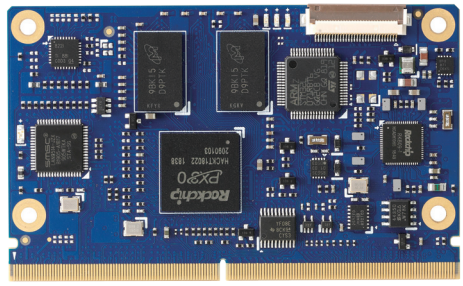
LEC-PX30

SMARC Short Size Module with Rockchip PX30 Quad-Core ARM Cortex A35

Features

- Rockchip PX30 with Quad-core ARM Cortex-A35
- Cryptography Extensions for end-to-end IoT security
- 3D Graphics over MIPI DSI 4 lanes or LVDS 24-bit
- Camera MIPI CSI 4 lanes
- 2x 10/100Mbps LAN, 4x USB 2.0 + USB 2.0 OTG
- Optional Rugged operating temperature support:
  -20°C to 85°C
- 10 year product availability



Specifications

Core System

SoC

Rockchip PX30 with Quad-core ARM Cortex-A35 CPU
TrustZone technology support ARMv8 Cryptography Extensions"

Memory

1GB or 2GB DDR3L at 1066/1333 MHz, memory down (non ECC)

L2 Cache

256KB unified system L2 cache

IoT security

Cryptographic co-processor with secure hardware-based key storage for sign-verify authentication provides Internet of Things (IoT) Protected Storage for up to 16 keys, certificates or data
ECDH: FIPS SP800-56A Elliptic Curve Diffie-Hellman NIST standard P256 elliptic curve support
SHA-256 & HMAC hash including off-chip context save/restore
AES-128: encrypt/decrypt, galois field multiply for GCM"

Video

GPU Feature Support

GPU Core: Mali-G31
Supports DirectX 11 FL9_3, OpenGLES 1.1/ 2.0 / 3.2, Vulkan 1.0, OpenCL 2.0 Full Profile
Video decoding:
H.264 up to 1080p@60fps, H.265/HEVC up to 1080p@60fps
MPEG-4, ISO/IEC 14496-2, SP@L0-3, ASP@L0-5, up to 1080p@60fps
VP8, up to 1080p@60fps
Video Encoding:
H.264 video encoder at BP/MP/HP@level 4.2
1920x1080@30fps, 1x 1080p@30fps or 2x 720p@30fps encoding

MIPI DSI

MIPI DSI 4 lanes at max. 1080p@60fps display output (default)

LVDS

LVDS single channel 24-bit at max. 1280x800@60fps (build option)

Camera

MIPI CSI RX Interface
- Compatible with the MIPI Alliance Interface specification v1.0
- Up to 4 data lanes, 1.0Gbps maximum data rate per lane
- Supports MIPI-HS, MIPI-LP mode

Audio

Audio Codec

Supports ES8316 codec for high performance and low power multi-bit delta-sigma audio ADC and DAC (located on carrier)

Dual Ethernet

Primary LAN

MAC 10/100 Ethernet Controller on SoC
Supports 10/100-Mbps data transfer rates, both full-duplex and half-duplex

Secondary LAN

MAC/PHY 10/100 Ethernet Controller on LAN9514 via USB 2.0
Supports 10/100-Mbps data transfer rates, both full-duplex and half-duplex

Extension busses

USB

4x USB 2.0, 1x USB OTG

UART

Two UART interfaces SER0 and SER2 (TX/X/CTS/RTS)
64-byte FIFO and support for 5-bit, 6-bit, 7-bit, 8-bit data transmit or receive

CAN bus

Supports CAN2.0B only or mixed CAN2.0B and CAN FD mode, data bit rate up to 8 Mbps

SPI

2x SPI (one occupied by SPI-to-CAN controller)

I²S

2x I²S interfaces with audio resolution from 16-bits to 32-bits and sample rate up to 192KHz (see Audio Codec support)

I²C

Four 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

12x GPIO with interrupt, one GPIO with PWM

Specifications

System Storage

SDIO

1x SDIO (4-bit) compatible with SD3.0, MMC ver. 4.51

eMMC

16, 32 or 64 GB (build option)

Compatible with eMMC specification 4.41, 4.51, 5.0 and 5.1

SEMA® Board Controller

Voltage/current monitoring, boot configuration, logistics and forensic information, flat panel 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

