STM32G4 mainstream series
mixed signal MCU
STM32G4 series, continuity of the STM32F3

STM32F0
- 106 CoreMark
- 48 MHz Cortex-M0

STM32G0
- 142 CoreMark
- 64 MHz Cortex-M0+

STM32F1
- 177 CoreMark
- 72 MHz Cortex-M3

STM32F2
- Up to 398 CoreMark
- 120 MHz Cortex-M3

STM32F4
- Up to 608 CoreMark
- 180 MHz Cortex-M4

STM32F7
- 1082 CoreMark
- 216 MHz Cortex-M7

STM32H7
- Up to 3224 CoreMark
- Up to 550 MHz Cortex-M7

STM32L0
- 75 CoreMark
- 32 MHz Cortex-M0+

STM32L1
- 93 CoreMark
- 32 MHz Cortex-M3

STM32L4
- 273 CoreMark
- 80 MHz Cortex-M4

STM32L4+
- 409 CoreMark
- 120 MHz Cortex-M4

STM32L5
- 443 CoreMark
- 110 MHz Cortex-M33

STM32U5
- 651 CoreMark
- 160 MHz Cortex-M33

STM32WL
- 162 CoreMark
- 48 MHz Cortex-M4

STM32WB
- 216 CoreMark
- 64 MHz Cortex-M4

- Optimized for mixed-signal Applications
- Cortex-M0+ Radio co-processor

STM32MP1
- 4158 CoreMark
- 650 MHz Cortex-A7
- 209 MHz Cortex-M4
STM32G4 series

Ideal for applications requiring an MCU that offers advanced and rich analog peripherals

- Control applications (Motor Control…)
- Industrial equipment
- Instrumentation and Measurement
- Digital Power
  - Digital SMPS (Switch Mode Power Supply)
  - PFC (Power Factor Correction)
Reducing PCB size and BOM cost

System-on-Chip – All-in-one solution

- DACs
- Filters
- Temperature sensor
- RTC
- XTAL
- Op Amps
- ADCs
- Comparators

Smaller package
Fewer additional components
All analog included

STM32G4

Standard MCU

Project cost $$$

Project cost $
High performance
- ARM Cortex-M4 + FPU running @ 170Mhz
- + 3x Accelerators: ART, Routine Booster(CCM), Math. Accel

Motor control Timer & High-resolution Timer
- 12 channels up to 184 ps resolution

7x Comparators
- Down to 19ns propagation delay

5x ADC
- 5x12-bit, 16-bit oversampling
- 4 MSPS (0.25µs)

7xDAC
- 12-bit DAC 15 Msps

USB Type-C Power Delivery

Power Supply Unit
- Power Factor Correction

High temperature
- from -40°C
- up to +125°C

High robustness
- Highly immune to fast transients
- Robust I/Os against negative injections

Safety
- Checksum by hardware
- ECC on Flash, Parity on RAM
- FuSa SW library (SIL)

FD CAN
- Up to 3 instances
- Payload bit rate 8 times bigger than standard CAN
## STM32G4 series – key messages

### Performance
- Arm® Cortex®-M4 at 170 MHz
- 213 DMIPS and 550 CoreMark® results
- Better dynamic power consumption (163µA/MHz)
- ART Accelerator™ (dynamic cache)
- CCM-SRAM Routine Booster (static cache)
- Mathematical Accelerators (FMAC, CORDIC)

### Rich Integrated Analog and Digital
- Op-Amps (Built-in gain), DACs, Comparators
- 12-bit ADCs 4Msps with hardware oversampling
- CAN-FD (flexible data rate – 8 Msps bit rate)
- High resolution timer (184 ps)
- USB type-C Power Delivery 3.0
- 1% RC accuracy [-5°..90°C], 2% full T° range

### Safety and security focus
- Dual Bank Flash with ECC (error code correction)
- Securable Memory Area
- Hardware encryption AES-256
- SIL, Class-B
- SRAM with Parity bit

