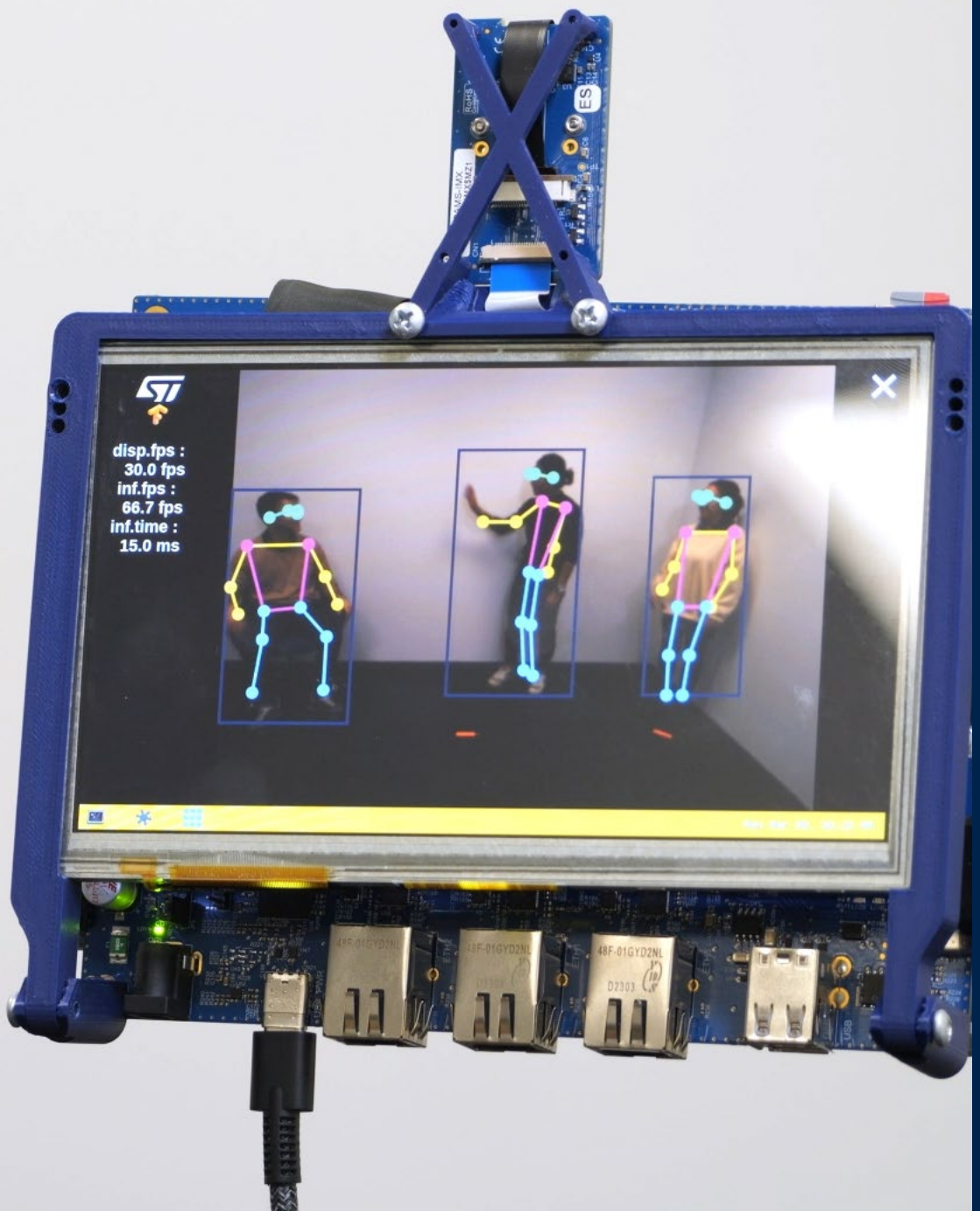


Simplifying AI accessibility and deployment on MPUs

Embedding innovation into products with AI

Industrial

- Visual anomaly detection
- OCR and barcode reading

Smart homes

- Voice assistance (Local NLP)
- Face recognition
- Pose estimation

Smart city

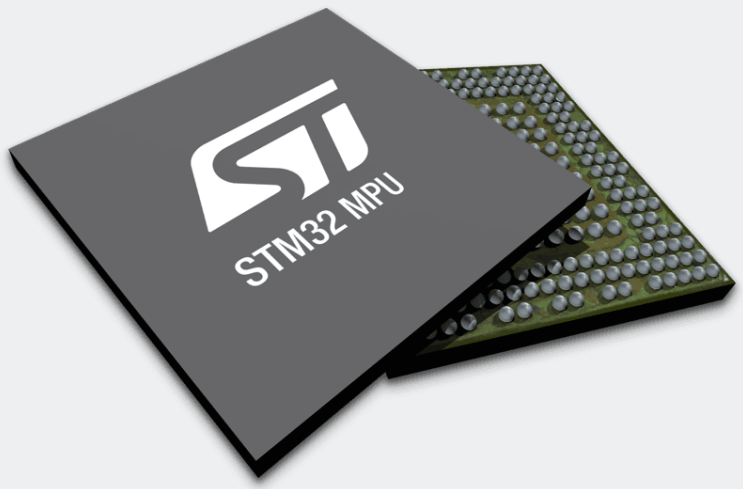
- People / object detection
- Vehicle / pedestrian recognition and tracking
- Traffic management

Smart robots & drones

- Depth estimation
- People / object detection
- Semantic segmentation and obstacle avoidance

Maximizing application benefits

Edge AI



Ultra-low latency
Real-time applications

Privacy & security
No raw data sent to the cloud

Improved accuracy
Adapt to local environment

Sustainable on energy
Low-power consumption

Reduced data transmission
Generate meaningful information

Advanced experience
Personalized features

Moving AI on STM32 MPU to the next level

Meeting the challenge of embedded AI users

Further simplify AI accessibility and deployment
- Application code examples with AI
- APIs to streamline AI deployment on target

Help on decision-making process
- What model should I use for edge AI?
- Which platform will support my use-case?
- How to start developing an edge AI application?

