



# STM32H7 MCUs for rich and complex applications

Marketing presentation





“If only  
I could add natural language,  
cloud-based voice UI  
to my product



# STM32H7 dual core - Adding natural language cloud-based voice UI to your product



All necessary memory is embedded:  
2 MB of Flash and 1 MB of SRAM

Arm® Cortex®-M7 core @480 MHz high  
and Arm® Cortex®-M4 core @240 MHz  
performances for Audio and voice DSP

Embedded security to protect your  
application and secure firmware update

One chip, 2 applications running in parallel

Ready for security : state of the ART cyber  
protection and secure firmware update

“If only  
I could address the design challenges  
in factory automation systems



# STM32H7 single core - Building a factory automation product



High performance for optimized control or HMI

Large embedded memory and external memory support

- Up to 2 MB of Flash & up to 1.4 MB of SRAM
- Fast multiple Octo-SPI interface

Extended connectivity with Ethernet MAC, Multiple FD-CAN and USB

Fast 16-bit and 12-Bit ADC, and extended Temp range support up to 125 °C

SIL ready enabled by native hardware features and safety library

“If only  
I could run deeply embedded  
applications with advanced  
performance at minimum cost



# STM32H7 - Creating a smartphone-like graphic UI for your embedded device



Graphic hardware accelerations for better effects, transitions and fluidity

Up to 1.4 MB SRAM (frame buffer) for integrated and cost-effective single chip solution

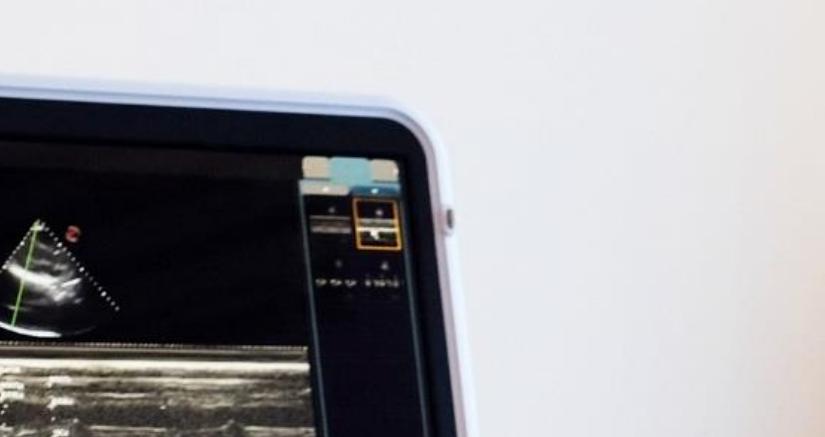
Multiple high-speed external memory interface

Graphic support from 64-pin LQFP packages (improved cost effectiveness)

TouchGFX free graphic tool suite for stunning HMI and simplified development



# STM32H7





# STM32H7 series

## New product lines expanding the STM32 portfolio



New Performance Record

Up to 2424 + 800 CoreMark (Cortex<sup>®</sup>-M7 @480MHz + Cortex<sup>®</sup>-M4 @240MHz) in Dual core  
Up to 2778 CoreMark (Cortex<sup>®</sup>-M7 @550MHz) in Single core



Single and Dual-core flexible architecture for industrial, security or AI applications  
Accelerated graphics, fast data transfer, advanced peripherals



Advanced security features

Crypto Hash, Cortex<sup>®</sup>-M7 Security services



Rich eco-system to speed-up your design

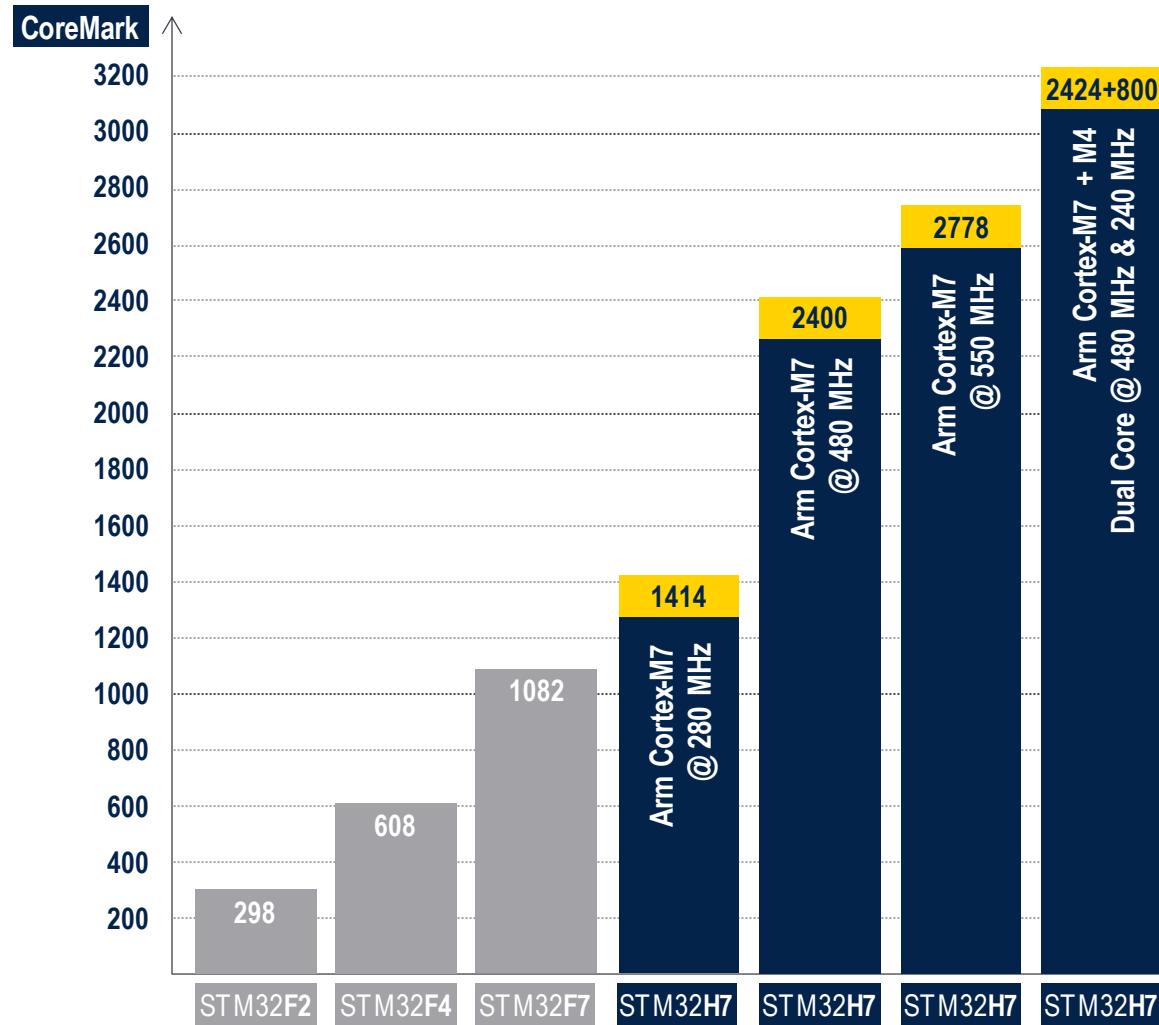
SW tools, HW boards, community and partners

# Performance record





# High performance range



## Arm® Cortex® -M7 up to 550 MHz

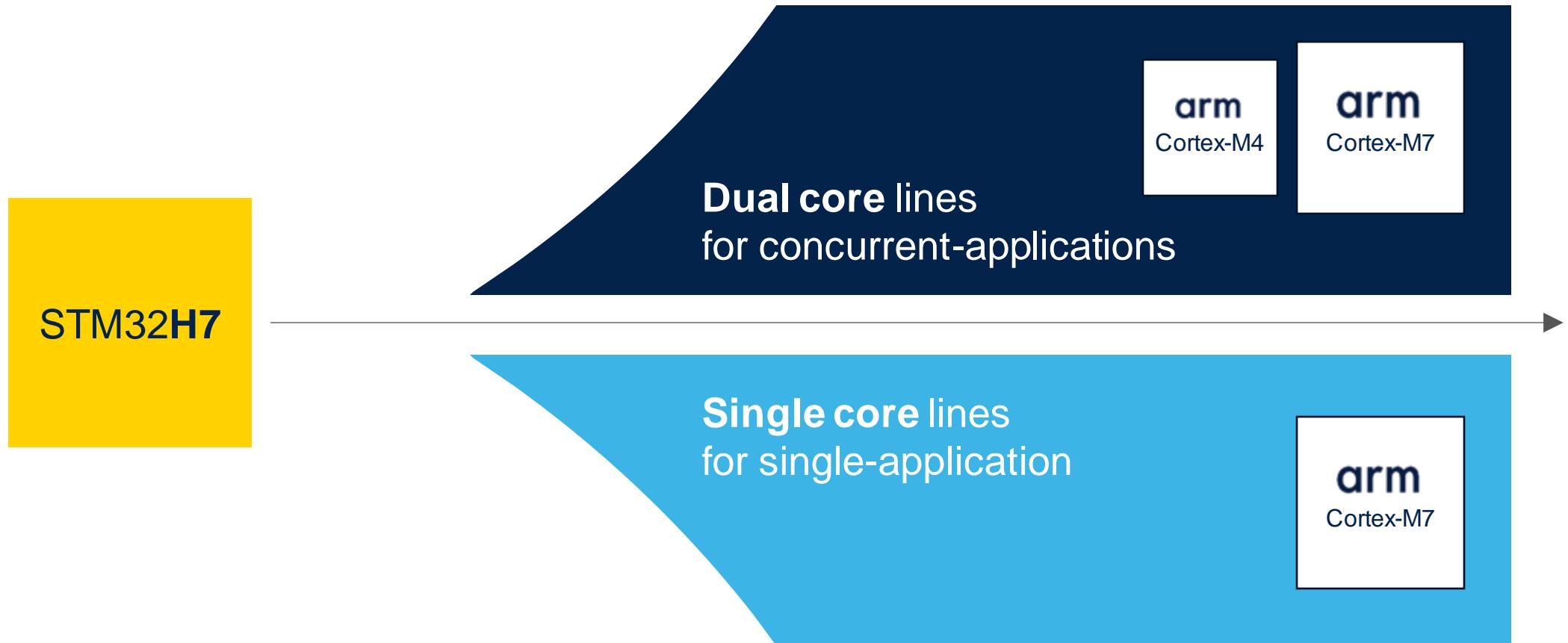
**Most powerful** Cortex core with double precision FPU, MPU, advanced DSP and L1 cache

## Arm® Cortex® -M4 @240 MHz

Best in class core for **real-time** with single precision FPU, DSP, MPU and ART Accelerator™

