



RISC-BASED EMBEDDED SOLUTIONS

2022 Edition

iBASE
www.ibase.com.tw

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About IBASE



Core Activities

Design and Manufacturing of Robust Industrial Computing Platforms



HEADQUARTERS
Taipei, Taiwan



FOUNDED
February 2000



CHAIRMAN
C. S. Lin



CAPITAL
US\$63M



EMPLOYEE
770
(Worldwide)



Stock Quote
TPEX 8050
(Since 2003)

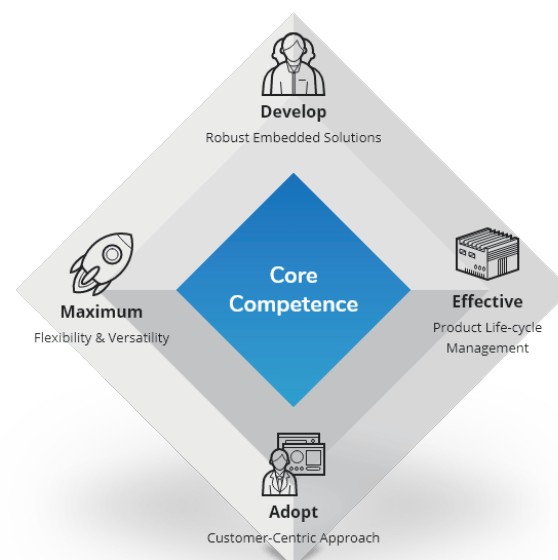
Company Profile

IBASE Technology specializes in the design and manufacture of robust industrial high quality PC products, products since its establishment in 2000. IBASE carries out manufacturing and quality control at its own facilities in Taiwan that are certified with ISO 9001, ISO 13485, ISO 14001 and ISO 27001 standards. Current offerings comprise x86 and RISC-based industrial motherboards, embedded systems, panel PCs, network appliances and digital signage players. The company is publicly listed in the Taipei Exchange (TPEX: 8050) and is now a leading global provider of innovative industrial and embedded computing solutions.



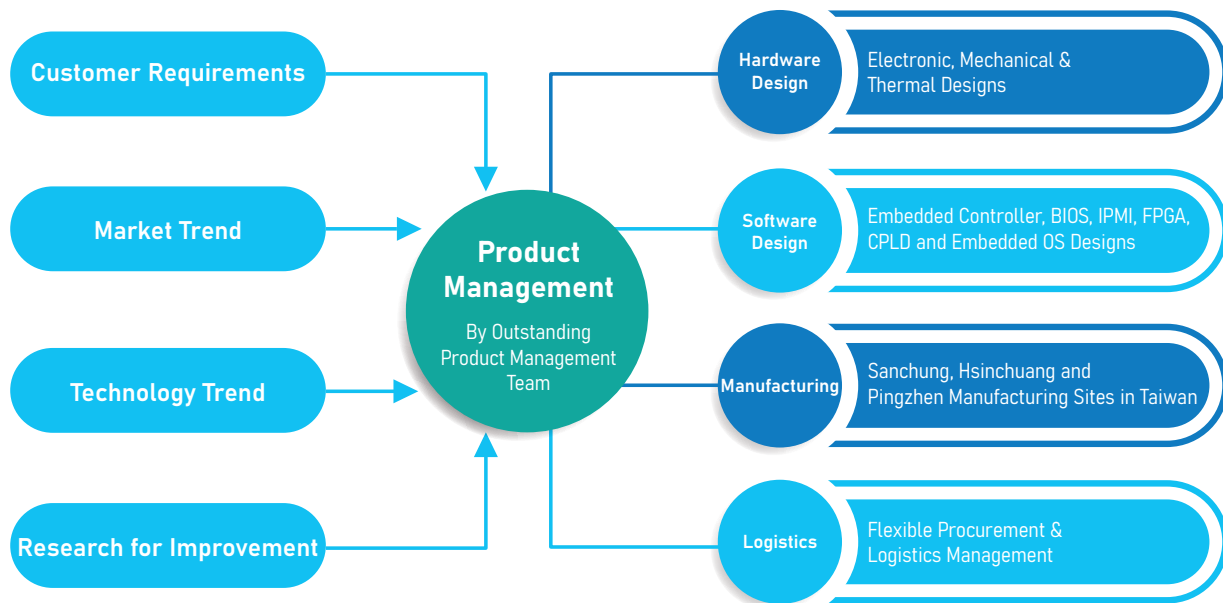
Core Competence

IBASE has three manufacturing sites in Taiwan, with two in New Taipei City and another one in Taoyuan City. We manufacture and implement strict quality control to supply excellent industrial computer products that are 100% made in Taiwan. In addition to off-the-shelf products, IBASE also specializes in OEM/ODM/JDM services, tailoring products to fully meet customers' expectations and the needs of various applications. With manufacturing and quality control capabilities recognized by major international companies, IBASE boasts of strong innovative R&D teams and flexible & timely products delivery.

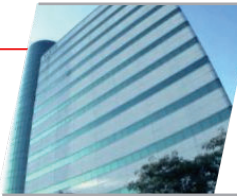


Design & Manufacturing Services

Set up to become a global leading provider of embedded board and system solutions, IBASE manufacturers and supplies cutting-edge products based on the latest technologies to match market demands. Our R&D and product management teams have the expertise to design and develop innovative products that meet customers' requirements and design specifications. We attach great importance to research and development, investing heavily in manpower and resources to continuously provide high-quality innovative products. IBASE is also committed to compliance with environmental policies by working to prevent pollution with non-use of banned or restricted substances in our production process and products, helping our customers respond to their environmental challenges.



IBASE Manufacturing Sites



SANCHUNG

- Board Production
- Validation



HSINCHUANG

- System Assembly
- Validation



PINGZHEN

- Board Production
- System Assembly
- Validation

3,481 m² / 1,053 Ping

6,070 m² / 1,840 Ping

18,399 m² / 5,566 Ping

Total Size

300,851 Square-feet
(27,950 m² / 8,459 Ping)

Capacity

- SMT Line x 3
- DIP Assembly Line x 2
- System Assembly Line x 10
- Cleanroom x 1
- Burn-in Room x 13

Certifications



RISC for IoT

Global smart cities are leveraging Industry 4.0 technologies to drive IoT networks with the use intelligent embedded computing systems designed with reliability and efficiency. This presents a huge opportunity for solutions providers to supply compact and power-efficient intelligent computing platforms based on ARM technology. ARM is the leading technology in energy-efficient devices and intelligent computing solutions



In fact, a RISC- or an ARM-based device maybe just in front of or beside you right now. It's a design that is power efficient and requires processors with fewer transistors, reducing costs, heat and power use. Join the ARM community now!

Systems-On-Chip (SoC) is one of the products that has implemented the ARM technology and is covered by IBASE's ARM-based product lineup comprising SMARC modules and carrier boards, single board computers and custom solutions. IBASE manufactures ARM-based platforms that are both power-optimized and performance-optimized, suitable in a variety of Internet of Things (IoT) and future applications. Included with the hardware solutions, IBASE also provide professional documentation and design-in service to speed up your product innovation process and implementation with minimum resource and fast time to market.



SMARC Module & 3.5"/2.5" SBC

SMARC Module

For different application requirements, IBASE provides versatile ARM-based SBC (Single Board Computer) solutions using standardized and compact platforms such as SMARC modules, 2.5" (Pico-iTX) and 3.5" (disk-size) boards to speed up your product solution development. SMARC (Smart Mobility ARChitecture) is a versatile small form factor computer module definition targeting applications that require low power, rich features, and high performance. The modules typically use ARM SoCs similar to those used in many Edge Computers found in automation control, multimedia, and transportation control applications.

Two module sizes have been defined: 82mm x 50mm and 82mm x 80mm. The module PCBs have 314 edge fingers that mate with a low profile 314 pin 0.5mm pitch right angle connector.

The modules are used as building blocks for portable and standalone Edge Computers. Circuits in the module include those of DRAM, boot flash, power sequencing, USB 2.0/3.0/OTG interface, Ethernet, LVDS, HDMI and TTL display. The modules are used with carrier boards for versatile applications that implement other features such as audio codecs, touch controllers and wireless devices. The modular approach affords scalability and fast time to market while still maintaining low power consumption and a small form factor.

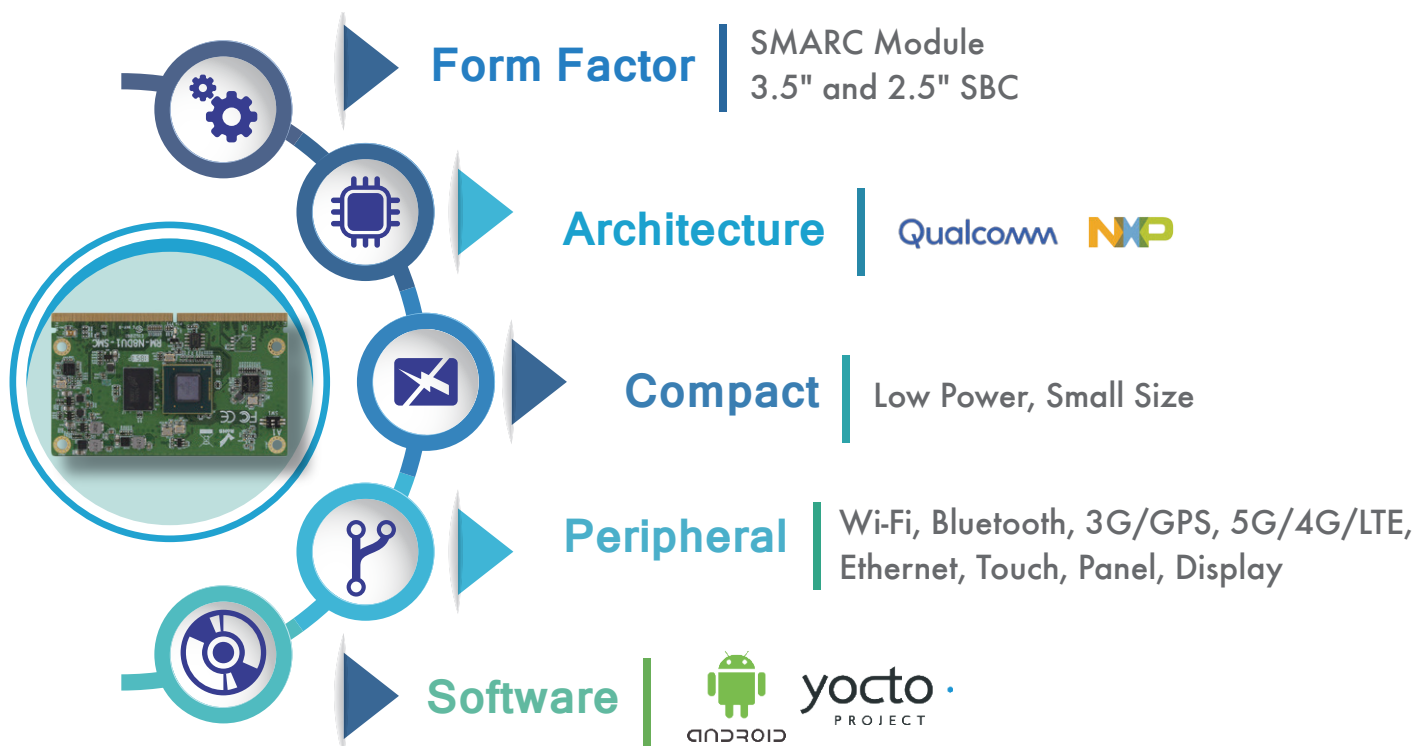
IBASE provides SMARC products and solutions supporting the Qualcomm IoT Chipset series and NXP i.MX series with powerful multimedia and versatile features. Besides SMARC modules, IBASE offers a SMARC evaluation kit that comes with carrier boards such as RP-1xx Series and other hardware including panels, MIPI-CSI camera, wireless, GPS and 5G/4G/LTE modules to speed up your ARM-based solutions development.

