

/IOTCONNECT Edge AI Series

i.MX93 AI Applications

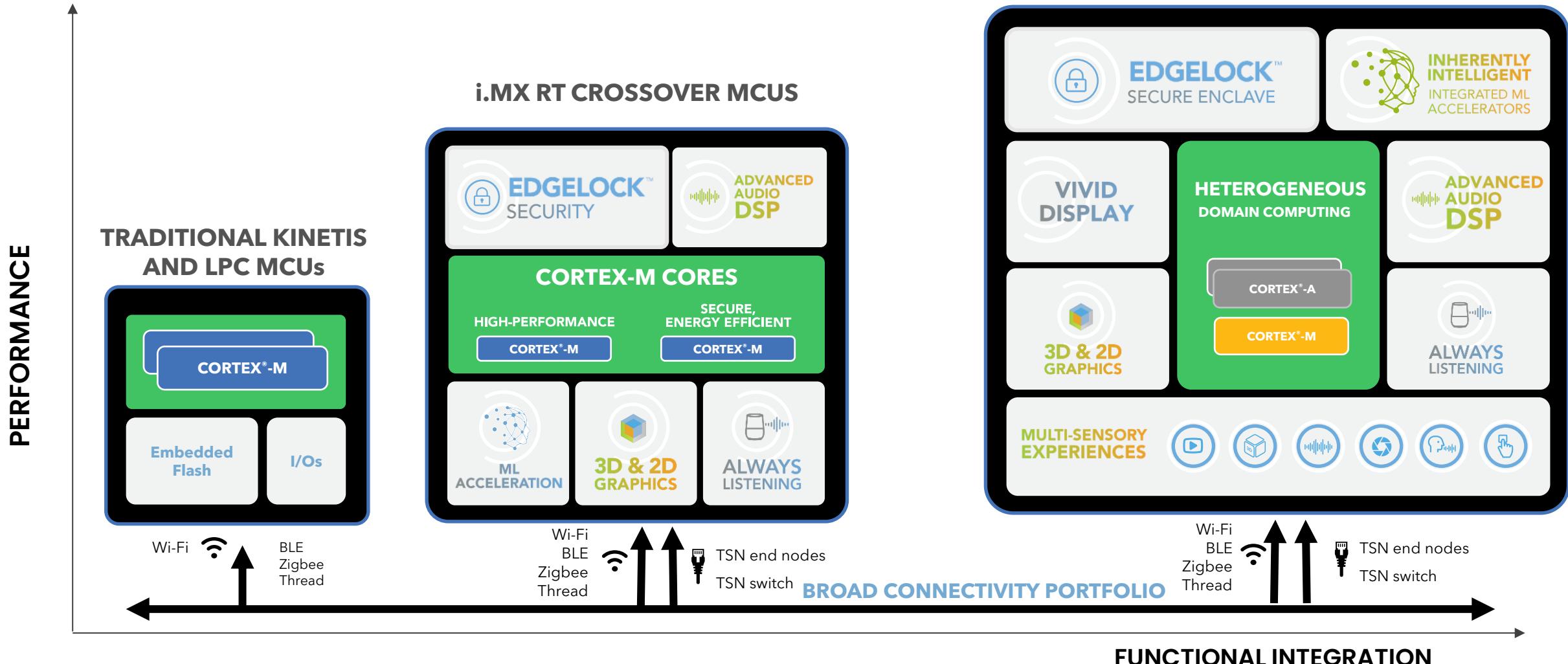
February 2025



NXP i.MX 93

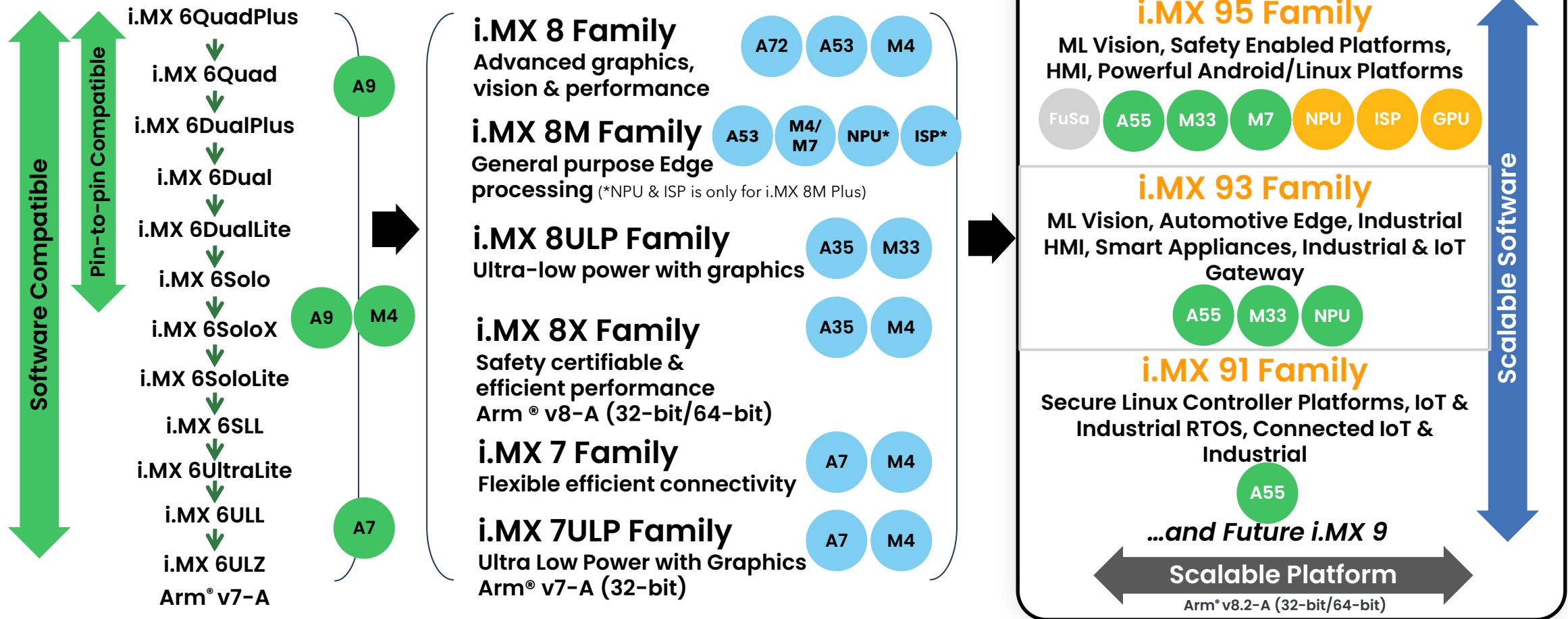
Product Overview

/Scalable Compute Platforms



i.MX Series of Applications Processors

Adding to our portfolio



i.MX 93 Applications Processor Features

Product	i.MX 931/932	i.MX 933/935	i.MX 930
Main CPU	1x/2x A55 1.7GHz Arm® v8.2-A	1x/2x A55 1.7GHz Arm v8.2-A 64kB L2 + 256kB L3 cache (ECC)	1x/2x A55 900MHz Arm v8.2-A
MCU	1x M33, 250MHz Arm v8-M 16kB+16kB cache (ECC), 256kB TCM/OCRAM (ECC)		1x M33, 133MHz Arm v8-M
DDR	3.2GT/s x16 LPDDR4X/LPDDR4 Inline ECC	3.7GT/s x16 LPDDR4X/LP4 Inline ECC	1.8 GT/s x16 LPDDR4X/LP4 Inline ECC
GPU	Hardware Compositor: Blending/Composition, Rotation, Resize, Color Space Conversion		
Security	EdgeLock® Secure Enclave		
AI/ML	Efficiency NPU		No NPU
SRAM	Up to 640kB (ECC)		
Camera	8-bit parallel YUV/RGB	1080p60 MIPI CSI (2-lane), 8-bit parallel YUV/RGB	
Display I/F	24 bit per pixel parallel RGB	1080p60 MIPI DSI (4-lane) or 720p60 LVDS (4-lane) or 24 bit per pixel parallel RGB	
Audio	SPDIF Tx/Rx, 8 channel PDM mic input, MQS output (sigma-delta modulator)		
	3x I2S TDM (32-bit @ 768KHz)	7x I2S TDM (32-bit @ 768KHz),	
Expansion I/O	8x UART/USART/Profibus, 8x I2C, 8x SPI, 2x I3C, 2x 32-pin FlexIO		
	1x USB 2.0, 1x 2-ch 12-bit ADC	2x USB 2.0, 1x 4-ch, 12-bit ADC	
Network/Storage	1x GbE, 2x CAN-FD, 3x SD/eMMC, Octal SPI	2x GbE (1x TSN), 2x CAN-FD, 3x SD/eMMC, Octal SPI FLASH	
Package	9x9mm, 0.5mm de-pop	11x11mm, 0.5mm de-pop 14x14mm, 0.65mm de-pop for auto	11x11mm, 0.5mm de-pop

i.MX 93 Target Applications

Vision Applications Across Segments

Industrial Automation	Smart Home	Smart City	Automotive
<ul style="list-style-type: none"> Industrial Machine vision Industrial scanning/printing 	<ul style="list-style-type: none"> Smart doorbell Smart lock Smart home hub/ Hue Bridge 	<ul style="list-style-type: none"> Smart lighting Traffic control 	<ul style="list-style-type: none"> Driver Monitoring System (DMS) Object Monitoring System (OMS)



