

# HIGH Performance NXP i.MX 8 Series

## conga-SMX8

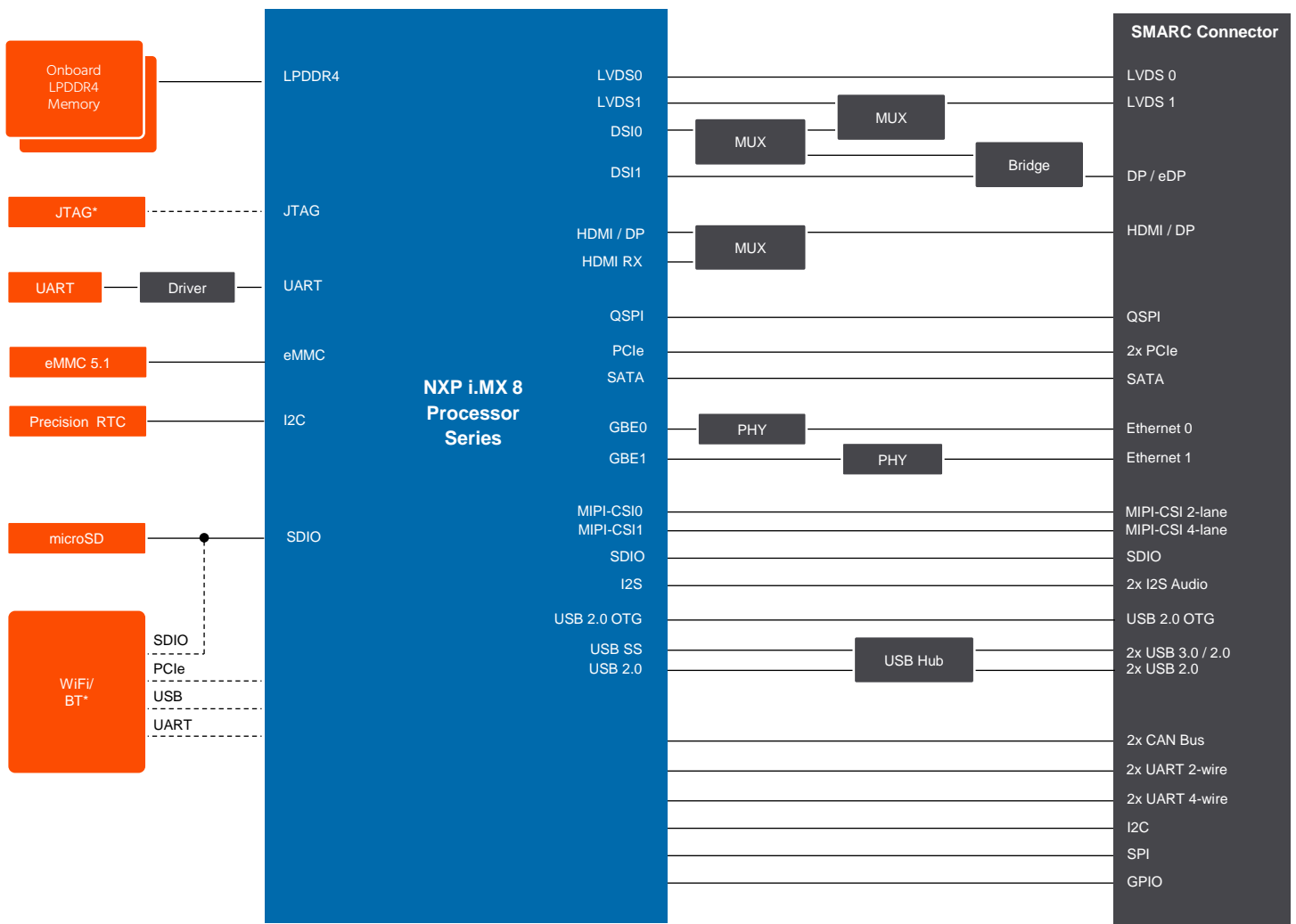


- NXP i.MX 8 processor series with ARM Cortex-A72 / A53 / M4F core complex
- Advanced Performance and Virtualization
- Graphics up to 4k display resolution
- Vision extensions and dual MIPI camera support
- Extended longevity up to 15 years
- Temperature range up to -40°C ...+85°C



