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

SMARC module

Form Factor	SMARC Specification 2.1		
CPU	**NXP i.MX 8 ARM Processors**		
	ARM Cortex-A72	**ARM Cortex-A53**	**ARM Cortex-M4F**	**GPU**
	i.MX 8QuadMax: 2x	4x	2x	2x GC7000 XSVX
	i.MX 8QuadPlus: 1x	4x	2x	2x GC7000 XSVX
DRAM	Up to 8 GByte onboard LPDDR4 memory | 3200 MT/s		
Ethernet	2x Gbit Ethernet with IEEE 1588 support		
I/O Interfaces	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^2C Bus | SPI | QSPI | 4x UART (2x with Handshake) | 2x CAN FD | GPIOs | optional soldered M.2 1216 WiFi/BT		
Mass Storage	eMMC 5.1 up to 128 Gbyte | onboard microSD 3.0 card socket		
Sound	2x I^2S | optional processors with HiFi 4 DSP for advanced echo cancellation and speech recognition		
Graphics	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		
Video Interfaces	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		
Features	Watchdog Timer | I^2C bus 400 kHz | Cortex-A35 Console | optional JTAG debug interface | High Precision Real Time Clock		
Virtualization	Multiple Domain Hardware Virtualization | Multiple Operating System support | System MMU | Resource partitioning and split GPU		
Security	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		
Boot Loader	U-Boot		
Operating Systems	Linux | Yocto Linux | Android		
Power Consumption	Typ. application 5-15W @ 5V		
Temperature Range	Operating Temperature Range: Storage Temperature Range:	0 to +60°C commercial grade -40 to +85°C industrial grade -40 to +85°C	
Humidity	Operating: 10 - 90% r. H. non condensing	Storage: 5 - 95% r. H. non condensing	
Size	82 x 50 mm (3,23" x 1,97")		

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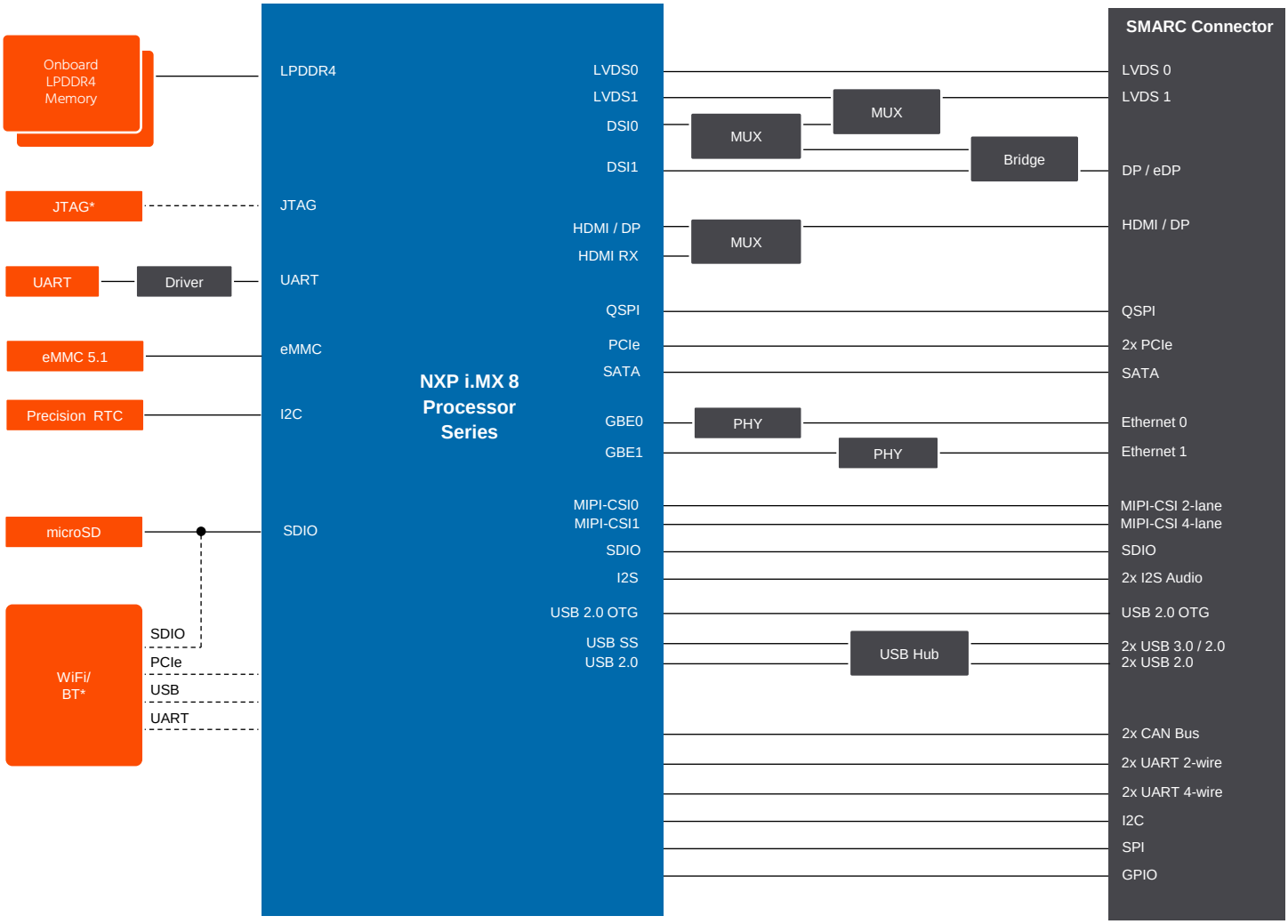
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NXP GOLD PARTNER

conga-SMX8 | Block Diagram



* Assembly Option

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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.

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