3.5"/2.5" SBC

IBASE's ARM-based SBCs support various display and I/O interface including LVDS/HDMI, RS-232/422/485 and USB ports, as well as Mini PCI-E and M.2 for expansion connectivity. Aside from versatile I/O features, IBASE's SBC solutions support low-power consumption and a wide-range operating temperature of -40°C ~85°C for rugged applications.

For the software part, GUI images for Ubuntu, Yocto-Linux and Android are available for your performance testing and to ensure your app meets functional requirements. For a fast and optimized application development, there is a standard BSP (board support package) to help software developers create, evaluate and test their applications before release.

With the aforementioned hardware and software solutions of ARM-based SBCs, IBASE is your best choice and partner to complete your ARM-based products.



Comparison Table

SMARC Module



Coming soon

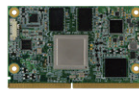


Model	RM-QCS610	RM-N8MP	RM-N8M
Form Factor	SMARC™ 2.1	SMARC™ 2.1	SMARC™ 2.0
Processor	Qualcomm® QCS610 SoC with Qualcomm® Kryo™ 460 Octa-core (x2 gold 2.2GHz and x6 silver) processor	NXP Cortex-A53 i.MX 8M Plus processor	NXP Cortex-A53 and Cortex-M4 i.MX 8M Quad processor
System Memory	2GB LPDDR4/ 4GB LPDDR4 on board	3GB DDR on board (option: 3GB or 4GB)	3GB LPDDR4 on board
Flash Memory	16GB eMMC (for Linux OS) 32GB eMMC (for Android OS)	16GB eMMC (up to 64GB)	16GB eMMC on board
Video Codec	4K30 8-bit H.264/HEVC/VP8/VP9	1080p/60fps video decode, AVC/H.264, HEVC/H.265, VP8, VP9 1080p/60fps video encode, AVC/H.264, HEVC/H.265	4Kp60 HEVC/H.265 4Kp60 VP9 decoder 4Kp30 AVC/H.264 decoder 1080p60 MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263 decoder TrustZone support
Graphics	Adreno 612; 845 MHz, 3D graphics accelerator with 64-bit addressing	GC7000UL OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2 and Vulkan	GC7000Lite OpenGL ES 1.1, 2.0, 3.0, 3.1 Open CL 1.2 Vulkan
LAN	1x RJ45 GbE	2x RJ45 GbE	1x RJ45 GbE
Audio	1x I2S	2x I2S	2x I²S, 1x SPDIF
SATA	N/A	N/A	N/A
I²C	4x I²C	4x I²C	4x I²C
I/O	1x MIPI CSI (2 lane), 1x MIPI CSI (2 or 4 lane) 4x UART, 2x SPI, 12x GPIO, USB1/2 *USB 2.0 (Type-A), USB3/4 *USB 3.0 (gen-1 with OTG support)	1x MIPI-DSI 4-lane, 2x USB 3.0, 2x SPI, 4x UART, 2x CAN bus	1x MIPI-DSI 4-lane, 1x HDMI2.0a, 2x MIPI-CSI2 4-lane, 2x SPI/eSPI, 4x UART, 2x USB 3.0, 2x PCIe (x1) Gen1, 1x GbE, 12x GPIO
SDIO	N/A	1x High-speed SDIO	2x MMC/ SDIO interface
Watchdog Timer	256 levels	256 levels	256 levels
Dimensions	82mm x 50mm (3.2" x 2")	82mm x 50mm (3.2" x 2")	82mm x 50mm (3.2" x 2")
Power Connector	N/A	N/A	N/A
Operating Temperature	-30°C ~ +85°C	-40°C ~ +85°C	-25°C ~ 85°C (-13°F ~ 185°F)
Supported OS	Linux Ubuntu 14.04 Other OS (by request)	Yocto 2.5 Android 11 Other OS(by request)	Yocto 2.5 Android 9 Other OS (by request)
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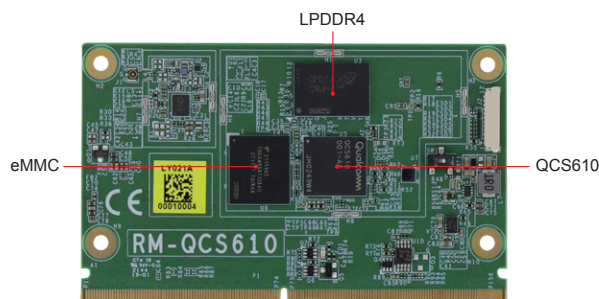
Comparison Table

SMARC Module

SMARC 2.1/2.0/1.0 Carrier Board



Model	RM-N8MMI	RM-F6 series	RP-105	RP-103-SMC	RP-102-SMC
Form Factor	SMARC™ 2.0	SMARC™ 1.0	SMARC™ 2.1 Mini ITX	SMARC™ 2.0 Mini ITX	SMARC™ 1.0 Mini ITX
Processor	NXP Cortex-A53 and Cortex-M4 i.MX 8M Mini Quad processor	NXP Cortex-A9 i.MX 6 Solo/ Dual processor	N/A	N/A	N/A
System Memory	2GB LPDDR4 on board	512KB/1GB DDR3 on board	N/A	N/A	N/A
Flash Memory	8GB eMMC on board	4GB eMMC on board	N/A	N/A	N/A
Video Codec	1080p60 VP9 1080p60 HEVC/H.265 Decoder 1080p60 AVC/H.264 Baseline, Main, High decoder 1080p60 VP8 1080p60 AVC/H.264 Encoder 1080p60 VP8 TrustZone support	i.MX53 + VP6 / WebM VP8, H.264 MVC 1080p30 + D1 (Solo) 1080p60or30 + D1 Dual 1080p decode (Dual) 1080p30 H.264BP Dual 720p encode	N/A	N/A	N/A
Graphics	GCNanoUltra Vivante GC320	Vivante GC880, OpenGL ES 2.0 (Solo) Vivante GC320 (Solo) Vivante GC2000, OpenGL, GL ES 2.0 & Haili, CL EP (Dual) Vivante GC355, OpenVG 1.1 (Dual)	N/A	N/A	N/A
LAN	1x RJ45 GbE	1x RJ45 GbE	1x RJ45 GbE	2x RJ45 GbE	1x RJ45 GbE
Audio	2x I²S, 1x SPDIF	1x I²S, 1x SPDIF	1x I2S	Built-in audio	Built-in audio
SATA	N/A	1x SATA2.0 (Dual)	N/A	2x SATA3	1x SATA2
I²C	4x I²C	4x I²C (Solo) 3x I²C (Dual)	1x I²C	1x I²C	2x I²C
I/O	1x MIPI-DSI 4-lane, 1x MIPI-CSI2 4-lane, 2x SPI/eSPI, 4x UART, 2x USB2.0, 2x PCI-E (x1) Gen1, 1x GbE, 12x GPIO	2x USB, 1x USB OTG, 4x UART, 1x HDMI, 1x 18/24bit LVDS/TTL, 2x CAN, 2x SPI, 1x MIPI-CSI, 12x GPIO, 1x PCI-E (x1)	3x USB 2.0 host, 1x USB 3.0 host (with USB 2.0/3.0 OTG support), 1x HDMI, 1x COM, (RS232/422/485), 1x SD slot, 1x MIPI display power (3.3V), 1x MIPI-DSI, 2x MIPI-CSI2, 6x GPIOs (3.3 V), 2x RS232 (RX/TX / pin header), 1x M.2 E-Key (2230) (USB 2.0 interface only), 1x Speaker R and L, 1x RTC battery, 1x TTL (3.3V reserved for debug)	4x USB 3.0, 1x OTG Micro USB 2.0, 2x HDMI Tx, 1x HDMI Rx, 1x COM (RS232/422/485 by switch), 1x 12V fan header, 4x CAN bus 2.0b, 3x 18/24-bit dual channel LVDS, 2x MIPI-CSI2, 2x MIPI-DSI, 1x 12 GPIOs, 2x RS232 (RX/TX only), 2x SATA III, 1x I2S, 2x SPI, 1x QSPI, 1x full-size Mini PCI-E, 1x SIM socket, 1x M.2 E-Key (2230), 2x UART, 1x 4-Wire UART	4x USB2, 1x OTG USB, 1x COM (RS232/422/485 by switch), 2x RS232, 1x HDMI, 1x 8/24bit LVDS/TTL, 2x CAN, 1x SPI, 1x MIPI-CSI, 8x GPIO
SDIO	2x MMC/ SDIO interface	3x MMC/ SDIO interface	N/A	2x Micro SD	1x Micro SD
Watchdog Timer	256 levels	256 levels	N/A	N/A	N/A
Dimensions	82mm x 50mm (3.2" x 2")	82mm x 50mm (3.2" x 2")	170mm x 170mm (6.7" x 6.7")	170mm x 170mm (6.7" x 6.7")	170mm x 170mm (6.7" x 6.7")
Power Connector	N/A	N/A	N/A	19V~24V DC-in jack and internal header	19V DC-in jack
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-30°C ~ +85°C	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)
Supported OS	Yocto 2.5 Android 9 Other OS (by request)	Ubuntu Android 4.3	N/A	N/A	N/A
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Features

