Design without bounds with FRDM

June 2025

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*Optional

FRDM Ecosystem

Software & tools
Comprehensive software and tools for seamless prototyping and rapid development

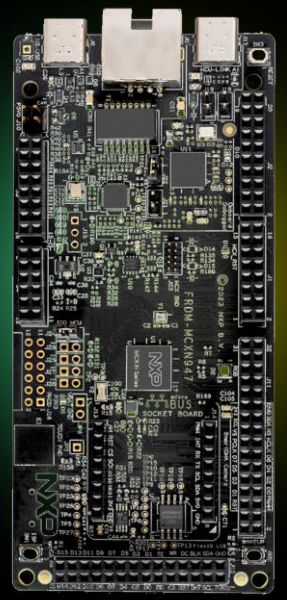
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Modular Hardware
Scale your project with modular, quick-start FRDM and expansion boards

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Application code
Leverage our application code hub or GoPoint to access 170+ code snippets and demos

General purpose and Wireless MCUs



Flexible and scalable hardware
Arduino
FRDM
mikroBUS

Price range:
$10 - $35

i.MX Application Processors

Linux Platform with easy setup
On-board
wireless
HDMI*
40-pin EXPI

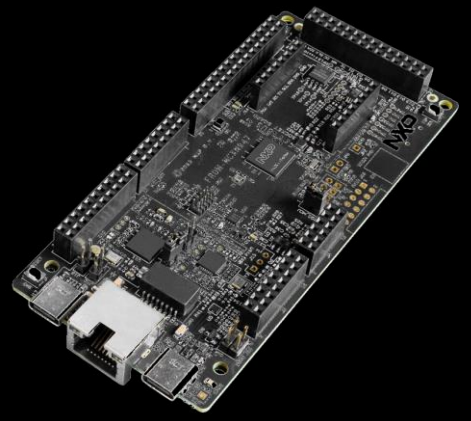
Price range:
$50 - $150



Addressing a wide range of edge applications with baseline features across the platform

Cut through complexity & scale with NXP's FRDM ecosystem

FRDM Development Platform



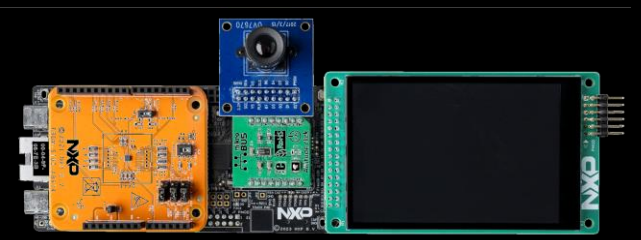
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Expansion Boards with SW support



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Easy proof of concept



Enabling technologies with modular hardware and comprehensive software supported by SDK, GitHub or GoPoint

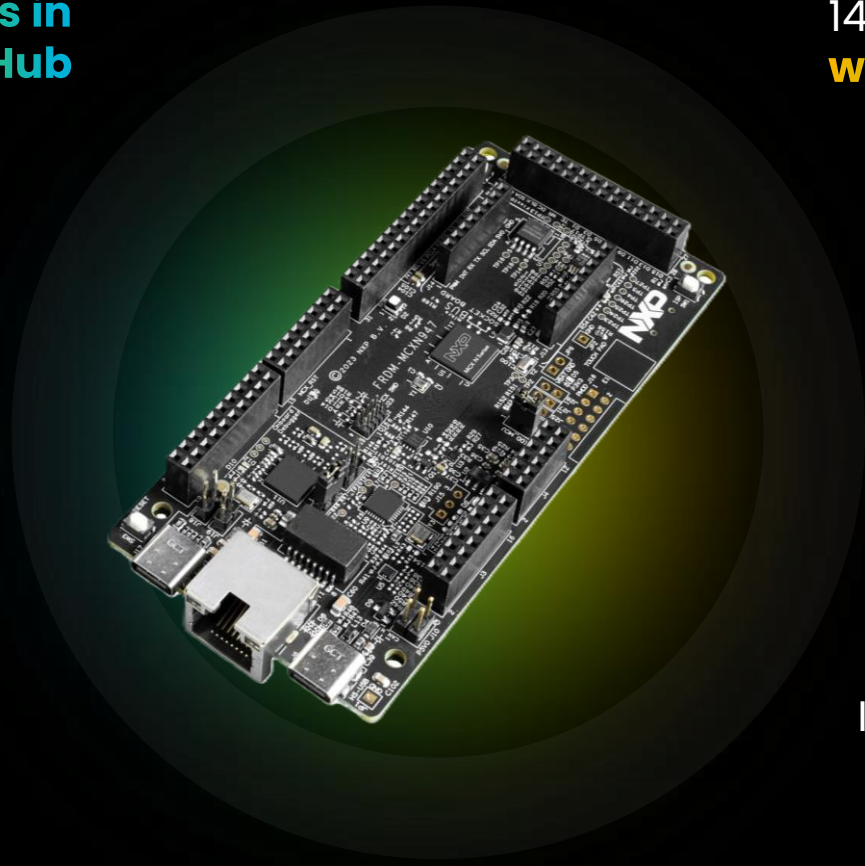
AI/ML	Security	Touch	Motor control	Safety	Industrial Networking
Graphics & Display	Wireless Connectivity	Voice	Vision	Power Conversion	Ultra-Low-Power

