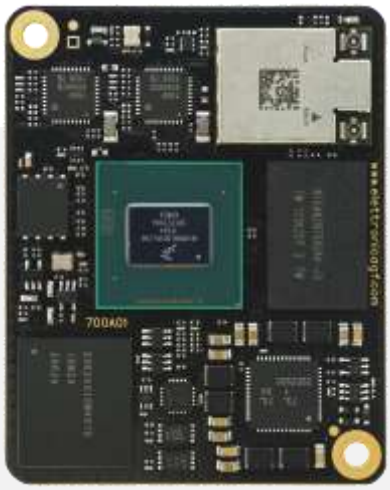
NXP i.MX 8M Plus - Arm® Cortex®CPU

System on Module 3SM2008 Series



FEATURES

- High performance and highly integrated solution
- Supports all NXP i.MX 8M Plus processor versions
- Small dimensions only 39 x 49 mm
- High pin multiplexing flexibility thanks to 300 pin board-to-board connectors
- Ideal for multimedia and high performance applications
- Ideal for rugged products

CPU

- NXP i.MX 8M Plus Solo\Dual\Quad Arm® Cortex®-A53 core
- Standard or Lite CPU options
- Neural Processing Unit (NPU) option
  - 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 INTERFACE[1][2]

- Video Processing Unit (VPU) (on standard CPU)
  - 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 PERIPHERALS[1][2]

- 2 x USB 3.0 OTG
- Optional integrated WiFi 802.11a/b/g/n/ac and BT 5.0 Combo Module with Dual Band MIMO
- 1 x SDIO 3.0 Bus Interfaces
- 1 x PCIe 2.0 Bus
- Up to 4 x UART Interfaces (with optional flow control)
- 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 (optional)
- Up to 2 x On-board CAN Bus 2.0B / CAN FD controllers
- Integrated Secure Element / Cryptographic co-processor
- Integrated Temp Sensor
- More GPIOs available & SW configurable

SYSTEM

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

TEMPERATURE[3]

- 0 to 70°C for commercial 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

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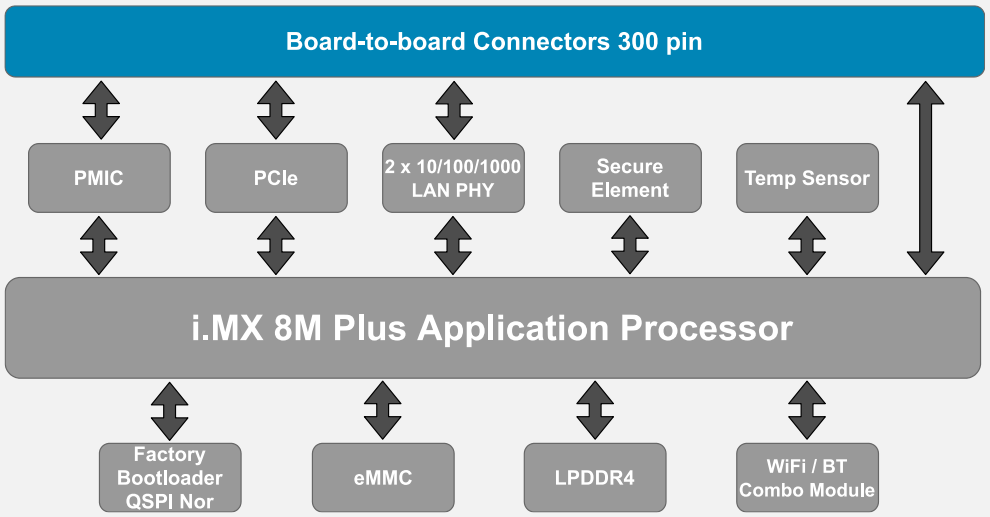
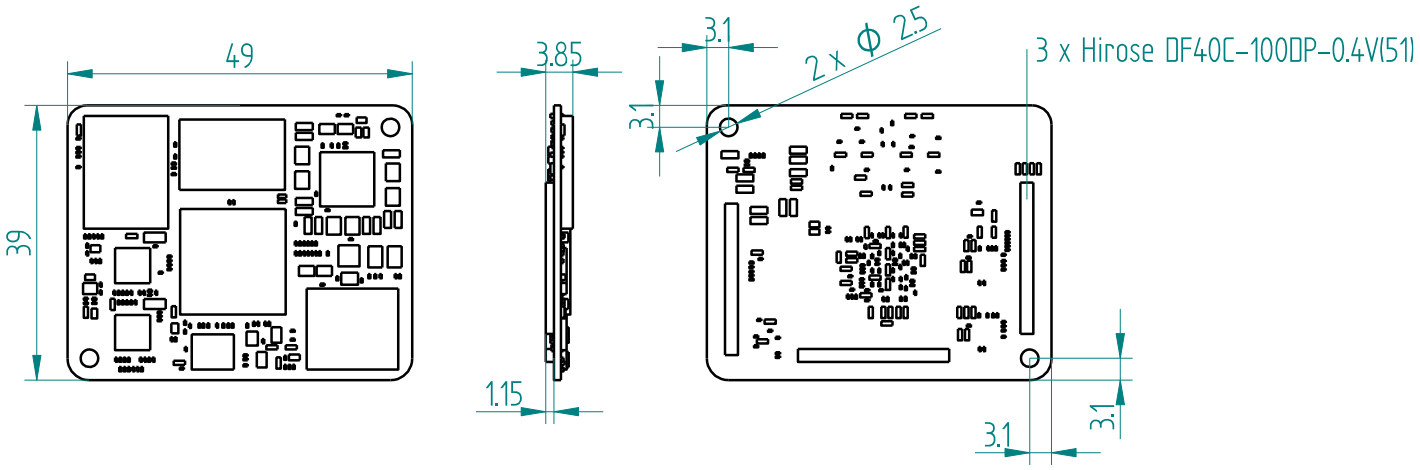
BOARD DIAGRAM



DIMENSIONS (mm)



ORDERING INFORMATION OPTIONS

3SM2008 [8] [B] [1] [C] [3] [A] [2]

Processor

i.MX 8M Plus Dual NPU	3
i.MX 8M Plus QuadLite	4
i.MX 8M Plus Quad	6
i.MX 8M Plus Quad NPU	8

LPDDR4

512MB	A
1GB	B
2GB	C
4GB	D

eMMC

eMMC 8GB	1
eMMC 16GB	2
eMMC 32GB	3
eMMC 64GB	4

Secure Element

No	N
SE050	A
ATECC608A	B
SE050 + ATECC0608A	C

LAN

No Ethernet	1
Single	2
Dual	3

WiFi / BT

Not present	N
Present	A

Temp. Grade

0°C / 70°C	1
-40°C / 85°C	2

Default configuration:

3SM20088B1C3A2 i.MX 8M Plus Quad NPU, 1GB LPDDR4, 8GB eMMC, 2 Gigabit LAN Ports, Single LVDS and MIPI-DSI, SE050, ATECC608A, Industrial Grade

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

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