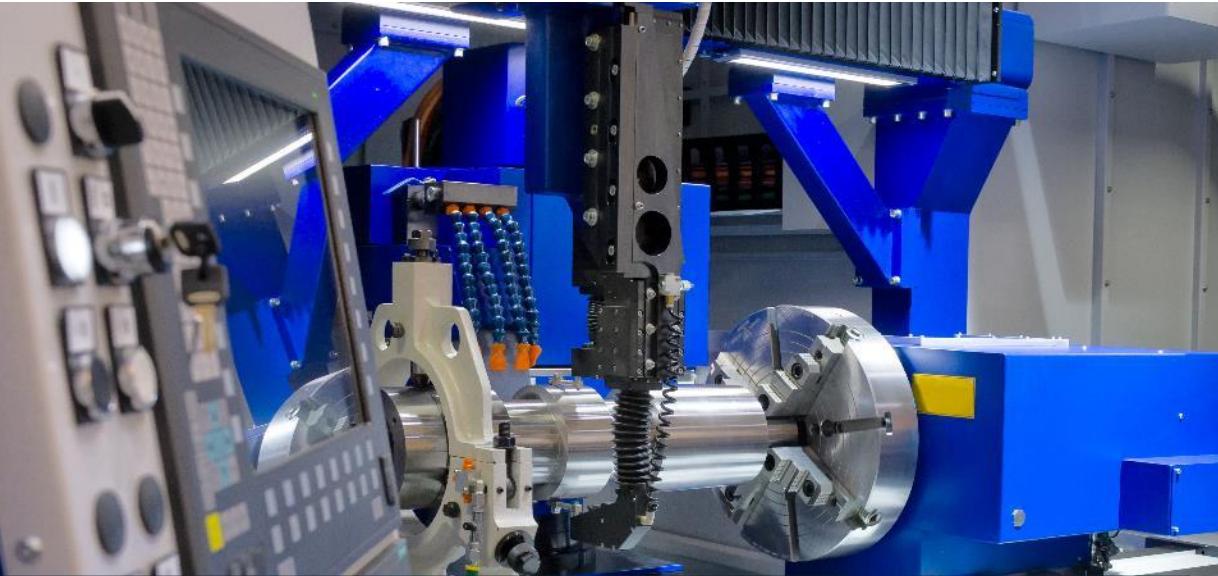


# The extended STM32H7 experience



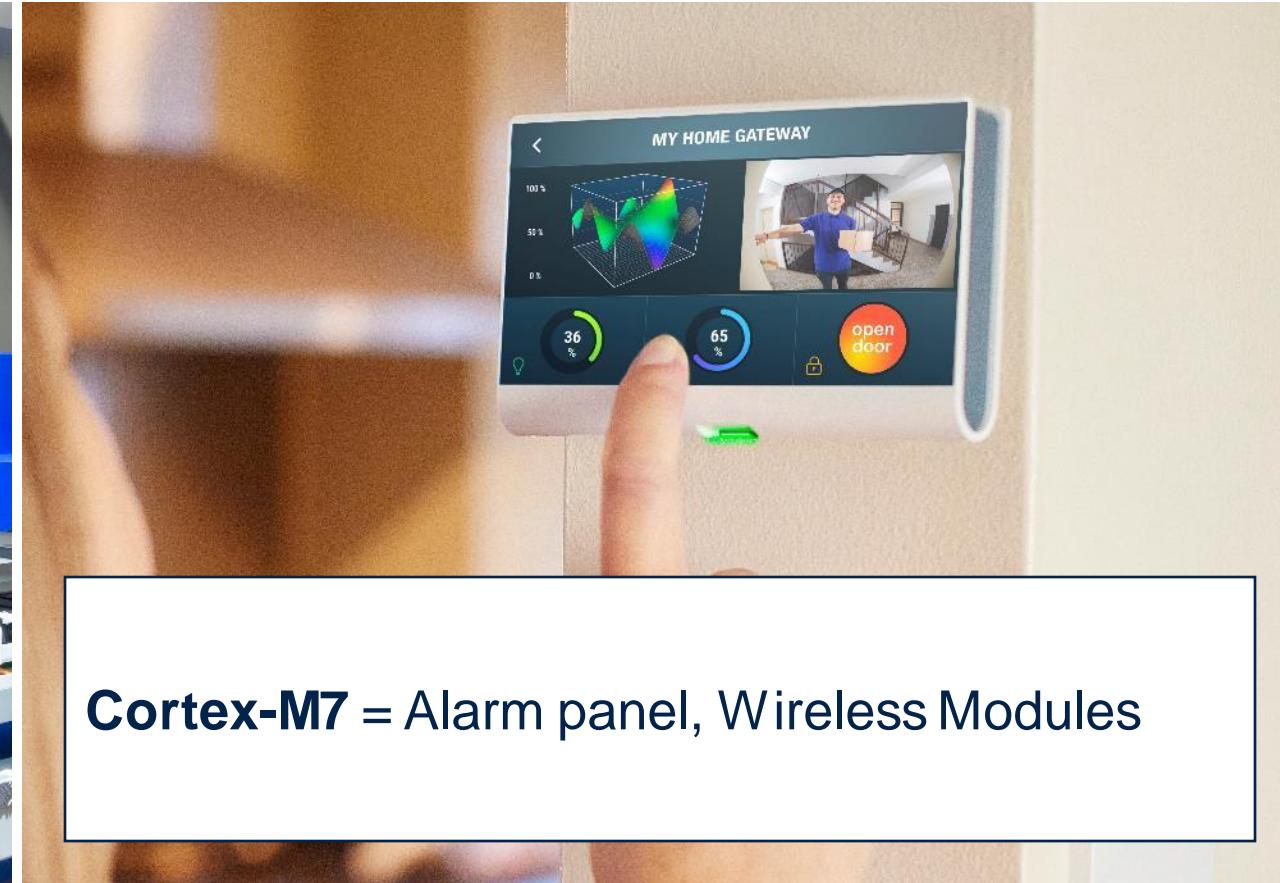
# Single Core Architecture Approach for performance and advanced HMI

Factory automation



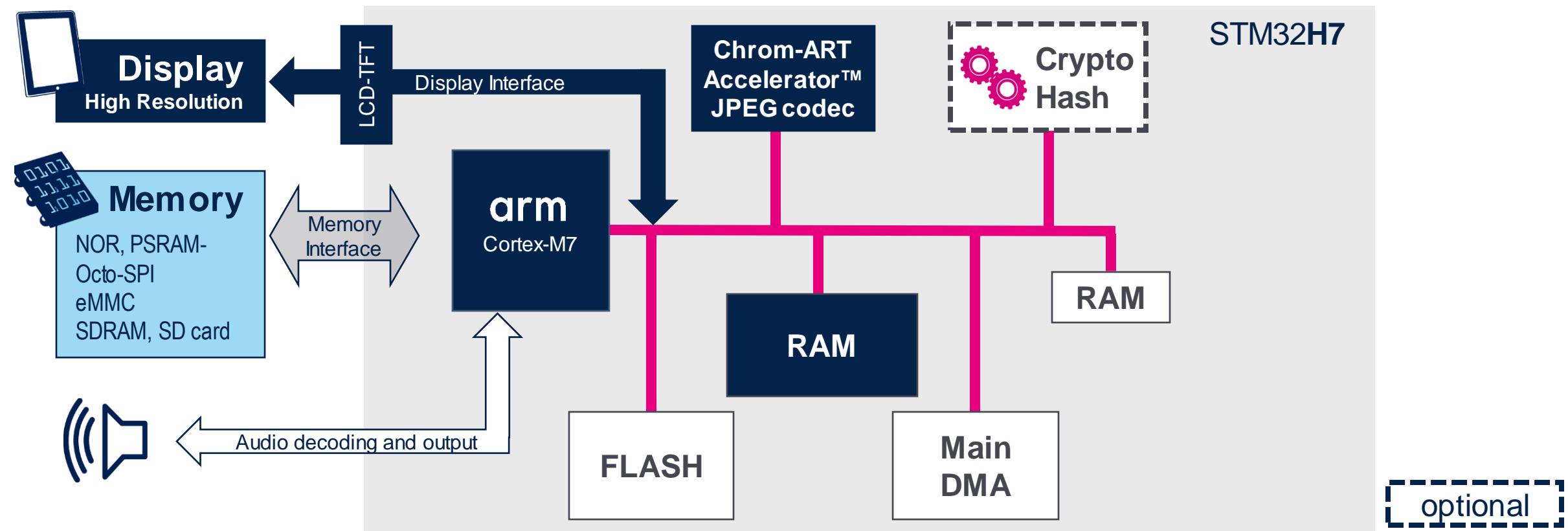
**Cortex-M7** = HMI, process control, power management

Connectivity & security



# Create a rich human machine interface

Cortex-M7 - handling audio and rich HMI, Real Time control tasks



# Dual-core architecture approach for richer and more complex applications

Industrial tool machine



**Cortex-M7 = HMI**

**Cortex-M4 = Com/Gateway + Motor Control  
+ Sensor pre-processing (AI)**

Home automation & security



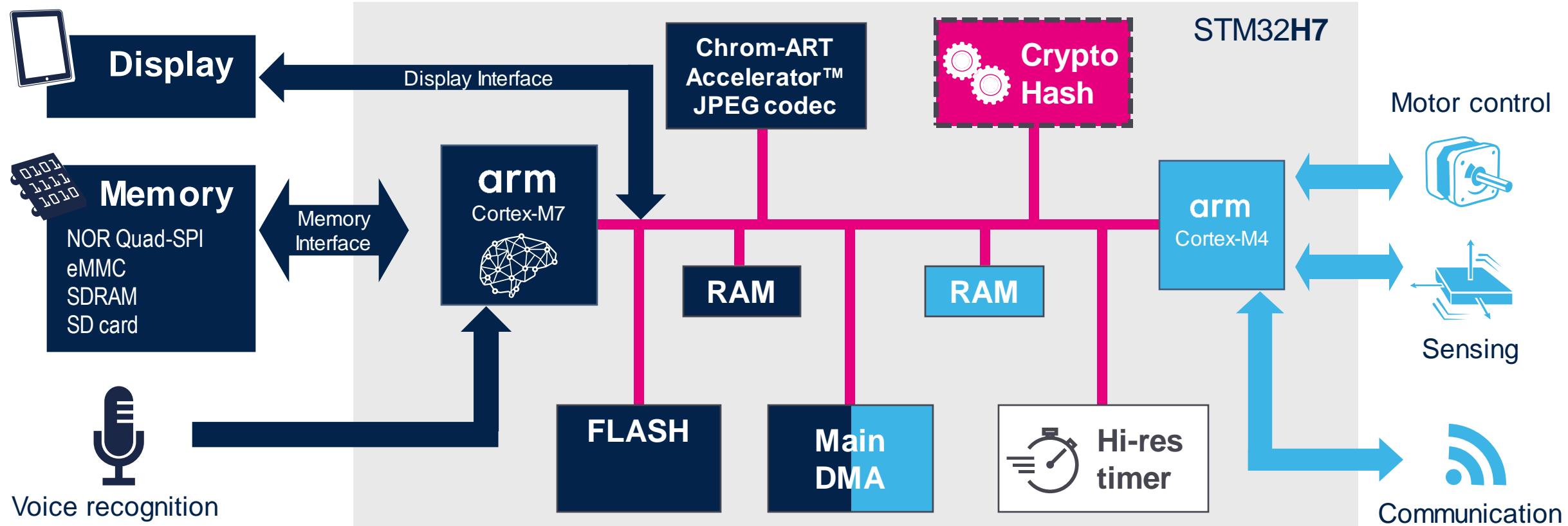
**Cortex-M7 = AI NN (Pattern recognition, ASR)**

**Cortex-M4 = Com/Gateway + Real-time I/F**



# Build complex applications mixing AI and real-time control

## Connected Kitchen Aid with advanced HMI (Large display and Voice recognition)





# Powerful cores supported by a powerful architecture

## Display nice graphic

The Chrom-ART Accelerator™ and MJPEG codec offload the CPU by more than 90%



## Transfer data efficiently across peripherals

The Main DMA takes care of the most complex schemes between memories and peripherals with up to 16 channels to offload the CPU

## Manage security

Use dedicated **cryptography** and **Hashing** HW acceleration to offload the CPU by more than 90%

## Generate complex wave forms

High-Resolution timer (2.1ns) can generate complex wave forms synchronized on multiple events, with no CPU assist