FRDM Development Ecosystem: flexible and rapid development

Join our open-source community of developers migrating to NXP

NXP & Partner **examples in Application Code Hub**

14.2K **users developing with MCX now!**



125 MCX orderable part numbers released in 2024, **on track to double in 2025**

MCX MCU portfolio builds on the legacy of LPC and Kinetis, **bringing together the best of the both worlds**

Zephyr RTOS

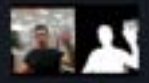
Industry platform **that scales from low-cost MCUs to wireless MCUs, to Linux based microprocessors**

GoPoint is part of the FRDM Ecosystem for i.MX Application Processors

Showcases a variety of use cases and applications, such as AI, video and graphics packed with Linux, Debian and Yocto BSP

Launch your demos in seconds:

- Simple Out of Box Experience
- Simple GUI
- Continuing Support

Name	Description	8MM	8QM	8MP	93	95
 Image classification	Image classification example using NNStreamer. Image classification is an ML task that attempts to comprehend an entire image as a whole. The goal is to classify the image by assigning it to a specific label. Typically, it refers to images in which only one object appears and is analyzed.	✅	✅	✅	✅	✅
 Object detection	Object detection example using NNStreamer. Object detection is the ML task that detects instances of objects of a certain class within an image. A bounding box and a class label are found for each detected object.	✅	✅	✅	✅	✅
 Pose estimation	Pose estimation example using NNStreamer. The goal of pose estimation is to detect the position and orientation of a person or object. In human pose estimation, this is usually done with specific keypoints such as hands, head, legs, etc.		✅	✅		✅
 ML Benchmark	This tool allows to easily compare the performance of TensorFlow Lite models running on CPU (Cortex-A) and NPU. The tool works on i.MX93 and i.MX8M Plus.			✅	✅	
 ML Gateway	ML Gateway easily configures the i.MX8M Plus and i.MX93 EVKs as machine learning accelerator servers and allows resource-constrained MPU systems (clients) without NPUs to connect and run ML inference. This is currently enabled for i.MX8M Mini on the client side.	✅		✅	✅	
 Selfie Segmenter	Selfie Segmenter showcases the ML capabilities of i.MX8M Plus and i.MX93 by using the NPU to accelerate an instance segmentation model. This model lets you segment the portrait of a person and can be used to replace or modify the background of an image.			✅	✅	

See all the available demos at GoPoint



FRDM Ecosystem plus Application Examples

Application Code Hub

- Intuitive way to find source code for demos
- Interactive dashboard to filter and find resources

One place to find everything:

- **SDK** software examples
- Demos and Application Examples from **Git repository**
- **GoPoint** demos from Git repository
- **Application notes** with its source code

Use with the Expansion Board Hub

- Find expansion boards that are software supported by our SDK, GitHub or Application Code Hub
- Use it together with different FRDM and Evaluation boards

Latest and greatest software code examples in Application Code Hub

Universal sensing module

NAFE13388-UIM + FRDM-MCXN947

A universal, software-configurable analog input FRDM solution designed for high-precision sensing and edge intelligence. It supports versatile sensor inputs and ensures reliable wired connectivity.

