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STM32H7 MCUs
for rich and demanding applications

The STM32 portfolio

Five product categories

- **Wireless MCU** — Short- and long-range connectivity
- **Ultra-low-power MCU**
- **Mainstream MCU**
- **High-performance MCU**

  32-bit general-purpose microcontrollers: from 75 to 3,224 CoreMark score
- **Embedded MPU** — 32- and 64-bit microprocessors





Enabling edge AI solutions

Scalable security

MPU portfolio

MCU portfolio

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“ If only
I could leverage a broad range of MCUs addressing advanced industrial, medical, consumer applications.

STM32 high performance portfolio

STM32H7
- Arm® Cortex®-M7 + Arm® Cortex®-M4 FPU at 480 MHz – 1327 DMIPS and up to 600 MHZ - 1284 DMIPS on single core Arm® Cortex®-M7
- From 64 Kbytes to 2 Mbytes of Flash memory
- High Performance, scalable memory and security

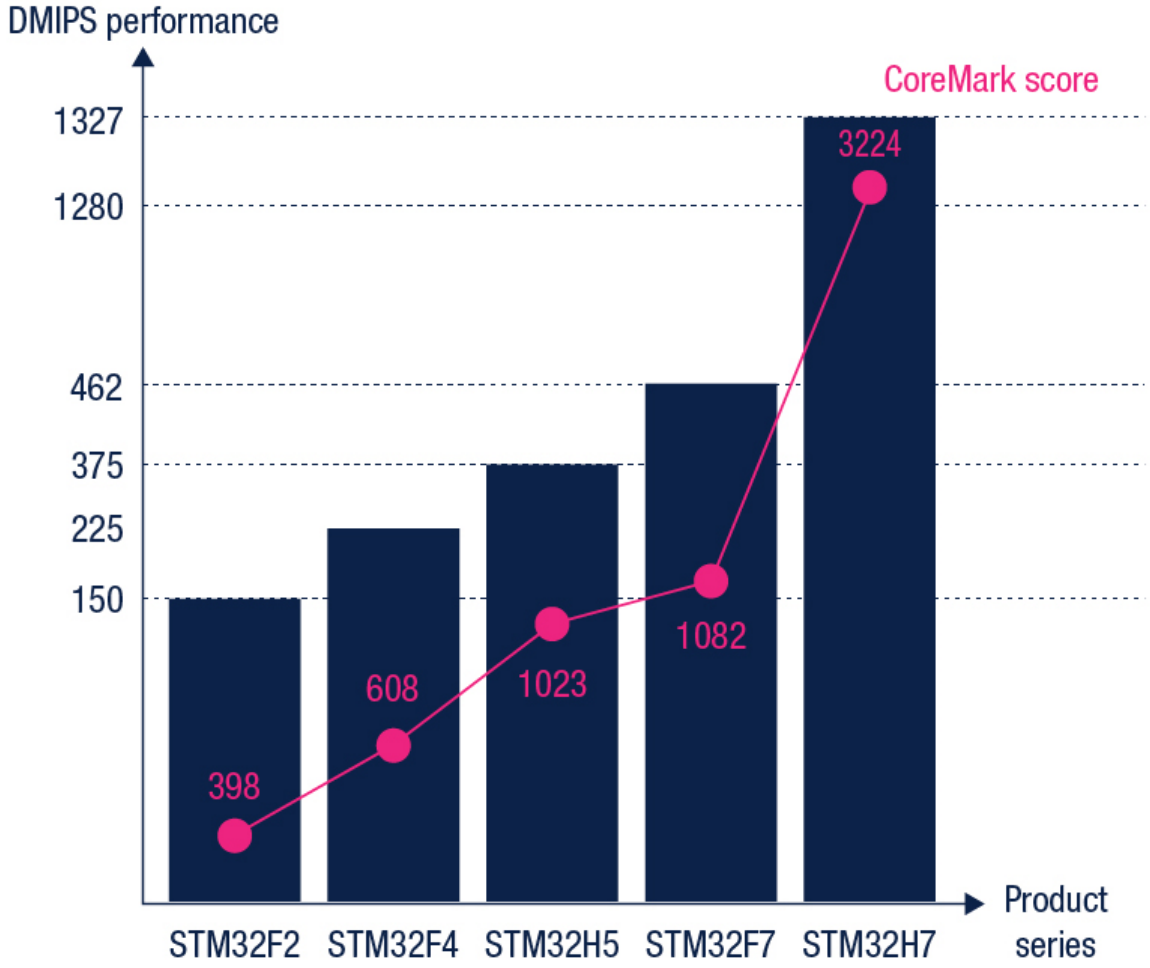
STM32F7
- Arm® Cortex®-M7 + FPU at 216 MHz – 462 DMPIS
- From 256 Kbytes to 2 Mbytes of Flash memory
- Embedded flash & external memories

STM32H5
- Arm® Cortex®-M33 at 250 MHz – 375 DMPIS
- From 128 Kbytes to 2 Mbytes of Flash memory
- High performance, scalable security, affordable

STM32F4
- Arm® Cortex®-M4 + FPU up to 180 MHz – 225 DMIPS
- From 64 Kbytes to 2 Mbytes of Flash memory
- Cost-effective and power efficiency

STM32F2
- Arm® Cortex®-M3 at 120 MHz – 150 DMIPS
- From 128 Kbytes to 1 Mbyte of Flash memory
- Foundation lines for performance and connectivity

Legend: Latest product series/lines generation



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STM32H7 series
More than 130 part numbers

Bootflash lines

STM32**H7R3/7S3**	STM32**H7R7/7S7**
600 MHz 1284 DMIPS	600 MHz 1284 DMIPS
SRAM 620 KB	SRAM 620 KB
64 KB user flash	64 KB user flash
ST-iRoT	ST-iRoT
Chrom-ART	NeoChrom + LTDC

Dual-core lines

STM32**H745/755**	STM32**H747/757**
480 + 240 MHz 1027 + 300 DMIPS	480 + 240 MHz 1027 + 300 DMIPS
RAM 1 MB	RAM 1 MB
Flash up to 2 MB	Flash up to 2 MB

Single-core lines

STM32**H7A3/B3**	STM32**H742**	STM32**H743/753**	STM32**H723/733**	STM32**H725/735**
280 MHz 599 DMIPS	480 MHz 1027 DMIPS	480 MHz 1027 DMIPS	550 MHz 1177 DMIPS	550 MHz 1177 DMIPS
RAM 1.4 MB	RAM 692 KB	RAM 1 MB	RAM 564 KB	RAM 564 KB
Flash up to 2 MB	Flash up to 2 MB	Flash up to 2 MB	Flash up to 1 MB	Flash up to 1 MB

Value lines

STM32**H7B0**	STM32**H750**	STM32**H730**
280 MHz 599 DMIPS	480 MHz 1027 DMIPS	550 MHz 1177 DMIPS
RAM 1.4 MB	RAM 1 MB	RAM 564 BB
Flash 128 KB	Flash 128 KB	Flash 128 KB

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

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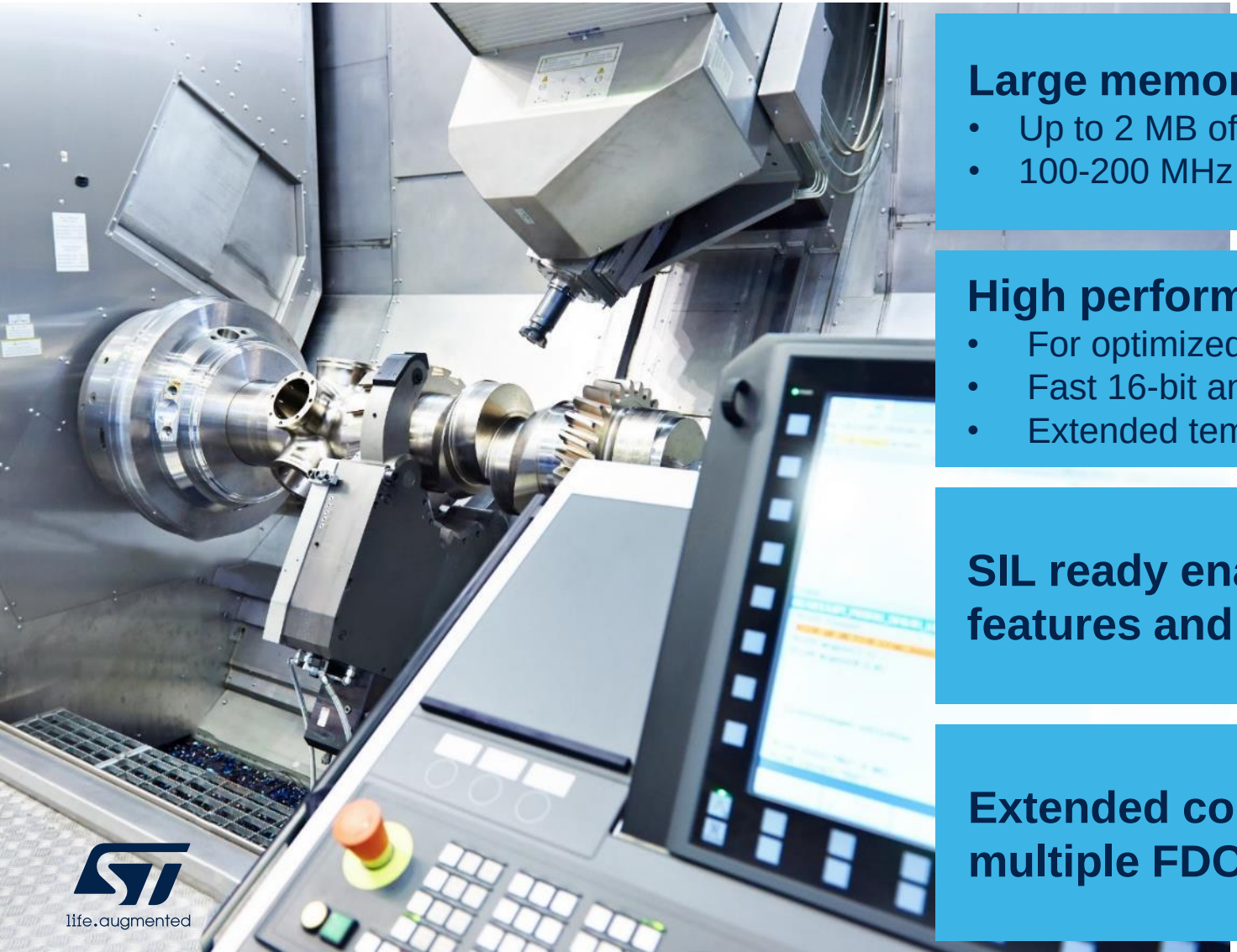
“ If only
I could address the design challenges in factory automation systems.

Building a factory automation product



Large memory flexibility

- Up to 2 MB of flash & up to 1.4 MB of SRAM
- 100-200 MHz serial & parallel memory interfaces

High performance

- For optimized performance of HMIs
- Fast 16-bit and 12-bit ADC
- Extended temperature support up to 125 °C

SIL ready enabled by native hardware features and safety library

Extended connectivity with Ethernet MAC, multiple FDCAN and USB

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“ If only
I could use a dual-core architecture
to run several demanding tasks
simultaneously.

Adding natural language cloud-based voice UI to your product

Addressing memory requirements:
- 2 MB of flash memory and 1 MB of SRAM

Arm Cortex®-M7 core at 480 MHz
Arm Cortex®-M4 core at 240 MHz

Safeguarding security
- Embedded security, target SESIP & PSA certifications
- State-of-the-art cyberprotection
- Secure firmware update

One chip, two applications running in parallel

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“ If only
An MCU could offer memory scalability, real-time performance, and the flexibility of an MPU, at an affordable cost.

STM32H7R/S lines open innovation possibilities with a scalable and secure bootflash MCU

Run MPU-like applications on a real-time MCU

- Large embedded SRAM & fast ext memory I/F
- 600 MHz on single-core Cortex®-M7
- Real-time execution from anywhere (int/ext)

Offer more scalability to optimize design & reduce costs

Simpler development thanks to our enhanced MCU ecosystem

Strong security: target PSA certified level 3 & SESIP3 certifications

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“ If only
I could run a smartphone-like GUI application with real-time execution.

Creating a smartphone-like graphic UI for your embedded device

Graphics hardware accelerators for JPEG, 2D & 2.5D graphical user interfaces

Two architectures, relying on internal or external memories

- Multiple high-speed external memory interfaces

Up to 1.4 MB SRAM & fast external memory
Multiple package options

TouchGFX: free graphic tool for creating stunning HMIs in a seamless way

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Outline

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STM32H7

More design freedom for rich, connected, powerful, and secure applications.

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STM32H7 series
Key features

Performance record

Up to 2,424 & 800 CoreMark (Cortex©-M7 at 480 MHz + Cortex©-M4 at 240 MHz) with dual core
Up to 3,174 CoreMark (Cortex©-M7 at 600 MHz) with single core version

Flexible architecture, with single and dual-core for industrial, security, graphical, and edge AI applications

Accelerated graphics, voice, edge AI, fast data transfer, advanced peripherals

Advanced security features

Crypto hash, Cortex©-M7 Security services, PSA & SESIP target certifications

A rich ecosystem to speed up your design

Software tools, boards, community, and partners

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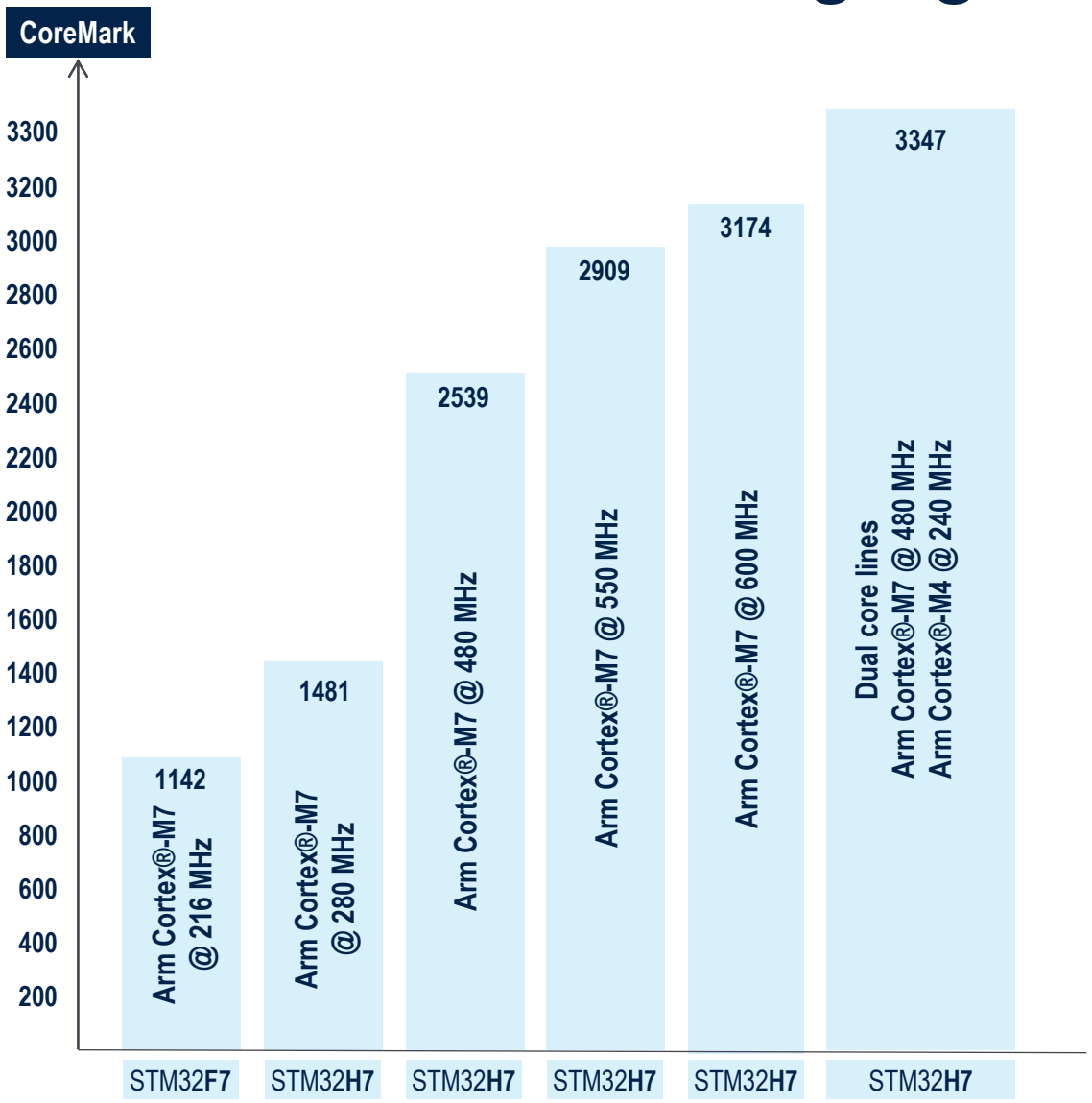
A high-performance architecture leveraging internal and external memories



Dual & single core options

Arm Cortex®-M7 up to 600 MHz in single core

- Double precision FPU, MPU, advanced DSP
- From 324 to 1024 Kbytes of SRAM
- High speed external memory support up to 200 MHz DTR

Up to 3347 CoreMark

Powerful cores supported by a powerful architecture

Best-in-class GUI solution
Chrom-ART™
NeoChrom GPU
JPEG codec
Display controller
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 concurrent channels to offload the CPU**

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

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

Mathematical hardware accelerators
CORDIC coprocessor to speed up calculations
FMAC for signal filtering acceleration

Single-core architecture approach for performance and advanced HMI

Factory automation

Arm Cortex®-M7: HMI, process control, power management

Connectivity & security

Arm Cortex®-M7: Alarm panel, wireless modules

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Dual-core architecture approach for richer and more complex applications

Industrial tool machine

Cortex®-M7: HMI
Cortex®-M4: Com/Gateway + motor control
+ Sensor preprocessing (AI)

Home automation & security

Cortex®-M7: AI NN (Pattern recognition, ASR)
Cortex®-M4: Com/Gateway + real-time I/F

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Industrial and Medical DNA

Industrial

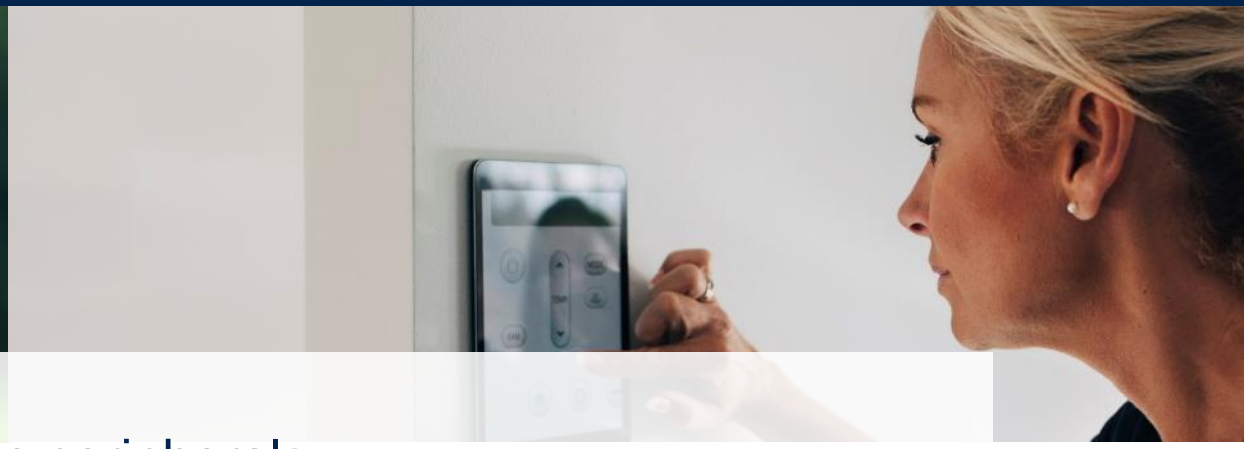
- **Inverters**
  Advanced timers and analog peripherals
- **Communication gateways**
  Rich connectivity and optional dual core
- **Human machine interfaces**
  Chrom-ART Accelerator and display interfaces for TFT and MIPI-DSI

