

STM32 family

Sensor application fit



STM32 overview



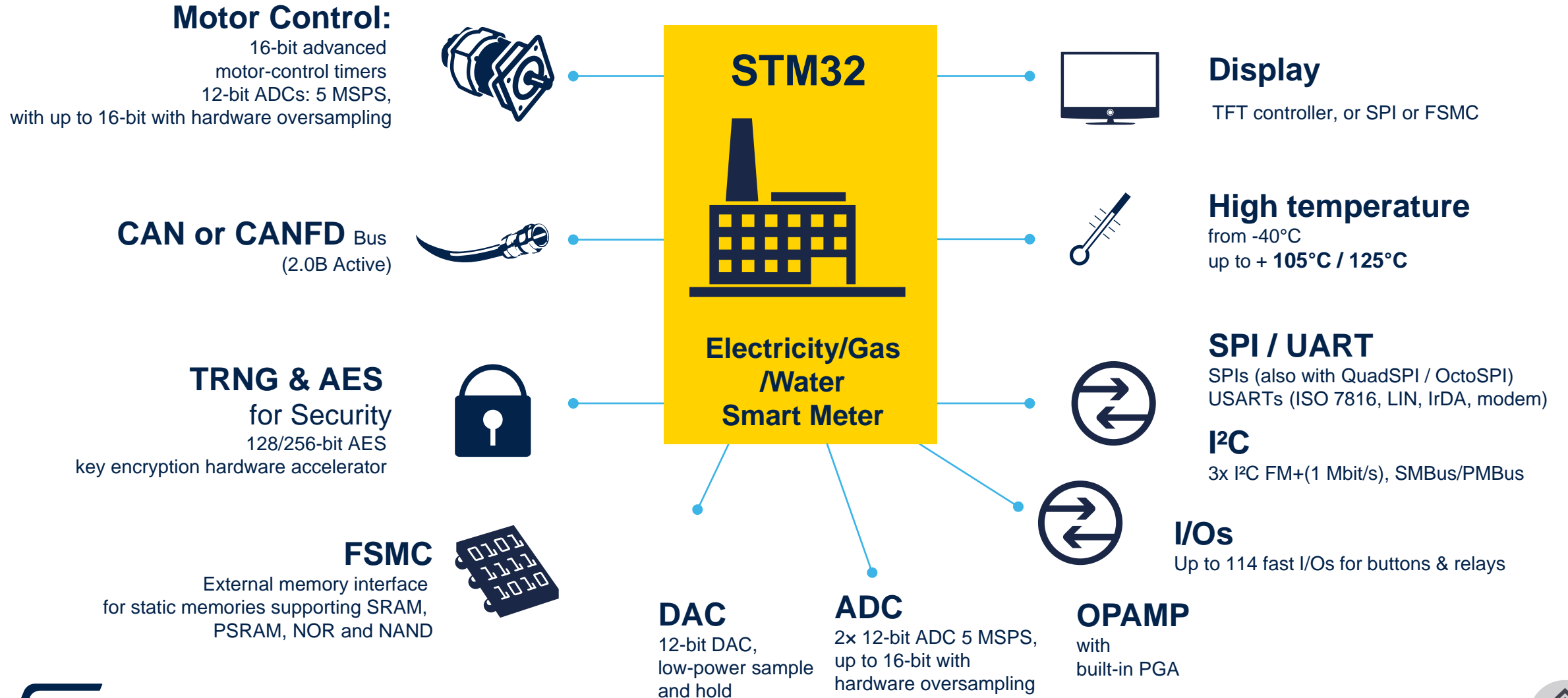
STM32 sensor recommendations



STM32 ecosystem



Smart STM32 peripherals for industrial sensors





STM32 MCU family overview

★ High Perf MCUs

STM32F2
398 CoreMark
120 MHz

STM32F4
608 CoreMark
180 MHz

STM32H7
3224 CoreMark
240 MHz Cortex -M4
480 MHz Cortex -M7

STM32F7
1082 CoreMark
216 MHz

» Mainstream MCUs

STM32F0
106 CoreMark
48 MHz

STM32G0
142 CoreMark
64 MHz

STM32F1
177 CoreMark
72 MHz

STM32F3
245 CoreMark
72 MHz

STM32G4
550 CoreMark
170 MHz

🔋 Ultra-low Power MCUs

STM32L0
75 CoreMark
32 MHz

STM32L1
93 CoreMark
32 MHz

STM32L5
424 CoreMark
110 MHz

STM32L4
273 CoreMark
80 MHz

STM32L4+
409 CoreMark
120 MHz

STM32L5