- Qualcomm QCS610 SoC
- up to 4GB LPDDR4, 21GB eMMC
- Qualcomm Adreno 612 GPU 3D graphics accelerator with 64-bit addressing 845 MHz
- 4K video capture and playback at 30fps
- 3.15 TOPS @Caffe
- Validated with Linux Ubuntu 14.04 / Android 10 (2021/2, CS)
- Long life time supply with Qualcomm solution
- Compliant with SMARC™ 2.1

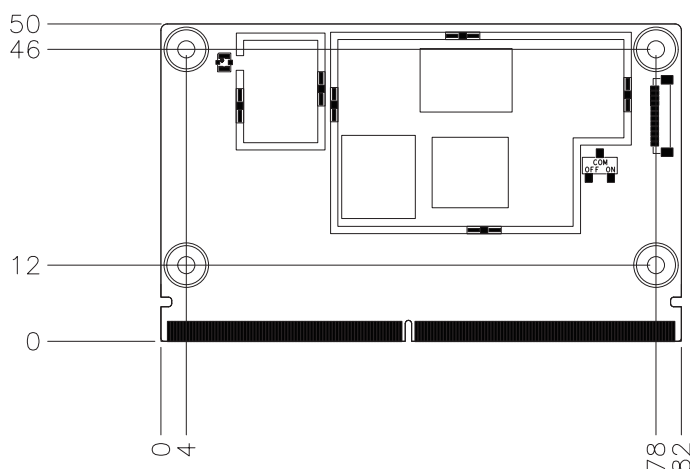
Specifications

Form Factor	SMARC™ 2.1
Processor	QCS610 Kryo Gold: Dual high-performance cores 2.2 GHz Kryo Silver: Hexa low-power cores 1.8 GHz
System Memory	On board - 2GB LPDDR4 - 4GB LPDDR4 (optional)
Flash Memory	16GB eMMC (for Linux OS) 21GB eMMC (for Android OS)
Display	1x HDMI up to 1920 x 1200 at 60 Hz 1x MIPI DSI
Video Codec	4K30 8-bit H.264/HEVC/VP8/VP9 Multi-format codec up to 4K30 video encode Multi-stream codec (4K30) (HEVC) + 720p30 (YUV) + 480p30 (VA-YUV) Dual 14-bit image signal processing (ISP) + Lite ISP: 24 MP (2x IFE + 1x IFE Lite, 16 + 16 + 2 MP), 4K30, MCTF, SHDR, C-PHY, DPHY 4K30 8-bit H.264/HEVC/VP8
Graphics	Adreno 612; 845 MHz, 3D graphics accelerator with 64-bit addressing
Audio Interface	1x I²S
LAN	1x GbE Lan
USB	USB1/2 *USB 2.0 (Type-A) USB3/4 *USB 3.0 (gen-1 with OTG support)
Image Capture Interface	1x MIPI CSI (2 lane) + 1x MIPI CSI (2 or 4 lane)
Serial Interface	4x UART, 2x SPI
Media Interface	N/A
PCI-E	N/A
SATA	N/A
GPIO	12x GPIO
I²C	4x I²C
Others	wireless WCN3980 (optional)
CAN Bus	N/A
Dimensions	82mm x 50mm (3.2" x 2")
Environment	Humidity: 0 % to 90 % RH at 60° C (non-condensing) Shock: Non-Operating: 1G, 15 mins (x-, y-, z-axis) Vibration: Non-operating: 3 Hz to 500 Hz, 15 mins
Operating Temperature	-30°C ~ +85°C
OS Support	Linux Ubuntu 14.04 / Other OS (by request)
Certification	CE/ FCC Class-A

Ordering Information

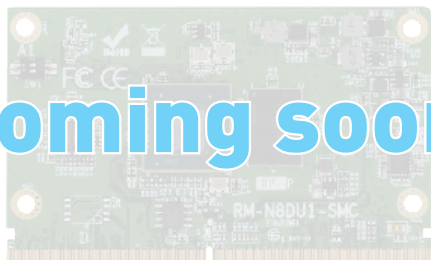
RM-QCS610L	Industrial grade SMARC™ 2.1 CPU module, Qualcomm QCS610 SoC, 2GB LPDDR4, 16GB TLC eMMC
RM-HSK-Q	Heat sink for IBASE RM-QCS610 series module

Dimensions





Coming soon



Features

- NXP i.MX8M Plus Quad Cortex-A53 processor
- 3GB LPDDR4, 16GB eMMC on board
- Rich peripheral I/O support
- Validated with Yocto 2.5 (sumo, kernel 5.4.70) / Android 11
- Long life time supply with NxP solution
- Compliant with SMARC™ 2.1 specification

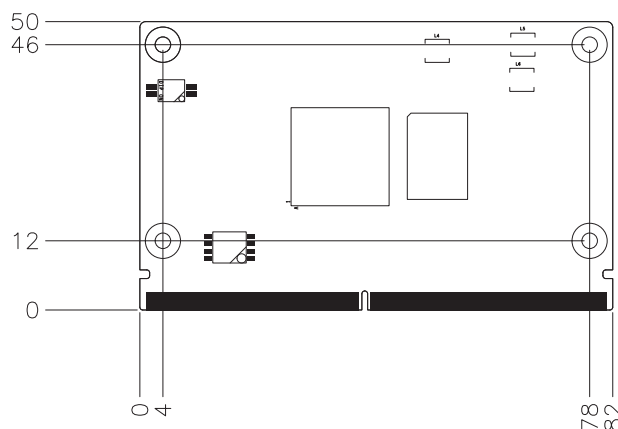
Specifications

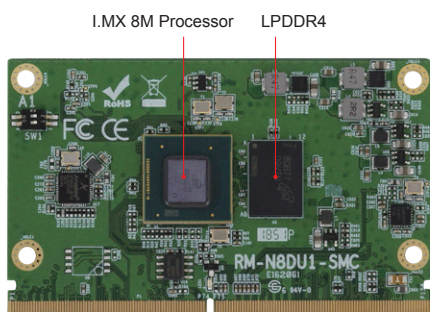
Form Factor	SMARC™ 2.1
Processor	NXP i.MX8M Plus Quad Cortex-A53 processor
System Memory	3GB LPDDR4 on board
Flash Memory	16GB eMMC on board (up to 64GB)
Display	HDMI, LVDS and MIPI-DSI 4-lane up to 1920 x 1080 at 60 Hz
Video Codec	up to 1080p/60fps video decode, AVC/H.264, HEVC/H.265, VP8, VP9 up to 1080p/60fps video encode, AVC/H.264, HEVC/H.265
Graphics	GC7000UL with OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2 and Vulkan
Audio Interface	2x I2S
LAN	2x GbE LAN
USB	2x USB 3.0
Image Capture Interface	1x MIPI-CSI2 4-lane each
Serial Interface	4x UART, 2x SPI
Media Interface	2x High-speed SDIO
PCI-E	1x PCI-E interface
SATA	N/A
GPIO	12x GPIO
I ² C	4x I ² C
Others	N/A
CAN Bus	2x CAN FD
Dimensions	82mm x 50mm (3.2" x 2")
Environment	Humidity: 0 % to 90 % RH at 60° C (non-condensing) Shock: Non-Operating: 1G, 15 mins (x-, y-, z-axis) Vibration: Non-operating: 3 Hz to 500 Hz, 15 mins
Operating Temperature	-40°C~+85°C
OS Support	Yocto 2.5 (sumo, kernel 5.4.70) / Android 11 Other OS (by request)
Certification	CE/ FCC Class A

Ordering Information

RM-N8MP-Q316I	NXP i.MX8M Plus Quad Cortex-A53 1.8GHz processor, 3GB LPDDR4, 16GB eMMC
F8Sxx-HSK	Heat sink for industrial grade

Dimensions





Specifications

Form Factor	SMARC™ 2.0
Processor	NXP i.MX 8M Quad Cortex™-A53/ Cortex™-M4 processor
System Memory	3GB LPDDR4 on board
Flash Memory	16GB eMMC on board
Display	1x MIPI-DSI 4-lane up to 1920 x 1080 at 60Hz1x HDMI 2.0a, up to 4K
Video Codec	4Kp60 HEVC/H.265 main, and main 10 decoder 4Kp60 VP9 decoder 4Kp30 AVC/H.264 decoder 1080p60 MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263 decoder
Graphics	- GC7000Lite - OpenGL ES 1.1, 2.0, 3.0, 3.1, Open CL 1.2, and Vulkan
Audio Interface	2x I²S, 1x SPDIF
LAN	1x GbE LAN
USB	2x USB 3.0/USB 2.0 with OTG interface
Image Capture Interface	2x MIPI-CSI2 4-lane each
Serial Interface	4x UART, 2x SPI
Media Interface	2x High-speed MMC/SDIO (MMC 8-bit, SDIO 4-bit)
PCI-E	2x PCI-E (x1) Gen2
SATA	N/A
GPIO	12x GPIO
I²C	4x I²C
Others	wireless WCN3980 (optional)
CAN Bus	N/A
Dimensions	82mm x 50mm (3.2" x 2")
Environment	Humidity: 0 % to 90 % RH at 60° C (non-condensing) Shock: Non-operating: 1G, 15 mins (x-, y-, z-axis) Vibration: Non-operating: 3 Hz to 500 Hz, 15 mins
Operating Temperature	-25°C ~ 85°C (-13°F ~ 185°F)
OS Support	Yocto 2.5 Android 9 Other OS (by request)
Certification	CE/ FCC Class-B