Medical

- **Medical**
  Chrom-ART Accelerator, NeoChrom GPU and display interfaces for TFT and MIPI-DSI
- **Individual assistance** (hearing, respiratory)
  Advanced timers and analog
- **Measurements and dataloggers**
  Advanced analog

Consumer DNA

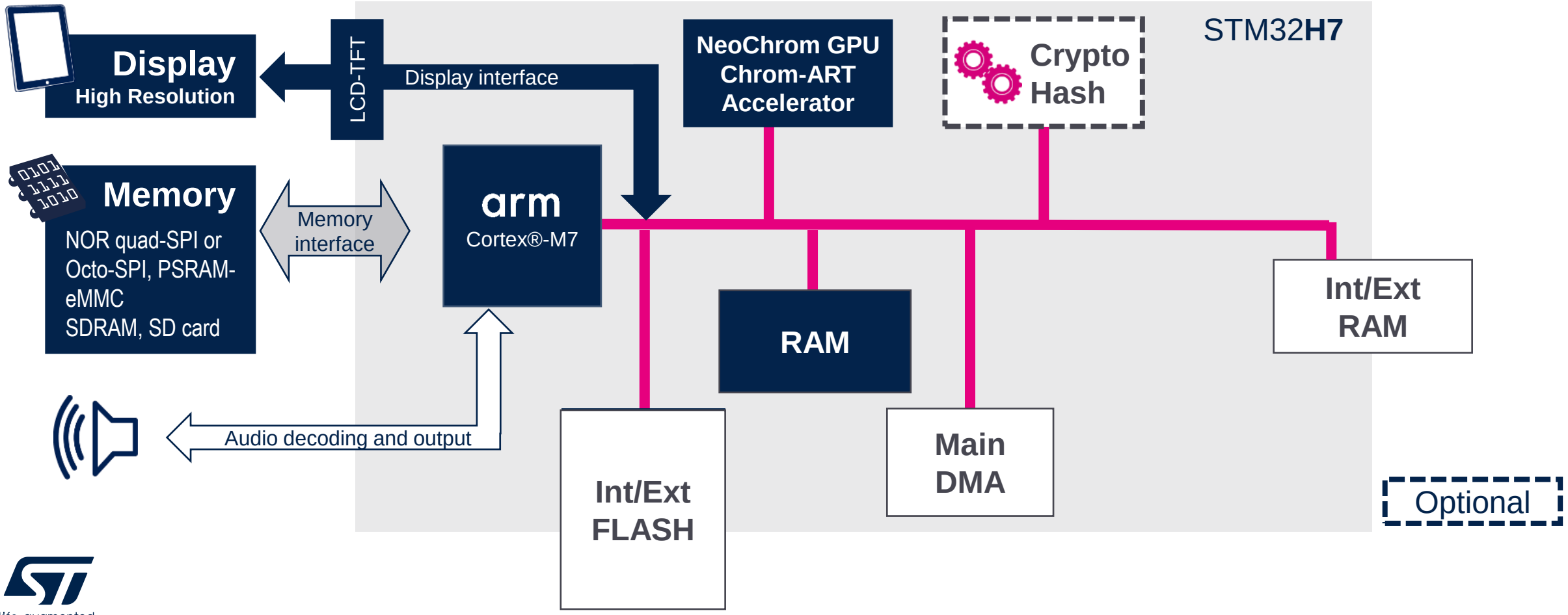
Consumer



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

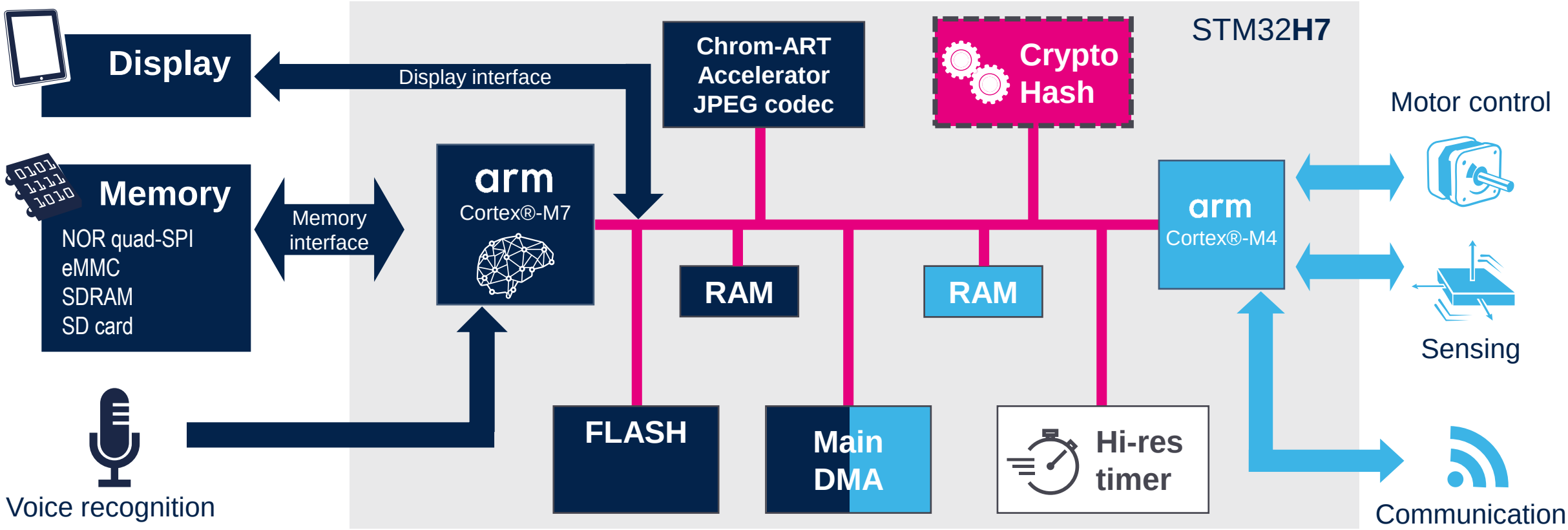
Create a rich human machine interface

Cortex®-M7 handles audio, rich graphics, real-time control tasks



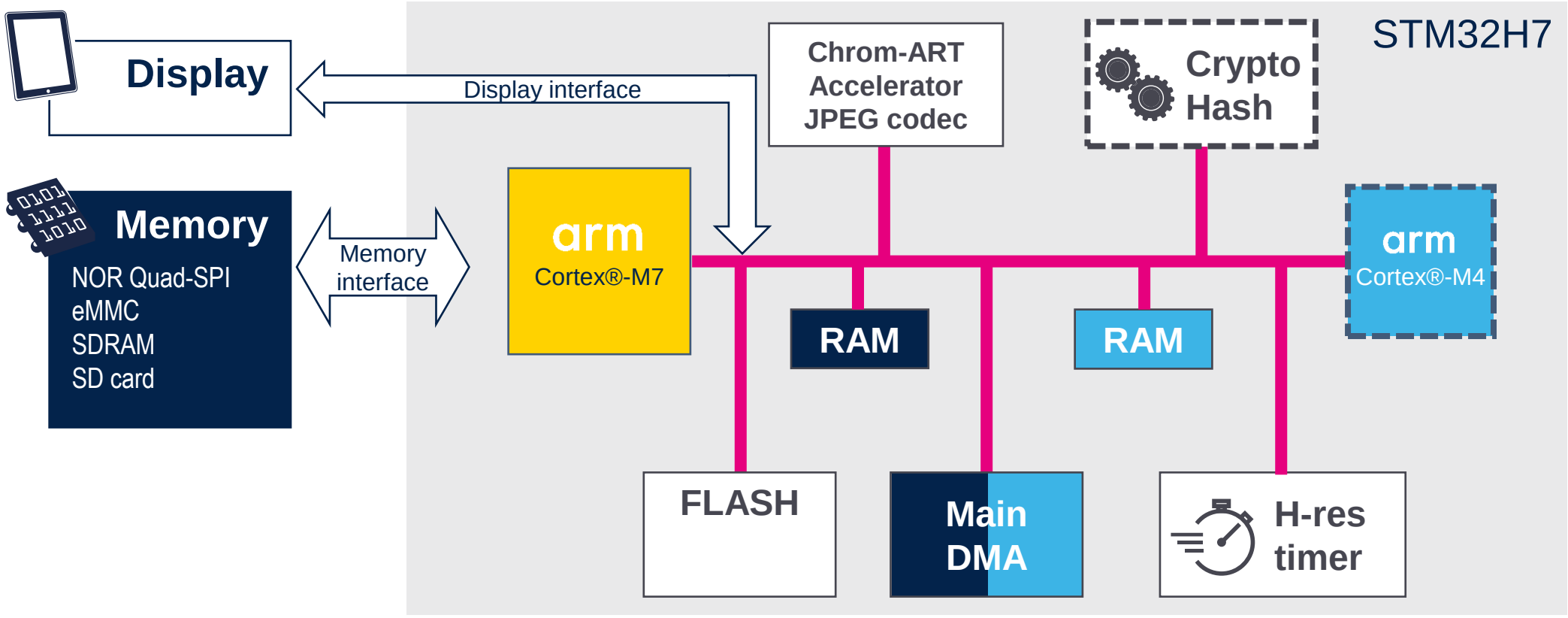
Build complex apps combining edge AI & real-time control

Connected kitchen aid with advanced HMI (large display and voice recognition)



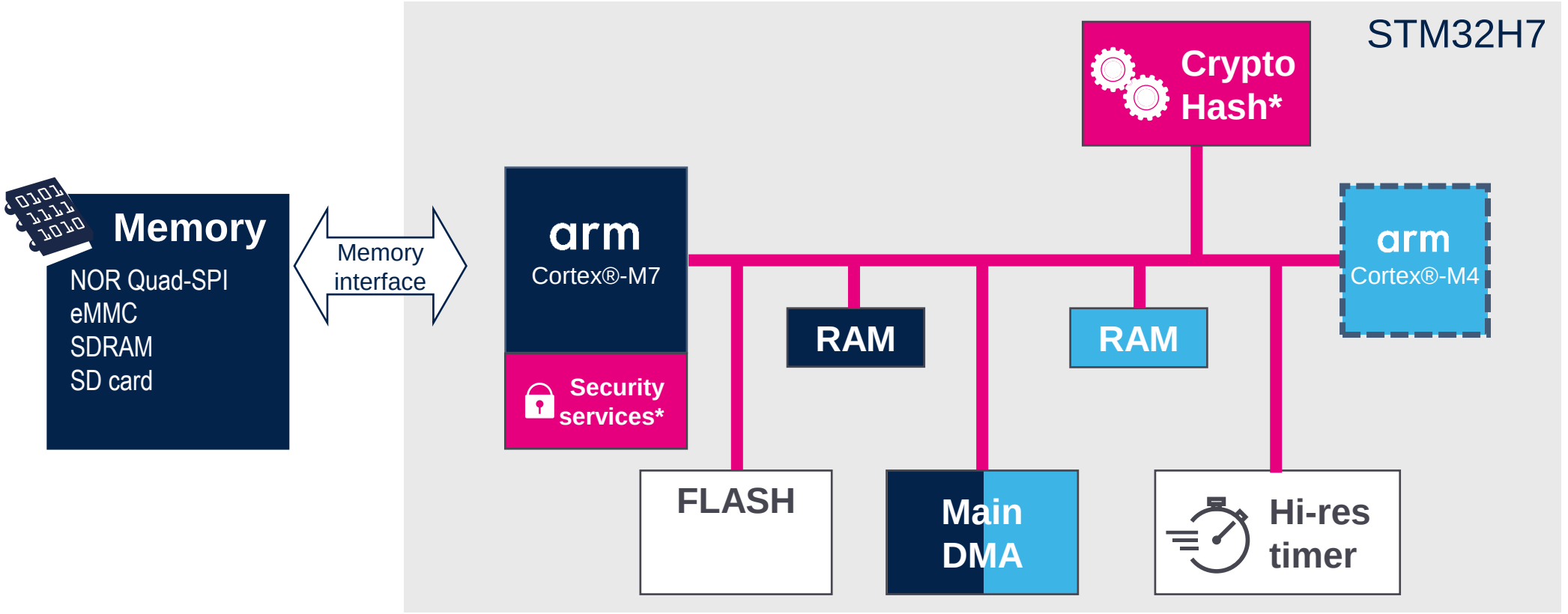
Seamlessly move and format data

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



Reinforce the security in your solution

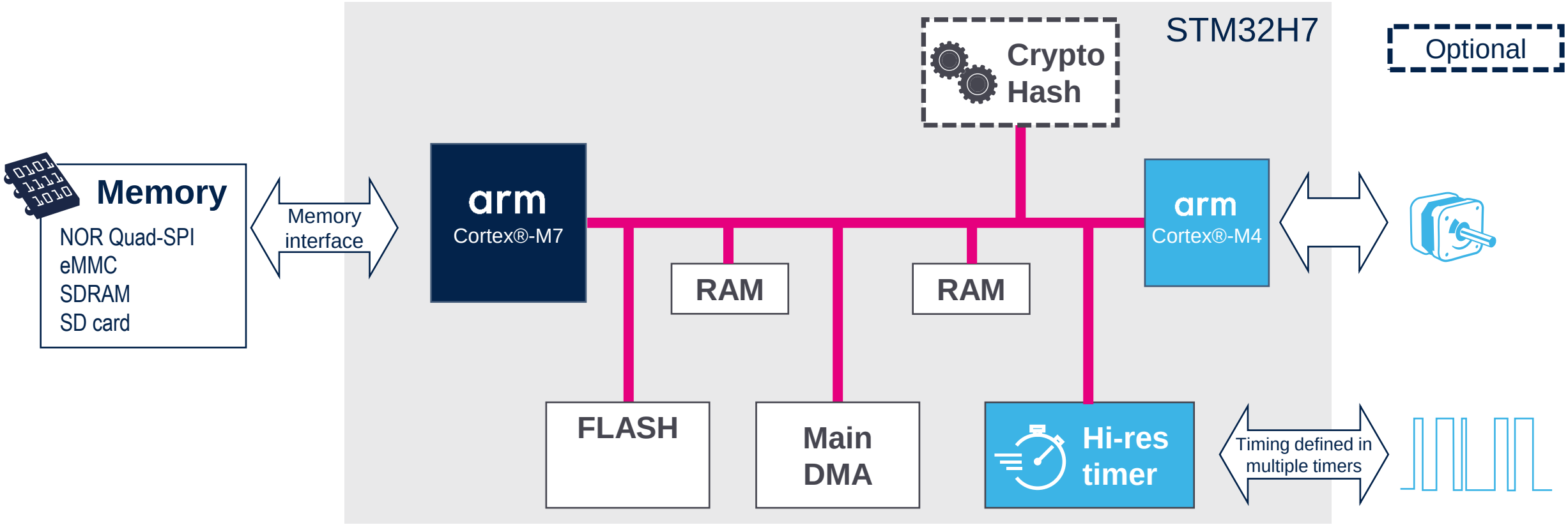
Cryptography and hashing hardware assist
Authenticate your chip and securely install your code in the memory



* requires part numbers with integrated security options

Control real-time applications

High-resolution timer: advanced wave forms generation



Feature comparison: memory interfaces

Features		H7R3/7S3	H7R7/7S7	H747/757	H745/755	H7A3/7B3	H743/753	H742	H725/735	H723/733	H7B0	H750	H730
Backup RAM (4 Kbytes)		•	•	•	•	•	•	•	•	•	•	•	•
ULP stop mode retention RAM (Kbytes)						•					•		
Power supply	SMPS	•	•	•	•	•			•		•		•
	LDO	•	•	•	•	•	•	•	•	•	•	•	•
Memory interfaces	Serial SPI	•	•	•	•	•	•	•	•	•	•	•	•
	Quad-SPI	•	•	•	•	•	•	•	•	•	•	•	•
	Octo SPI	•	•			•			•	•	•	•	•
	Dual Quad	•	•	•	•	•	•		•	•	•	•	•
	Dual Octo	•	•			•			•	•	•	•	•
	HSPI / XSPI	•	•										
	FMC	•	•	•	•	•	•	•	•	•	•	•	•
	SDIO	•	•	•	•	•	•	•	•	•	•	•	•

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Feature comparison: security

Features		H7R3/7S3	H7R7/7S7	H747/757	H745/755	H7A3/7B3	H743/753	H742	H725/735	H723/733	H7B0	H750	H730
Power supply	SMPS	•	•	•	•	•			•		•		•
	LDO	•	•	•	•	•	•	•	•	•	•	•	•
Security	S-ECC	•	•										
	S-RSA	•	•										
	S-AES	•	•										
	TDES	•	•	•	•	•	•		•	•	•	•	•
	SHA-2	•	•	•	•	•	•		•	•	•	•	•
	TRNG	•	•	•	•	•	•	•	•	•	•	•	•
	MCE	•	•										
	AES	•	•	•	•	•	•		•	•	•	•	•
	OTFDEC			•	•	•			•	•			•

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Feature comparison: graphics

Features		H7R3/7S3	H7R7/7S7	H747/757	H745/755	H7A3/7B3	H743/753	H742	H725/735	H723/733	H7B0	H750	H730
Power supply	SMPS	•	•	•	•	•			•		•		•
	LDO	•	•	•	•	•	•	•	•	•	•	•	•
Graphics	NeoChrom GPU		•										
	Chrom-ART	•	•	•	•	•	•	•	•	•	•	•	•
	Chrom-GRC	•	•			•					•		
	JPEG CODEC	•	•	•	•	•	•				•	•	
	TFT-LCD		•	•	•	•	•		•	•	•	•	•
	Parallel display	•	•	•	•	•	•	•	•	•	•	•	•
	MIPI-DSI			•									

Feature comparison: connectivity

Features		H7R3/7S3	H7R7/7S7	H747/757	H745/755	H7A3/7B3	H743/753	H742	H725/735	H723/733	H7B0	H750	H730
Power supply	SMPS	•	•	•	•	•			•		•		•
	LDO	•	•	•	•	•	•	•	•	•	•	•	•
Connectivity	I2C	•	•	•	•	•	•	•	•	•	•	•	•
	I3C	•	•										
	USB FS	•	•	•	•	•	•	•	•	•	•	•	•
	USB HS	w/ PHY	w/ PHY*	•	•	•	•	•	•	•	•	•	•
	UCPD	•	•										
	Ethernet	•	•	•	•		•	•	•	•		•	•

