK/KEIL	STM3210B-SK/KEIL	STR91X-SK/KEI	STR750-SK/KEIL	STR73xF	STR71xF
Potentiometer connected to ADC	Yes	Yes	Yes	Yes	Yes	Yes	No
User and wake-up push button(s)	4	4	3	3	3	2	3
Reset button	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wrap area	Yes	Yes	Yes	Yes	Yes	Yes	No
<b>Additional features</b>							
External RAM	No	1M - FSMC	No	No	No	No	No
External Flash	8K - I2C	8M - SPI	No	No	No	No	No
Joystick	Yes	Yes	No	No	No	No	No
Audio: Line-out/Headphone	Yes	No	No	No	No	No	No
Audio: Line-in/Microphone	Yes	No	No	No	No	No	No
Motion sensor/accelerometer	Yes	No	No	No	No	No	No

## Ordering information

All Keil starter kits can be ordered from Keil. Starter kits are available from your nearest STMicroelectronics distributor or sales office for the following:

- STM32 connectivity line microcontrollers (ST order code: **STM3210C-SK/KEIL**)
- STM32 performance and access line microcontrollers with 512K Flash (ST order code: **STM3210E-SK/KEIL**)
- STM32 performance and access line microcontrollers with 128K Flash (ST order code: **STM3210B-SK/KEIL**)
- STR91xF microcontrollers (ST order code: **STR91X-SK/KEI**)
- STR750xF microcontrollers (ST order code: **STR750-SK/KEIL**)

For more information and documentation, please refer to the Keil web site or the STMicroelectronics microcontroller support site at [www.st.com](http://www.st.com).

## Revision history

**Table 2. Document revision history**

<b>Date</b>	<b>Revision</b>	<b>Changes</b>
14-Jun-2007	1	Initial release.
04-Oct-2006	2	Added STR750-SK/KEIL and product characteristics
04-Oct-2007	3	Modified document title. Added STM3210B-SK/KEIL and product characteristics
17-Oct-2008	4	Added STM3210E-SK/KEIL and product characteristics
18-Jun-2009	5	Added STM3210C-SK/KEIL and product characteristics.

**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.

© 2009 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](http://www.st.com)