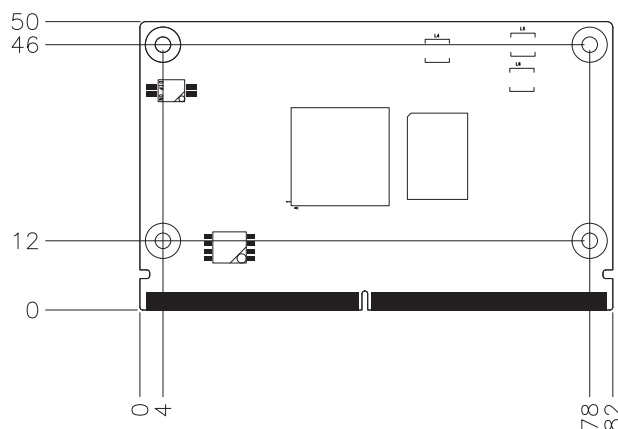
Features

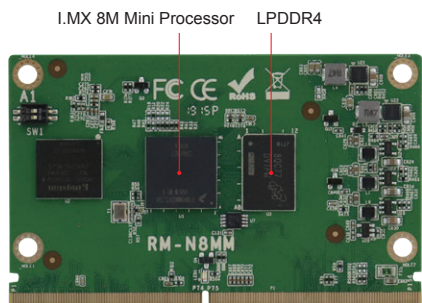
- NXP Cortex™-A53/Cortex™-M4, i.MX 8M Quad processor
- 3GB LPDDR4, 16GB eMMC on board
- Rich peripheral I/O support
- Validated with Yocto v2.5 and Android 9
- Long life time supply with NXP solution
- Compliant with SMARC™ 2.0

Ordering Information

RM-N8M-Q316I	NXP Cortex™-A53/Cortex™-M4, i.MX 8M Quad 1.3GHz processor , 3GB LPDDR4, 16GB TLC eMMC
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Dimensions





Features

- NXP Cortex™-A53/ Cortex™-M4 i.MX 8M Mini Quad processor
- 2GB LPDDR4, 8GB eMMC on board
- Wide-range operating temperature (-40°C to 85°C)
- Rich peripheral I/O support
- Validated with Yocto v2.5 and Android 9.0
- Long life time supply with NXP solution
- Compliant with SMARC™ 2.0

Specifications

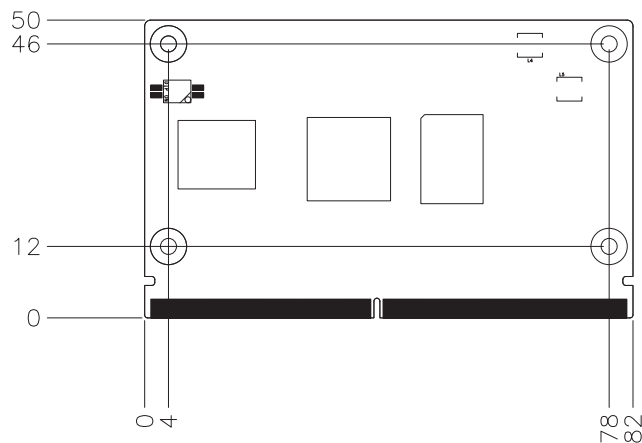


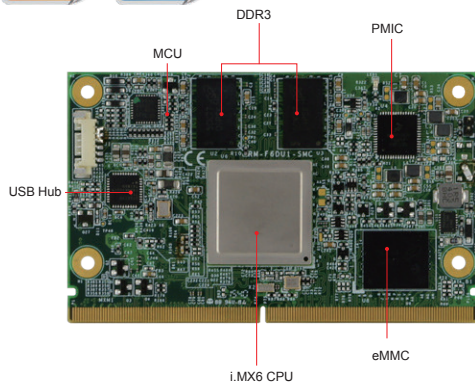
Form Factor	SMARC™ 2.0
Processor	NXP i.MX 8M Mini Quad Cortex™-A53 and Cortex™-M4 processor
System Memory	2GB LPDDR4 on board
Flash Memory	8GB eMMC on board
Display	1x MIPI-DSI 4-lane up to 1920 x 1080 at 60Hz
Video Codec	• 1080p60 VP9 • 1080p60 HEVC/H.265 decoder • 1080p60 AVC/H.264 Baseline, Main, High decoder • 1080p60 VP8 • 1080p60 AVC/H.264 encoder • 1080p60 VP8 • TrustZone support
Graphics	• GCNanoUltra • Vivante GC320
Audio Interface	2x I²S, 1x SPDIF
LAN	1x GbE LAN
USB	2x USB 2.0 with OTG interface
Image Capture Interface	1x MIPI-CSI2 4-lane
Serial Interface	4x UART, 2x SPI Interface
Media Interface	2x High-speed MMC/SDIO (MMC 8-bit, SDIO 4-bit)
PCI-E	1x PCI-E (x1) Gen2
SATA	N/A
GPIO	12x GPIO
I²C	4x I²C
Others	wireless WCN3980 (optional)
CAN Bus	N/A
Dimensions	82mm x 50mm (3.2" x 2")
Environment	Humidity: 0 % to 90 % RH at 60° C (non-condensing) Shock: Non-operating: 1G, 15 mins (x-, y-, z-axis) Vibration: Non-operating: 3 Hz to 500 Hz, 15 mins
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
OS Support	Yocto 2.5 Android 9 Other OS (by request)
Certification	CE/ FCC Class-B

Ordering Information

RM-N8MMI-Q208I	Industrial Grade SMARC™ 2.0, Cortex™-A53 i.MX 8M Mini Quad 1.6GHz processor, 2GB LPDDR4, 8GB eMMC
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Dimensions





Specifications

Form Factor	SMARC™ 1.0
CPU	NXP i.MX 6Dual/6Solo Cortex™-A9 processor with 512KB L2 cache
System Memory	I-grade 1GB DDR3 on board
Display	Supports 18/24-bit parallel LCD & LVDS Interface (up to 1366 x 768) Supports HDMI interface (1920 x 1080)
Video Codec	Multi-format HD1080 video Decode and Encode
Audio Interface	I²S, SPDIF
LAN	1x GbE LAN
USB	2x USB 2.0 port & 1x USB OTG Interface
Image Capture Interface	CSI Interface for MIPI camera
Serial Interface	4x UART, 1x SPI Interface
Media Interface	2x High-speed MMC/SDIO (MMC 8-bit, SDIO 4-bit)
PCI-E	1x PCI-E interface
SATA	1x SATA 2.0 (Dual only)
GPIO	12x GPIO
I²C	3x I²C *(4x I²C in F6SO1)
Others	wireless WCN3980 (optional)
CAN Bus	2x CAN 2.0B
Dimensions	82mm x 50mm (3.2" x 2")
Environment	Humidity: 0 % to 90 % RH at 60° C (non-condensing) Shock: Non-Operating: 1G, 15 mins (x-, y-, z-axis) Vibration: Non-operating: 3Hz to 500Hz, 15 mins
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
OS Support	Ubuntu Linux 11.10 Android 4.3
Certification	CE/ FCC Class A

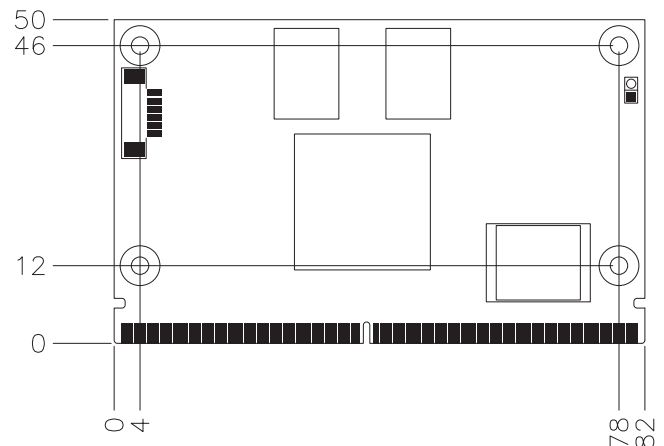
Features

- i.MX automotive-grade 6Dual/6Solo core processor
- 1080p hardware encode/decode
- OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators
- 1GB DDR3, 4GB eMMC on board
- Supports 10/100/1000 Mbit Ethernet
- Supports 24-bit parallel LCD, LVDS & HDMI
- Supports Linux 3.0, Android 4.3
- Wide-range operating temperature (-40°C~85°C)

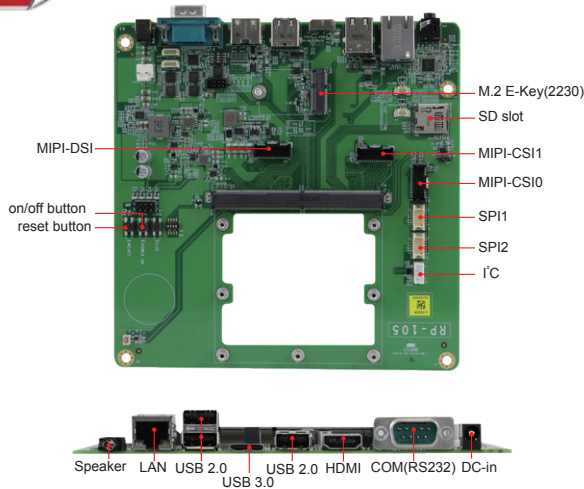
Ordering Information

RM-F6DU1-SMC	SMARC™ 1.0 Module with NXP i.MX 6Dual 800MHz processor, 1GB DDR3, 4GB eMMC, -40°C~85°C operating temperature
RM-F6SO1-SMC	SMARC™ 1.0 Module with NXP i.MX6 Solo 800MHz processor, 1GB DDR3, 4GB eMMC, -40°C~85°C operating temperature
F6DU1-HSD	Heat spreader for F6DU1
F6SO1-HSD	Heat spreader for F6SO1

Dimensions



NEW



Features

- Carrier Board for RM-QCS610 SMARC™ 2.1 CPU Module
- Supports 12V~24V DC-in jack, reset, power, LID button, RTC battery
- Supports Gigabit LAN, audio, USB OTG, HDMI, COM (RS232/422/485)
- With Micro SD socket, Mini PCI-E with USB on board
- Supports TTL, HDMI, MIPI-DSI, MIPI-CSI camera

