



## **STM32MP2 series**

**The second-generation of microprocessors  
enabling secure, advanced edge AI in Industry 4.0**





# STM32 MPU portfolio by application segment

## STM32MP1 series

## STM32MP2 series

Industrial communication processors

### STM32MP133

Cortex®-A7 up to 1GHz  
FDCAN, 2x Eth

### STM32MP153

2x Cortex®-A7 + Cortex®-M4  
FDCAN

### STM32MP257

Dual Cortex®-A35 + Cortex®-M33  
3x Eth/TSN (2+1 switch), 3x FDCAN

Analytics and edge machine vision

### STM32MP215

Cortex®-A35 + Cortex®-M33  
RGB LCD, MIPI CSI2

### STM32MP235

Dual Cortex®-A35 + Cortex®-M33  
H.264 Dec 3D GPU AI / NN LVDS/DSI

### STM32MP255

Dual Cortex®-A35 + Cortex®-M33  
H.264 - 3D GPU - AI / NN - LVDS/DSI

General-purpose processors

### STM32MP135

Cortex®-A7 up to 1GHz  
FDCAN, 2x Eth, Display, Camera

### STM32MP157

2x Cortex®-A7 + Cortex®-M4  
FDCAN, 3D GPU, DSI

### STM32MP215

Cortex®-A35 + Cortex®-M33  
2x Eth, 2x FDCAN, RGB LCD, CSI2

### STM32MP235

Dual Cortex®-A35 + Cortex®-M33  
2x Ethernet, 2x FDCAN  
H.264 Dec 3D GPU AI / NN LVDS/DSI

### STM32MP257

Dual Cortex®-A35 + Cortex®-M33  
3x Ethernet (2+1 switch) - 3x FDCAN  
H.264 - 3D GPU - AI / NN - LVDS/DSI

### STM32MP131

Cortex®-A7 up to 1GHz  
Eth

### STM32MP151

Cortex®-A7 + Cortex®-M4

### STM32MP213

Cortex®-A35 + Cortex®-M33  
2x Ethernet, 2x FDCAN

### STM32MP233

Dual Cortex®-A35 + Cortex®-M33  
2x Ethernet, 2x FDCAN

### STM32MP253

Dual Cortex®-A35 + Cortex®-M33  
2x Ethernet, 3x FDCAN

### STM32MP211

Cortex®-A35 + Cortex®-M33  
1x Ethernet

### STM32MP231

Cortex®-A35 + Cortex®-M33  
1x Ethernet

### STM32MP251

Cortex®-A35 + Cortex®-M33  
1x Ethernet

NEW

# STM32MP2 microprocessor series



**Robustness for complex industrial applications**



**Rich interfaces supporting the growth of connected applications**



**64-bit MPU with advanced compute capabilities**



**Strong security**

# Designed for highly connected applications



## Industrial & factory automation



- Gateways
- PLCs
- HMIs
- Metering
- Bar code reader

- Anomaly detection
- Pose estimation
- People / object detection
- Face recognition
- Character recognition