*USB HS PHY only on TFBGA225 packages

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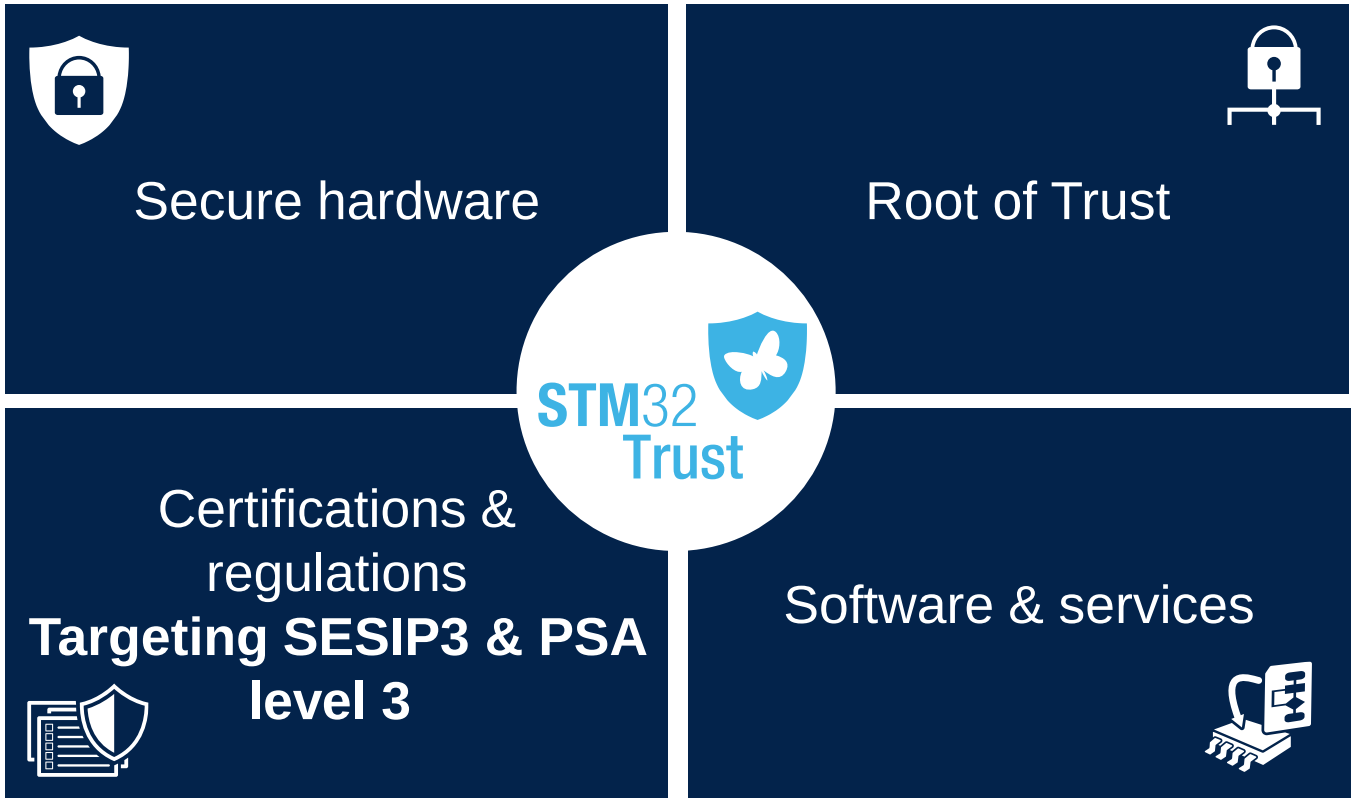
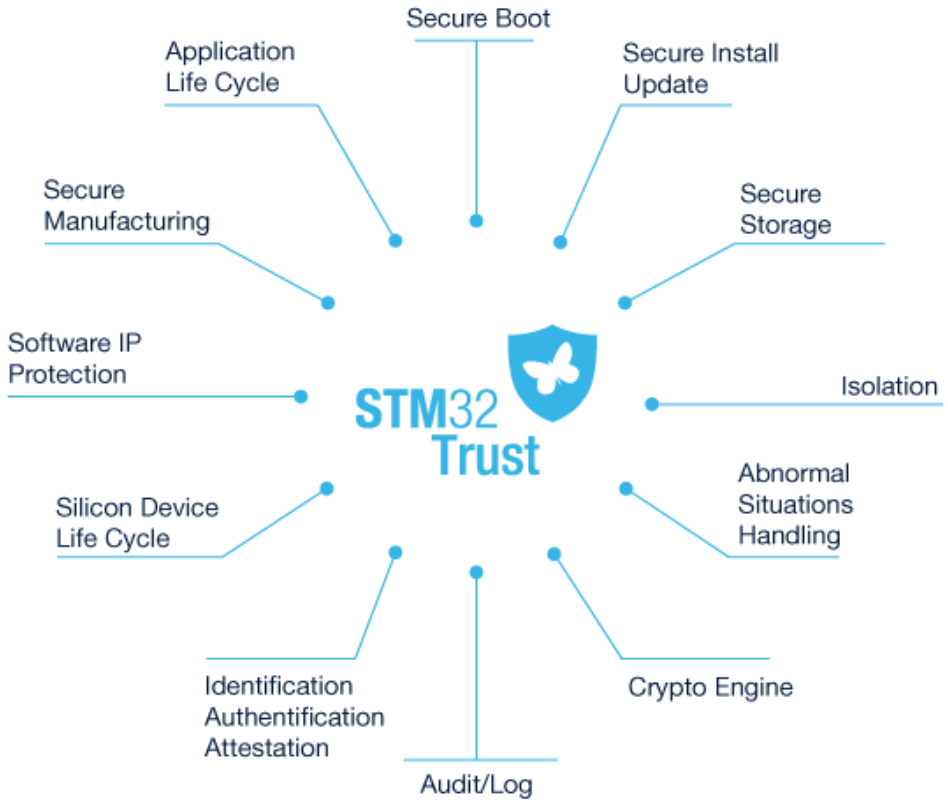
STM32Trust on STM32H7 Series

STM32Trust is built on key pillars to ensure security



Our security commitment to meet future cybersecurity regulations



SESIP™

psacertified™

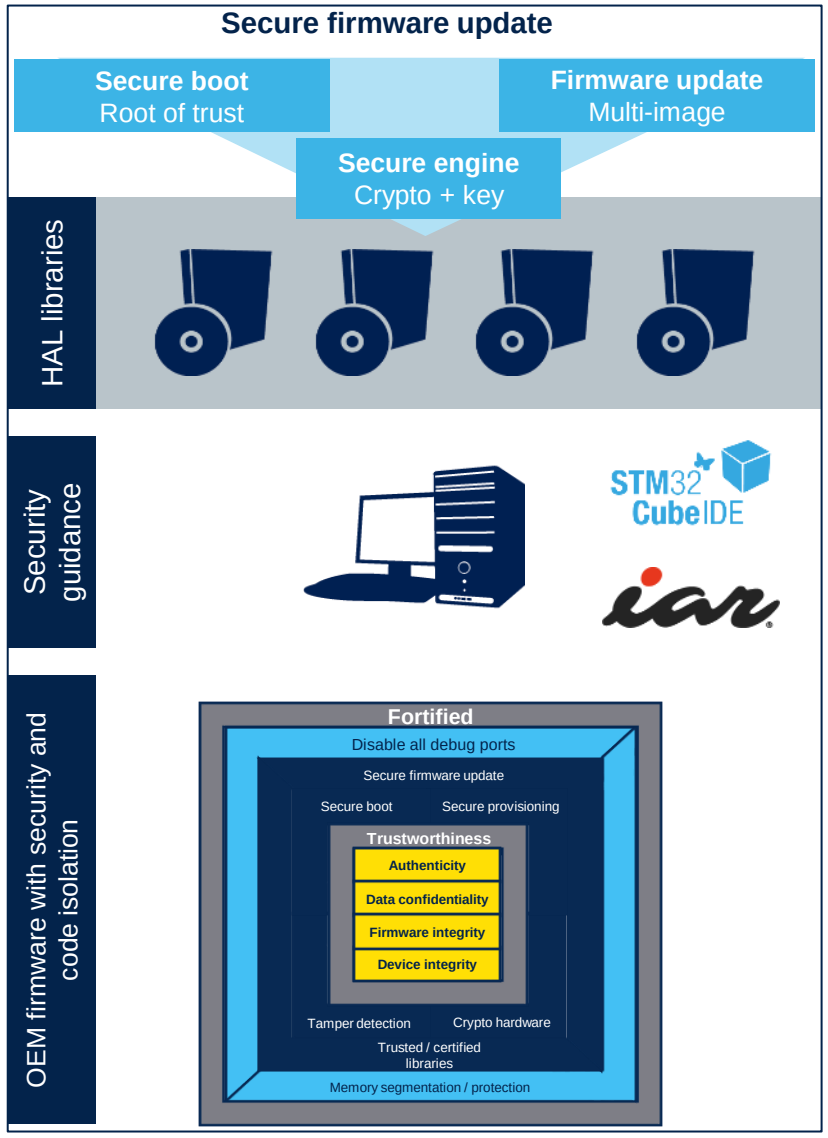
target certifications

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

STM32H7 detailed security functions

STM32Trust Security function	**Arm® Cortex®-M7 Arm® Cortex®-M4/M7** STM32H72x STM32H74x STM32H7Ax	**Arm® Cortex®-M7 crypto Arm® Cortex®-M4/M7 crypto** STM32H75x	**Arm® Cortex®-M7** STM32H73x STM32H7Bx STM32H7R	**Arm® Cortex®-M7** STM32H7S
Secure boot HDP for OEM-iRoT software package		•	•	• or "ROM" ST-iRoT
Secure install/update HDP for OEM-iRoT software package		•	•	• or "ROM" ST-iRoT
Secure storage HDP for boot only		•	•	HUK / SAES
Access debug Read out protect RDPL0/1/2	•	•	• (H73x/H7Bx) Regression via password or reopening via certificate (7R)	Regression via password or reopening via certificate
Resource isolation memory protection unit	•	•	• (H73x/H7Bx/H7R) 3 HDP isolation stages (H7R)	3 HDP isolation stages with dedicated keystores, MPU
Secure execution OTP, HDP, WRP, MPU, active Tamper		•	•	•
Cryptoengine hardware cryptoaccelerator	TRNG Fips	AES / DES / SHA / TRNG Fips	AES / DES / SHA / TRNG Fips PKA signature verification (H7R)	Side channel SAES, PKA SHA-512, TRNG Fips, HUK, MCE1, MCE2, MCE3
Cryptoengine On-the-fly crypto of external memories			OTFDEC xSPI	MCE for RAM & flash xSPI and FMC
Secure manufacturing Secure firmware install (SFI)		•	•	•
Target certifications	PSA Certified Level 1	PSA Certified Level 1	PSA Certified Level 1	PSA Certified Level 3 and SESIP 3

Secure boot and secure firmware update - SBSFU



Reference library source code for IAP

Demonstrate software modules for:

- Secure boot
- Secure engine for crypto and key
- Firmware update image management

Ensure authentication and secure programing of in the field products

Reference implementation of STM32H7 hardware memory protections

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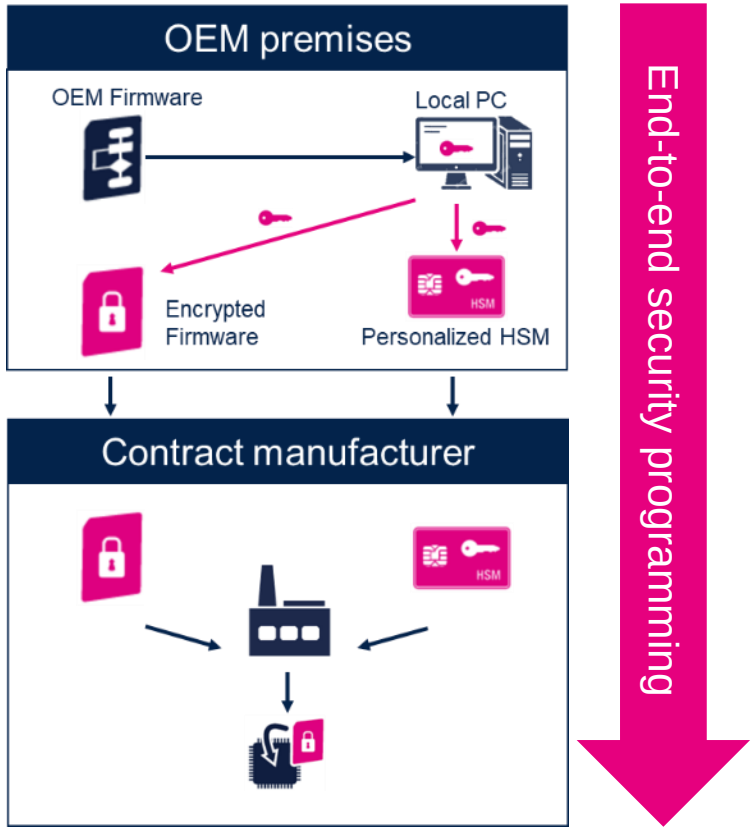
STM32 CubeProgrammer

Secure your production flow using secure firmware install (SFI)

Protect application firmware during the manufacturing stage



Complete toolset to encrypt OEM binaries with the STM32 Trusted Package Creator software

Securely flash the STM32 with licenses from a STM32HSM at the programming partner location

Control the number of devices programmed with the firmware

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Enhance your product with great graphics

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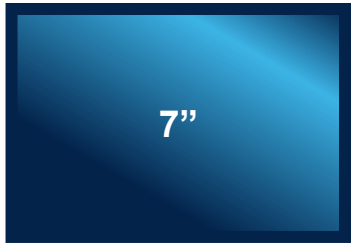
Graphics solutions for any UI & resolution

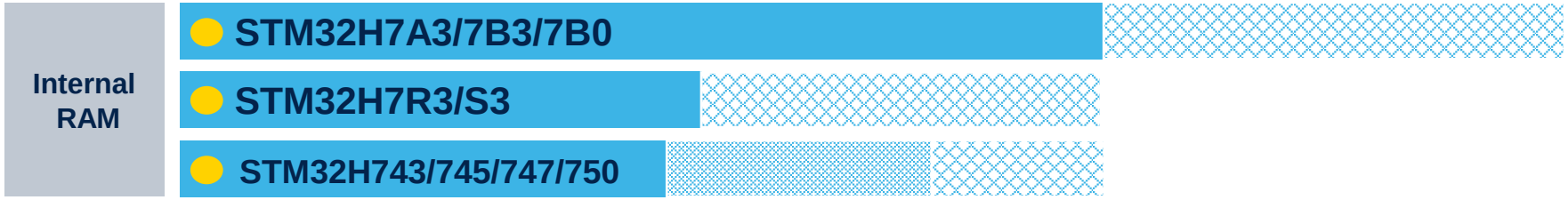
Display **with GRAM**
Single frame buffer

Display without GRAM
Double frame buffer



Display without GRAM
Double frame buffer

Display without GRAM
Double frame buffer



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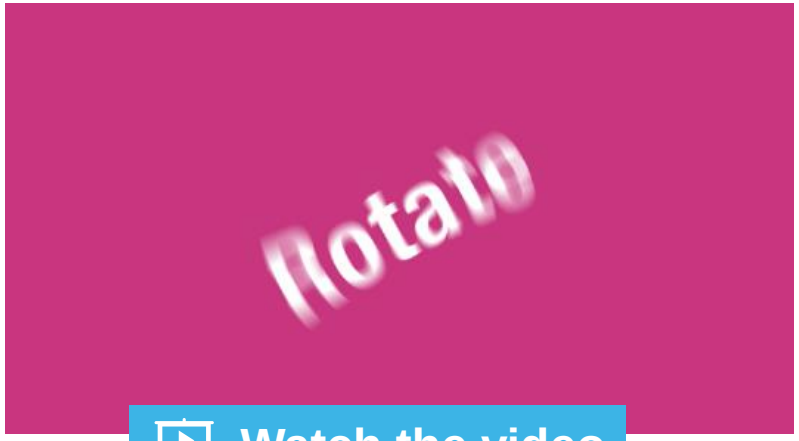
NeoChrom GPU Chrom-ART

Smoother and richer graphics with NeoChrom GPU

Watch the video



Watch the video

NeoChrom GPU

The NeoChrom GPU offloads the CPU from the graphic computations, freeing up the memory and boosting performance.

Fully supported in the X-CUBE-TOUCHGFX

Enabling outstanding graphics on STM32, such as:

- Simple & advanced drawing
- 2D Copy
- Alpha blending
- Color format conversion
- Scaling, Rotation
- Perspective correct texture mapping
- Image format compression

Available in STM32U5A9 and STM32H7R/S

Chrom-ART: 2D Graphics accelerator

Chrom-ART Accelerator

Offloads the CPU from graphics tasks
Lower memory consumption
Higher GUI performance – smooth and richer graphics effects

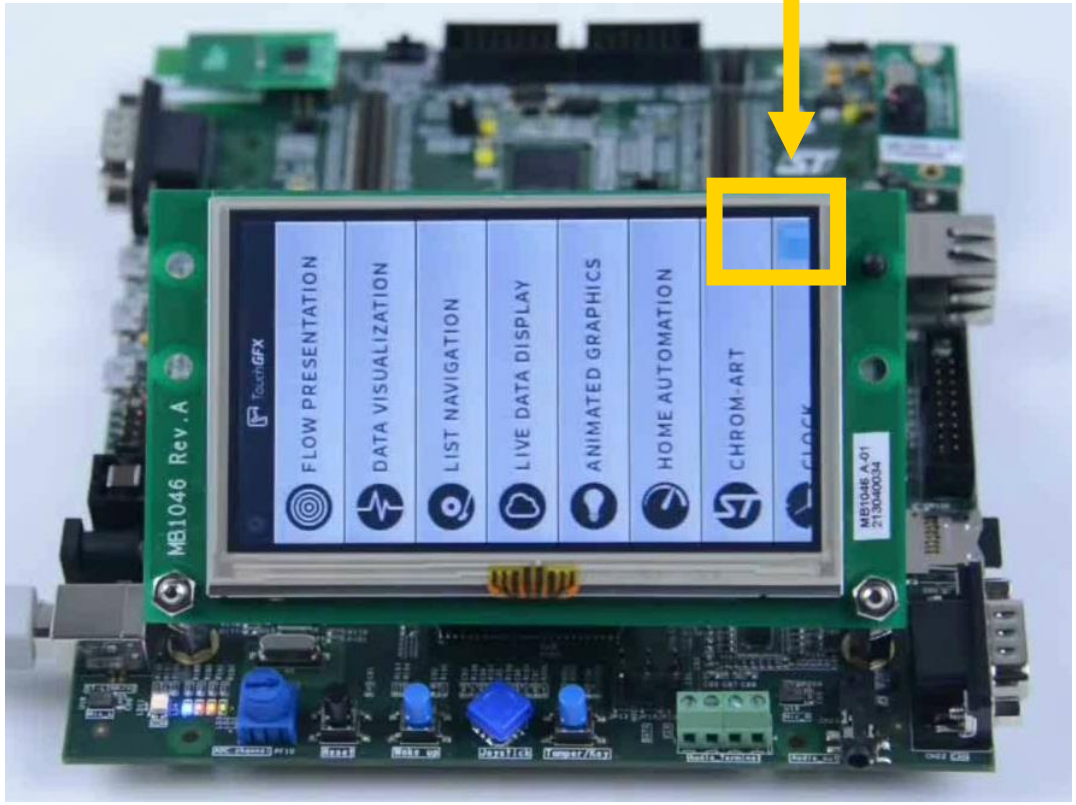
- Fluid motion and transparency effects with **80% less CPU resources** (watch video

➔ The enabled graphics

- Simple drawing
- 2D Copy
- Alpha blending
  - For transparency effects
  - Antialiased bitmap fonts
- Color format conversion

Check out the perf value!

