

NXP i.MX 8M Plus - Arm® Cortex® CPU System on Module 3SM1009 Series



FEATURES

- High performance solution, ready for IA-driven future
- Supports all NXP i.MX8M Plus processor version
- Small dimensions only 40x71mm
- 230 pin Card Edge connector
- Great pin multiplexing flexibility
- Ideal for multimedia and high performance applications

CPU

- NXP i.MX 8M Plus Dual\Quad Arm® Cortex®-A53 core
- Neural Processing Unit (NPU) (opt)
 - 2.3 TOP/s Neural Network performance
- Supports Arm® Cortex®-A53 core frequency up to 1800 MHz
- Additional Cortex-M7 Core up to 800 MHz

DRAM MEMORY

- Up to 4GB LPDDR4 memory with 32 bit wide Bus

STORAGE / BOOT MEMORY

- From 8 to 64 GB eMMC Flash memory

MULTIMEDIA AND HUMAN INTERFACE¹²

- Video Processing Unit (VPU) (opt)
 - Video Encode
 - 1080p60 AVC / H.264
 - 1080p HEVC / H.265
 - Video Decode
 - 1080p60 HEVC / H265 Main, Main 10
 - 1080p60 VP9 Profile 0,2
 - 1080p60 VP8
 - 1080p60 AVC / H.264 Baseline, Main, High
- GC7000UL Graphics Processing Unit (GPU)
 - 2 shaders
 - 166 million triangles / sec
 - 1.0 giga pixel / sec
 - 16 GFLOPs 32-bit
 - OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2, Vulkan
- Camera interfaces:
 - 2 x MIPI-CSI Camera Interface (4-lane) with HDR ISP
- Display Interfaces:
 - MIPI-DSI Display Interface (4-lane)
 - HDMI 2.0a Tx Display Interface
 - 2 x LVDS Display Interfaces
- Audio Interfaces:
 - S/PDIF Audio Input and output
 - Up to 3 x SAI input / outputs

I/O PERIPHERALS¹²

- 2 x USB 3.0 OTG
- Up to 2 x SDIO 3.0 Bus Interfaces
- 1 x PCIe 2.0 Bus
- Up to 4 x UART Interfaces
- Up to 2 x ECSPI Interfaces
- Up to 3 x I2C Interfaces
- Up to 4 x PWM outputs
- Up to 1 x GPT timer
- 2 x Ethernet 1Gbps with on-board PHY (opt)
- Up to 2 x On-board CAN Bus 2.0B / CAN FD controllers
- Integrated Secure Element / Cryptographic co-processor (opt)
- Integrated Temp Sensor (opt)
- More GPIOs available & SW configurable

SYSTEM

- 230 pin edge connector
- Single +5 VDC ±5% power supply
- On board regulators for all integrated functions
- Power consumption depends on MPU clock frequency / state.

TEMPERATURE³

- 0 to 70°C for commercial version
- -25 to 85°C for Extended version
- -40 to 85°C for industrial version

OPERATING SYSTEMS

- Linux (Cortex® - A53 core) + FREERTOS (Cortex® - M7)

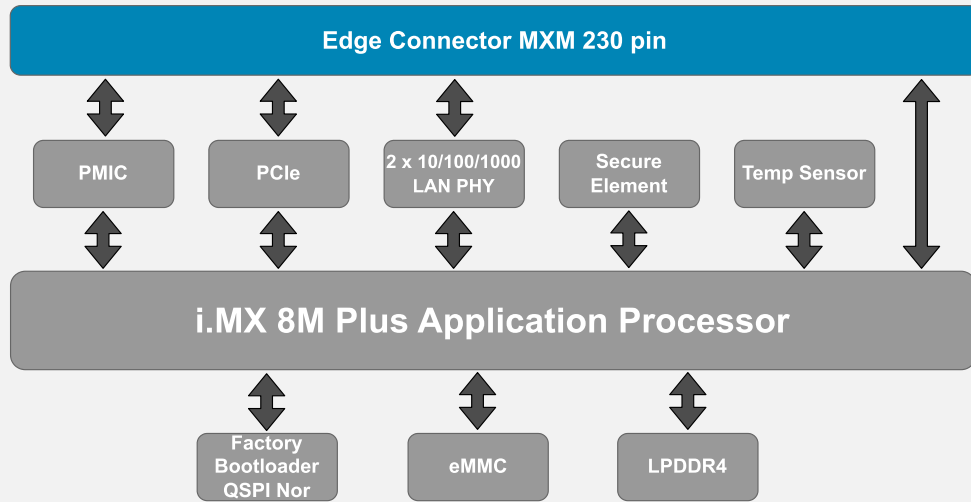
¹ Please note that not all the functions may be available simultaneously, due to pin mux limitation of CPU case. We can check if our SoM is compatible with your application, contact us for more information

² Some functions require transceiver or additional circuitry on expansion board.

