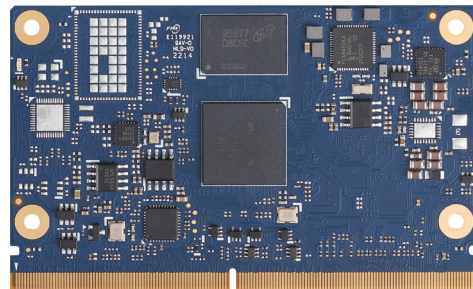


LEC-IMX8MM

SMARC 2.1 Short Size Module with
 NXP i.MX 8M Mini series



Features

- NXP® i.MX 8M Mini series with Dual/Quad-core ARM Cortex-A53
- SMARC revision 2.1 compliant
- LVDS, DSI graphic output interfaces
- -40°C to 85°C rugged operating temperature (standard SKU consumer temp, option)
- 10-year product availability
- CAN bus
- USB 2.0 interfaces
- Dual GbE ports (LAN 2 occupying PCIe)
- i2s audio codec interface

Specifications

| | | |
|--------------------|---------------------|--|
| Processor & System | SoC | NXP® i.MX 8M Mini series with Dual/Quad-core ARM Cortex-A53 TrustZone technology for ARMv8 security extensions |
| | Memory | 1,2,4GB LPDDR4 |
| | L2 Cache | 512KB system L2 cache (ECC) |
| | Security | Arm® TrustZone® (TZ) architecture: Cortex®-A53 MPCore TrustZone® support High Assurance Boot (HAB) Cryptographic Acceleration and Assurance Module (CAAM) Widevine and PlayReady content protection support |
| Video | GPU Core | Vivante GC NanoUltra |
| | GPU Feature Support | GC NanoUltra OpenGL ES 2.0 Vulkan, OpenCL 1.2; GC320 (2D) |
| | VPU Feature Support | 1080p60 VP9, H.264, H.265 Video encoding includes: 1080p60 AVC/H.264 Encoder 1080p60 HEVC/H.264 Encoder 1080p60 VP8 Encoder |

Specifications

| | | |
|------------------------------|--|--|
| Video | MIPI DSI | 1x MIPI DSI 4 lanes |
| | LVDS | Dual Channel LVDS port 18/24 bit over SN65DSI84ZXHR bridge |
| | Camera | MIPI CSI RX Interface Compatible with MIPI Alliance Interface specification v1.2 Up to 4 data lanes (1.0Gbps per lane) MIPI-HS, MIPI-LP mode support |
| System Storage | SDIO | 1x SDIO (4-bit) compatible with SD/SDIO standard, up to version 3.0 |
| | eMMC | 16 — 128 GB (build option) Compatible with eMMC specification 4.41, 4.51, 5.0, and 5.1 |
| Debug Header | 30-pin multipurpose flat cable connector for DB-30 debug module (option) Provides JTAG, BMC access; UART, power testpoints; diagnostic LEDs, Power, Reset, Boot configuration | |
| Audio | Audio Codec | I ² S audio codec (on carrier) |
| Dual Ethernet | Primary LAN | MAC 10/100/1000 Ethernet Controller on SoC |
| | Secondary LAN | PCIe 10/100/1000 Ethernet Controller (option) |
| Wireless Communication | WIFI | IEEE 802.11 2X2 MIMO ac/a/b/g/n Wireless LAN (option) |
| | Bluetooth | Bluetooth 5.0, complaint with Bluetooth 2.1 + Enhanced Data Rate (EDR) (option) |
| Extension Busses | USB | 1x USB 2.0, 1x USB 2.0, OTG (optional 4-port USB hub, USB2514B-I/M2) |
| | UART | 4 UART interfaces: SER1 and SER 2 (CTS/RTS) / SER0 and SER4 (TX/RX/CTS/RTS) |
| | CAN | 1x CAN2.0B only or mixed CAN2.0B and CAN FD mode; data bit rate up to 8 Mbps (option) |
| | SPI | 2x SPI |
| | I ² S | 1x I ² S interface with audio resolution from 16 to 32 bits and sample rate up to 192kHz (see Audio Codec support) |
| | I ² C | 4x I ² C interfaces - 7-bit and 10-bit address mode support - Software programmable clock frequency of 100 kbit/s in Standard-mode, 400 kbit/s in Fast-mode or 1 Mbit/s in Fast-mode Plus |
| | GPIO | 14x GPIO with interrupt, one GPIO with PWM |
| | PCIe | 1x PCIe x1 Gen2 |
| Power | Input | 5Vdc +/- 5% |
| Mechanical and Environmental | Form Factor | SGET SMARC Specification 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 (option) |
| | 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, Android |
| | Extended Support (BSP) | Vxworks |

Ordering Information

| Part name | Description/Configuration |
|------------------------|--|
| LEC-IMX8MM-Q-1G-32G-ER | SMARC 2.1 Short Size Module with Quad Core NXP i.MX8M-MINI, 1 GB LPDDR4, 32 GB eMMC, -40°C to 85°C |
| LEC-IMX8MM-Q-2G-32G-ER | SMARC 2.1 Short Size Module with Quad Core NXP i.MX8M-MINI, 2 GB LPDDR4, 32 GB eMMC, -40°C to 85°C |
| LEC-IMX8MM-Q-4G-32G-ER | SMARC 2.1 Short Size Module with Quad Core NXP i.MX8M-MINI, 4 GB LPDDR4, 32 GB eMMC, -40°C to 85°C |
| LEC-IMX8MM-Q-1G-32G-CT | SMARC 2.1 Short Size Module with Quad Core NXP i.MX8M-MINI, 1 GB LPDDR4, 32 GB eMMC, 0°C to 60°C |
| LEC-IMX8MM-Q-2G-32G-CT | SMARC 2.1 Short Size Module with Quad Core NXP i.MX8M-MINI, 2 GB LPDDR4, 32 GB eMMC, 0°C to 60°C |
| LEC-IMX8MM-Q-4G-32G-CT | SMARC 2.1 Short Size Module with Quad Core NXP i.MX8M-MINI, 4 GB LPDDR4, 32 GB eMMC, 0°C to 60°C |

Block Diagram

