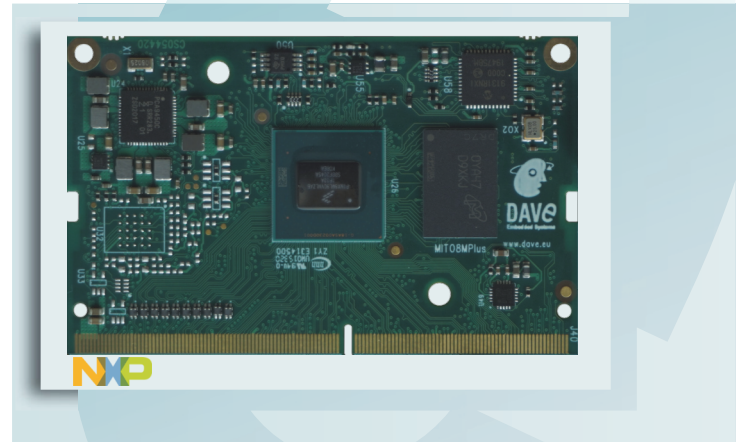


ORCA SOM

NXP i.MX8M Plus
CPU MODULE

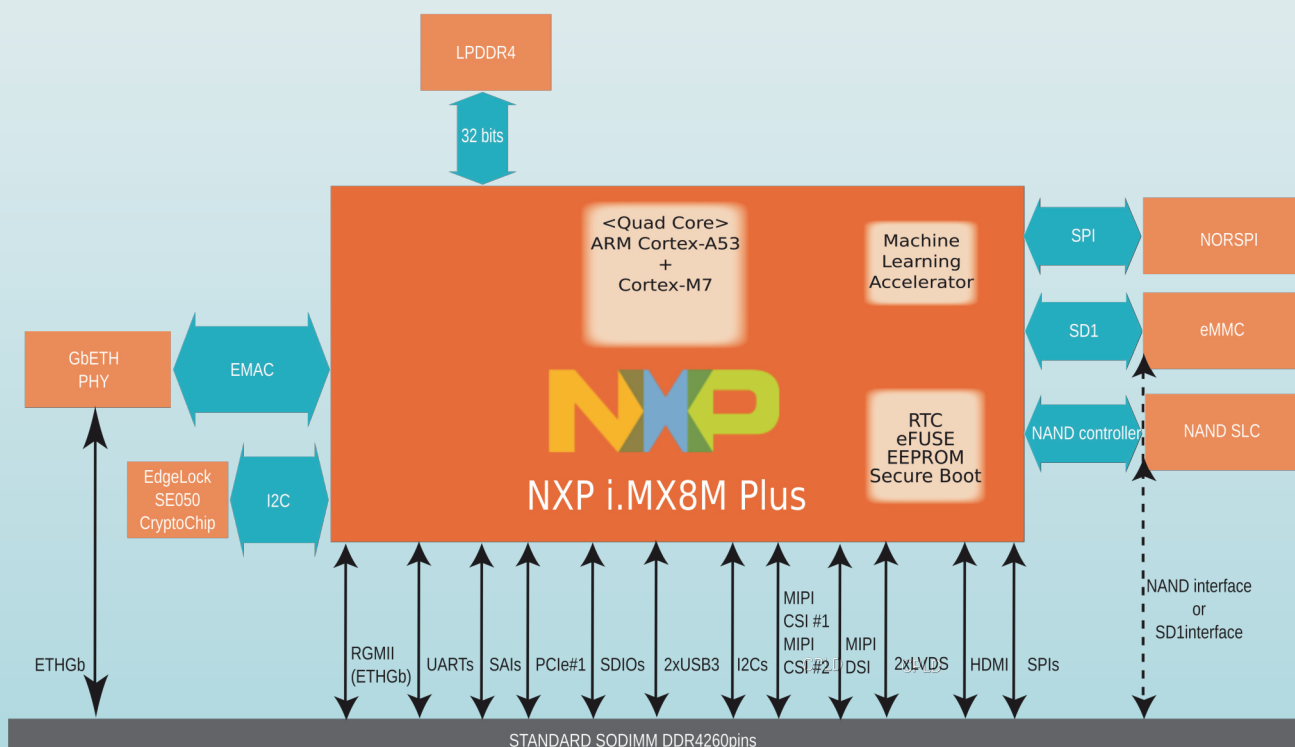


LITE LINE

- 2/4 ARM Cortex-A53 @1.6 - 1.8GHz + Cortex-M7
- 3D GPU GC7000 integrated
- Neural Processing Unit inside up to 2.3 TOPS
- Single chip DDR4 RAM 4-8GB
- Advanced security thanks to SE050 integration
- eMMC or NAND SLC mass storage on board
- Boot from NOR for safe applications
- 2xGb Ethernet with PHY on board and TSN support
- Dual CSI for stereo cameras
- Single 3.3V Power Supply with very low power stand by
- SODIMM DDR4 260pins Form factor