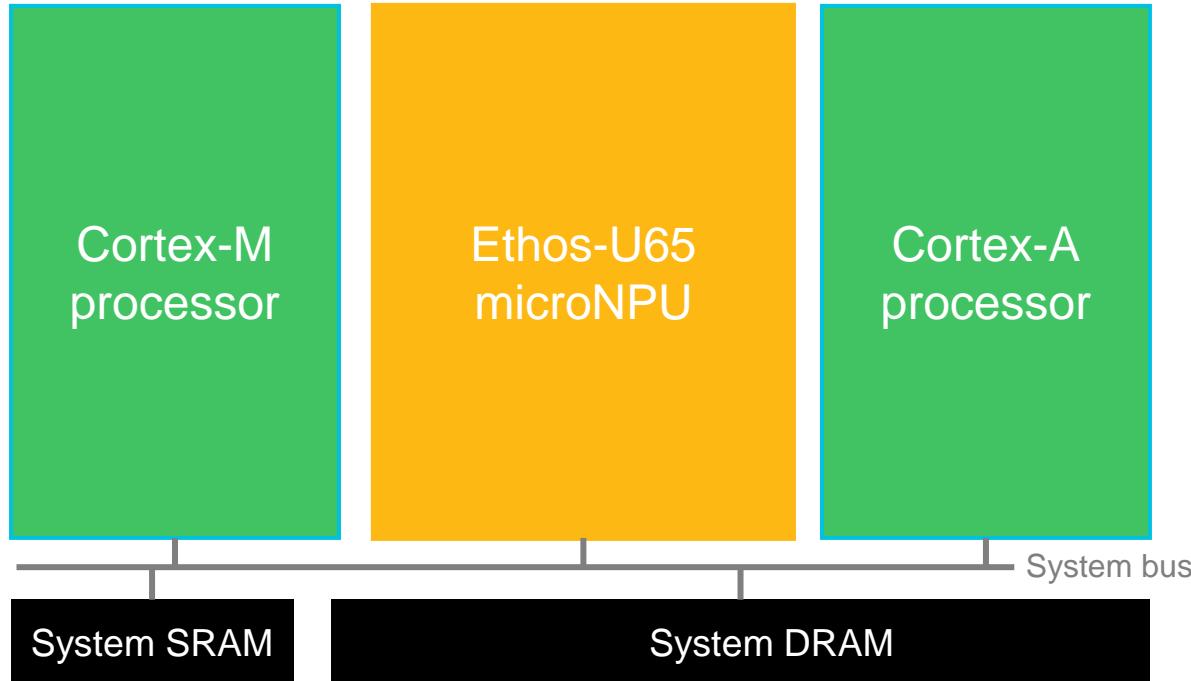
Industrial Automation and Building Control



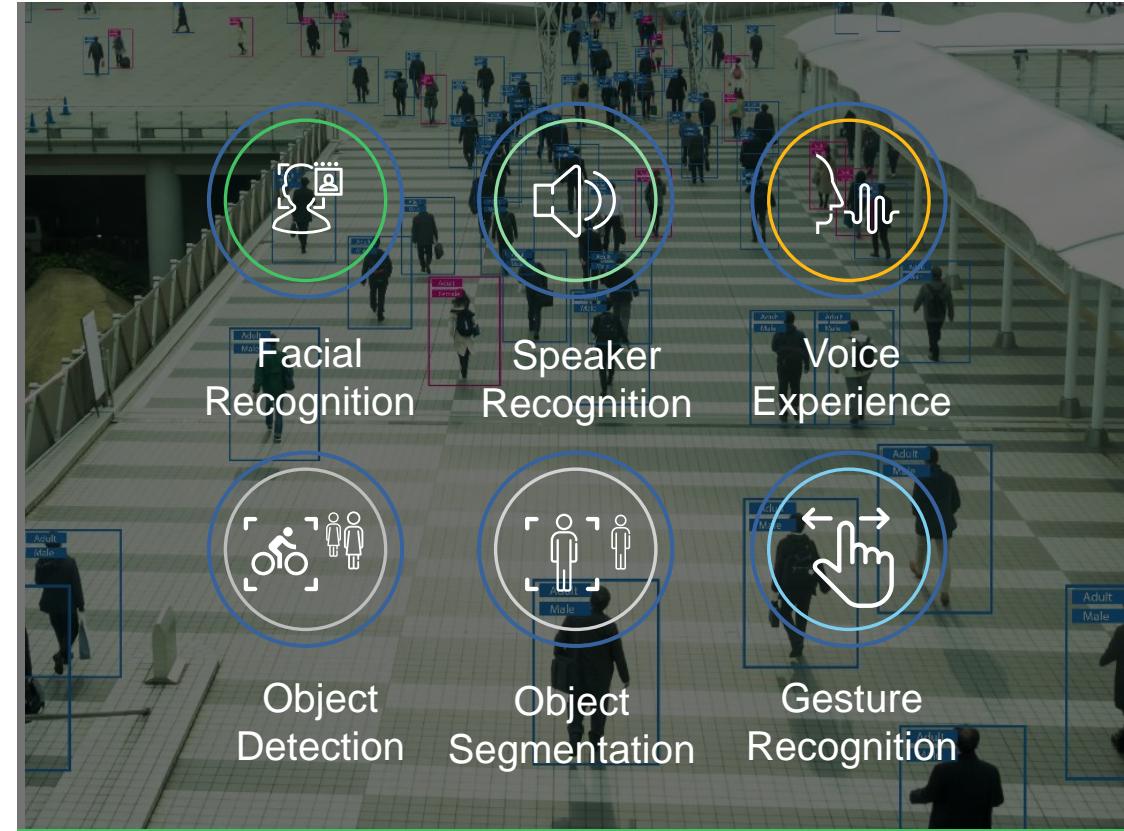
Industrial Automation	Building Control & Energy
<ul style="list-style-type: none"> Industrial HMI Industrial gateway I/O control Combines with i.MX RT1180 crossover MCU for larger gateways and IO controller 	<ul style="list-style-type: none"> Access control Energy meter Energy grid equipment EV charging station Environmental control Sensor hub



/ Expanding Edge ML With Arm® Ethos™-U65



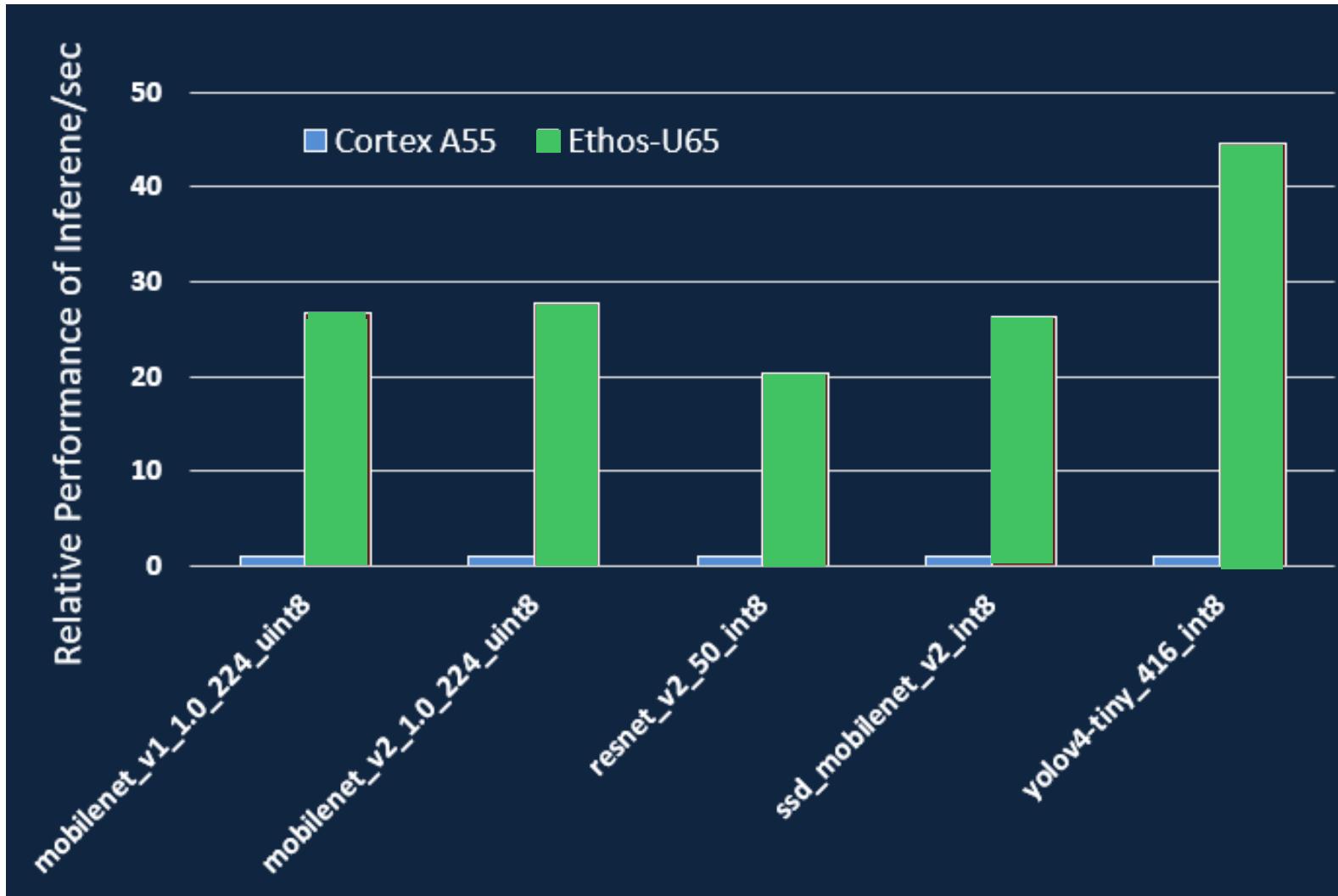
- Efficient (power, performance and area) hardware accelerator for entry-level ML applications
- Higher pipelining resulting higher utilization of NPU (>70%)
- Ethos-U65 provides ~10X better performance (inference/sec) than Cortex A55 for most models
- Comprehensive software and tools with NXP's eIQ® ML Software Development Environment



