Summit SOM 8M Plus

i.MX 8M Plus with Dual Band 2x2 Wi-Fi 5 + Bluetooth 5.3 System-on-Module

Secure, Smart, and Connected IoT:
Powerful NXP Edge Processing with NXP Wi-Fi and Bluetooth

Our customers asked for a high-performance, secure, and robust IoT SoM that's rugged, simplifies their BOM, has reliable connectivity, and is globally certified. One with a proven security architecture, long term software support, security fixes, and device management.

Our new Summit SOM 8M Plus is powered by **NXP's innovative i.MX 8M Plus** processor and **88W8997** wireless silicon coupled with onboard NXP PMICs (PCA9450CHN and PM823UK), performance LPDDR4 RAM, and eMMC 5.1 storage. We combine this with our long-term support Summit Yocto Linux, Zephyr RTOS, and **secure enclave** to offer a comprehensive hardware and software solution throughout your product's lifecycle.

- **Powerful Heterogenous Multiprocessing:** 1.6 GHz quad-core Cortex-A53 microprocessor and 800 MHz Cortex-M7 microcontroller allow you to run Linux and an RTOS on dedicated, hardware-firewalled subsystems.
- **Dedicated Machine Learning:** High-performance edge machine learning via an integrated neural processing unit, delivering up to 2.3 TOPS.
- **Diversity of Hardware Interfaces:** Wide selection of display, network, data, audio and camera interfaces
- **Virtualization:** Quad core MPU can run multiple firewalled Linux instances, i.e. separate instances for user interface, connectivity, and others
- **Secure and Encrypted Boot:** Robust, secure, and optionally encrypted boot mechanism to ensure only intended software boots on your device.
- **Advanced DVK:** Reference designs for display, camera, audio, LTE, GPS, power consumption profiling, PoE, battery usage, battery charging, USB 3.0 power, and a Bluetooth 5.2 module integration supporting LE coded/Long Range.

- 2x2 Wi-Fi 5 (802.11ac) with MIMO
  - Supports **Adaptive World Mode:** ship a single SKU worldwide
  - Supports the latest **WPA3-Personal, WPA3-Enterprise**, and **WPA3-Enterprise SuiteB 192-bit** security standards.
  - Hardware LTE coexistence integrates seamlessly w/ LTE modules
  - PCIE 2.0 (WLAN)/UART(BT) or SDIO 3.0 (WLAN)/UART(BT)
- **Bluetooth 5.3** Classic BT & Bluetooth Low Energy (LE), inc. 2MPHY
- Integrated **Wi-Fi + Bluetooth coexistence** for seamless connectivity
- Industrial Temperature Rating (-30° to +85 °C)
- Multiple high performance memory options:

  512MB LPDDR4 / 8GB eMMC
  1GB LPDDR4 / 8GB eMMC
  2GB LPDDR4 / 16GB eMMC
  4BG LPDDR4 / 32GB eMMC

- Extensive range of pre-certified antennas
- **Rugged Design** – solder down 40mm x 47mm form factor
- **Power Efficient:** NXP PMICs, power optimized LPDDR4 and eMMC memory. Core shut off, clock/voltage scaling, low power interfaces, power optimized single stream Wi-Fi mode enable highly optimized power consumption.
- **Full Product Lifecycle Management** with our future Device Management solution to update devices in the field and long-term hardware availability
- **Hardware Connectivity Roadmap:** pin-compatible connectivity updated Summit SOM 8M Plus modules will be available in the future as NXP updates their 2x2 Wi-Fi-BT combo silicon to the latest standards.

Key Features

Reliable Connectivity: Wi-Fi 5 2x2 MIMO and BT 5.3 CONNECTIVITY: WI-FI 5 2X2 MIMO AND BT 5.3

PA/LNA provide excellent connectivity in difficult environments, plus enterprise support for better roaming, encryption, single SKU support, hardware LTE coex, and more.

ML, Graphics, Video, Vision, and Audio – Up to 3 displays

2.3 TOPS Machine Learning/Neural Processing Unit, up to 1200p60 or 4Kp30 displays, 2 shader GPU, 1080p60 multi codec encode and decode VPU, 2 MIPI-CSI camera interfaces, dedicated Image Signal Processing up to 12 MP, HiFi4 audio DSP

Secure Enclave and Secure Boot Powered by i.MX 8M Plus

Dedicated on-board security hardware, secure boot Linux, and high-performance and flexible secure storage system for passwords, certificates, and data storage.

Robust Software and Speed to Market

LTS Summit Yocto Linux and Zephyr RTOS with CVE remediation available, plus NXP's base Linux and FreeRTOS releases

Global Approvals

Carries several modular FCC, IC, CE, RCM, MIC, and Bluetooth SIG approvals. Ship a single SKU worldwide with Adaptive World Mode.

Personal Support from Design to Manufacture

Our industry-renowned support and field application engineering team is passionate about helping you speed your design to market.

