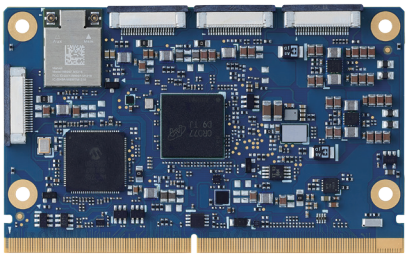
ADLINK
LEADING EDGE COMPUTING

LEC-RB5

SMARC 2.1 Short Size Module with Qualcomm® QRB5165 SoC



Features

- 8-core Qualcomm® Kryo™ 585 CPU (Arm Cortex-A77)
- 15 TOPS NPU
- SMARC revision 2.1.1 compliant
- Up to 8GB POP LPDDR4 at 4266 MT/s
- DSI up to 1080P
- HDMI up to 4K/60
- 1x onboard UFS up to 256 GB
- Dual GbE ports
- 6x CSI interfaces
- USB3/USB2 interfaces
- 10 year product availability

Specifications

Processor & System	CPU	Kryo™ 585 Octa-core CPU: 1 Kryo Gold Prime @ 2.84 GHZ + 3 Kryo Gold @ 2.42 GHz + 4 Kryo Silver @ 1.81 GHz
	Memory	4 or 8 GB POP LPDDR4L-4266
	Cache	Gold Prime core 512 KB Gold core 256 KB Silver core 128 KB
	Security	Qualcomm Secure Processing Unit TPM 2.0 module
Video	GPU Core	Adreno™ GPU 650, Fmax at 587 MHz – 4K 60 fps or 2X 2K 60 fps
	GPU Feature Support	OpenGL ES 3.2, Vulkan 1.1, DX12 FL 12_1OpenCL 2.0 full profile Support for DirectX 12, OpenGL 4.2, OpenCL 1.2 Video decode HW acceleration for H.265/HEVC, H.264, MPEG2, MVC, VC-1, WMV9, JPEG/MJPEG, VP8, VP9Video encode HW acceleration for H.265/HEVC, H.264, MPEG2, MV
	HDMI	HDMI 2.0b 4K@60 Hz
	DSI	4 Lane DSI,Maximum resolution 1K p60 with 24-bit RGB
System Storage	SDIO	1x SDIO (4-bit) compatible with SD/SDIO standard, up to version 3.0
	UFS	32, 64,128 or 256 GB (build option) Compatible with UFS gear 2.1 or 3.0

Specifications

SEMA® Board Controller	Supports: Voltage/Current monitoring, Power Sequencing, Logistics and Forensic Information, I²C Bus Control, GPIO Control, Watchdog Timer	
Debug Header	30-pin multipurpose flat cable connector for use with optional DB-30 debug module Provides JTAG, BMC access; UART, power testpoints; diagnostic LEDs, Power, Reset, Boot configuration	
Audio	Audio Codec	I^2S or SWD audio codec located on carrier
Dual Ethernet	Primary LAN	10/100/1000 Mbits Ethernet
	Secondary LAN	10/100/1000 Mbits Ethernet
Wireless	Wi-Fi	IEEE 802.11 2X2 MU-MIMO ac/a/b/g/n
	Bluetooth	Bluetooth 5.0
Extension Busses	USB	2x USB 3.0, 4x USB 2.0
	UART	Three UART interfaces SER1 and SER 2 (CTS/RTS) / SER0 (TX/RX/CTS/RTS)
	CAN	1x 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	Three 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 x2 Gen3
Power	Input	5Vdc +/- 5%
Mechanical and Environmental	Form Factor	SGET SMARC Specifications 2.1
	Dimension	SMARC short size module 82 mm x 50 mm
	Operating Temperature	Standard: 0°C to 60°C Rugged: -20°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	Canonical Ubuntu Yocto Linux
	Extended Support (BSP)	

Ordering Information

Part name	Description/Configuration
LEC-RB5-4G-64G-ER	SMARC 2.1 Short Size Module with Octo core QRB5165, 4 GB LPDDR4, 64 GB UFS, -20°C to 85°C
LEC-RB5-4G-128G-ER	SMARC 2.1 Short Size Module with Octo core QRB5165, 4 GB LPDDR4, 128 GB UFS, -20°C to 85°C
LEC-RB5-8G-128G-ER	SMARC 2.1 Short Size Module with Octo core QRB5165, 8 GB LPDDR4, 128 GB UFS, -20°C to 85°C
LEC-RB5-8G-256G-ER	SMARC 2.1 Short Size Module with Octo core QRB5165, 8 GB LPDDR4, 256 GB UFS, -20°C to 85°C
LEC-RB5-4G-64G-CT	SMARC 2.1 Short Size Module with Octo core QRB5165, 4 GB LPDDR4, 64 GB UFS, 0°C to 60°C
LEC-RB5-4G-128G-CT	SMARC 2.1 Short Size Module with Octo core QRB5165, 4 GB LPDDR4, 128 GB UFS, 0°C to 60°C
LEC-RB5-8G-128G-CT	SMARC 2.1 Short Size Module with Octo core QRB5165, 8 GB LPDDR4, 128 GB UFS, 0°C to 60°C
LEC-RB5-8G-256G-CT	SMARC 2.1 Short Size Module with Octo core QRB5165, 8 GB LPDDR4, 256 GB UFS, 0°C to 60°C

Block diagram