SOM

phyCORE®-i.MX 8M

ARM Cortex™-A53/-M4F

The phyCORE-i.MX 8M System on Module is a top-tier choice for multimedia, HMI and wireless applications. The BGA footprint means this SOM can be directly soldered to your PCBA in Production like all other components in your Bill of Materials, with no compromise in terms of signal quality and system stability due to the placement of capacitors directly below the processor. This SOM provides a pre-certified WiFi/BLE 4.2 solution in addition to features such as USB 3.0, Gigabit Ethernet, MIPI DSI, HDMI, and dual MIPI CSI-2 camera.

phyCORE®

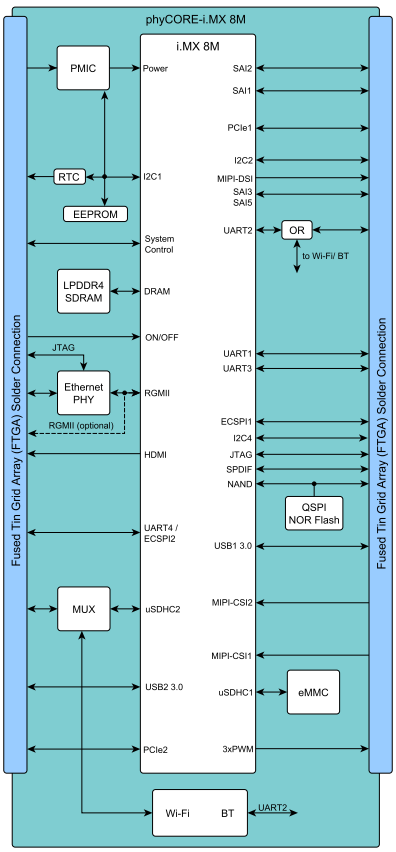
Processor from NXP with up to 1.5 GHz and 3D graphics acceleration: i.MX 8M

- Quad Cortex™-A53 1.5 GHz, Cortex™-M4F 400 MHz
- GC7000L 3D GPU
- 4k Ultra HD, HDR10, Dolby Vision

On-Board
- Maximum 8 GB LPDDR4 RAM, up to 64 GB eMMC
- 4 kB EEPROM and up to 64 MB QSPI NOR-Flash
- PMIC, Gb Ethernet-PHY, RTC
- Pre-certified WiFi/BLE 4.2 module

Small compact dimensions
- Size 40 mm x 60 mm x 4.7 mm
- 501 solder contacts
- Fused Tin Grid Array (FTGA) with proven vibration resistance

Development advantages
- 3.3 V supply, optimized pinout, and extensive periphery to accelerate carrier board development.
- BGA footprint for direct solder connection and cost savings
- Optimal EMC characteristics due to more than 20 % GND contacts directly assigned to the individual signals
- Readily adaptable BSP for Linux
- Global support with offices in America, China, France, Germany and India



Module Configuration | phyCORE-i.MX 8M (PCL-066)

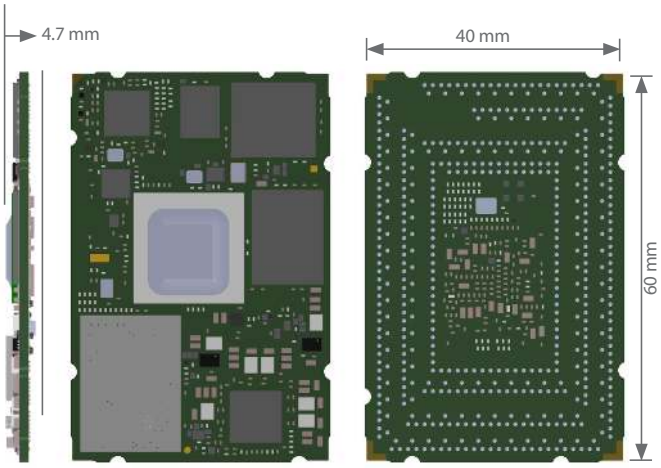
Configuration Order Code	Module Options	Kit Configuration PCL-066-3032311I	Basic Configuration PCL-066-1112010C	Exclusive Configuration PCL-066-4054411I
Processor	i.MX 8M Dual/8M QuadLite/8M Quad	i.MX 8M Quad	i.MX 8M Dual	i.MX 8M Quad
Cores	up to 4x Cortex-A53	4x Cortex-A53	2x Cortex-A53	4x Cortex-A53
Coprocessor	1x Cortex-M4F	1x Cortex-M4F	1x Cortex-M4F	1x Cortex-M4F
Frequency	up to 1.5 GHz	1.3 GHz	1.5 GHz	1.3 GHz
3D Graphics acceleration	3D G7000L	3D G7000L	3D G7000L	3D G7000L
Video En-/Decoding	4k Ultra HD, HDR10, Dolby Vision	4k Ultra HD, HDR10	4k Ultra HD, HDR10	4k Ultra HD, HDR10, Dolby Vision
eMMC	up to 64 GB	8 GB	8 GB	32 GB
LPDDR4 RAM	up to 8 GB	2 GB	1 GB	4 GB
SPI NOR-Flash	up to 64 MB	32 MB	-	64 MB
EEPROM	4 kB	4 kB	4 kB	4 kB
RTC	Yes	Yes	Yes	Yes
Wi-Fi/BLE 4.2	optional	Yes	-	Yes
Ethernet	Gigabit ETH PHY / RGMII	Gigabit ETH PHY	Gigabit ETH PHY	Gigabit ETH PHY
Temperature	0°C to +70°C / -40°C to +85°C	-40°C to +85°C	0°C to +70°C	-40°C to +85°C
BSP	Linux	Linux	Linux	Linux

* Contact PHYTEC Sales for additional configurations

Module Interfaces

Feature	Standard*	Maximum*
Ethernet	1x Gigabit or RGMII	1x Gigabit or RGMII
UART	4	4
USB	2x USB 3.0 OTG	2x USB 3.0 OTG
SPI	2x ECSPI	3x ECSPI
I2C	2	3
MMC/SDIO	1 (without Wi-Fi module)	1 (without Wi-Fi module)
NAND bus/QSPI	1 / 2	1 / 2
PWM	4	4
Display	1x MIPI-DSI, 1x HDMI	1x MIPI-DSI, 1x HDMI
Audio	6x SAI + 1x SPDIF	6x SAI + 1x SPDIF
Camera	2x MIPI CSI-2	2x MIPI CSI-2
PCIe	2x PCIe 2.0	2x PCIe 2.0
GPIO	12	80
JTAG	i.MX 8M, Ethernet PHY	i.MX 8M, Ethernet PHY

* Due to multiplexing it is possible that not all interfaces are available simultaneously.



Physical Properties

Dimensions	55 mm x 40 mm x 4.7 mm
Storage temperature	-40 °C to +85 °C
Operating temperature	0 °C to +70 °C (commercial) -40 °C to +85 °C (industrial)
Humidity	95 % RH non-condensing
Supply voltage	3.3 V
Power consumption	max. 6.5 W
Connector	501 solder pads, 1.27 mm pitch Fused Tin Grid Array (FTGA)