427 CoreMark
110 MHz

📶 Wireless MCUs

STM32WL
161 CoreMark
48 MHz

STM32WB
216 CoreMark
64 MHz



Arm® Cortex® core

-M0

-M0+

-M3

-M33

-M4

-M33

-M7

● Optimized for mixed-signal applications

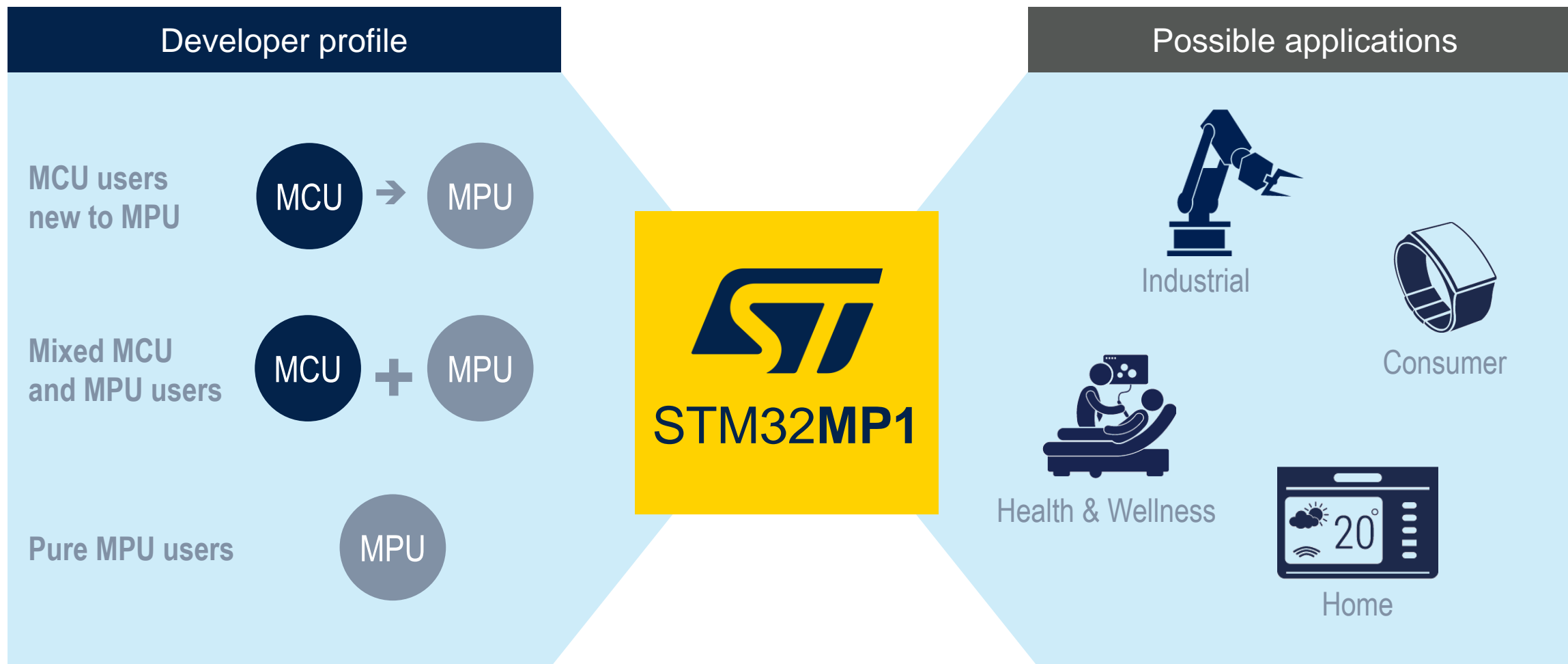
● Cortex-M0+ Radio co-processor



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New STM32MP1: A general purpose MPU suitable for all developer types and multiple applications





STM32L ULP portfolio

STM32L5 completes the ultra-low-power subclass

**Cost-smart
ULP champion**

STM32L0

Cortex-M0+ at 32 MHz
1.65 to 3.6V
8-/16-bit applications
Wide range of pin-counts

3 product lines,
Cost-effective,
Smaller packages,
USB, LCD, Analog
8 to 192 Kbytes of Flash,
Up to 20 Kbytes of SRAM

