ULTRA LOW POWER NXP i.MX 8X SERIES

conga-SMX8-X



- NXP i.MX 8X ARM Cortex-A35 and Cortex-M4F
- Ultra low power 2-5W
- Industrial grade, improved reliability and virtualization
- 3D Graphics up to two independent HD displays
- MIPI CSI-2 camera interface
- Extended longevity up to 15 years
- Temperature range up to -40°C .. +85°C

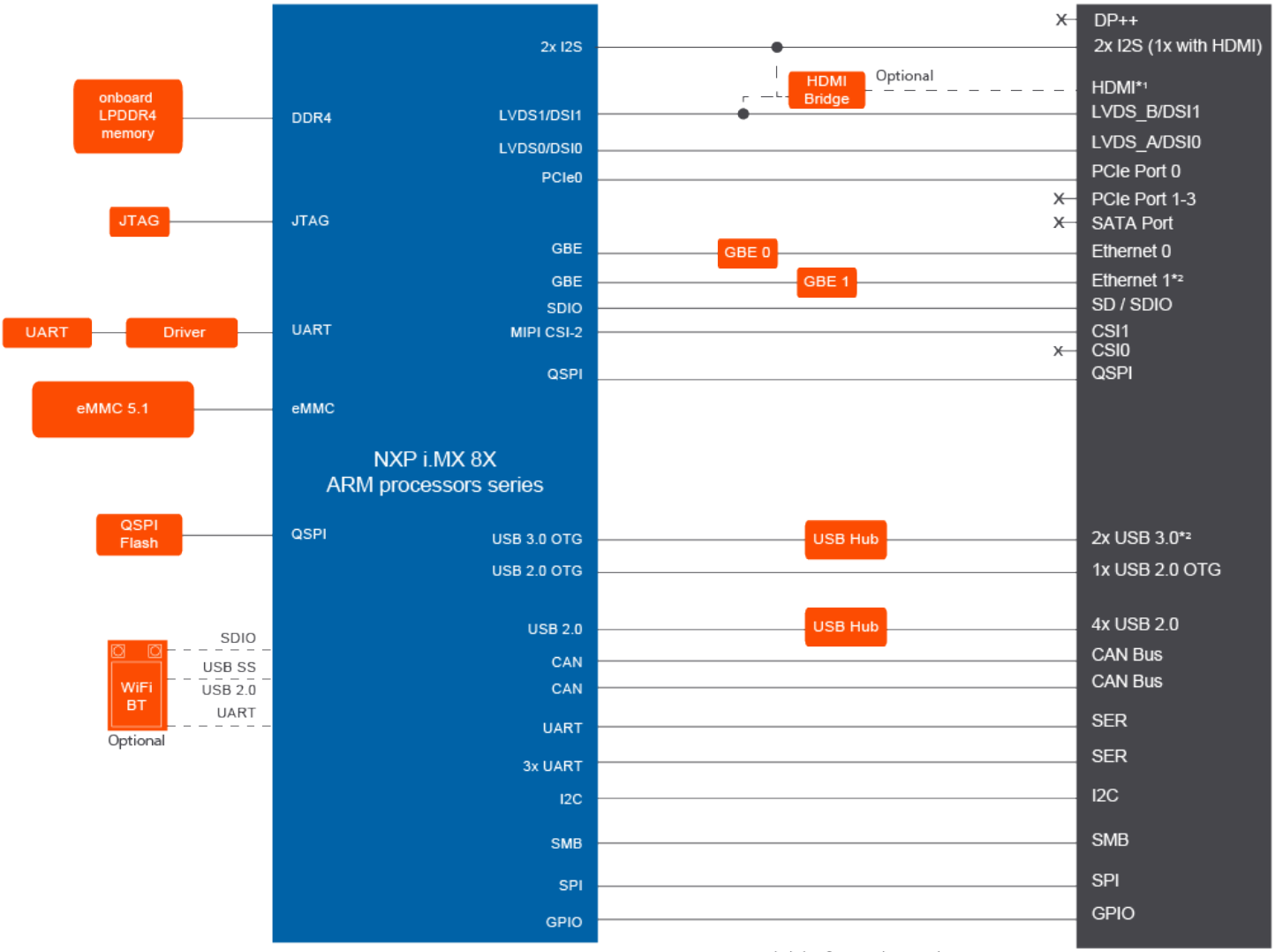
SMARC module

Form factor	SMARC Specification 2.0 | 82x50 mm²
CPU	**NXP i.MX 8X ARM Processor Cores**

