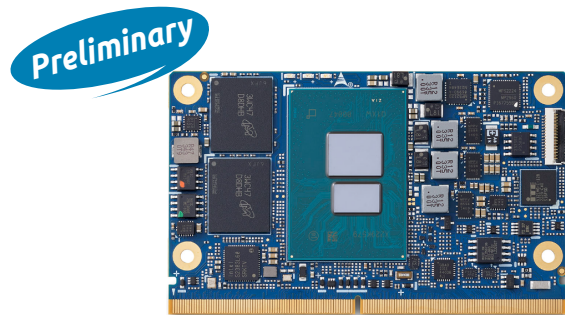


LEC-ALN / LEC-ASL

SMARC 2.1 Short Size Module
with Intel® Atom 7th Gen series



Features

- 2/4/8-core Intel® Atom series
- SMARC revision 2.1.1 compliant
- Up to 16GB LPDDR5
- Dual-channel LVDS (18/24-bit, optional)
- 4K DP++, DP++/HDMI
- 1x SATA Gen3 / onboard eMMC up to 256GB
- 2x CAN bus
- 2x 2.5GbE ports (TSN capable on Embedded-ER SKUs)
- USB3/USB2 interfaces
- 10 year product availability

Specifications

Processor & System	CPU	Commercial: Intel Core i3-N305 Processor, 8 cores, 15W TDP; Intel N97 processor, 4 cores, 1.5GHz, 12W TDP; Intel N50 processor, 2 cores, 1.2GHz, 6W TDP Industrial/Embedded: Intel x7835RE Processor, 8 cores, 1.3GHz, 12W TDP; x7433RE, 4 cores, 1.5GHz, 9W TDP; x7211RE, 2 cores, 1.0GHz, 6W TDP Note: All other Alder Lake-N/Amston Lake platform CPUs also available
	Memory	4/8/16 GB LPDDR5
	Cache	6MB
	Security	• Intel® Boot Guard • Intel® OS Guard • Intel® VT-x with Extended Page Tables (EPT) • Intel® AES-New Instruction, Intel® SHA Extensions • Intel® Virtualization Technology (Intel® VT-x) • Intel® Virtualization Technology for Directed I/O (VT-d) • Optional TPM 2.0 module
Video	GPU Core	Intel® UHD Graphics
	GPU Feature Support	12th Gen Intel® graphics core architecture with up to 32 EUs (selected SKUs) • Supports 3x independent display 2D and 3D graphics hardware acceleration • Supports 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, VP9, Video encode HW acceleration for H.265/HEVC, H.264, MPEG2, MV
	LVDS	Dual Channel LVDS 18/24 bit
System Storage	eMMC	32/64/128/256GB (build option), compatible with EMMC 4.41, 4.51, 5.0, 5.1
	SATA	1x SATA Gen3

Specifications

SEMA® Board Controller	Supports: Voltage/Current monitoring, Power Sequencing, Logistics, Forensic Information, Flat Panel Control, I ² C Control, GPIO Control, User Flash, Failsafe BIOS (dual BIOS), Watchdog Timer, Fan Control	
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	HDA audio codec (on carrier)
Dual Ethernet	Primary LAN	10/100/1000Mbit / 2.5Gbit Ethernet (TSN capable on Embedded-ER SKUs)
	Secondary LAN	10/100/1000Mbit / 2.5Gbit Ethernet (TSN capable on Embedded-ER SKUs)
Extension Busses	USB	2x USB 3.2, 4x USB 2.0
	UART	4x UART interfaces SER0/SER2 (TX/RX/RTS/CTS) and SER1/SER3 (TX/RX)
	CAN	2x CAN2.0B only or mixed CAN2.0B, data bit rate up to 8 Mbps
	SPI	2x SPI
	I ² C	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	4x PCIe x1 Gen3
	MIPI	CSI0 2 lanes, CSI1 4 lanes
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: -40°C to 85°C (Embedded SKUs only)
	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, Microsoft Windows
	Extended Support (BSP)	Vxworks

Ordering Information

Part name	Description/Configuration
LEC-ALN-i3N305-8G-64G-CT	SMARC 2.1 COM with Intel Alder Lake I3N305 8-Core CPU, 8GB LPDDR5, 64GB eMMC, 0°C to 60°C
LEC-ALN-N97-8G-64G-CT	SMARC 2.1 COM with Intel Alder Lake N97 4-Core CPU, 8GB LPDDR5, 64GB eMMC, 0°C to 60°C
LEC-ALN-N50-4G-32G-CT	SMARC 2.1 COM with Intel Alder Lake N50 2-Core CPU, 4GB LPDDR5, 32GB eMMC, 0°C to 60°C
LEC-ASL-x7835RE-8G-64G-ER	SMARC 2.1 COM with Intel Amston Lake x7835RE 8-Core CPU, 8GB LPDDR5, 64GB eMMC, -40°C to 85°C
LEC-ASL-x7433RE-8G-64G-ER	SMARC 2.1 COM with Intel Amston Lake x7433RE 4-Core CPU, 8GB LPDDR5, 64GB eMMC, -40°C to 85°C
LEC-ASL-x7211RE-4G-32G-ER	SMARC 2.1 COM with Intel Amston Lake x7211RE 2-Core CPU, 4GB LPDDR5, 32GB eMMC, -40°C to 85°C

Block diagram