4% CPU load with Chrom-ART™
Up to 84% without Chrom-ART™



JPEG Codec: MJPEG accelerated videos

JPEG hardware accelerator

Enhancing branding and user experience
- Instructions/Guiding videos
- Branding videos

Minimizing CPU load

Enables play of high-quality (30-60 FPS) motion JPEG videos

➔ **The enabling technology**
- JPEG compression and decompression
- Full and easy management of JPEG headers
- ChromART supports the pixel reordering and YCbCr to RGB conversion

Example of instruction video

JPEG hardware acc.	FPS	CPU load
OFF	12	>90%
ON	**90**	**<10%**

STM32H7, 240 MHz, 640x480 resolution
JPEG Codec hardware accelerator enables:
High quality video
Nine times less CPU recourses required

Smoother and richer graphics with NeoChrom GPU

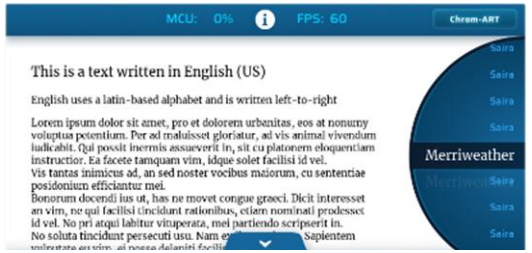
Fully supported in the X-CUBE-TOUCHGFX

Discover more on NeoChrom

Scale/animate bitmaps

Full screen transitions

360° Bitmap rotations



Text scrolling

Vector graphics (software)

Perspective correct texture mapping

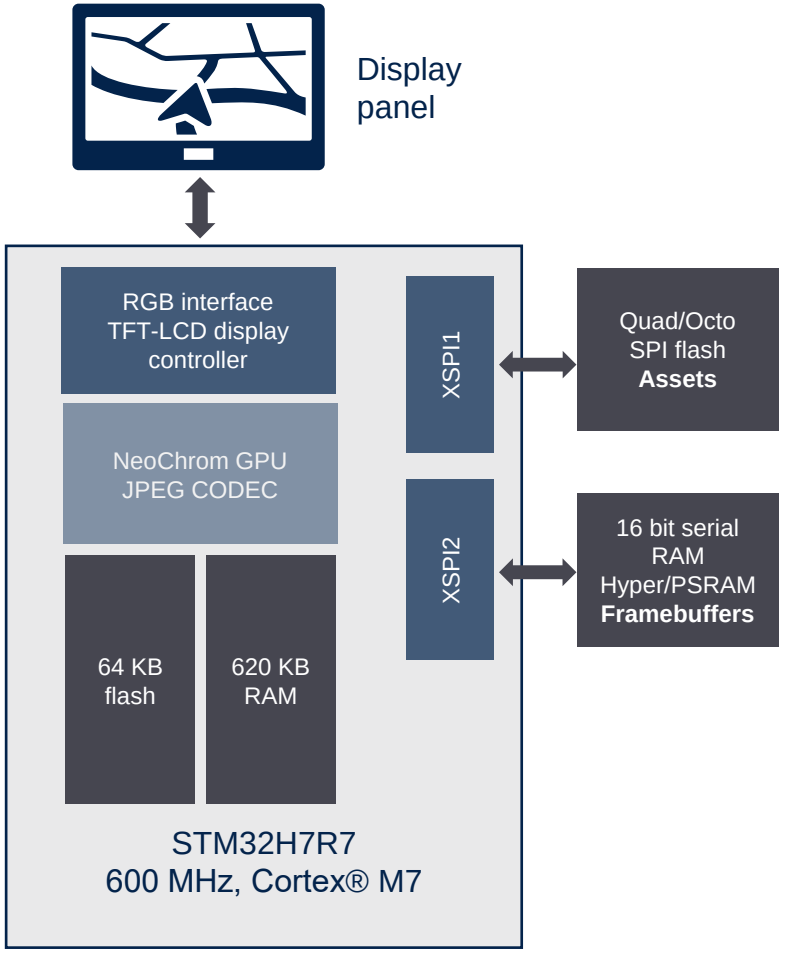
Fast 2D bitmap copy color format conversion

MJPEG videos

Advanced graphics with external RAM
STM32H7S7 with Serial RAM

Displays up to 10.1” - Approx. 800x480 / 1280x800

- **STM32H7S78-DK**
  - 5” WVGA, 800x480 display
  - Preloaded TouchGFX demo
  - LQFP to BGA
- **TouchGFXDesigner**
  - Demo in full source
  - TouchGFX Board setup
- **Memory**
  - OctoSPI flash
  - Hexadeca SPI serial RAM



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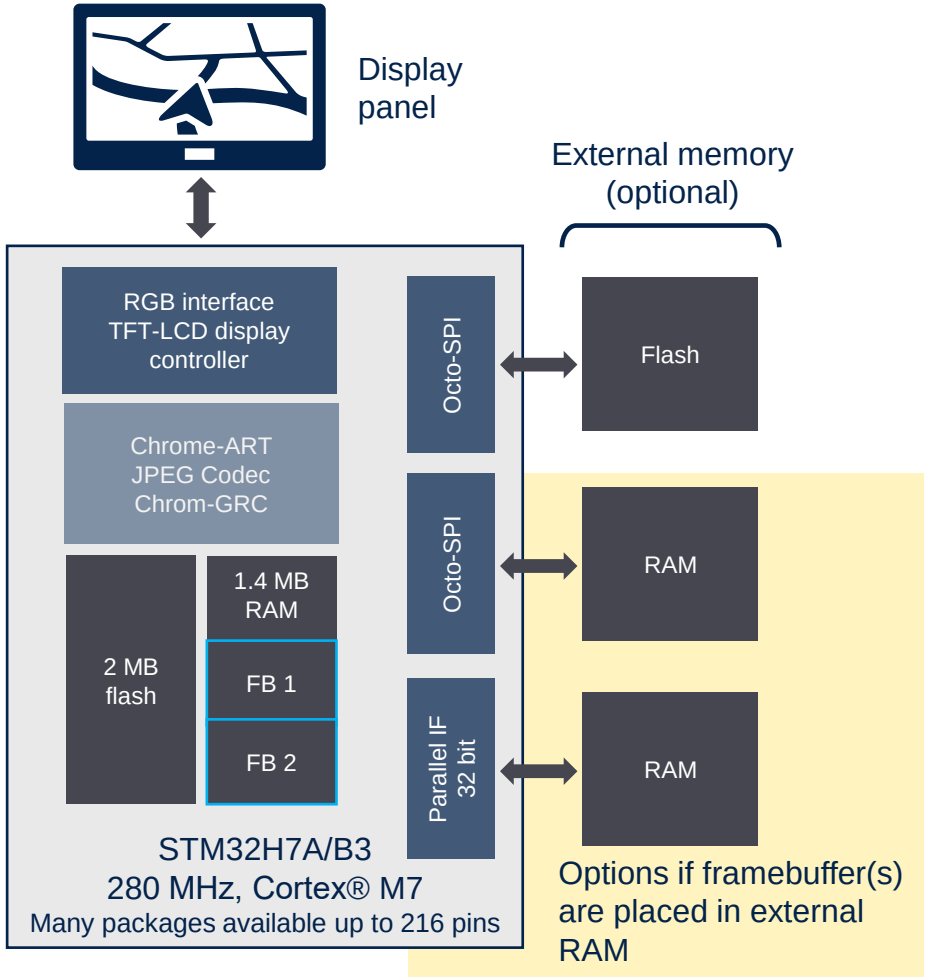
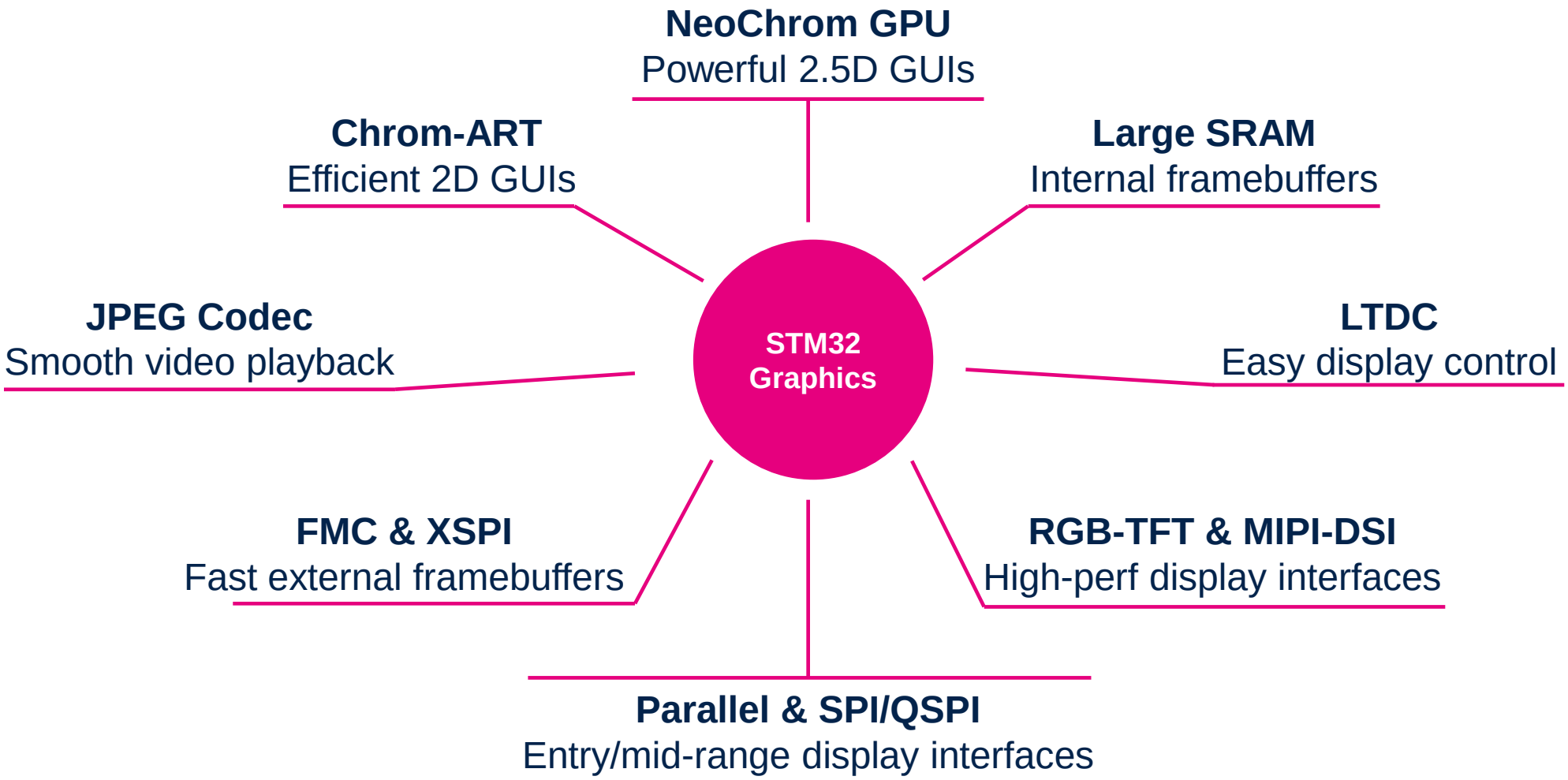
Advanced graphics with internal RAM only STM32H7A/B3/B0

Displays up to 5” - Approx. 480x320 in 24 bpp

- **STM32H7B3I-DK**
  - 4.3” WQVGA, 480x272 display
  - Preloaded TouchGFX demo
- **TouchGFXDesigner**
  - Demo in full source
  - TouchGFX Board setup



High Performance Graphics Enablers



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STM32H7 graphics comparison table

	Features	STM32H7A3 /B0	STM32H723/ 725/730	STM32H745/ 747	STM32H743/ 750	STM32H7R7/S7	STM32H7R3/S3
Hardware acceleration	**Chrom-ART Accelerator** Hardware acceleration for graphical operations	●	●	●	●	●	●
	NeoChrom GPU Hardware acceleration for graphical operations	-	-	-	-	●	-
	JPEG CODEC Optimized video playback	●	-	●	●	●	●
Memory interfaces	**Quad-SPI (x4)** Connecting QSPI flash	●	●	●	●	●	●
	Octo-SPI (x8) Connecting Octo SPI flash or Octal RAM	●	●	-	-	●	●
	HexaDeca SPI (x16) 16-bit serial PSRAM, Hyper/Octal RAMs	-	-	-	-	●	●
	FMC Connecting parallel flash, SDRAM, PSRAM	●	●(24 bit)	●	●	●	●
	SDMMC Connecting eMMC, MMC,	●	●	●	●	●	●
Display interfaces	**LCD-TFT display controller**	●	●	●	●	●	-
	MIPI-DSI	-	-	●	-	-	-
	SPI & Parallel 8080/6800	●	●	●	●	●	●
Embedded memory	**Embedded SRAM** for framebuffers	Up to 1024 Kbytes	Up to 364 Kbytes	Up to 1024 Kbytes	Up to 1024 Kbytes	620 Kbytes	620 Kbytes
	Embedded flash for code and data	128 Kbytes to 2048 Kbytes	128 Kbytes to 1024 Kbytes	1024 Kbytes to 2048 Kbytes	128 Kbytes to 2048 Kbytes	64 Kbytes	64 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

Watch introduction video here

TouchGFX

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Graphic solutions from ST and partners

Out-of-the-box GUI software available for STM32

	TouchGFX	MICROEJ	emWin	LVGL	CRANK SOFTWARE	altia	GTK	CANDERA	Qt		Embedded Wizard
STM32 Mainstream	●		●								●
STM32 Ultra-Low Power	●		●	●	●			●	●		●
STM32 High Performance	●	●	●	●	●			●	●		●
STM32 Wireless	●										
STM32 MPUs			●	●	●	●	●	●	●	●	●

More info on st.com/stm32gui

Looking for support from specialized companies?

STM32 Experts TouchGFX
Worldwide network for TouchGFX expertise and design services

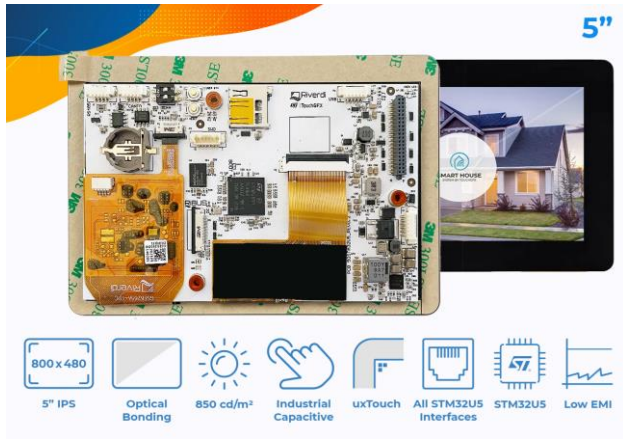
Advanced Graphics Solutions
Software partners taking the full advantages of STM32 graphic capabilities

For more info:
STM32 graphics solutions

4-10" Prototype and production-ready display modules

TSD

E2IP



RIVERDI

EDT

SIANA SYSTEMS

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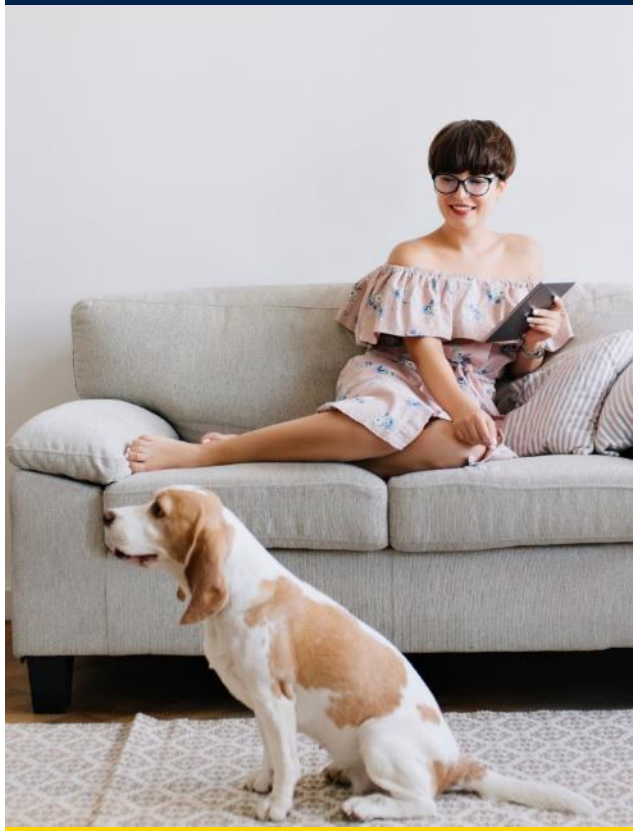
Edge AI, safety, and motor control applications

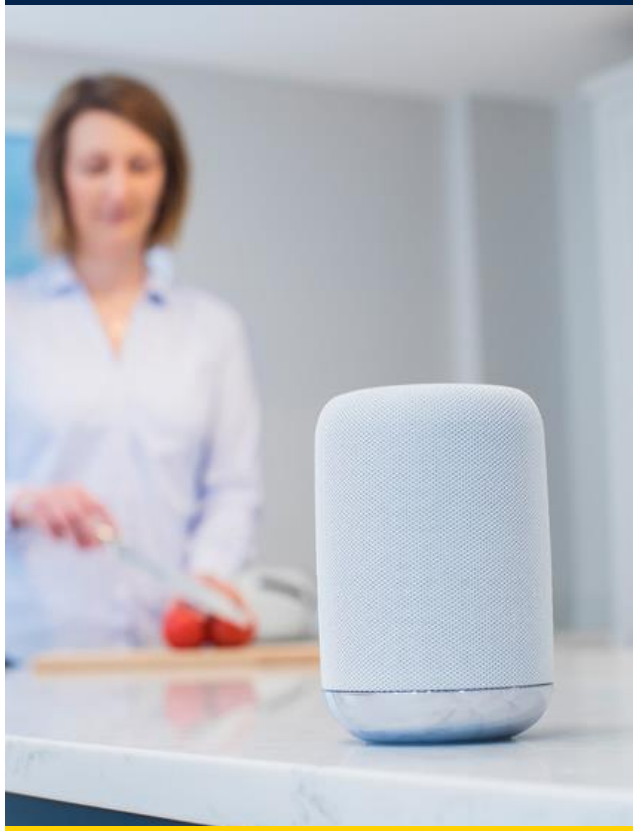
Embed AI in your applications with STM32H7

Object detection

Image classification



Voice recognition



Predictive maintenance

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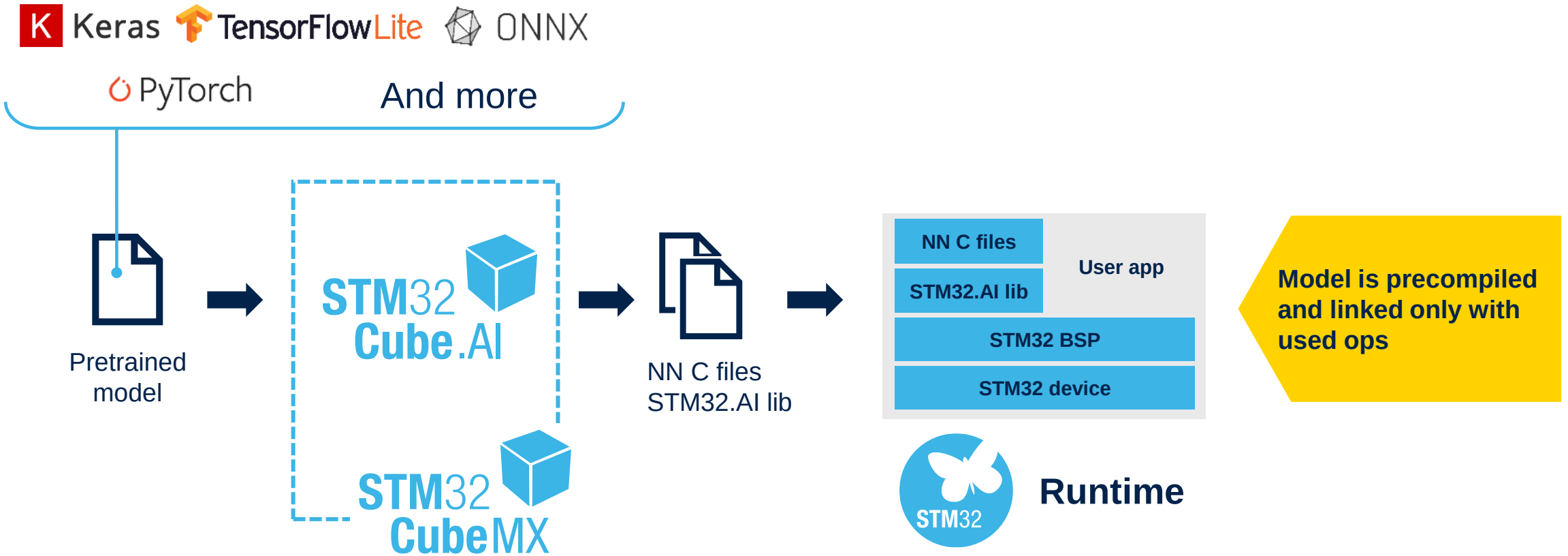
The key steps behind neural networks on STM32

Optimized C code generated by STM32Cube.AI



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).