## Smart homes



- Gateways
- HMIs
- Whitegoods
- Door bell

- People / object detection
- Face recognition
- Voice recognition

- Secure boot
- Firmware & data encryption
- Context isolation

## Smart city and infrastructure

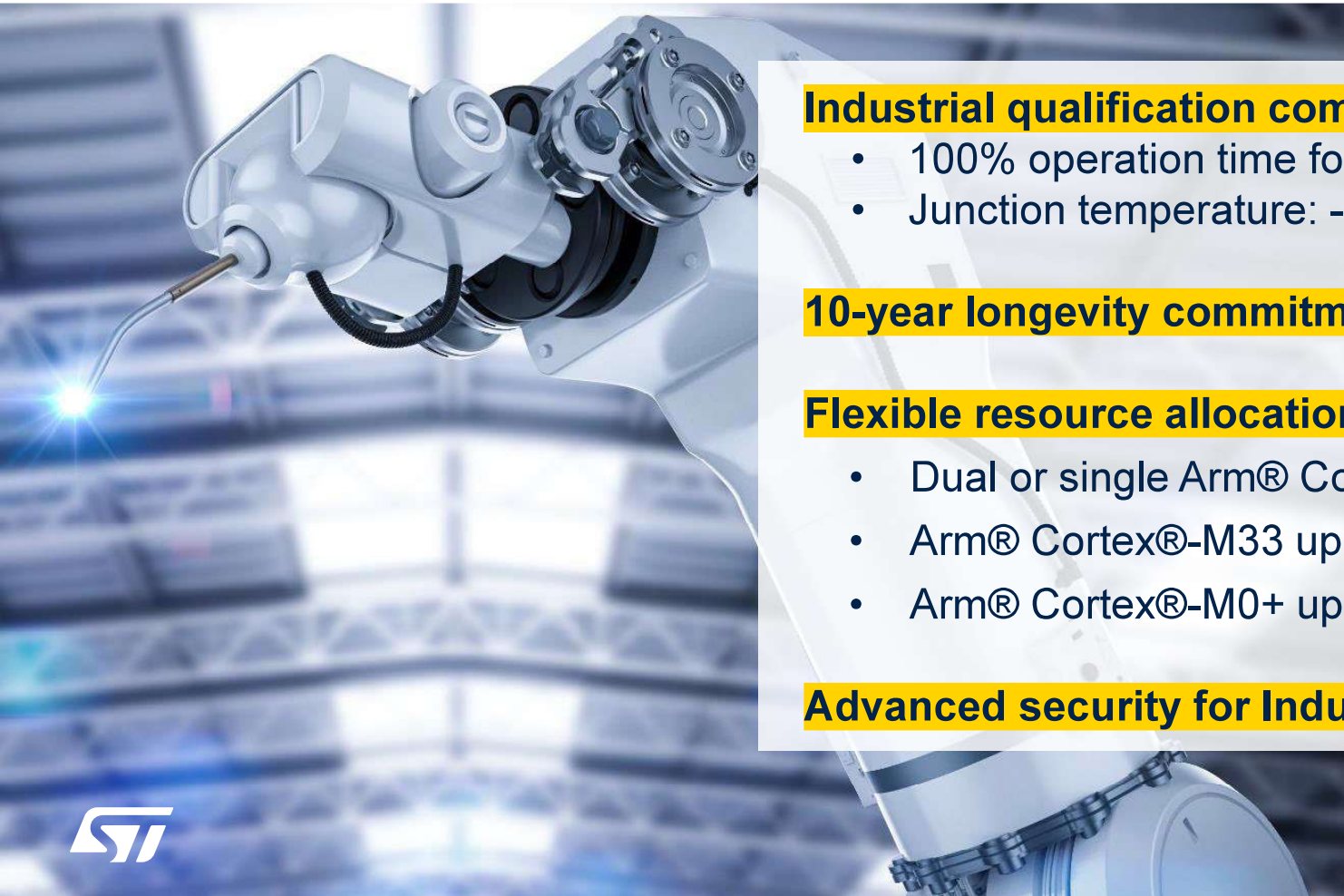


- Power grid
- EV charging
- Metering
- HMIs

- Traffic management
- Energy management
- Vehicle / pedestrian recognition & tracking
- People & object detection



# Robustness for complex industrial applications



## Industrial qualification combining both:

- 100% operation time for 10 years
- Junction temperature: - 40°C to 125°C



## 10-year longevity commitment renewed every year

## Flexible resource allocation between cores

- Dual or single Arm® Cortex®-A35 up to 1.5 GHz
- Arm® Cortex®-M33 up to 400 MHz
- Arm® Cortex®-M0+ up to 200 MHz

## Advanced security for Industry 4.0



# Enhance your application security with STM32MP21x



Strong security for regulatory compliance

Resource isolation framework

Cortex®-M33 as trusted boot device (M33-TD)



# STPMIC2x: highly integrated PMIC for STM32MP2x

## STPMIC25



- QFN: 6.5x6.5 mm pitch 0.4
- 7 Buck DC/DC converters
- 8 LDOs + 1 DDR reference voltage LDO
- Provides power supplies to STM32MP2 as well as to DRAM, flash and other application peripherals (USB, display, etc.)
- Better power efficiency (Buck vs. LDO)

Available now

MP25



MP23



MP21



## STPMIC2L



NEW

- QFN: 5x5 mm pitch 0.4
- 3 Buck DC/DC converters
- 7 LDOs
- Provides power supplies to STM32MP2 as well as to DRAM, and flash

