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.

iW-RainboW-G34S/G37S 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 Mini [1]	
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 Nano [1]	
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 1 [4]	
USB 2.0 Hub through dual stack Type - A Connector [5]	
USB 2.0 OTG port through - micro AB Receptacle Connector [5]	
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 Adaptor [6]	
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 8MNano 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.
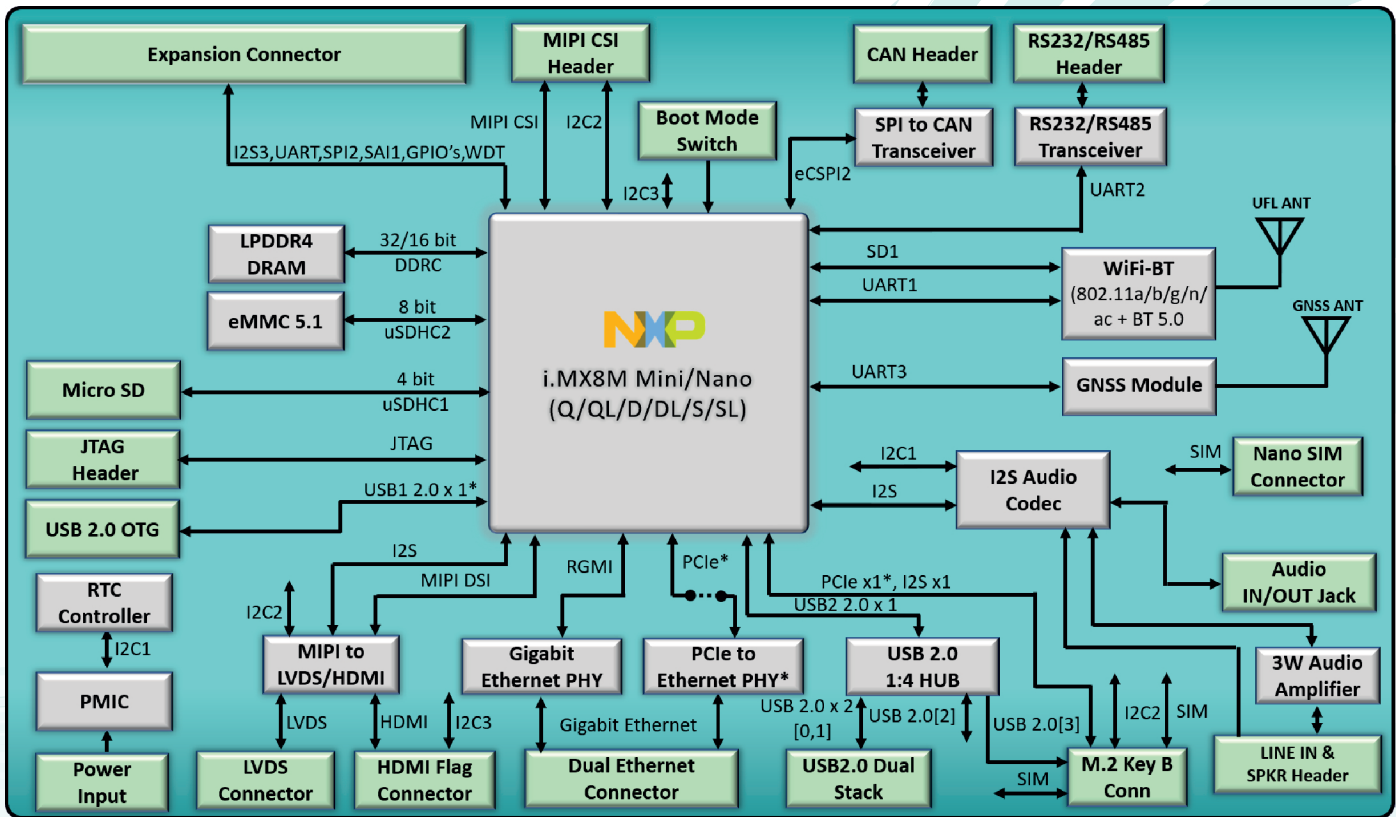3. Memory Size will differ based on iWave's SBC Product Part Number.
4. PCIe is NC in i.MX 8M Nano SoC.
5. Since USB2 is NC in i.MX 8M Nano SoC, USB2.0 lines are supported through a switch.
6. The i.MX 8M Mini or i.MX 8M Nano SBC can support input power 4.5V to 27V. By default it is designed to support 12V.

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

iWave Embedding Intelligence

Expansion Connector

MIPI CSI Header

CAN Header

RS232/RS485 Header

I2S3,UART,SPI2,SAI1,GPIO's,WDT

MIPI CSI | I2C2

Boot Mode Switch

SPI to CAN Transceiver

RS232/RS485 Transceiver

eCSPI2

I2C3

UART2

LPDDR4 DRAM — 32/16 bit DDRC

eMMC 5.1 — 8 bit uSDHC2

SD1

UART1

WiFi-BT (802.11a/b/g/n/ac + BT 5.0)

UFL ANT

GNSS ANT

Micro SD — 4 bit uSDHC1

JTAG Header — JTAG

UART3

GNSS Module

i.MX8M Mini/Nano (Q/QL/D/DL/S/SL)

USB1 2.0 x 1*

USB 2.0 OTG

I2C1

I2C2

I2S

I2S Audio Codec

SIM

Nano SIM Connector

RTC Controller

I2C1

PMIC

MIPI DSI

RGMI

PCIe*

PCIe x1*, I2S x1

USB2 2.0 x 1

Audio IN/OUT Jack

I2C2

MIPI to LVDS/HDMI

Gigabit Ethernet PHY

PCIe to Ethernet PHY*

USB 2.0 1:4 HUB

3W Audio Amplifier

Power Input

LVDS | HDMI | I2C3

Gigabit Ethernet

USB 2.0 x 2 [0,1]

USB 2.0[2]

USB 2.0[3]

I2C2 | SIM

LINE IN & SPKR Header

LVDS Connector

HDMI Flag Connector

Dual Ethernet Connector

USB2.0 Dual Stack

SIM

M.2 Key B Conn

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.

iWave Systems offers various state of art ready ODM solutions such as Connected Telematic Control Unit / OBD II devices for the automotive edge analytics, Comprehensive ARINC818 solutions for the low latency Aerospace applications and Rugged IP rated performance scalable HMI solutions for Industrial applications.

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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