	ARM Cortex-A35	ARM Cortex-M4F	GPU
i.MX 8QuadXPlus	4x	1x	1x GC7000Lite
i.MX 8DualXPlus	2x	1x	1x GC7000Lite
i.MX 8DualX	2x	1x	1x GC7000Lite

DRAM	Up to 4 GByte onboard LPDDR4 memory | 2400 MT/s
Ethernet	Up to 2x Gbit Ethernet, optional with IEEE 1588 support
I/O Interfaces	Up to 5x USB 2.0 (shared with 1x USB OTG client) | up to 2x USB 3.0 | 1x SDIO 3.0 | 1x PCIe 3.0 | I²C Bus | 1x SPI | 1x ESPI up to 4x UART (2x with Handshake (1x shared with FlexCAN)) | 2x FlexCAN | GPIOs | optional soldered M.2 1216 WiFi module
Mass Storage	eMMC 5.1 up to 128 GByte
Sound	2x I²S | optional processor with Tensilica® HiFi 4 DSP
Graphics	Integrated in NXP i.MX8-X Series GT7000Lite multimedia GPU VPU up to 4K h.265 dec / 1080p h.264 enc/dec | 3D Graphics with up to 4 high performance vec4 shaders and 16 execution units | up to 2 independent displays | OpenGL ES 3.1 | Vulcan VX extensions | OpenCL 1.2 EP | OpenVG 1.1
Video Interfaces	1x dual channel or 2x single channel LVDS 24 bit | optional HDMI 1.3 through bridge (shared with second LVDS channel) 2x MIPI-DSI with 4-lanes shared with LVDS | 1x MIPI-CSI 4-lanes
Features	Watchdog Timer | I²C bus 400 kHz | JTAG debug interface | High Precision Real Time Clock
Virtualization	Hardware Virtualization with Domain Separation | Multiple Operating System Support
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 boot loader
Operating Systems	Linux | Yocto | Android
Power Consumption	Ultra low power Cortex A-35 | Typ. application 2-5W @ 5V
Temperature	Operating: 0 to +60°C commercial grade -40 to +85°C industrial grade Storage: -40 to +85°C
Humidity	Operating: 10 - 90% r. H. non cond. Storage: 5 - 95% r. H. non cond.
Size	82 x 50 mm (3,23" x 1,97")

conga-SMX8-X | Block Diagram



*1 HDMI is not available for industrial variants.
*2 i.MX 8DualX variants only support 10/100 Mbps on Ethernet 1 and do not support USB 3.0 signals.

conga-SMX8-X | Order Information

Article	PN	Description
conga-SMX8-X/QXP-4G eMMC16	051100	SMARC 2.0 module with ultra low power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.
conga-SMX8-X/DXP-2G eMMC16	051101	SMARC 2.0 module with ultra low power NXP i.MX 8DualXPlus processor with 2x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.
conga-SMX8-X/DX-1G eMMC16	051102	SMARC 2.0 module with ultra low power NXP i.MX 8DualX processor with 2x ARM Cortex-A35 and 1x ARM Cortex-M4F, 1GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.
conga-SMX8-X/QXP-2G eMMC16	051103	SMARC 2.0 module with ultra low power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.
conga-SMX8-X/i-QXP-4G eMMC16	051110	SMARC 2.0 module ultra low power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.
conga-SMX8-X/i-DXP-2G eMMC16	051111	SMARC 2.0 module with ultra low power NXP i.MX 8DualXPlus processor with 2x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.
conga-SMX8-X/i-DX-1G eMMC16	051112	SMARC 2.0 module with ultra low power NXP i.MX 8DualX processor with 2x ARM Cortex-A35 and 1x ARM Cortex-M4F, 1GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.
conga-SMX8-X/i-QXP-2G eMMC16	051113	SMARC 2.0 module with ultra low-power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x 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 2.0 module conga-SMX8-X with lidded NXP i.MX 8X ARM processor. All standoffs are M2.5mm thread.
conga-SMX8/i-HSP-B	051051	Heat spreader solution for SMARC 2.0 module conga-SMX8-X with lidded NXP i.MX 8X ARM processor. All standoffs are with 2.7mm bore hole.
conga-SEVAL	007010	Evaluation carrier board for SMARC 2.0 modules.

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