iWave
Embedding Intelligence
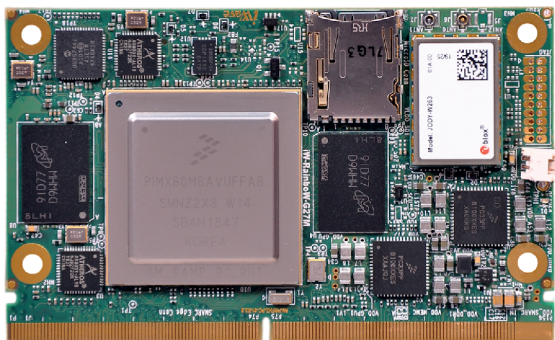
i.MX8QM/DP/DM SMARC Module

The i.MX8QM/DP/DM SMARC System On Module integrates Dual Cortex A72 + Quad Cortex A53 Cores, Dual GPU systems, 4K H.265 capable VPU dual failover-ready display controller based i.MX8QM/DP/DM SoC with on SOM Dual 10/100/1000 Mbps Ethernet PHY, USB 3.0 hub and IEEE 802.11 a/b/g/n/ac Wi-Fi & BT 5.0 module. The i.MX8QM/DP/DM SMARC System On Module is aimed to offer maximum performance with higher efficiency for complex embedded application of consumer, medical and industrial embedded computing applications.

APPLICATIONS:

Intelligent Industrial Control Systems,IndustrialHuman-Machine interface,Ultra-portable Devices,Hom Energy Management Systems,Portable Medical Devices,4k Digital Signage,media streaming, Augmented & Virtual Reality, Home Automation & Entertainment, Drones, Secure POS and Video and analytics.

iW-RainboW-G27M HIGHLIGHTS

Dual Complex Core System:

   Complex 1: 4 x Cortex-A53 @ 1.2 GHZ

   Complex 2: 2 x Cortex-A72 @ 1.8 GHZ

2 x Cortex-M4F @ 266 MHZ for advanced system control

ARM v8 64-bit instruction capability; Fully 32-bit capable

Integrated Full Chip Hardware Virtualization capabilities

16-Shader 3D (Vec4)

4K H.265 decode & 1080p H.264 encoder/deccapable VPU

Enhanced Vision Capabilities (via GP)