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Drive your motor with STM32H7

Robotic	High-end appliance	Servo motor - industrial	Medical
			

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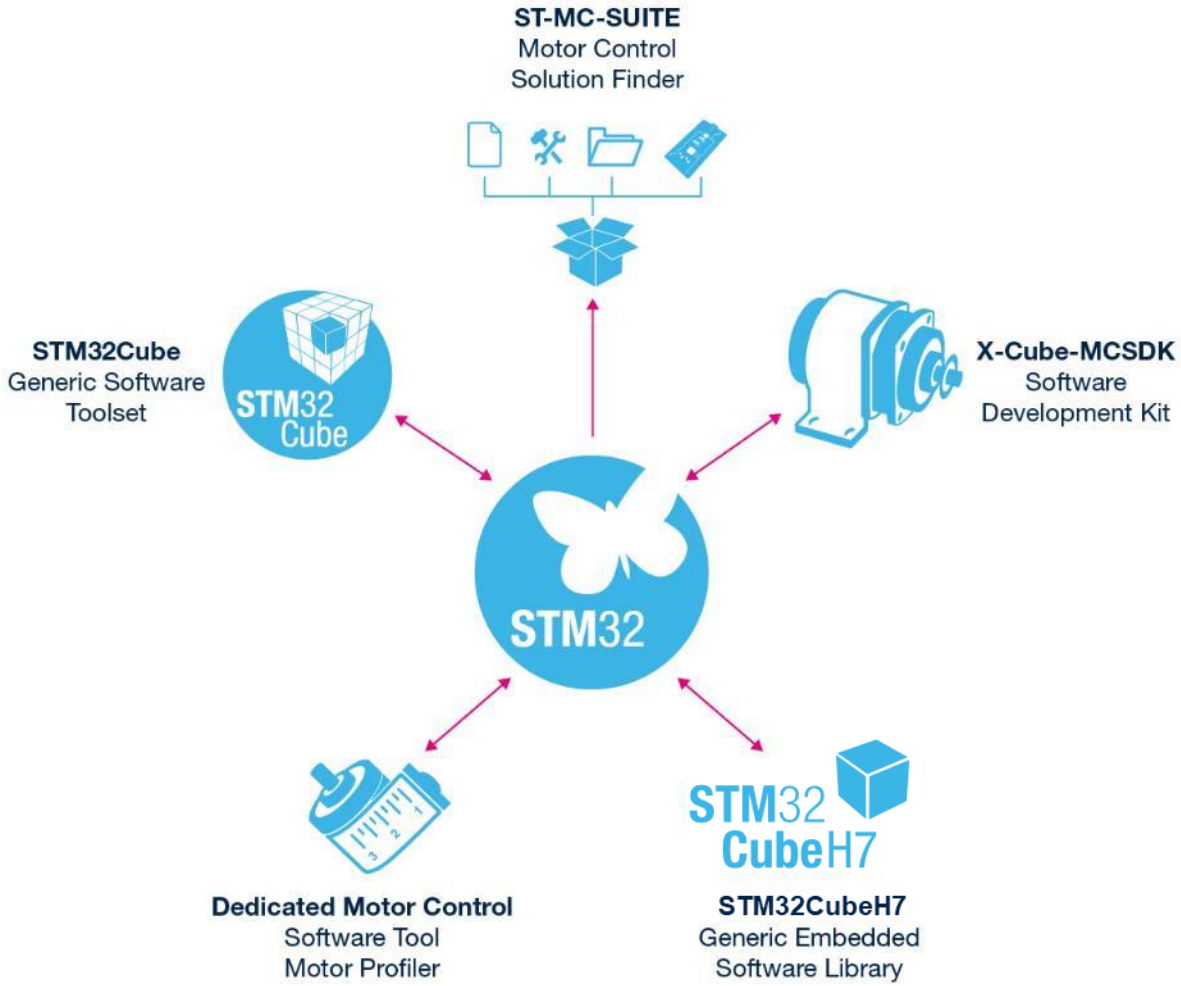
Field-oriented control for BLDC/PMSM motors

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



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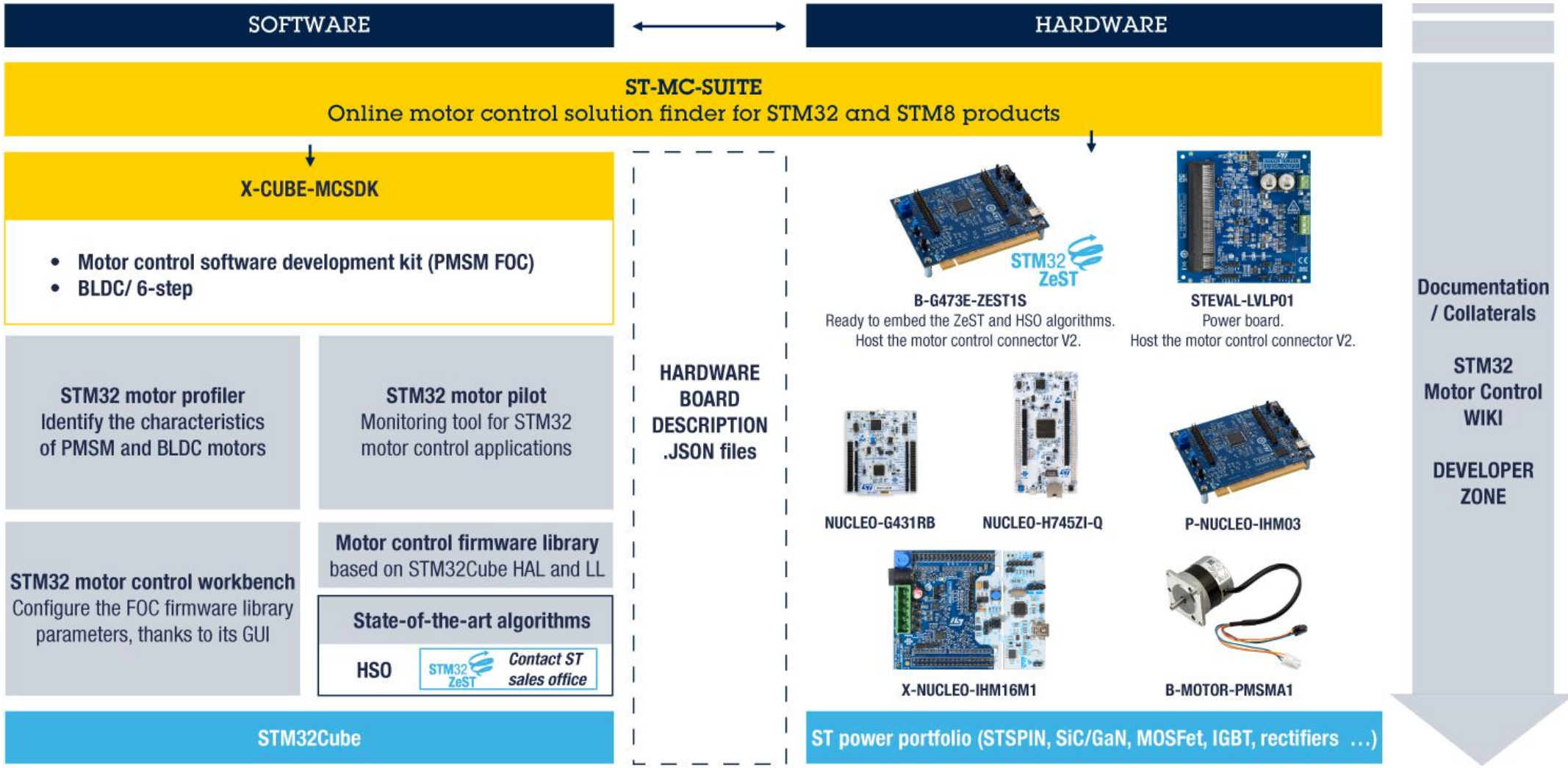
Motor control ecosystem for the STM32 family



http://www.st.com/stm32-motor-control

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 & efficiency
FPU	yes	yes	yes	Performance & efficiency
MPU	yes	yes	yes	Safety
Freq CPU max	480 MHz + 240 MHz(*)	550 MHz	280 MHz	Performance & efficiency
DMIPS	1027 (single core), 1027+300(*)	1177	599	Performance & efficiency
Flash / SRAM data size	128 KB to 2 MB / Up to 1 MB	128 KB to 1 MB / 564 KB	128 KB to 2 MB / 1.4 MB	Performance & integration/cost
Including: ITCM/DTCM RAM	*64 KB / 128 KB*	*Up to 256 KB (configurable) / 128 KB*	*64 KB / 128 KB*	*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 & efficiency
Cache and accelerator	16 KB+16 KB L1 cache + ART (*) Graphic, crypto(**)	32 KB+32 KB L1 cache Graphic, Cordic, FMAC, crypto(**)	16 KB+16 KB L1 cache Graphic, crypto(**)	Performance & efficiency
Security services (SFI and SBSFU)	yes(**)	yes(**)	yes(**)	System integrity
Packages	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] Tj max 140 °C	[-40 .. +125] Tj max 140 °C	[-40 .. +85] Tj max 130 °C	Integration and cost

(*): on dual core versions (**): on crypto part numbers

Mission profiles

Semiconductor standard qualification

- **Consumer** grade product
  - **5 years** / **50%** from 0°C to **70°C ambient** Mission profile
- **Industrial** grade product
  - **10 years** / **100%** from -40°C to **+85°C ambient** Mission profile
- **Extended industrial** temperature Range for specific applications
  - 10 years / 100% from -40°C to **+105°C ambient** Mission profile
- **Full-range industrial** temperature Range for specific applications
  - 10 years / 100% from -40°C to **+125°C ambient** Mission profile

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STM32H72x/3x mission profiles

- Suffix 6

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS0	Consumer	Cortex®-M7 @ 550 MHz	20% / 10-year	-40°C < T_j < +105°C
VOS1	Extended consumer	Cortex®-M7 @ 400 MHz	20% / 10-year	-40°C < T_j < +125°C
VOS2	Extended industrial	Cortex®-M7 @ 300 MHz	100% / 10-year	-40°C < T_j < +125°C
VOS3	Extended industrial	Cortex®-M7 @ 170 MHz	100% / 10-year	-40°C < T_j < +125°C

- From derating curve

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS1	Industrial	Cortex®-M7 @ 400 MHz	**100**% / 10-year	-40°C < T_j < +**105**°C
VOS2	Extended industrial	Cortex®-M7 @ 300 MHz	100% / **20**-year	-40°C < T_j < +125°C
VOS3	Extended industrial	Cortex®-M7 @ 170 MHz	100% / **20**-year	-40°C < T_j < +125°C

STM32H72x/3x mission profiles

- Suffix 3

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS0	Consumer	Cortex®-M7 @ 550 MHz	20% / 10-year	-40°C < T_j < +105°C
VOS1	Extended consumer	Cortex®-M7 @ 400 MHz	20% / 10-year	-40°C < T_j < +140°C
VOS2	Full-Range industrial	Cortex®-M7 @ 300 MHz	100% / 10-year	-40°C < T_j < +140°C
VOS3	Full-Range industrial	Cortex®-M7 @ 170 MHz	100% / 10-year	-40°C < T_j < +140°C

- From derating curve

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS1	Industrial	Cortex®-M7 @ 400 MHz	**100**% / 10-year	-40°C < T_j < +**105**°C
VOS2	Extended industrial	Cortex®-M7 @ 300 MHz	100% / **20**-year	-40°C < T_j < +125°C
VOS3	Extended industrial	Cortex®-M7 @ 170 MHz	100% / **20**-year	-40°C < T_j < +125°C

STM32H74x/5x mission profiles

- Suffix 6

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS0	Consumer	Cortex®-M7 @ 550 MHz	20% / 10-year	-40°C < T_j < +105°C
VOS1	Extended consumer	Cortex®-M7 @ 400 MHz	20% / 10-year	-40°C < T_j < +125°C
VOS2	Extended industrial	Cortex®-M7 @ 300 MHz	100% / 10-year	-40°C < T_j < +125°C
VOS3	Extended industrial	Cortex®-M7 @ **200 MHz**	100% / 10-year	-40°C < T_j < +125°C

- From derating curve

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS1	Industrial	Cortex®-M7 @ 400 MHz	**100**% / 10-year	-40°C < T_j < +**108**°C
VOS2	Extended industrial	Cortex®-M7 @ 300 MHz	100% / **20**-year	-40°C < T_j < +125°C
VOS3	Extended industrial	Cortex®-M7 @ 200 MHz	100% / **20**-year	-40°C < T_j < +125°C

STM32H74x/5x mission profiles

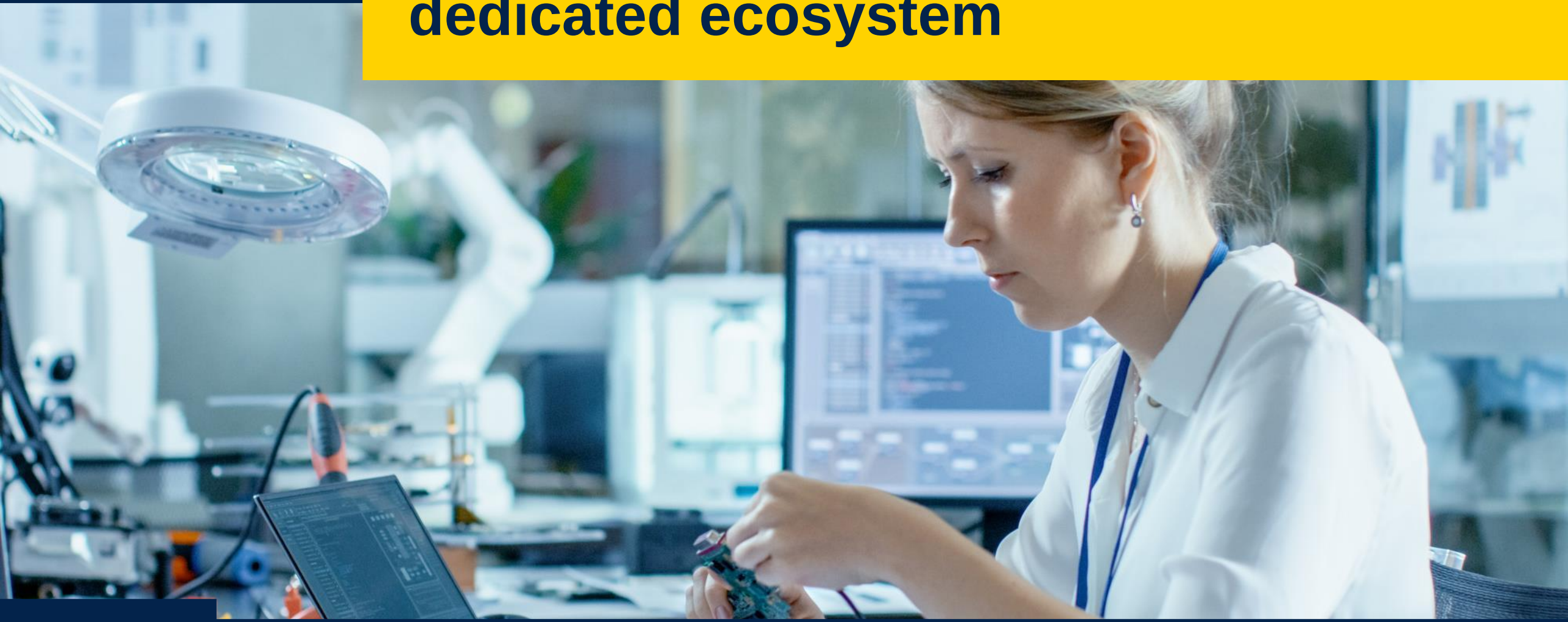
- Suffix 3

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS0	Consumer	Cortex®-M7 @ 550 MHz	20% / 10-year	-40°C < T_j < +105°C
VOS1	Extended consumer	Cortex®-M7 @ 400 MHz	20% / 10-year	-40°C < T_j < +**125**°C
VOS2	Full-Range industrial	Cortex®-M7 @ 300 MHz	100% / 10-year	-40°C < T_j < +140°C
VOS3	Full-Range industrial	Cortex®-M7 @ **200 MHz**	100% / 10-year	-40°C < T_j < +140°C

- From derating curve

	Mission profile	CPU frequency	Activity rate / lifetime	Junction temperature
VOS1	Industrial	Cortex®-M7 @ 400 MHz	**100**% / 10-year	-40°C < T_j < +**108**°C
VOS2	Extended industrial	Cortex®-M7 @ 300 MHz	100% / **20**-year	-40°C < T_j < +125°C
VOS3	Extended industrial	Cortex®-M7 @ 170 MHz	100% / **20**-year	-40°C < T_j < +125°C

Accelerate your development with our dedicated ecosystem



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STM32Cube framework

Unlock the potential of STM32H7 MCUs thanks to our tools and embedded software

Evaluation, prototyping, and selection	Hardware and software configuration	Application development and debug	Code and hardware options programming	Runtime application monitoring
STM32 Finder STM32 evaluation tools	STM32 CubeMX	STM32 CubeMCU Packages STM32 CubeExpansion & Verticals and partner solutions STM32 CubeIDE & Partner IDEs	STM32 CubeProgrammer & Programmers from partners	STM32 CubeMonitor

Worldwide support channels

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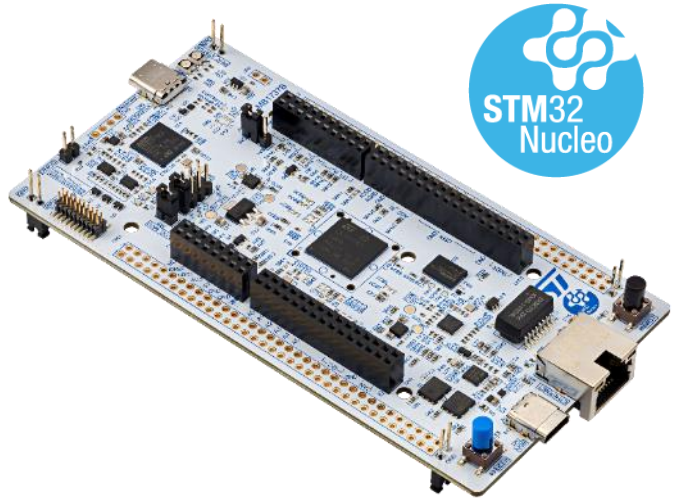
STM32H7 evaluation tools

Speed-up evaluation, prototyping, and design



Evaluation boards	Discovery kits	Nucleo boards
Full feature STM32H7 evaluation	Flexible prototyping & demo	Affordable and quick prototyping

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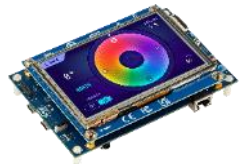
Pick the right STM32H7 development tool


STM32H7 class	Cores/Speed	Part numbers	Evaluation boards	Discovery kits	Nucleo boards
STM32H74/5	Single Core 480 MHz	**STM32H743**	STM32H743I-EVAL2	-	NUCLEO-H743ZI2
		STM32H753, crypto enabled	STM32H753I-EVAL2	-	NUCLEO-H753ZI
		STM32H750 Value Line, cryptoenabled	-	STM32H750B-DK	-
	Dual Core 480 MHz + 240 MHz	**STM32H745**	-	STM32H745I-DISCO	NUCLEO-H745ZI-Q
		STM32H747	STM32H747I-EVAL	STM32H747I-DISCO STM32H747I-DISC1	-
		STM32H755/757, Crypto enabled	STM32H757I-EVAL	-	NUCLEO-H755ZI-Q
STM32H7A/B	Single Core 280 MHz	**STM32H7A3**	-	-	NUCLEO-H7A3ZI-Q
		STM32H7B3, Crypto enabled	STM32H7B3I-EVAL	STM32H7B3I-DK	-
		STM32H7B0, Value line, Crypto enabled	*STM32H7B3I-EVAL **	*STM32H7B3I-DK **	-
STM32H72/3	Single Core 550 MHz	**STM32H723/733**	-	-	NUCLEO-H723ZG
		STM32H725/735	-	STM32H735G-DK	-
		STM32H730, Value line, Crypto enabled	-	*STM32H735G-DK **	-
STM32H7R/S	Single Core 600 MHz	**STM32H7R3/7S3**	-	*STM32H7S78-DK**	*NUCLEO-H7S3L8*
		STM32H7R7/7S7, Crypto enabled	-	*STM32H7S78-DK*	*NUCLEO-H7S3L8**

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

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STM32CubeH7 Package - Drivers

Efficient and flexible access to the STM32 MCU features

LL drivers	HAL drivers
Lower abstraction level Higher optimization Direct peripheral hardware control Lower current consumption Lower code size	Higher abstraction level Higher portability and reuse Faster time to design Easier maintenance Relatively bigger code size

Full and optimized access to all STM32H7 peripherals and features

MISRA C compliant, statically analyzed, rigorously tested

1250+ production-ready example projects

Available from st.com, GitHub, or STM32Cube tools

Download STM32CubeH7

Download STM32CubeH7RS

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STM32CubeH7 Package - Middleware

Faster development with ported selection of market reference middleware

Middleware	Expansions
AzureRTOS ThreadX and FreeRTOS™ AzureRTOS USBX AzureRTOS NetXDuo and LWIP Azure RTOS FileX and levelX USB PD and open bootloader Secure boot Secure Manager API	TouchGFX graphics solution Motor control AI Mems and sensors Secure cloud connectors Functional safety self-test library

