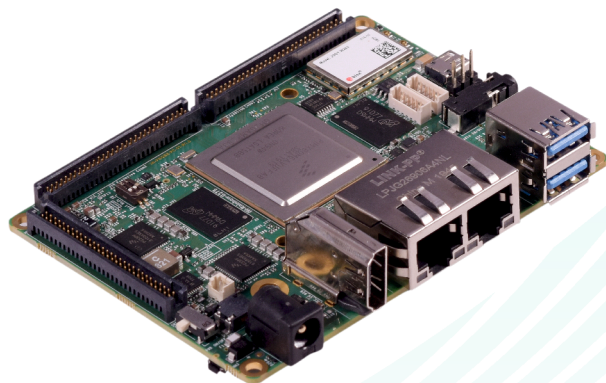


# Single Board Computer iW-RainboW-G27S i.MX8 Quad Max/ Quad Plus Pico-ITX SBC



The i.MX8 Quad MAX/Quad Plus Pico ITX SBC integrates Dual Cortex A72 + Quad Cortex A53 Cores, Dual GPU systems, 4K H.265 capable VPU dual failover-ready display controller based i.MX8 QuadMax SoC with on Dual 10/100/1000 Mbps Ethernet PHY, USB 3.0 hub and IEEE 802.11a/b/g/n/ac Wi-Fi & Bluetooth 5.0 module.

This board offer maximum performance with higher efficiency for complex consumer, medical and industrial embedded computing applications. With the 100mm x 72mm Pico-ITX form factor, the SBC is highly packed with all the necessary on-board connectors.

**APPLICATIONS:** Remote Energy Management, Intelligent Edge, Augmented & Virtual Reality, 4K Media Streaming, Industrial Automation, Automotive eCockpit

## iW-RainboW-G27S

### 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 @ 264 MHz for advanced system control

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

Enhanced Vision Capabilities (via GPU)

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

Dual 1000/100/10 Mbps Ethernet

Up to 8GB LPDDR4 memory

Ultra-compact form size 100mm x 72mm

-40 to +85°C Operation

## SPECIFICATIONS

CPU: i.MX8 QM/QP/DM Processor	Expansion Connector 2
<b>i.MX8QuadMax:</b> 2 x Cortex-A72, 4 x Cortex-A53 & 2 x Cortex-M4F	4 lane MIPI CSI x 1
<b>i.MX8QuadPlus:</b> 1 x Cortex-A72, 4 x Cortex-A53 & 2 x Cortex-M4F	4 lane LVDS x 2
<b>Power:</b>	MIPI CSI I2C x 1 Port
PF8100	PWM x1 Port
<b>Memory:</b>	SPI x 1 Port
LPDDR4 - 4GB (Expandable up to 8GB) <sup>2,3</sup>	M41 UART x 1 Port
eMMC Flash - 16GB (Expandable) <sup>3</sup>	<b>Expansion Connector 3</b>
Micro SD Slot	4 lane MIPI CSI x 1
<b>Network &amp; Communication</b>	4 lane MIPI DSI x 1
Gigabit Ethernet PHY Transceiver with RJ45 Magjack Connector x 2	SAI x 1 Port <sup>4</sup>
USB3.0 High Speed Hub through dual stack Type - A Connector	QSPI x 1 Port
USB 2.0 OTG port through - micro AB Receptacle Connector	DMA_I2C x 1 Port
IEEE 802.11 a/b/g/n/ac Wi-Fi & BT 5.0	MIPI CSI I2C x 1 Port
RS232 X 1	CAN x 1 Port
CAN x 1	M40UART x 1 Port
<b>Operating System</b>	UART x 1 Port
Linux 5.10.52, Android 11, Ubuntu 20.04 LTS, QNX 7, Buildroot 2021.02.8 LTS	<b>M.2 Connector Key B</b>
<b>Audio/Video Features:</b>	PCIe x 2
HDMI output through HDMI (TypeA) connector <sup>4</sup>	SATA x 1
HDMI Input through micro HDMI (Type D) Connector	USB 2.0 x 1, USB 3.0 x 1
40Pin eDP Display Connector (Optional) <sup>4</sup>	I2S x 1, I2C x 1
I2S Audio Codec	HSIC x 1
3.5mm Audio IN/OUT	Nano SIM Connector
<b>Expansion Connector 1</b>	<b>Miscellaneous Interfaces</b>
4 lane MIPI DSI x 1	Debug UART Connector
4 lane LVDS x 2	JTAG Header (Optional)
CAN/SPDIF x1 Port	Tamper Header (Optional)
DMA_I2C x 1 Port	RTC Battery Connector
SPI x 1 Port	<b>Power Supply:</b>
	12V, 2A input through External Adaptor
	<b>Operating Temperature:</b> -40°C to +85°C
	<b>Form Factor:</b> 100mm X 72mm
	<b>Environment Specification:</b>
	RoHS2 and REACH Compliance

