

Single Board Computer iW-RainboW-G34S/G37S

i.MX 8M Mini or i.MX 8M Nano Pico ITX SBC



The i.MX 8M Mini or i.MX 8M Nano Pico ITX SBC integrates Quad Arm® Cortex®-A53 core which operates at speeds of up to 1.6 GHz, a general purpose Cortex®-M4 core, 1080p60 VP9 Profile, 1080p60 HEVC/H.265 Decoder, 1080p60 AVC/H.264, 1080p60 VP8, 1080p60 AVC/H.264 Encoder, MIPI DSI(4-lane) display interface, MIPI-CSI (4-lane) camera interface based i.MX 8M Mini or i.MX 8M Nano SoC with on board 10/100/1000 Mbps Ethernet PHY, USB 2.0 hub, 802.11n Wi-Fi & BT 5.0 module, MIPI-DSI to LVDS/HDMI bridge & GNSS module.

This board is aimed to offer applications such as Industrial HMI, Audio/Video Streaming devices, Digital Signage, Home Automation, and General Embedded applications. With the 100mm x 72mm Pico-ITX form factor, the SBC is packed with all the necessary on-board connectors.

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HIGHLIGHTS

i.MX 8M Mini or i.MX 8M Nano Q/QL/D/DL/S/SL CPU

64-bit ARMv8 Architecture

10+ years of Product Longevity Program

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

1000/100/10 Mbps Ethernet

SPECIFICATIONS

SOC: i.MX 8M Mini¹

Quad: 4 x Cortex - A53, 1 x Cortex - M4, GPU & VPU

QuadLite: 4 x Cortex - A53, 1 x Cortex - M4 & GPU

Dual: 2 x Cortex - A53, 1 x Cortex - M4@, GPU & VPU

Dual Lite: 2 x Cortex - A53, 1 x Cortex - M4, GPU

Solo: 1 x Cortex - A53, 1 x Cortex - M4, GPU & VPU

Solo Lite: 1 x Cortex - A53, 1 x Cortex - M4, GPU

SOC: i.MX 8M Nano¹

Quad: 4 x Cortex - A53, 1 x Cortex - M7 & GPU

QuadLite: 4 x Cortex - A53, 1 x Cortex - M7

Dual: 2 x Cortex - A53, 1 x Cortex - M7 & GPU

Dual Lite: 2 x Cortex - A53, 1 x Cortex - M7

Solo: 1 x Cortex - A53, 1 x Cortex - M7 & GPU

Solo Lite: 1 x Cortex - A53, 1 x Cortex - M7

Memory & Storage

LPDDR4 - 1GB (Expandable Up to 4GB (Mini) / 2GB (Nano))^{2,3}

eMMC Flash - 8GB (Expandable upto 128GB)

Micro SD slot

Network & Communication

WiFi 802.11a/b/g/n/ac + Bluetooth 5.0 Module

Gigabit Ethernet PHY Transceiver x 1

PCIe to Gigabit Ethernet PHY Transceivers x 1⁴

USB 2.0 Hub through dual stack Type - A Connector⁵

USB 2.0 OTG port through - micro AB Receptacle Connector⁵

GNSS Module

RS232 x 1

RS485 x 1 (Optional)

CAN x 1

Audio/Video Features

HDMI Output through HDMI (Type A) Connector

10.1" LVDS Display

I2S Audio Codec

3.5mm Audio IN/OUT

MIPI CSI x 1 Channel

2 Lane MIPI DSI Display (Optional)

Expansion Connector Interfaces

SPI x 1 Port

I2C x 1 Port

SAI x1 Port

Debug UART x 1 Port

PWM x 1 Port

Miscellaneous Interfaces

Debug UART Connector (Optional)

JTAG Header

RTC Battery Connector

M.2 Connector Key B

PCIe x 1 (Optional)⁴

USB 2.0 x 1

I2S x 1

I2C x 1

Nano SIM Connector

Power Supply

12V,2A input through External Adaptor⁶

Form Factor: 100mm X 72mm

Operating Temperature:

-40°C to +85°C

Environment Specification:

RoHS2 and REACH Compliance

Note:

1. There are six configurations of i.MX 8M Mini or i.MX 8M Nano SoC supported by NXP, hence in this document i.MX 8M Mini or i.MX 8M Nano Q/QL/D/DL/S/SL is used to represent either of one based on SBC Part Number.

2. The i.MX 8M Mini CPU can support up to 8GB RAM but considering the available LPDDR4 Chips, SBC can support upto 4GB (32 GB) RAM.

