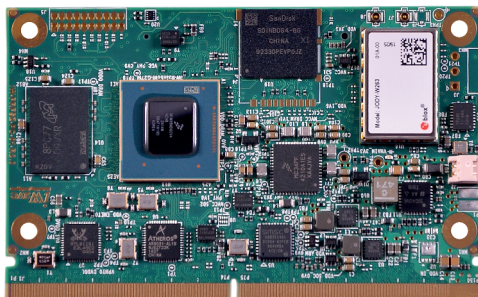


# System On Module iW-RainboW-G33M

## i.MX8M Q/QL/D SMARC Module



The i.MX8M 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/DSI, HDMI2.0 TX, USB3.0, PCIe2.0 with on SOM 10/100/1000 Mbps Ethernet PHY and IEEE 802.11a/b/g/n/ac Wi-Fi & BT 5.0 Module. The i.MX8M 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 Wi-Fi & BT 5.0  
Module

Dual 1000/100/10 Mbps Ethernet (AVB  
support on one port)

2GB LPDDR4 memory (Expandable)

SMARC V2.0 compatible

#### SPECIFICATIONS

##### SOC: i.MX8M Q/QL/D

SOC: i.MX8M Quad,QuadLite,Dual

i.MX8M Quad: 4 x Cortex-A53,1 x Cortex-M4, GPU & VPU  
Decode

i.MX8M QuadLite:4 x Cortex-A53 & 1 x Cortex-M4 &  
GPU

i.MX8M 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 Wi-Fi & BT 5.0

##### Expansion Connector Interfaces (Optional):

SAI x 1 port

MIPI CSIO (2nd 2lane)

GPIOs

##### REACH & RoHS Complaint:

##### 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 1 Port

SD (4bit) x 1 Port (Optional)

MIPI DSI x 1 Port

HDMI/DP Transmitter x 1 Port

MIPI CSIO (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

I2C x 4 Ports

PWM x 3 Ports

SPI x 1 Port

QSPI x 1 Port

12 GPIO's Control & Status Signals

##### Power Supply:

5V through SOM edge connector

##### Form Factor:

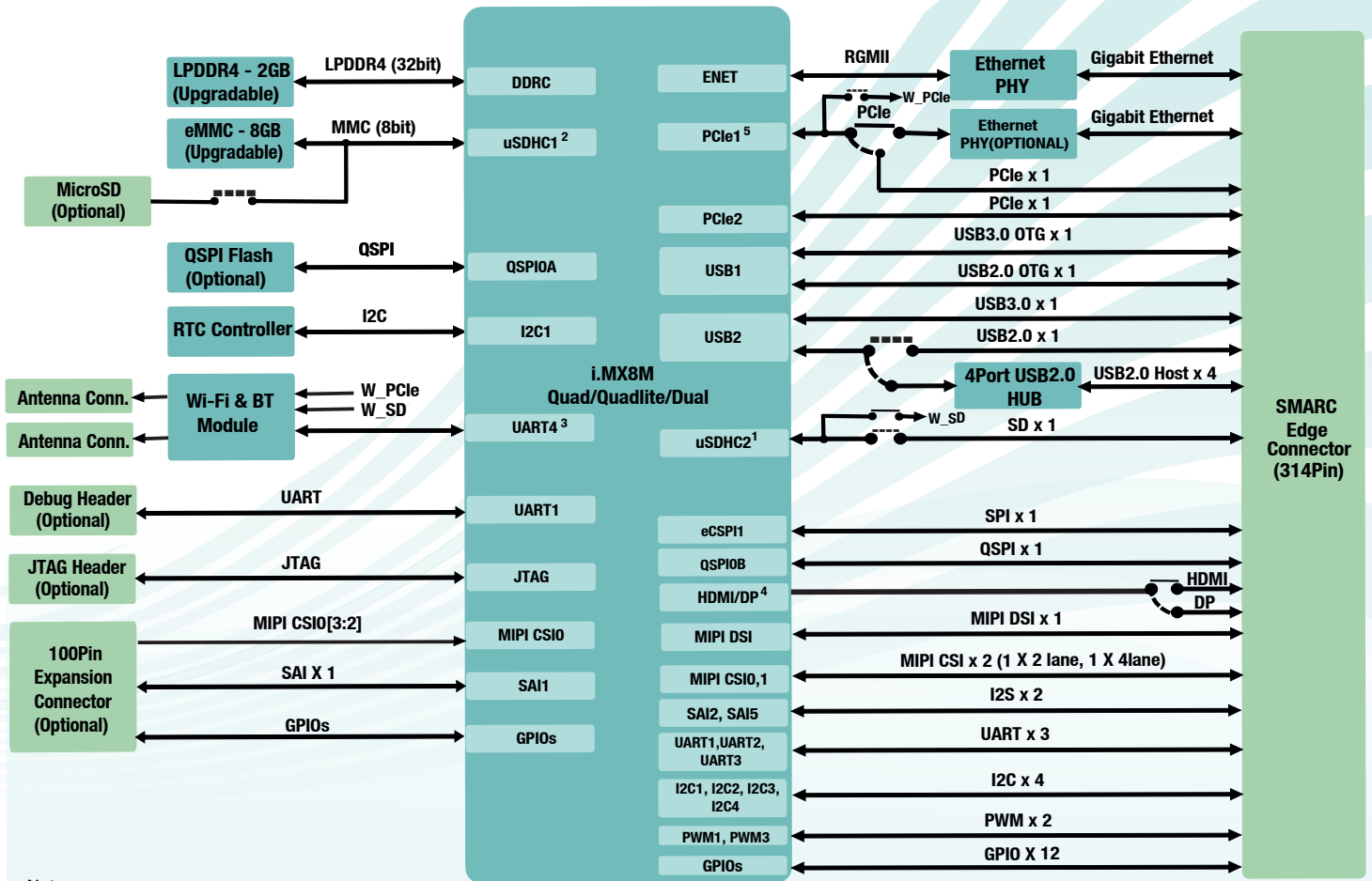
82mm x 50mm

Temperature Support: Industrial: -40°C to +85°C

##### OS Support:

Linux 4.14.98

Android Pie 9.0.0, QNX7.0.0



**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.MX8 is connected to on SOM Bluetooth module, hence SMARC SER2 will be an optional feature.
- Either HDMI or Display Port can be supported. In default configuration HDMI is supported.
- In default configuration PCIe1 interface of i.MX8 is connected to on SOM Ethernet controller, hence Wi-Fi PCIe or SMARC PCIe\_B will be an optional feature.

**OS SUPPORT**

Linux 4.14.98  
Android Pie 9.0.0  
QNX 7.0.0

**DELIVERABLES**

i.MX8M SMARC Module  
Board Support Package  
User Manual

**OPTIONAL KITS/Modules**

i.MX8M 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.

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\*Optional items not included in the standard deliverables.

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**i.MX8M 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>

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