IEEE 802.11 a/b/g/n/ac Wi-Fi & BT 5.0 Module

Dual 1000/100/10 Mbps Ethernet
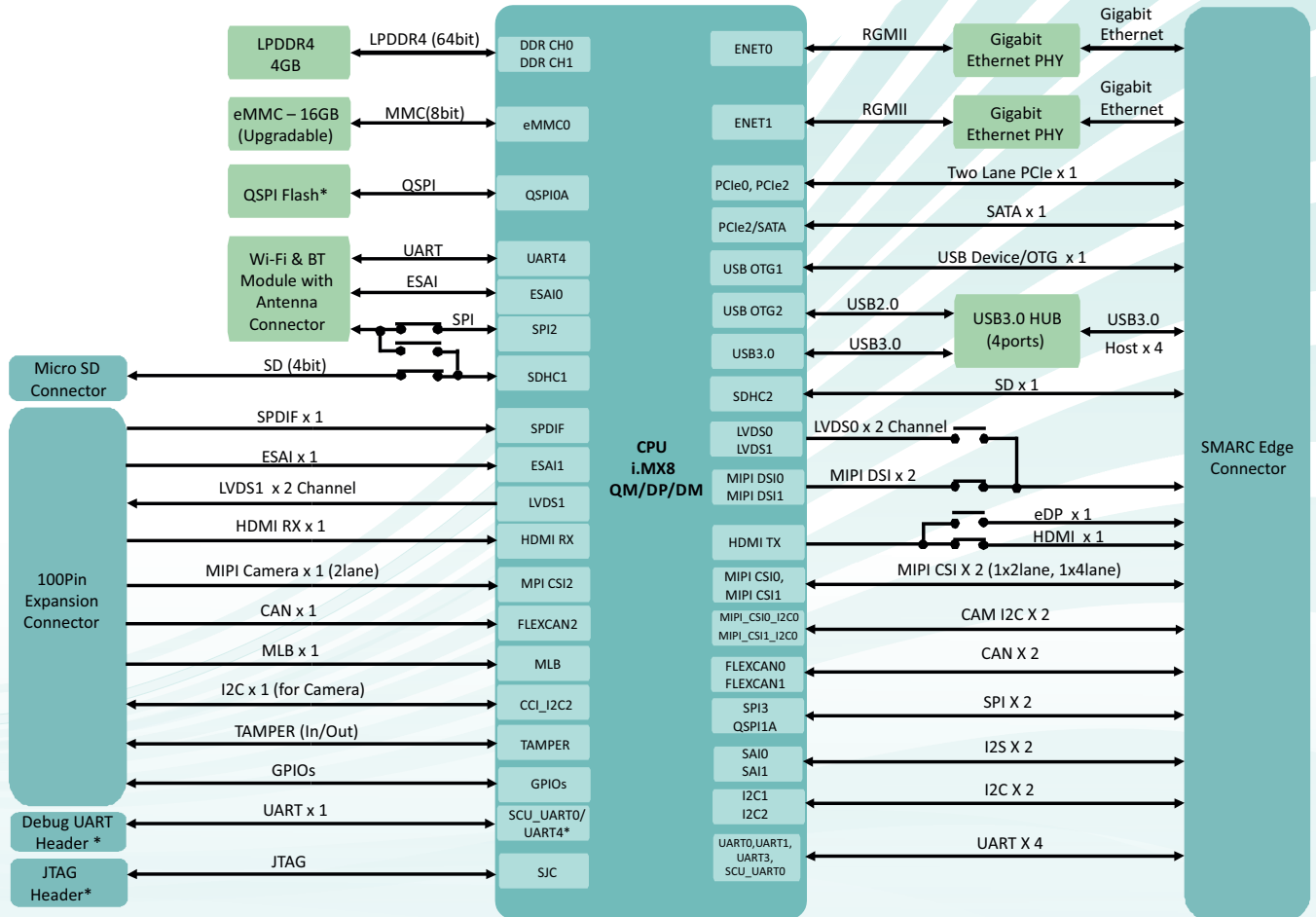
LPDDR4 - 6GB (Expandable)

SMARC R2.0 compatible

SPECIFICATIONS

SOC: i.MX8QM/DP/DM	
Dual Complex Core System:	
Complex 1: 4 x Cortex-A53 @ 1.2 GHz	
Complex 2: 2 x Cortex-A72 @ 1.8 GHz	
2 x Cortex-M4F @ 266 MHz for advanced system control	
ARM v8 64-bit instruction capability; Fully 32-bit capable	
Integrated Full Chip Hardware Virtualization capabilities	
16-Shader 3D (Vec4)	
4K H.265 decode & 1080p h.264 enc/deccapable VPU	
Memory:	
LPDDR4 - 6GB (Expandable)	
eMMC Flash - 16GB (Expandable)	
Micro SD slot	
QSPI Flash - (Optional)	
Communication:	
Gigabit Ethernet PHY Transceiver x 2	
USB 3.0 High Speed 4-Port Hub	
IEEE 802.11 a/b/g/n/ac Wi-Fi & BT 5.0	
SMARC Edge Connector Interfaces:	
Gigabit Ethernet x 2 Ports	
USB 3.0 Host x 2 Ports	
PCIe x 2 Ports	

SATA x 1 Port	
USB 2.0 OTG x 1 Port	
USB 2.0 Host x 2 Ports	
SD (4bit) x 1 Port	
LVDS/MIPI_DSI x 2 Channels	
HDMI/DP Transmitter x 1 Port	
SSI/I2S (Audio Interface) x 1 Port	
Debug UART	
Data UART (with CTS & RTS) x 2 Ports	
Data UART (without CTS & RTS) x 1 Port	
CAN x 2 Ports	
QSPI x 1 Port	
SPI x 2 Ports	
I2C x 2 Ports	
GPIO's Control & Status Signals	
Expansion Connector interfaces:	
CAN x 1 port	
SPDIF x 1 port	
ESAI x 1 port	
GPIO	
OS Support: Linux 4.14.98 & Android Pie 9.0.0	
Temperature support: -40°C to +80°C	
Form Factor:	
82mm x 50mm, SMARC R2.0 compatible	
REACH & RoHS Compliant	