#### Secure Live Upgrade
- Functional safety design packages

### Complete portfolio
- Complements existing STM32F3 Series portfolio
- From -40°C up to 85 or 125°C devices
- From 32- up to 128-pin
- From 32 KB to 512 KB Flash
From F3 to G4 series, an improvement in continuity

**Increased Robustness, Safety and Security**
- EMC (EMI, EMS) → continuous improvement
- **Dual Bank** Flash w/ ECC (Live FW Upgrade)
- HW encryption AES
- Securable Memory Area

**Extended Peripheral set and Architecture**
- 1% RC accuracy [-5°..90°C], 2% full range
- ADC with **HW oversampling = 16-bit** res.
- Renewed Op-Amp, DAC, Comparator
- New HR timer features (digital part)
- MC timer improvements (encoder mode...)
- USB type-C with Power Delivery incl. PHY
- CAN FD (Flexible Data-rate)
- Ta: 85° up to **125°C** (limited condition)

**STM32F3 portfolio extension**
- D-Power portfolio (STM32F334) extension
- **NEW 128-pin and 80-pin** packages (LQFP)

**Gain in Performance**
- **170MHz** even from internal oscill. (213DMIPS)
  1. ART accelerator (~dynamic cache)
  2. CCM-SRAM Routine Booster (~static cache)
  3. **Mathematical accelerator** (Trigo, Filtering)
- Better dynamic power conso (160µA/Mhz) = ~2.7 times lower than F3 series
Greater performance

Pure 170 MHz CPU performance (Arm® Cortex®-M4) with three accelerators

Arm Cortex-M4 with FPU

Up to 170 MHz CPU frequency

Up to 213 DMIPS and 550 CoreMark® results

3 different HW accelerators:

- **ART accelerator** (~dynamic cache) → Full code acceleration (average)
- **Routine Booster** CCM-SRAM (~static cache) → determinism preserved
- **Mathematical** (Cordic + FMAC)

<table>
<thead>
<tr>
<th>Number of Wait States</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Clock (MHz)</td>
<td>34</td>
<td>68</td>
<td>102</td>
<td>136</td>
<td>170</td>
</tr>
</tbody>
</table>

![Graph showing code execution performance with different wait states and CPU clock frequencies.](image-url)
Mathematical accelerators

Function acceleration and CPU offload

1. Cordic (Trigo)
   - Very helpful for Field Oriented Motor Control method (FOC)
   - Vector rotation (polar to rectangular): Sin, Cos
   - Vector translation (rectangular to polar): Atan2, Modulus
   - Sinh, Cosh, Exp
   - Atan, Atanh
   - Square root
   - Ln

2. Filter Math ACcelerator (FMAC)
   - Can be used to create
     - 3p3z Compensator (Digital power)
     - Sigma Delta modulator
     - Noise Shaper
Rich, advanced analog

Mixed-signal SoC for wide variety of applications

### ADC (up to 5)

<table>
<thead>
<tr>
<th>Topology</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling rate</td>
<td>Up to 4 Msp</td>
</tr>
<tr>
<td>Input</td>
<td>Single-ended and differential</td>
</tr>
<tr>
<td>Offset and Gain</td>
<td>Auto calibration to reduce gain and</td>
</tr>
<tr>
<td>compensation</td>
<td>offset</td>
</tr>
</tbody>
</table>

### Op-Amp (up to 6)

<table>
<thead>
<tr>
<th>GBW</th>
<th>13 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slew rate</td>
<td>45 V/µs</td>
</tr>
<tr>
<td>Offset</td>
<td>3 mV over full T°C range</td>
</tr>
<tr>
<td></td>
<td>1.5 mV @ 25°C</td>
</tr>
<tr>
<td>PGA Gain (accuracy)</td>
<td>2, 4, 8, 16, -1,-3,-7,-15 (1%)</td>
</tr>
<tr>
<td></td>
<td>32, 64, -31,-63 (2%)</td>
</tr>
</tbody>
</table>

### DAC (up to 7)

| Sampling rate    | 15 Msp (internal)                       |
|                  | 1 Msp (from buffered output)           |
| Settling time    | 16 ns                                   |

