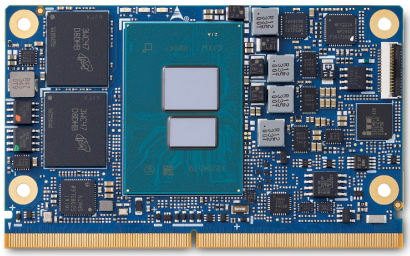
ADLINK
LEADING EDGE AI COMPUTING

LEC-TWL / 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 N250 processor, 4 cores, 6W TDP; 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 (removable option)
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 (removable option)
System Storage	eMMC	32/64/128/256GB (build option), compatible with EMMC 4.41, 4.51, 5.0, 5.1
	SATA	1x SATA Gen3

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Specifications

SEMA® Board Controller	Supports: Voltage/Current monitoring, Power Sequencing, Logistics, Forensic Information, Flat Panel Control, I²C 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 CAN2.0A or CAN2.0B, data bit rate up to 1 Mbps (removable option)
	SPI	2x SPI
	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	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

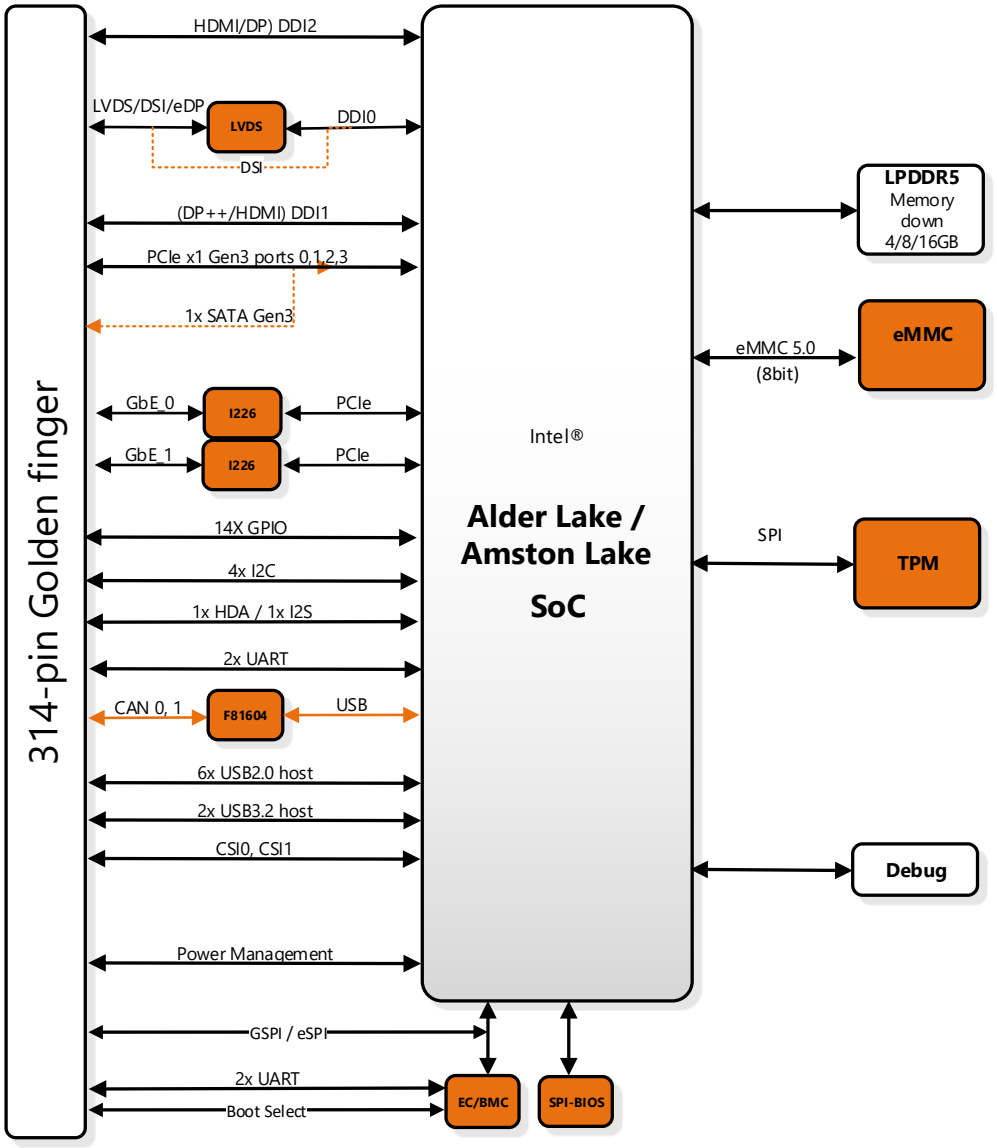
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Ordering Information

Part name	Description/Configuration
LEC-TWL-N250-8G-64G-CT	SMARC 2.1 COM with Intel Twin Lake N250 4-core CPU, 8GB LPDDR5, 64GB eMMC , 0°C to 60°C
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

Note: Non-listed configurations for Alder Lake, Amston Lake, and Twin Lake are available. Please contact your commercial Windows representative for more information.

Block diagram



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