ORCA SOM is part of DAVE Embedded Systems' portfolio of systems on module based on NXP's solution. ORCA SOM System On Module can be provided with NXP i.MX8M Plus System On Chip. These System On Chips are designed with ARM Cortex-A53 plus Cortex-M7 plus a Neural Processing Unit. This System On Module is designed with a SODIMM DDR4 form factor and it is the first solution that will enable a new generation of these System On Chips enabling long term availability within industrial qualification. The ORCA SOM System On Module has SODIMM 260pins pinout, with a very compact size of about 67.5 times 45mm. This SOM permits to use of all functionalities available from the System On Chip. Starting from the ARM Cortex-A53 architecture with up to 4 cores available and the Independent ARM Cortex-A7, the Graphical Processing Unit and the Neural Processing Unit the ORCA SOM System On module integrates on board a single chip RAM DDR4 and multiple choices for storage. In fact ORCA SOM System On Module can host either an eMMC flash or a NAND Single Level Chip

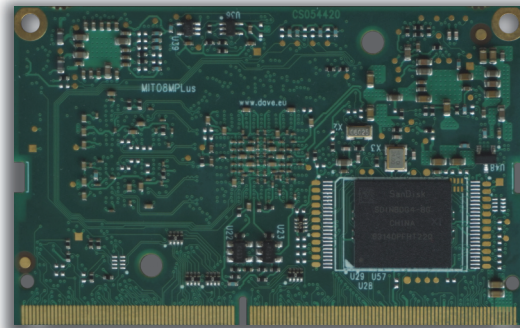
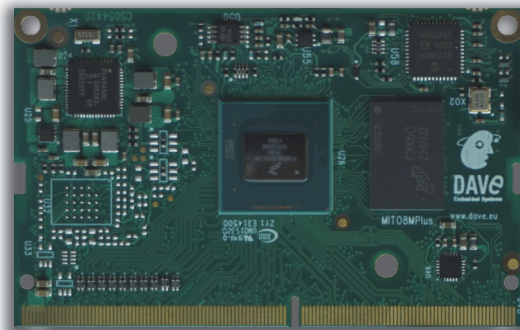
depending on what customers prefer. These options are also available to be mounted and connected on the carrier board because of both buses are available at pinout level. Another important features of this System On Module is the possibility to have either a dual Video Inputs for stereo cameras or a dual Ethernet interfaces with Time sensitive Networking support. Last but not least also the NXP Edge Lock SE050 Secure Element is already on board. ORCA SOM System On Module is designed for industrial application providing access to all NXP i.MX8M Plus features and supports the industrial temperature range from -40 to +85°C. The ORCA SOM System On Module is provided within a Software Development Kit which enable customers to get complete control of the board. The Software Development Kit is called DESK DAVE Embedded Software Kit and it is based on the NXP official Software Development Kits. Regarding the Neural Processing Unit, DAVE Embedded Systems is able to provide services including the design, development, training of a complete Machine Learning application



CPU	NXP i.MX8M Plus Dual/Quad ARM Cortex-A53 @ 1.6 - 1.8GHz MCU Cortex-M7 + GPU GC7000
Video	3D GPU GC7000 1080p60 H265, H264, VP9, VP8 decoder 1080p60 H265, H264 encoder
Machine Learning	Neural Processing Unit 2.3 TOPS
Supervisor	On-board power supply supervision and power sequencer; Watchdog and RTC
Cache	L1: 32Kbyte instruction, 32Kbyte data L2: Unified data/instruction, 512 K
Security	Secure Boot and SE050 Edge Lock on board for IoT secure applications
Memory	
SDRAM	Up to 8GB LPDDR4, x32 with ECC
NOR	SPI NOR 4 - 32 MB on request
eMMC or NAND SLC	All sizes, on request. Not available simultaneously
Interfaces (full-spec models) *	
LAN	Ethernet 10/100/1000 Mbps (PHY on board) 1xRGMII with TSN support
UART	up to 4x UART ports
USB	up to 2x 3.0 OTG port (PHY on board)
CAN	up to 2x CAN
SDIO	up to 2x SDIO3.0 - MMC 5.1
Audio	Up to 18 I ² S / SAI and 1x SPDIF
Video Output	1x LVDS 4/8 lanes 1x MIPI DSI 1x HDMI
Video Input	2x MIPI CSI 4 lanes with 2xISP
PCI express	1x PCIe Gen 3
Other	up to 6x I2C channels up to 3x SPI channels GPIOs with interrupt capabilities
Mechanical	
Connectors	SODIMM DDR4 260 pins
Size	69.60mm x 43.00mm
Temperature	Commercial (0°C / +70°C) temperature range Industrial (-40°C / +85°C) temperature range
PSU	
Input	Single 3.3V +/- 5%, on-board voltage regulation
Software	
Linux	U-Boot / Kernel 5.x or newer
Other options can be available. Visit wiki.dave.eu for details about DESK: DAVE Embedded Software Kit	
Evaluation Kit	

The ORCA SOM System On Module has his own evaluation kit which permits customers to start immediately developing the application. All schematics and layout footprint are provided. Additionally we offer a live session together with our technical team in order to make the `hello world` together and quickly start up our support to customer project. DAVE Embedded Systems provides a number of possible embedded design services and we are very happy to assist you making your experience within our solutions as best as we can.

*: interface availability depends on pin multiplexing. Please contact helpdesk@dave.eu



Product code configurator *

Visit our WIKI page:
https://wiki.dave.eu/index.php/ORCA_SOM/Part_number_composition



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