


# STM32 F0 series

## Entry-level Cortex™-M0 MCU



STM32  Releasing your **creativity**



STMicroelectronics

## STM32® DNA at budget price

The STM32 F0 delivers 32-bit performance and STM32 DNA essentials into applications typically addressed by 8- or 16-bit microcontrollers.

The STM32 F0 benefits from the combination of real-time performance, low-power operation, advanced architecture and peripherals associated to the STM32 ecosystem. All these have made the well-known STM32 a reference in the market. Now all this is accessible for cost-sensitive applications.

The STM32 F0 offers unparalleled flexibility and scalability for home-entertainment products, appliances, and industrial equipment.

### Key features

- Core and operating conditions
  - ARM® Cortex™-M0
  - 0.9 DMIPS/MHz up to 48 MHz
  - 1.8/2.0 to 3.6 V supply range
- High-performance connectivity
  - 6 Mbit/s USART
  - 18 Mbit/s SPI with 4- to 16-bit data frame
  - 1 Mbit/s I<sup>2</sup>C fast-mode plus
  - HDMI CEC
- Enhanced control
  - 1x 16-bit 3-phase PWM motor control timer
  - 5x 16-bit PWM timers
  - 1x 16-bit basic timer
  - 32-bit PWM timer
  - 12 MHz I/O toggling

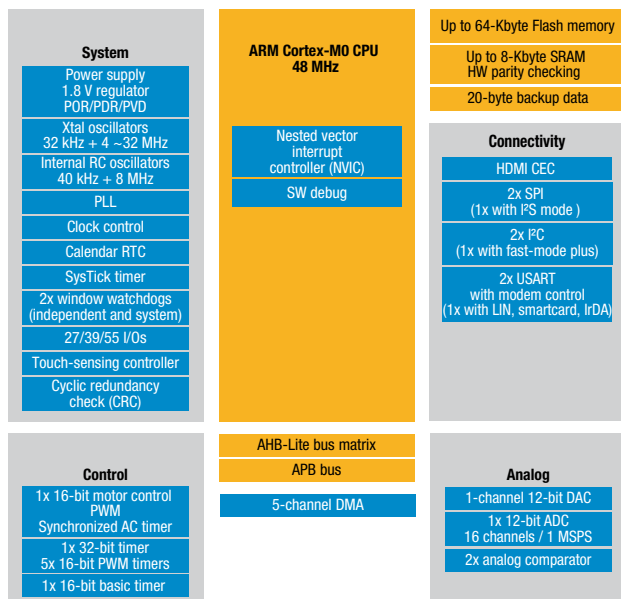
### Key benefits

- Superior code execution for better performance and excellent code efficiency for reduced embedded memory usage
- High-performance connectivity and advanced analog peripherals to support a wide range of applications
- Flexible clock options and low-power modes with fast wake-up for low power consumption

### Targeted applications

- Home automation
- Home appliances
- Motor control
- Sensors
- A/V receivers, TVs
- Remote controls
- Gaming

## Block diagram



## Device summary

Part number	Package	Flash size (Kbytes)	Internal RAM size (Kbytes)	Timer functions			ADC 12-bit	DAC 12-bit	I/Os	Serial interface
				16-bit timers	32-bit timers	Others				
<b>STM32F051 - 48 MHz CPU with DAC</b>										
STM32F051R8*	LQFP64	64	8	6	1	2 x WDG, RTC, 24-bit down counter, 1x 16-bit basic timer	16	1	55	2xSPI (1x with I <sup>2</sup> S), 2xI <sup>2</sup> C, 2xUSART (IrDA, ISO 7816), CEC
STM32F051C8	LQFP48	64	8	6	1		10	1	39	
STM32F051K8	UFQFPN32	64	8	6	1		10	1	27	1xSPI, 1xI <sup>2</sup> S, 1xI <sup>2</sup> C, 2xUSART (IrDA, ISO 7816), CEC
STM32F051R6	LQFP64	32	4	6	1		16	1	55	
STM32F051C6	LQFP48	32	4	6	1		10	1	39	
STM32F051K6	UFQFPN32	32	4	6	1		10	1	27	
STM32F051R4	LQFP64	16	4	6	1		16	1	55	1xSPI, 1xI <sup>2</sup> S, 1xI <sup>2</sup> C, 1xUSART (IrDA, ISO 7816), CEC
STM32F051C4	LQFP48	16	4	6	1		10	1	39	
STM32F051K4	UFQFPN32	16	4	6	1	10	1	27		
<b>STM32F050 - 48 MHz CPU</b>										
STM32F050C6	LQFP48	32	4	5	1	2 x WDG, RTC, 24-bit down counter	10	-	39	1xSPI, 1xI <sup>2</sup> S, 1xI <sup>2</sup> C, 1xUSART (IrDA, ISO 7816)
STM32F050K6	UFQFPN32	32	4	5	1		10	-	27	
STM32F050C4	LQFP48	16	4	5	1		10	-	39	1xSPI, 1xI <sup>2</sup> S, 1xI <sup>2</sup> C, 1xUSART (IrDA, ISO 7816)
STM32F050K4	UFQFPN32	16	4	5	1		10	-	27	

Supply voltage 1.8/2.0 to 3.6 V for all devices

Note: \* STM32F051R8 is available now. All other devices will be available early Q2/2012



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