**Broad-range
foundation**

STM32L1

Cortex-M3 at 32 MHz
1.65 to 3.6V
Wide choice of
memory sizes

3 product lines,
USB, LCD, AES,
Rich Analog
True EEPROM,
Dual-bank Flash memory
(RWW),
32 to 512 Kbytes of Flash,
Up to 80 Kbytes of SRAM

**ULP With
performance**

STM32L4

Cortex-M4 w/ FPU at 80 MHz
1.71 to 3.6V
High-performance,
advanced analog circuits

5 product lines,
5-MSPS ADC,
PGA, Compar.,
DAC, Op Amp, USB
OTG, LCD, AES
64 Kbytes to 1 Mbyte
Up to 320 Kbytes of SRAM

**ULP with
more performance**

STM32L4+

Cortex-M4 w/ FPU at 120 MHz
1.71 to 3.6V
Wide choice of
memory sizes

3 product lines,
5-MSPS ADC,
PGA, Compar.,
DAC, Op Amp, USB
OTG, LCD, AES
1 to 2 Mbytes of Flash,
Up to 640 Kbytes of SRAM

**Advanced
security**

STM32L5

Cortex-M33 w/ FPU at 110 MHz
1.71 to 3.6V
Wide choice of
memory sizes

1 product line,
5-MSPS ADC,
PGA, Compar.,
DAC, Op Amp,
USB Type C, AES
256 to 512 Kbytes of Flash,
Up to 256 Kbytes of SRAM





STM32G0 efficiency at its best

Best value for money



FD-CAN
Up to 2 instance



V_{BAT} with RTC
for battery backup
400 nA in V_{BAT} mode for RTC and
20x 32-bit backup registers



TRNG & AES
for Security
128-/256-bit AES
key encryption hardware accelerator



Comparators
2 instances
Down to 30ns propagation delay

DAC

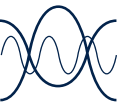
2x 12-bit DAC,

ADC

16x12-bit, 16-bit oversampling
2.5MSPS (0.4µs)



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Timers
8ns PWM resolution
Advanced control
16- and 32-bit