**POWER & PERFORMANCE
EFFICIENT NPU FOR ENTRY-
LEVEL ML APPLICATIONS**

NPU Performance Increase for Quantized Models

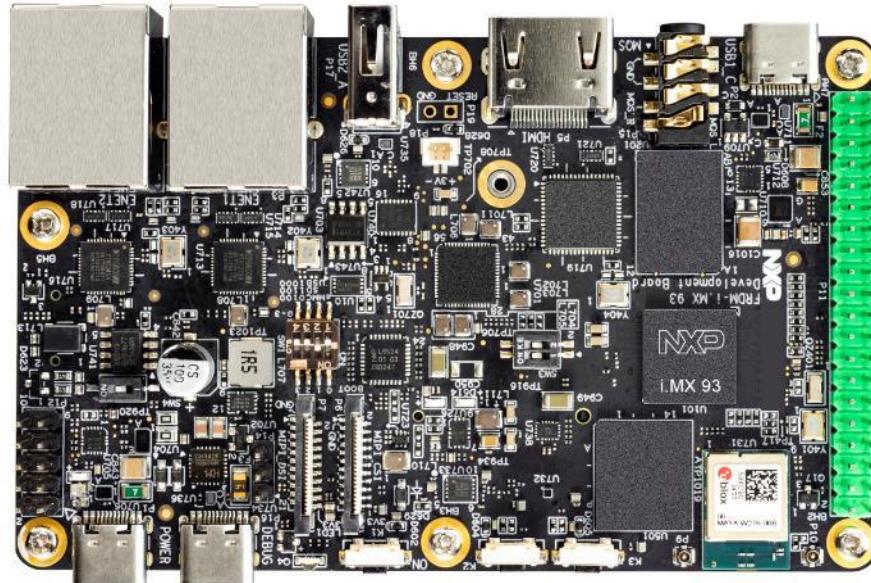
Driver Monitoring



- Measured inference/sec on i.MX 93 with NPU and Cortex A55 running at 1 GHz
- ~10% Power Improvement

/Get to know FRDM i.MX 93 development board

2x Ethernet ports



MIPI-CSI, MIPI-DSI and HDMI
connectors

40 pin header for
expansion boards
and **adapters**

Debug, PD and USB type-C
+ **USB Type-A**

[Link to Buy](#)

IW612 Wireless Module –
u-blox: MAYA-W276

- **TRI-RADIO** Wi-Fi 6 + Bluetooth + 802.15.4
- NXP EdgeLock® Security
- Matter over Wi-Fi & Thread
- Thread Border Router
- Thread or Zigbee
- BDR, EDR and Bluetooth LE

Specifications

- 2x Arm Cortex®-A55 + Cortex®-M33
- Wi-Fi 6 + BT + 802.15.4 Module on-board, IW612
- 2x GB Ethernet (1xEthernet, 1xTSN)
- MIPI-CSI/DSI, HDMI
- M.2 Connector
- LPDDR4X 16-bit 2GB
- eMMC 5.1, 32GB
- MicroSD 3.0 card slot
- 3x USB 2.0 Type-C connector (one for Debug, one PD only) + 1x USB 2.0 Type-A
- RTC, Buttons and LED

NXP Devices On-Board	
PMIC	PCA9451A
USB PD TCPC PHY IC	PTN5110
High-Voltage USB PD Power Switch	NX20P5090UK
IIC Extends GPIO	PCAL6524/PCAL6408A
CAN Transceiver	TJA1051
USB Sink & Source combo power switch	NX20P3483UK
USB Type-C CC and SBU Protection IC	NX20P0407
Real-time clock/calendar	PCF2131
Wi-Fi, BT, 802.15.4 Tri-Radio	IW612 (in u-blox Module)

/i.MX 93 Capabilities

1. Automotive

- Audio and Speech Recognition
- Driver/Occupant Monitoring Systems (DMS)

2. Industrial/Medical

- Building Safety
- Smart Lighting
- Vital Sign Monitoring

Machine Vision Capabilities

Image classification



Image detection

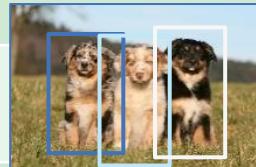


Image landmarks

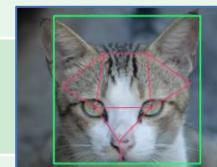
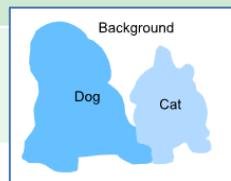


Image segmentation



3. Smart Home

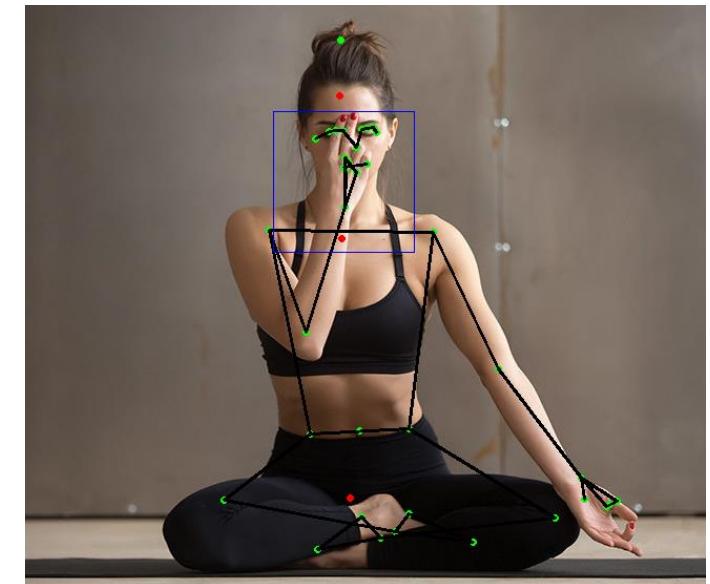
- Audio/Video (AV) Receivers
- Home Control Panel
- Home Security and Surveillance

- In-Home Energy Displays
- Major Home Appliances
- Robotic Appliances

4. Smart City

- Fleet Management
- Inventory and Supply Chain Management
- Transport Ticketing

Human Pose Analysis



IOTCONNECT Overview

About Avnet

Quick facts

- Founded in 1921
- Headquartered in Phoenix, Arizona
- AVT listed on the NYSE since 1960
- AVT listed on NASDAQ since 2018
- #157 on FORTUNE 500 (US) in 2024

15,300

Employees
worldwide

1,925

Engineers around
the world

2.8M+

Engineering
community members

1M+

Customers in
140 countries

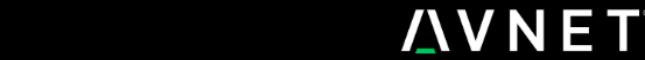
250+

Locations
globally

\$23.8B

Revenue

Avnet Investments



CORE SEMI



AN AVNET COMPANY

CLOUD APPLICATION DEVELOPMENT



AN AVNET COMPANY

EMBEDDED SOFTWARE
DESIGN SERVICES



AN AVNET COMPANY

EMBEDDED MODULES
& BOARDS



DESIGNED BY AVNET

SOLUTIONS DEVELOPMENT:
ADVANCED APPLICATIONS GROUP



IoT Sales Team

A global specialized IoT team focused on providing unique hardware, software and cloud expertise to OEMs



