

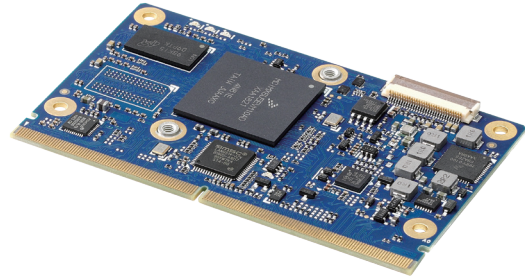
# LEC-iMX6R2

SMARC Short Size Module with NXP i.MX 6 Multicore Arm® Cortex® -A9

## Features

- NXP SoC i.MX6 ARM Cortex A9 Solo, DualLite, Dual or Quad processor
- Integrated 2D/3D graphics processors, 3D 1080p video processing, power management
- Onboard DDR3L-1600 system memory from 512 MB to 2 GB
- Supports up to 64 GB eMMC, 1x SD/MMC, 1x SATA 3Gb/s
- Extreme Rugged operating temperature: -40°C to +85°C (optional)
- 15 year product availability

Preliminary



## Specifications

### Core System

#### SoC

NXP i.MX6 Solo, DualLite, Dual or Quad processor  
 i.MX6 Quad, 4 cores, 1.2GHz\* MHz, 1 MB L2 cache, 3 displays, 1x SATA  
 i.MX6 Dual, 2 cores, 1.2 GHz\* MHz, 1 MB L2 cache, 3 displays, 1x SATA  
 i.MX6 DualLite, 2 cores, 1GHz\* MHz, 512 kB L2 cache, 1 display, no SATA  
 i.MX6 Solo, 1 core, 1 GHz\* MHz, 512 kB L2 cache, 1 display, no SATA  
 \*Extreme Rugged operating temperature SKUs support 800 GHz CPU clock speed

#### Memory

512 MB up to 2GB DDR3L memory down

#### L2 Cache

From 512 kB to 1 MB

#### Security

Advanced security support:  
 High Assurance Boot  
 Cryptographic cipher engines  
 Random number generator  
 Tamper detection

### Video

#### Graphics Support

GPU 3D: Vivante GC2000, 200Mtri/s 1000Mpxl/s, OpenGL® ES 3.0 and Halti, CL EP)  
 GPU 2D: Vivante GC355 (Vector Graphics), 300 Mpxl/s, OpenVG™ 1.1  
 GPU 2D: Vivante GC320 (Composition), 600 Mpxl/s, BLIT  
 Video Decode: 1080p60, H.264  
 Video Encode: 1080p30, H.264 BP, dual 720p encode

#### HDMI

HDMI 1.4 up to WUXGA (1920x1080), FHD 1080p @ 30fps

#### LVDS

Dual-channel 18/24-bit max, 1600 x 1200 @ 30fps  
 Single-channel 18/24-bit max, 1366 x 768 @ 30fps

### MIPI DSI

#### Camera

MIPI CSI-2 serial camera port

### Audio

#### Audio Codec

Supports SGTL5000 codec

### Dual Ethernet Interface

10/100/1000 GbE Ethernet Phy

### Expansion Busses

#### PCIe

1x PCI Express x1 Gen2

#### USB

4x USB 2.0 host, 1x USB OTG

#### UART

4x UART interfaces: Tx/Rx/CTS/RTS (SER0, SER2) and Tx/Rx (SER1, SER3)

#### CAN

2x CAN 2.0B only or mixed CAN 2.0B and CAN FB mode, data bit rate up to 8 Mbps

#### SPI

2x SPI

#### I<sup>2</sup>S

3x I<sup>2</sup>S interfaces

#### I<sup>2</sup>C

3x I<sup>2</sup>C interface

#### GPIO

12x GPIO with interrupt

## Specifications

- **System Storage**

**SDIO**

1x SDIO (4-bit) compatible with SD/SDIO standard, up to version 3.0

**eMMC**

8, 16, or 32 GB (64 GB by build option), compatible with eMMC specification 4.41, 4.51, 5.0, 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 ARM debug module providing JTAG, BMC access, UART, power testpoints, diagnostic LEDs, power, reset, boot configuration