### Comparator (up to 7)

| Power supply     | 1.62 .. 3.6 V                          |
| Propagation delay | 16.7 ns                                |
| Offset           | -6 .. +2 mV                             |
| Hysteresis       | 8 steps: 0, 9, 18, 27, 36, 45, 54, 63 mV |
ARM Cortex-M4 core @ 170 MHz
- FPU
- Enhance dynamics
- No scaling overhead
- No saturation
- DSP (fast MAC)
- SIMD
- Parallel processing
- Low interrupt latency

ST’s product architecture
- ART accelerator
- Wait state removal
- CCM-SRAM accelerator
- Real time execution
- Math accelerator
- Cordic (Trigo)
- FMAC (Filtering)

Set point

PWM Timers
- 170 MHz (5.9 ns)
- HRTIM (184 ps)

PLANT

PWM

Direct HW path (no latency)
- Instantaneous control load
- Protection

Multiple fast Comparators

7xDAC

Analog feedbacks

Digital feedback

5x 12-bit 4Msps ADC
- SAR (no pipeline delay)
- Low latency (250 ns)
- Low aperture time (20 ns) for snapshot measurements
- Simultaneous sampling on multiple ADCs
- HW oversampling

6x PGA

High BdW
- Low offset
- Prog. Gain

Other Timers
- Quad encoder
- Hall-effect sensors

Easy use of the Analog and Digital resources thanks to high peripherals interconnect and flexible bus matrix
Key features for targeted applications

**Motor Control**
- Fast CPU 170 MHz
- Mathematical accelerator (Cordic)
- Advanced Motor Control timers
- Fast comparators
- 4Msps ADC-12bit + HW oversampling
- Op-Amp with built-in gain (PGA)
- DAC-12bit
- 1% RC accuracy (UART communication w/o external Xtal)

**Industrial devices**
- Fast CPU 170 MHz
- Mathematical accelerator (Cordic)
- High temperature 125°C
- CAN FD support
- SPI, USART, I²C
- Advanced timers
- Real Time Clock with backup registers
- Dual bank flash for live upgrade
- AES & security

**Rechargeable devices, drones, toys**
- Low-thickness, small form-factor
- Low consumption in run mode ~ 160 µA/MHz
- Embedded analog
- SAI (Sound Audio Interface)
- USB type-C Power Delivery 3.0

**Home appliances, E-bikes, Air Conditioning**
- Fast CPU 170 MHz
- Mathematical accelerator (Cordic)
- Advanced Motor Control timers
- Fast comparators
- 4Msps ADC-12bit + HW oversampling
- Op-Amp with built-in gain (PGA)
- DAC-12bit
- 1% RC accuracy (UART communication w/o external Xtal)

**Industrial equipment**
- Fast CPU 170 MHz
- Mathematical accelerator (Cordic)
- High temperature 125°C
- CAN FD support
- SPI, USART, I²C
- Advanced timers
- Real Time Clock with backup registers
- Dual bank flash for live upgrade
- AES & security

**Digital Power**
- Fast CPU 170 MHz
- Mathematical accelerator (Filtering)
- 12ch High Resolution timer (184ps)
- 4Msps ADC-12bit + HW oversampling
- Fast comparators (17ns)
- Embedded analog
- Dual bank flash for live upgrade
- AES & security
- FMAC for 3p3z compensation

**Servers, Telecom, EV Charging station**
- Fast CPU 170 MHz
- Mathematical accelerator (Filtering)
- 12ch High Resolution timer (184ps)
- 4Msps ADC-12bit + HW oversampling
- Fast comparators (17ns)
- Embedded analog
- Dual bank flash for live upgrade
- AES & security
- FMAC for 3p3z compensation
Ease digital power conversion

Enhance your digital power solutions using the STM32G4 comprehensive High Resolution Timer (HRTIM)
HRTimer – not only high resolution

High resolution PWM
- 12 channels with 184ps resolution on frequency and duty cycle
- 184ps is equivalent to 5.4GHz timer clock

