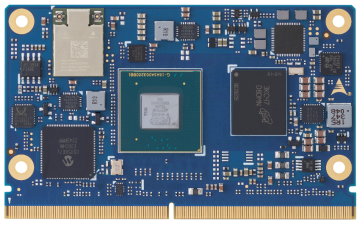
LEC-IMX95

SMARC 2.2 Short Size Module
with NXP® i.MX95 Series



Features

- i.MX95 series with 2/4/6-core Arm Cortex-A55
- 1x Arm Cortex-M7 core + 1x Arm Cortex-M33 core
- In-SoC eIQ® Neutron NPU, up to 8 eTOPS
- SMARC Revision 2.2 compliant
- LVDS, DSI, HDMI® graphics output (BOM option)
- Rugged operating temperature option: -40°C to 85°C
- Dual CAN bus
- 2x GbE ports, 1x 10GbE port (optional)
- USB2 / USB3.2 Gen1 interfaces
- I2C audio codec interface
- 15 year product availability

Specifications

Processor & System	SoC	NXP i.MX 95 series with 2/4/6-core Arm Cortex-A55 1x Arm Cortex-M7 on flex domain 1x Arm-M33 on low-power real-time domain TrustZone technology supporting Arm v8 Cryptography Extensions Neural Processing Unit, 8 eTOPS
	Memory	4, 8, 16GB LPDDR5
	L2 Cache	Per core: 32KB I-Cache, 32KB D-Cache, 64KB L2 Cache Unified: 512KB L3 Cache

	Security	Cryptography Services
		• Multiple key storage and user support
		• Key Type: AES-128/192/256, ECC 256/384
		• Key Import/Creation/Derivation/Update/Deletion
		• SCA-hardened Asymmetric Public Key Cryptography:
		  ○ RSA up to 4096; Elliptic Curve up to P-512 w/NIST curves; Brainpool P-512, P-384
		• SCA-hardened Symmetric Cryptography:
		  ○ AES-128/192/256 Modes: GCM, ECB, CBC, CTR, CCM, XCBC-MAC, KTS (256)

Video	GPU Core	Arm® Mali™ G310
	GPU Feature Support	Arm Mali-G310 GPU • 3D GPU supporting 50 GFLOPs, OpenGL ES 3.2, Vulkan 1.2, OpenCL 3.0
	VPU Feature Support	4Kp30 H.265 and H.264 encode and decode 1x JPEG Encoder, 1x JPEG Decoder
	HDMI	HDMI 2.0a (BOM option)
	MIPI DSI	1x MIPI DSI 4 lanes
	LVDS	Dual-channel LVDS port 18/24 bit
	Camera	MIPI CSI RX interface • Compatible with MIPI Alliance Interface specification v1.0 • Up to 4 data lanes, 1.0Gbps maximum data rate per lane • Supports MIPI-HS, MIPI-LP mode

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Specifications

System Storage	SDIO	1x SDIO (4-bit) compatible with SD/SDIO standard, up to version 3.0
	eMMC	32, 64,128 or 256 GB (build option) Compatible with eMMC specification 4.41, 4.51, 5.0, and 5.1
Debug Header	30-pin multipurpose flat cable connector for use with optional DB-30 debug module Provides JTAG, UART, power testpoints; diagnostic LEDs, Power, Reset, Boot configuration	
Audio	Audio Codec	I^2S or SWD audio codec located on carrier
Dual Ethernet	1st & 2nd LAN	MAC 10/100/1000 Ethernet port with Time Sensitive Networking
	Tertiary LAN (optional)	10 Gbps Ethernet port with Time Sensitive Networking
Wireless	Wi-Fi	IEEE 802.11 2X2 MIMO ac/a/b/g/n Wireless LAN (BOM option)
	Bluetooth	Bluetooth 5.0 compliant with Bluetooth 2.1+Enhanced Data Rate (EDR)
Extension Busses	USB	2x USB 3.0, 3x USB 2.0, 1x USB 2.0 OTG
	UART	4x UART interfaces SER1,2 (CTS/RTS) / SER0,3 (TX/RX/CTS/RTS)
	CAN	2x CAN2.0B only or mixed CAN2.0B and CAN FD mode, data bit rate up to 8 Mbps
	SPI	2x SPI
	I^2S	1x I2S interfaces with audio resolution from 16-bits to 32-bits and sample rate up to 192KHz (see Audio Codec support)
	I^2C	4x I2C interfaces - Support for 7-bit and 10-bit address mode - Software programmable clock frequency of 100 kbit/s in Standard-mode, 400 Kbit/s in the Fast-mode or 1 Mbit/s in Fast-mode Plus
	GPIO	14x GPIO with interrupt, one GPIO with PWM
	PCIe	2x PCIe x1 Gen3
Power	Input	5Vdc +/- 5%
Mechanical and Environmental	Form Factor	SGET SMARC Specifications 2.2
	Dimension	SMARC short size module 82 mm x 50 mm
	Operating Temperature	Standard: 0°C to 60°C Rugged: -40°C to 85°C (optional)
	Humidity	5-90% RH operating, non-condensing 5-95% RH storage (and operating with conformal coating)
	Shock and Vibration	IEC 60068-2-64 and IEC-60068-2-27, MIL-STD-202 F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D
	HALT	Thermal Stress, Vibration Stress, Thermal Shock and Combined Test
Operating Systems	Standard Support	Yocto Linux BSP, Android
	Extended Support (BSP)	VxWorks

