The following document contains information on Cypress products. Although the document is marked with the name "Spansion" and "Fujitsu", the company that originally developed the specification, Cypress will continue to offer these products to new and existing customers.

Continuity of Specifications
There is no change to this document as a result of offering the device as a Cypress product. Any changes that have been made are the result of normal document improvements and are noted in the document history page, where supported. Future revisions will occur when appropriate, and changes will be noted in a document history page.

Continuity of Ordering Part Numbers
Cypress continues to support existing part numbers. To order these products, please use only the Ordering Part Numbers listed in this document.

For More Information
Please contact your local sales office for additional information about Cypress products and solutions.

About Cypress
Cypress (NASDAQ: CY) delivers high-performance, high-quality solutions at the heart of today's most advanced embedded systems, from automotive, industrial and networking platforms to highly interactive consumer and mobile devices. With a broad, differentiated product portfolio that includes NOR flash memories, F-RAM™ and SRAM, Traveo™ microcontrollers, the industry's only PSoC® programmable system-on-chip solutions, analog and PMIC Power Management ICs, CapSense® capacitive touch-sensing controllers, and Wireless BLE Bluetooth® Low-Energy and USB connectivity solutions, Cypress is committed to providing its customers worldwide with consistent innovation, best-in-class support and exceptional system value.

NP706-00017-1v0-E

32-bit Microcontrollers
FM3 Family MB9A310K Series

MB9A310K series are highly integrated 32-bit microcontrollers dedicated for embedded controllers with high-performance and low cost. MB9A310K series are based on the ARM Cortex-M3 Processor with on-chip Flash memory and SRAM, and has peripheral functions such as Motor Control Timers, ADCs and Communication interfaces.

■FEATURES

- **32bit ARM Cortex-M3 Core**
  Processor version : r2p1
- **Clock**
  Maximum clock frequency : 40MHz
- **Base Timer** : 8 channels (Max.)
- **Watch counter** : 1 unit
- **Multi-function Timer** : 1 unit (Max.)
  16-bit free-run timer ×3channels
  Input capture ×4channels
  Output compare ×6channels
  A/D activating compare ×3channels
  Waveform generator ×3channels
  16-bit PPG timer ×3channels
- **QPRC** : 1 channel (Max.)
- **Dual Timer** : 1 unit
- **Watchdog Timer** : 1 channel(SW) + 1 channel(HW)
- **Multi-function Serial Interface** : 4 channels (Max.)
  Selectable from UART/CSIO/LIN/I²C
- **Real-time clock** : 1 unit
- **DMA Controller** : 4 channels
- **USB Interface** : 1 channel
  Function : USB2.0 Full-Speed supported
  Host : USB2.0 Full-Speed/Low-Speed supported
- **External Interrupt Controller Unit**
  - Up to 6 external interrupt input pin
  - Include one non-maskable interrupt(NMI)
- **12-bit A/D Converter** : 8 channels (2 units)
- **Low Power Consumption Mode**
  6 low power consumption modes supported
  SLEEP mode/TIMER mode/RTC mode/STOP mode
  /Deep stand-by RTC mode/Deep stand-by STOP mode
- **General Purpose I/O port** : 36 (Max.)
- **Debug**
  -Serial Wire JTAG Debug Port (SWJ-DP)
- **Low Voltage Detector**
- **Clock Super Visor**
- **Power Supply**
  Wide range voltage : 2.7V to 5.5V
  USB I/O voltage : 3.0V to 3.6V (when USB is used)
  2.7V to 5.5V (when GPIO is used)

■PRODUCT LINEUP

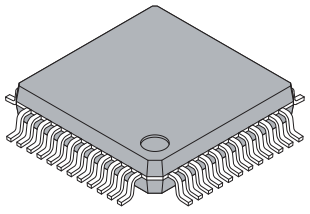
Parameter \ Part number	MB9AF311K	MB9AF312K
Main Flash (Byte)	64K	128K
Work Flash (Byte)	32K	32K
SRAM (Byte)	16K	16K

■ORDERING INFORMATION

Part number	Package
MB9AF311KPMC	Plastic・LQFP(0.5mm pitch),48-pin (FPT-48P-M49)
MB9AF312KPMC	
MB9AF311KPMC1*	Plastic・LQFP(0.65mm pitch),52-pin (FPT-52P-M02)
MB9AF312KPMC1*	
MB9AF311KQN*	Plastic・QFN(0.5mm pitch),48-pin (LCC-48P-M73)
MB9AF312KQN*	