Available now

MP25



without GPU

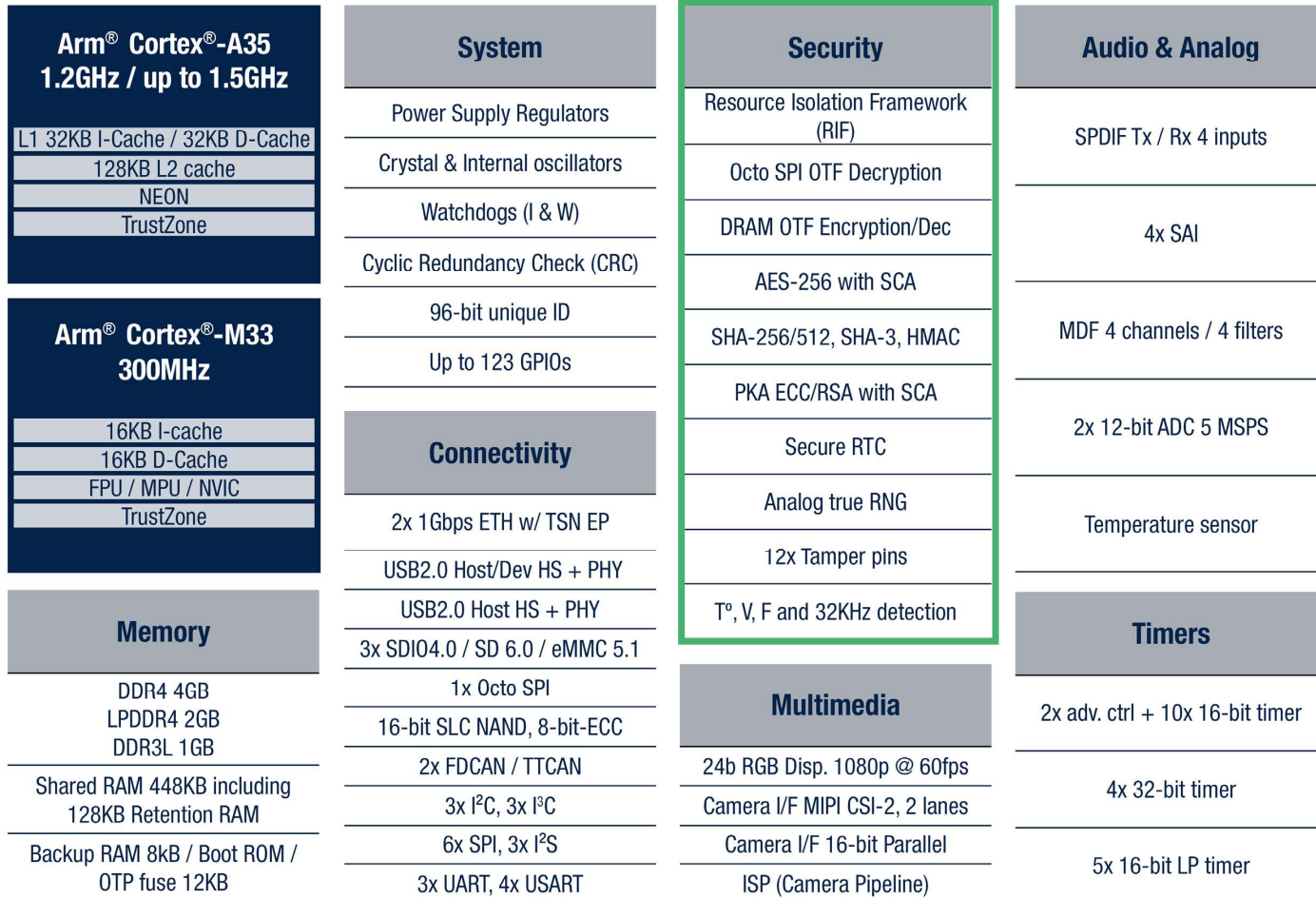
MP23



MP21



# STM32MP215 block diagram



Processing

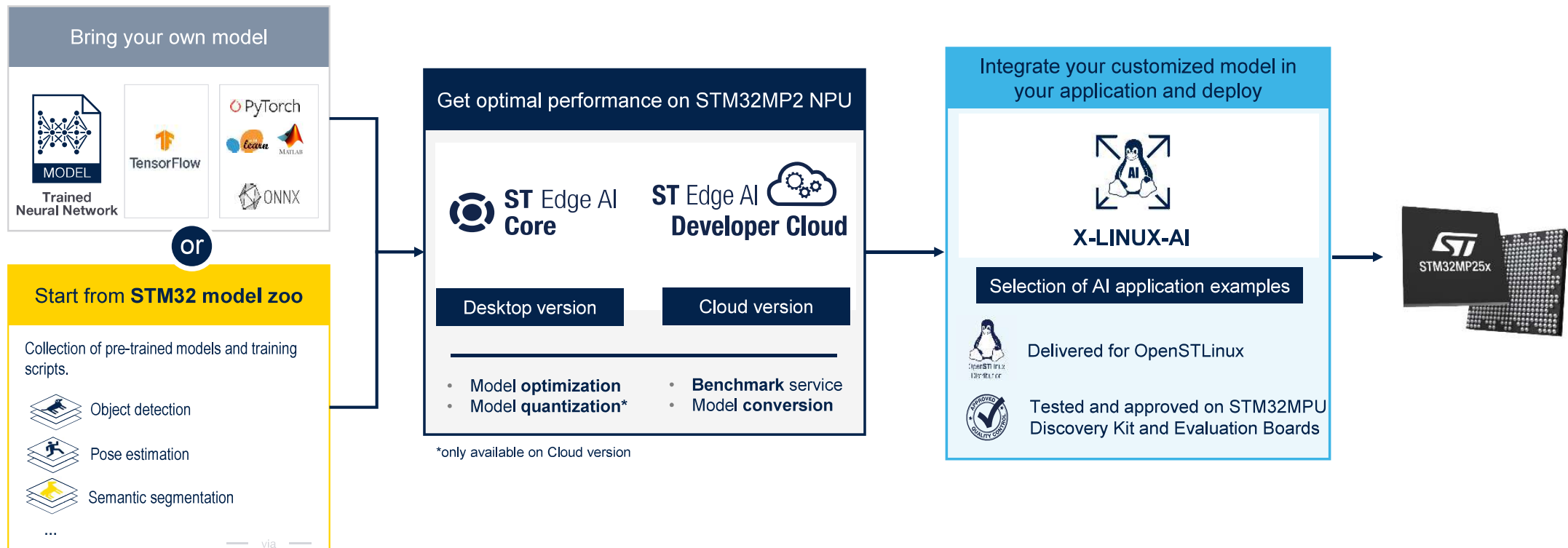
Enhanced security

# Seamlessly integrate AI in your STM32MP2 projects

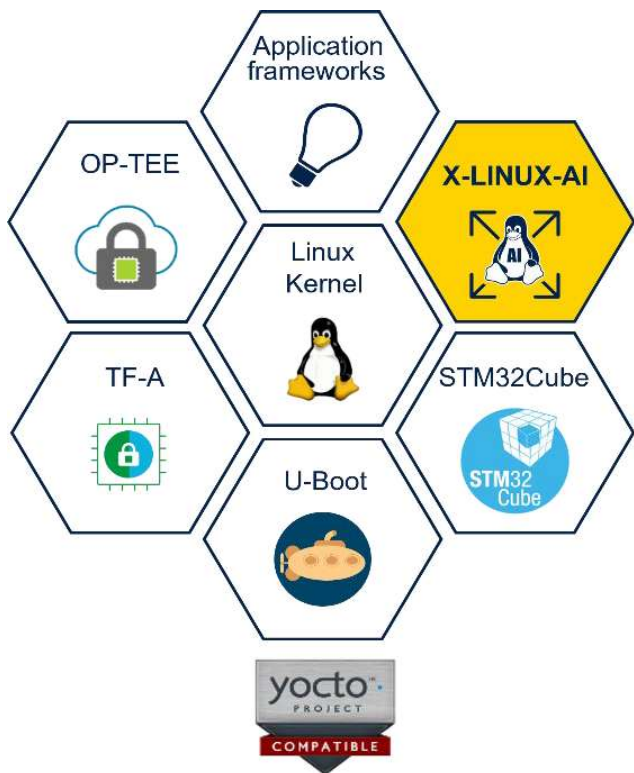
## 1. Train

## 2. Benchmark and optimize

## 3. Create your apps and deploy



# X-LINUX-AI



## All-in-one solution

All needed packages to bring AI to the edge



## AI frameworks and Apps

- AI frameworks to execute Neural Network models
- Selection of AI application examples
- AI model benchmark application tools for STM32 MPU