Based on:

- NAFE13388-UIM Arduino® shield board
- FRDM-MCXN947 development board

Sensor data	Measure voltage, current, temperature, resistance, pressure, and weight
Diagnostics	Wide range of diagnostic functions for anomaly detection and failure prediction

Solution Price:
FRDM-MCXN947 $25 USD
NAFE13388-UIM $49 USD



On-device learning anomaly detection

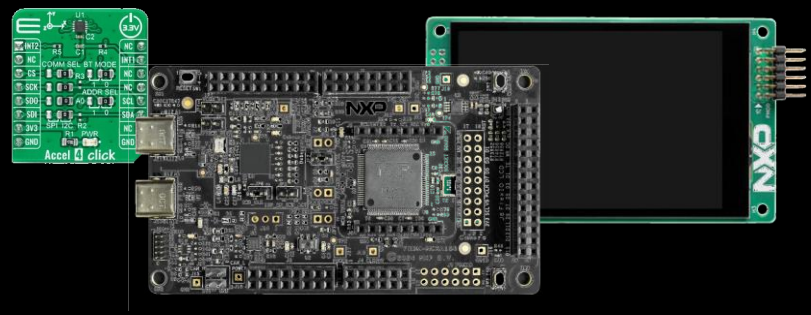
FRDM-MCXA156 + ACCEL-4-CLICK

Monitoring the status of the fan, which utilizes an accelerometer sensor attached to the fan to check if the fan is operating in a normal condition. Application is based on FRDM-MCXA156 with 96MHze Cortext-M33, 1M Flash and 128KB SRAM inside

The Machine Learning application trained and generated by eIQ Time Series Studio and support on-device learning.

Sensor data	Vibration
Diagnostics	Predictive maintenance for remotely sited or not easily accessible machinery.

Solution Price:
FRDM-MCXA156 $15 USD
LCD-PAR-S035 $29 USD
Accel 4 click $7 USD



FRDM Platform addressing focus use cases

Coming soon

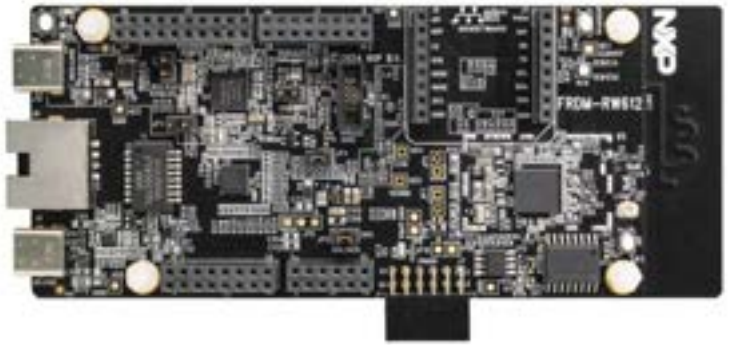
Compact, flexible and scalable hardware design.

SoC	FRDM Development board	Sensors on-board	Networking/ Connectivity	Multimedia	Motor Control	AI/ML	Touch	Voice
RW61x	FRDM-RW612	Temp Sensor	Wi-Fi® 6 Bluetooth LE® 802.15.4, Ethernet, HS USB	LCD Driver (LCD-PAR-S035 Compatible PMOD)		Time-series ML		FRDM header
MCX N	FRDM-MCXN947 FRDM-MCXN236	Accelerometer / Temp Sensor	HS & FS USB 10/100 Ethernet I3C (Arduino)	Parallel display & camera	MC subsystem though FRDM header	NPU, Vision, Time-series ML	TSI , on-board pad + FRDM header	FRDM header
MCX A	FRDM-MCXA153 FRDM-MCXA156 FRDM-MCXA346	Temp Sensor	FS USB I3C (Arduino)	Parallel display & camera	MC subsystem though FRDM header	Time-series ML		
MCX W	FRDM-MCXW71 FRDM-MCXW72 FRDM-MCXW23	Accelerometer / Light sensor	802.15.4 & Bluetooth, CAN, I3C (Arduino)			Time-series ML		
MCX C	FRDM-MCXC041 FRDM-MCXC242 FRDM-MCXC444	Accelerometer / Light sensor	FS USB	Segment LCD on-board				
MCX E	FRDM-E247 FRDM-E31B	Accelerometer + Magnetic switch	Ethernet, CAN	Parallel display & camera		Time-series M		
i.MX 9	FRDM-IMX91 FRDM-IMX91S FRDM-IMX93		Wi-Fi® 6 Bluetooth®, 802.15.4, Gb Ethernet, USB, CAN	LVDS to HDMI, MIPI CSI/DSI, Parallel LCD & Camera		EdgeLock Secure Enclave	Vision, audio & time-series ML	40 pin EXPI, MQS