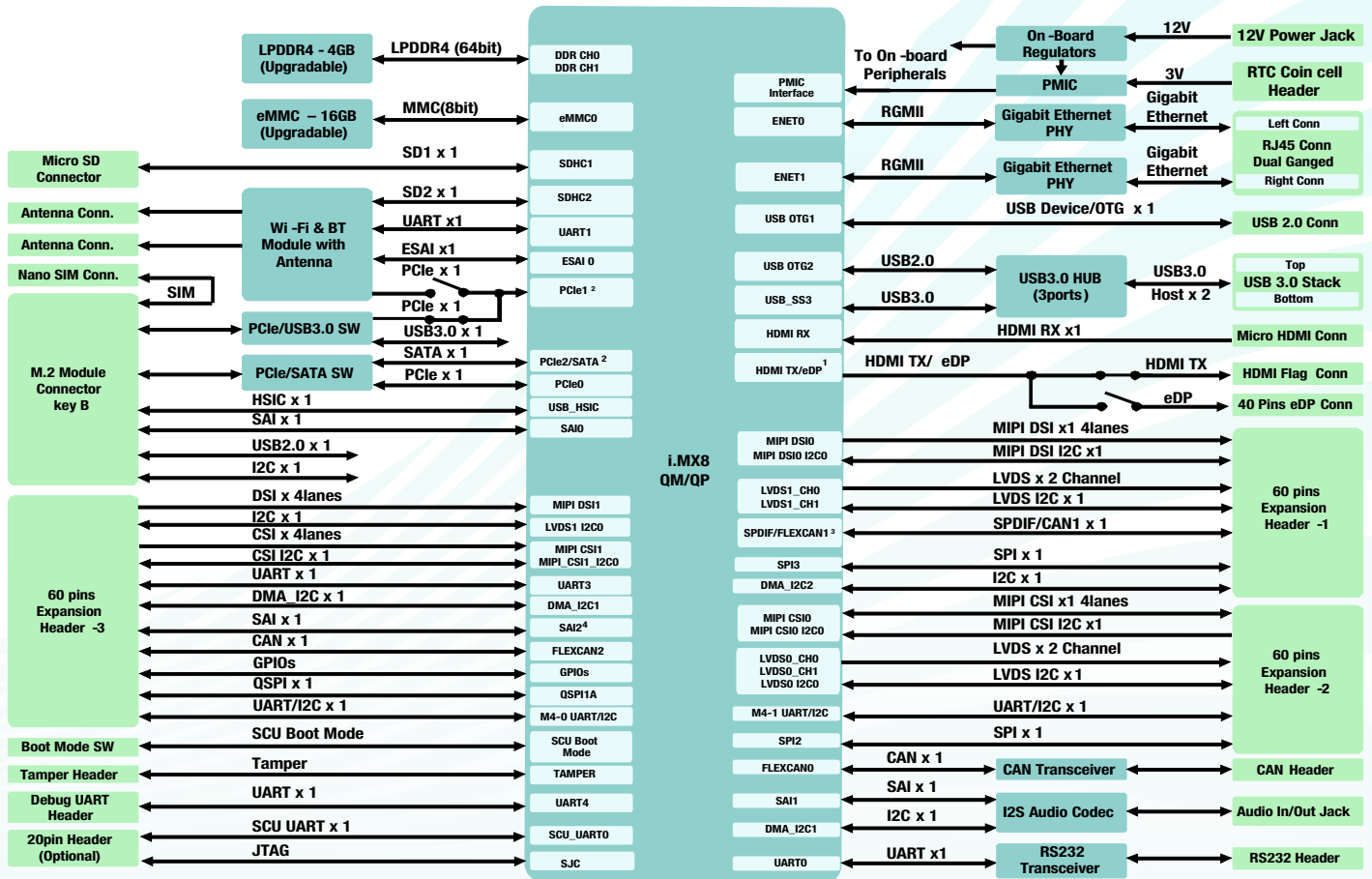
<sup>1</sup> There are 2 Configurations of i.MX8 Processor, hence in this document i.MX8 is used to represent either i.MX8QM or i.MX8QP based on the part number.

<sup>2</sup> The i.MX8 can support up to 16GB RAM but considering available LPDDR4 configuration, it can support 8GB by using two 4GB chips. If 8GB (64GB) chips are available then 16GB DDP can be supported.

<sup>3</sup> Memory Size will differ based on iWave's product part number.

<sup>4</sup> This i.MX8 support HDMI or eDP through some pins, hence anyone can be supported at a time based on the SBC part number.

## i.MX8 Quad Max/ Quad Plus Pico-ITX SBC



Notes:

<sup>1</sup> Either eDP interface or HDMI TX is supported. By Default HDMI is Supported.

<sup>2</sup> PCIe0 is connected to Wi-Fi BT Module and M.2 Connector. By default M.2 Connector is supported.

<sup>3</sup> Either FLEXCAN1 or SPDIF is supported. By default FLEXCAN1 is supported

<sup>4</sup> SAI2 Receive mode

<sup>5</sup> HSIC is optional feature

### OS SUPPORT

Linux 5.10.52  
Android 11  
Ubuntu 20.04 LTS  
QNX 7  
Buildroot 2021.02.8 LTS

### DELIVERABLES

i.MX8QM Pico ITX SBC  
Board Support Package  
User Manual

### OPTIONAL KITS/MODULES

Heat Sink  
Industrial Enclosure

### 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, Freescale, Intel Atom, Marvell and TI Processors.

iWave Systems 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.

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\*Optional items are not included in the standard deliverables

### i.MX 8QM Pico ITX SBC

The device can be ordered online from the iWave Website  
<https://www.iwavesystems.com/product/i-mx-8-qm-qp-pico-itx-sbc/>  
Or from our Local Partners in your region  
<http://www.iwavesystems.com/about-us/business-partner.html>

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