LEC-AL

SMARC® Short Size Module with Intel Atom® E3900 Series, Pentium® N4200 or Celeron® N3350 Processor

Features

- Dual or quad-core Intel Atom® E3900 Series or Pentium® N4200 or Celeron® N3350 Processor SoC
- Up to 8 GB DDR3L at 1867 MT/s
- Triple display support
- Dual channel LVDS (18/24-bit)
- HDMI/DP++, DP++
- 2x MIPI CSI camera (2/4 lanes)
- 1x GbE with IEEE1588
- 1x SATA 3.0, onboard eMMC



Specifications

Core System

CPU

Intel Atom® E3950, 4 cores, 2.0 GHz, 12 W TDP
Intel Atom® E3940, 4 cores, 1.8 GHz, 9.5 W TDP
Intel Atom® E3930, 2 cores, 1.8 GHz, 6.5 W TDP
Intel Pentium® N4200, 4 cores, 2.5 GHz, 6W TDP
Intel® Celeron® N3350, 2 cores, 2.4 GHz, 6W TDP

Memory

Up to 8 GB DDR3L at 1867 MT/s
Single/dual channel memory 1-2 64bit, non-ECC

Embedded BIOS

AMI UEFI with CMOS backup in 8 MB SPI BIOS, Fast Boot support

Cache

2 MB L2 cache

SEMA Board Controller

Supports: Voltage/Current monitoring, Power Sequencing, Logistics and Forensic Information, Flat Panel Control, I²C Bus Control, GPIO Control, User Flash, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control

Ethernet

Intel® MAC/PHY

1x Intel® i210-IT or i210-AT Ethernet controller

Interface

1x 10/100/1000 GbE, IEEE 1588 trigger signals

Video

GPU Feature Support

9th generation Intel® graphics core architecture with up to 18 execution units, supports three independent displays 2D and 3D graphics hardware acceleration

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, MVC, JPEG/MJPEG, VP8, VP9 (resolution depends on operating system)

LVDS

Dual channel LVDS (18/24-bit)

HDMI/DP++

HDMI up to 3840 x 2160 @ 30Hz

DP++

DP++ up to 4096 x 2160 @ 60Hz

Power

Standard Input

3.0 V~5.25 V DC ±5%

Power States

C0-C6, S0, S3, S4, S5

Audio

Chipset

Intel® HD Audio integrated in SoC

Ports

1x I²S and 1x HDA for audio codec on carrier

Specifications

I/O Interfaces

PCIe
4x PCIe x1 Gen2

USB 2.0
1x USB 2.0 OTG, 5x USB 2.0 host

USB 3.0
2x USB 3.0 host

SATA
1x SATA 3.0 (6 Gbit/s)

SDIO
1x SDIO 3.0 (4bit)

Camera
2x MIPI CSI camera (2L/4L)

Serial
1x SPI, 1x eSPI, 4x I²C, 4x UART, 1x SMBus, 1x LPC, 1x DB40

eMMC
Onboard eMMC 5.0 (4-64 GByte)

GPIO
12x GPIO (interrupt capable)

