

## STM32G4 SERIES

# High Performance 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.



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

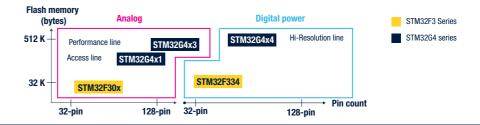
- Full set of development and evaluation boards
- Code examples and software tools

#### **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 STM32G474E-EVAL STM32G484E-EVAL



Nucleo boards Nucleo-64: NUCLEO-G431RB, NUCLEO-G474RE and NIICLEO-G491RE

Nucleo-32 : NUCLEO-G431KB





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

## **STM32G4**

## **Solutions & Ecosystem**

- Motor Control applications www.st.com/stm32-motor-control
- Digital power applications www.st.com/stm32-digital-power
- STM32CubeG4 www.st.com/stm32cubeg4

## STM32G4 portfolio

#### Flash memory / RAM size (bytes)

	A						
512 K / 128 K	Î	STM32G474CE	STM32G474RE	STM32G474ME	STM32G474VE	STM32G474PE	STM32G474QE
		STM32G473CE	STM32G473RE	STM32G473ME	STM32G473VE	STM32G473PE	STM32G473QE
	STM32G491KE	STM32G491CE	STM32G491RE	STM32G491ME	STM32G491VE		
256 K / 128 K		STM32G474CC	STM32G474RC	STM32G474MC	STM32G474VC	STM32G474PC	STM32G474QC
		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		* YEARS
	32-pin LQFP/UFQFPN	48-pin LQFP/UFQFPN	64-pin LQFP/UFBGA	80-pin LQFP	100-pin LQFP/TFBGA	121-pin UFBGA	128-pin Pin co LQFP

(0.5 mm pitch) (14x14 & 12x12)

81-pin

WLĊSP (0.4 mm pitch)

WLCSP

(0.4 mm pitch)

egend: Crypto AES-256 version is available on this package

49-pin

WLCSP

(0.4 mm pitch)



(0.8 mm pitch)

STM32G4 ONLINE TRAINING

(0.5 mm pitch)

www.st.com/stm32g4-online-training



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