Porting leveraging STM32H7 MCUs features and architectures

A large set of applicative examples

Available from st.com, GitHub, or STM32Cube tools

Download STM32CubeH7

Download STM32CubeH7RS

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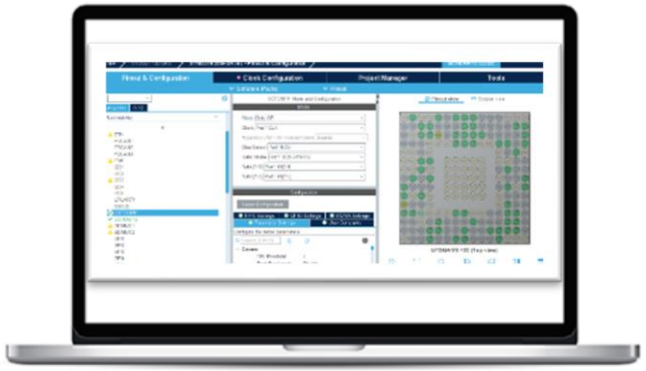
STM32CubeMX

Easily and quickly create and initialize your project



- Pinout configuration and easy alternate functions setting
- Clock Tree initialization with automatic settings solver
- Peripherals enablement and full features configuration
- Middleware additions and configuration
- Project generation for CubeIDE, Keil®, and IAR
- Power consumption calculator

Download STM32CubeMX

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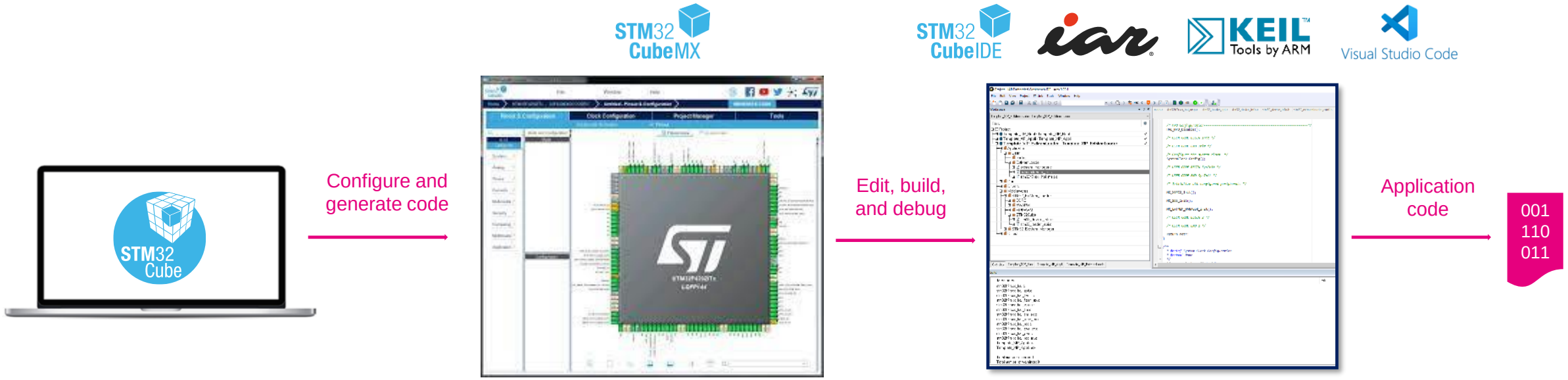
Simplified external memory-based development

Application

STM32CubeMX assisted application project initialization with pinout, clock tree, MCU peripherals and middleware configuration.



STM32CubeMX
More flexibility: Boot mode configuration

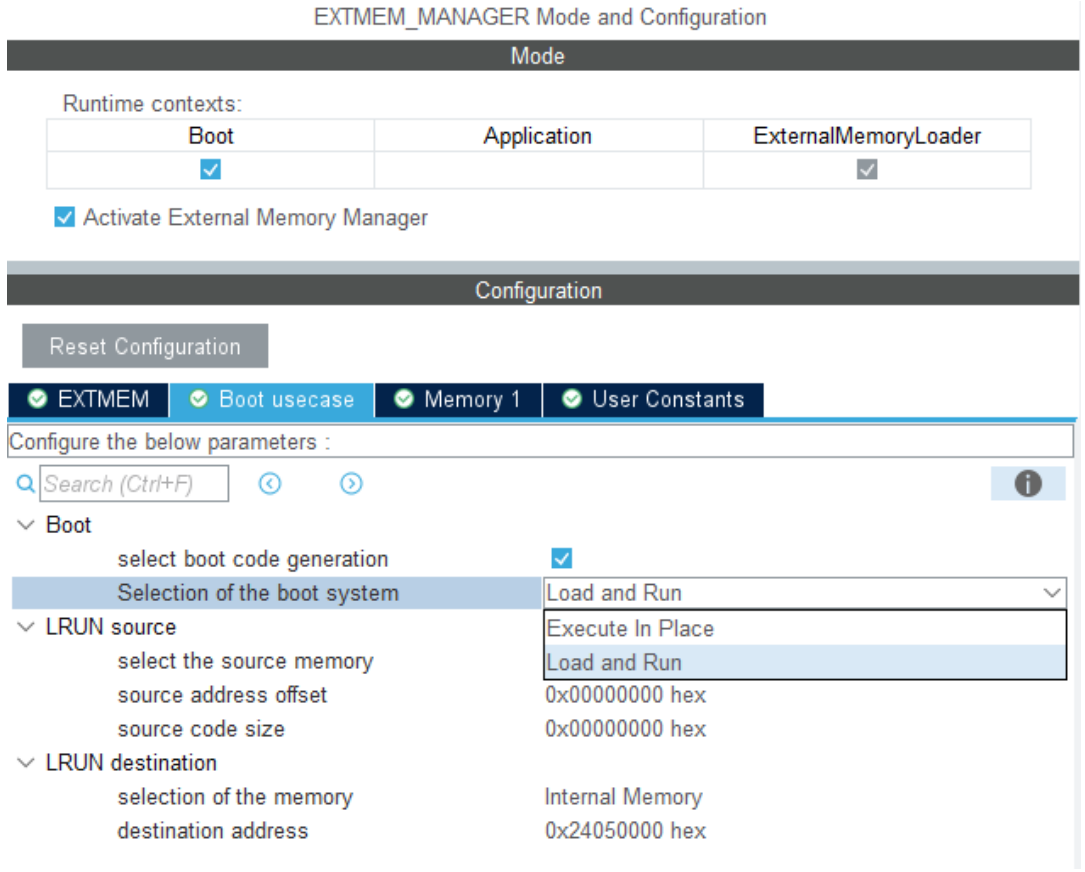
More flexibility for application boot

CubeMX Generated code to support

- **XiP (Execute in Place)**

OR

- **Load and Run**



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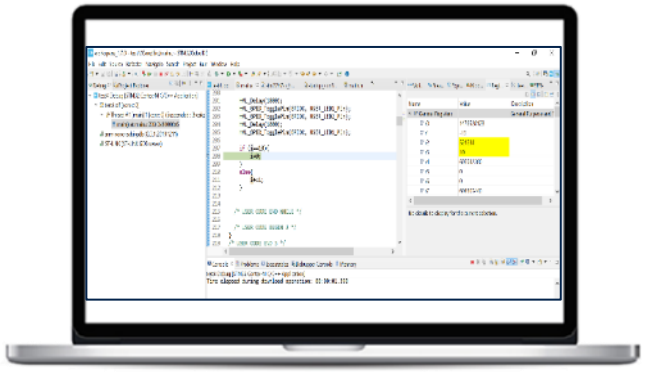
STM32CubeIDE

A simple and free IDE to accelerate your development



- C and C++ code edit
- CMake support
- GNU GCC based compiles and build
- Programming and debug through STLINK and J-link support
- Cortex®-M Core and peripheral register, memories, and variables view
- CPU fault analysis and SWV based system analysis and real-time tracing

Also supporting STM32H7 products

IAR SYSTEMS

arm KEIL

Visual Studio Code

Download STM32CubeIDE

Install the STM32 VS Code extension

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User-friendly hardware and software tools to simplify application development

STLINK portfolio

Debugging & programming

STLINK-V3MINIE

STLINK-V3PWR

ST-LINK/V2

STLINK-V3SET

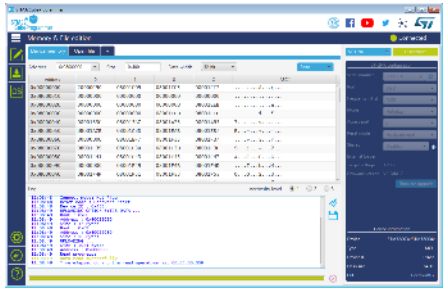
STLINK-V3MODS

and expansion boards

STM32CubeProgrammer software tool

Code & hardware programming

STM32CubeProg



STM32 CubeProgrammer

STM32HSM Hardware security module

Authentication & license generation

STM32HSM-V2

STM32HSM-V2
Secure programming for STM32

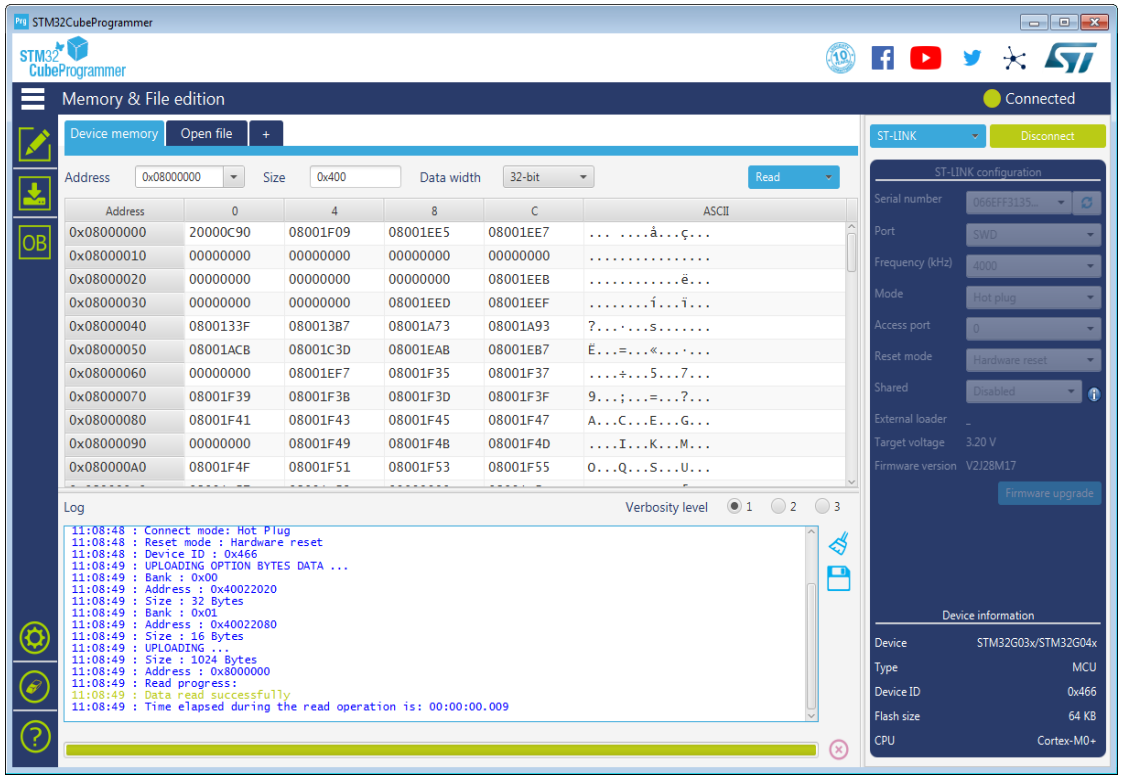
Third-party programming systems

From prototyping to mass production

ACROVIEW · DediProg · Data I/O · Algocraft · BPM · eps · DATAMAN · HI-LO SYSTEMS · PE micro · RK-SYSTEM · Phyton · SECURE THINGZ · SEGGER It simply works! · SMH Technologies · XELTEK

STM32CubeProgrammer software tool

User-friendly tool compatible with multiple platforms (Windows, Linux, macOS)



- STLINK direct support (JTAG, SWD)
- Automatic mode
- Option bytes program & upload
- Command-line interface for scripting
- Internal / external flash services
- API DLL for custom integration
- Bootloader interface support (USB, UART, SPI, I2C, CAN)
- Trusted package creator (secure programming)

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STM32CubeMonitor

Software tools to finetune application behaviors at runtime and perform specialized code optimization

STM32CubeMonitor	STM32CubeMonitor-Power	STM32CubeMonitor-UCPD
Nonintrusive monitoring at runtime	Visualize dynamic energy consumption	Monitor USB Type-C® and power delivery apps

STM32 CubeMonitor

Third-party tracing / monitoring systems

From application diagnosis to code profiling

ARM KEIL Microcontroller Tools

IAR SYSTEMS

LAUTERBACH DEVELOPMENT TOOLS

percepio SENSING SOFTWARE

SEGGER It simply works!

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

Authorized Partner

A large selection of partners are are already program members covering:

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

And many more

Technical specifications for STM32H7 lines

STM32H7 series
More than 130 part numbers

Bootflash lines

STM32**H7R3/7S3**	STM32**H7R7/7S7**
600 MHz 1284 DMIPS	600 MHz 1284 DMIPS
SRAM 620 KB	SRAM 620 KB
64 KB user flash	64 KB user flash
ST-iRoT	ST-iRoT
Chrom-ART	NeoChrom + LTDC

Dual-core lines

STM32**H745/755**	STM32**H747/757**
480 + 240 MHz 1027 + 300 DMIPS	480 + 240 MHz 1027 + 300 DMIPS
RAM 1 MB	RAM 1 MB
Flash up to 2 MB	Flash up to 2 MB

Single-core lines

STM32**H7A3/B3**	STM32**H742**	STM32**H743/753**	STM32**H723/733**	STM32**H725/735**
280 MHz 599 DMIPS	480 MHz 1027 DMIPS	480 MHz 1027 DMIPS	550 MHz 1177 DMIPS	550 MHz 1177 DMIPS
RAM 1.4 MB	RAM 692 KB	RAM 1 MB	RAM 564 KB	RAM 564 KB
Flash up to 2 MB	Flash up to 2 MB	Flash up to 2 MB	Flash up to 1 MB	Flash up to 1 MB

Value lines

STM32**H7B0**	STM32**H750**	STM32**H730**
280 MHz 599 DMIPS	480 MHz 1027 DMIPS	550 MHz 1177 DMIPS
RAM 1.4 MB	RAM 1 MB	RAM 564 BB
Flash 128 KB	Flash 128 KB	Flash 128 KB

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

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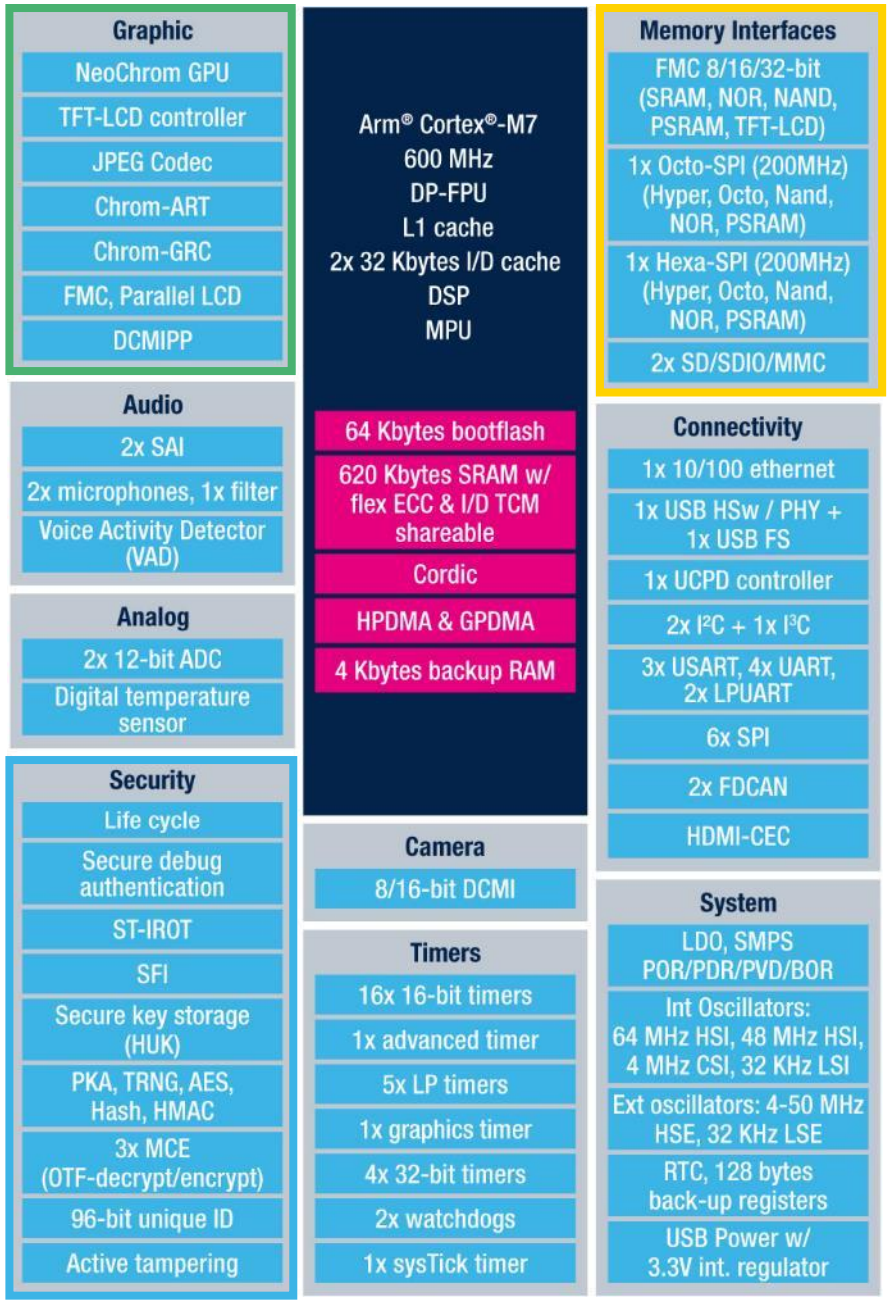
Bootflash MCU STM32H7R/S



