# VAR-SOM-MX93

**Energy-efficient module with integrated Machine Learning acceleration for smart embedded systems**

## from $39

Powered by NXP's i.MX 93 with up to 1.7GHz Dual-core Cortex-A55 plus 250MHz Cortex-M33 real-time co-processor, the SoM offers integrated machine learning (AI/ML) engine and an energy-flex architecture for power-efficient processing.

The SoM supports a variety of integrated interfaces like camera inputs, 2x CAN bus, 2x GbE, audio in/out, ADC, 2x USB, certified dual-band Wi-Fi 802.11 ax/ac/a/b/g/n with optional 802.15.4 and BT/BLE 5.3, LVDS display outputs, all supported in industrial temperature grade.

The VAR-SOM-MX93 is a member of the VAR-SOM Pin2Pin product family, providing extensive scalability
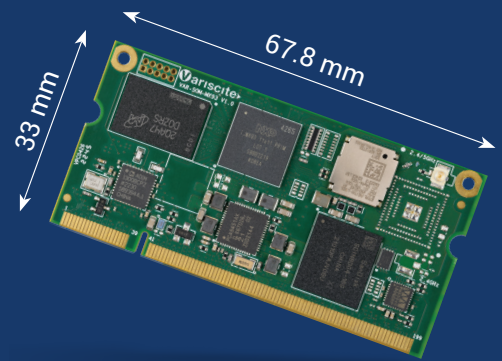
options and reduced development time, costs, and risks. Starting from i.MX 6UltraLite platforms, through the i.MX 6, i.MX 8M processors family and TI's AM625x, up to the high-performance i.MX 8X and i.MX 8QuadMax platforms.

The Symphony carrier board complements an attractive full reference kit for the VAR-SOM-MX93, used by Variscite's customers for evaluation, development, and mass production.

## Main Features

### NXP i.MX 93
- 1.7GHz Dual-core ARM Cortex-A55
- Real-time 250MHz Cortex-M33 co-processor
- Neon Media Processor Engine (MPE)
- AI/ML NPU 0.5 TOPS
- 2D pixel acceleration engine (PxP)
- Up to 2GB LPDDR4 memory, up to 128GB eMMC storage

### Display and Video Support
- LVDS display
- MIPI-DSI
- 1366x768p60 or 1280x800p60 parallel RGB
- Resistive/capacitive touch screen

### Networking
- 2x10/100/1000Mbps ethernet
- Certified dual-band Wi-Fi 802.11ax/ac/a/b/g/n with optional 802.15.4
- Bluetooth/BLE 5.3
- 2 x CAN bus

### USB
- 2x USB2.0 OTG

### Audio
- Digital audio (SAI, S/PDIF, RX & TX, PDM 4CH)
- Headphone-out, line-in
- Digital microphone (stereo)

### Camera
- MIPI CSI2 serial input

### Other Interfaces
- SD/MMC, UART, I2C, SPI, PWM, GPIO, JTAG, timers, ADC

### OS Support
- Linux
- FreeRTOS

### Power
- Single 3.3V

### Dimensions (W x L x H)
- 67.8mm x 33mm x 3.4mm

### -40 to 85°C industrial temperature support

### Low-Power Consumption
- Optimized power consumption in both operational and suspend modes

# Complementing the VAR-SOM-MX93

## VAR-SOM-MX93 Evaluation Kit

The VAR-DVK-VS93 allows full performance and capability evaluation, serving as an evaluation, development, and production platform for hardware and software teams.

### Evaluation Kit content

- Symphony-Board populated with VAR-SOM-MX93
- 7" LCD + capacitive touch panel
- Power supply and communication cables
- WiFi/BT antenna
- Documentation and design package

## Symphony-Board

**Supporting the VAR-SOM Pin2Pin Family and optimized for the VAR-SOM-MX93**

The Symphony-Board ensures a scalable and simplified development and reference board to achieve a short time-to-market for customer's designs and end-products.

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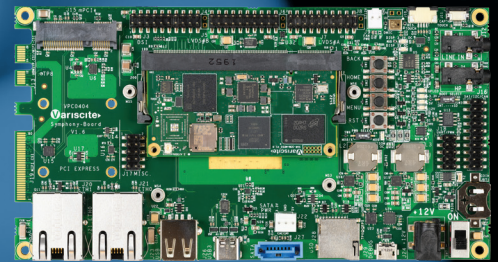
**Display Support**
- DSI, LVDS display

**Touch panel**
- Capacitive touch (6-pin FFC/FPC)
- Resistive touch (4-pin FFC/FPC)

**Audio**
- Headphone
- Line-in
- Digital mic

**Storage**
- SD/SDIO/MMC card socket

**USB**
- USB 2.0 ports: 2x OTG

**Ethernet**
- 2 x 10/100/1000Mbps ethernet RJ45

**Camera (extension boards)**
- Single serial MIPI CSI

**Additional Expansion Connectors**
- SPI, SPDIF, GPIO
- UART, I2C, CAN bus
- PWM
- SAI

**Debug**
- Micro USB

**RTC backup battery**
- CR1225 coin battery socket

**Power**
- 12V DC input

**Size**
- 16.9cm x 8.9cm

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## About Variscite

Variscite is a leading System on Modules (SoM) and Single-Board-Computer (SBC) design and manufacture company. A trusted provider of development and consulting services for a variety of embedded platforms, Variscite transforms clients' visions into successful products.

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