## Tooling framework

- Python3, Gstreamer, OpenCV to quickly develop applications



**STM32 MPU agnostic**  
Compatible with all STM32 MPU series



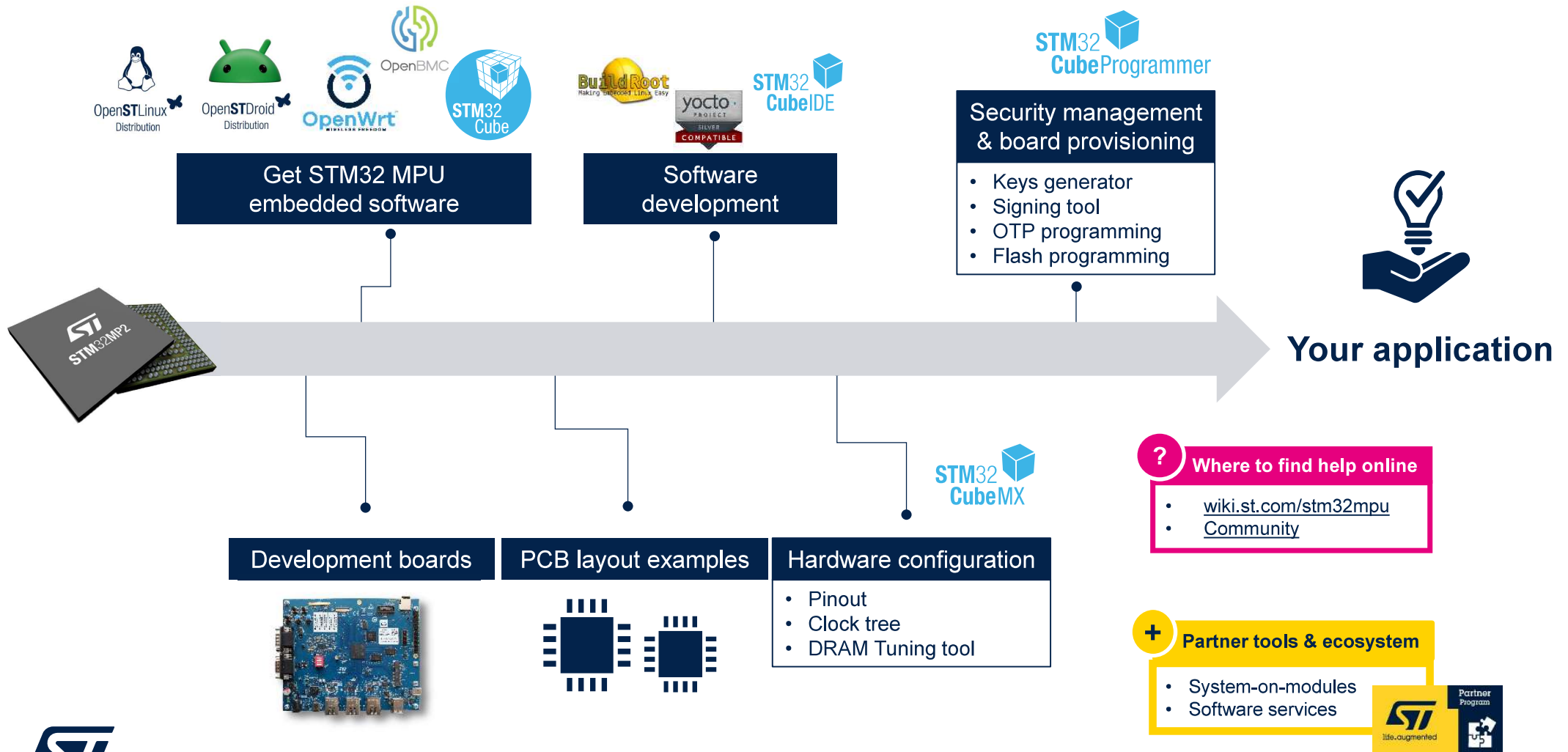
**OpenSTLinux Distribution**  
Delivered for OpenSTLinux



Tested and approved on  
STM32MPU discovery kit and  
evaluation boards



# Accelerate your time to market



OpenSTDroid Distribution: available only for STM32MP25x product lines

# Our technology starts with You



Find out more at [www.st.com/STM32MP2](http://www.st.com/STM32MP2)

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