Application Areas

Smart Buildings and Appliances

Smart Robots

Industrial IoT, Vision Systems

Printers and Scanners

Medical Devices

https://www.ezurio.com/

Interested in our Summit SOM 8M Plus Series?
Visit www.ezurio.com/summit-som-8m-plus

Specifications

Category	Feature	Specification
Processors	Microprocessor	4x Cortex®-A53 cores @ 1.6 GHz
	Microcontroller	1x Cortex®-M7 core @ 800 MHz
	Audio	Tensilica® HiFi 4 DSP
	Graphics	GC7000UL with 2 shaders for 3D and GC520L for 2D
	Machine Learning	Neural Processing Unit (NPU) with 2.3 TOP/s
Memory	RAM	512MB, 1GB, 2GB and 4GB; For other sizes please contact sales
	Storage	8GB, 16GB and 32GB; For other sizes please contact sales
Machine Learning	Neural Processing Unit	• Keyword detect, noise reduction, beamforming • Speech recognition (i.e. Deep Speech 2) • Image recognition (i.e. ResNet-50)
Graphics and Video	Graphics Processing Unit	• 166 million triangles/sec • 1.0 giga pixel/sec • 16 GFLOPs 32-bit • OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2, Vulkan • 2D acceleration
	Video Processing Unit	**Video Decode** • 1080p60 HEVC/H.265 Main, Main 10 (up to level 5.1) • 1080p60 VP9 Profile 0, 2 • 1080p60 VP8 • 1080p60 AVC/H.264 Baseline, Main, High decoder **Video Encode** • 1080p60 AVC/H.264 encoder • 1080p60 HEVC/H.265 encoder
	Display Interfaces	• 1x MIPI DSI, up to UWHD and WUXGA • 1x LVDS Tx, up to 1920x1080p60 • 1x HDMI 2.0a Tx, up to 4kp30
Vision	Camera	2x 4-lane MIPI CSI
	Image Signal Processor	375 Mpixel/s HDR ISP supporting configurations, such as 12MP@30fps, 4kp45, or 2x 1080p80
Audio	Audio Interfaces	• SPDIF input and output • Six external SAI modules supporting I2S, AC97, TDM, codec/DSP, and DSD interfaces • ASRC • eARC/ARC (HDMI) • 8-channel PDM mic input
Peripherals	Input/Output	• 2x USB 3.0/2.0 Dual-Role with PHY • 2x Gbit Ethernet w/ IEEE® 1588, AVB (One also supports TSN) • 2x CAN/CAN FD • 4x UART 5 Mbit/s • 6x I2C • 3x SPI • 1x SDIO 3.0/eMMC 5.1
Wireless Specification	Wi-Fi	Wi-Fi 5 (802.11ac)
	Bluetooth®	v5.3
	Frequency	Dual-Band 2.4GHz & 5GHz
	Transmit Power	+ 18 dBm (maximum)
	Antenna Options	2x U.FL connectors for external antennas
	Raw Data Rates (Air)	Wi-Fi 5 866.7Mbit/s - MCS9, 2 Spatial Streams, 80MHz, 256QAM, SGI
Key Wi-Fi Features	Wi-Fi 5 (802.11ac)	• IEEE 802.11 a/b/g/n/ac • 20, 40 & 80MHz bandwidth support • MIMO, OFDMA • Transmit Beamforming
Key Bluetooth Features	Bluetooth	• Classic Bluetooth – BR / EDR • 2 x WideBand Speech (WBS) links • Central / Peripheral Modes • Up to 16 Bluetooth LE connections • LE Secure Connections • 2MPHY
Supply Voltage		5V
Physical	Dimensions	40mm x 47 mm x 4.6 mm (SIP Modules)
Environmental	Temp Range	-30°C to +85°C
Miscellaneous	Lead Free	Lead-free and RoHS-compliant
	Development Kit	Development board, accessories, and evaluation software
Qualifications	Bluetooth® SIG	Bluetooth 5.3
Regulatory	Approvals	FCC/IC/CE/MIC/RCM

For full specifications on the Summit SOM 8M Plus module, please see the appropriate datasheet.

Ordering Information

Part	Description
453-00070R	Module, Summit SOM 8M Plus, Quad Core CPU, 512MB LPDDR4, 8GB eMMC (Tape/Reel)
453-00071R	Module, Summit SOM 8M Plus, Quad Core CPU, 1GB LPDDR4, 8GB eMMC (Tape/Reel)
453-00072R	Module, Summit SOM 8M Plus, Quad Core CPU, 2GB LPDDR4, 16GB eMMC (Tape/Reel)
453-00135R	Module, Summit SOM 8M Plus, Quad Core CPU, 4GB LPDDR4, 32GB eMMC (Tape/Reel)
453-00070C	Module, Summit SOM 8M Plus, Quad Core CPU, 512MB LPDDR4, 8GB eMMC (Cut Tape)
453-00071C	Module, Summit SOM 8M Plus, Quad Core CPU, 1GB LPDDR4, 8GB eMMC (Cut Tape)
453-00072C	Module, Summit SOM 8M Plus, Quad Core CPU, 2GB LPDDR4, 16GB eMMC (Cut Tape)
453-00135C	Module, Summit SOM 8M Plus, Quad Core CPU, 4GB LPDDR4, 32GB eMMC (Cut Tape)
453-00070-K1	Development Kit, Summit SOM 8M Plus, Quad Core CPU, 512MB LPDDR4, 8GB eMMC
453-00071-K1	Development Kit, Summit SOM 8M Plus, Quad Core CPU, 1GB LPDDR4, 8GB eMMC
453-00072-K1	Development Kit, Summit SOM 8M Plus, Quad Core CPU, 2GB LPDDR4, 16GB eMMC
453-00135-K1	Development Kit, Summit SOM 8M Plus, Quad Core CPU, 4GB LPDDR4, 32GB eMMC

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