i.MX 94 Partners Ecosystem

E-Book Version

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OSM

Solderable and ultra-low power, ideal for rugged environments and industrial applications. They support ARM, x86, and MCU32, with rich I/O and high scalability for edge computing and AI.



iWave

To go directly to a partner's solution, click the board picture.

SMARC

Use connectors and support ARM and x86 with low power consumption. They offer flexible I/O and display options, making them great for multimedia, automation, and robotics.



VVDN TECHNOLOGIES

Short › 82 × 50 mm
Full › 82 × 80 mm

Proprietary

Modules are tailored by vendors for specific applications, offering optimized performance and unique features that meet specialized design needs.



EXOR



Elektronik Systeme



FORLINX Embedded



TQ

NXP Public

What’s Driving SoMs Growth



From industrial automation to connected healthcare, SoMs are the foundation for smarter, faster, and more sustainable embedded design,

The shift toward **modular, scalable design** is transforming how companies build the next generation of embedded devices.

Instead of starting from scratch, more developers are choosing **System-on-Modules (SoMs)** — pre-engineered boards that combine processing power, memory, and connectivity for faster, more reliable development.

Open architectures like **SMARC** (Smart Mobility ARChitecture) and **OSM** (Open Standard Module)make it easier to design once and scale across products.

Whether soldered or edge-connected, these form factors bring flexibility for everything from rugged industrial systems to multimedia applications.

Market momentum:

According to Maximize Market Research, the **Arm-based SoM market** is projected to grow from **$1.8B in 2024** to **$3.4B by 2030**, at a **12% CAGR** — proof that modular design is becoming the new standard. Once limited to low-volume prototypes, SoMs now power **deployments of over 250,000 devices**, showing their reliability at scale.

Key benefits:

- Faster time-to-market – Pre-validated boards accelerate product launches.
- Reduced risks and costs – Proven designs and certifications lower complexity.
- Scalable and future-ready – Standardized modules simplify upgrades.
- Ecosystem depth – Supported by NXP’s global partners for long-term success.

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Time to market advantage with SoM (2-3 months)

1–2 weeks	2–3 weeks	1–2 weeks	3–4 weeks	2–3 weeks	2–3 weeks
1	**2**	**3**	**4**	**5**	**6**
HW Design	**Building first Carrier Board**	**Bring-up and Testing**	**Application Integration**	**Reliability and Compliance Testing**	**Finalization and Production Ramp**
Carrier board layout	Faster cycle, no high-speed memory or PMIC layout needed	Immediate SW bring-up with BSP + validated SoM design	Middleware, custom SW, and feature development	Only carrier + end system need certification; SoM pre-certified	Production RF testing, calibration, supply readiness

Overall Time-to-Market with SoM: 2–3 months (vs. 9 months chip-down)

Key differentiators for SoMs (vs Chip-down):

1. **No need for multiple PCB iterations**
2. **Faster SW bring-up with partner BSPs**
3. **Reduced compliance scope**
4. **Carrier board simplifies design, lowers risk.**

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NXP i.MX Applications Processors Portfolio Use Cases











Automotive
Telematics Controller
Networking Gateway
Connectivity Domain Controller
Smart Antenna

- Integrated switch
- Crypto Accelerator
- Real-time application support
- AI/ML Acceleration
- Safety Capable
- Embedded Security

Controls & Energy
Automation & Control
Electric Vehicle Supply Equipment (EVSE)
Energy Grid

- Industrial Protocol Support
- Real-Time Compute
- High-Speed Networking
- Rich I/O
- Safety Capable

Graphical HMI
Industrial Monitor/Display
Smart Appliances
Point-of-Sale & Kiosk
Digital Cockpit / In-Vehicle Instrumentation

- Rich 3D Graphics
- Display Scalability
- Safety Capable
- Responsive Touch
- Data Processing & Aggregation

Machine Vision & AI
Security
Robotics
Manufacturing
Voice & Gesture Control

- Image Signal Processing
- RAW Image Sensor
- Network Camera Support
- AI/ML Acceleration
- Safety Capable

Healthcare
Medical Health Detection
Exercise Monitoring
Secure Communications
Robotic Control

- Safety Capable
- Embedded Security
- Cryptographic Acceleration
- Powerful Compute, Graphics, and AI/ML