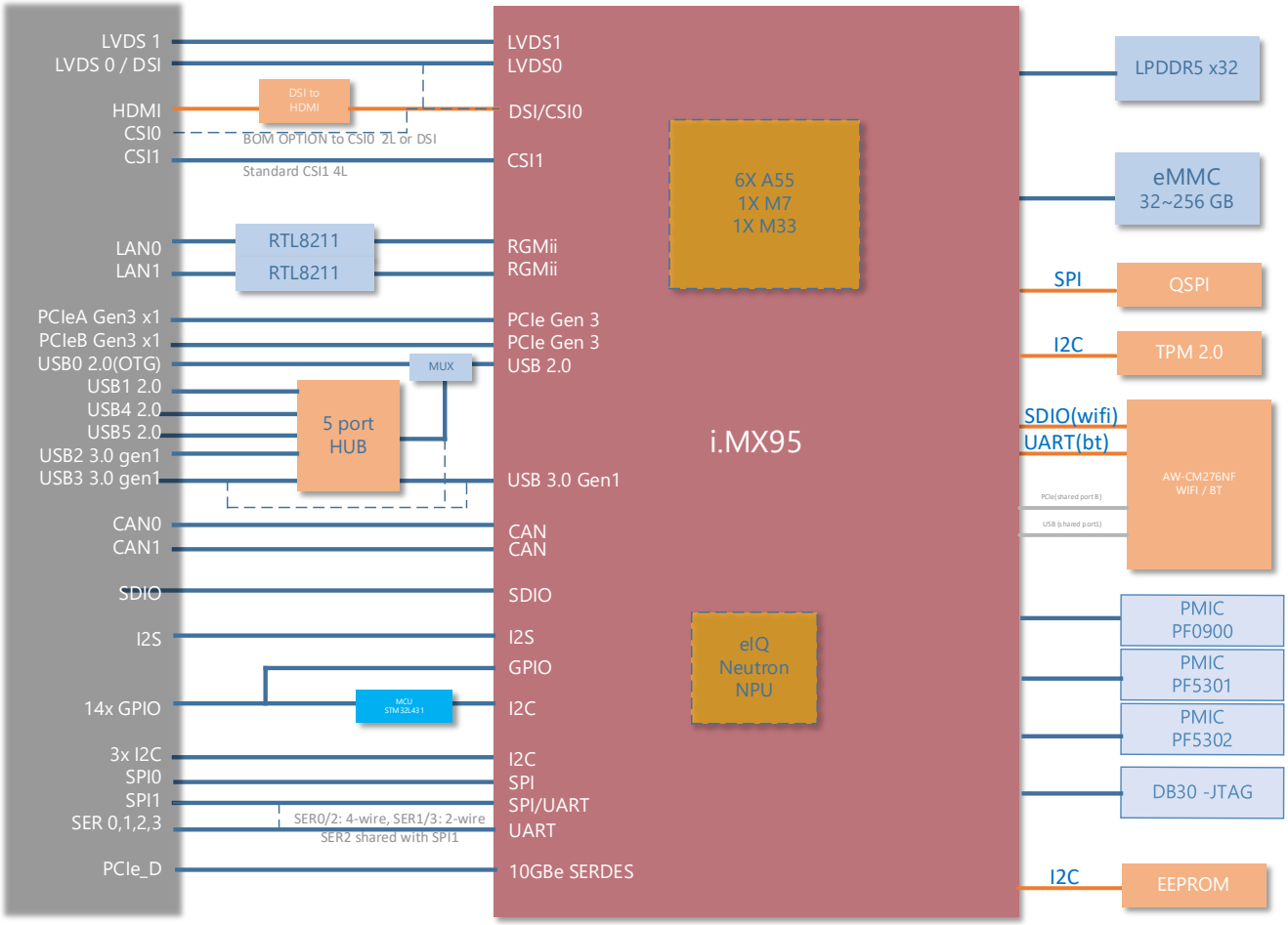
Note: "Build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product. Be aware that these "build option" part numbers will need to be newly created and this will result in production lead times.. The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

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Ordering Information

Part name	Description/Configuration
LEC-IMX95-H-4G-32G-CT	SMARC 2.2 Short Size Module with Hexa core NXP i.MX 95, 4GB LPDDR5, 32GB eMMC, 0°C to 60°C
LEC-IMX95-H-4G-32G-ER	SMARC 2.2 Short Size Module with Hexa core NXP i. MX 95, 4GB LPDDR5, 32GB eMMC, -40°C to 85°C

Block diagram



Note: "Build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product. Be aware that these "build option" part numbers will need to be newly created and this will result in production lead times.

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