Flexible PWM generation
- 7x independent time base to create various shape of PWM
- 6x complementary pair PWM outputs
- Up to 32 set/reset transition per PWM period thx to the built-in crossbar
- Master/Slave configuration for multi phase converter

Multiple Event handler
- 6x Digital and Analog fault input
- 10x Events cycle to cycle current control or PWM restart (constant Ton/Toff)
- Blanking, windowing and digital filter

12 independent channels
- Any topology supported from 1x 12 PWM (triple interleaved LLC (servers’ application) up to 12x1 PWM (multiple independent buck converters (lighting))
Greater security

Integrated security features, ready for tomorrow’s needs

Securable Memory Area:
- Configurable size
- Can be secured once exiting
- No more access nor debug possible
- Good fit to store critical data
  - Critical routines
  - Keys

User Flash

Bank1

Bank2

Securable Memory Area

Securable Memory Area

Secure firmware install (SFI)
Secure Firmware upgrade (SFU)
Mutual Distrustful
Firmware IP protection
Secret key storage
Secured communication
Authentication
Task cloisoning

Secure user memory
AES
TRNG
PCROP
MPU
Readout protection
CRC
Write Protection
Dynamic efficiency modes

When Mainstream MCU Series meets low-power requirements

Wake-up time

<table>
<thead>
<tr>
<th>Mode</th>
<th>Wake-up time</th>
<th>Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBAT*</td>
<td>6nA / 720 nA</td>
<td>Tamper: few I/Os, RTC</td>
</tr>
<tr>
<td>SHUTDOWN*</td>
<td>43nA / 565 nA</td>
<td>Wake-up sources: reset pin, few I/Os, RTC</td>
</tr>
<tr>
<td>STANDBY*</td>
<td>130nA / 885 nA</td>
<td>Wake-up sources: + BOR, IWDG</td>
</tr>
<tr>
<td>STOP 1 (full retention)</td>
<td>80 µA</td>
<td>Wake-up sources: + all I/Os, PVD, COMPs, LPUART, LPTIM, I²C, UART, USB</td>
</tr>
<tr>
<td>SLEEP</td>
<td>37 µA / MHz</td>
<td>Wake-up sources: any interrupt or event</td>
</tr>
<tr>
<td>RUN (Range1) at 150 MHz from Flash</td>
<td>163 µA / MHz</td>
<td></td>
</tr>
<tr>
<td>RUN (Range1 boost) at 170 MHz from Flash</td>
<td>173 µA / MHz</td>
<td></td>
</tr>
</tbody>
</table>