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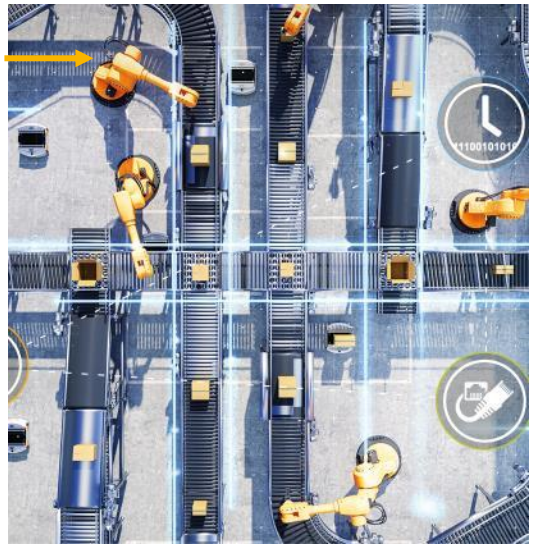
Key Takeaways

i.MX 94 Family of Applications Processors Delivers Safe and Secure Industrial and Automotive Connectivity with Real-Time Control







Networking

- First i.MX applications processor with a TSN Switch
- Multi-protocol networking support

Security

- First NXP apps processor supporting Post-Quantum Cryptography
- EdgeLock Secure Enclave with Cyber Resilience Recovery Module

Performance + Safety

- High performance multi-core
- Integrated functional safety island
- Targeting **IEC61508** SIL2 (hardware integrity); SIL3 (systematic capability) and **ISO26262** ASIL-B

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i.MX 94 key features

- High performance, low latency
- Post-quantum cryptography
- Future-proof networking
- Configurable functional safety

High Performance, Low Latency Edge Processing

- Multi-core(4x A55, 2x M7, 2x M33) for precise, real-time processing
- Low-latency access to on-chip memory and Ethernet interfaces

Post-Quantum Cryptography

- EdgeLock® Secure featuring runtime device integrity protection and native Post Quantum Cryptography support at boot and run time
- Designed with IEC 62443 and EdgeLock 2GO ready for remote key management
- High performance TSN networking with EdgeLock Accelerator

Future-proof Networking

- Integrated 2.5 Gbps TSN Ethernet
- Wide range of industrial networking protocols for legacy fieldbus and modern systems

Functional Safety

- Configurable functional safety sub-system to support IEC61508 (SIL2/SIL3) and ISO26262 (ASIL B)
- Hardware level: safety island, memories, interconnects and interfaces
- Enablement: NXP safety framework, documentation and support

02

Hardware
i.MX 94 Partners



Platinum Partner

TQ Systems GmbH

Global technology company founded in 1994 across 14 locations worldwide, specializing in embedded systems, electronics development, and manufacturing solutions. The company supports a wide range of industries with innovative hardware and software technologies



TQMa94xxLA

Embedded Cortex®-A55 module based on i.MX 94 with enhanced real-time support

- Proprietary 38 X 38 MM
- Operating System: Linux

Key features

- Machine Learning Accelerator 0,5 TOPS
- Integrated safety MCU Cortex M33 and M7
- Real Time MCU M33 and M7
- High-speed communication via 2x 2,5Gbit and 3x Gbit Ethernet , 2x PCIe and 1x USB 3.0 interface
- Low power consumption (typ. 4 W)
- Integrated security functions

Market segments

- Industrial Automation
- Medical
- Healthcare
- Defense / Aerospace
- Robotics

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NXP Gold Partner

With a strong focus on innovation and customer-centricity, we offer a comprehensive range of tailored products and services to cater to the diverse needs of industries worldwide. Our Industrial Automation Platform, known as the X Platform, is dedicated to empowering businesses with the necessary tools to maximize efficiency, boost productivity, and lead the way in technological progress.



xCore SOM

Combines real time performance, secure-by-design architecture, edge-to-cloud integration.

- Proprietary: 56 x 41.2 mm
- Operating system: Linux BSP (Yocto-based)

Key features

- Real-time deterministic control powered by NXP i.MX943
- Secure-by-design with hardware trust and cybersecurity alignment
- Virtualization & container support for modular workloads
- Industrial and edge connectivity ready for fieldbus, networks, and IoT
- Cloud-native enablement via Corvina edge and cloud services

Market segments

- Industrial Automation
- Automotive and Telematics
- Smart Infrastructure
- Advanced HMI Systems
- Edge AI and Vision

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FORLINX Embedded

Forlinx Embedded Technology is a well-established and constantly growing company, focused on designing, developing and manufacturing embedded systems solutions. Since 2007, Forlinx has committed to provide user-friendly, cost-efficient, stable and advanced embedded solutions which are based on ARM architecture, and offer a variety of platforms including SOMs (System-on-Module), SBCs (Single Board Computer) and industrial embedded PCs.



FET-MX94xx-C System on Module

Combines real time performance, secure-by-design architecture, edge-to-cloud integration.