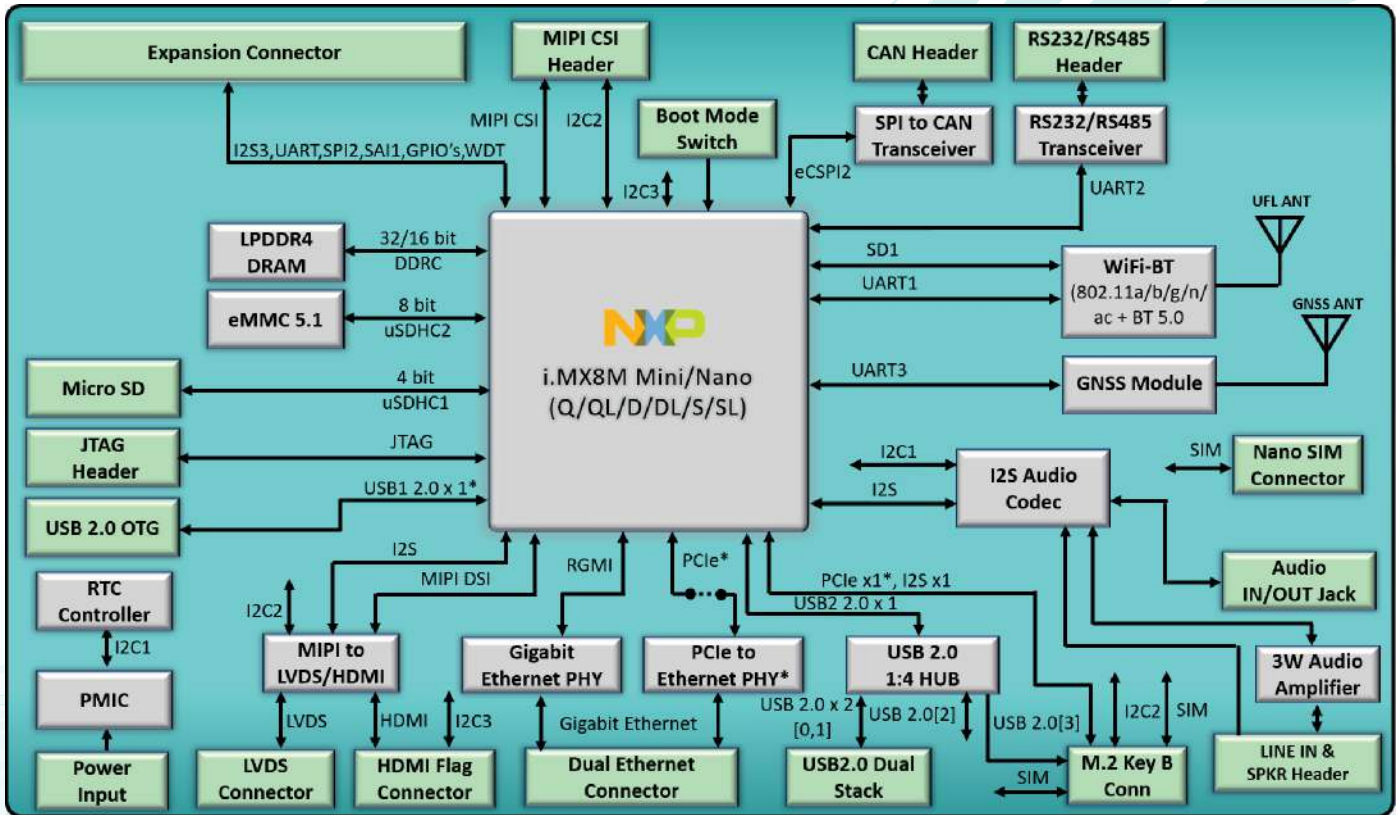
3. Memory Size will differ based on iWave's SBC Product Part Number.

4. PCIe is NC in i.MX 8M Nano SoC.

5. Since USB2 is NC in i.MX 8M Nano SoC, USB2.0 lines are supported through a switch.

6. The i.MX 8M Mini or i.MX 8M Nano SBC can support input power 4.5V to 27V. By default it is designed to support 12V.

i.MX 8M Mini or i.MX 8M Nano Pico ITX SBC Block Diagram



OS SUPPORT

Linux 5.4.24
Android Pie 9.0.0

DELIVERABLES

i.MX 8M Mini or i.MX 8M Nano
Pico ITX SBC
Board Support Package
User Manual

OPTIONAL KITS/Modules

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 is an ISO 9001:2015 certified company, head quartered in Bangalore India established in the year 1999. The company focuses on providing embedded solution and services for Industrial, Medical, Automotive and various other Embedded Computing applications. iWave Systems offers wide range of System On Modules and Single Board Computers built using wide range of CPU and FPGA SoC platforms with different form factors such as Qseven, SMARC, SODIMM and HPC by closely working with Tier-1 silicon companies such as NXP, Xilinx, Intel etc.

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iWave Systems also provides comprehensive Engineering design services involving Embedded Hardware, FPGA and Software development. iWave offers carrier board and custom hardware development with manufacturing and certification services. iWave's Hardware expertise spans complex board design up to 30 layers; Analog, Digital & RF Designs; FPGA Development up to

*Optional items not included in the standard deliverables.

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

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