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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.

# 32-bit Microcontrollers FM3 Family MB9A130N Series



MB9A130N series are highly integrated 32-bit microcontrollers dedicated for embedded controllers with low power consumption mode and competitive cost. MB9A130N 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, DACs and Communication interfaces.

## FEATURES

- **32bit ARM Cortex-M3 Core**  
Processor version : r2p1
- **Clock** : Maximum clock frequency : 20MHz
- **Base Timer** : 8 channels (Max.)
- **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
- **Watchdog Timer** : 1 channel (SW) + 1 channel (HW)
- **Multi-function Serial Interface** : 8 channels (Max.)  
Selectable from UART/CSI0/I<sup>2</sup>C
- **Real-time clock** : 1 unit
- **HDMI-CEC / Remote control** : 2 channels (Max.)
- **External Interrupt Controller Unit**  
- Up to 16 external interrupt input pin  
- Include one non-maskable interrupt (NMI)
- **12-bit A/D Converter**  
MB9AF131M/132M : 12 channels (1 units)  
MB9AF131N/132N : 16 channels (1 units)
- **10-bit D/A Converter** : 2 channel (Max.)
- **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** :  
MB9AF131M/132M : 67 (Max.)  
MB9AF131N/132N : 84 (Max.)
- **Internal OSC**
- **Debug**  
-Serial Wire JTAG Debug Port (SWJ-DP)
- **Low Voltage Detector**
- **Clock Super Visor**
- **Power Supply**: 1.8V to 5.5V

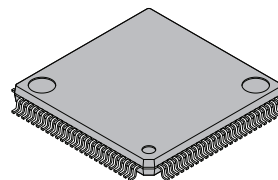
## PRODUCT LINEUP

Part number	MB9AF131M/N	MB9AF132M/N
Flash (Byte)	64K	128K
SRAM (Byte)	12K	16K

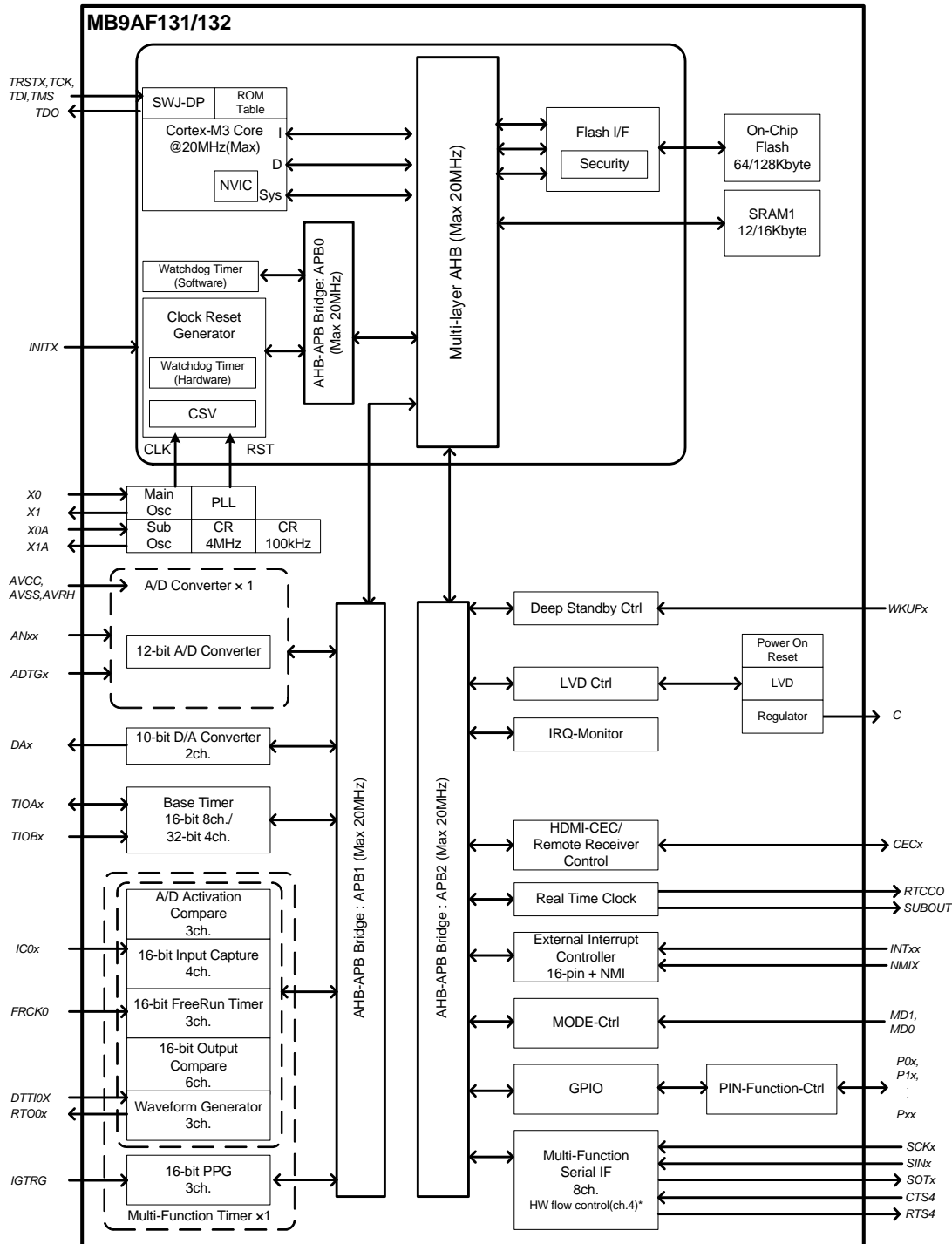
## ORDERING INFORMATION

Part number	Package
MB9AF131MPMC	Plastic · LQFP (0.5mm pitch), 80-pin (FPT-80P-M37)
MB9AF132MPMC	
MB9AF131MPMC1	Plastic · LQFP (0.65mm pitch), 80-pin (FPT-80P-M40)
MB9AF132MPMC1	
MB9AF131NPMC	Plastic · LQFP (0.5mm pitch), 100-pin (FPT-100P-M23)
MB9AF132NPMC	
MB9AF131NPF	Plastic · QFP (0.65mm pitch), 100-pin (FPT-100P-M06)
MB9AF132NPF	
MB9AF131NBGL	Plastic · PFBGA (0.8mm pitch), 112-pin (BGA-112P-M04)
MB9AF132NBGL	

## PACKAGE EXAMPLE OF REFERENCE



Plastic · LQFP, 100-pins  
(FPT-100P-M23)

**■ 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.