Mechanical and Environmental

Form Factor

SGET SMARC Specifications v2.0

Dimension

SMARC short size module, 82mm x 50mm

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

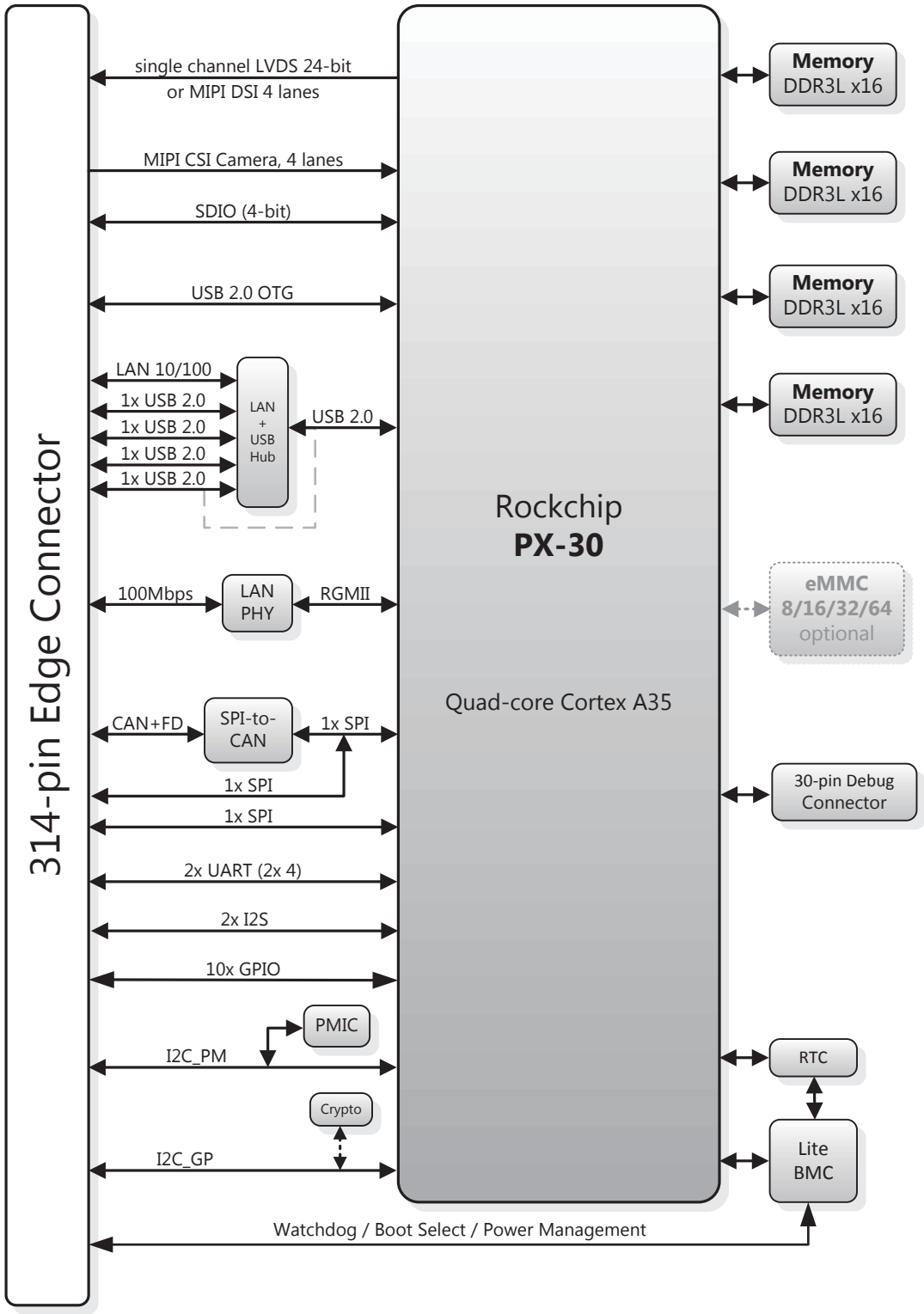
Standard Support

Yocto Linux BSP, Debian Linux

Extended Support (BSP)

Android 8.1 (by request)

Functional Diagram



LEC-PX30

Ordering Information

- **LEC-PX30-Q-1G-16G-R**
  SMARC module with Rockchip PX30K Quad, with 1GB DDR3L and 16 GB eMMC, -20°C to 85°C
- **LEC-PX30-Q-2G-16G-R**
  SMARC module with Rockchip PX30K Quad, with 2GB DDR3L and 16 GB eMMC, -20°C to 85°C
- **LEC-PX30-Q-4G-32G-R**
  SMARC module with Rockchip PX30K Quad, with 4GB DDR3L and 32 GB eMMC, -20°C to 85°C
- **LEC-PX30-Q-1G-0G-CT**
  SMARC module with Rockchip PX30 Quad, with 1GB DDR3L, 0°C to 60°C
- **LEC-PX30-Q-1G-16G-CT**
  SMARC module with Rockchip PX30 Quad, with 1GB DDR3L and 16 GB eMMC, 0°C to 60°C
- **LEC-PX30-Q-2G-16G-CT**
  SMARC module with Rockchip PX30 Quad, with 2GB DDR3L and 16 GB eMMC, 0°C to 60°C
- **LEC-PX30-Q-2G-0G-CT**
  SMARC module with Rockchip PX30 Quad, with 2GB DDR3L and 0 GB eMMC, 0°C to 60°C
- **LEC-PX30-Q-4G-32G-CT**
  SMARC module with Rockchip PX30 Quad, with 4GB DDR3L and 32 GB eMMC, 0°C to 60°C

Accessories

Heat Solutions

- **HTS-SPX30**
  Heat spreader for LEC-PX30
- **THS-SPX30**
  Low profile heatsink for LEC-PX30

Starter Kit

- **I-Pi SMARC PX30**
  Rapid sensor prototyping kit based on MRAA standard

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