# STM32H7 line-up





# STM32 MCUs and MPUs portfolio



MPU



High Perf  
MCUs



Mainstream  
MCUs



Ultra-low Power  
MCUs



Wireless  
MCUs

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  
240 MHz Cortex -M4

STM32F0

106 CoreMark  
48 MHz Cortex-M0

STM32G0

142 CoreMark  
64 MHz Cortex-M0+

STM32F1

177 CoreMark  
72 MHz Cortex-M3

STM32F3

245 CoreMark  
72 MHz Cortex-M4

STM32G4

569 CoreMark  
170 MHz Cortex-M4

Mixed-signal MCUs

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  
48 MHz Cortex-M0+

STM32WB

216 CoreMark  
64 MHz Cortex-M4  
32 MHz Cortex-M0+ ●



# Extensive STM32H7 portfolio

Dual-core Line	STM32H745/755 480+240 MHz SMPS 1027 + 300 DMIPS RAM 1 MB Flash up to 2 MB	STM32H747/757 480+240 MHz SMPS 1027 + 300 DMIPS RAM 1 MB Flash up to 2 MB				
Single-core Line	STM32H7A3/B3 280 MHz LDO 599 DMIPS RAM 1.4 MB Flash up to 2 MB	STM32H742 480 MHz LDO 1027 DMIPS RAM 692 KB Flash up to 2 MB	STM32H743/753 480 MHz LDO 1027 DMIPS RAM 1 MB Flash up to 2 MB	STM32H723/733 550 MHz LDO 1177 DMIPS RAM 564 KB Flash up to 1 MB	STM32H725/735 550 MHz LDO SMPS 1177 DMIPS RAM 564 KB Flash up to 1 MB	Extended temperature range 125 °C ambient
\$ Value Line	STM32H7B0 280 MHz LDO 599 DMIPS RAM 1.4 MB Flash 128 KB	STM32H750 480 MHz LDO 1027 DMIPS RAM 1 MB Flash 128 KB	STM32H730 550 MHz LDO 1177 DMIPS RAM 564 KB Flash 128 KB	STM32H730Q 550 MHz LDO SMPS 1177 DMIPS RAM 564 KB Flash 128 KB		

— Arm® Cortex® core — Cortex-M7 — Cortex-M7 & -M4 —



**STM32H7 MCU Series**  
32-bit Arm® Cortex®-M7 or  
Cortex®-M7 + Cortex®-M4



**CORE, MEMORIES AND ACCELERATION**

- Single-core Cortex-M7 up to 550 MHz
- Dual-core Cortex-M7 480 MHz and Cortex-M4 240 MHz
- Flash and RAM acceleration
- SP-FPU and DP-FPU
- 4 x DMA
- Mathematics (only H723/H733/H725/H735/H730)

**CONNECTIVITY**

- Up to 2 x USB2.0 OTG FS/HS
- 2 x SDMMC
- USART, UART, SPI, I<sub>C</sub>
- Up to 3 x CAN (2 x FD and 1 x TT)
- HDMI-CEC
- FMC, Dual-mode Quad-SPI or 2 x Octo-SPI
- Camera I/F

**AUDIO**

- 3 x I<sub>S</sub>S + audio PLL
- 4 x SAI

**GRAPHIC**

- Chrom-ART Accelerator™

**OTHER**

- Crypto/Hash option (except H742)
- Security services option (except H742)
- TRNG
- DFSDM
- 16- and 32-bit timers
- HRTimer (except STM32H7A/H7B/H7B0/H723/H725/H730/H733/H735)
- Up to 3 x 16-bit ADC (up to 3.6 MSPS)
- Analog (compt.AOP)
- Voltage range 1.62 to 3.6 V (except 100-pin and VFQFPN68 packages : 1.71 to 3.6 V)
- Multi-power domains
- -40°C up to 105°C ambient
- -40°C up to 125°C ambient<sup>2</sup>

Notes :

1. Optional - Dedicated CPN: STM32H733, STM32H735, STM32H735, STM32H755, STM32H757, STM32H7B3 for the Crypto Variants

2. 125 °C ambient / 140 °C junction. Dedicated part numbers on STM32H725/H735, STM32H745/H755

3. Crypto and Security services on CPN : STM32H733, STM32H735 and STM32H730

4. SMPS available only on STM32H730 CPN

5. SMPS only on the QFN68 variant (no LDO)

# Tailored for your needs

- Single and Dual core versions
- High performance up to 480 MHz in Dual core and up to 550 MHz in Single core
- 128 KB to 2 MB Flash Dual Bank
- Up to 1.4 MB RAM
- More security features (Boot, Tamper ...), OTFDEC on external memories, Crypto/Hash and security services (optional)
- 35 communication peripherals
- 16-bit ADC up to 3.6 Msps, up to 5 MSPS in 12-bit, Comparators, Op Amp
- TT-FD-CAN and FD-CAN
- High-Resolution timer (2.1ns)
- Low-Power Timers
- LDO and SMPS option
- Up to 140 °C junction temperature / 125 °C ambient (optional)

	Product line	f <sub>cpu</sub> (MHz)	Dual-Bank Flash memory (bytes)	RAM (bytes)	OctoSPI & OTFDEC <sup>3</sup>	Ethernet	Graphic	Power supply	Stop mode (typical) / RAM retention
<b>Dual-core lines</b>									
	STM32H747/757 <sup>1</sup>	480 + 240	Up to 2 Mbytes	1 Mbyte (incl.128 Kbytes DTCM + 64 Kbytes ITCM + 64 Kbytes backup <sup>1</sup> ) + 4 Kbytes backup <sup>2</sup>		•	TFT-LCD JPEG codec MIPI-DSI	SMPS + LDO	360 µA / 1MB 250 µA / 768KB
	STM32H745/755 <sup>1</sup>	480 + 240	Up to 2 Mbytes	1 Mbyte (incl.128 Kbytes DTCM + 64 Kbytes ITCM + 64 Kbytes backup <sup>1</sup> ) + 4 Kbytes backup <sup>2</sup>		•	TFT-LCD JPEG codec	SMPS + LDO	360 µA / 1MB 250 µA / 768KB
<b>Single-core lines</b>									
	STM32H7A3/7B3 <sup>1</sup>	280	Up to 2 Mbytes	1,4MB (incl.128K DTCM, 64K ITCM, 1184K+SRAM, 4K backup)		•		TFT-LCD JPEG codec Chrom-GRC	SMPS + LDO 32 µA / 1.4MB 28 µA / 32KB
	STM32H743/753 <sup>1</sup>	480	Up to 2 Mbytes	1 Mbyte (incl.128 Kbytes DTCM + 64 Kbytes ITCM + 64 Kbytes backup <sup>1</sup> ) + 4 Kbytes backup <sup>2</sup>		•	TFT-LCD JPEG codec	LDO	1270 µA / 1MB 910 µA / 768KB
	STM32H742	480	Up to 2 Mbytes	692 Kbytes (incl.128 Kbytes DTCM + 64 Kbytes ITCM + 16 Kbytes backup <sup>1</sup> ) + 4 Kbytes backup <sup>2</sup>		•		LDO	1270 µA / 692KB 910 µA / 704KB
	STM32H725/735 <sup>2</sup>	550	Up to 1 Mbyte	564KB (incl.128K DTCM, 432KB Syst + 4K bckup)	•	•	TFT-LCD	SMPS <sup>5</sup> + LDO	200 µA / 564KB
	STM32H723/733 <sup>3</sup>	550	Up to 1 Mbyte	564KB (incl.128K DTCM, 432KB Syst + 4K bckup)	•	•	TFT-LCD	LDO	520 µA / 564KB
<b>Value line</b>									
	STM32H7B0	280	128 Kbytes	1,4MB (incl.128K DTCM, 64K ITCM, 1184K+SRAM, 4K backup)		•		TFT-LCD JPEG codec Chrom-GRC	SMPS + LDO 32 µA / 1.4MB 28 µA / 32KB
	STM32H750	480	128 Kbytes	1 Mbyte (incl.128 Kbytes DTCM + 64 Kbytes ITCM + 64 Kbytes backup <sup>1</sup> ) + 4 Kbytes backup <sup>2</sup>		•	TFT-LCD JPEG codec	LDO	1270 µA / 1MB 910 µA / 768KB
	STM32H730	550	128 Kbytes	564KB (incl.128K DTCM, 432KB Syst + 4K bckup)	•	•	TFT-LCD	SMPS <sup>4</sup> + LDO	200 µA / 564KB 520 µA / 564KB



# STM32H7 72x/73x series links to product pages

ST's new STM32H7 microcontrollers combine the high performance of a single core with/and rich feature integration



- System integration
- Advanced connectivity and control
- Security services

- ▶ STM32H723/733 [here](#)
- ▶ STM32H725/735 [here](#)
- ▶ STM32H730 [here](#)
- ▶ ST blog article [here](#)



[www.st.com/STM32H7](http://www.st.com/STM32H7)



# STM32H7 74x/75x series links to product pages

New STMicroelectronics' STM32H7 Microcontrollers Combine Dual-Core Performance with Rich Feature Integration



- System integration
- Advanced connectivity and control
- Security services

- ▶ STM32H745/755 [here](#)
- ▶ STM32H747/757 [here](#)
- ▶ STM32H742 [here](#)
- ▶ STM32H743/753 [here](#)
- ▶ STM32H750 [here](#)
- ▶ ST blog article [here](#)



[www.st.com/STM32H7](http://www.st.com/STM32H7)



# STM32H7 Ax/Bx series links to product pages

New STM32H7 Microcontrollers for best combination of performance,  
integration and power saving inside an MCU

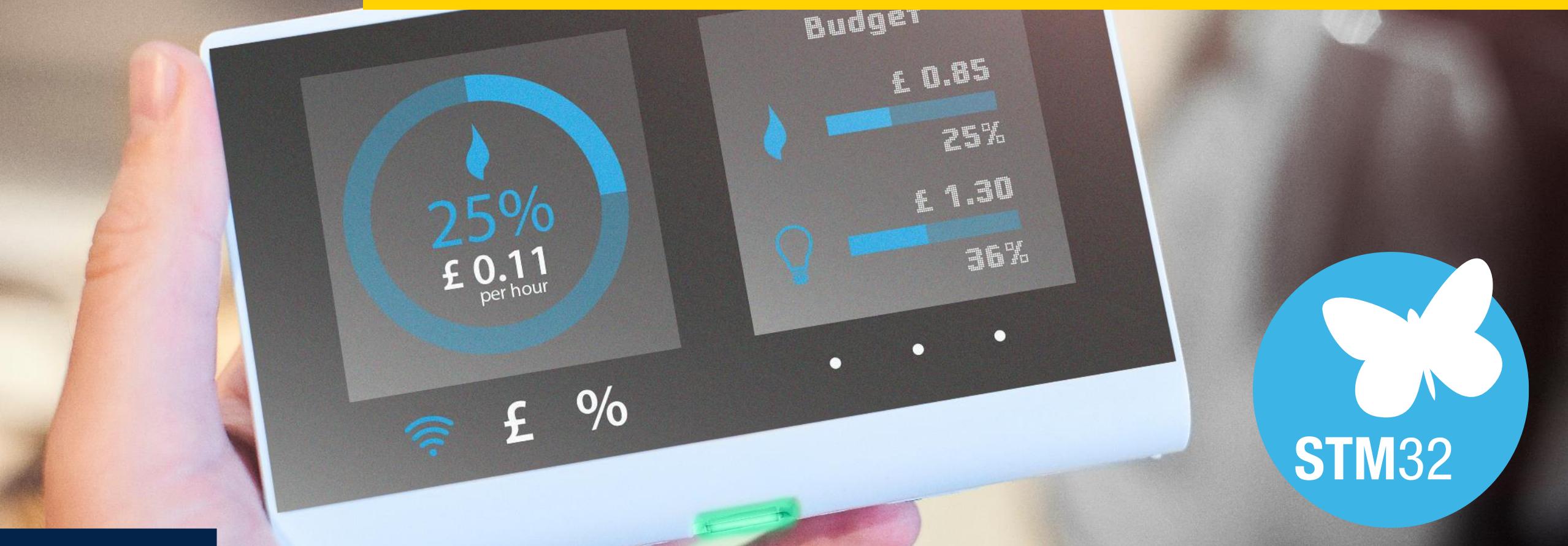


- ▶ STM32H7A3/H7B3 [here](#)
- ▶ STM32H7B0 Value line [here](#)