Speed-up the design and reduce the time to market

STM32MP2 MPU series
Get 1.35 TOPS with AI-accelerated MPUs

Product lines	Cortex-A35	CPU	Cortex-M33	Coprocessor	AI NPU	GPU LVDS/DSI	FD-CAN	Ethernet	Video Hardware accelerator	PCIe Gen2 / USB3
STM32MP257 Incl. AI HW accelerator	2	Up to 1.5 GHz	1	400 MHz	•	•	3	3	H.264	•
STM32MP255 Incl. AI HW accelerator	2	Up to 1.5 GHz	1	400 MHz	•	•	3	2	H.264	•
STM32MP253	2	Up to 1.5 GHz	1	400 MHz			3	2		•
STM32MP251	1	Up to 1.5 GHz	1	400 MHz				1		•
STM32MP23x Incl. AI HW accelerator	2	Up to 1.5 GHz	1	400 MHz	•	•	2	2	H.264 dec	
STM32MP21x	1	Up to 1.5 GHz	1	300 MHz			2	2		

Security options available for all STM32MP2 MPUs

In production

In development

Seamlessly integrate AI in your STM32MPx projects

1. Model selection and training

Bring your own model

MODEL
Trained neural network

TensorFlow

PyTorch
via
ONNX

or

Start from **ST Edge AI model zoo**

- Object detection
- Pose estimation
- Semantic segmentation
- And many more…

2. Benchmark and optimize

Get optimal performance on STM32MP2 NPU

ST Edge AI Core
Desktop version

ST Edge AI Developer Cloud
Cloud version

- Model **optimization**
- Model **quantization***
- **Benchmark** service
- Model **conversion**

*only available on Cloud version

3. Create your apps and deploy

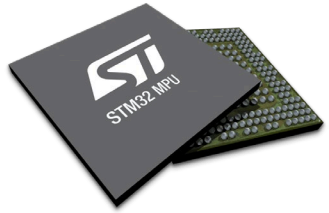
Integrate your customized model in your application and deploy

X-LINUX-AI

Selection of AI application examples

Delivered for OpenSTLinux

Tested and approved on STM32MPU Discovery kit and evaluation boards



Optimize your model

ST Edge AI Core

Desktop version

- ✓ Model **optimization**
- ✓ **Benchmark** on local MP2 board
- ✓ Model **conversion**

Bring your own model

(or pick a model from the model zoo)

ST Edge AI Developer Cloud

Cloud version

- ✓ Model **optimization**
- ✓ Model **quantization**
- ✓ **Benchmark** on board farm
- ✓ Model **conversion**

Supported AI models	Supported AI formats	AI execution engines on the MPU
TensorFlow, ONNX	• NT8 quantized per tensor (NPU) • INT8 quantized per channel (GPU) • Dynamic fixed point 16b (GPU)	• NPU (preferred) • GPU • CPU

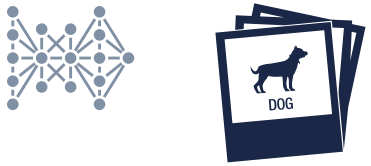
Start from an existing model: ST Edge AI Model Zoo

A collection of application-oriented models optimized for STM32 MPUs

Pose estimation

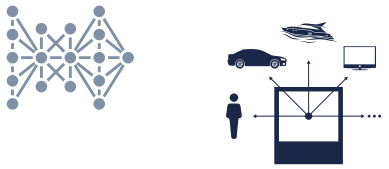
Human pose estimation

Image classification



Computer vision

Semantic segmentation



Computer vision

Object detection

Computer vision

Hosted on GitHub

< | > Model training scripts

- Scripts to train models with your own dataset
- Generate and validate your model

X-LINUX-AI: an extensive package for OpenSTLinux

All-in-one solution

All packages needed 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

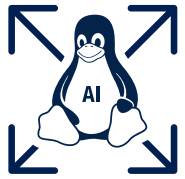
Compatible with all STM32 MPU series

OpenSTLinux Distribution

Delivered for OpenSTLinux

Tested and approved on STM32MPU discovery kit and evaluation boards

Embedding edge AI with OpenSTLinux



X-LINUX-AI

ST Edge AI Model Zoo

ST Edge AI
Developer Cloud

ST Edge AI
Core

Save time

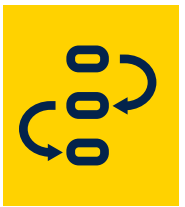
- Immediately start by selecting a model from **ST Edge AI Model Zoo**
- Get free application code example from **X-LINUX-AI**

Choose the best hardware

- Benchmarking service via **ST Edge AI Developer Cloud**
- Save workload and money

Maximize AI performance on STM32 MPU

- Benefit from the **ST Edge AI Core** performance
- Seamlessly run your AI on neural accelerator



Ease integration in your ML workflow

- Use a unified API and Python scripts to optimize your ML workflow

Our technology starts with You

Find out more at www.st.com/stm32mp2