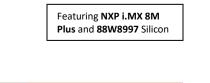
# Summit SOM 8M Plus



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





2x2 Wi-Fi 5 (802.11ac) and Bluetooth 5.3

1.6 GHz guad-core Cortex-A53 and 800 MHz Cortex-M7

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, secure enclave, and Summit Linux FIPS Core Crypto to offer a comprehensive hardware and software solution throughout your product's lifecycle.

GOLD

PARTNER

- 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.

## FEATURES AT A GLANCE



#### RELIABLE CONNECTIVITY: WI-FI 5 2X2 MU-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.



Contact Sales -

**ROBUST SOFTWARE AND SPEED TO MARKET** 

LTS Summit Yocto Linux and Summit 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.

Americas: +1 262 375 4400 Europe: +44 1628 940 ext. 958 Hong Kong: +852 2762 4823

#### 2x2 Wi-Fi 5 (802.11ac) with MU-MIMO

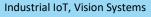
- Supports Adaptive World Mode: ship a single SKU worldwide Supports the latest WPA3-Personal, WPA3-Enterprise, and WPA3-Enterprise SuiteB 192-bit security standards.
- Hardware LTE coexistence integrates seamlessly w/ LTE modules
- PCIE 2.0 (WLAN)/UART(BT) or SDIO 3.0 (WLAN)/UART(BT)
- Bluetooth 5.3 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 Up to 6GB LPDDR4 / 64GB eMMC (on request)
- 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.



### Smart Buildings and Appliances









Printers and Scanners

**Medical Devices** 

For documentation, software, sample apps and more visit: http://www.lairdconnect.com/summit-som-8m-plus



## **KEY SPECIFICATIONS**

CATEGORY	FEATURE	SPECIFICATION	
Processors	Microprocessor	4x Cortex <sup>®</sup> -A53 cores @ 1.6 GHz	
	Microcontroller	1x Cortex <sup>®</sup> -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	Up to 2GB LPDDR4 standard; Up to 6GB LPDDR4 on request	
	Storage	Up to 16GB eMMC 5.1 standard; Up to 64GB eMMC 5.1 on request	
Machine Learning	Neural Processing Unit	<ul> <li>Keyword detect, noise reduction, beamforming</li> <li>Speech recognition (i.e. Deep Speech 2)</li> <li>Image recognition (i.e. ResNet-50)</li> </ul>	
Graphics and Video	Graphics Processing Unit	<ul> <li>166 million triangles/sec</li> <li>1.0 giga pixel/sec</li> <li>16 GFLOPs 32-bit</li> <li>2D acceleration</li> <li>OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2, Vulkan</li> </ul>	
	Video Processing Unit Display Interfaces	Video Decode         Video Encode           1080p60 HEVC/H.265 Main, Main 10 (up to level 5.1)         1080p60 AVC/H.264 encoder           1080p60 VP9 Profile 0, 2         1080p60 AVC/H.265 encoder           1080p60 VP8         1080p60 AVC/H.264 Baseline, Main, High decoder           1x MIPI DSI, up to UWHD and WUXGA         1x HDMI 2.0a Tx, up to 4kp30	
		<ul> <li>1x LVDS Tx, up to 1920x1080p60</li> </ul>	
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	<ul> <li>SPDIF input and output</li> <li>Six external SAI modules supporting I2S, AC97, TDM, codec/DSP, and DSD interfaces</li> <li>ASRC</li> <li>eARC/ARC (HDMI)</li> <li>8-channel PDM mic input</li> </ul>	
Peripherals	Input/Output	<ul> <li>2x USB 3.0/2.0 Dual-Role with PHY</li> <li>2x Gbit Ethernet with IEEE® 1588, AVB (One also supports TSN)</li> <li>2x CAN/CAN FD</li> <li>4x UART 5 Mbit/s</li> <li>6x I2C</li> <li>3x SPI</li> <li>1x SDIO 3.0/eMMC 5.1</li> </ul>	
Wireless	Wi-Fi	Wi-Fi 5 (802.11ac)	
Specification	Bluetooth®	v5.3	
	Frequency	Dual-Band 2.4GHz & 5GHz	
	Transmit Power	+ 18 dBm (maximum)	
	Receive Sensitivity	TBD	
	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)	<ul> <li>IEEE 802.11 a/b/g/n/ac</li> <li>20, 40 &amp; 80MHz bandwidth support</li> <li>MU-MIMO, OFDMA</li> <li>Transmit Beamforming</li> </ul>	
Key Bluetooth Features	Bluetooth	<ul> <li>Classic Bluetooth – BR / EDR</li> <li>2 x WideBand Speech (WBS) links</li> <li>Central / Peripheral Modes</li> <li>Up to 16 Bluetooth LE connections</li> <li>LE Secure Connections</li> <li>2MPHY</li> </ul>	
Supply Voltage		3.3V	
Power Consumption	Estimated Current	Continuous TX: • 2.4 GHz band – TBD • 5 GHz band – TBD	
Physical	Dimensions	40mm x 47 mm x ?.? mm (SIP Modules)	
Environmental	Temp Range	-30°C to +85°C	
Miscellaneous	Lead Free Development Kit	Lead-free and RoHS-compliant Development board, accessories, and evaluation software	
Qualifications	Bluetooth® SIG		
Regulatory	Approvals	Bluetooth 5.3 FCC/IC/CE/MIC/RCM	
<u> </u>			
For full specification Part #	Description	M Plus module, please see the appropriate datasheet.	
453-00070		/I Plus, Quad Core CPU, 512MB LPDDR4, 8GB eMMC	
453-00071	Module, Summit SOM 8M Plus, Quad Core CPU, 1GB LPDDR4, 8GB eMMC		
453-00072	Module, Summit SOM 8M Plus, Quad Core CPU, 2GB LPDDR4, 16GB eMMC		
453-00070-K1	Development Kit, Summit SOM 8M Plus, Quad Core CPU, 512MB LPDDR4, 8GB eMMC		
453-00071-K1		t SOM 8M Plus, Quad Core CPU, 1GB LPDDR4, 8GB eMMC	
453-00072-K1	Development Kit, Summi	t SOM 8M Plus, Quad Core CPU, 2GB LPDDR4, 16GB eMMC	