[www.st.com/STM32H7](http://www.st.com/STM32H7)

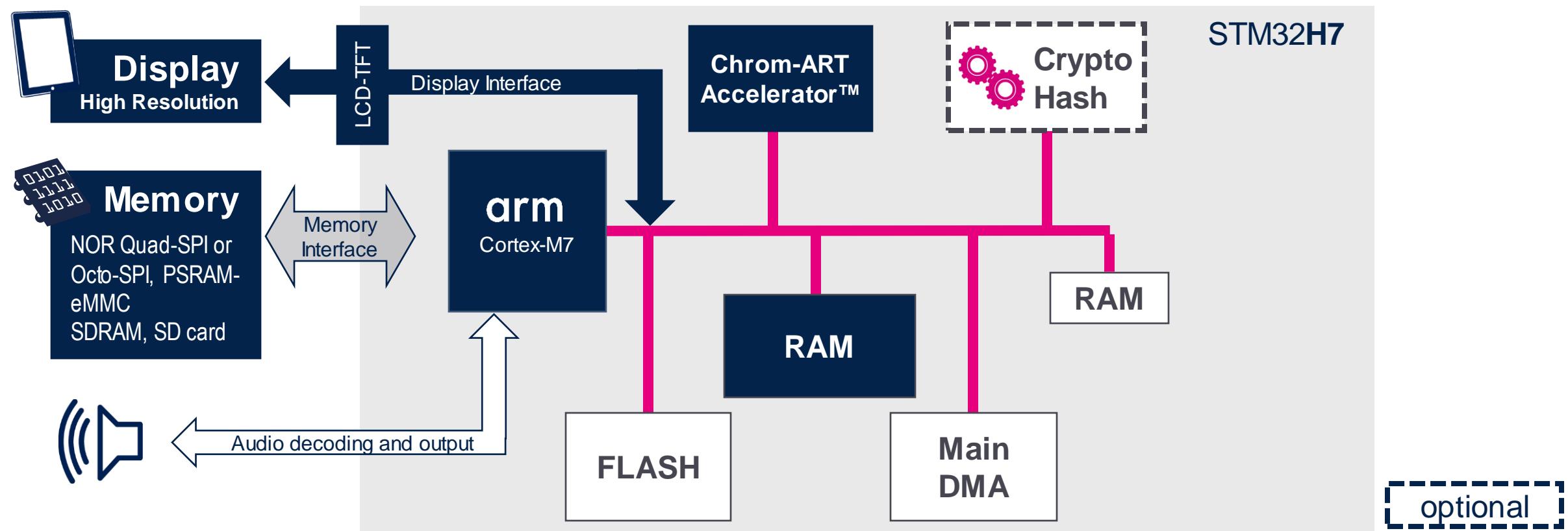
**Performance and smart architecture  
are yours to innovate**





# Create a rich human machine interface

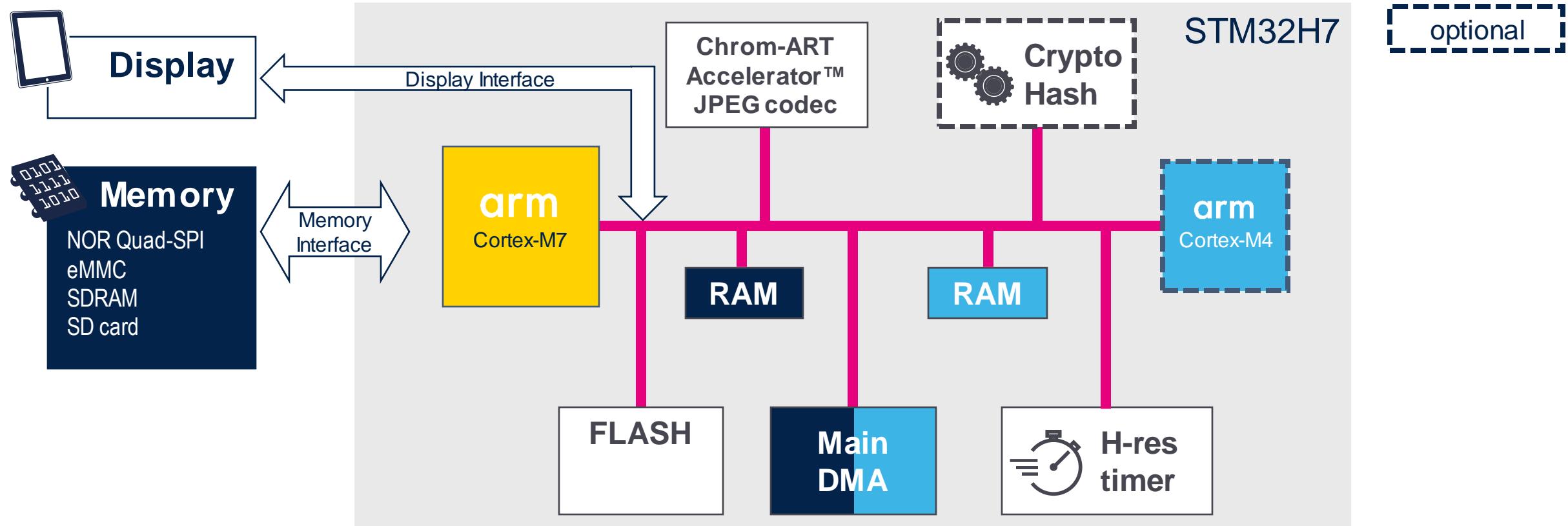
Cortex-M7 - handling audio and rich HMI, Real Time control tasks





# Seamlessly move and format data

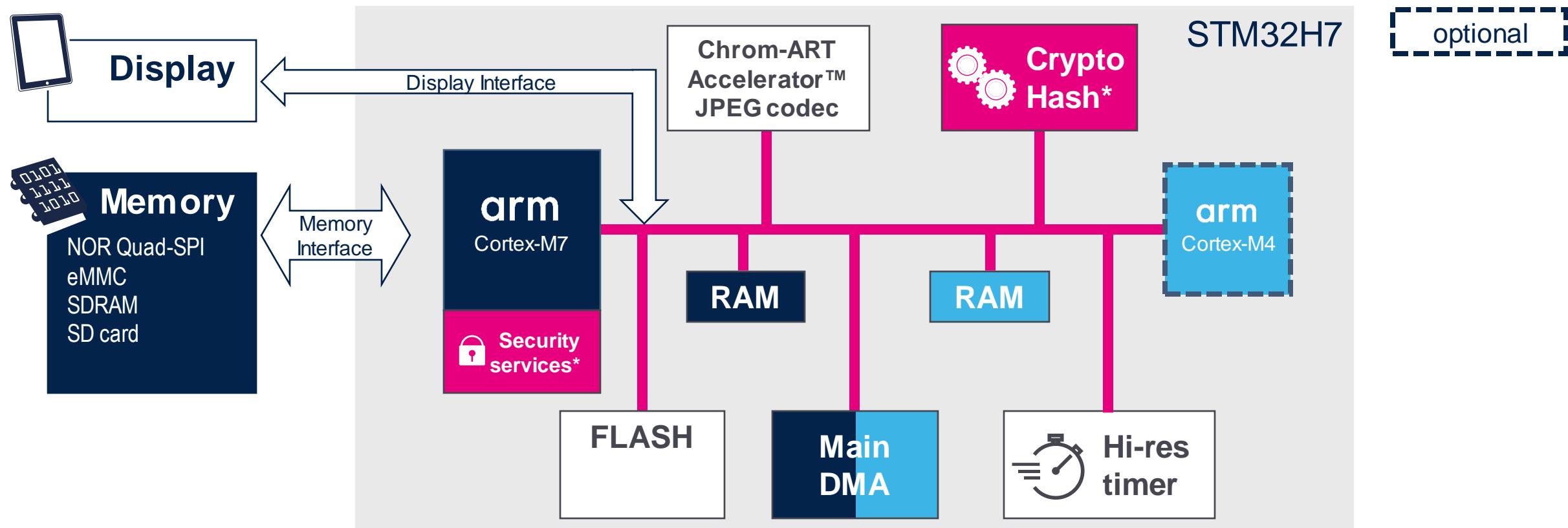
Main DMA - Flexible and high-speed data transfers schemes without CPU load





# Reinforce the security in your solution

Cryptography and Hashing hardware assist  
Authenticate your chip and securely install your code in memory