Get Started with NXP's FRDM Development Platforms for Wireless Connectivity!

STEP 1

Prototype with a FRDM board

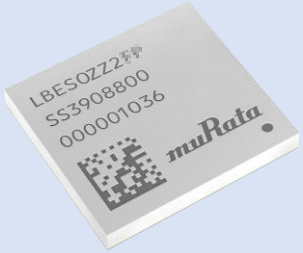


Wi Fi
Bluetooth
zigbee
THREAD
matter

STEP 2

Integrate wireless into your design using a module





NXP partners with leading module manufacturers to offer certified wireless solutions

STEP 3

Finalize your product



Get to market faster with NXP's Wireless Community Support

Get Started with NXP's FRDM Development Platforms for Wi-Fi Connectivity!

FRDM-RW612



- **Compact and scalable** development board
- Powered by **RW612** Wi-Fi 6 i.MX RT MCU
- **External flash** and on-board **MCU-Link Debugger**

Get Started

FRDM-IW416-AW-AM510



- **Wi-Fi 4 + Bluetooth** FRDM Expansion Board
- Compatible with **FRDM-MCXN9x**
- Based on the **Azurewave AW-AM510 Wi-Fi Module**

Get Started

FRDM-IMX91



- **Cost optimized** entry-level IoT platform
- Powered by **i.MX91** processor and **IW610**, IoT optimized Wi-Fi 6 Tri-radio
- **Linux** support and **eMMC** pre-programmed with SW BSP

Get Started

FRDM-IMX93



- **Low cost** and **compact** development board
- Powered by **i.MX93** processor and **IW612**, high performance Wi-Fi 6 Tri-radio
- Supports **GoPoint** for i.MX application processors

Get Started

i.MX Application Processors FRDM Development Platform

Coming soon

- Low-cost Linux Platform for Industrial and IoT applications.
- Rich set of interfaces, PMIC and Tri-Radio Wi-Fi 6, Bluetooth, and 802.15.4 module.
- Linux Debian and Yocto BSP support.
- FRDM page with step-by step guide.

i.MX 9 Family scalability

Entry-Level

FRDM-IMX91S small & simple

- **Arm® Cortex®-A55**
- **Very tiny Linux Yocto** version for Linux/system file for **memory cost down** and **speed development**.
- Debian support though SD Card.
- Focus uses cases:
  - Gateway
  - HMI with LVGL
  - Wireless IoT applications

FRDM-IMX91

- **Arm® Cortex®-A55**
- FRDM Platform with **full Linux support**.
- Simple audio evaluation using audio expansion boards.
- Focus uses cases:
  - Gateway
  - HMI
    - LVGL and GUI Guider
  - Wireless IoT applications

FRDM-IMX93

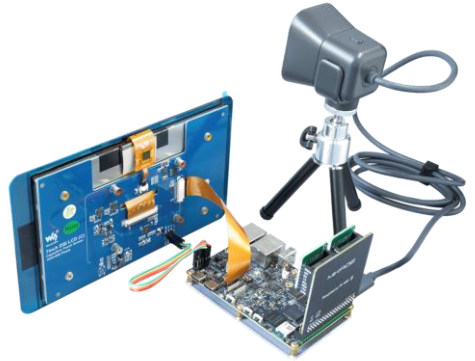
- **Pin-to-pin compatibility** with FRDM-IMX91 silicon package.
- Easy migration for advanced processing and **ML applications**
- **2x Arm Cortex®-A55 + Cortex®-M33 and NPU**.
- Wi-Fi 6 Tri-Radio for Industrial IoT
- Multimedia interfaces: MIPI CSI/DSI and LVDS to HDMI.
- Ready to use GoPoint demos for ML, graphics, voice and more.

