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.

**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

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

**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

**Flash memory (bytes)**
- STM32F3 Series
  - STM32F334: 512 K
- STM32G4 Series
  - STM32G4x1: 32 K
  - STM32G4x3: 128-pin
  - STM32G4x4: 128-pin

**Pin count**
- STM32F3x: 32-pin
- STM32G4x1: 128-pin
- STM32G4x3: 128-pin
- STM32G4x4: 128-pin

**Designed for Motor Control applications**
www.st.com/stm32-motor-control

www.st.com/stm32g4
STM32G4 SERIES | MAINSTREAM MCUs

STM32G474 block diagram

Connectivity
- 4x SPI, 4x I²C, 6x USB
- 1x USB 2.0 FS, 1x USB-C PD3.0 (+PHY)
- 3x CAN-FD
- 2x PS half duplex, SAI

External interface
- FMSG 8-/16-bit (TFT-LCD, SRAM, NOR, NAND)
- Quad SPI

Accelarators
- ART Accelerator™
- 32-Kbyte CCM-SRAM
- Math Accelerators
- Cordic (trigo...)
- FMAC (filtering)

Timers
- 6x 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 (O-Power)
- 12-channel w/ 184ps
  (A. delay line)

Analog
- 5x 12-bit ADC w/ HW overspl
- 7x Comparators
- 7x DAC (5x buff + 4x non-buff)
- 6x op-amps (PGA)
- 1x temperature sensor
- Internal voltage reference

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

Up to 170 MHz
213 DMIPS

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

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

Evaluation boards
- STM32G474E-EVAL
- STM32G484E-EVAL

Nucleo boards
- Nucleo-64 : NUCLEO-G431HB
- Nucleo-32 : NUCLEO-G431KB

STM32G4 Solutions
- Designed for Motor Control applications
  www.st.com/stm32-motor-control
- Designed for 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)

<table>
<thead>
<tr>
<th>Pin count</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-pin LQFP/0FN</td>
</tr>
<tr>
<td>48-pin LQFP/0FN/WLCSP</td>
</tr>
<tr>
<td>64-pin LQFP/BGA/WLCSP</td>
</tr>
<tr>
<td>80-pin LQFP/WLCSP</td>
</tr>
<tr>
<td>100-pin LQFP/BGA</td>
</tr>
<tr>
<td>121-pin BGA</td>
</tr>
<tr>
<td>128-pin LQFP</td>
</tr>
</tbody>
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STM32G4474CE  STM32G4474RE  STM32G4474ME  STM32G4474VE  STM32G4474PE  STM32G4474QE
STM32G4473CE  STM32G4473RE  STM32G4473ME  STM32G4473VE  STM32G4473PE  STM32G4473QE
STM32G4491CE  STM32G4491RE  STM32G4491ME  STM32G4491VE
STM32G4474CC  STM32G4474RC  STM32G4474MC  STM32G4474VC  STM32G4474PC  STM32G4474QC
STM32G4474KC  STM32G4474RC  STM32G4474MC  STM32G4474VC  STM32G4474PC  STM32G4474QC
STM32G4474CB  STM32G4474RB  STM32G4474MB  STM32G4474VB  STM32G4474PB  STM32G4474OB
STM32G4473CB  STM32G4473RB  STM32G4473MB  STM32G4473VB  STM32G4473PB  STM32G4473OB
STM32G4431KB  STM32G4431CB  STM32G4431RB  STM32G4431MB  STM32G4431VB
STM32G4431KB  STM32G4431CB  STM32G4431RB  STM32G4431MB  STM32G4431VB
STM32G4431KB  STM32G4431CB  STM32G4431RB  STM32G4431MB  STM32G4431VB

Legend:
- HW crypto/hash functions are available on STM32G441, STM32G4A1, STM32G4B3 and STM32G484
- Available soon

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

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