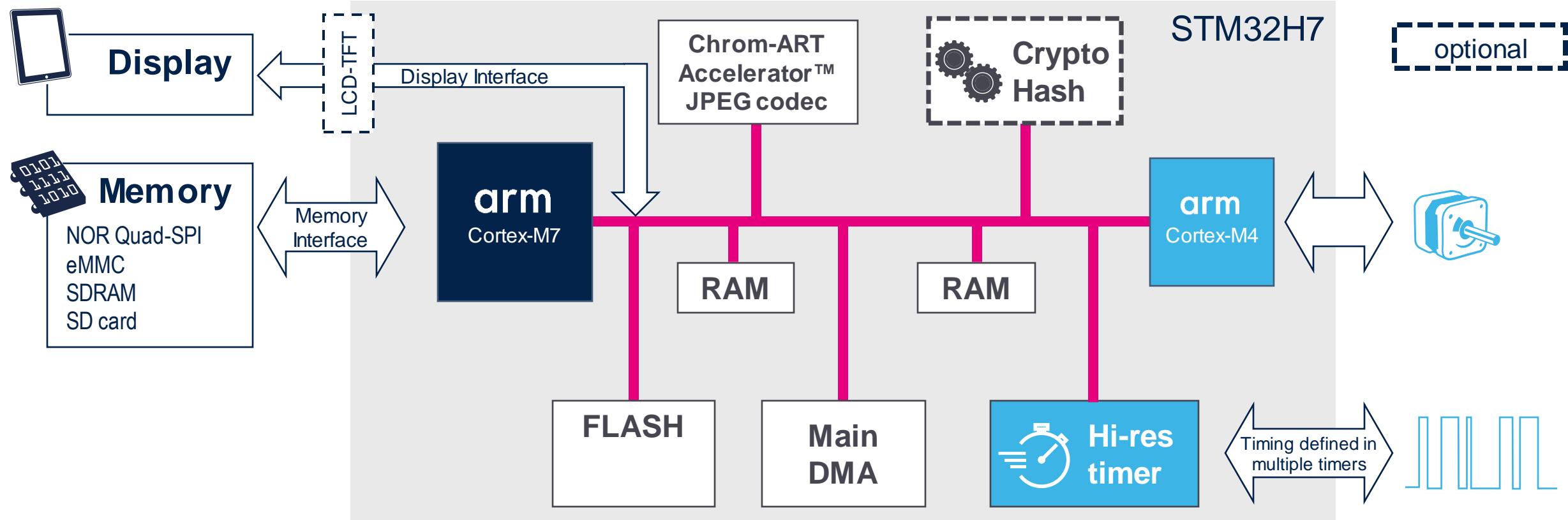


\* requires part numbers with integrated security options



# Control real-time applications

## High resolution timer: advanced wave forms generation



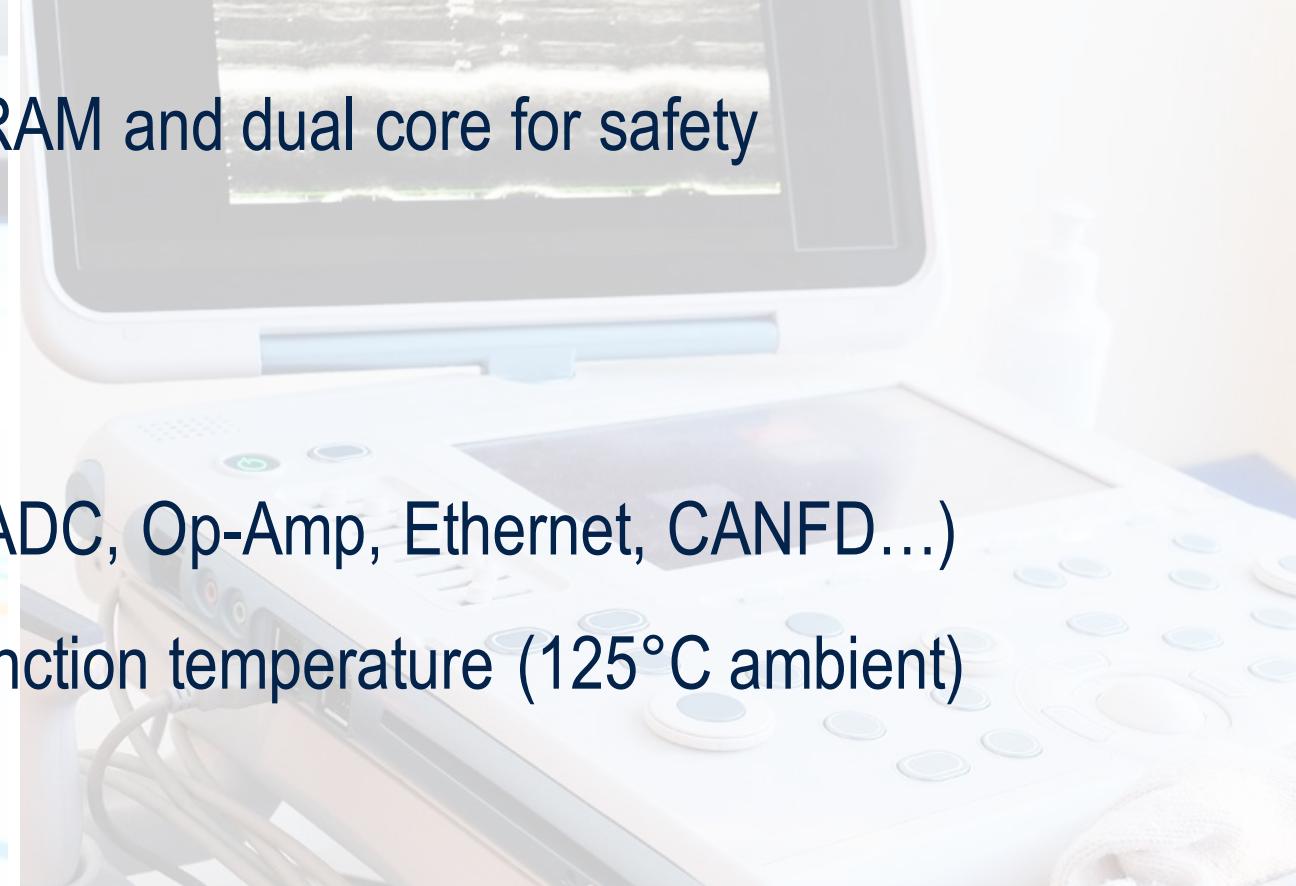


# Industrial and health & wellness DNA

## Industrial

- Error Code Correction on all Flash and RAM and dual core for safety
- Large choice of packages
- Advanced digital and analog  
(High resolution timer, 16-bit and 12-bit ADC, Op-Amp, Ethernet, CANFD...)
- High temperature -40°C up to 140°C junction temperature (125°C ambient)

## Health & Wellness





# Industrial and health & wellness DNA

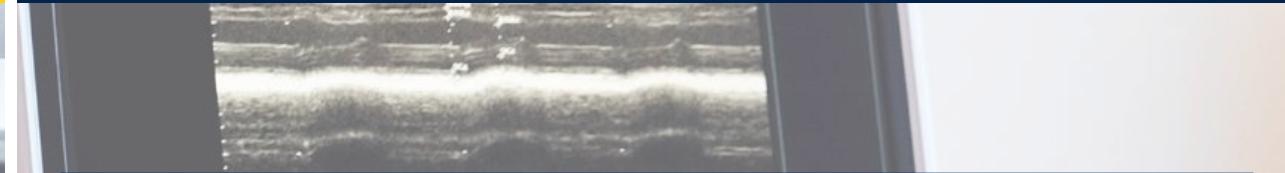
## Industrial



- Inverters**  
Advanced timers and analog peripherals
- Communication gateway**  
Rich connectivity and optional dual core
- Human Machine Interface**  
Chrom-ART Accelerator and display interfaces for TFT and MIPI-DSI



## Health & Wellness



- Health and wellness**  
Chrom-ART Accelerator™ and display interfaces for TFT and MIPI-DSI
- Individual assistance** (hearing, respiratory)  
Advanced timers and analog
- Measurements and Data logger**  
Advanced Analog



## Consumer

- Small packages
  - Power efficiency and high performance
  - Advanced audio and graphic
  - High-speed peripherals
  - Large expandable memories to support ever increasing communication protocols
- 



# Consumer DNA

## Consumer

- **IoT gateway**  
Large memory and rich communication peripherals
- **Access control**  
Chrom-ART Accelerator™ and display interfaces for TFT and MIPI-DSI
- **Drones**  
High processing architecture with dual core option,  
advanced timers and analog peripherals, small packages



# Secure your production and your applications



# STM32Trust on STM32H7 Series



[www.st.com/stm32trust](http://www.st.com/stm32trust)

Global security  
ecosystem and services

STM32 concept  
Support customer's  
**Secure Boot / Root Of Trust**

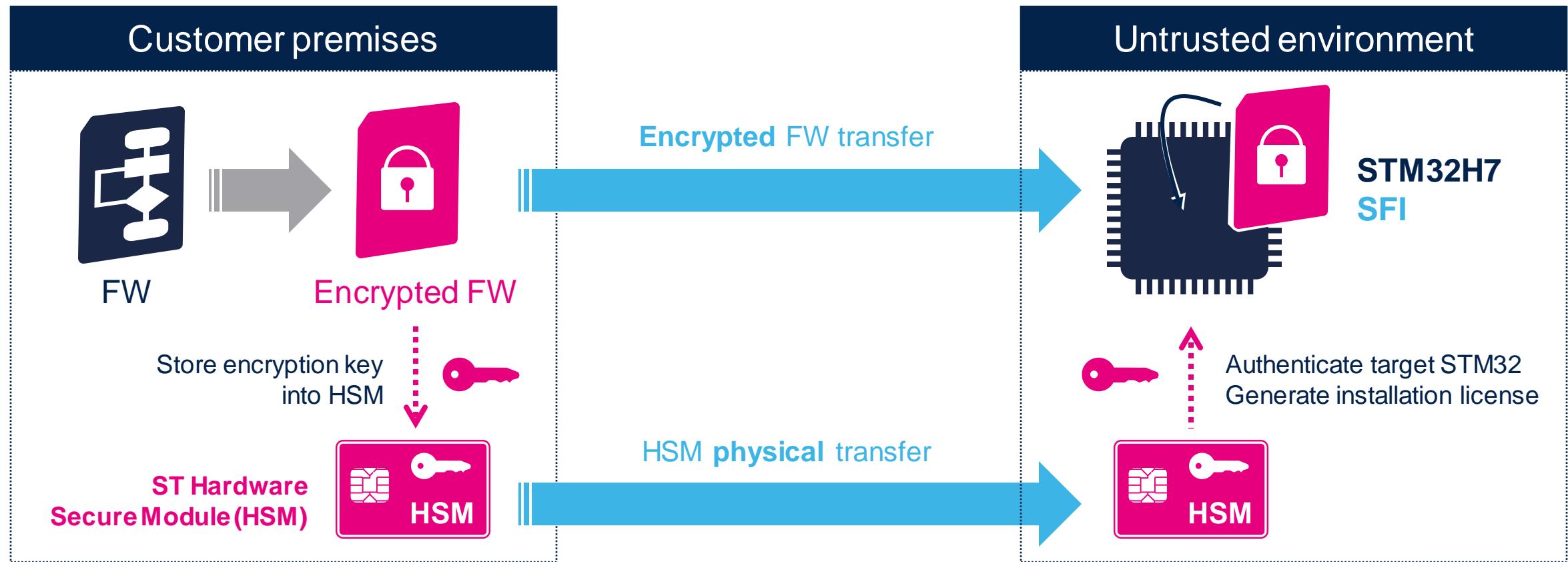
SFI  
A Secure Installer of  
**Secure Boot / Root Of Trust**

SBSFU  
A reference SW package for **FW Update**  
and **Secure Boot / Root Of Trust**



# Secure your production flow with secure firmware install (SFI\*)

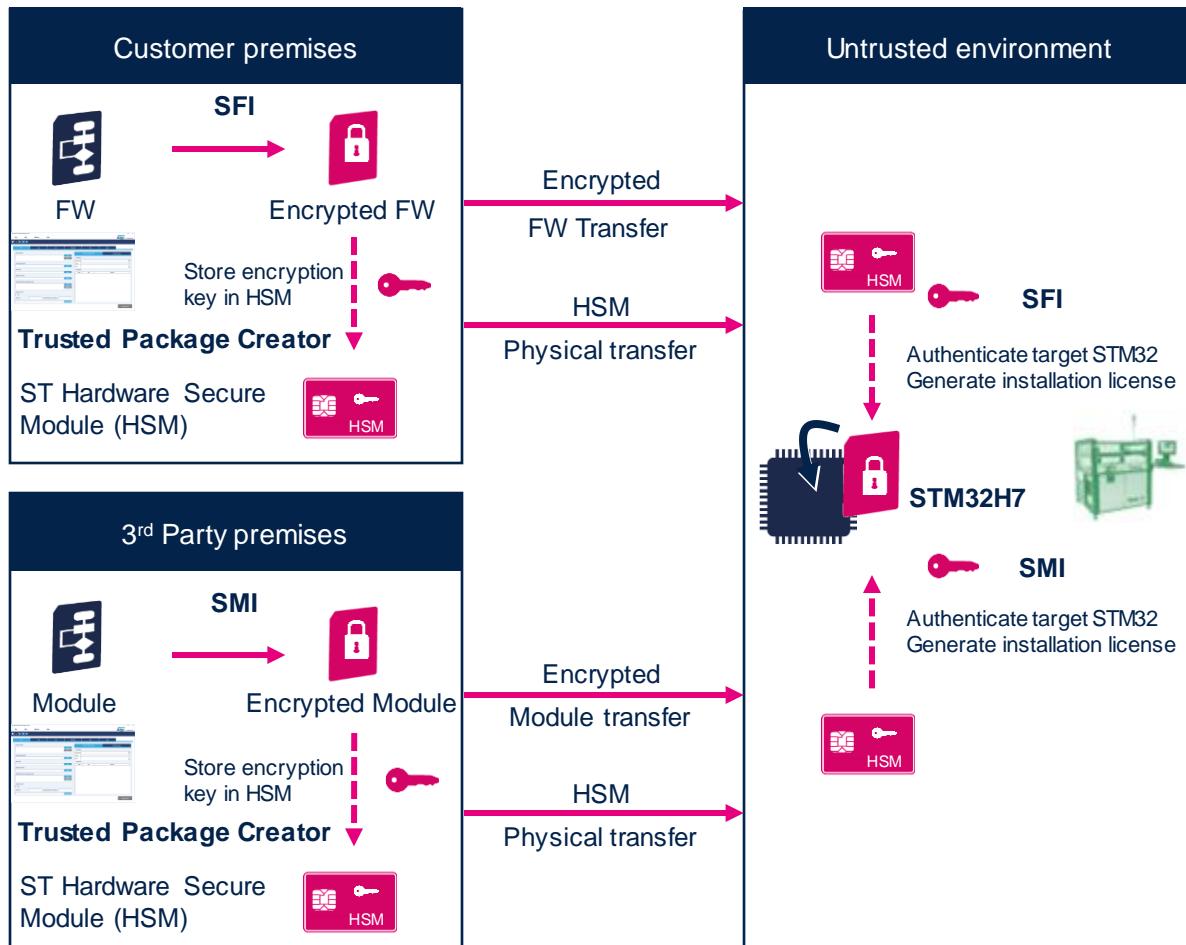
Manage STM32 authentication, firmware decryption and installation



