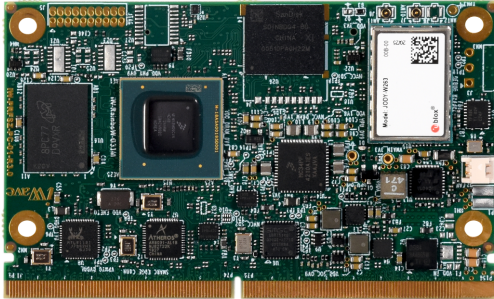


System On Module iW-RainboW-G33M

i.MX 8M Q/QL/D SMARC Module



The i.MX 8M Quad, Quad Lite, Dual based SMARC System On Module integrates Quad/Dual Cortex A53 @ up to 1.5GHz, H.265 4K60 decode, GC7000 Lite GPU, MIPI CSI, MIPI DSI/Dual LVDS, HDMI2.0 TX, USB3.0, PCIe2.0 with on SOM 10/100/1000 Mbps Ethernet PHY and IEEE 802.11 a/b/g/n/ac/ax* Wi-Fi & BT 5.0 Module. The i.MX 8M SMARC System On Module is aimed to offer applications such as Digital Media Adaptors, HD Digital signage, Industrial HMI, Building Automation, Imaging & Scanning, Audio/Video Streaming devices and Machine Vision.

iW-RainboW-G33M

HIGHLIGHTS

- 4 x Cortex-A53 @ upto 1.5 GHz
- 1 x Cortex-M4F @ 266 MHZ
- 64-bit Armv8-A architecture
- 4Kp60(h.265,VP9),4Kp30(h.264),
1080p60(MPEG2,MPEG4p2, Vc1,Vp8, Rv9,
AVS/AVS+, h.263, DivX) VPU decoder
- OpenGL®/ES 3.1, OpenGL® 3.0, Vulkan® 1.0,
- OpenCL™ 1.2 (via GPU)
- IEEE 802.11 a/b/g/n/ac/ax* Wi-Fi & BT 5.0
Module
- Dual 1000/100/10 Mbps Ethernet (AVB
support on one port)
- 2GB LPDDR4 memory (Expandable)
- SMARC V2.1.1 Standard

SPECIFICATIONS

SOC: i.MX 8M Q/QL/D

- SOC: i.MX 8M Quad,QuadLite,Dual
- i.MX 8M Quad: 4 x Cortex-A53,1 x Cortex-M4, GPU & VPU Decode
- i.MX 8M QuadLite:4 x Cortex-A53 & 1 x Cortex-M4 & GPU
- i.MX 8M Dual: 2 x Cortex-A53, 1 x Cortex-M4, GPU & VPU Decode
- 1xCortex-M4F @ 266 MHZ for advanced system control
- 64-bit Armv8-A architecture
- 4Kp60 (h.265, VP9), 4Kp30 (h.264), 1080p60 (MPEG2, MPEG4p2, Vc1, VP8, RV9, AVS/AVS+, h.263, DivX) VPU decoder
- OpenGL®/ES 3.1, OpenGL® 3.0, Vulkan® 1.0 & OpenCL™ 1.2 (via GPU)

Memory:

- LPDDR4 - 2GB (Expandable)
- eMMC Flash - 8GB (Expandable)
- Micro SD slot (Optional)
- QSPI Flash - 256MB (Optional)

Communication:

