STM32 PerformanceStick interconnection board

1 Introduction

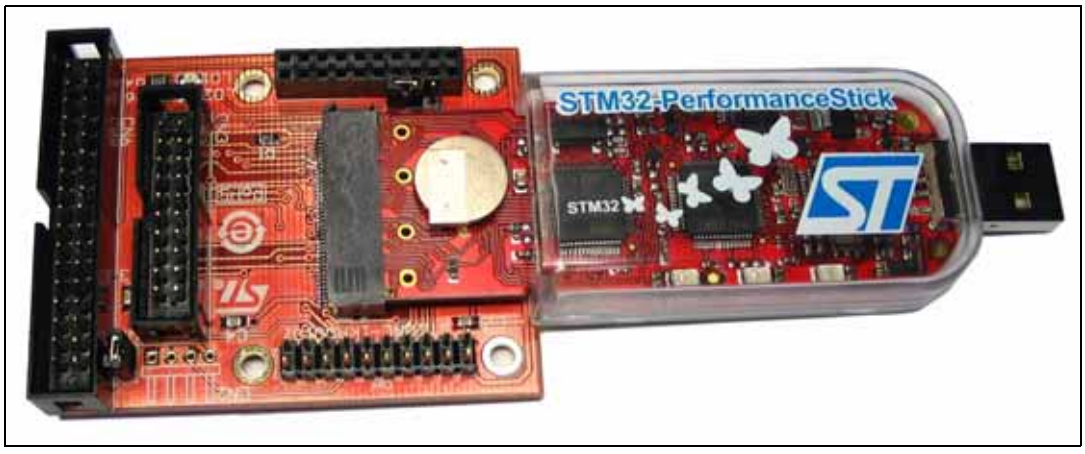
This document describes the hardware of the STMicroelectronics STM32 PerformanceStick interconnection board and associated STM32 firmware examples.

The purpose of this design is to adapt all existing and currently planned STR9 dongle extensions to the Hitex STM32-PerformanceStick based on the STM32F103R.

The STM32F103xx performance line family incorporates the high-performance ARM® Cortex™ -M3 32-bit RISC core operating at a 72 MHz frequency, high-speed embedded memories (Flash memory up to 128 Kbytes and SRAM up to 20 Kbytes), and an extensive range of enhanced I/Os and peripherals connected to two APB buses. All devices offer two 12-bit ADCs, three general purpose 16-bit timers plus one PWM timer, as well as standard and advanced communication interfaces: up to two I^2Cs and SPIs, three USARTs, an USB and a CAN.

The STM32F103xx performance line family operates in the –40 to +105 °C temperature range, from a 2.0 to 3.6 V power supply. A comprehensive set of power-saving modes allows the design of low-power applications.

Figure 1. STM32 PerformanceStick interconnection board and Hitex STM32-PerformanceStick hardware



2 Description

The STM32 PerformanceStick interconnection board is designed to demonstrate several STMicroelectronics products:

- Motion sensors (MEMS) - ST's low-g linear accelerometers are grouped in subfamilies according to the number of axes (2-axis and 3-axis), the package type (SO24, QFN or LGA) and the IC output (analog or digital). The MEMS sensor of a linear accelerometer is based on an inter-digitated, comb-like silicon structure composed of fixed and movable fingers. To sense the acceleration in different directions, these structures are packaged in orthogonal groups. The acceleration in each direction is sensed by measuring the displacements of the movable elements correlated to that axis. The motion measured by the sensor is then translated into an analog or digital signal.
- ZigBee®, the leading wireless control and sensory network solution, stands apart from other RF solutions as the only standards-based technology that:
  - Addresses the unique needs of sensory network applications, remote monitoring and control.
  - Enables broad-based deployment of wireless mesh networks with low-cost, low-power solutions.
  - Provides the ability to run for years on inexpensive primary batteries for a typical monitoring application.

The kit consists of:

- Circuit board - STM32 PerformanceStick interconnection board.
- CD with related user manual, application notes and datasheets.