Operation System

Standard Support
Windows 10 IOT Enterprise, Windows 10 IOT Core, Yocto Linux

On Request
VxWorks, Android

Mechanical and Environmental

Form Factor
SMARC Specifications v2.0

Dimension
SMARC short size module, 82 mm x 50 mm

Operating Temperature
Standard: 0°C to +60°C
Extreme Rugged: -40°C to +85°C

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

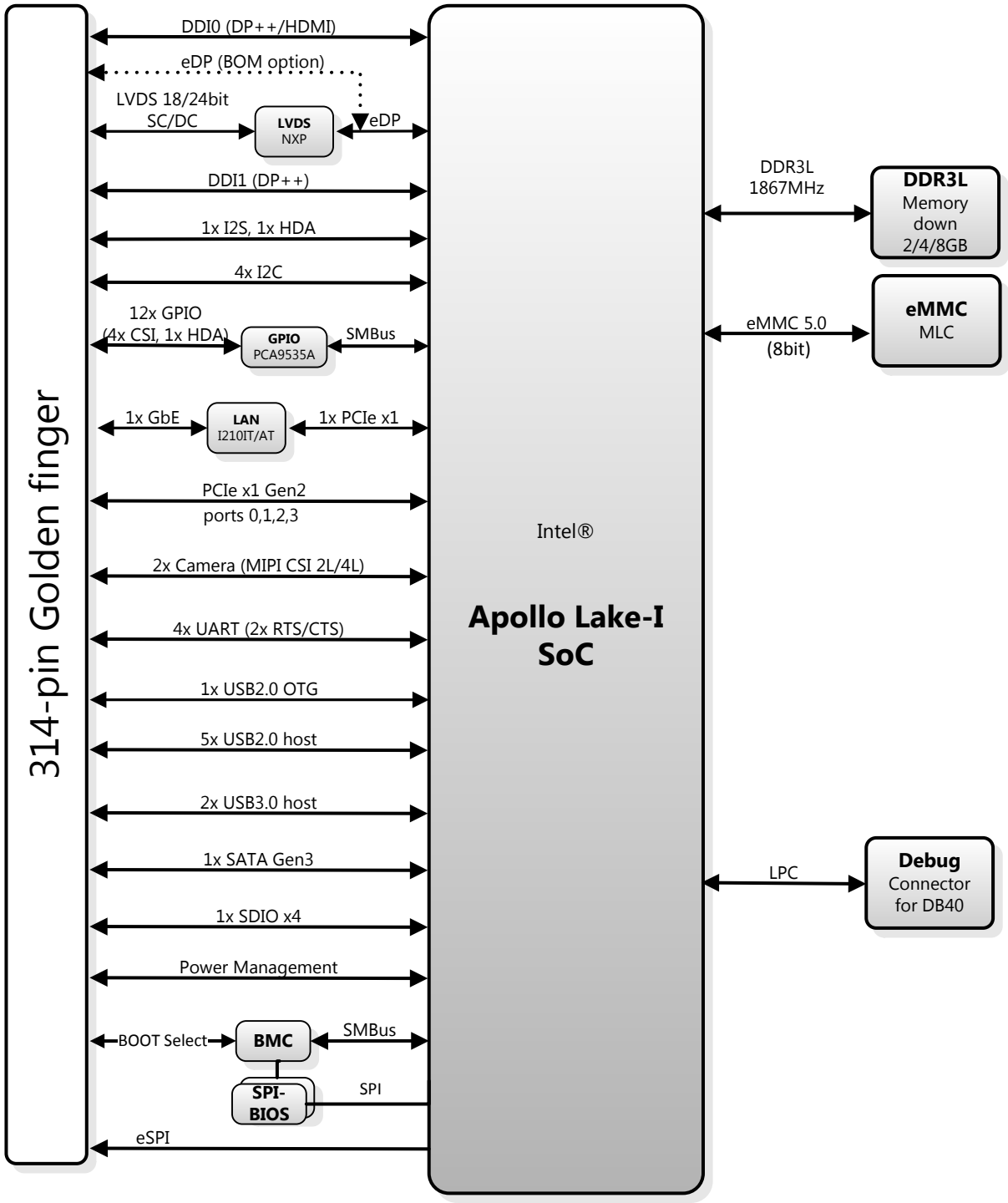
Intelligent Middleware

SEMA®
Local management, control of embedded computer systems
Extended EAPI for monitoring, controlling and analytics applications
Multiple OS support and across platforms (x86, ARM)

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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Functional Diagram



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Ordering Information

- **LEC-AL-E3930-2G-16G-ER**
  SMARC Short Size Module with Intel Atom® E3930, dual core, 2 GB DDR3L, 16GB eMMC, -40°C to 85°C
- **LEC-AL-E3940-4G-32G-ER**
  SMARC Short Size Module with Intel Atom® E3940, quad core, 4GB DDR3L, 32GB eMMC, -40°C to 85°C
- **LEC-AL-E3950-8G-32G-ER**
  SMARC Short Size Module with Intel Atom® E3950, quad core, 8GB DDR3L, 32GB eMMC, -40°C to 85°C
- **LEC-AL-N3350-4G-16G-CT**
  SMARC Short Size Module with Intel® Celeron® N3350, dual core, 4GB DDR3L, 16GB eMMC, 0°C to 60°C
- **LEC-AL-N4200-8G-32G-CT**
  SMARC Short Size Module with Intel® Pentium® N4200, quad core, 8GB DDR3L, 32GB eMMC, 0°C to 60°C
- **LEC-AL-HS1**
  Heat spreader for LEC-AL-E3930/E3940/E3950
- **LEC-AL-HS2**
  Heat spreader for LEC-AL-N3350/N4200
- **LEC-AL-HS3**
  Active heatsink for LEC-AL
- **LEC-AL-HS4**
  Integral passive heatsink for LEC-AL-E3930/E3940/E3950
- **LEC-AL-HS5**
  Integral passive heatsink for LEC-AL-N3350/N4200

*other configurations by request

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