Conditions: 25°C, $V_{DD} = 3V$

Note: * without RTC / with RTC
STM32G4 products lines

**General Purpose**

- STM32G4x1
- STM32G4x3

**Analog**

- STM32G4x1
- STM32G4x3

- Pin Count:
  - 32-pin
  - 128-pin

**Memory**

- 32KB
- 512KB

**Application Specific**

- STM32G4x4

**Digital Power**

- STM32F334

- Pin Count:
  - 32-pin
  - 128-pin

**Performance line**

**Access line**

- STM32F30x

**Hi-Resolution line**

**General Purpose**

- STM32F30x

**Application Specific**

- STM32F334

**Digital Power**

- STM32F334

**Pin Count**

- 32-pin
- 128-pin
**Unit parameters**

<table>
<thead>
<tr>
<th></th>
<th>STM32G474 Hi-Resolution line</th>
<th>STM32G473 Performance line</th>
<th>STM32G431 Access line</th>
<th>STM32G491 Access line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core, frequency</td>
<td>ARM Cortex-M4, 170 MHz</td>
<td>ARM Cortex-M4, 170 MHz</td>
<td>ARM Cortex-M4, 170 MHz</td>
<td>ARM Cortex-M4, 170 MHz</td>
</tr>
<tr>
<td>Flash (max)</td>
<td>512 Kbytes (2x256 KB dual bank)</td>
<td>128 Kbytes single bank</td>
<td>512 Kbytes single bank</td>
<td></td>
</tr>
<tr>
<td>RAM (up to)</td>
<td>96 Kbytes</td>
<td>22 Kbytes</td>
<td>96 Kbytes</td>
<td></td>
</tr>
<tr>
<td>CCM –SRAM (code-SRAM)</td>
<td>32 Kbytes</td>
<td>10 Kbytes</td>
<td>16 Kbytes</td>
<td></td>
</tr>
<tr>
<td>12-bit ADC SAR</td>
<td>5x 12-bit 4 MSPS</td>
<td>2x 12-bit 4 MSPS</td>
<td>3x 12-bit 4 MSPS</td>
<td></td>
</tr>
<tr>
<td>Comparator</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Op Amp with 4 built-in gain values with 1% accuracy</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>12-bit DAC</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Motor Control timer</td>
<td>3x (170 MHz)</td>
<td>2x (170 MHz)</td>
<td>3x (170MHz)</td>
<td></td>
</tr>
<tr>
<td>CAN-FD</td>
<td>3x</td>
<td>1x</td>
<td>2x</td>
<td></td>
</tr>
<tr>
<td>12 channel Hi-resolution Timer</td>
<td>1x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>1.72 to 3.6 V</td>
<td>1.72 to 3.6 V</td>
<td>1.72 to 3.6 V</td>
<td></td>
</tr>
</tbody>
</table>

**Extensive & innovative peripheral set**

**No compromise on what matters**
STM32G474/3 block diagram

High Resolution and Performance lines [128KB .. 512KB]

- 32-bit Arm Cortex-M4 core with FPU
- ART + CCM-SRAM + Mathematic Accelerators
- Dual Bank Flash with ECC
- SRAM with Parity bit
- +/- 1% internal clock
- 1.72 to 3.6V power supply
- Up to 125°C

Connectivity
- 4x SPI, 4x PC, 6x UXART
- 1x USB 2.0 FS, 1x USB-C PD3.0 (+PHY)
- 3x CAN-FD
- 2x 8S 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

Floating Point Unit
- Memory Protection Unit
- Embedded Trace Macrocell
- 16-channel DMA + MUX

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

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

- High resolution timer (G474 only)
- 3x Advanced Motor Control timers
- Rich Advanced Analog
- 3x CAN Flexible Data rate
- USB-C Power Delivery3.0
- Advanced Security and Safety features
- Robustness: highest level 5 / FTB/ESD - IEC 61000-4-4
STM32G491 block diagram

Access line [32KB .. 512KB]

- 32-bit Arm Cortex-M4 core with FPU
- ART + CCM-SRAM + Mathematic Accelerators
- Single Bank Flash with ECC
- SRAM with Parity bit
- +/- 1% internal clock
- 1.72 to 3.6V power supply
- Up to 125°C

- Advanced Motor Control timers
- Rich Advanced Analog
- CAN Flexible Data rate
- USB-C Power Delivery 3.0
- Advanced Security and Safety features
- Robustness: highest level 5 / FTB/ESD - IEC 61000-4-4
### STM32G4 Portfolio

#### Flash Memory / RAM Size (bytes)

<table>
<thead>
<tr>
<th>512 K / 128 K</th>
<th>STM32G474CE</th>
<th>STM32G474RE</th>
<th>STM32G474ME</th>
<th>STM32G474VE</th>
<th>STM32G474PE</th>
<th>STM32G474QE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STM32G491CE</td>
<td>STM32G491IE</td>
<td>STM32G491ME</td>
<td>STM32G491VE</td>
<td>STM32G491PE</td>
<td>STM32G491QE</td>
</tr>
<tr>
<td></td>
<td>STM32G491CC</td>
<td>STM32G491RC</td>
<td>STM32G491MC</td>
<td>STM32G491VC</td>
<td>STM32G491PC</td>
<td>STM32G491QC</td>
</tr>
<tr>
<td>128 K / 128 K</td>
<td>STM32G474CB</td>
<td>STM32G474RB</td>
<td>STM32G474MB</td>
<td>STM32G474VB</td>
<td>STM32G474PB</td>
<td>STM32G474QB</td>
</tr>
<tr>
<td>64 K / 32 K</td>
<td>STM32G431KB</td>
<td>STM32G431CB</td>
<td>STM32G431RB</td>
<td>STM32G431MB</td>
<td>STM32G431PB</td>
<td>STM32G431QB</td>
</tr>
<tr>
<td>32 K / 32 K</td>
<td>STM32G431KB</td>
<td>STM32G431CB</td>
<td>STM32G431RB</td>
<td>STM32G431MB</td>
<td>STM32G431PB</td>
<td>STM32G431QB</td>
</tr>
</tbody>
</table>