High performance

Scalable security

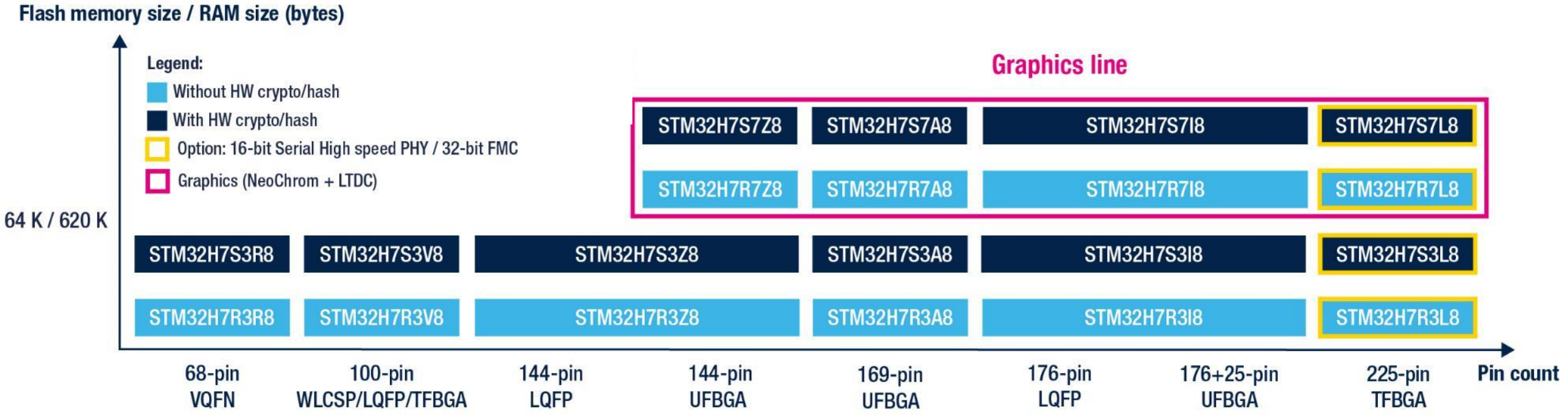
Large embedded RAM memory

Fast & flexible external memory I/F

Advanced graphic capabilities

Bootflash MCU STM32H7R/S

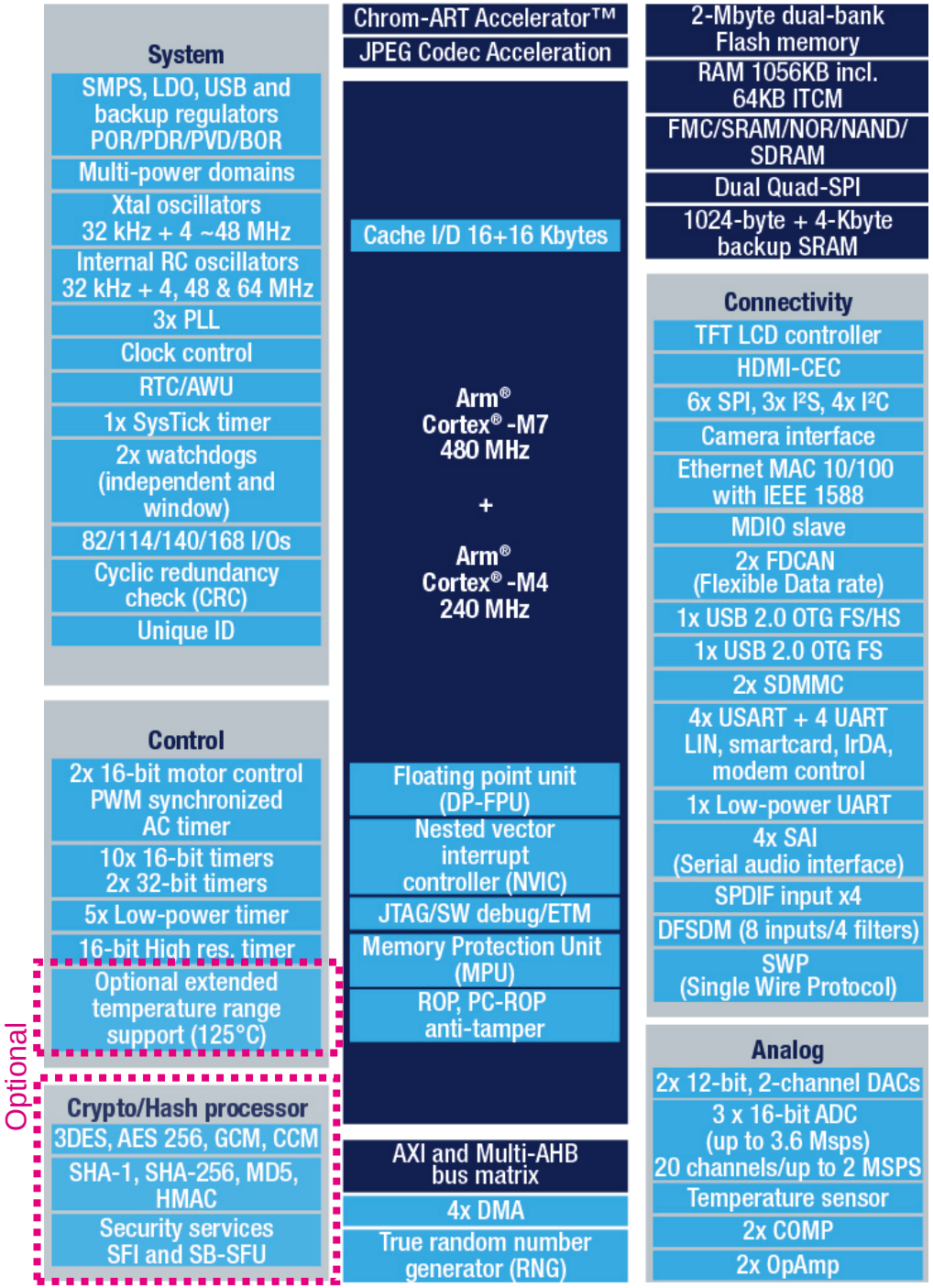
General-purpose & graphics lines, security options, large package offering

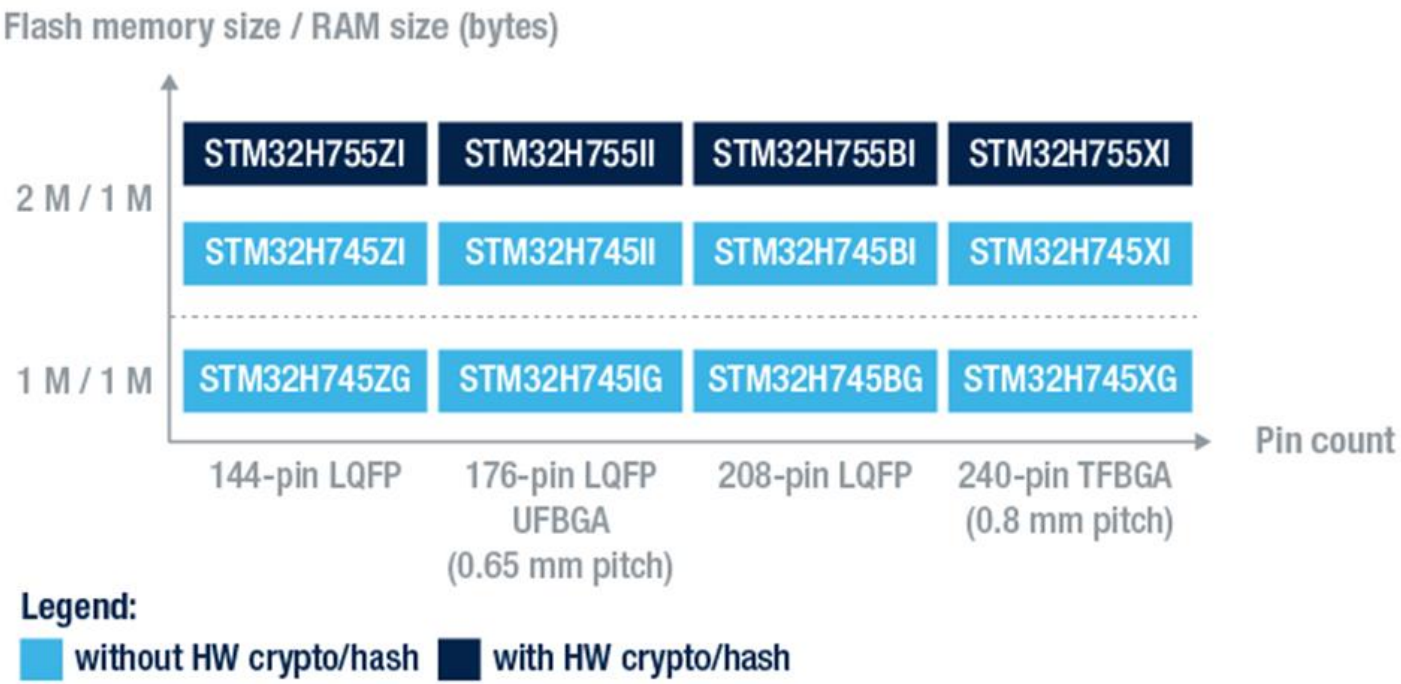


life.augmented

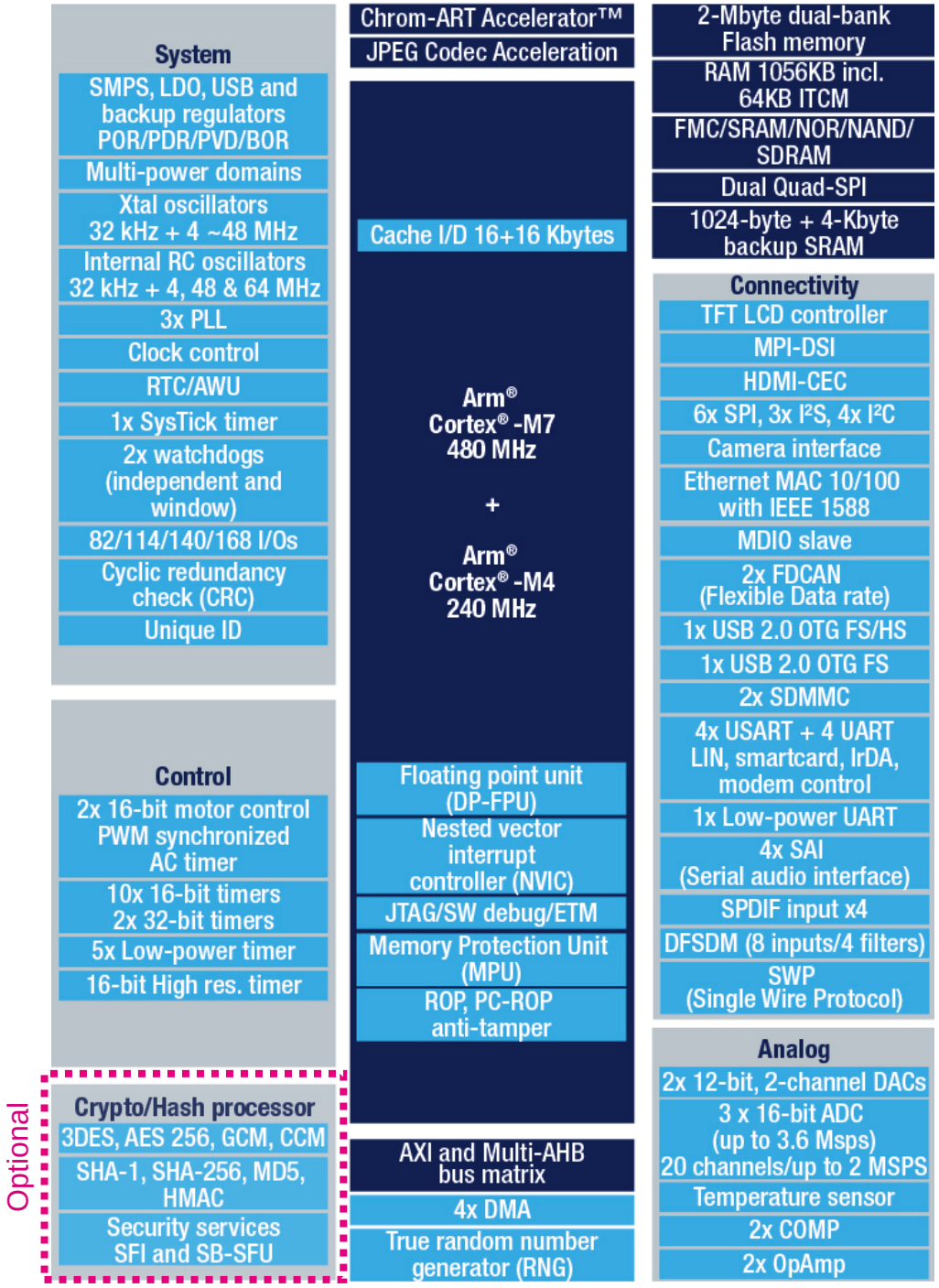
10 packages and 30 part numbers

Dual-core for industrial STM32H745/H755

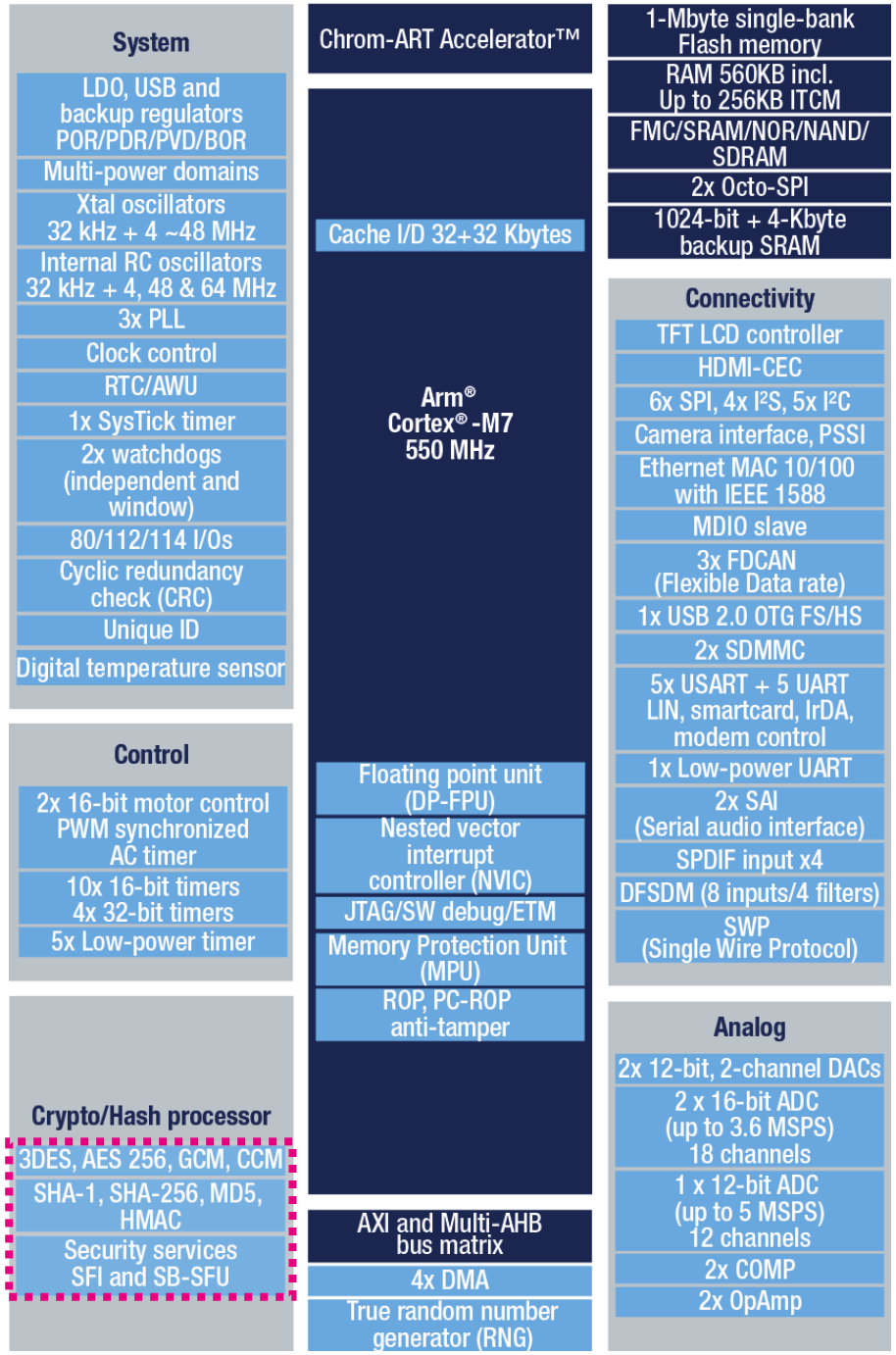


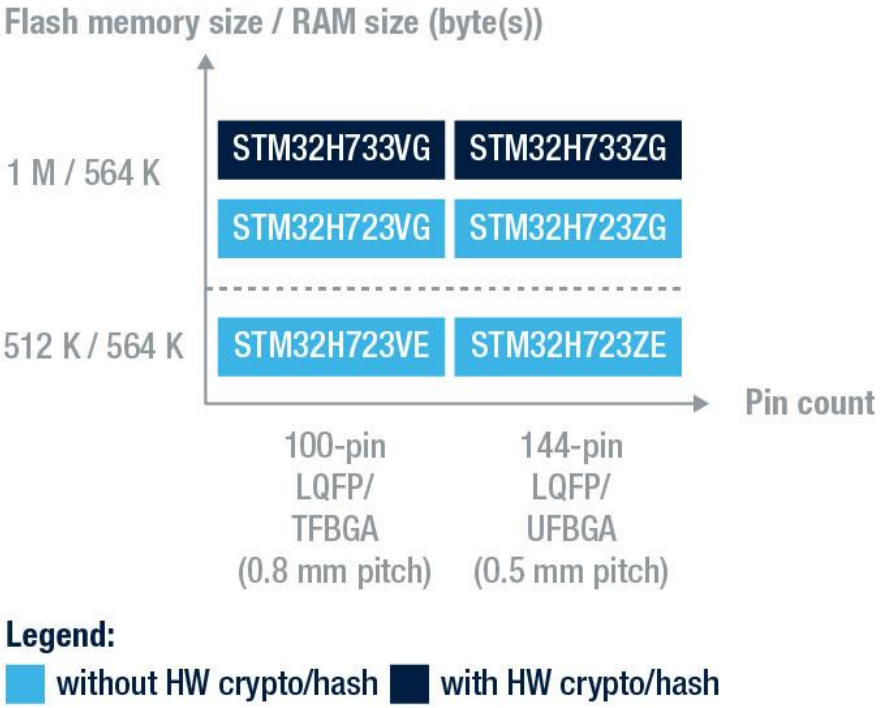


Dual-core for graphics STM32H747/H757



Single-core lines
Affordable STM32H723/H733





Single-core lines
Entry-cost STM32H725/H735 with SMPS

System
- SMPS, LDO, USB and backup regulators POR/PDR/PVD/BOR
- Multi-power domains
- Xtal oscillators 32 kHz + 4 ~48 MHz
- Internal RC oscillators 32 kHz + 4, 48 & 64 MHz
- 3x PLL
- Clock control
- RTC/AWU
- 1x SysTick timer
- 2x watchdogs (independent and window)
- 46/67/97/119/121/128 I/Os
- Cyclic redundancy check (CRC)
- Unique ID
- Digital Temperature sensor

Control
- 2x 16-bit motor control PWM synchronized AC timer
- 10x 16-bit timers 4x 32-bit timers
- 5x Low-power timer
- Optional extended temperature range support (125°C)

Crypto/Hash processor
- 3DES, AES 256, GCM, CCM
- SHA-1, SHA-256, MD5, HMAC
- Security services SFI and SB-SFU

Optional

Chrom-ART Accelerator™

Cache I/D 32+32 Kbytes

Arm® Cortex®-M7 550 MHz

- Floating point unit (DP-FPU)
- Nested vector interrupt controller (NVIC)
- JTAG/SW debug/ETM
- Memory Protection Unit (MPU)
- ROP, PC-ROP anti-tamper

AXI and Multi-AHB bus matrix

4x DMA

True random number generator (RNG)