Starting at $50









FRDM i.MX 8M PLUS Development Platform

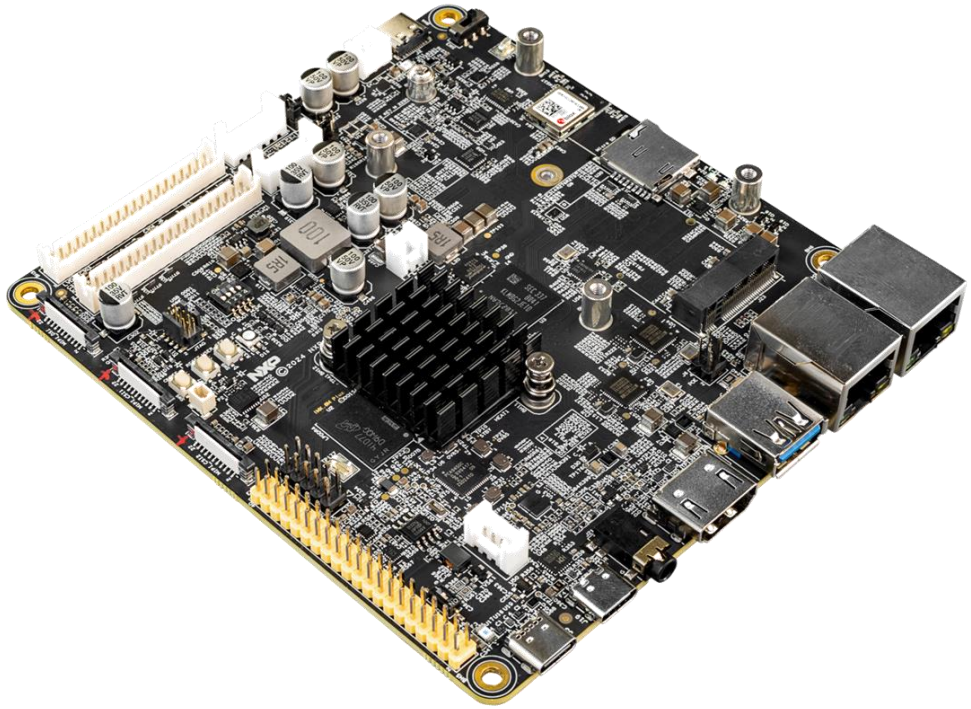
The i.MX 8M Plus FRDM development board is **compact** and **low-cost board** for **ML, advance multimedia** and **industrial networking** applications

- Cost Optimized IIoT Platform
- Linux Yocto and Debian support
- eMMC pre-programmed with SW BSP

Target Applications:

- Machine Vision and Robotics
- Industrial Computer, Gateways, HMI
- Printers and Scanners
- Safety, Security and Surveillance
- Fleet Analytics
- Surround sound and sound bars
- Audio/video receiver

Coming soon



- 4x Arm Cortex®-A53 + Cortex®-M7, ML Acceleration
- **On-board Wireless:**
  - Wi-Fi 6 + BT + 802.15.4 Module. IW612: MAYA-W276-00B
- 2x GB Ethernet, 1x USB 2.0 Type-C + 1x USB 2.0 Type-A
- MIPI-CSI/DSI, HDMI, LVDS
- eMMC 5.1, **32GB,** MicroSD 3.0 card slot, LPDDR4 **4GB**
- 40 pin Expansion Interface
- PMIC **PCA9450,** CAN Transceiver **TJA1051T/3**

Flexible & Rapid Development Platform

Explore FRDM Development Platforms in nxp.com/FRDM



Find it. Get it. Use it

Keep learning though our different channels:

- FRDM Blogs
- FRDM Training Hub
- FRDM Demo videos
- EdgeVerse Techcast



Design without bounds