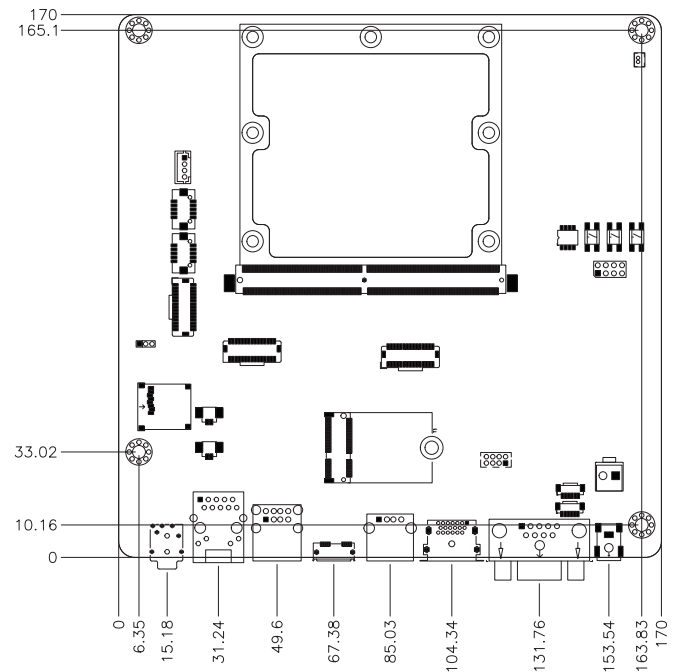
Specifications

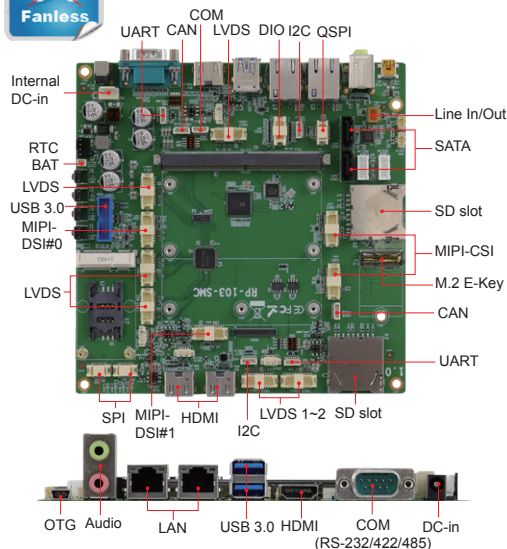
Form Factor	Carrier Board Compliant with SMARC™ 2.1
Edge I/O	1x DC-in jack (12V~24V) 1x RJ45 GbE LAN 1x Headphone & Mic 3x USB 2.0 host 1x USB 3.0 host (with USB 2.0/3.0 OTG support) 1x HDMI 1x COM (RS232/422/485) 1x SD slot
Internal I/O	2x CAN bus 2.0B 1x MIPI display power (3.3V) 1x MIPI-DSI 2x MIPI-CSI2 6x GPIOs (3.3 V) 2x RS232 (RX/TX / pin header) 1x I2C 1x I2S 1x M.2 E-Key (2230) (USB 2.0 interface only) 1x Speaker R and L 1x RTC battery 1x TTL (3.3V reserved for debug)
Jumpers, Switch & Buttons	1x Boot select switch (Refer to Qualcomm CRB) 1x Power button 1x Reset button 1x LID button
Power Input	12V~24V DC-in
Dimensions	170mm x 170mm (6.7" x 6.7")
Environment	Humidity: 0% to 90% RH at 60° C (non-condensing)
Operating Temperature	-30°C ~ 85°C (-40°F ~ 185°F)
OS Support	Based on the CPU module
Certification	CE/FCC Class A

Ordering Information

RP-105	Carrier Board for SMARC™ 2.1 modules, 12V~24V DC-in, Mini-ITX, Mini PCI-E with USB, Gigabit LAN, USB OTG, HDMI, CSI MIPI bus, 6x GPIO, 2x RS232, 1x RS232/422/485, VDDIO=3.3V
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Dimensions





Features

- Carrier Board for RM-N8M and RM-N8MMI series SMARC™ 2.0 CPU Module
- Rich peripheral I/O support
- Complete system available for evaluation

Specifications

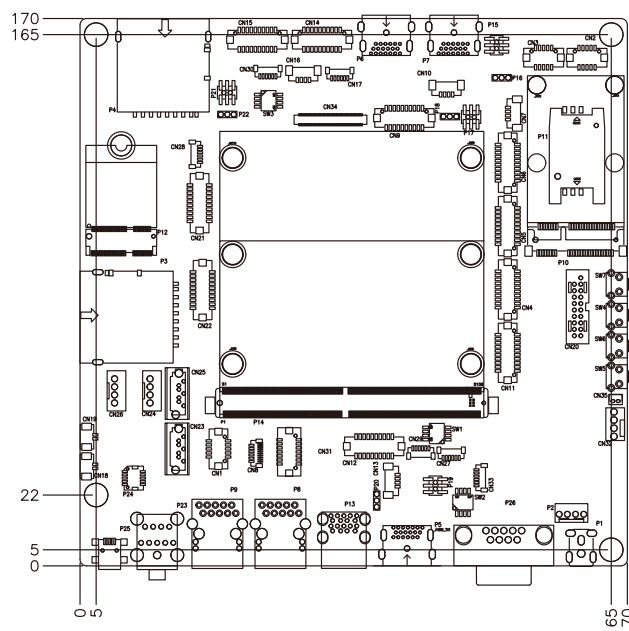
Form Factor	Carrier Board Compliant with SMARC™ 2.0
Edge I/O	1x 19V~24V DC-in jack 2x RJ45 Gigabit LAN (one for RM-N8 only) 2x USB 3.0 1x OTG Micro USB 2.0 2x HDMI TX (one for RM-N8 only) 1x HDMI RX (for RM-N8 only) 1x Headphone & Mic 1x COM (RS232/422/485 by switch) 2x SD slot (one for RM-N8 only)
Internal I/O	1x 19V~24V DC-in header 1x 12V Fan header 4x CAN bus 2.0b (three for RM-N8 only) 3x 18/24-bit dual channel LVDS (two for RM-N8 only) 4x LCD backlight 2x MIPI-CSI2 (one for RM-N8/RM-N8M only) 2x MIPI-DSI (one for RM-N8 only) 2x USB 3.0 12x GPIOs 2x RS232 (RX/TX only) 2x I2C 2x SATA III and power (one for RM-N8 only) 1x I ² S 1x QSPI 1x full-size Mini PCI-E 1x SIM socket 1x M.2 E-Key (2230) 1x Speaker out (R/L) 1x RTC battery 1x 4-Wire UART
Jumpers, Switches & Buttons	1x Boot select switch 1x I/O and display select switch 1x Power button 1x Reset button 1x LID button 1x Sleep button 4x Backlight power (3V3/5V/12V) jumper 3x LCD power 3V3/5V jumper
Dimensions	170mm x 170mm (6.7" x 6.7")
Environment	Humidity: 0 % to 90 % RH at 60° C (non-condensing) Shock: Non-Operating: 1G, 15 mins (x-, y-, z-axis) Vibration: Non-operating: 3 Hz to 500 Hz, 15 mins
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)

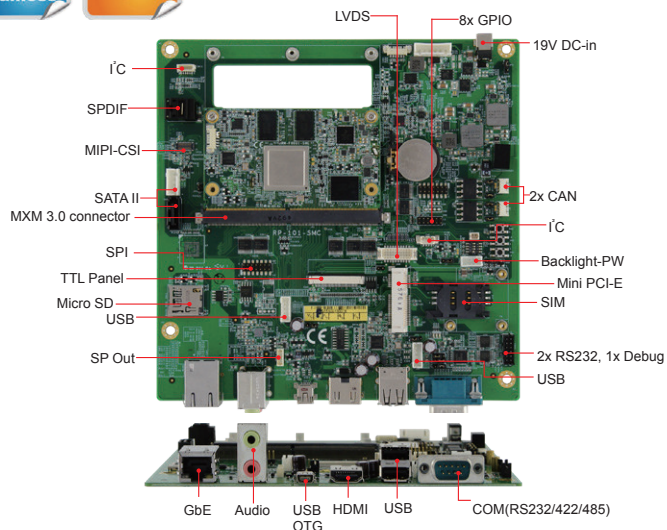
OS Support	Depends on CPU Module
Certification	CE/FCC Class-B

Ordering Information

RP-103-SMC	Carrier Board for SMARC™ 2.0 Modules, 19V~24V DC-in jack, 1x RJ45 LAN, 1x OTG Micro USB2.0, 1x Headphone & Mic, 1x 12V Fan header, 1x CAN bus 2.0b, 1x full-size mini PCI-E, 1x LCD backlight, 4x USB 3.0, 12x GPIOs, 2x RS232 (RX/TX only), 1x I ² C, 1x I ² S(Audio), 1x SIM socket, 1x M.2 E-Key (2230), 1x Speaker out (R/L), 1x RTC battery, 18/24-bit Dual Channel LVDS, 1x HDMI 2.0 1x COM (RS232/422/485) or 4-Wire UART, 1x QSPI, 1x MIPI-CSI, 1x MIPI-DSI, 1x SATA III and power
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Dimensions





Specifications

Form Factor	SMARC™ 1.0 Carrier Board
Edge I/O	1x DC-in jack (12V) 1x RJ45 GbE LAN 1x Microphone + Headphone 2x USB 2.0 host 1x USB OTG 1x HDMI 1x COM (RS232/422/485)
Internal I/O	2x CAN bus 2.0B 1x 18/24-bit single CH LVDS 1x 18/24-bit TTL box header 1x LCD DDC (I²C) 1x LCD backlight connector 1x CSI-MIPI 2x USB 2.0 host 8x GPIO pin header 2x RS232 box header 1x SIM socket 1x SPDIF 1x Speaker box header 1x Micro-SD socket 2x I²C 1x SATA II 1x full-size Mini PCI-E with USB interface
Jumpers, Switch & Buttons	1x Boot media select switch (SD/eMMC) 1x Reset button 1x Power button 1x GPI button 1x RS232/422/485 (by jumper selection) 1x Backlight power jumper
Power Input	19V DC-in
Dimensions	170mm x 170mm (6.7" x 6.7")
Environment	Humidity: 0% to 90% RH at 60° C (non-condensing) Vibration: Non-operating, 3Hz to 500Hz, 15mins
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
OS Support	Based on the CPU module
Certification	CE/FCC Class A