(\*) : optional – SFI service available on specific part numbers

# Embedded Secure Firmware Install - SFI

Manage STM32 authentication, firmware decryption and installation



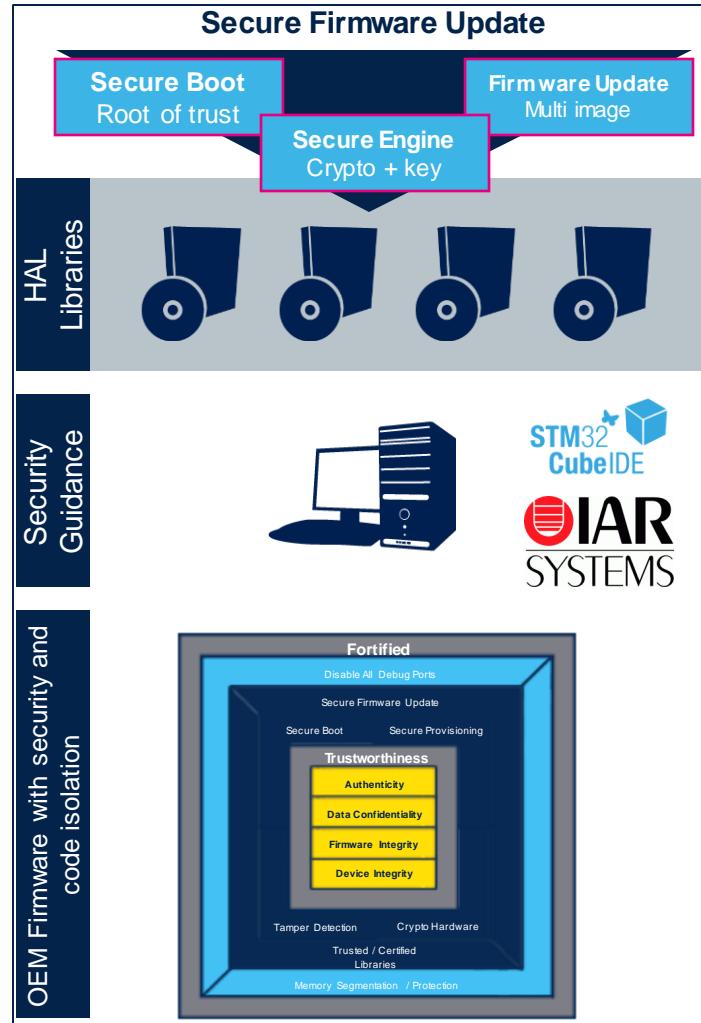
**Secure Loader**  
embedded services  
provisioned by ST  
→ Mass Market  
approach

**ST ecosystem**  
with  
Encryption, HSM and  
programming tools

**Firmware cloning**  
protection on the first  
installation  
via  
UART / SPI / USB

Protect 3<sup>rd</sup> party  
Software IP  
(SMI)

# Secure Boot Secure FW Update - SBSFU



Reference library source code for IAP

Demonstrate SW modules for:

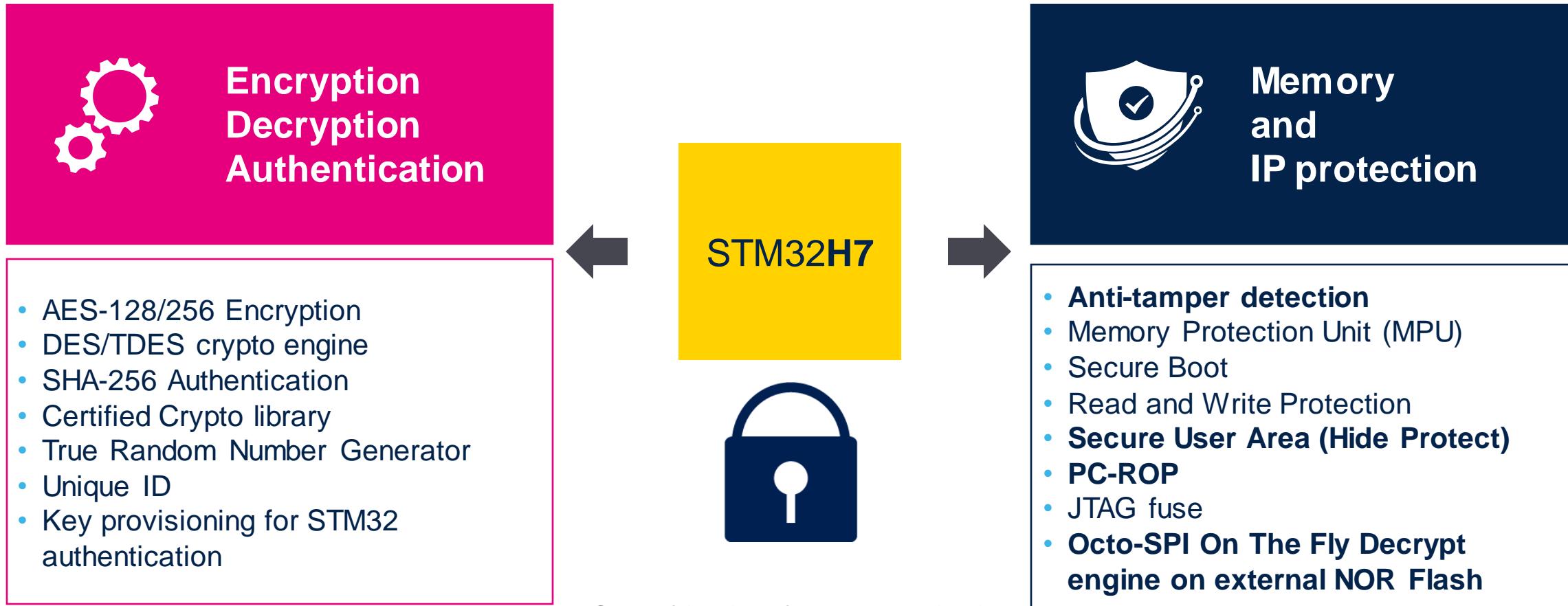
- Secure Boot
- Secure Engine for Crypto and key
- Firmware Update image management

Ensure authentication and secure programming  
of in the field products

Reference implementation of STM32H7  
hardware memory protections



# A full set of security



# STM32H7 detailed security functions

STM32Trust Security function	CM7 CM7/CM4 STM32H72x STM32H74x STM32H7Ax	CM7 Crypto CM7/CM4 Crypto STM32H75x	CM7 STM32H73x STM32H7Bx
<b>Secure Boot</b> Secure User Memory for SBSFU software package		•	•
<b>Secure Install/Update</b> By SBSFU software package		•	•
<b>Secure Storage</b> for Boot only		•	•
<b>Access Debug</b> Read Out Protection RDPL0/1/2	•	•	•
<b>Resource Isolation</b> Memory Protection Unit	•	•	•
<b>Secure Execution</b> By SBSFU software package		•	•
<b>Crypto Engine</b> Hardware crypto accelerator	TRNG Fips	AES / DES / SHA / TRNG Fips	AES / DES / SHA / TRNG Fips
<b>Crypto Engine</b> On-the-fly decryption from external memories			•
<b>SWIP Protection/Collaborative Dev</b> Secure Module Install (SMI)		•	•
<b>Secure Manufacturing</b> Secure Firmware Install (SFI)		•	•

Note: a crypto library is available on request for both crypto and non crypto parts.

# Solutions for STM32H7 Graphics



# Enhance your product with great graphic



Smart home  
[Watch video](#)



Kitchen appliances  
[Watch video](#)



Industrial  
[Watch video](#)



Smart home  
[Watch video](#)



Smart home  
[Watch video](#)



Industrial  
[Watch video](#)



Industrial  
[Watch video](#)

# Enhanced graphic UI for any resolution

24bpp

16bpp

8bpp

2" – 3"

4" – 5"

7"

+10"

Display **with GRAM**  
Single frame buffer

Display without GRAM  
**Double frame buffer**

Display without GRAM  
**Double frame buffer**

Display without GRAM  
**Double frame buffer**

**STM32H7A3/7B3/7B0**

Internal RAM

**STM32H723/725/730**

**STM32H743/745/747/750**

External RAM

**STM32H7A3/7B3/7B0**

**STM32H723/725/730**

**STM32H743/745/747/750**

# STM32H7 detailed graphic features

	Features	STM32H7A3/7B0	STM32H723/725/730	STM32H745/747	STM32H743/750
Hardware acceleration	<b>Chrom-ART Accelerator™</b> Hardware acceleration for graphical operations	•	•	•	•
	<b>Chrom-GRC™</b> Minimizing memory usage for round displays	•	-	-	-
	<b>JPEG CODEC</b> Optimized video playback	•	-	•	•
Memory interfaces	<b>Quad-SPI</b> Connecting QSPI Flash	•	•	•	•
	<b>Octo-SPI</b> Connecting Octo SPI flash or Octal RAM	•	•	-	-
	<b>FMC</b> Connecting parallel flash, SDRAM, PSRAM	•	•	•	•
	<b>SDMMC</b> Connecting eMMC, MMC,	•	•	•	•
Display interfaces	<b>LCD-TFT display controller</b>	•	•	•	•
	<b>MIPI-DSI</b>	-	-	•	-
	<b>Parallel 8080/6800</b>	•	•	•	•
Embedded memory	<b>Embedded SRAM for framebuffers</b>	Up to 1024 Kbytes	Up to 364 Kbytes	Up to 512 Kbytes	Up to 512 Kbytes
	<b>Embedded flash</b> for code and data	128 Kbytes to 2048 Kbytes	128 Kbytes to 1024 Kbytes	1024 Kbytes to 2048 Kbytes	128 Kbytes to 2048 Kbytes

