

STM32G4 SERIES

Mainstream MCUs



STM32G4 mixed-signal MCUs shaped for analog-rich applications

The STM32G4 series combines powerful Arm® Cortex®-M4 plus FPU and DSP capability with rich and advanced analog peripherals. It introduces two new mathematical accelerators (Cordic and Filtering), CAN-FD (Flexible Datarate),USB Type-C interface with Power Delivery including physical layer (PHY) and advanced security with safety features.

Its new high-resolution timer V2.0 continues the Digital Power success story.



Designed for Motor Control applications

www.st.com/stm32-motor-control

KEY FEATURES

- Performance
 - Arm® Cortex®-M4 with FPU
 - Up to 170 MHz CPU frequency
 - Up to 213 DMIPS and 550 CoreMark® results
- Rich and advanced analog peripherals
- ADCs, op-amps, comparators, DACs
- Safety and security focus

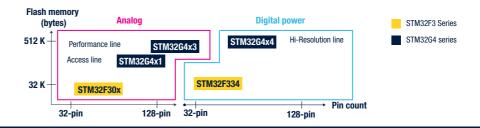
- Full set of development and evaluation boards
- Code examples and software tools

KEY BENEFITS

- Reduced PCB size and BOM cost
- Mixed-signal SoC for a wide variety of control applications
- Dynamic energy efficiency

KEY APPLICATIONS

- Control applications
- Home appliances and E-bikes
- Air conditioning
- Industrial equipments
- Motor control applications (low end, high end)
- Servers, telecom equipment, and EV charging stations
- Instrumentation and measurement equipment



Arm® Cortex®-M4

Up to 170 MHz

213 DMIPS

Floating Point Unit

Memory Protection Unit

Embedded Trace

Macrocell

16-channel DMA + MUX

Up to 2x 256-Kbyte Flash memory / ECC

Dual Bank

96-Kbyte SRAM

STM32G474 block diagram

Connectivity

4x SPI, 4x I2C, 6x UxART

1x USB 2.0 FS 1x USB-C PD3.0 (+PHY)

3x CAN-FD

2x I2S half duplex, SAI

External interface

FSMC 8-/16-bit (TFT-LCD, SRAM, NOR, NAND)

Quad SPI

Accelerators

ART Accelerator™

32-Kbyte CCM-SRAM

Math Accelerators

Cordic (Trigo) **Filtering**

Timers

5x 16-bit timers

2x 16-bit basic timers

3x 16-bit advanced motor control timers

2x 32-bit timers

1x 16-bit LP timer

1x HR timer (D-Power) 12-channel w/ 184ps (A. delay line)

Analog

5x 12-bit ADC w/ HW overspl

7x Comparators

7x DAC (3x buff + 4x non-buff)

6x op-amps (PGA)

1x temperature sensor

Internal voltage reference

Hardware tools

A full set of evaluation boards enables flexible prototyping as well as full STM32G4 evaluation.



Evaluation boards STM32G474F-FVAL STM32G484F-FVAL



Nucleo boards Nucleo-64: NUCl FO-G431RB. NUCL FO-G474RF and NUCLEO-G491RE

Nucleo-32: NUCLEO-G431KB



Discovery kits B-G474E-DPOW1 (Digital Power) B-G431B-ESC1 (Motor Control)

STM32G4 Solutions

- Motor Control applications www.st.com/stm32-motor-control
- Digital power applications www.st.com/stm32-digital-power

STM32Cube Ecosystem

The STM32Cube ecosystem is a complete software solution for STM32G4 MCUs. www.st.com/stm32cube



STM32G4 portfolio

Flash memory / RAM size (bytes)

4		STM32G474CE	STM32G474RE	STM32G474ME	STM32G474VE	STM32G474PE	STM32G474QE
512 K / 128 K		STM32G473CE	STM32G473RE	STM32G473ME	STM32G473VE	STM32G473PE	STM32G473QE
	STM32G491KE	STM32G491CE	STM32G491RE	STM32G491ME	STM32G491VE		
		STM32G474CC	STM32G474RC	STM32G474MC	STM32G474VC	STM32G474PC	STM32G474QC
256 K / 128 K		STM32G473CC	STM32G473RC	STM32G473MC	STM32G473VC	STM32G473PC	STM32G473QC
	STM32G491KC	STM32G491CC	STM32G491RC	STM32G491MC	STM32G491VC		
128 K / 128 K		STM32G474CB	STM32G474RB	STM32G474MB	STM32G474VB	STM32G474PB	STM32G474QB
		STM32G473CB	STM32G473RB	STM32G473MB	STM32G473VB	STM32G473PB	STM32G473QB
128 K / 32 K	STM32G431KB	STM32G431CB	STM32G431RB	STM32G431MB	STM32G431VB		ONGEVITA
64 K / 32 K	STM32G431K8	STM32G431C8	STM32G431R8	STM32G431M8	STM32G431V8		(*(10)*)
32 K / 32 K	STM32G431K6	STM32G431C6	STM32G431R6	STM32G431M6	STM32G431V6		COMMITME

32-pin LQFP/UFQFPN

48-pin LQFP/UFQFPN 49-pin WLCSP (0.4 mm pitch)

64-pin LQFP/UFBGA WLCSP* (0.4 mm pitch)

80-pin LQFP (0.5 mm pitch) (14x14* & 12x12) 81-pin WLĊSP

100-pin LQFP/TFBGA (0.8 mm pitch)

121-pin **UFBGA** (0.5 mm pitch) 128-pin LQFP

Pin count

Crypto AES-256 version is available on this package *Available soon

(0.4 mm pitch)

STM32G4 ONLINE TRAINING www.st.com/stm32g4-online-training



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