1-Mbyte single-bank Flash memory

RAM 560KB incl. Up to 256KB ITCM

FMC/SRAM/NOR/NAND/SDRAM

2x Octo-SPI

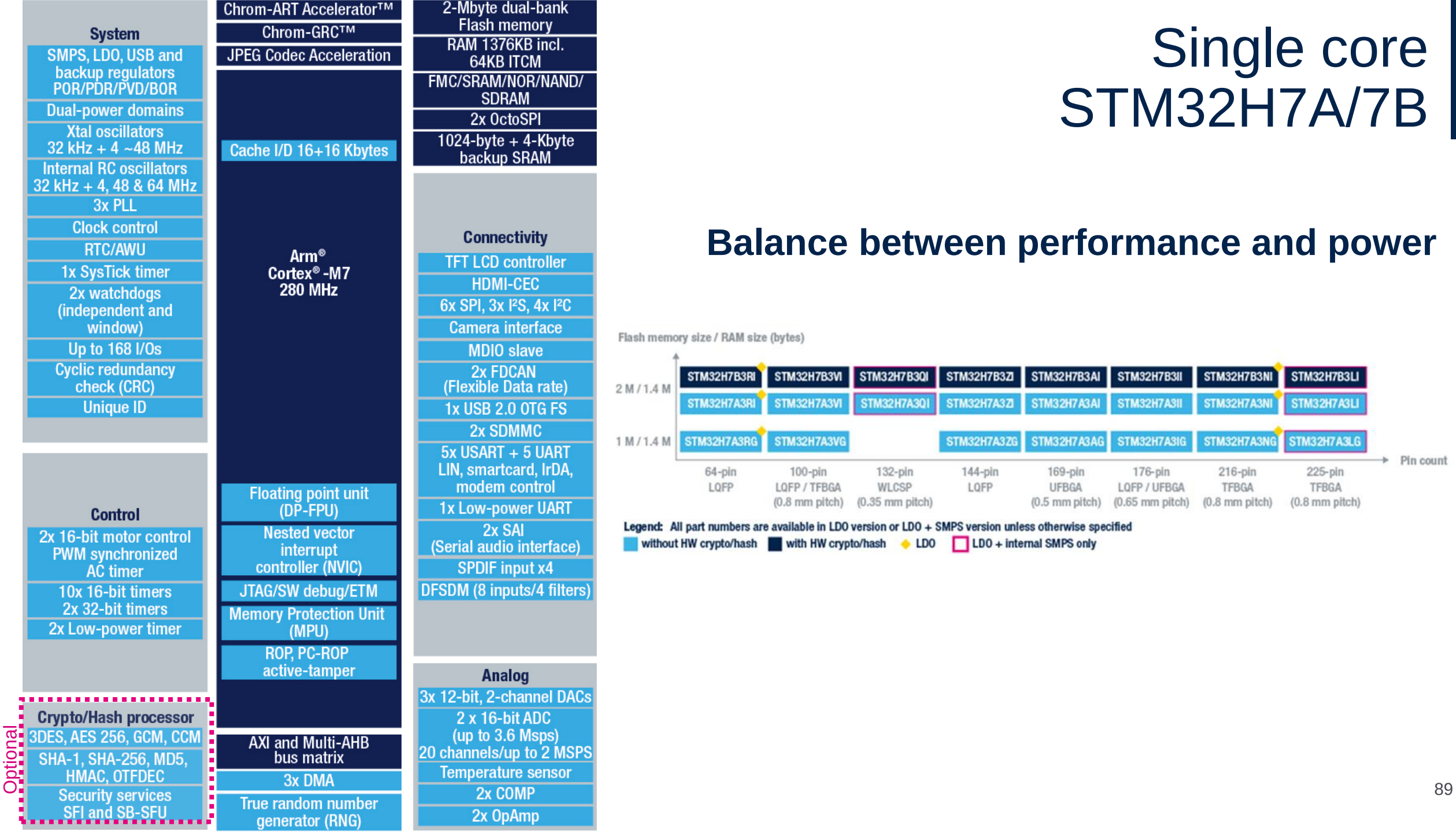
1024-bit + 4-Kbyte backup SRAM

Connectivity
- TFT LCD controller
- HDMI-CEC
- 6x SPI, 4x I²S, 5x I²C
- Camera interface, PSSI
- Ethernet MAC 10/100 with IEEE 1588
- MDIO slave
- 3x FDCAN (Flexible Data rate)
- 1x USB 2.0 OTG FS/HS
- 2x SDMMC
- 5x USART + 5 UART LIN, smartcard, IrDA, modem control
- 1x Low-power UART
- 2x SAI (Serial audio interface)
- SPDIF input x4
- DFSDM (8 inputs/4 filters)
- SWP (Single Wire Protocol)

Analog
- 2x 12-bit, 2-channel DACs
- 2 x 16-bit ADC (up to 3.6 MSPS) 18 channels
- 1 x 12-bit ADC (up to 5 MSPS) 12 channels
- 2x COMP
- 2x OpAmp

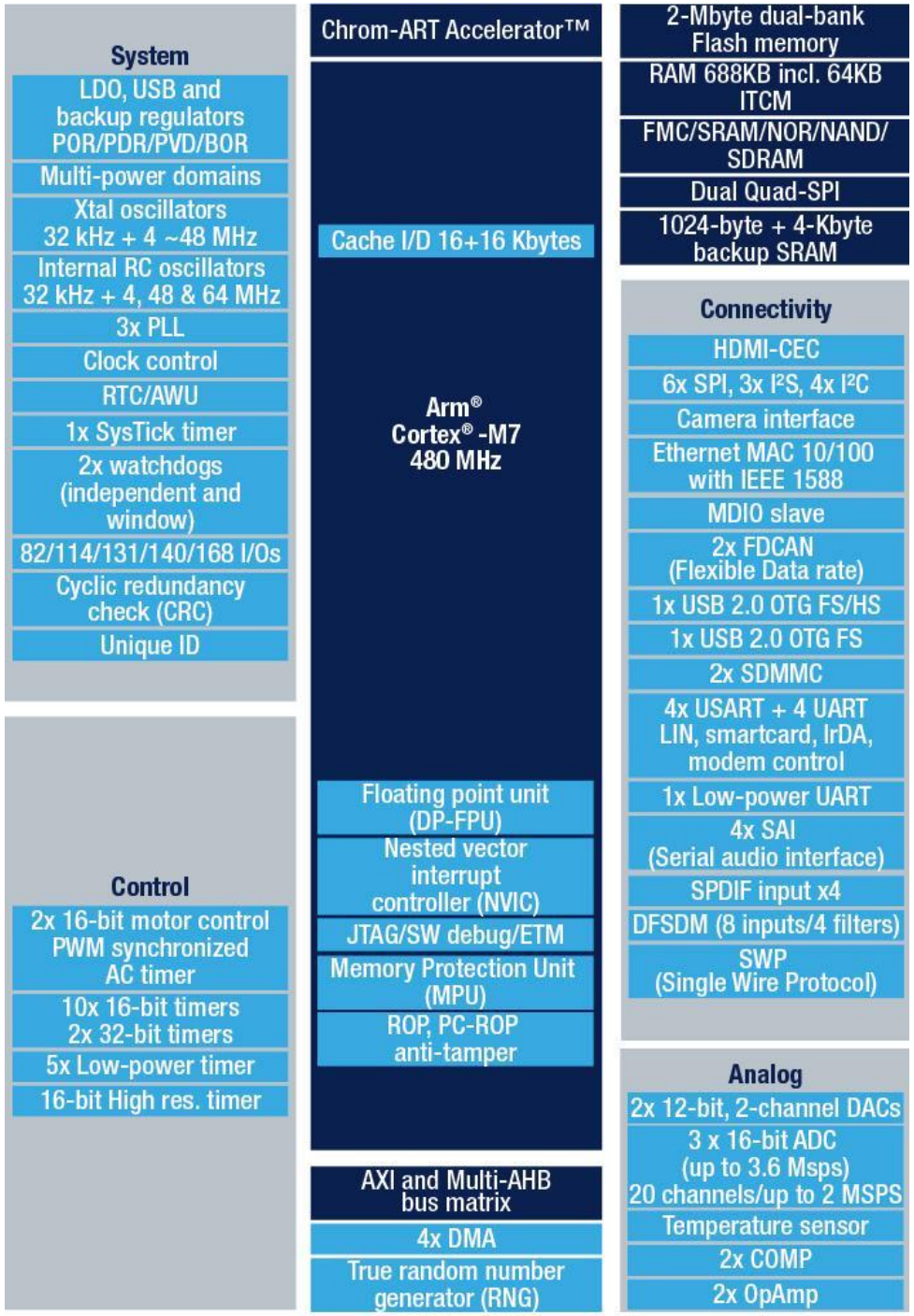
Single core STM32H7A/7B

Balance between performance and power



Single-core line STM32H742

Entry level high-performance MCU



Single-core lines STM32H743/H753

System
- LDO, USB and backup regulators POR/PDR/PVD/BOR
- Multi-power domains
- Xtal oscillators 32 kHz + 4 ~48 MHz
- Internal RC oscillators 32 kHz + 4, 48 & 64 MHz
- 3x PLL
- Clock control
- RTC/AWU
- 1x SysTick timer
- 2x watchdogs (independent and window)
- 82/114/131/140/168 I/Os
- Cyclic redundancy check (CRC)
- Unique ID

Control
- 2x 16-bit motor control PWM synchronized AC timer
- 10x 16-bit timers 2x 32-bit timers
- 5x Low-power timer
- 16-bit High res. timer

Crypto/Hash processor (Optional)
- 3DES, AES 256, GCM, CCM
- SHA-1, SHA-256, MD5, HMAC
- Security services SFI and SB-SFU

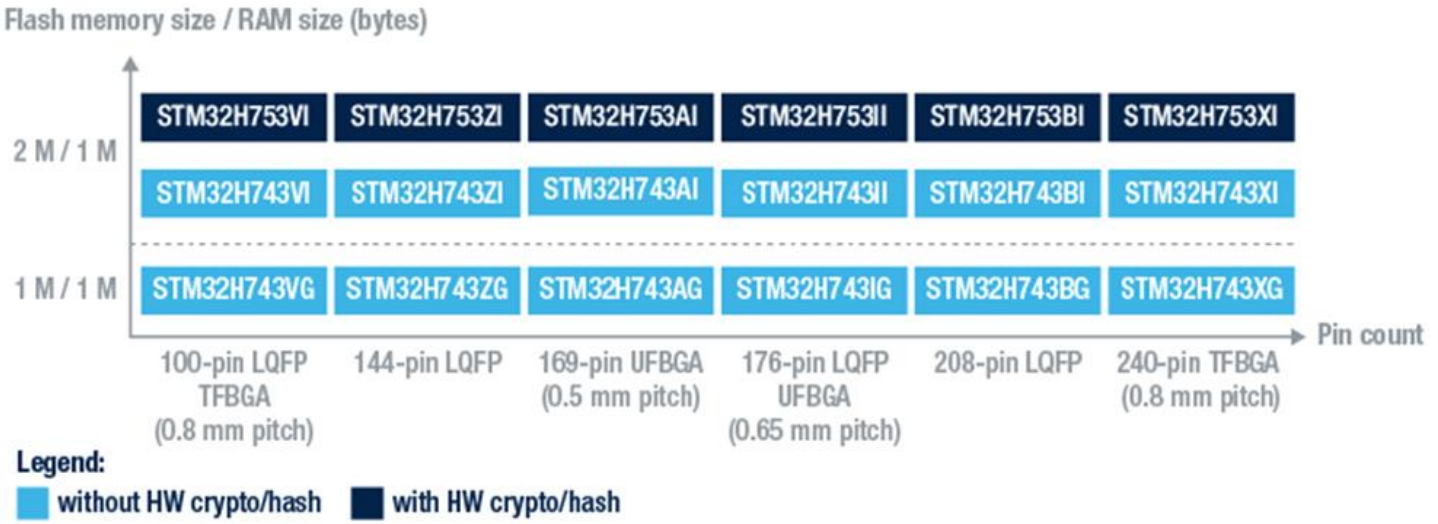
- Chrom-ART Accelerator™
- JPEG Codec Acceleration
- Cache I/D 16+16 Kbytes
- Arm® Cortex® -M7 480 MHz
- Floating point unit (DP-FPU)
- Nested vector interrupt controller (NVIC)
- JTAG/SW debug/ETM
- Memory Protection Unit (MPU)
- ROP, PC-ROP anti-tamper

- AXI and Multi-AHB bus matrix
- 4x DMA
- True random number generator (RNG)

- 2-Mbyte dual-bank Flash memory
- RAM 1056KB incl. 64KB ITCM
- FMC/SRAM/NOR/NAND/SDRAM
- Dual Quad-SPI
- 1024-byte + 4-Kbyte backup SRAM

Connectivity
- TFT LCD controller
- HDMI-CEC
- 6x SPI, 3x I²S, 4x I²C
- Camera interface
- Ethernet MAC 10/100 with IEEE 1588
- MDIO slave
- 2x FDCAN (Flexible Data rate)
- 1x USB 2.0 OTG FS/HS
- 1x USB 2.0 OTG FS
- 2x SDMMC
- 4x USART + 4 UART LIN, smartcard, IrDA, modem control
- 1x Low-power UART
- 4x SAI (Serial audio interface)
- SPDIF input x4
- DFSDM (8 inputs/4 filters)
- SWP (Single Wire Protocol)

Analog
- 2x 12-bit, 2-channel DACs
- 3 x 16-bit ADC (up to 3.6 Msps) 20 channels/up to 2 MSPS
- Temperature sensor
- 2x COMP
- 2x OpAmp



Optional

Value line STM32H7B0

System
- SMPS, LDO, USB and backup regulators POR/PDR/PVD/BOR
- Dual-power domains
- Xtal oscillators 32 kHz + 4 ~48 MHz
- Internal RC oscillators 32 kHz + 4, 48 & 64 MHz
- 3x PLL
- Clock control
- RTC/AWU
- 1x SysTick timer
- 2x watchdogs (independent and window)
- Up to 138 I/Os
- Cyclic redundancy check (CRC)
- Unique ID

Control
- 2x 16-bit motor control PWM synchronized AC timer
- 10x 16-bit timers 2x 32-bit timers
- 2x Low-power timer

Crypto/Hash processor
- 3DES, AES 256, GCM, CCM
- SHA-1, SHA-256, MD5, HMAC, OTFDEC
- Security services SFI and SB-SFU

- Chrom-ART Accelerator™
- Chrom-GRC™
- JPEG Codec Acceleration
- Cache I/D 16+16 Kbytes

Arm® Cortex®-M7 280 MHz

- Floating point unit (DP-FPU)
- Nested vector interrupt controller (NVIC)
- JTAG/SW debug/ETM
- Memory Protection Unit (MPU)
- ROP, PC-ROP active-tamper

- AXI and Multi-AHB bus matrix
- 3x DMA
- True random number generator (RNG)

- 128-Kbyte Flash memory
- RAM 1376KB incl. 64KB ITCM
- FMC/SRAM/NOR/NAND/SDRAM
- 2x OctoSPI
- 1024-byte + 4-Kbyte backup SRAM

Connectivity
- TFT LCD controller
- HDMI-CEC
- 6x SPI, 3x I²S, 4x I²C
- Camera interface
- MDIO slave
- 2x FDCAN (Flexible Data rate)
- 1x USB 2.0 OTG FS
- 2x SDMMC
- 5x USART + 5 UART LIN, smartcard, IrDA, modem control
- 1x Low-power UART
- 2x SAI (Serial audio interface)
- SPDIF input x4
- DFSDM (8 inputs/4 filters)

Analog
- 3x 12-bit, 2-channel DACs
- 2 x 16-bit ADC (up to 3.6 Msps) 20 channels/up to 2 MSPS
- Temperature sensor
- 2x COMP
- 2x OpAmp

Value Line STM32H750

System
- LDO, USB and backup regulators POR/PDR/PVD/BOR
- Multi-power domains
- Xtal oscillators 32 kHz + 4 ~48 MHz
- Internal RC oscillators 32 kHz + 4, 48 & 64 MHz
- 3x PLL
- Clock control
- RTC/AWU
- 1x SysTick timer
- 2x watchdogs (independent and window)
- 82/140/168 I/Os
- Cyclic redundancy check (CRC)
- Unique ID

Control
- 2x 16-bit motor control PWM synchronized AC timer
- 10x 16-bit timers 2x 32-bit timers
- 5x Low-power timer
- 16-bit High res. timer

Crypto/Hash processor
- 3DES, AES 256, GCM, CCM
- SHA-1, SHA-256, MD5, HMAC
- Security services SFI and SB-SFU

- Chrom-ART Accelerator™
- JPEG Codec Acceleration
- Cache I/D 16+16 Kbytes

Arm® Cortex®-M7 480 MHz

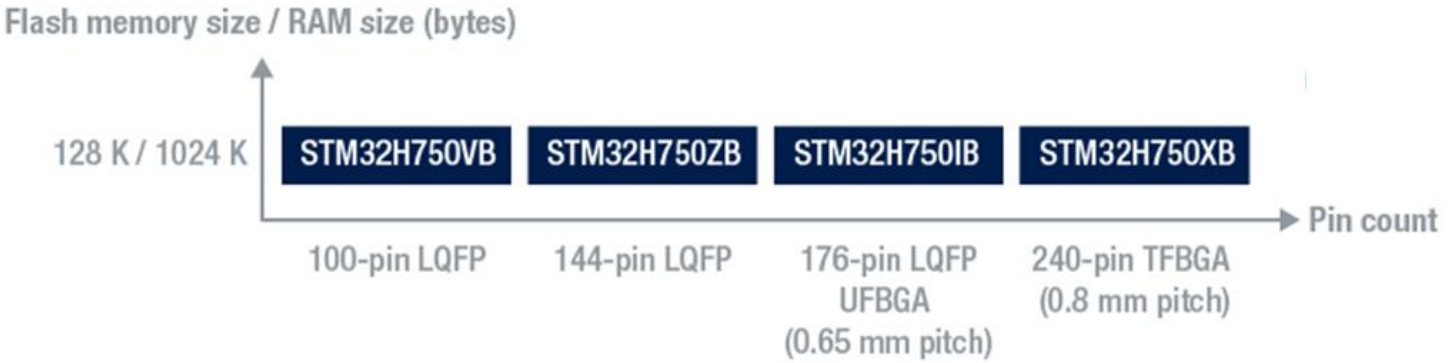
- Floating point unit (DP-FPU)
- Nested vector interrupt controller (NVIC)
- JTAG/SW debug/ETM
- Memory Protection Unit (MPU)
- ROP, PC-ROP anti-tamper

- AXI and Multi-AHB bus matrix
- 4x DMA
- True random number generator (RNG)

- 128-Kbyte Flash memory
- RAM 1056KB incl. 64KB ITCM
- FMC/SRAM/NOR/NAND/ SDRAM
- Dual Quad-SPI
- 1024-byte + 4-Kbyte backup SRAM

Connectivity
- TFT LCD controller
- HDMI-CEC
- 6x SPI, 3x I²S, 4x I²C
- Camera interface
- Ethernet MAC 10/100 with IEEE 1588
- MDIO slave
- 2x FDCAN (Flexible Data rate)
- 1x USB 2.0 OTG FS/HS
- 1x USB 2.0 OTG FS
- 2x SDMMC
- 4x USART + 4 UART LIN, smartcard, IrDA, modem control
- 1x Low-power UART
- 4x SAI (Serial audio interface)
- SPDIF input x4
- DFSDM (8 inputs/4 filters)
- SWP (Single Wire Protocol)

Analog
- 2x 12-bit, 2-channel DACs
- 3 x 16-bit ADC (up to 3.6 Msps) 20 channels/up to 2 MSPS
- Temperature sensor
- 2x COMP
- 2x OpAmp



Value Lines STM32H730xx(Q)

Optional

System
- SMPS, LDO, USB and backup regulators POR/PDR/PVD/BOR
- Multi-power domains
- Xtal oscillators 32 kHz + 4 ~48 MHz
- Internal RC oscillators 32 kHz + 4, 48 & 64 MHz
- 3x PLL
- Clock control
- RTC/AWU
- 1x SysTick timer
- 2x watchdogs (independent and window)
- 119/121/128 I/Os
- Cyclic redundancy check (CRC)
- Unique ID
- Digital Temperature sensor

Control
- 2x 16-bit motor control PWM synchronized AC timer
- 10x 16-bit timers 4x 32-bit timers
- 5x Low-power timer

Crypto/Hash processor
- 3DES, AES 256, GCM, CCM
- SHA-1, SHA-256, MD5, HMAC
- Security services SFI and SB-SFU

Chrom-ART Accelerator™

Cache I/D 32+32 Kbytes

Arm® Cortex®-M7 550 MHz

Floating point unit (DP-FPU)

Nested vector interrupt controller (NVIC)

JTAG/SW debug/ETM

Memory Protection Unit (MPU)

ROP, PC-ROP anti-tamper

AXI and Multi-AHB bus matrix

4x DMA

True random number generator (RNG)

- 128-Kbyte single-bank Flash memory
- 560-Kbyte SRAM incl. Up to 256-Kbyte ITCM RAM
- FMC/SRAM/NOR/NAND/SDRAM
- 2x Octo-SPI
- 1024-bit + 4-Kbyte backup SRAM

Connectivity
- TFT LCD controller
- HDMI-CEC
- 6x SPI, 4x I²S, 5x I²C
- Camera interface, PSSI
- Ethernet MAC 10/100 with IEEE 1588 MDIO slave
- 3x FDCAN (Flexible Data rate)
- 1x USB 2.0 OTG FS/HS
- 2x SDMMC
- 5x USART + 5 UART LIN, smartcard, IrDA, modem control
- 1x Low-power UART
- 2x SAI (Serial audio interface) SPDIF input x4
- DFSDM (8 inputs/4 filters)
- SWP (Single Wire Protocol)

Analog
- 2x 12-bit, 2-channel DACs
- 2 x 16-bit ADC (up to 3.6 MSPS) 18 channels
- 1x 12-bit ADC (up to 5 MSPS) 12 channels
- 2x COMP
- 2x OpAmp

Flash memory size / RAM size (bytes)

	100-pin LQFP/ TFBGA (0.8 mm pitch)	144-pin LQFP/ UFBGA (0.5 mm pitch)	169-pin UFBGA (0.5 mm pitch)	176-pin LQFP/ UFBGA (0.65 pitch)
128 K / 564 K	STM32H730VB	STM32H730ZB	STM32H730AB	STM32H730IB

Pin count

☐ with internal SMPS

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