# X-CUBE-TouchGFX

## Graphical User Interface development

Faster and easier GUI Development

Free for all STM32 Developers

Maximum Performance on minimum footprint

Interoperable with STM32Cube Ecosystem



# TouchGFX

# STM32 Graphics Extended Ecosystem

## TouchGFX Implementers

World-wide network for TouchGFX expertise  
and design services

## Advanced Graphics Solutions

Software partners taking the full advantages  
of STM32 graphic capabilities



BRESSLERGROUP



MICROEJ®



# Solutions for STM32H7 Artificial Intelligence



# Embed AI in your applications with STM32H7

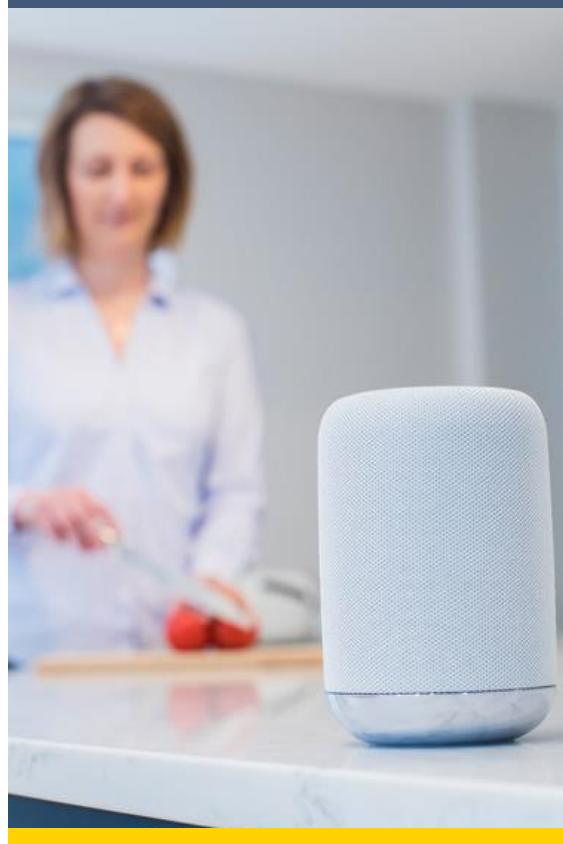
People detection



Food classification



Voice recognition

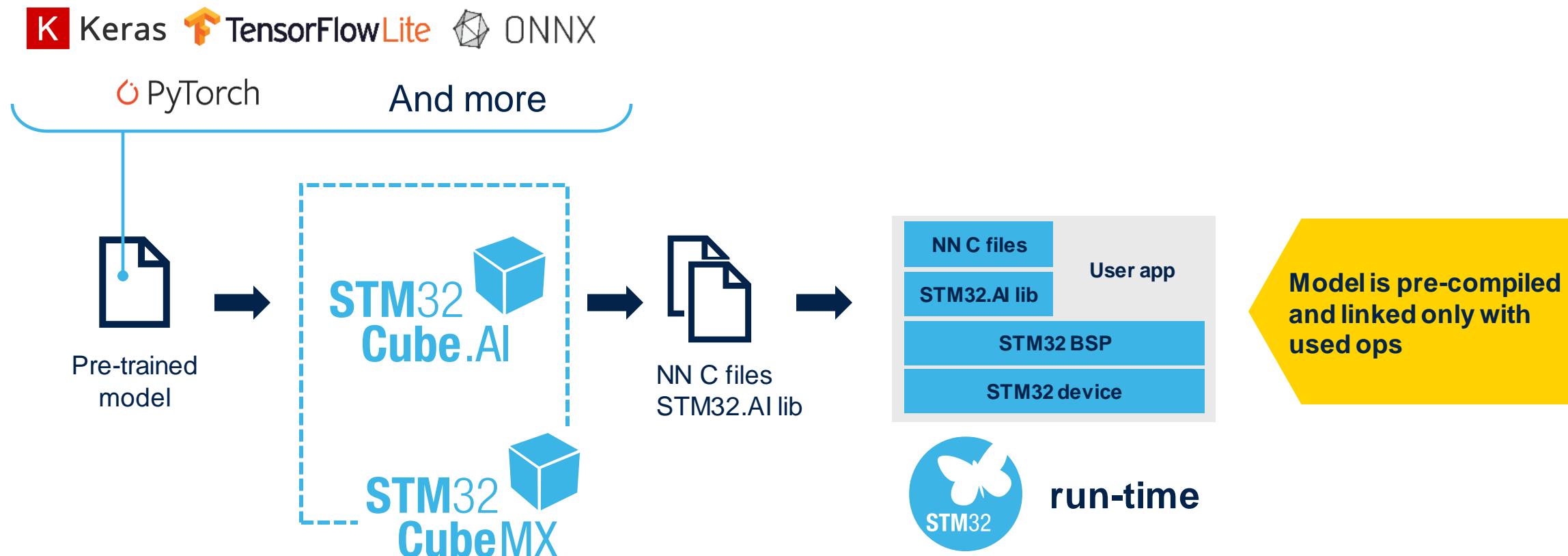


Industrial applications



# The key steps behind Neural Networks on STM32

Optimized C code generated by STM32Cube.AI



# Solutions for STM32H7

## Functional safety





# SIL functional safety package for STM32

Reduce time and cost to build  
STM32-based systems certified  
to IEC 61508 industrial safety  
standard





# SIL functional safety package for STM32



without  
design package

ST provides a complete, certified offering to

- Lower project costs
- Reduce design complexity
- Ease SIL certification assessment



with  
design package



# STM32 high performance built-in safety features

Features	STM32F2/F4	STM32F7	STM32H7
Dual watchdogs: Independent watchdog and system window watchdog	•	•	•
Backup clock circuitry with clock security system (CSS)	•	•	•
Hardware CRC unit / Programmable polynomial	• / -	• / •	• / •
Supply monitoring (POR, BOR, PVD)	•	•	•
I/O function locking	•	•	•
PWM critical register protections (write-once registers)	•	•	•
Memory protection unit (MPU) 8 zones – to ensure data integrity from invalid behavior	•	•	•
Multiple Flash memory protection levels	•	•	•
ECC Error Code Correction (SECDED) for SRAM	-	-	•
ECC Error Code Correction (SECDED) for Flash memory	-	-	•

**Note:** Arm Cortex-M cores also have built-in safety features (dual stack pointer, fault exceptions, and debug module).

# Solutions for STM32H7 Motor control



# Drive your motor with STM32H7

Robotic



High end Appliance



Servo motor - Industrial

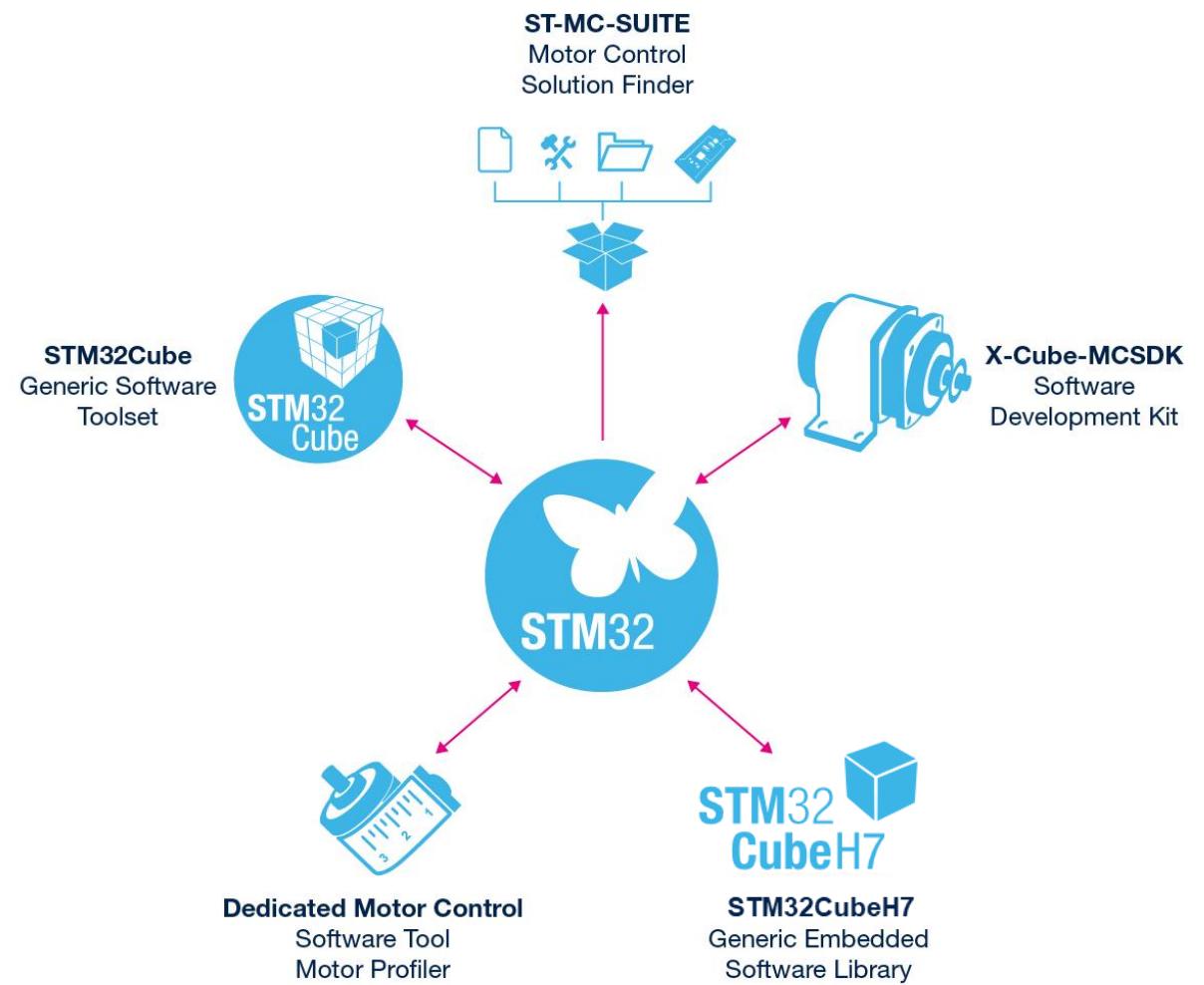


Medical



# FOC (field-oriented control) for BLDC/PMSM motors

STM32 tools and software provide an **integrated development environment** to ease and support the design of motor control solutions.