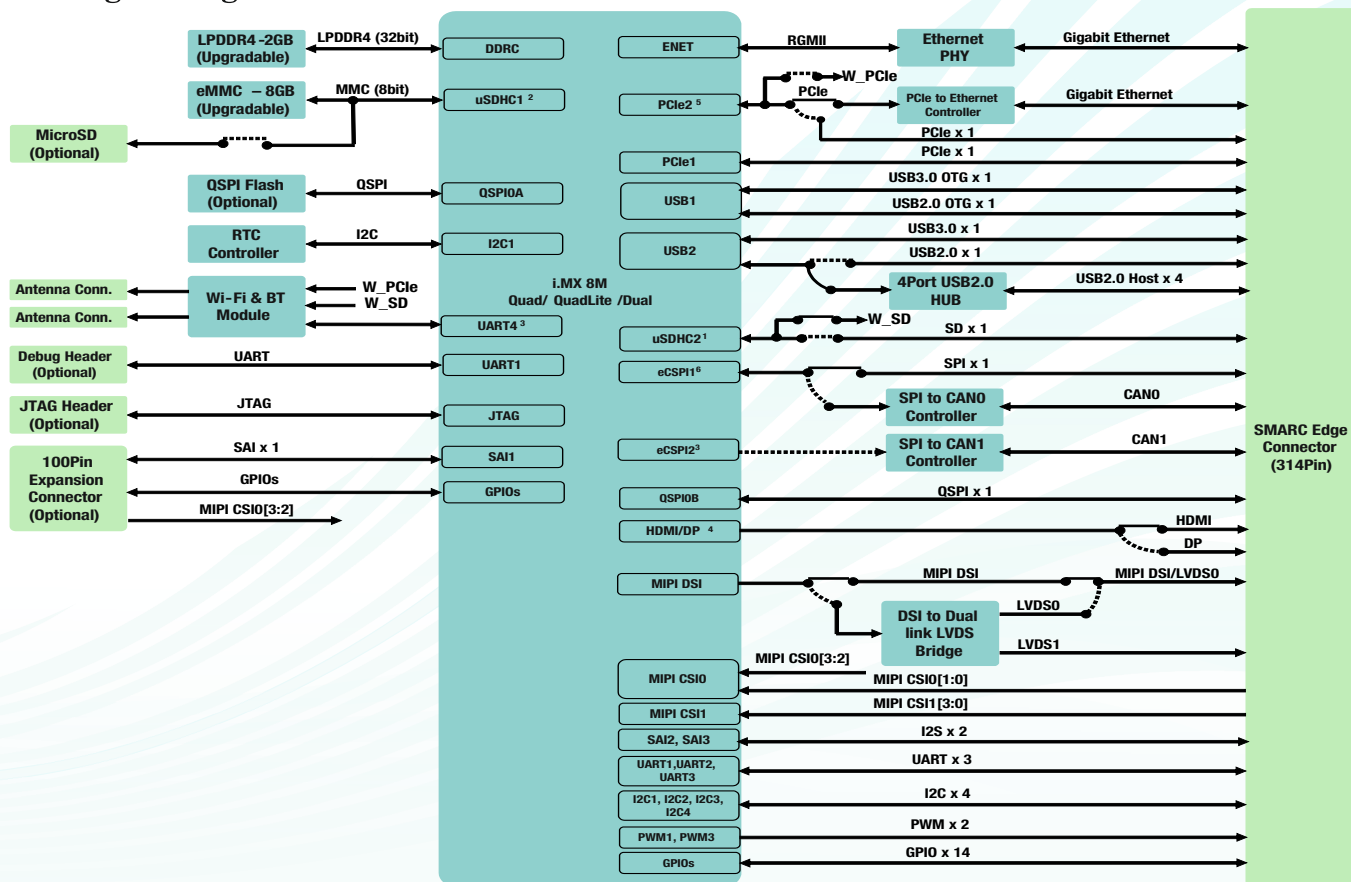
- Gigabit Ethernet PHY Transceiver x 1
- PCIe to Ethernet controller with PHY x 1
- USB 2.0 High-Speed 4-Port Hub
- IEEE 802.11 a/b/g/n/ac/ax* Wi-Fi & BT 5.0

SMARC Edge Connector Interfaces:

- Gigabit Ethernet x 2 Ports (AVB support on one port)
- USB3.0 OTG x 1 Port (including 2.0 OTG)
- USB3.0 Host x 1 Port
- USB 2.0 Host x 4 Port
- PCIe x 2 Ports (1 Port optional)

- SD (4bit) x 1 Port (Optional)
- MIPI DSI x 1 Port
- Dual LVDS x 1 Port(Optional)
- HDMI/DP Transmitter x 1 Port
- MIPI CSI0 (2lane) x 1 Port
- MIPI CSI1 (4lane) x 1 Port
- I2S (Audio Interface) x 2 Ports
- Debug UART
- Data UART (with CTS & RTS) x 1 Port
- Data UART (without CTS & RTS) x 1 Port
- SPI to CAN x 2 Port(Optional)
- I2C x 4 Ports
- PWM x 3 Ports
- SPI x 1 Port
- QSPI x 1 Port
- 12 GPIO's Control & Status Signals
- Expansion Connector Interfaces (Optional):**
- SAI x 1 port
- MIPI CSI0 (2nd 2lane)
- GPIOs
- Power Supply:**
- 5V through SOM edge connector
- Form Factor:**
- 82mm x 50mm (SMARC V2.1.1 standard)
- Temperature Support:** Industrial: -40°C to +85°C
- OS Support:**
- Linux 5.4, Android 9, Ubuntu 20.04 LTS
- Environmental Specification:**
- REACH & RoHS Complaint

i.MX 8M Q/QL/D SMARC SOM Block Diagram



- Note:**
- JODY-W2 Wi-Fi is supported by using uSDHC2 interface, hence SMARC SD will be an optional feature. PCIe based Wi-Fi can be supported only with JODY-W3 Modules.
 - Either eMMC or MicroSD can be supported. In default configuration eMMC supported.
 - In default Configuration UART4 interface of i.MX 8 is connected to on SOM Bluetooth module, hence SMARC SER2 will be an optional feature and also UART4 can be configure as eCSPI2 by software change to CAN1.
 - Either HDMI or Display Port can be supported. In default configuration HDMI is supported.
 - In default configuration PCIe2 interface of i.MX 8M SoC is connected to on SOM Ethernet controller, hence Wi-Fi PCIe or SMARC PCIe_B will be an optional feature.
 - Either SMARC SPI0 or CAN0 can be supported. In default configuration SMARC SPI0 supported.

OS SUPPORT

Linux 5.4
Android 9
Ubuntu 20.04 LTS

DELIVERABLES

i.MX 8M SMARC Module
Board Support Package
User Manual

OPTIONAL KITS/Modules

i.MX 8M 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

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*Optional items not included in the standard deliverables.

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i.MX 8M SMARC Module

The device can be ordered online from the iWave Website

<https://www.iwavesystems.com/product/i-mx-8m-quad-quadlite-dual-smarc-som/>

Or from our Local Partners in your region

<http://www.iwavesystems.com/about-us/business-partner.html>

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