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-C Power Delivery 3.0 and advanced security and safety features. Its new high-resolution timer V2.0 continues the Digital Power success story.

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
- Safety and security focus
- Complete portfolio
  - 32- to 128-pin packages
  - 32 to 512 Kbytes of Flash memory
  - 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 applications
- Designed for motor control applications

KEY APPLICATIONS
- Home appliances and E-bikes
- Air conditioning
- Industrial equipment
- Rechargeable devices, drones and toys
- Servers, telecom equipment, and EV charging stations
- Instrumentation and measurement equipment

Dedicated Motor Control Nucleo Pack (P-NUCLEO-IHM03)

www.st.com/stm32g4
STM32G474 BLOCK DIAGRAM

**Arm® Cortex®-M4**
- Up to 170 MHz
- 213 DMIPS

**Floating Point Unit**
- Up to 2x 256-Kbyte Flash memory / ECC
- Dual Bank

**Memory Protection Unit**
- Internal voltage reference

**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/ 1/84ps (A. delay line)

**External interface**
- 4x SPI, 4x I²C, 6x UxART
- 1x USB 2.0 FS, 1x USB-C PD3.0 (+PHY)
- 96-Kbyte SRAM
- 2x CAN-FD
- 2x I²S half duplex, SAI
- 3x CAN-FD
- 2x I²S half duplex, SAI
- 2x I²C

**Accelarators**
- ART Accelerator™
- 32-Kbyte CCM-SRAM
- 3x 12-bit ADC w/ HW overspl
- 7x Comparators

**Math Accelerators**
- 7x DAC (2x buf + 4x non-buff)
- 6x op-amps (PGA)
- 1x temperature sensor

**Accelerators**
- Cordic (trigo...)
- Filtering

**Connectivity**
- Quad SPI
- Embedded Trace Macrocell
- 16-channel DMA + MUX

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

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

**EMBEDDED SOFTWARE**
The STM32CubeG4 embedded software solution, featuring HAL, Low-Layer APIs and CMSIS (CORE, DSP, RTOS), USB, file system, RTOS, and graphics, comes with real-life example code for all boards.

STM32G4 PORTFOLIO

Flash memory / RAM size (bytes)

<table>
<thead>
<tr>
<th>Flash memory / RAM size</th>
<th>STM32G484CE</th>
<th>STM32G484RE</th>
<th>STM32G484ME</th>
<th>STM32G484VE</th>
<th>STM32G484QE</th>
</tr>
</thead>
<tbody>
<tr>
<td>512 K / 128 K</td>
<td>STM32G474CE</td>
<td>STM32G474RE</td>
<td>STM32G474ME</td>
<td>STM32G474VE</td>
<td>STM32G474QE</td>
</tr>
<tr>
<td>256 K / 128 K</td>
<td>STM32G491KC</td>
<td>STM32G491CE</td>
<td>STM32G491ME</td>
<td>STM32G491VE</td>
<td>STM32G491QE</td>
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<tr>
<td>128 K / 128 K</td>
<td>STM32G491KB</td>
<td>STM32G491CB</td>
<td>STM32G491MB</td>
<td>STM32G491VB</td>
<td>STM32G491QB</td>
</tr>
<tr>
<td>64 K / 128 K</td>
<td>STM32G491K6</td>
<td>STM32G491KB</td>
<td>STM32G491MC</td>
<td>STM32G491VC</td>
<td>STM32G491QC</td>
</tr>
<tr>
<td>32 K / 128 K</td>
<td>STM32G491K8</td>
<td>STM32G491KC</td>
<td>STM32G491MD</td>
<td>STM32G491VC</td>
<td>STM32G491QC</td>
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STM32G4 ON-LINE TRAINING
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