Extensive line card

Semiconductors, IP&E, embedded systems, software and cloud



Hardware Edge Design

Technology selection and support provided by 800+ Field Application Engineers



Embedded Software Design

Design, develop, and integrate embedded OS, firmware, and application software



Cloud and Digital Design

Complete IoT solutions (cloud, apps, data insights) built on IoTConnect



Supply Chain and Logistics

Supply chain models to address each customer's priorities



Lifecycle Management

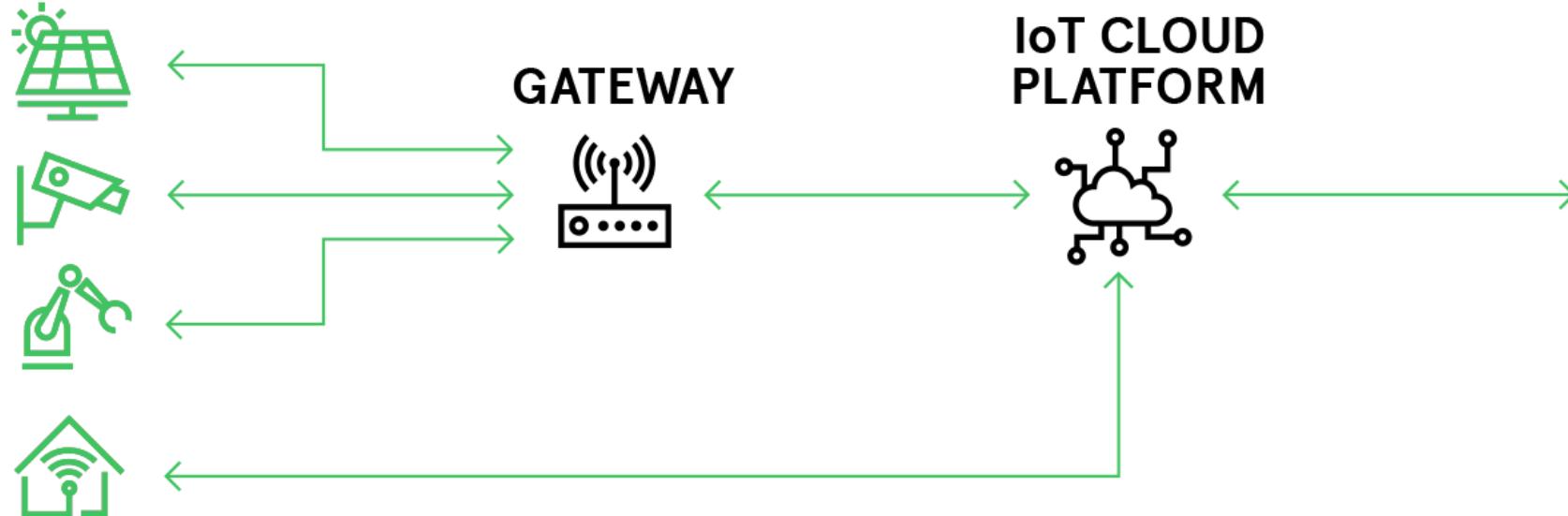
Digital Managed Services, OTA updates, post sales support

Gives us Unmatched Capabilities

AVNET

The IoT Challenge

DEVICES



Hardware & Firmware



Cloud



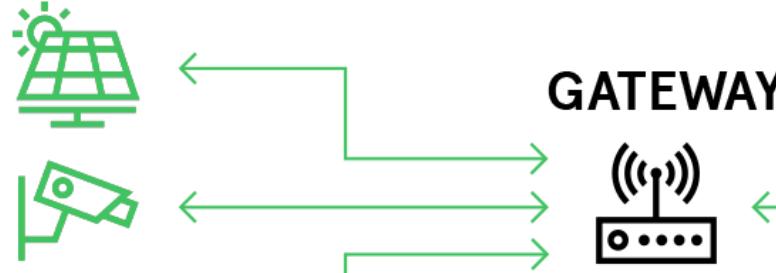
Back-End & Experience



IoT solutions require skills across multiple engineering disciplines

The IoT Challenge

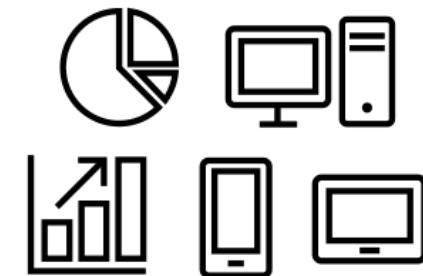
DEVICES



GATEWAY

IoT CLOUD PLATFORM

DASHBOARDS & DECISIONS



Hardware & Firmware

Cloud

Back-End & Experience

← / IOTCONNECT® →

IoT solutions require skills across multiple engineering disciplines

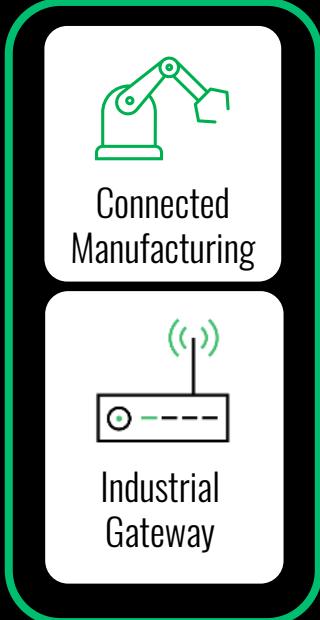
/IOTCONNECT®

Things



/IOTCONNECT®

Things

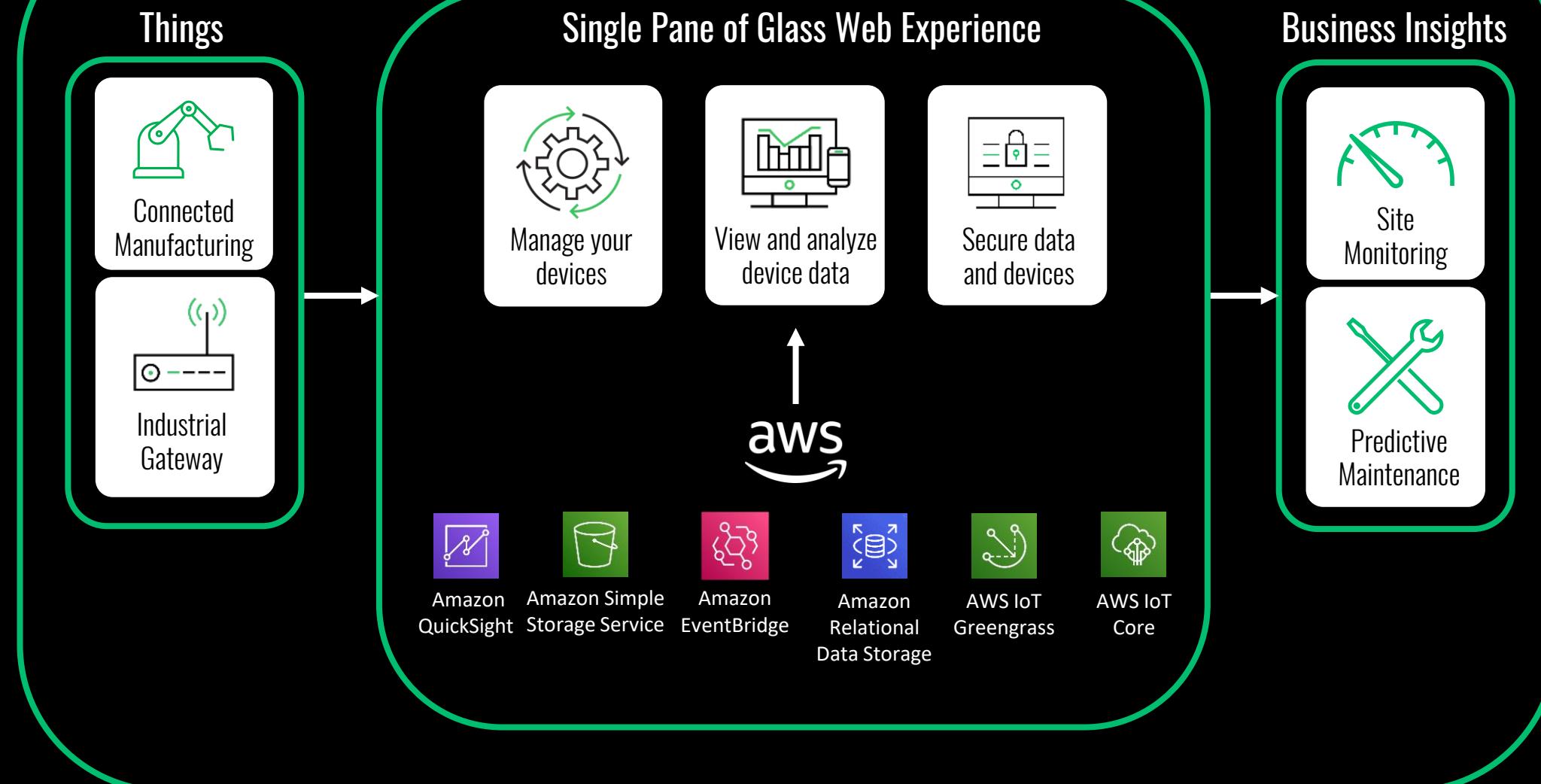


Business Insights



extracts

IOTCONNECT®



/IOTCONNECT®

i.MX93 VisionAI Use Case



NXP FRDM i.MX 93 Development
Board

A screenshot of a web-based dashboard titled "Worker Safety & Compliance". The dashboard features a live video feed of a person's face, overlaid with AI-powered monitoring data. A red bounding box highlights the face, with the text "Face: Forward Yawning: No Eyes: Open Conf: 1.00". To the left of the video, there are sections for "ALERT STATUS" (Distracted), "HEAD DIRECTION" (LEFT), and "EYE STATUS" (EYES OPEN). The "HEAD DIRECTION" section includes a yellow silhouette of a head facing left. The "EYE STATUS" section shows two green eye icons. On the right side of the dashboard, there are graphs for "Bounding Box" and "Notifications (FRDMiMX93)". A blue arrow points from the "HEAD DIRECTION" section towards the video feed.

NXP i.MX93

AI Model Workflow

AI Model Usage & Design Entry Points

Workflow for adapting and deploying AI models on the NXP i.MX93

Pretrained Model Entry Points:

- Utilize Pre-optimized TFLite
- Use conversion tools for ONNX, TensorFlow, Keras and PyTorch models.