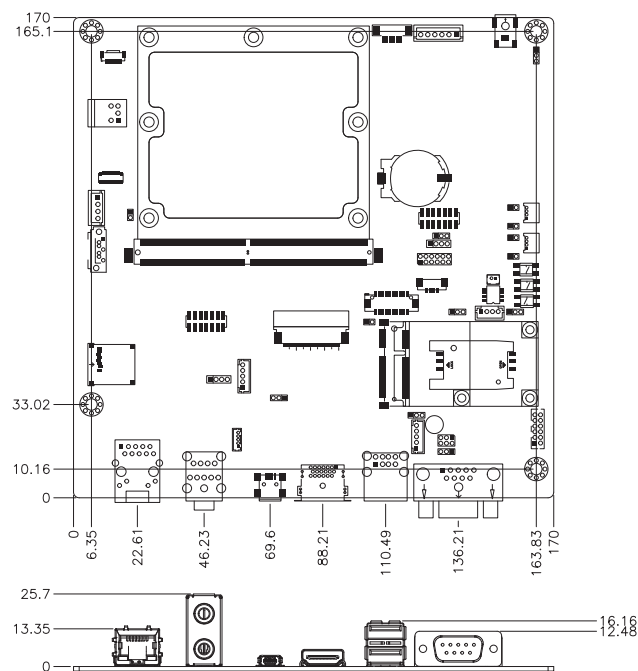
Features

- For SMARC™ 1.0 CPU Modules
- Supports 19V DC-in, reset, power, RTC function
- Supports Gigabit LAN, audio, USB OTG, HDMI, COM (RS232/422/485)
- With Micro SD socket, Mini PCI-E with USB, SIM socket on board
- Supports 2x isolated CAN transceiver, TTL, LVDS, HDMI, MIPI-CSI camera

Ordering Information

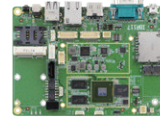
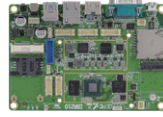
RP-102-SMC	Carrier Board for SMARC™ 1.0 Modules, 19V DC-in, Mini-ITX, 2x CAN, Mini PCI-E with USB, Resistive touch header (4-wire), 2x USB header, 1x I²C header, 18/24-bit LVDS, TTL connector, Line in/ Line out, EEROM, CSI MIPI bus, 8x GPIO, 2x RS232, 1x RS232/422/485, VDDIO=3.3V
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Dimensions

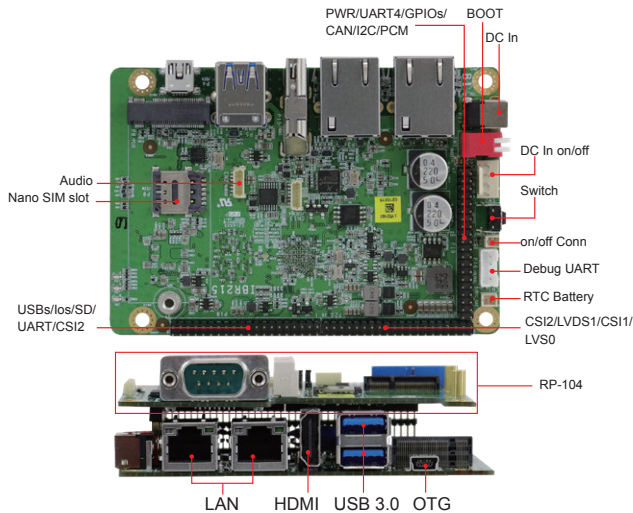


Comparison Table

Single Board Computer



Model	IBR215	IBR210	IBR117	IBR115
Form Factor	2.5-inch SBC	3.5-inch SBC	3.5-inch SBC	2.5-inch SBC
Processor	NXP Cortex®-A53, i.MX 8M Plus Quad processor	NXP Cortex®-A53 and Cortex-M4 i.MX 8M Quad processor	NXP Cortex-A9 i.MX 6Dual processor	NXP Cortex-A9 i.MX 6Dual-Lite processor
System Memory	3GB LPDDR4 on board	3GB LPDDR4 on board	1GB DDR3 on board	1GB DDR3 on board
Flash Memory	16GB eMMC on board	16GB eMMC on board	4GB eMMC on board	4GB eMMC on board
Video Codec	1080p60, H.265, H.264, VP9, VP8 decoder 1080p60, H.265, H.264 encode	4Kp60 HEVC/H.265 4Kp60 VP9 decoder 4Kp30 AVC/H.264 decoder 1080p60 MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263 decoder TrustZone support	1080p60or30 + D1 Dual 1080p decode 1080p30 H.264BP Dual 720p encode	i.MX53 + VP6 / WebM VP8, H.264 MVC 1080p30 + D1 1080p30 H.264BP Dual 720p encode
Graphics	OpenGL 3.1, OpenCL 1.2, Vulkan	GC7000Lite OpenGL ES 1.1, 2.0, 3.0, 3.1, Open CL 1.2, and Vulkan	Vivante GC2000, OpenGL, GL ES 2.0 & Haili, CL EP Vivante GC355, OpenVG 1.1	Vivante GC880, OpenGL ES 2.0 Vivante GC320
LAN	2x RJ45 GbE	1x RJ45 GbE	1x RJ45 GbE	1x RJ45 GbE
Audio	Internal header (1x line-in, 1x line-out)	Internal header (1x line-in, 1x line-out)	Internal header (1x line-in, 1x line-out)	Internal header (1x line-in, 1x line-out)
SATA	N/A	N/A	1x SATA2.0	N/A
I ² C	2x I ² C, 1x I ² C (expansion pitch 2x20 headers)	1x I ² C	1x I ² C	1x I ² C
I/O	2x USB 3.0 Type-A, 1x Mini-USB OTG 3x IO expansion 2mm pitch 2x20 headers : 1x USB 2.0, 1x PCM, 2x UART (Rx, Tx), 1x UART (Tx, Rx, CTS, RTS), 2x USB 3.0 2x PWM, 3x GPIO, 2x MIPI-CSI, 2x CAN-FD	2x USB 3.0 (Type-A), 1x USB OTG (mini-USB Type-B), 1x HDMI 2.0a 1x RS232/422/485, 1x on/off button, 2x 2-wire UART, 2x USB 3.0 Internal header, 3x green LEDs (for Power on/off, wireless status, and programmable), 8x GPIO 2x MIPI-CSI, 1x MIPI-DSI	2x USB 2.0 (Type-A), 1x USB OTG (mini-USB Type-B), 1x HDMI 1x RS232/422/485, 1x Reset button, 1x Dual channel LVDS (FHD), 2x 2-wire UART, 2x USB 2.0 Internal header, 3x green LEDs (for Power on/off, wireless status, and Programmable), 2x CAN Bus2.0B (w/ isolation) pin headers 8x GPIO	1x USB 2.0 (Type-A), 1x USB OTG (mini-USB Type-B), 1x HDMI 1x RS232/422/485, 1x Reset button, 1x single channel LVDS (1377x768), 2x 2-wire UART, 2x USB 2.0 Internal header, 8x GPIO 2x green LEDs (for Power on/off, and wireless status)
SDIO	1x SDIO(expansion 2mm pitch 2x20 headers)	1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E w/ SIM socket 1x SD socket	1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E (USB only) w/ SIM socket 1x SD socket	1x M.2 E-Key (2230) w/ PCI-E, USB, SDIO, UART 1x Micro SD socket
Watchdog Timer	256 levels	256 levels	256 levels	256 levels
Dimensions	105mm x 72mm (4.13 x 2.83")	147mm x 102mm (5.8" x 4")	147mm x 102mm (5.8" x 4")	100mm x 72mm (3.94" x 2.83")
Power Connector	N/A	12~24V DC-in jack and Internal header	12V DC-in jack	12V DC-in jack
Operating Temperature	-40°C ~ 85°C	-20°C ~ 85°C (-4°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)
Supported OS	Yocto v3.0 Android 11 Other OS (by request)	Yocto v2.5 Android 9 Other OS (by request)	Yocto v2.1 Android 6.0.1	Yocto v2.1 Yocto v2.5 Android 6.0.1
Page No.	P. 18-19	P. 20	P. 21	P. 22



Features

- NXP Cortex®-A53, i.MX 8M Plus Quad processor
- 3GB LPDDR4, 16GB eMMC & SD socket
- External connectivity for USB, HDMI & Ethernet
- Supports M.2 B-Key (3052) for 5G module
- Expansion IO board for wireless, 4G/LTE, LCD, camera, NFC & QR-code functions
- Ruggedized and fanless design

Specifications

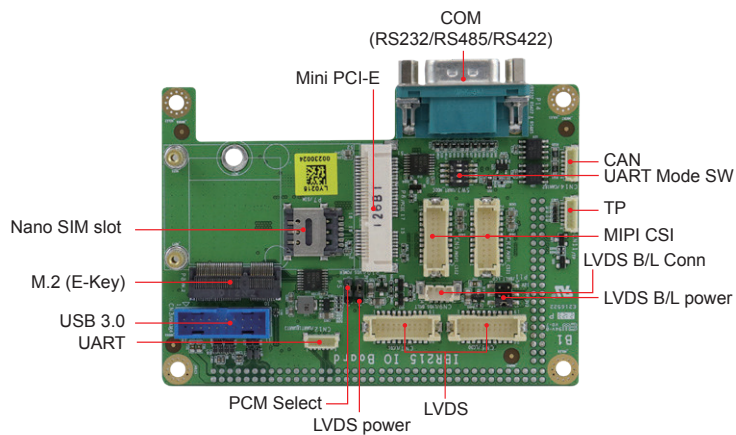
Form Factor	2.5-inch SBC
Processor	NXP Cortex®-A53 i.MX8M Plus processor
System Memory	3GB DDR4 on board (option: 1/2/4GB)
Flash Memory	16GB eMMC on board (up to 128GB)
Display	1x HDMI 1.4a 1x LVDS 2ch through IO
Video Codec	Decode: 1080p60, H.265, H.264, VP9, VP8 Encode: 1080p60, H.265, H.264
Graphics	OpenGL 3.1, OpenCL 1.2, Vulkan
Edge I/O	1x on/off button 1x 12V~24V DC-in jack 1x SD socket (UHS-I SDR-104, 104MB/s max.) 1x Boot select switch (boot from eMMC or SD) 1x HDMI 1.4a 2x USB 3.0 Type-A 2x RJ45 GbE LAN 1x Mini-USB OTG
Internal I/O	1x M.2 B-Key(3052) with SIM socket (for 5G module) 2x I2C / 4x GPIO 1x Audio Line-in and Line-out 1x DC input 1x DC power (4-pin header) 3x IO expansion 2mm pitch 2x20 headers with following features (Contact us for design reference): • 1x USB 2.0 • 1x PCM • 2x UART(Rx, Tx) • 1x SDIO • 1x UART (Tx, Rx, CTS, RTS) • 2x USB 3.0 • 1x 2ch LVDS with backlight control • 1x I2C • 2x PWM • 3x GPIO • 1x Cap touch IF • 2x MIPI-CSI for cameras • 2x CAN-FD • 1x 5V DC