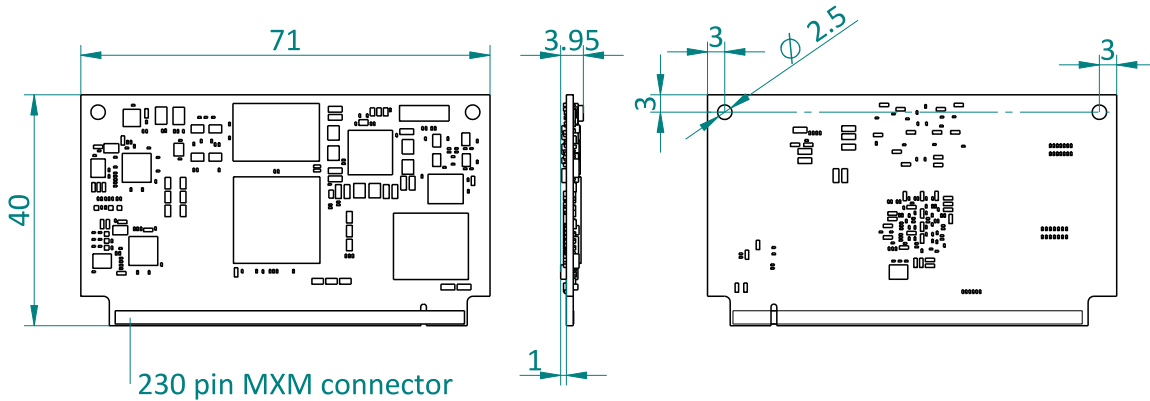
³ These temperatures are the ambient operating temperature ranges for the components used into SoM, with exception of iMX8M Plus processor, which is specified on junction operating temperature range, 0-95°C for commercial version and -40-105°C for industrial version. SoM ambient operating temperature depends on the application and on the cooling measures applied



BOARD DIAGRAM



DIMENSIONS (mm)



ORDERING INFORMATION OPTIONS

| | | | | | | | | | | | | | | | | | |
|------------------------|----------|----------------|--|----------|--|----------|--|----------|--|----------|--|--------------------------|---|----------|--|----------|--|
| | | 3SM1009 | | | | | | | | | | | | | | | |
| | | 1 | | A | | 1 | | B | | 1 | | C | | 1 | | B | |
| Processor | | | | | | | | | | | | Temp. Grade | | | | | |
| i.MX 8M Plus Quad NPU | 1 | | | | | | | | | | | 0°C / 70°C | | A | | | |
| i.MX 8M Plus Quad | 2 | | | | | | | | | | | -25°C / 85°C | | B | | | |
| i.MX 8M Plus Quad Lite | 3 | | | | | | | | | | | -40°C / 85°C | | C | | | |
| i.MX 8M Plus Dual NPU | 4 | | | | | | | | | | | | | | | | |
| LPDDR4 | | | | | | | | | | | | Temp. Sensor | | | | | |
| 1GB | A | | | | | | | | | | | Yes | 1 | | | | |
| 2GB | B | | | | | | | | | | | No | 2 | | | | |
| 4GB | C | | | | | | | | | | | | | | | | |
| eMMC | | | | | | | | | | | | Secure Element | | | | | |
| eMMC 8GB | 1 | | | | | | | | | | | ATECC608A | | A | | | |
| eMMC 16GB | 2 | | | | | | | | | | | SE050 | | B | | | |
| eMMC 32GB | 3 | | | | | | | | | | | SE050 and ATECC608A | | C | | | |
| eMMC 64GB | 4 | | | | | | | | | | | No Secure Element | | D | | | |
| Ethernet | | | | | | | | | | | | Display IF | | | | | |
| 1 LAN port | A | | | | | | | | | | | Single LVDS and Mipi-DSI | | 1 | | | |
| 2 LAN ports | B | | | | | | | | | | | Dual LVDS - No MIPI | | 2 | | | |
| No Ethernet | C | | | | | | | | | | | | | | | | |

Default configuration:

3SM10091A1B1C1B i.MX 8M Plus Quad NPU, 1GB LPDDR4, 8GB eMMC, 2 Gigabit LAN Ports, Single LVDS and MIPI-DSI, SE050, ATECC608A, Temp Sensor, Extended.

Some code combinations are not allowed and others are available on customizations only, for more information please contact Elettronica GF sales dept.