3 Getting started

- Connect the Hitex STM32-PerformanceStick and the STM32 PerformanceStick interconnection board.
- Connect the kit to a PC/laptop using the supplied USB cable and allow Windows to recognize the device (no user action needed).
- To start evaluation of the enclosed STM32 interface, please ensure that you have the appropriate sensor/interface extension (ZigBee, MEMS, etc.) and that it is connected, then follow the common development procedure described in the Hitex HiTOP user manual.

Appendix A Interconnection board schematics

Figure 2. STM32 PerformanceStick interconnection board schematics

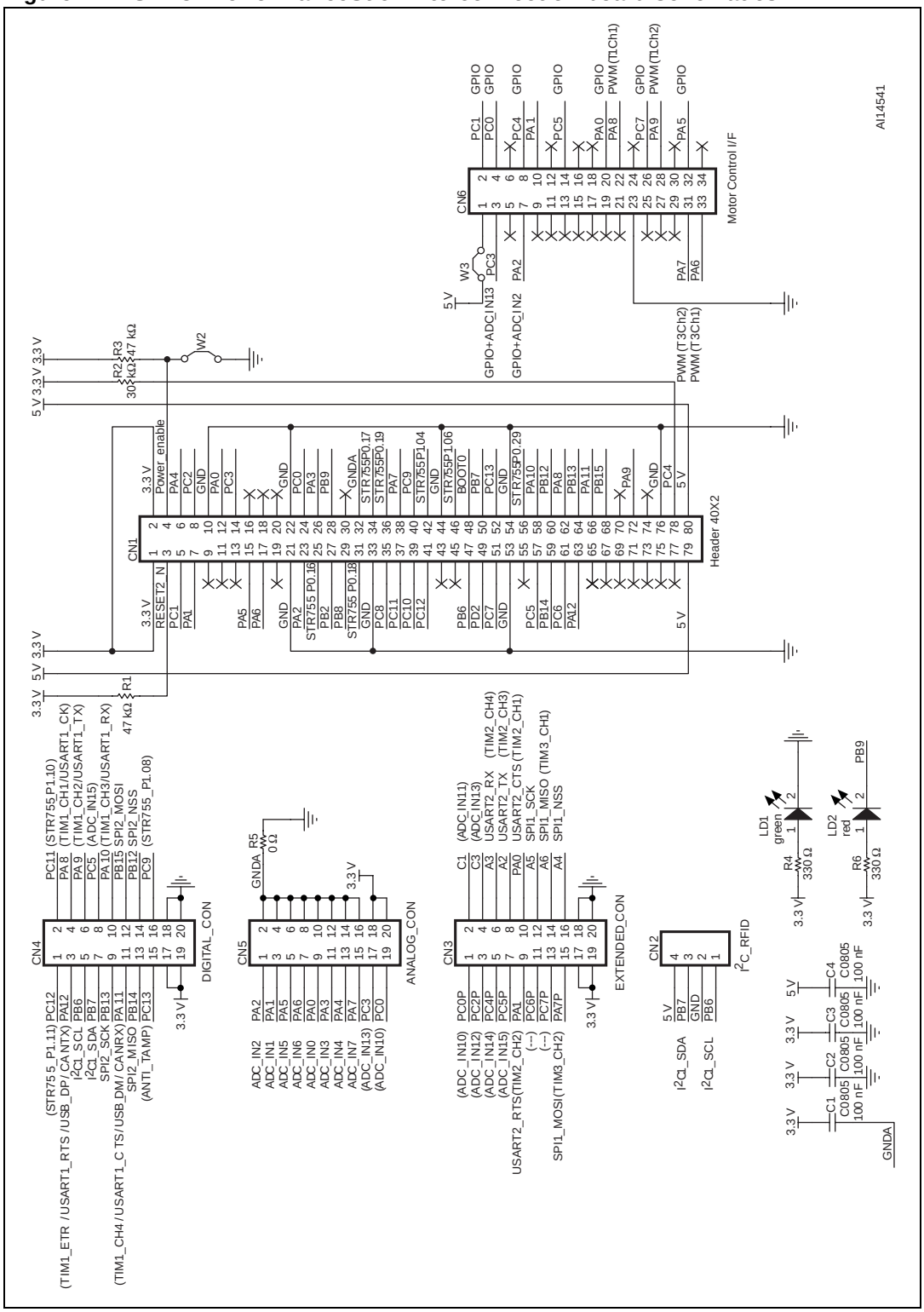
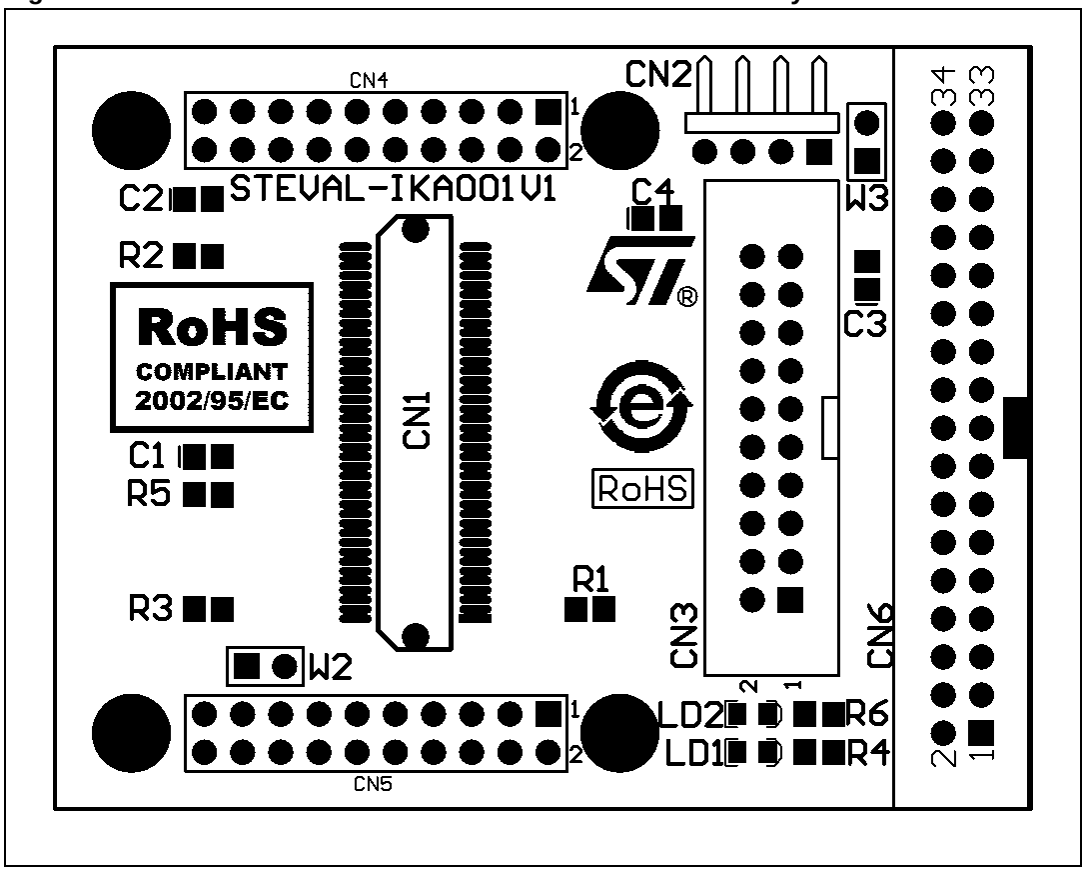


Figure 3. STM32 PerformanceStick interconnection board layout



4 Revision history

Table 1. Document revision history

Date	Revision	Changes
08-Jan-2008	1	Initial release.

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