- **Mechanical and Environmental**

**Form Factor**

SGET SMARC Hardware Specification 2.1

**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 (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**

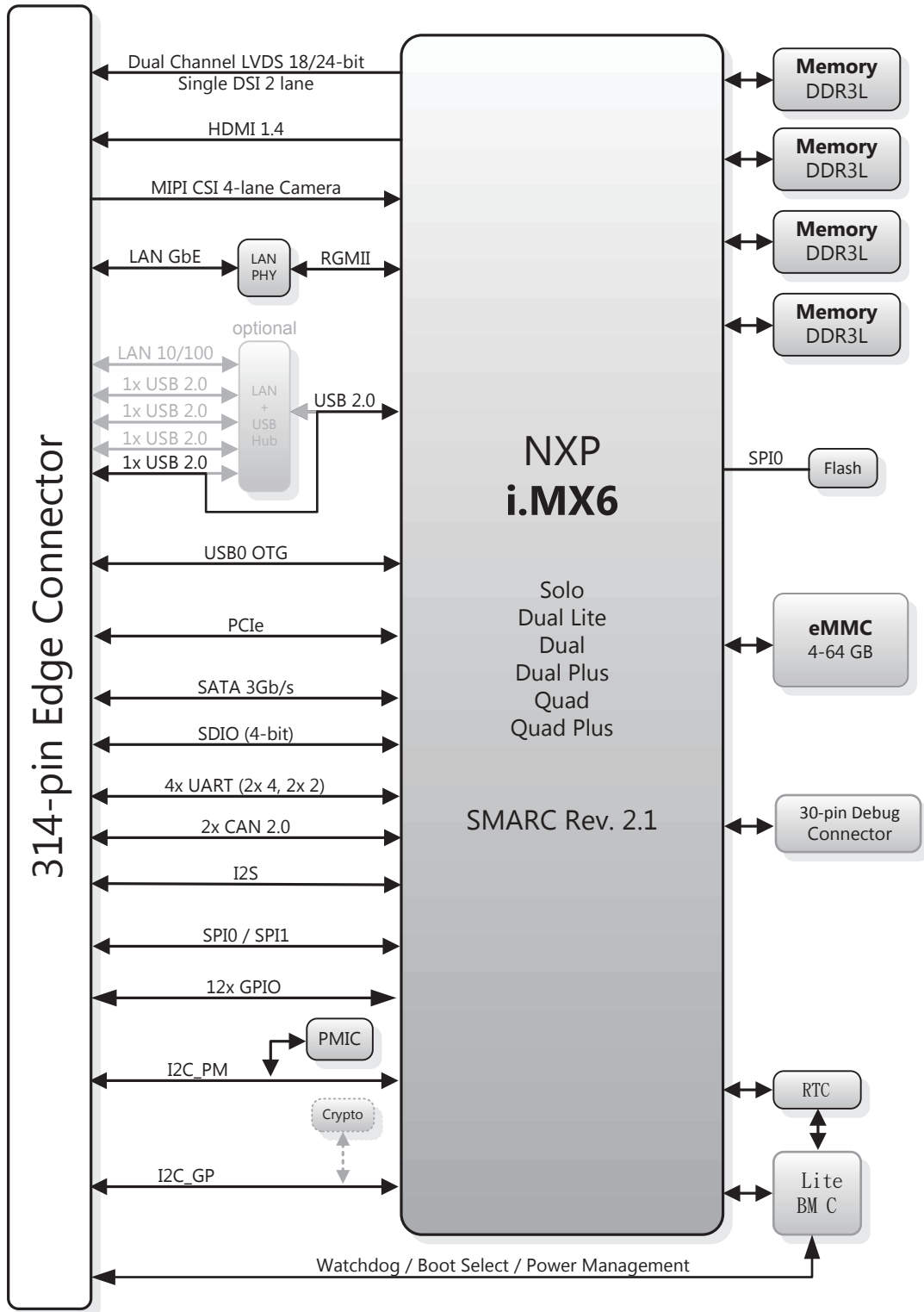
Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

- **Operation System**

Yocto Linux BSP at <https://github.com/ADLINK/meta-adlink-nxp>

Ubuntu 18.04 basic support

# Functional Diagram



## Ordering Information

- **LEC-iMX6R2-DL-512M-16G-CT**  
SMARC Short Size Module with NXP i.MX6, Dual Lite, 512 MB DDR3L and 16 GB eMMC, 0°C to +60°C
- **LEC-iMX6R2-DL-512M-16G-ER**  
SMARC Short Size Module with NXP i.MX6, Dual Lite, 512 MB DDR3L and 16 GB eMMC, -40°C to +85°C
- **LEC-iMX6R2-D-1G-16G-CT**  
SMARC Short Size Module with NXP i.MX6, Dual, 1 GB DDR3L and 16 GB eMMC, 0°C to +60°C
- **LEC-iMX6R2-D-1G-16G-ER**  
SMARC Short Size Module with NXP i.MX6, Dual, 1 GB DDR3L and 16 GB eMMC, -40°C to +85°C
- **LEC-iMX6R2-Q-2G-16G-CT**  
SMARC Short Size Module with NXP i.MX6, Quad, 2 GB DDR3L and 16 GB eMMC, 0°C to +60°C
- **LEC-iMX6R2-Q-2G-16G-ER**  
SMARC Short Size Module with NXP i.MX6, Quad, 2 GB DDR3L and 16 GB eMMC, -40°C to +85°C
- **LEC-iMX6R2-QP-4G-16G-CT**  
SMARC Short Size Module with Quad Plus NXP i.MX6, 4 GB DDR3L and 16 GB eMMC, 0°C to +60°C
- **LEC-iMX6R2-QP-4G-16G-ER**  
SMARC Short Size Module with Quad Plus NXP i.MX6, 4 GB DDR3L and 16 GB eMMC, -40°C to +85°C

## Accessories

### Heat Solutions

- **HTS-SiMX6R2-SDL**  
Heat spreader for LEC-iMX6R2 with Solo and DualLite SOCs (standard and Extreme Rugged temperature range)
- **HTS-SiMX6R2-DQP**  
Heat spreader for LEC-iMX6R2 with Dual/Quad/DualPlus/QuadPlus SOCs (standard and Extreme Rugged temperature range)
- **THS-SiMX6R2-SDL**  
Low profile heatsink for LEC-iMX6R2 with Solo and DualLite SOCs (standard temperature range)
- **THS-SiMX6R2-DQP**  
Low profile heatsink for LEC-iMX6R2 with Dual/Quad/DualPlus/QuadPlus SOCs (standard temperature range)