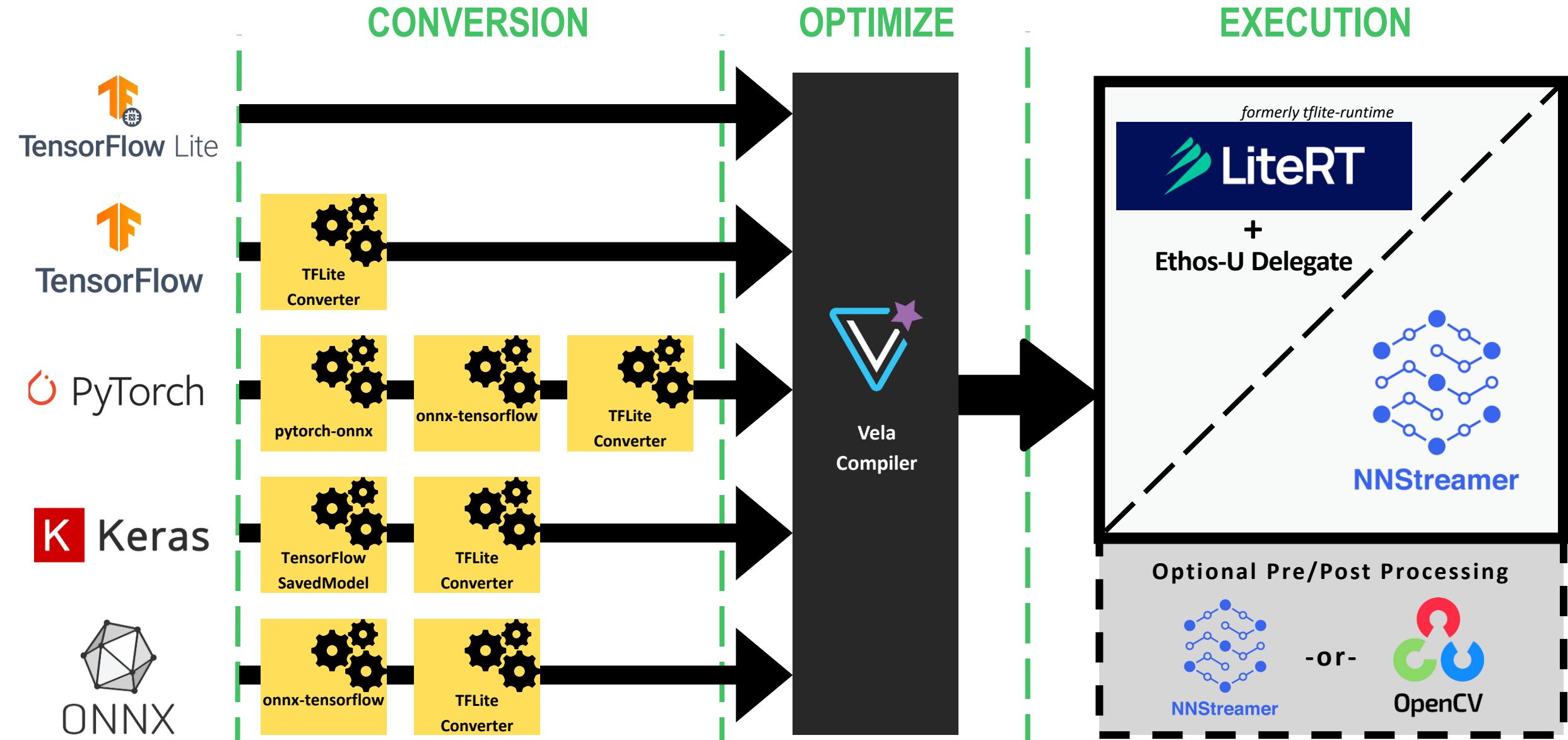
Resources:

- [NXP Model Zoo](#): Optimized models for NXP hardware.
- [Kaggle](#): Various pre-trained models in TFLite format.
- [Awesome TF-L](#): Compilation of TensorFlow Lite models, tutorials, and tools.
- [TensorFlow 2 Detection Model Zoo](#): Object detection models optimized for edge devices.

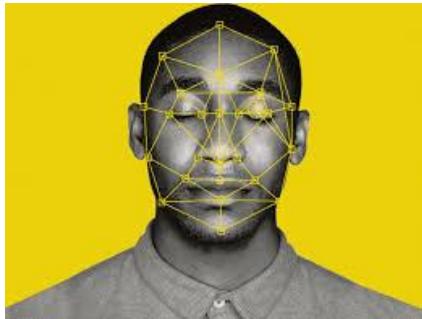
Tools:

- [NXP eIQ Toolkit](#): Model optimization and quantization.
- [TensorFlow Lite Converter](#): Post-training quantization.
- [Vela Compiler](#): Optimizes models for the Ethos-U65 microNPU.
- [NNStreamer](#): Integrates models into camera pipelines.
- [TensorFlow Lite Runtime \(LiteRT\)](#): Runtime for ML models on mobile, embedded, and IoT devices
- [OpenCV](#): Process camera feeds and prepare images before or after inference.

NXP i.MX93 Ethos-U65 Trained Model Pipeline



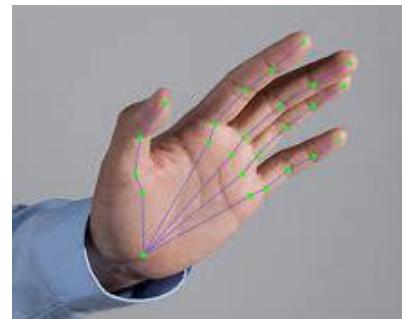
/ i.MX93 eIQ Example Projects and Model Performance



Face Recognition



DMS (Driver Monitor System)



Hand Gesture Detection

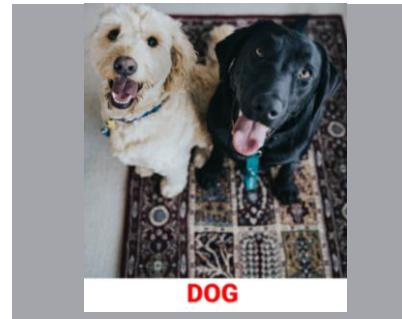
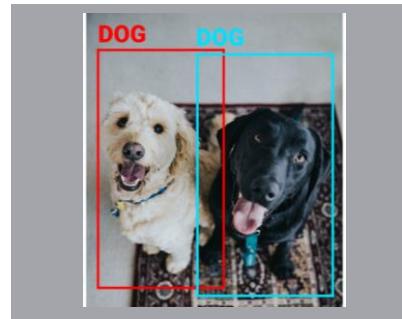


Image Classification



Object Detection

Demo	Model Name	Purpose / Classification	Execution Target	Total SRAM	Total DRAM	MACs	NPU Cycles	Inference Time	Network TOPS/s
Face Recognition	yoloface_int8.tflite	Face Detection	100% NPU 0.0% CPU	38.17 KiB	42.20 KiB	1,288,896	199,678	0.20 ms	0.01
	facenet_512_int_quantized.tflite	Face Recognition	~99.1% NPU ~0.9% CPU	383.23 KiB	21,970.88 KiB	1,419,126,976	10,803,758	10.80 ms	0.26
DMS	face_detection_front_128_full_integer_quant	DMS Face Detection	~96.6% NPU ~3.4% CPU	257.39 KiB	514.06 KiB	31,303,040	1,509,247	1.51 ms	0.04
	face_landmark_192_full_integer_quant.tflite	DMS Face Landmark Detection	~98.2% NPU ~1.8% CPU	288.81 KiB	1,313.16 KiB	37,087,200	4,450,569	4.45 ms	0.02
	iris_landmark_quant.tflite	DMS Iris Landmark Detection	~99% NPU ~1% CPU	192.00 KiB	831.98 KiB	54,054,912	3,074,031	3.07 ms	0.04
Hand Gesture Detection	palm_detection_builtin_256_integer_quant.tflite	Palm Detection (Hand Detection)	~98.1% NPU ~1.9% CPU	1537.33 KiB	2132.61 KiB	2132.61 KiB	4,450,569	4.45 ms	0.02
	hand_landmark_3d_256_integer_quant.tflite	Hand Landmark 3D Detection	~94% NPU ~6% CPU	384.00 KiB	4,083.34 KiB	490,491,136	15,290,974	15.29 ms	0.06
Image Classification	mobilenet_v1_1.0_224_quant.tflite	Image Classification (MobileNet)	100% NPU 0.0% CPU	370.91 KiB	3,719.84 KiB	572,406,226	4,491,867	4.49 ms	0.25
SSD Object Detection	ssd_mobilenet_v1_quant.tflite	Object Detection	~98.4% NPU ~1.6% CPU	377.97 KiB	5,005.58 KiB	733,078,611	7,759,989	7.76 ms	0.19

IOTCONNECT

Quick Start Example

/NXP i.MX93: DMS eIQ Example Quick Start Demo

Features:

Real-Time Facial and Eye Monitoring: Continuously tracks the user's face to detect eye openness and yawning, providing immediate indicators of potential drowsiness or inattention.

Threshold-Based Stability: Configurable detection logic ensures brief distractions or fleeting expressions aren't incorrectly flagged—only consistent face or eye states over multiple frames trigger alerts.