*Note *:Optional features are not supported by default*

i.MX8QM/DP/DM SMARC SOM Block Diagram

CPU i.MX8 QM/DP/DM

Left side blocks	Signal
LPDDR4 4GB	LPDDR4 (64bit) → DDR CH0 / DDR CH1
eMMC – 16GB (Upgradable)	MMC(8bit) → eMMC0
QSPI Flash*	QSPI → QSPI0A
Wi-Fi & BT Module with Antenna Connector	UART → UART4 / ESAI → ESAI0 / SPI → SPI2
Micro SD Connector	SD (4bit) → SDHC1
100Pin Expansion Connector	SPDIF x 1 → SPDIF / ESAI x 1 → ESAI1 / LVDS1 x 2 Channel → LVDS1 / HDMI RX x 1 → HDMI RX / MIPI Camera x 1 (2lane) → MPI CSI2 / CAN x 1 → FLEXCAN2 / MLB x 1 → MLB / I2C x 1 (for Camera) → CCI_I2C2 / TAMPER (In/Out) → TAMPER / GPIOs → GPIOs
Debug UART Header *	UART x 1 → SCU_UART0/UART4*
JTAG Header*	JTAG → SJC

Right side:

Block	Signal	Destination
ENET0	RGMII	Gigabit Ethernet PHY → Gigabit Ethernet
ENET1	RGMII	Gigabit Ethernet PHY → Gigabit Ethernet
PCIe0, PCIe2	Two Lane PCIe x 1	SMARC Edge Connector
PCIe2/SATA	SATA x 1	
USB OTG1	USB Device/OTG x 1	
USB OTG2	USB2.0	USB3.0 HUB (4ports)
USB3.0	USB3.0	USB3.0 Host x 4
SDHC2	SD x 1	
LVDS0 LVDS1	LVDS0 x 2 Channel	
MIPI DSI0 MIPI DSI1	MIPI DSI x 2	
HDMI TX	eDP x 1 / HDMI x 1	
MIPI CSI0, MIPI CSI1	MIPI CSI X 2 (1x2lane, 1x4lane)	
MIPI_CSI0_I2C0 MIPI_CSI1_I2C0	CAM I2C X 2	
FLEXCAN0 FLEXCAN1	CAN X 2	
SPI3 QSPI1A	SPI X 2	
SAI0 SAI1	I2S X 2	
I2C1 I2C2	I2C X 2	
UART0,UART1, UART3, SCU_UART0	UART X 4	

Note: * Optional

OS SUPPORT
Linux 4.14.98
Android Pie 9.0.0

DELIVERABLES
i.MX8QM/DP/DM SMARC Module
Board Support Package
User Manual

OPTIONAL KITS/Modules
i.MX8QM/DP/DM Development Kit
5.5" Cap touch Display
Heat Sink
Camera Module

CUSTOM DEVELOPMENT
BSP Development/OS Porting
Custom SOM/Carrier Development
Custom Application/GUI Development
Design Review and Support

iWave Systems Technologies, established in 1999, focuses on Product Engineering Services involving Embedded Hardware, Software & FPGA. The company designs and develops cutting edge products and solutions. iWave has been an innovator in the development of highly integrated, high performance, low power and low cost System On Modules and Development Platforms. iWave's expertise has brought out multiple SOMs based on ARM NXP, Intel Atom, Marvell and TI Processors.

iWave System has won the confidence of its customers over the years by being a reliable partner in developing innovative products. Our engineers combine outstanding System design experience to deliver Quality Solutions. iWave specializes across Industrial, Automotive and Medical domains. We support our customers by being time efficient, which in turn helps our customers accelerate time to market their products. iWave is a Windows embedded Silver partner and a winner of the Partner Excellence Award.

*Optional items not included in the standard deliverables.

Note: iWave reserves the right to change these specifications without notice as part of iWave's continuous effort to meet the best in breed specification. The registered trademarks are proprietary of their respective owners.

i.MX8 QuadMax SMARC Module
The device can be ordered online from the iWave Website
http://www.iwavesystems.com/webforms
Or from our Local Partners in your region
http://www.iwavesystems.com/about-us/business-partner.html

IW-G27M-BR-R1.3