# STM32G0 Series
Mainstream MCUs

Entry-level Arm® Cortex-M0+ MCUs - Efficiency at its best

The STM32G0 Series is not simply another Arm® Cortex®-M0+ microcontroller. It is setting a new definition of what an efficient microcontroller must offer. This is all about best optimization, down to each and every detail, to offer the best value for money and allow you to achieve your goals with the minimum BOM cost and the maximum flexibility for upgrades.

The STM32G0x0 Value Line embeds an accurate internal clock allowing further cost saving, and makes no compromise on what matters. The STM32G0x1 line provides upgraded features in analog, timer resolution up to 2xfcpu (7.8ns) and is IoT ready with enhanced security features. It supports the latest USB type-C specification including Power Delivery 3.0.

EFFICIENT

- Arm® Cortex® M0+ at 64MHz
- Compact cost: maximum I/Os count
- Best RAM/Flash Ratio
- Smallest possible package down to 8-pin
- Large platform up to 512Kbyte flash in small packages ß à mettre sous le bullet ""Smallest possible package down to 8-pin "
- 500nA in standby with RTC, 3.5µA in stop mode, <100µA/MHz
- Accurate internal high-speed clock 1% RC
- Best optimization, down to each and every detail
- Offers the best value for money
- Free tool suite
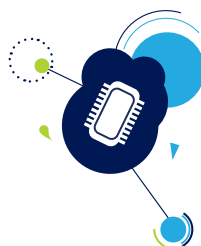
ROBUST

- Low electromagnetic susceptibility, EMC
- Clock Monitoring and 2 Watchdogs
- Voltage monitoring with interrupts and reset
- Error correction on Flash, parity on RAM
- IoT ready with embedded security
- Hardware AES-256 encryption or the new Securable Memory Area.
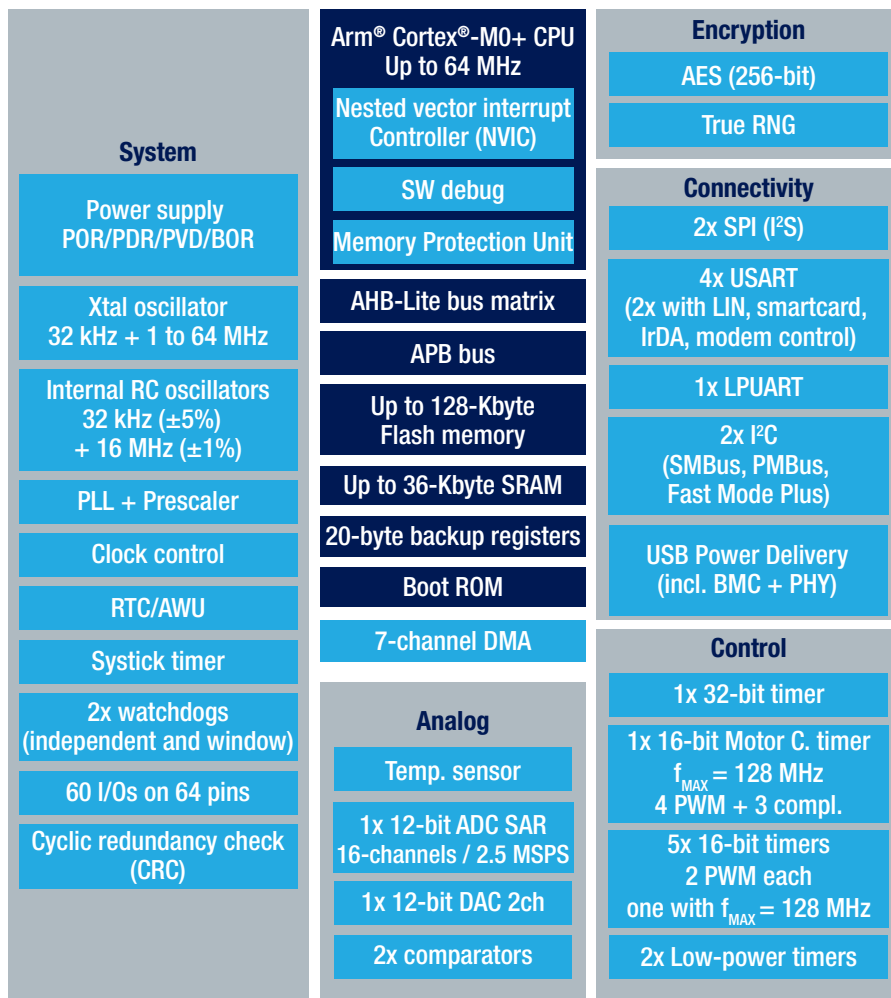- Safe Firmware upgrade / Install

SIMPLE

- Easy to configure thanks to the intuitive and graphic STM32CubeMX configuration tool.
- Easy to develop based on the Hardware Abstraction Layer library (HAL) or the low-layer library (LL) allowing maximum re-use and faster time-to-market.