Cloud-Driven Rules and Automations: Set custom rules in the cloud—for example, triggering an alert when a specific threshold is reached or executing a command to label and store an image locally.

Local Image Capture on Demand: Receives /IOTCONNECT commands to save a labeled image (e.g., "eyes closed: alert" event), enabling post-incident reviews and audit trails.

End-to-End Visibility and Reporting: Telemetry (e.g., face direction, eyes open/closed, yawning) is sent to the cloud for live dashboards, analytics, and easy export for compliance audits.



/ IOTCONNECT®



[Quick Start Project](#)

AI Possibilities

Workplace Safety

- Fatigue Monitoring
- Compliance Audits

Smart Healthcare

- Patient Drowsiness Alerts
- Remote Distress Monitoring

Smart Building

- Employee Engagement Boards
- Room Occupancy Analytics

Fleet Monitoring

- Driver Fatigue Alerts
- Route Efficiency Analytics

Retail Engagement Analytics

- Customer Engagement
- Personalized Content

E-Learning Engagement

- Student Attentiveness
- In-Class Engagement

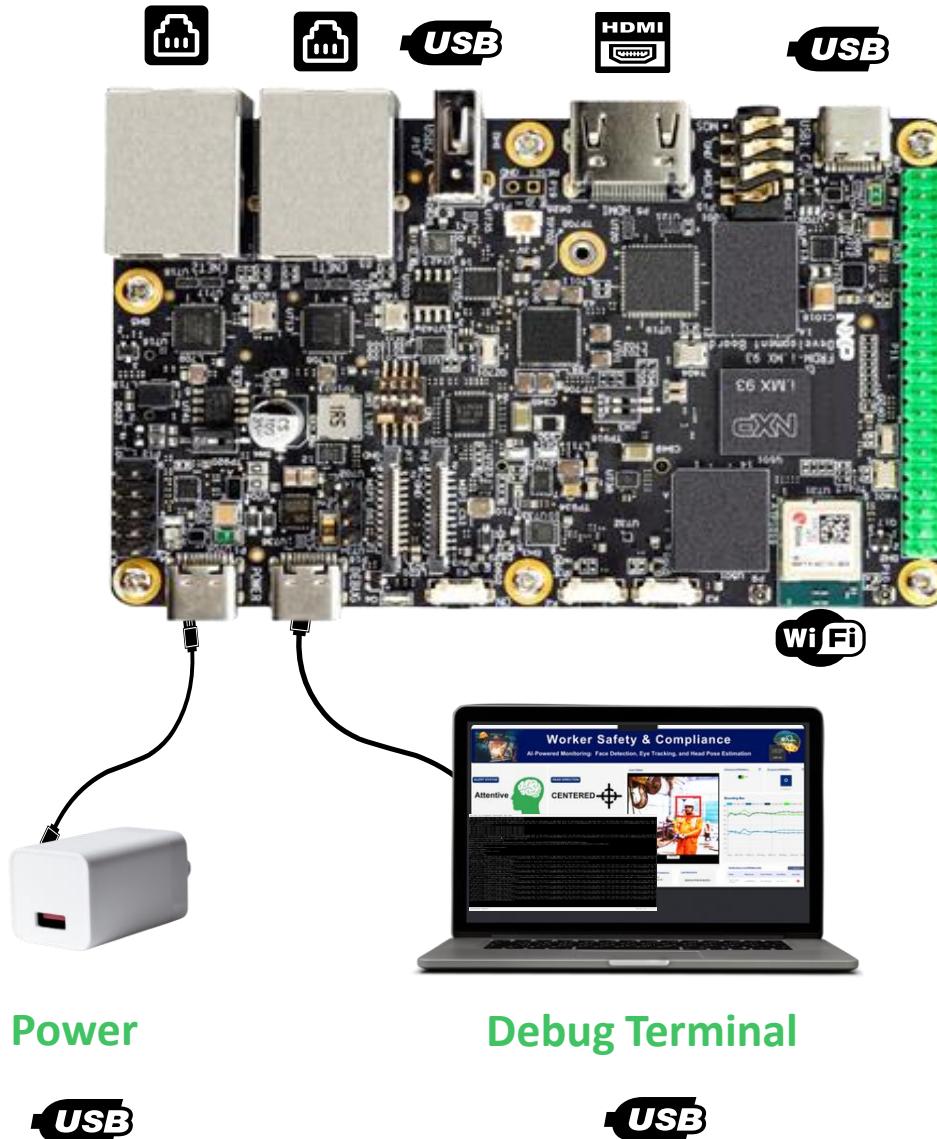
Secure Access

- Facial Recognition
- Fraud Detection

Gaming & Esports

- Focus & Engagement
- Real-Time Coaching

/DMS Quick Start: Physical Setup



Power & Debug: Connect USB-C power and a second USB cable to your laptop for the debug console.

UVC Camera: Attach a standard USB webcam for face detection capabilities.

Monitor: Plug in an HDMI display to view real-time detection output locally.

Network Access: Use Ethernet or Wi-Fi for cloud connectivity and remote dashboard access.



UVC Camera



Monitor



Access Point



/ DMS Quick Start: User Flow

1 Log into the i.MX93 Board

2 Execute Quick Start Script

3 Register Device in Cloud

4 Launch Application Code

DEPENDENCIES & UPDATES

- Installs Packages and Updates**
- Upgrades the Vela Compiler, optimizing AI model execution on the Ethos-U NPU
 - Ensures compatibility between AI tools, preventing version conflicts

AI MODELS

- Download and Optimizes ML Models**
- Fetches AI models for all preloaded NXP eIQ demos
 - Runs Vela optimization for execution on the NXP i.MX93 NPU

/IOTCONNECT

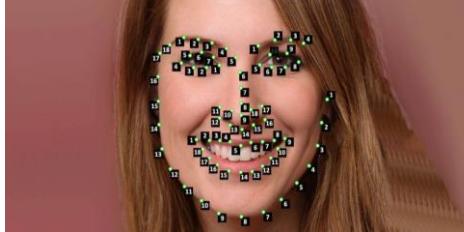
- Cloud Demonstration Setup**
- Installs IOTCONNECT SDK and generates SSL certificates
 - Downloads demo application files from Git repository
 - Guides user through IOTCONNECT device creation

DMS Models Available Metrics

Face Detection

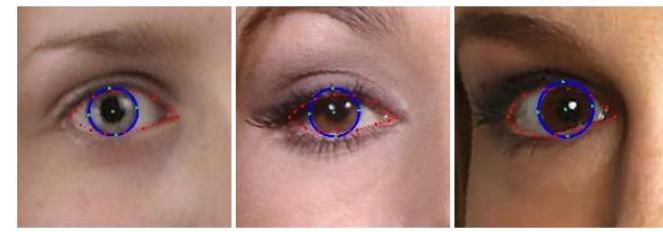


Face Landmark Detection



face_detection_front_128_full_integer_quant

Iris Landmark Detection



iris_landmark_quant.tflite

DMS Metric	Variable in Code	Computation Method	Expected Values
Eye Closure (Blinking)	left_eye_ratio, right_eye_ratio	get_eye_ratio()	0.0 - 1.0 (0 = open, <0.2 = closed)
Yawning Detection	mouth_ratio	get_mouth_ratio()	0.0 - 1.0 (>0.3 = yawning)
Face Pose (Yaw, Pitch, Roll)	pitch, roll, yaw	get_face_angle(r_vec, t_vec)	-90 to +90 degrees (rotation angles)
Iris Position (Eye Gaze Tracking)	iris_ratio	get_iris_ratio(left_eye_landmarks, right_eye_landmarks)	0.8 - 1.2 (center ~1.0, extreme <0.85 or >1.15)
Facial Landmark Mesh	mesh_landmark_inverse	face_mesher.inference(aligned_face)	Array of 468 (x, y, z) facial landmark points
Facial Recognition Confidence	mesh_scores	face_mesher.inference(aligned_face)	0.0 - 1.0 (Higher = more confident detection)
Alertness Score (Custom)	(1 - mouth_ratio) * eye_ratio * 100	based on eye openness & yawning	0 - 100 (Higher = more alert, Lower = drowsy)
Mouth Open Ratio	get_mouth_ratio(mesh_landmark, image_show)	Ratio of mouth height to width	0.0 - 1.0 (Higher = more open mouth)
Head Position (Tilting)	get_face_angle(r_vec, t_vec)	face orientation vectors	-30 to +30 degrees (head tilt left/right)
Left/Right Eye Movement	get_eye_ratio(left_eye_landmarks, image_show, left_box[0])	Eye aspect ratio from landmark points	0.0 - 1.0 (Lower = closed, Higher = open)
Head Orientation (Rotation)	get_face_angle(r_vec, t_vec)	rotation vectors	-90 to +90 degrees (head rotation angles)
Gaze Tracking (Left/Right/Center)	get_iris_ratio(left_eye_landmarks, right_eye_landmarks)	relative iris positioning	Left (<0.85), Right (>1.15), Center (~1.0)

/IOTCONNECT Cloud Telemetry and Commands

/IOTCONNECT D2C Telemetry

Attribute	Notes
dms_head_direction	0 = Fwd, 1 = Up, 2 = Down, 3 = Left, 4 = Right, 5 = No face
dms_yawning	0 = No, 1 = Yes
dms_eyes_open	0 = Closed, 1 = Open, 2 = No face detected
dms_alert	0 = Normal, 1 = Inattentive, 2 = Drowsy, 3 = No face
dms_bbox_xmin (ymin, xmax, ymax)	raw values
camera_ip	Populated by the Python script upon startup.
dms_pitch	Positive = looking up, negative = looking down.
dms_roll	Head tilt to the left or right.
dms_yaw_val	Positive = turned left, negative = turned right.
dms_mouth_ratio	Higher values typically indicate yawning or open mouth.
dms_left_eye_ratio_smoothed (right)	Larger ratio ⇒ more open.