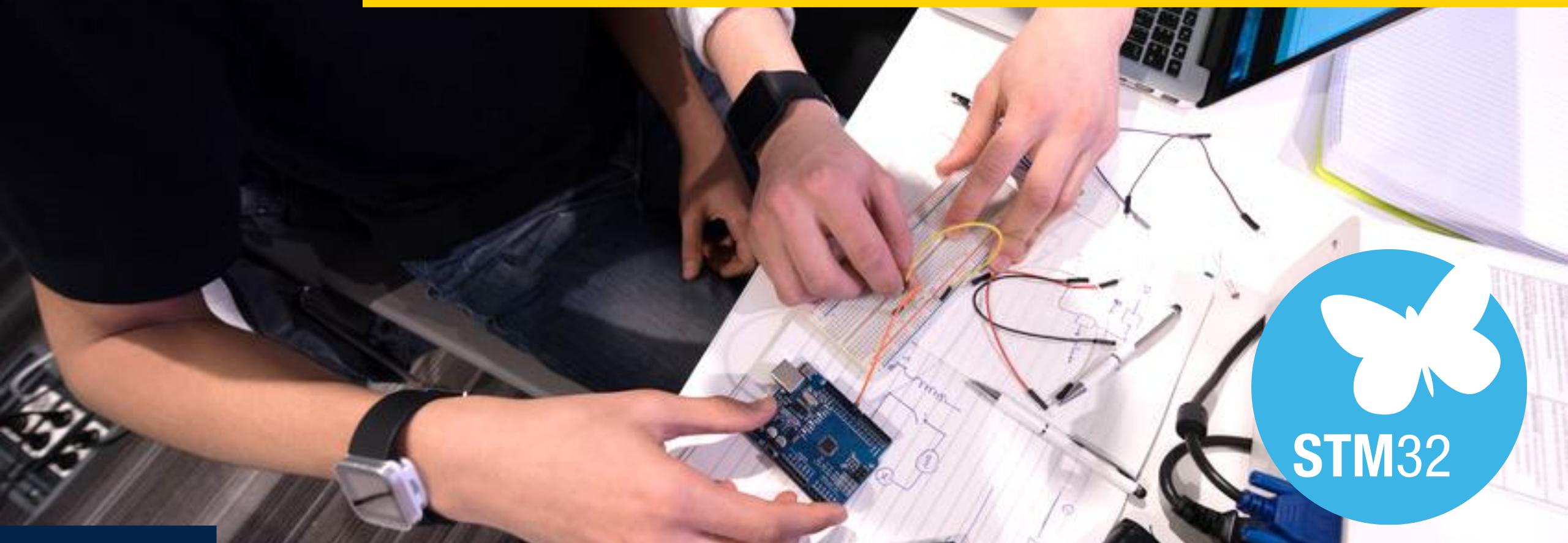
# STM32H7 features for Motor control

Features	STM32H742/743/745/747/750	STM32H723/725/730	STM32H7A3//7B0	Benefit
Core	Cortex-M7 + Cortex-M4(*)	Cortex-M7	Cortex-M7	Performance and efficiency
FPU	yes	yes	yes	Performance and efficiency
MPU	yes	yes	yes	Safety
Freq CPU max	480 MHz +240 MHz(*)	550 MHz	280 MHz	Performance and efficiency
DMIPS	1027 (single core), 1027+300(*)	1177	599	Performance and efficiency
Flash / SRAM data size	128KB to 2MB / Up to 1MB	128KB to 1MB / 564KB	128KB to 2MB / 1.4MB	Performance and integration/cost
Including : ITCM/DTCM RAM	64KB / 128KB	Up to 256KB (configurable) / 128KB	64KB / 128KB	Performance and efficiency
Error Code Correction	SECDED on full memory map	SECDED on full memory map	SECDED on Flash and partial RAM (I/D-TCM and caches)	Safety
ADC SAR	3 x 16-bit 3.6 Msps	2x16-bit 3.6 Msps, 1x12-bit 5 Msps	2x16-bit 3.6 Msps	Efficiency
Other Analog	2x Comp, 2x PGA, 2xDAC, 1xDFSDM	2x Comp, 2x PGA, 2xDAC, 1xDFSDM	2x Comp, 2x PGA, 2xDAC, 2xDFSDM	Integration/cost
Advanced Motor Control timer	2x (240 MHz)	2x (275 MHz)	2x (280 MHz)	Performance and efficiency
Cache and Accelerator	16KB+16KB L1 cache + ART (*) Graphic, Crypto(**)	32KB+32KB L1 cache Graphic, Cordic, FMAC, Crypto(**)	16KB+16KB L1 cache Graphic, Crypto(**)	Performance and efficiency
Security Services (SFI and SB-SFU)	yes(**)	yes(**)	yes(**)	System Integrity
Package	LQFP100/144/176/208; BGA100/169/176/240; WLCSP156	VFQFPN68; LQFP100/144/176; BGA100/144/169/176; WLCSP115	LQFP64/100/144/176: BGA100/169/176/216/225; WLCSP132	Cost/Integration/flexibility
Max Temperature range °C	[-40 .. +125] T <sub>j</sub> max 140 °C	[-40 .. +125] T <sub>j</sub> max 140 °C	[-40 .. +85] T <sub>j</sub> max 130 °C	Integration and cost

(\*) : on Dual core versions

(\*\*) : on crypto part numbers

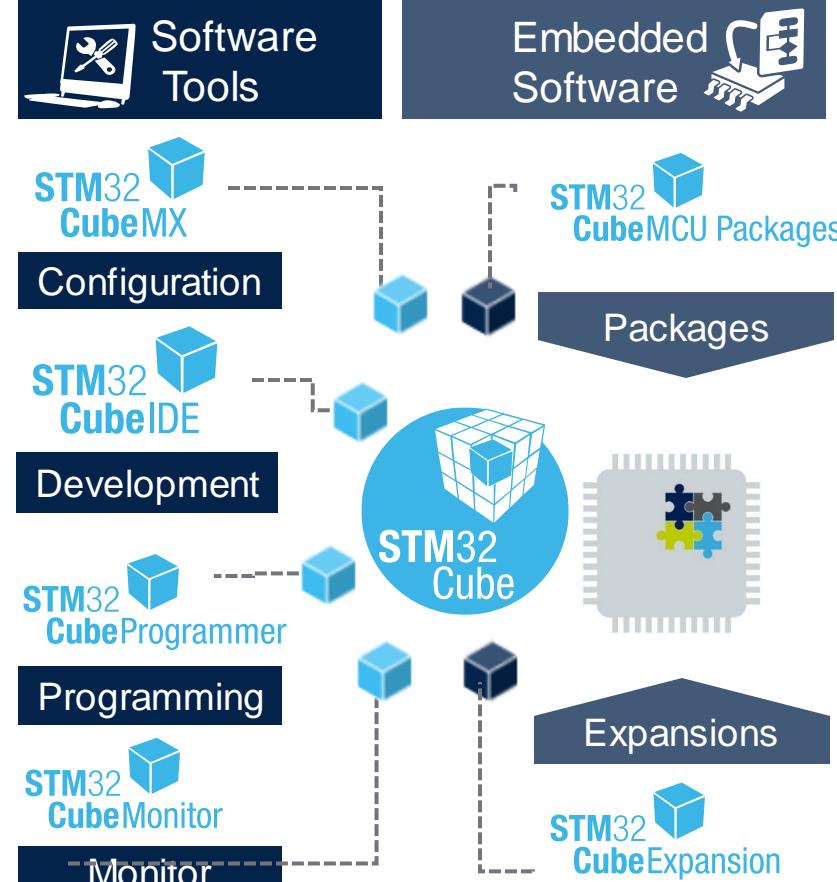
# A complete ecosystem for single and dual-core architecture



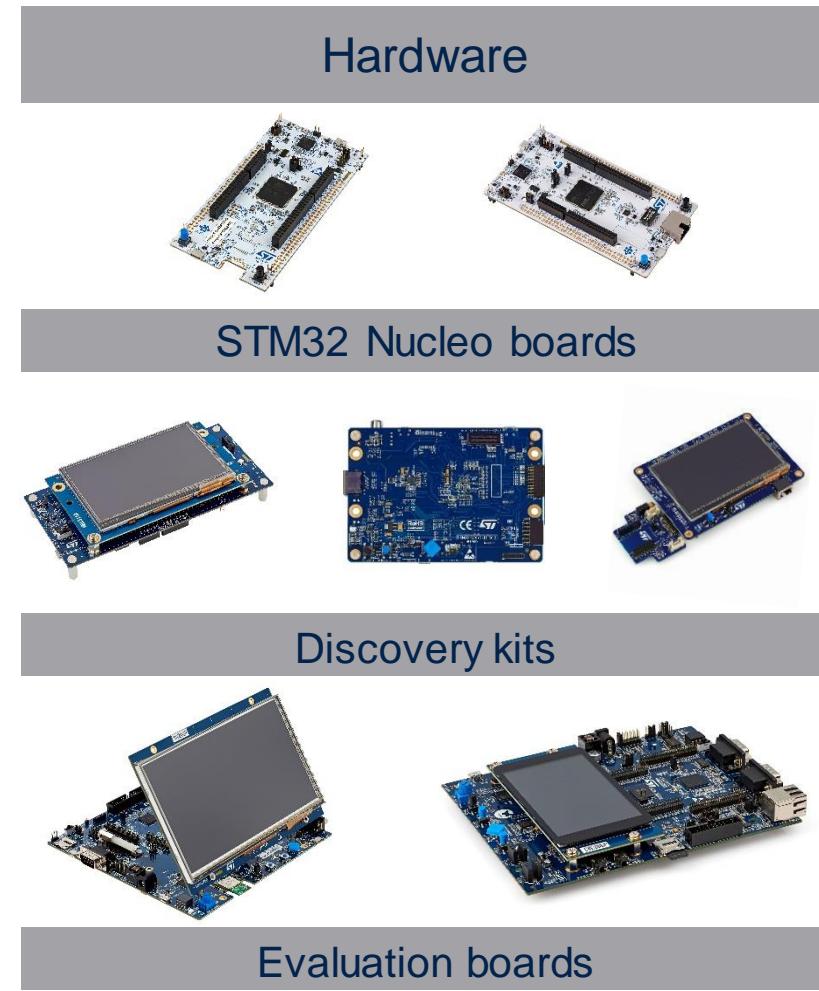


# Supported by the STM32 ecosystem

## Software



## Hardware



## Customer support



FAE - Worldwide  
Customer Support



[community.st.com](http://community.st.com)

**MOOC**



Partner  
Program

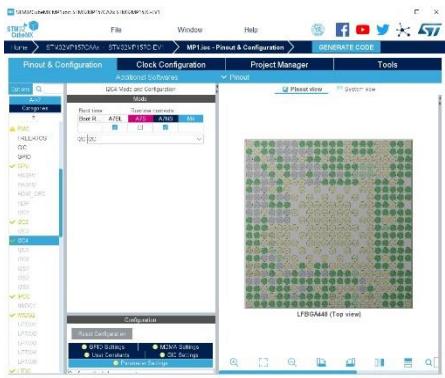




# Software tools for STM32H7

## Complete support of Arm Cortex-M architecture

STM32  
CubeMX



STM32  
CubeIDE

eclipse



STM32  
CubeProgrammer

STM32  
CubeMonitor

### STM32CubeMX

STM32CubeMX enhanced  
for Dual-core

- Configure and generate Code
- Multi-core resources allocation
- Peripherals configuration

### IDEs Compile and Debug

#### Multi-Core Solutions

- Partners IDE
- Free IDE based on Eclipse
- **Multi-core** debugging

### STM32 Programming & Monitoring tools

STM32CubeProg  
STM32CubeMonitor

- Program the application into the chip
- Sign the application and generate license
- Monitor variables at run-time



# STM32H7 hardware solutions

**Speed-up evaluation, prototyping and design  
(board selection guide available at the end of this presentation)**



Starting at  
**\$318**



Starting at  
**\$97**



Starting at  
**\$87**



Starting at  
**\$69**



Starting at  
**\$27**



**5 Evaluation Boards**

Full feature STM32H7 evaluation

**6 Discovery Kits**

Flexible prototyping & demo

**6 Nucleo Boards**

Affordable and quick  
prototyping



# Pick the right STM32H7 development tool



STM32H7 class	Cores/Speed	Part numbers	Evaluation boards	Discovery Kits	Nucleo boards
STM32H74/5	Single Core 480 MHz	<b>STM32H743</b>	STM32H743I-EVAL2	-	NUCLEO-H743ZI2
		<b>STM32H753</b> , Crypto enabled	STM32H753I-EVAL2	-	NUCLEO-H753ZI
		<b>STM32H750</b> Value Line, Crypto enabled	-	STM32H750B-DK	-
	Dual Core 480 MHz + 240 MHz	<b>STM32H745</b>	-	STM32H745I-DISCO	NUCLEO-H745ZI-Q
		<b>STM32H747</b>	STM32H747I-EVAL	STM32H747I-DISCO STM32H747I-DISC1	-
		<b>STM32H755/757</b> , Crypto enabled	STM32H757I-EVAL	-	NUCLEO-H755ZI-Q
STM32H7A/B	Single Core 280 MHz	<b>STM32H7A3</b>	-	-	NUCLEO-H7A3ZI-Q
		<b>STM32H7B3</b> , Crypto enabled	STM32H7B3I-EVAL	STM32H7B3I-DK	-
		<b>STM32H7B0</b> , Value line, Crypto enabled	STM32H7B3I-EVAL *	STM32H7B3I-DK *	-
STM32H72/3	Single Core 550 MHz	<b>STM32H723/733</b>	-	-	NUCLEO-H723ZG
		<b>STM32H725/735</b>	-	STM32H735G-DK	-
		<b>STM32H730</b> , Value line, Crypto enabled	-	STM32H735G-DK *	-

\* Recommended board (no dedicated board for this part number)



# Software, tools and services a broad ecosystem to support development



Large selection of partners  
already engaged for:

- Embedded software
- Software tools
- Graphics UI
- Security
- Training and services





# Releasing your creativity



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[wiki.st.com/stm32mcu](#)



[github.com/STMicroelectronics](#)



[STM32H7 online training](#)



[STM32H7 blog article](#)



# Our technology starts with You



Find out more at [www.st.com/STM32H7](http://www.st.com/STM32H7)

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