

## element14 presents ARM Cortex M3 & M4 based MCBSTM32F200/400 Evaluation Board

### VERSION 7

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element14 presents its latest and most capable Keil MCBSTM32F200 and Keil MCBSTM32F400



Evaluation Boards for applications development based on the STMicroelectronics STM32 Fx series of [ARM Cortex™-M3](#) and [Cortex™-M4](#) processor-based devices. The STM32 Fx series of [ARM Cortex™-M3](#) and [Cortex™-M4](#) processor-based devices featured on the boards have the flexibility to reduce power consumption in applications requiring both high processing power and low-power performance when running at low voltage or on rechargeable batteries. The MCBSTM32F200 board features superset of STM32F207x series [STM32F207IG ARM Cortex-M3](#) processor-based microcontroller which offers 1MB Flash and 128KB RAM on-chip memory, and the MCBSTM32F400

features superset of STM32F407x series an [STM32F407IG Cortex-M4](#) processor-based microcontroller with 1MB Flash and 192KB RAM on-chip memory.

In addition, both evaluation boards are populated with 8MB NOR Flash, 512MB NAND Flash, 2MB SRAM, and 8KB I2C EEPROM with an NFC interface. They provide a color QVGA LCD and interfaces for SD Card, CAN, 10/100 Ethernet and Full/High speed USB. The boards also feature a 3-axis digital Accelerometer, a 3-axis digital Gyroscope, a digital microphone, and a digital VGA camera. They also feature a dedicated audio PLL and two full duplex I2S. The kits have up to 15 communication interfaces (including six USARTs running up to 10.5 Mbits/s, three SPI running up to 42 Mbits/s, three I2C, two CAN, SDIO). Analogue functions include two 12-bit DACs, three 12-bit ADCs reaching 2.4 MSPS or 7.2 MSPS in interleaved mode. The MCBSTM32F200/400 has up to 17 timers, 16-bit and 32-bit running up to 120/168 MHz. The MCBSTM32F200/400 boards contain all the hardware components required in a single-chip STM32Fx system.

### Evaluation Boards Buying Options:

The MCBSTM32F200 and MCBSTM32F400 is available as a standalone evaluation board or as a starter kit which includes [Keil MDK ARM Lite Development Tool](#) and a [ULINK-ME Debug Adapter](#):

STM32 F2 (ARM Cortex M3)	STM32 F4 (ARM Cortex M4)
MCBSTM32F200: MCBSTM32F200 Evaluation Board Only <b>[US only]</b>	MCBSTM32F400: MCBSTM32F400 Evaluation Board Only <b>[US only]</b>
<a href="#">MCBSTM32F200UME</a> : MCBSTM32F200 Starter Kit (includes ULINK-ME) <b>[US &amp; EU]</b>	<a href="#">MCBSTM32F400UME</a> : MCBSTM32F400 Starter Kit (includes ULINK-ME) <b>[US &amp; EU]</b>

**Keil MDK ARM Development Tool:** The [Keil MDK-ARM development tool](#) is a complete C/C++ software development environment for [Cortex-M](#), [Cortex-R4](#), [ARM7](#) and [ARM9](#) processor-based devices which includes debug & trace capabilities, a real-time operating system as well as middleware and is fully adapted to the peripherals of the STM32 F2 and STM32 F4 series of microcontrollers. It's easy to learn and use, yet powerful enough for the most demanding embedded applications. The middleware template applications are provided for USB Device, USB Host, TCP/IP networking, and FAT File System. [Learn More](#).

**ULINK Debug Adapter:** The [Keil ULINK ME Debug Adapter](#) connect your PC's USB port to your target system (via JTAG or similar debug interface) and allow you to debug embedded programs running on target hardware. The ULINK-ME Debug Adapter supports the 10-pin Cortex Debug interface available on MCBSTM32F200/400 boards. [Learn More](#)

## Learning Center

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Type	Description
User Guide	Coming Soon.....
Datasheet	<a href="#">STM: Datasheet for STM32F207 MCU</a>
Datasheet	<a href="#">STM: Datasheet for STM32F407 MCU</a>
Quick Start Guide	<a href="#">ARM: Quick Start Guide for Keil MDK ARM</a>
User Guide	<a href="#">ARM: User Guide for KEIL MDK ARM Development Tool</a>
Product Brief	<a href="#">ARM: Keil MDK ARM Product Brief</a>
Selection Guide	<a href="#">ARM: Selection Guide for ARM Development Tools</a>
User Manual	<a href="#">STM: User Manual for STM32 USB On-The-Go Host and Device Library</a>
User Manual	<a href="#">STM: Advanced Developers Guide for STM32 PMSM Single/Dual FOC Library</a>

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## Design Elements

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Type	Description
Schematic	<a href="#">ARM: Schematic for MCBSTM32F200/400 Evaluation Board (PDF)</a>
BSDL Model	<a href="#">STM: BSDL Model for STM32 Family</a>
IBIS Model	<a href="#">STM: IBIS Model for STM32F2 Series MCU</a>
Application Library	<a href="#">STM: STM32F2xx Standard Peripherals Library</a>
Application Library	<a href="#">STM: Application Library for Embedded Graphic Objects/Touchscreen Library</a>
Application Library	<a href="#">STM: Application Library for STM32F2x7 In-Application Programming (IAP) over Ethernet</a>
Application Library	<a href="#">STM: STM32 Embedded GUI Library</a>

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## Features

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### MCBSTM32F200/400 Evaluation Board Features:

#### Processor:

- MCBSTM32F200 - 120MHz STM32F207IG ARM Cortex™-M3 processor-based MCU in 176-pin BGA
- MCBSTM32F400 - 168MHz STM32F407IG ARM Cortex™-M4 processor-based MCU in 176-pin BGA

- On-Chip Memory:
  - MCBSTM32F200 - 1MB Flash & 128KB RAM
  - MCBSTM32F400 - 1MB Flash & 192KB RAM
- External Memory: 8MB NOR Flash, 512MB NAND Flash, 2MB SRAM, 8KB I2C EEPROM with NFC interface
- 2.4 inch Color QVGA TFT LCD with resistive touchscreen
- 10/100 Ethernet Port
- USB 2.0 Full Speed - USB, USB-OTG, & USB Host
- USB 2.0 High Speed - USB, USB-OTG, & USB Host
- 1 CAN Interface
- Serial/UART Port
- MicroSD Card Interface
- 5-position Joystick
- 3-axis digital Accelerometer
- 3-axis digital Gyroscope
- Analog Voltage Control for ADC Input (potentiometer)
- Audio CODEC with Line-In/Out and Speaker/Microphone
- Digital Microphone
- Digital VGA Camera
- Push-Buttons for Reset, Wakeup, Tamper and User
- 8 LEDs directly connected to port pins
- Power Supply via:
  - High Speed and Full Speed USB (micro) connectors
  - Power jack (8V-12V) with Voltage Regulator capable to supply both USB host interfaces (500mA each)
  - Debug Interface Connectors
  - 20 pin JTAG (0.1 inch connector)
  - 10 pin Cortex debug (0.05 inch connector)
  - 20-pin Cortex debug + ETM Trace (0.05 inch connector)

## Kit Contents

- MCBSTM32F200/400 Evaluation Board
- Keil MDK ARM Lite Development Tool
- Keil ULINK ME Debug Adapter
- 2 USB A to Micro-B cables
- Product Documentation

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