/IOTCONNECT C2D Commands

Command	Arguments	Example Usage
image	live: Enables continuous live streaming off: Turns video streaming off snapshot: Captures and stores jpg locally	Used to control the local Flask server's streaming mode.
get-ip	None	Returns the device's local IP address in the command acknowledgment.
set-thresholds	transition_threshold (int) eye_ratio_threshold (dec)	transition_threshold = how many consecutive frames needed before changing a subject's state. eye_ratio_threshold = what ratio indicates eyes closed.
set-conditions	head_direction yawning eyes_open	Forcibly override detection states or revert them to normal detection if "null."

/ Moving Forward with i.MX 93 Edge AI Applications



- **Do it yourself:** Avnet /IOTCONNECT Quick Start
 - [NXP FRDM iMX93](#)
 - [TRIA MaaXBoard OSM93](#)
- **More NXP eIQ Examples:**
 - [Face Recognition, Hand Gesture, Image Classification, Object Detection](#)
- **Advanced:** Merging Applications and ML Models
 - [Face Recognition + DMS on i.MX93](#)
- **OTA Updates:**
 - [Example](#)

NXP FRDM i.MX 93 Development Board QuickStart

1. [Introduction](#)
2. [Hardware Requirements](#)
3. [Hardware Setup](#)
4. [Cloud Account Setup](#)
5. [/IOTCONNECT Device Template Setup](#)
6. [Device Setup](#)
7. [Using the Demo](#)
8. [Resources](#)

1. Introduction

This guide is designed to walk through the steps to connect the NXP FRDM i.MX 93 to the Avnet /IOTCONNECT platform and demonstrate the standard IoT function of telemetry collection.



The FRDM i.MX 93 development board is a low-cost and compact development board featuring the i.MX93 applications processor. Equipped with an onboard IW612 module, featuring NXP's Tri-Radio solution with Wi-Fi 6 + Bluetooth 5.4 + 802.15.4, the board is ideal for developing modern Industrial and IoT applications.

2. Hardware Requirements

- NXP FRDM i.MX 93 Development Board [Purchase](#) | [User Manual & Kit Contents](#) | [All Resources](#)
- 2x USB Type-C Cables (included in kit)

Additional Resources

Avnet Investments



CLOUD APPLICATION DEVELOPMENT



EMBEDDED SOFTWARE
DESIGN SERVICES



EMBEDDED MODULES
& BOARDS



SOLUTIONS DEVELOPMENT:
ADVANCED APPLICATIONS GROUP



IoT Sales Team

A global specialized IoT team focused on providing unique hardware, software and cloud expertise to OEMs



Extensive line card

Semiconductors, IP&E, embedded systems, software and cloud



Hardware Edge Design

Technology selection and support provided by 800+ Field Application Engineers



Embedded Software Design

Design, develop, and integrate embedded OS, firmware, and application software



Cloud and Digital Design

Complete IoT solutions (cloud, apps, data insights) built on IoTConnect



Supply Chain and Logistics

Supply chain models to address each customer's priorities



Lifecycle Management

Digital Managed Services, OTA updates, post sales support

Gives us Unmatched Capabilities

AVNET



/ TRIA Background

An Avnet Company & NXP Platinum Partner

Trusted for integrated modular solutions.

Modular Design Approach

Accelerates time-to-market, lowers design costs, and reduces risk.

Expertise & Scale

Global engineering and manufacturing capabilities to support your product from concept to production.

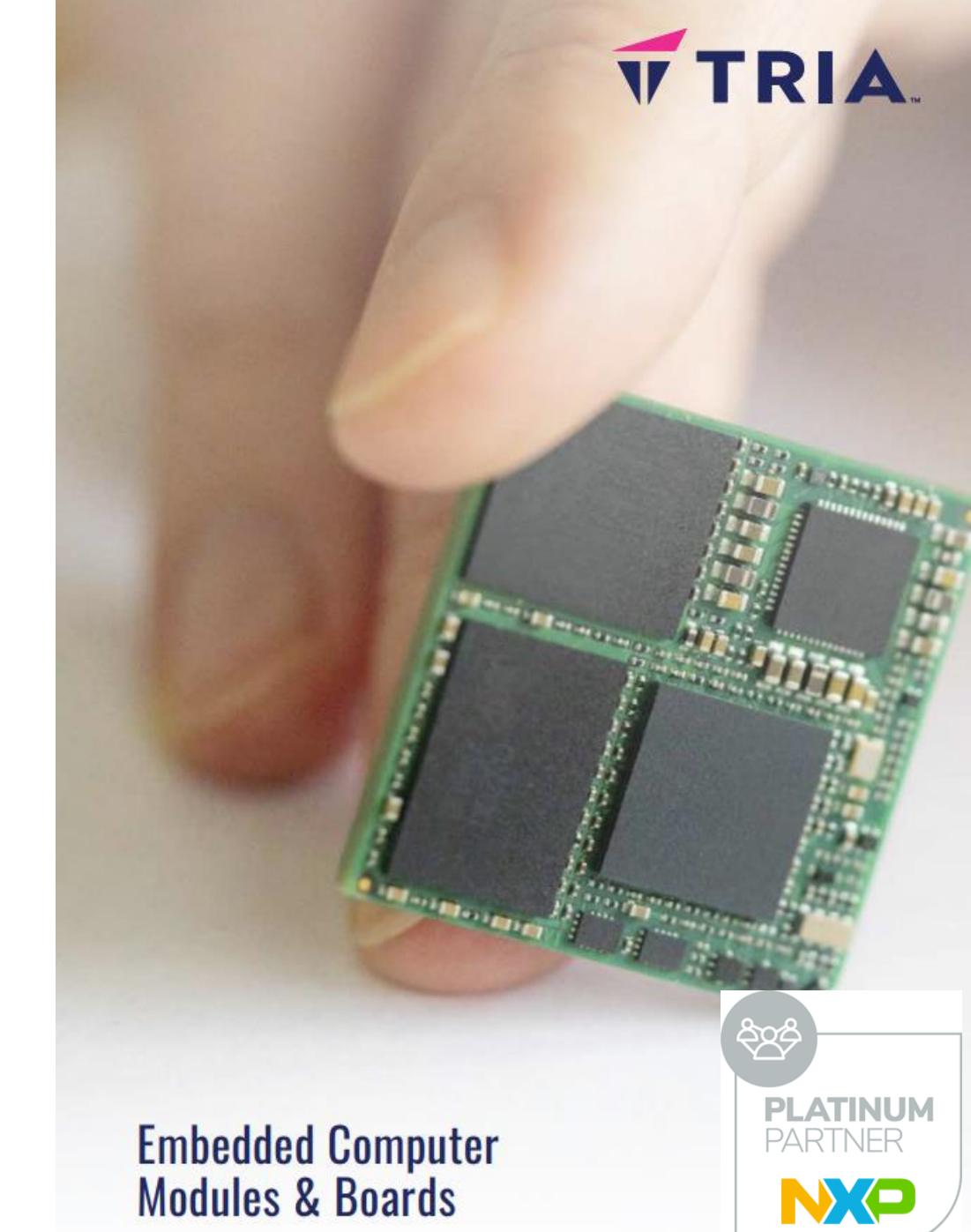


COM+HPC



Visit tria-technologies.com for more details.

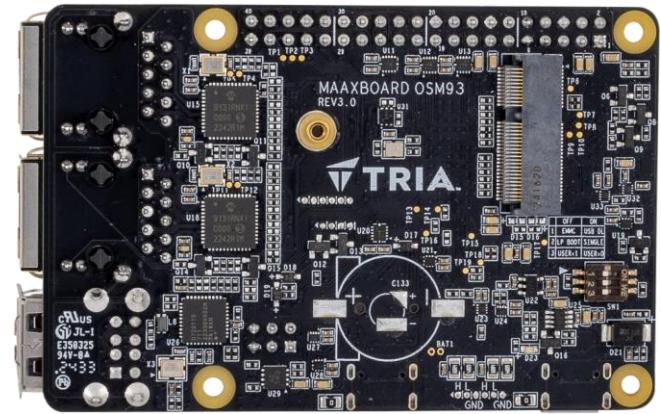
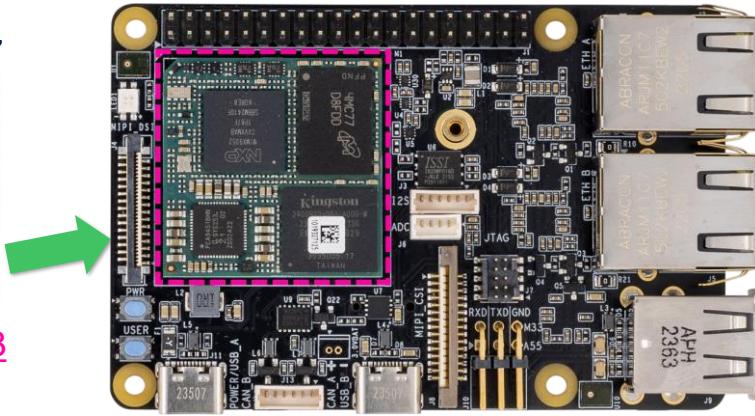
Embedded Computer
Modules & Boards