- Proprietary: 50 x 68 mm
- Operating system: Linux

Key features

- Advanced Networking & TSN: 3-port TSN switch (up to 2.5 GbE) + 3 dedicated 1 GbE TSN MACs.
- Industrial Protocols: 2-port EtherCAT slave controller with multi-protocol support (Profinet, EtherNet/IP, OPC-UA FX, etc.).
- Edge AI Acceleration: Integrated on-chip eIQ Neutron NPU (0.5 TOPS) for anomaly detection, AI firewalls, and predictive maintenance.
- High-Reliability Memory: LPDDR4 (FET-MX94xx-C) with ECC support, tailored for critical industrial/automotive scenarios.

Market segments

- Industrial Automation
- New Energy
- Transportation
- Medical
- Embodied intelligence

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Elektronik Systeme

Germany-based embedded solutions provider specializing in system-on-modules (SoMs), single-board computers, and custom electronics. With over 30 years of experience, F&S delivers long-term available, high-quality products for industrial and medical applications.



PicoCore™MX943

Module combines high computing power, real-time capability, advanced security features and future-proof communication

- Proprietary 35 X 40 mm
- Operating System: FuSys Dev: VS Code Extension for simplified build workflows, OTA update and security management. The Yocto Layer FuSys Core complements the BSP with functions for cyber security and CRA compliance. F&S NBoot with secure boot, update support and display support. Yocto production quality BSP. Ready to run Debian image. Zephyr BSP* for Cortex-M

Key features

- Dual band 2.4/5 GHz Wi-Fi 6 + Bluetooth
- Secure Boot with
- Post-Quantum Security (PQC)
- Neural Processing Unit (NPU) for AI
- 2x EtherCAT Sub-Device and Industrial Ethernet

Market segments

- Industrial Automation
- Transportation and Mobility
- Medical and Health Care
- AI Vision
- Robotics and Smart Energy

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iWave Global

iWave delivers embedded solutions for industrial, medical, automotive, and IoT applications. With 25+ years of experience, it offers SOMs, SBCs, and ODM products like telematics units, HMI systems, and aerospace-grade solutions. iWave supports secure, long-life designs with custom hardware/software services and Linux/Android BSPs.



iG-G85M®

Redefining Secure and Power-Efficient Industrial and Automotive Connectivity

- OSM L
- Operating System: Linux, Android, Ubuntu BSP

Key features

- i.MX 94 SoC with 4 x Cortex-A55@1.7GHz, 1 x M33 core@300MHz, 1 x M33 core@333MHz and 2 x M7 core@800MHz
- 8GB LPDDR5
- 16GB eMMC
- Supports 2 x 1Gb Ethernet

Market segments

- Industrial Automation
- Automotive and Telematics
- Smart Infrastructure
- Advanced HMI Systems
- Edge AI and Vision

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VVDN TECHNOLOGIES

VVDN Technologies is a global provider of Software, Product Engineering, Electronics Manufacturing Services (EMS), and solutions. As an NXP Gold Partner, we develop next-generation solutions for our customers, backed by a strong portfolio of multiple System-on-Modules (SOMs), edge AI boxes, and reference designs that enable accelerated development cycles and faster time-to-market.



VVDN – NXP – i.MX 94 SoM

Compact, industrial-grade embedded computing platform designed to enable deterministic real-time control, secure edge intelligence and mission-critical industrial automation.

- SMARC 82 X 50 MM
- Operating System: Linux

Key features

- High-Performance Multicore Processing
- Edge Intelligence Enablement
- Deterministic Real Time Processing
- Time Sensitive Network Communication
- Rich Industrial Grade Connectivity & Interfaces

Market segments

- Industrial Automation
- Medical
- Healthcare
- Defense / Aerospace
- Robotics

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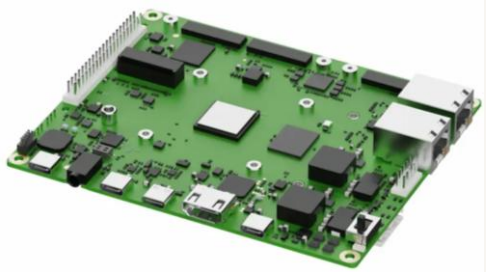
Vantron

Vantron is a globally leading provider of edge computing and embedded IoT solutions. Driven by continuous innovation and a customer-centric philosophy, we deliver advanced, cost-effective turnkey solutions that empower our clients to achieve lasting success.



VT-SBC-IMX943-EVB i.MX 943 Single Board Computer

Single Board Computer optimized for industrial control and IoT deployments, it serves for solution demonstration and functional validation.

Key features

- 4 GB LPDDR5, 32GB eMMC 5.1
- Neutron NPU for AI acceleration
- ETH, Wi-Fi & BT connectivity
- Rich interfaces: USB, CAN FD, HDMI, ADC, GPIO
- Multiple BTB connectors for expansion

Market segments

- Industrial Automation
- Medical
- Healthcare
- Defense / Aerospace
- Robotics

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Brighter
Together

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