Expansion IO	1x M.2 E-Key(2230)w/ SDIO, UART for wireless 1x Mini PCI-E w/ USB 2.0, SIM, PCM for 4G/LTE 1x DB-9 RS232/422/485 port 2x USB 3.0 in 2x10 headers 1x 2ch LVDS with backlight control 1x Cap touch IF 2x MIPI-CSI 2x CAN-FD
Watchdog	256 levels, 0~128 seconds
Dimensions	IBR215: 105mm x 72mm (4.13" x 2.83") IBR215-IO: 100mm x 72mm (3.94" x 2.83")
Power Input	12V~24V DC-in jack
Operating Temperature	-40°C~ 85°C (with heat sink or through housing design) -40°C~ 65°C (without heatsink)
Relative Humidity	10%~90% (non-condensing)
OS Support	Yocto v3.0 Android 11 Other OS (by request)
Certification	CE/ FCC Class-B

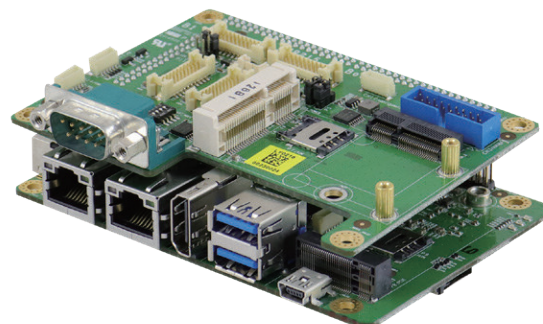
Ordering Information

IBR215-Q316I	ARM-based IoT Gateway, NXP Cortex®-A53, i.MX 8M Plus Quad 1.6GHz processor, 3GB LPDDR4, 16GB eMMC
IBR215-IO	Expansion Board for IBR215

Compatible I/O Expansion Board



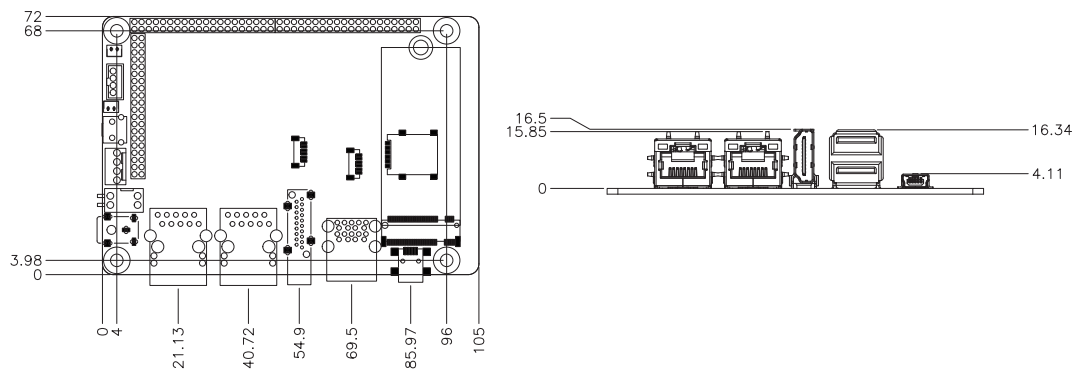
IBR215-I/O



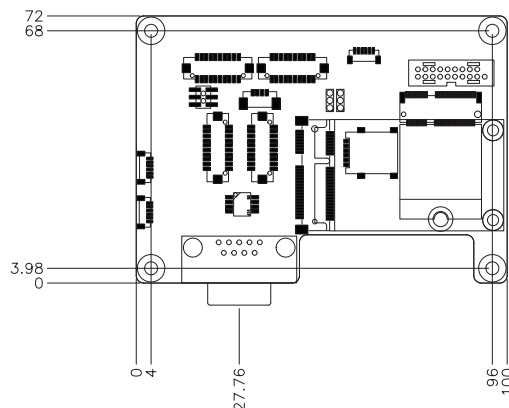
IBR215 with IBR215-I/O module

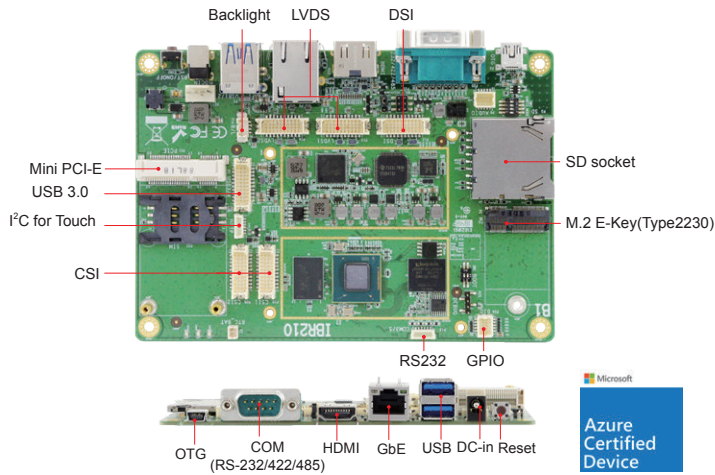
Dimensions and Drawing

IBR215



IBR215-I/O





Specifications

Form Factor	3.5-inch SBC
Processor	NXP i.MX 8M Quad Cortex™-A53 and Cortex™-M4 processor
System Memory	3GB LPDDR4 on board
Flash Memory	16GB eMMC on board
Display	1x Dual Channel LVDS (FHD) 1x HDMI 2.0a
Video Codec	4Kp60 HEVC/H.265 main, and main 10 decoder 4Kp60 VP9 decoder 4Kp30 AVC/H.264 decoder 1080p60 MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263 decoder
Graphics	- GC7000Lite - OpenGL ES 1.1, 2.0, 3.0, 3.1, Open CL 1.2, and Vulkan
Edge I/O	1x RJ45 GbE LAN 2x USB 3.0 Type-A 1x USB OTG (mini-USB Type-B) 1x HDMI 2.0a 1x RS232/422/485 (D-SUB 9 male connector) 1x SD socket (UHS-I SDR-104, 104MB/s max.) 1x on/off button
Internal I/O	1x Dual channel LVDS 1x Backlight, 3.3V/1A, 5V/1A, 12V/1A (jumper selection) 1x MIPI-DSI (2*10 pin header) 2x MIPI-CSI (2*10 pin header) 2x USB 3.0 header 1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E w/ SIM socket 1x I²C header 1x 2-wire RS232 header (for Debug Console Port) 2x 2-wire RS232 header 1x Audio header (Line-in and Line-out) 8x GPIO (2*5 pin header 1.0mm) 3x green LEDs (for power on/off, wireless status, and programmable)
Expansion IO	N/A
Watchdog	256 Levels, 0~128 secs
Dimensions	147mm x 102mm (5.8" x 4")
Power Input	12V~24V DC-in jack and Internal Header
Operating Temperature	-20°C ~ 80°C (-4°F ~ 176°F)

Features

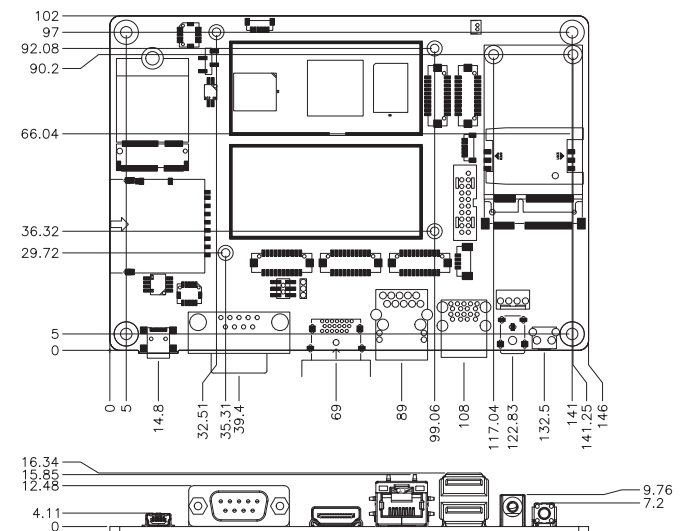
- NXP Cortex™-A53/-M4, i.MX 8M Quad processor
- 4K HDMI, dual channel FHD LVDS
- 3GB LPDDR4, 16GB eMMC and SD socket
- Embedded I/O for COM, GPIO, USB 3.0, USB-OTG, Audio and Ethernet
- M.2 E-Key (2230) and mini-PCI-E with SIM socket for wireless/4G/LTE connectivity

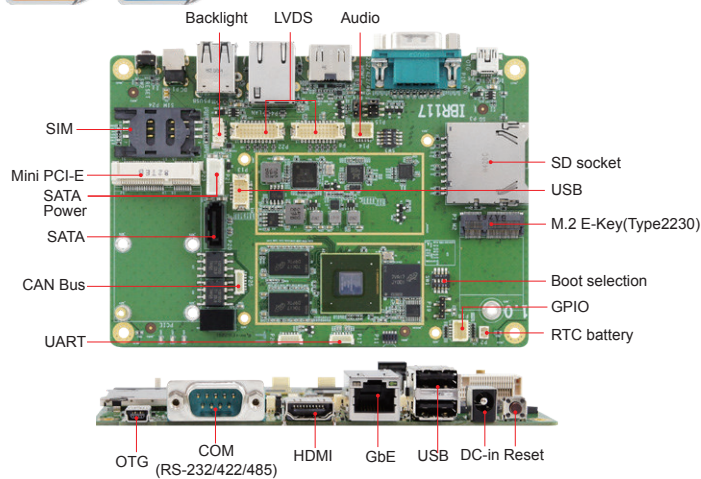
Relative Humidity	10%~90% (non-condensing)
OS Support	Yocto 2.5 Android 9 UBUNTU 18.04 evaluation Other OS (by request)
Certification	CE/FCC Class-B