Legend: ■ Crypto AES-256 version is available on this package  *Available soon
### Broad portfolio

**Portfolio extended to support budget applications efficiently**

<table>
<thead>
<tr>
<th>Flash memory (bytes)</th>
<th>32-pin LQFP QFN</th>
<th>48-pin LQFP QFN WLCSP</th>
<th>64-pin LQFP BGA WLCSP</th>
<th>80-pin LQFP WLCSP</th>
<th>100-pin LQFP BGA</th>
<th>121-pin BGA</th>
<th>128-pin LQFP</th>
</tr>
</thead>
<tbody>
<tr>
<td>512 K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>256 K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>128 K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>64 K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>32 K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note: latest packages introduction in STM32 portfolio
STM32G4 hardware solutions

Accelerate evaluation, prototyping and design

STM32 Nucleo
- Flexible prototyping
  - NUCLEO-G431RB
  - NUCLEO-G474RE
  - NUCLEO-G431KB*
  - NUCLEO-G491RE

Evaluation boards
- Full feature STM32G4 evaluation
  - STM32G484E-EVAL
  - STM32G474E-EVAL
  - STM32G474E-EVAL1

Motor Control Pack
- Full feature for Motor Control and Analog
  - P-NUCLEO-IHM03

Discovery kits
- Key feature prototyping
  - B-G474E-DPOW1
  - B-G431B-ESC1
STM32G4 software tools

Complete support of Arm Cortex-M ecosystem

STM32CubeMX
- Configure and generate Code
- Conflicts solver

IDEs
- Compile and Debug
- Flexible Solutions
  - Partners IDE, like IAR and Keil
  - Free IDE based on Eclipse, like STM32CubeIDE

STM32 Programming Tool
- STM32CubeProgrammer
  - Flash and/or system memory
  - GUI or command line interface
Dedicated ecosystems

Motor Control

- **Complete ecosystem** (HW boards, SW Development Kit (SDK), docs and trainings)
  - X-CUBE-MCSDK (v5.4)
    - Motor Control FW library based on STM32Cube HAL and LL
    - Motor control workbench: Graphical configurator of the motor control library linked with STM32CubeMx
  - P-NUCLEO-IHM03: Motor Control Nucleo pack
    - NUCLEO-G431RB Nucleo-64
    - X-NUCLEO-IHM16M1 motor driver expansion board
    - Low Voltage motor
- **State of the art algorithms** (FOC, 6-step, sensorless…)
- **Motor Profiler**: Plug and spin your motor within less than one minute

Digital Power

- **Complete ecosystem** (HW boards, FW examples, SW tools, docs and trainings)
- **Dedicated HRTIM Cookbook - AN4539**: How to operate the Hi-Resolution timer in different topology
- **Digital Power training** (PSU and PFC) – based on STM32 G4 series – done in collaboration with Biricha

[www.st.com/stm32-motor-control](http://www.st.com/stm32-motor-control)

STM32G4 series – takeaways

Analog-rich MCUs for mixed-signal applications

Performance
170 MHz Cortex-M4 coupled with three accelerators

Rich and Advanced Integrated Analog
ADC, DAC, op-amp, comparator

Safety and security focus

Large portfolio available from NOW!
32..512KB Flash memory
32..128-pin packages
Thank you