STM32G0 ONLINE TRAINING
www.st.com/stm32g0-online-training

STM32G081 BLOCK DIAGRAM

System

Power supply POR/PDR/PVD/BOR

Xtal oscillator 32 kHz + 1 to 64 MHz

Internal RC oscillators 32 kHz (±5%) + 16 MHz (±1%)

PLL + Prescaler

Clock control

RTC/AWU

Systick timer

2x watchdogs (independent and window)

60 I/Os on 64 pins

Cyclic redundancy check (CRC)

Arm® Cortex®-M0+ CPU Up to 64 MHz

Nested vector interrupt Controller (NVIC)

SW debug

Memory Protection Unit

AHB-Lite bus matrix

APB bus

Up to 128-Kbyte Flash memory

Up to 36-Kbyte SRAM

20-byte backup registers

Boot ROM

7-channel DMA

Analog

Temp. sensor

1x 12-bit ADC SAR 16-channels / 2.5 MSPS

1x 12-bit DAC 2ch

2x comparators

Encryption

AES (256-bit)

True RNG

Connectivity

2x SPI (I²S)

4x USART (2x with LIN, smartcard, IrDA, modem control)

1x LPUART

2x I²C (SMBus, PMBus, Fast Mode Plus)

USB Power Delivery (incl. BMC + PHY)

Control

1x 32-bit timer

1x 16-bit Motor C. timer f_{MAX} = 128 MHz 4 PWM + 3 compl.

5x 16-bit timers 2 PWM each one with f_{MAX} = 128 MHz

2x Low-power timers

HARDWARE TOOLS

A full set of evaluation boards enables flexible prototyping as well as full STM32G0 evaluation.

STM32G081B-EVAL
Evaluation board

STM32G071B-DISCO
USB Type-C™ Discovery Kit

NUCLEO-G070RB / NUCLEO-G071RB
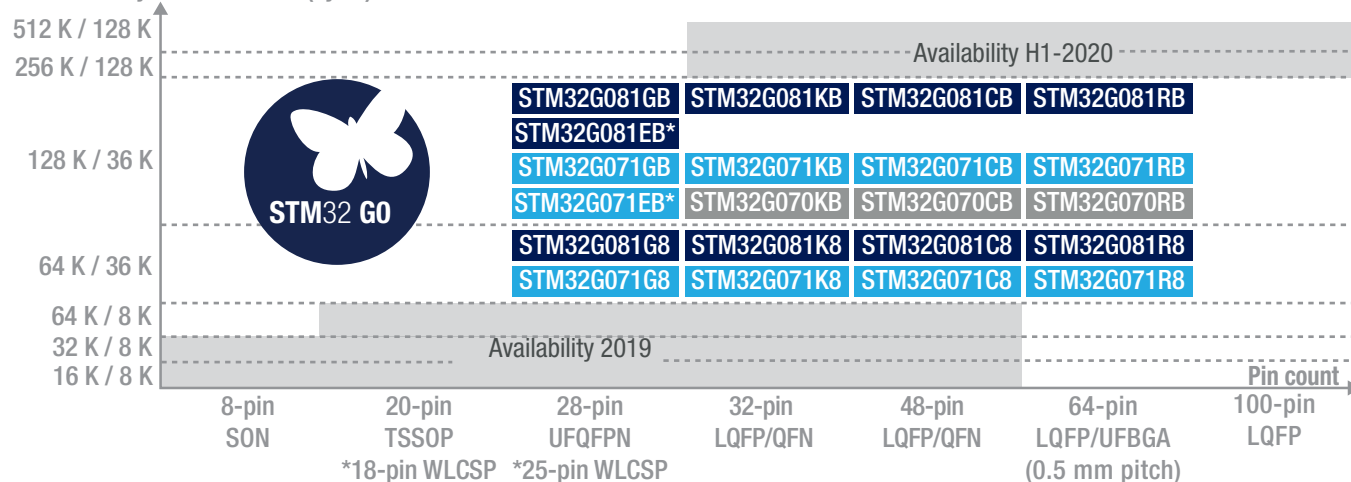(64-pin Nucleo)

SOFTWARE TOOLS

STM32CubeMX enables fast development thanks to its MCU clock configurator, power consumption calculator and code generation tools.

EMBEDDED SOFTWARE

The STM32CubeG0 package includes the STM32Cube HAL and low-layer (LL) APIs peripheral drivers, plus a consistent set of middleware components (RTOS, USB, USB Power Delivery, FatFS, graphics and STM32 touch sensing). All embedded software utilities come with a full set of examples running on STMicroelectronics boards.

STM32G0 PORTFOLIO

Flash memory size / RAM size (bytes)

Flash / RAM	8-pin SON	20-pin TSSOP *18-pin WLCSP	28-pin UFQFPN *25-pin WLCSP	32-pin LQFP/QFN	48-pin LQFP/QFN	64-pin LQFP/UFBGA (0.5 mm pitch)	100-pin LQFP
512 K / 128 K							
256 K / 128 K							
128 K / 36 K		STM32G081GB / STM32G081EB*	STM32G081KB	STM32G081CB	STM32G081RB		
		STM32G071GB / STM32G071EB*	STM32G071KB / STM32G070KB	STM32G071CB / STM32G070CB	STM32G071RB / STM32G070RB		
64 K / 36 K		STM32G081G8	STM32G081K8	STM32G081C8	STM32G081R8		
		STM32G071G8	STM32G071K8	STM32G071C8	STM32G071R8		
64 K / 8 K							
32 K / 8 K							
16 K / 8 K							

Availability H1-2020

Availability 2019

Pin count

STM32 G0

■ STM32G0x1 Access line With 128-/256-bit AES Hardware Encryption

■ STM32G0x1 Access line Without 128-/256-bit AES Hardware Encryption

■ STM32G0x0 Value line

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