*:Planning

■PACKAGE EXAMPLE OF REFERENCE



Plastic ・ LQFP, 48-pins
(FPT-48P-M49)

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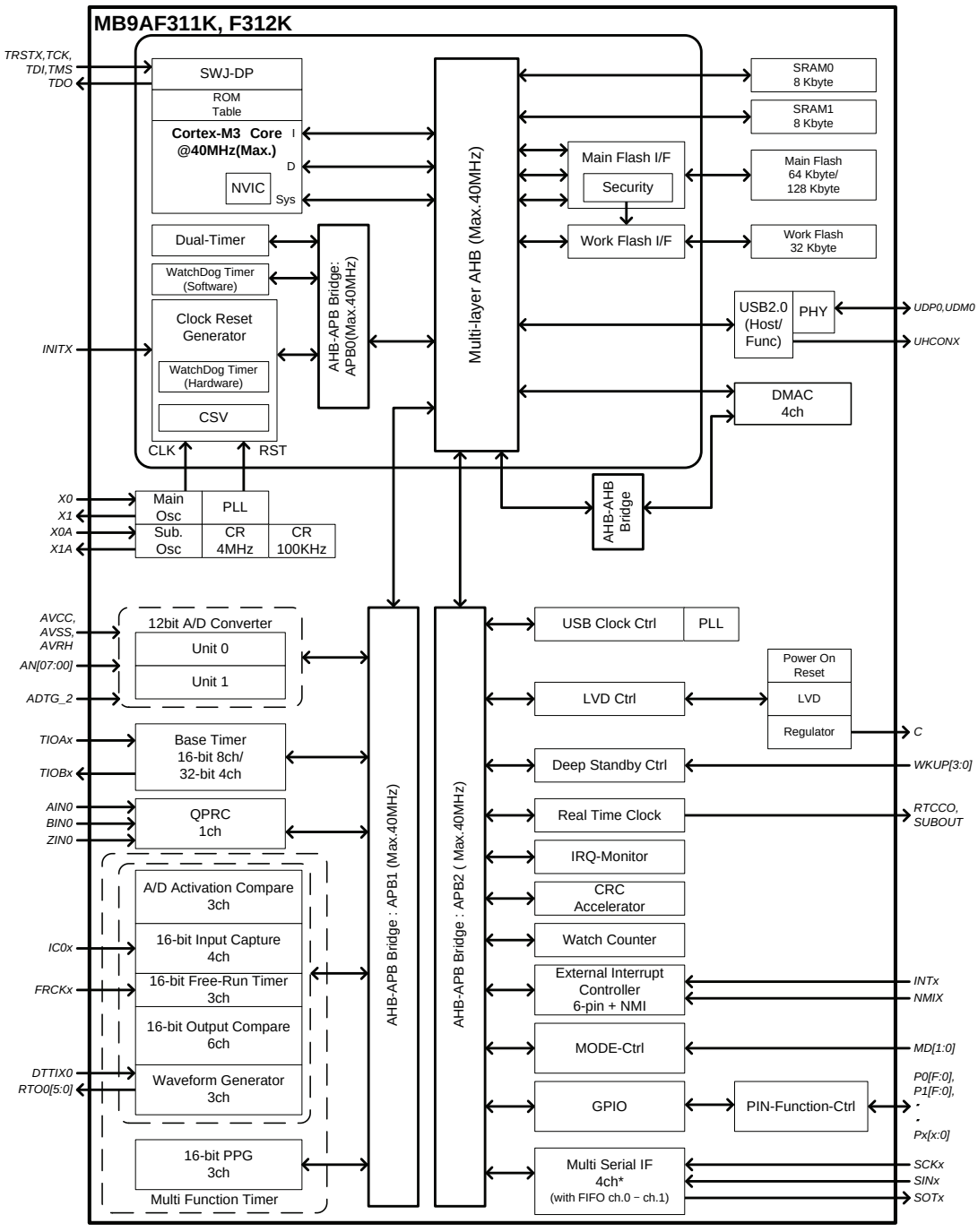
■ BLOCK DIAGRAM



■ STARTER KIT

A starter kit for FM3 family is on sale respectively from IAR Systems and KEIL.

- **IAR Systems**
  With IAR Systems starter kit, a high performance board can be used for evaluation.
- **KEIL**
  With KEIL starter kit, a simple board can be used for evaluation.

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