I/Os
Up to 92 fast I/Os



USB-C Power Delivery
Up to 2 ports with dead-battery management



USB
USB 2.0 full-speed,
Device and host



Efficient:
64Mhz M0+, < 100uA/MHz

Robust: low EMC, Error correction, cryptography

Simple:
CubeMX + HW abstraction Lib





STM32F4 access line

High performance in small package

High Power at low current

- **100MHz / 125DMIPS** from FLASH
- only **88 μ A/MHz – 115 μ A/MHz**

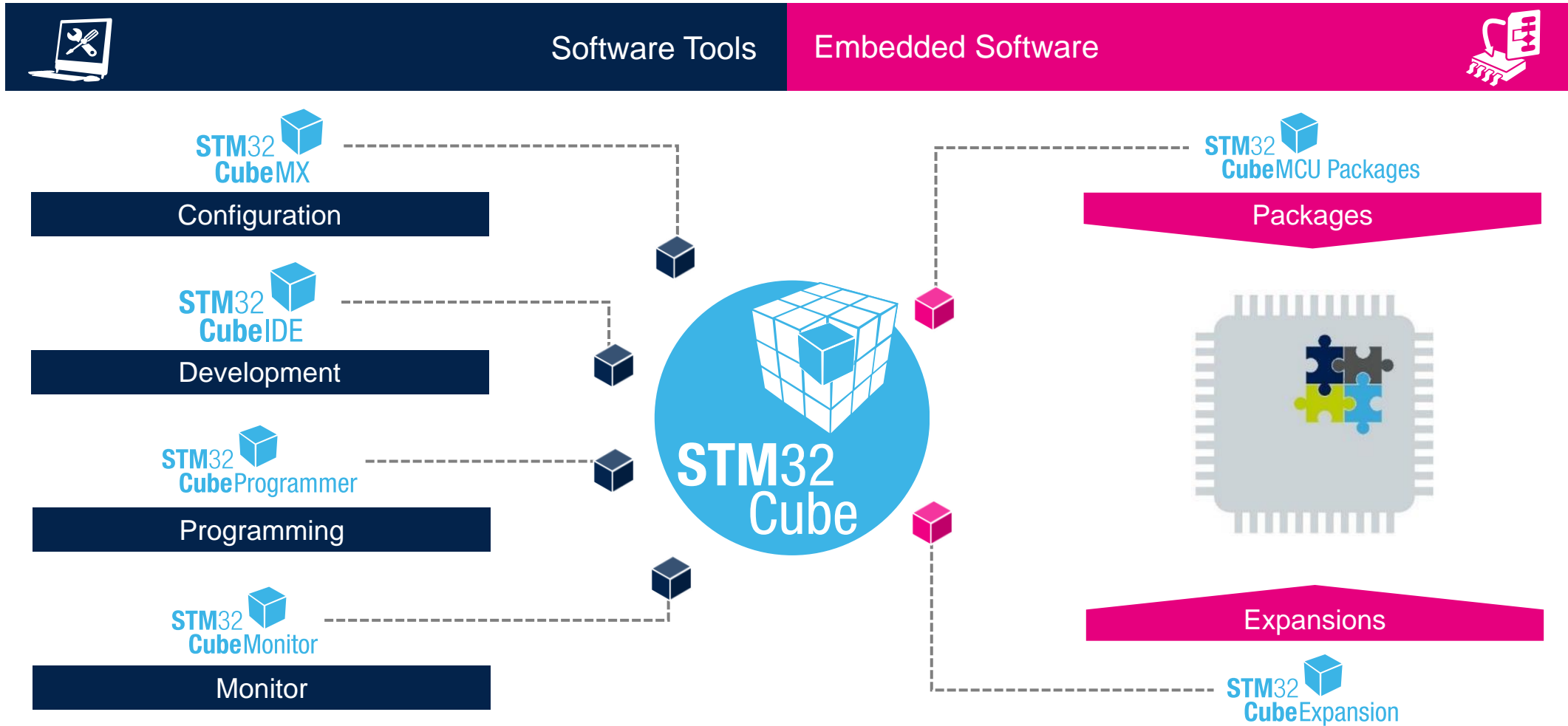


Get More than ever

- Up to **1.5 Mbyte** Flash
- Up to **320 Kbytes** RAM
- Up to **5 SPI (50Mbit/s)** , **3 CAN**, **6 UART**
- **Batch DMA**, **Crypto**, **ext. memory I/F**
- Up to **+125°C** operating temp.
- From **WLCSP36** up to **UFBGA144**



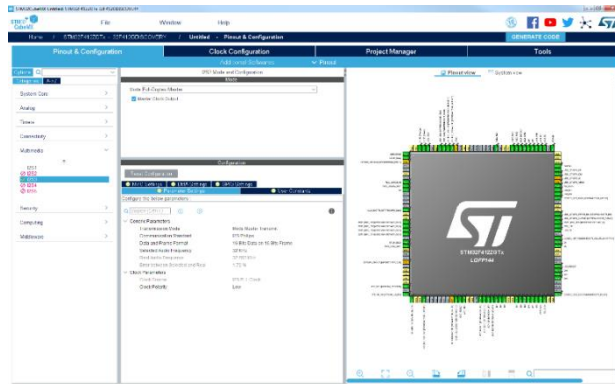
STM32Cube ecosystem





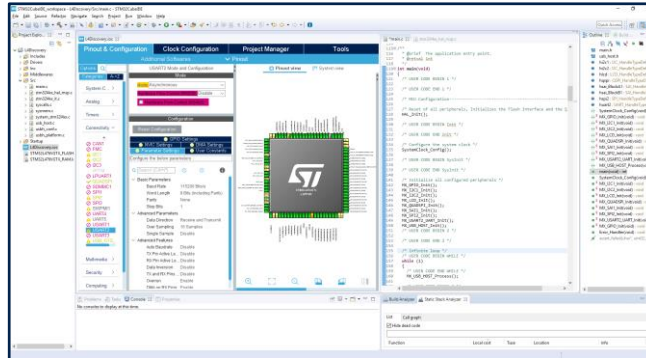
Software development tools - C/C++ focus

A complete flow, from configuration up to monitoring



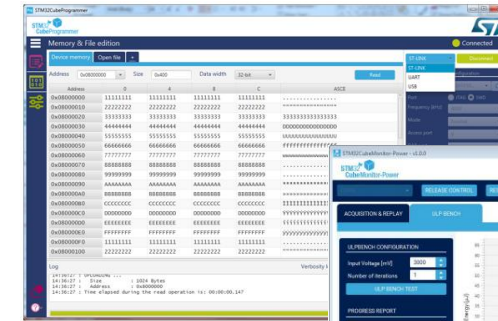
STM32CubeMX

Configure & Generate Code



IDEs

Compile and Debug



STM32CubeProgrammer
STM32CubeMonitor

Program & Monitor



Partners Offer

Open-source and third-party embedded software



Releasing your creativity



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