<b>Form Factor</b>	SMARC Specification 2.1				
<b>CPU</b>	NXP i.MX 8 ARM Processors				
		<b>ARM Cortex-A72</b>	<b>ARM Cortex-A53</b>	<b>ARM Cortex-M4F</b>	<b>GPU</b>
	i.MX 8QuadMax	2x	4x	2x	2x GC7000 XSVX
	i.MX 8QuadPlus	1x	4x	2x	2x GC7000 XSVX
<b>DRAM</b>	Up to 8 GByte onboard LPDDR4 memory   3200 MT/s				
<b>Ethernet</b>	2x Gbit Ethernet with IEEE 1588 support				
<b>I/O Interfaces</b>	Up to 5x USB 2.0 (1x shared with USB OTG client)   up to 2x USB 3.0   1x SATA 6 Gb/s   1x SDIO 3.0   up to 2x PCIe 3.0   I <sup>2</sup> C Bus   SPI   QSPI   4x UART (2x with Handshake)   2x CAN FD   GPIOs   optional soldered M.2 1216 WiFi/BT				
<b>Mass Storage</b>	eMMC 5.1 up to 128 Gbyte   onboard microSD 3.0 card socket				
<b>Sound</b>	2x I <sup>2</sup> S   optional processors with HiFi 4 DSP for advanced echo cancellation and speech recognition				
<b>Graphics</b>	Integrated NXP i.MX 8 Series dual core GC7000 XSVX multimedia GPU VPU up to h.264 decode (4Kp30) and H.264 encode (1080p30)   3D Graphics with up to 16 Vec4 shaders and 64 EUs   Split-GPU architecture   up to 3 independent displays   OpenGL ES 3.2   Vulkan   OpenVX 1.1   OpenCL 1.2 EP   OpenVG 1.1				
<b>Video Interfaces</b>	1x HDMI 2.0a with HDCP 2.2 (optional eDP 1.4 or DP 1.3)   1x DP 1.3 (through MIPI-DSI bridge)   1x dual channel LVDS 24 bit   optional 1x MIPI-DSI with 4-lanes (shared with LVDS ch1)   1x MIPI-CSI 4-lane and 1x MIPI-CSI 2-lane				
<b>Features</b>	Watchdog Timer   I <sup>2</sup> C bus 400 kHz   Cortex-A35 Console   optional JTAG debug interface   High Precision Real Time Clock				
<b>Virtualization</b>	Multiple Domain Hardware Virtualization   Multiple Operating System support   System MMU   Resource partitioning and split GPU				
<b>Security</b>	High Assurance Boot support   SHE   Inline Encryption Engine (AES-128)   TRNG, AES-128, AES-256, 3DES, ARC4, RSA4096, SHA-1, SHA-2, SHA-256, MD-5   RSA-1024, 2048, 3072, 4096 and secure key storage				
<b>Boot Loader</b>	U-Boot				
<b>Operating Systems</b>	Linux   Yocto Linux   Android				
<b>Power Consumption</b>	Typ. application 5-15W @ 5V				
<b>Temperature Range</b>	Operating Temperature Range:		0 to +60°C commercial grade -40 to +85°C industrial grade		
	Storage Temperature Range:		-40 to +85°C		
<b>Humidity</b>	Operating: 10 - 90% r. H. non condensing		Storage: 5 - 95% r. H. non condensing		
<b>Size</b>	82 x 50 mm (3,23" x 1,97")				

# conga-SMX8 | Block Diagram



\* Assembly Option

# conga-SMX8 | Order Information

Article	PN	Description
conga-SMX8/QCM-4GB eMMC16	051000	SMARC 2.1 module with high performance NXP i.MX 8Quad Max processor with 2x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.
conga-SMX8/QCP-4GB eMMC16	051001	SMARC 2.1 module with high performance NXP i.MX 8Quad Plus processor with 1x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.
conga-SMX8/QCP-2GB eMMC16	051003	SMARC 2.1 module with high performance NXP i.MX 8QuadPlus processor with 1x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.
conga-SMX8/i-QCM-4GB eMMC16	051020	SMARC 2.1 module with high performance NXP i.MX 8Quad Max processor with 2x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.
conga-SMX8/i-QCP-4GB eMMC16	051021	SMARC 2.1 module with high performance NXP i.MX 8Quad Plus processor with 1x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.
conga-SMX8/i-QCP-2GB eMMC16	051023	SMARC 2.1 module with high performance NXP i.MX 8QuadPlus processor with 1x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.
conga-SMX8/i-CSP-B	051050	Passive cooling solution for SMARC 2.1 module conga-SMX8 with lidded NXP i.MX 8 ARM processor. All standoffs are with M2.5mm thread.
conga-SMX8/i-HSP-B	051051	Heat spreader solution for SMARC 2.1 module conga-SMX8 with lidded NXP i.MX 8 ARM processor. All standoffs are with 2.7mm bore hole.
SMARC/CSA-Adapter	051060	Active cooling solution adapter for SMARC 2.1 modules used in combination with module heat spreader.
conga-SEVAL	007010	Evaluation carrier board for SMARC 2.1 modules.
conga-SMC1/SMARC-ARM	020750	3.5" carrier board for congatec SMARC 2.1 modules based on NXP i.MX ARM architecture.