MAAXBOARD OSM93

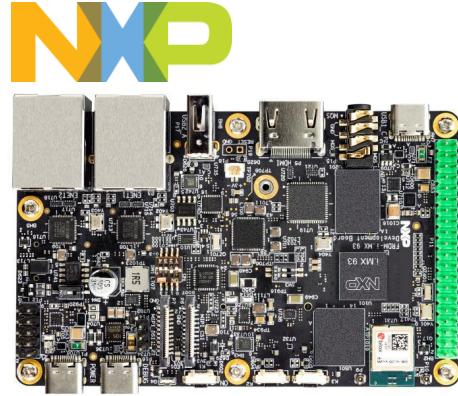


- Integrates OSM-SF-IMX93 module onto compact Raspberry-Pi form-factor SBC carrier board
- Hardware accelerated NPU (Ethos-U65)
- 2x Arm Cortex-A55 @ 1.7GHz
- 1x Arm Cortex-M33 @ 250MHz
- 1x Arm Ethos-U65 NPU @ 1.0 GHz
- 32GB eMMC, 2GB LPDDR4X with ECC (3.7 GT/s)
- 2x Gigabit Ethernet (with TSN)
- 2x CAN-FD (incl. transceivers)
- 1x MIPI DSI display interface
- 1x MIPI CSI camera interface
- 2x USB 2.0 host (type-A), 1x USB 2.0 OTG (type-C)
- 1x USB 2.0 device + power input (Type C)
- Optional WiFi 6 + BT 5.3 + 802.15.4 module (M.2 socket)
- 40 pin Pi-HAT header (UART, SPI, I2C...)
- RTC battery holder (option)



MaaXBoard OSM93 product page	URL
NXP i.MX Linux software releases	URL
eIQ ML Software Dev. Environment	URL

Hardware: Evaluation, Development and Production



FRDM-i.MX93



MaaXBoard OSM93



SM2S-IMX93



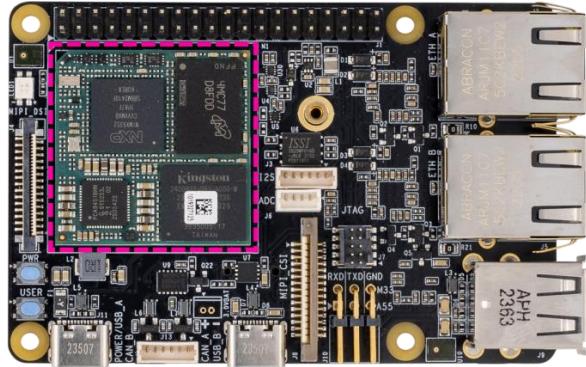
OSM-SF-IMX93



MIMX93xx

	FRDM-i.MX93	MaaXBoard OSM93	SM2S-IMX93	OSM-SF-IMX93	MIMX93xx
Form Factor	Dev/Eval Board 135 x 100 mm	SBC (RPi-like) 85 x 56 mm	SMARC 2.1.1 Module 82 x 50 mm	OSM (Size-S) Solder-on 30 x 30 mm	FCCSP 11 mm x 11 mm, 0.5 p 9 mm x 9 mm, 0.5 p 14 mm x 14 mm, 0.65 p
When to Use	Evaluation / Development	Development / Production	Development / Production	Production	Production
Design Purpose	Low-cost board for quick i.MX93 eval Proof-of-concepts, prototyping	Easy path from prototype to end-product Requires minimal carrier design	Standard SMARC form factor Flexible carrier approach	Ultra-compact for high volume Cost-sensitive designs needing minimal PCB area	High volume / long product runs
Key Advantage	Full-featured dev kit Rich debug & expansion	Multiple USB (hub), dual CAN, onboard mics RPi layout for accessories	Established SMARC ecosystem Plug-and-play with existing carriers	Solder-down module No connector cost Small footprint	Lower BOM cost at very high volume

MAAXBOARD OSM93 – Resources



Product Pages & Support Links

Digital Brochure	Embedded Compute Brochure (3Q24)
Avnet Boards Website	avnet.me/avnetboards
MSC product page	avnet.me/msc-osm-93
Dev Kit product page	avnet.me/maaxboard-osm93
Github board “Hub”	Github.com/avnet/maaxboard-osm93-hub
QC Linux support	avnet.me/nxp-linux-support
Tech support forum	avnet.me/avnetboards-support
Tech issue resolution	Jira internal ticketing system 

A photograph of a person from the side, wearing a blue shirt, working at a white desk. On the desk is a silver laptop, a black keyboard, a black mouse, and a blue mousepad with a white 'W' logo. In the background, there's a computer monitor showing a terminal window with multiple lines of text.

Witekio capabilities for NXP



The Witekio logo consists of a stylized blue 'W' icon above the word "Witekio" in a bold, white, sans-serif font. Below "Witekio" is the smaller text "AN AVNET COMPANY" in a smaller, white, sans-serif font.

Witekio
AN AVNET COMPANY

/Everything you need to get you to market **faster**

AVNET

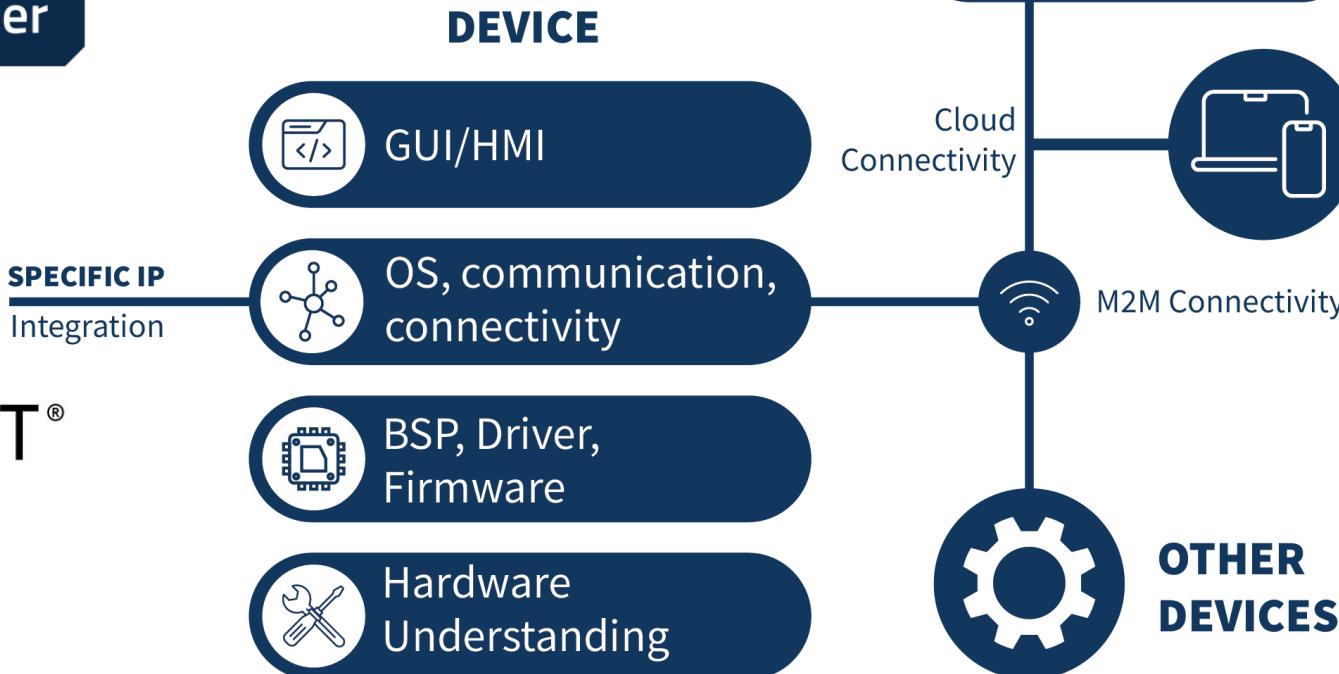


Qt Service Partner

Flutter

slint

/ **IOTCONNECT®**



Everything you need to get you to market **faster**

AVNET

Lower layers



The Embedded Kit

by Witekio

A production ready Yocto **Linux** distribution designed to speed up OS development

Already preconfigured for

iMX8MPlus
iMX8MMini
iMX8ULP
iMX93



iMX91 & iMX95 - coming soon





OUR WORK IN ACTION WITH NXP



Fitness

PRECOR



Vending machines

EVOCA GROUP



Medical

CEREVAST



GPS

satmap
way ahead



Transportation

masabi



Fitness

LUXOV*
CONNECTING CLIMBERS

HOW WE CAN HELP WITH EDGE AI

What we can do

- Software support for the camera, microphone, and sensors needed
- Integrate existing AI models on both MCU and MPUs  **EDGE IMPULSE**  **NVIDIA**
- Optimize and integrate OS layers to ensure everything runs smoothly
- Use hardware acceleration tools
- Managing the collection of predefined data and enable data transfer to the cloud etc.
- IoT gateway security
- And more

Thank you for joining
Questions?

www.avnet.com/iotconnect/nxp

Contact iot@Avnet.com