iWave
Embedding Intelligence

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
i.MX8QuadMax: 2 x Cortex-A72, 4 x Cortex-A53 & 2 x Cortex- M4F
i.MX8QuadPlus: 1 x Cortex-A72, 4 x Cortex-A53 & 2 x Cortex- M4F
Power:
PF8100
Memory:
LPDDR4 - 4GB (Expandable up to 8GB)[2,3]
eMMC Flash - 16GB (Expandable)[3]
Micro SD Slot
Network & Communication
Gigabit Ethernet PHY Transceiver with RJ45 Magjack Connector x 2
USB3.0 High Speed Hub through dual stack Type - A Connector
USB 2.0 OTG port through - micro AB Receptacle Connector
IEEE 802.11a/b/g/n/ac Wi-Fi & Bluetooth 5.2
RS232 X 1
CAN x 1
Operating System
Linux 6.1.36, Android 11, Ubuntu 20.04 LTS, QNX 7, Buildroot 2021.02.8 LTS
Audio/Video Features:
HDMI output through HDMI (TypeA) connector[4]
HDMI Input through micro HDMI (Type D) Connector
40Pin eDP Display Connector (Optional)[4]
I2S Audio Codec
3.5mm Audio IN/OUT
Expansion Connector 1
4 lane MIPI DSI x 1
4 lane LVDS x 2
CAN/SPDIF x1 Port
DMA_I2C x 1 Port
SPI x 1 Port

Expansion Connector 2
4 lane MIPI CSI x 1
4 lane LVDS x 2
MIPI CSI I2C x 1 Port
PWM x1 Port
SPI x 1 Port
M41 UART x 1 Port
Expansion Connector 3
4 lane MIPI CSI x 1
4 lane MIPI DSI x 1
SAI x 1 Port[4]
QSPI x 1 Port
DMA_I2C x 1 Port
MIPI CSI I2C x 1 Port
CAN x 1 Port
M40UART x 1 Port
UART x 1 Port
M.2 Connector Key B
PCIe x 2
SATA x 1
USB 2.0 x 1, USB 3.0 x 1
I2S x 1, I2C x 1
HSIC x 1
Nano SIM Connector
Miscellaneous Interfaces
Debug UART Connector
JTAG Header
Tamper Header
RTC Battery Connector
Power Supply:
12V, 2A input through External Adaptor
Operating Temperature: -40˚C to +85˚C
Form Factor: 100mm X 72mm
Environment Specification:
RoHS2 and REACH Compliance

[1] *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.*
[2] *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.*
[3] *Memory Size will differ based on iWave's product part number.*
[4] *This i.MX8 support HDMI or eDP through some pins, hence anyone can be supported at a time based on the SBC part number.*

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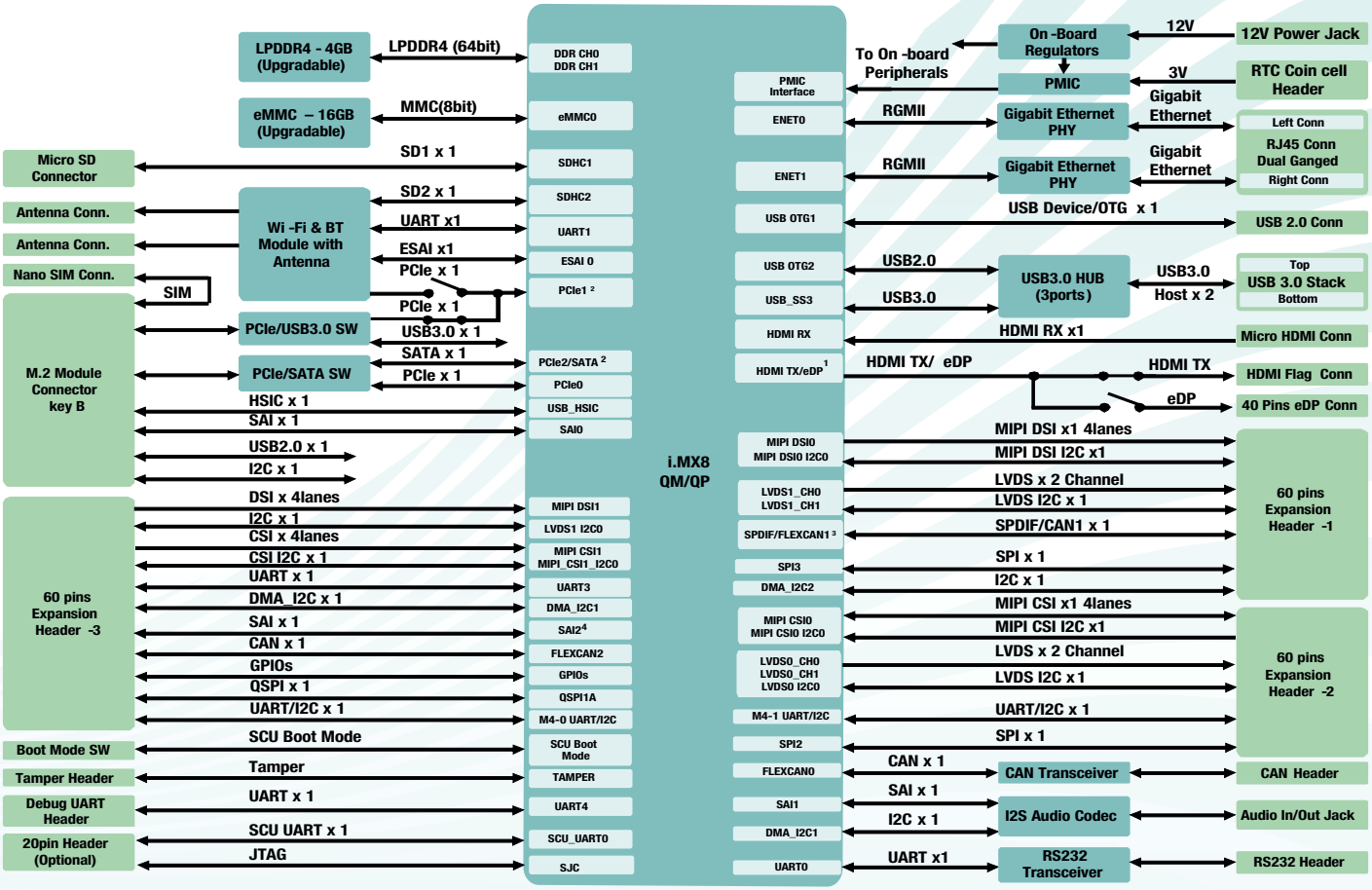
Proven Partner

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



Notes:

1 *Either eDP interface or HDMI TX is supported. By Default HMDI is Supported.*

2 *PCie0 is connected to Wi-Fi BT Module and M.2 Connector. By default M.2 Connector is supported.*

3 *Either FLEXCAN1 or SPDIF is supported. BY default FLEXCAN1 is supported*

4 *SAI2 Receive mode*

5 *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

IW-G27S -BR-R1.2

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