Ordering Information

IBR210-Q316I	Industrial Grade 3.5" SBC, i.MX 8M Quad 1.3GHz processor, 3GB LPDDR4, 16GB eMMC
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Dimensions





Features

- NXP Cortex™-A9, i.MX 6Dual processor
- Supports HDMI and dual LVDS
- 1GB DDR3, 4GB eMMC and SD socket for expansion
- Embedded I/O, COM, GPIO, USB, USB-OTG, audio and Ethernet
- M.2 E-Key (2230) and Mini PCI-E with SIM socket for wireless/4G/LTE connectivity

Specifications

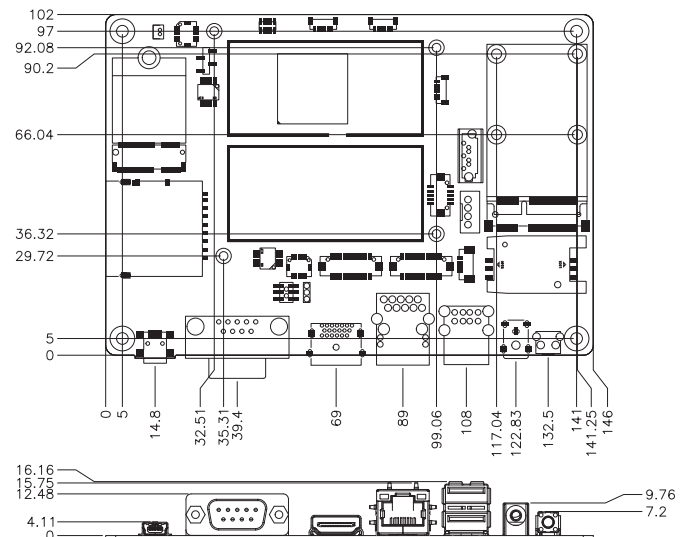
Form Factor	3.5-inch SBC
Processor	NXP Cortex™ -A9 i.MX 6Dual processor
System Memory	1GB DDR3 on board
Flash Memory	4GB eMMC on board (optional 8/16/32/64 GB)
Display	2x 18/24-bits single LVDS / 1x Dual LVDS, up to 1366 x 768 for 2ch, 1920 x 1080 for 1ch 1x HDMI V1.4, up to 1080P at 60Hz
Video Codec	• 1080p60or30 + D1 Dual 1080p decode • 1080p30 H.264BP • Dual 720p encode
Graphics	• Vivante GC2000, OpenGL, GL ES 2.0 & Haili, CL EP • Vivante GC355, OpenVG 1.1
Edge I/O	1x RJ45 GbE LAN 2x USB Type-A 1x USB OTG (mini-USB Type-B) 1x HDMI 1x RS232/422/485 (D-SUB 9 male connector) 1x SD socket (UHS-I SDR-104, max. 104MB/s) 1x Reset button
Internal I/O	1x Dual channel LVDS (FHD) 1x Backlight, 3.3V/1A, 5V/1A, 12V/1A (jumper selection) 2x USB 2.0 header 1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E (USB only) w/ SIM socket 1x SATA & 4-pin header for the power, 5V/12V 2x CAN Bus 2.0B (2*3 pin header) 1x I²C header 1x 2-wire UART header (for Debug Console Port) 2x 2-wire UART (6-Pin header, 1.0mm) 1x Audio header (Line-in and Line-out) 8x GPIO (2*5 pin header 1.0mm) 3x green LEDs (for Power on/off, wireless status, and Programmable)
Expansion IO	N/A
Watchdog	256 Levels, 0~128 secs
Dimensions	147mm x 102mm (5.8" x 4")
Power Input	12V DC-in jack
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)

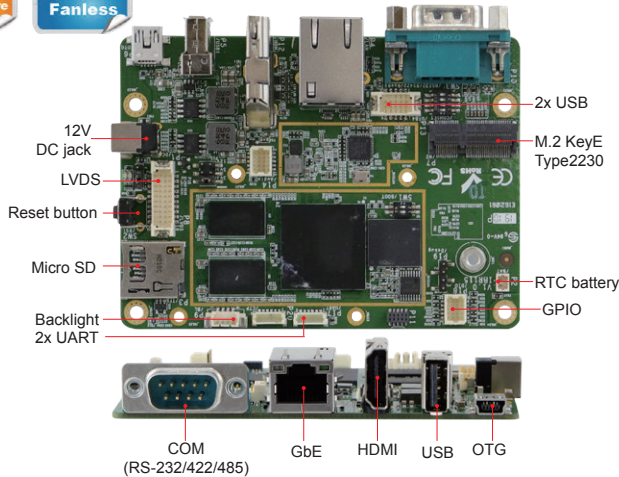
Relative Humidity	10%~90% (non-condensing)
OS Support	Yocto v2.1 Android 6.0.1
Certification	CE/ FCC Class-B

Ordering Information

IBR117	3.5" ARM-based SBC, NXP Cortex™-A9, i.MX 6Dual 1GHz processor, 1GB DDR, 4GB eMMC, Dual LVDS, HDMI, RS-232/422/485, USB, M.2 E-Key (2230) and Mini PCI-E w/ SIM socket
--------	---

Dimensions





Features

- NXP Cortex™-A9, i.MX 6Dual-Lite processor
- Supports HDMI and Single LVDS (1366x768)
- Supports 1GB DDR3, 4GB eMMC and Micro SD socket
- Embedded I/O as COM, GPIO, USB, USB-OTG, Audio and Ethernet
- M.2 E-Key (2230) for wireless connectivity

Specifications

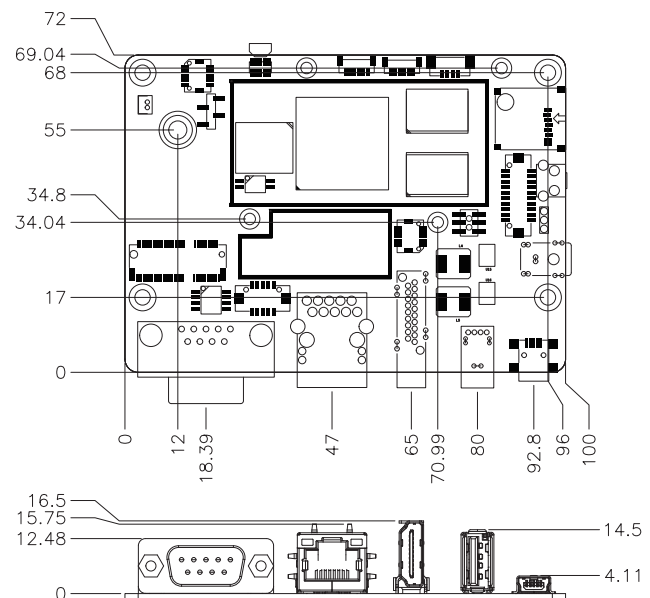
Form Factor	2.5-inch SBC
Processor	NXP Cortex™ -A9 i.MX 6Dual-Lite processor
System Memory	1GB DDR3 on board
Flash Memory	4GB eMMC on board (optional 8/16/32/64 GB)
Display	1x 18/24-bit single LVDS, up to 1366 x 768 1x HDMI V1.4, up to 1080P at 60Hz
Video Codec	• i.MX53 + VP6 / WebM VP8, H.264 MVC • 1080p30 + D1 • 1080p30 H.264BP • Dual 720p encode
Graphics	• Vivante GC880, OpenGL ES 2.0 • Vivante GC320
Edge I/O	1x RJ45 GbE LAN 1x USB (Type-A) 1x USB OTG (mini-USB Type-B) 1x HDMI 1x RS232/422/485 (D-sub 9 male connector) 1x Micro SD socket (UHS-I SDR-104, max.104MB/s) 1x Reset button
Internal I/O	1x single channel LVDS (1366x768) 1x Backlight, 3.3V/1A, 5V/1A, 12V/1A (jumper selection) 2x USB 2.0 header 1x M.2 E-Key (2230) w/ PCI-E, USB, SDIO, UART 1x I²C header 1x 2-wire UART header (for debug console port) 2x 2-wire UART (1x6 pin header, 1.0mm) 1x Audio pin header (Line-in and Line-out) 8x GPIO (2*5 pin header 1.0mm) 2x green LEDs (for power on/off, and wireless status)
Expansion IO	N/A
Watchdog	256 levels, 0~128 secs
Dimensions	100mm x 72mm (3.94" x 2.83")
Power Input	12V DC-in jack
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Relative Humidity	10%~90% (non-condensing)
OS Support	Yocto v2.1 Yocto v2.5 Android 6.0.1
Certification	CE/ FCC Class-B

Ordering Information

IBR115

2.5" ARM-based SBC, NXP Cortex™ -A9, i.MX 6Dual-Lite 1GHz processor, 1GB DDR, 4GB eMMC, Single LVDS, HDMI, RS-234/422/485, USB, M.2 E-Key (2230)

Dimensions



IoT Gateway

IBASE IoT energy-saving gateway solutions fully support ARM NXP I.MX, serving as a platform to collect and communicate field data to remote cloud devices. Designed as compact IoT gateways for different environments to fit into constrained-spaces, they also have VESA/DIN rail mounting kit options.

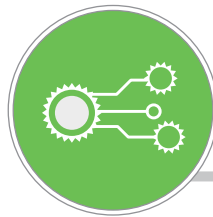
IBASE rugged IoT gateways perform reliably even in harsh conditions, supporting a wide-range operating temperature, anti-vibration, M.2 / PCI-E expansion modules and a rich set of versatile I/O interface

IBASE IoT gateways enable users to seamless interconnect devices and secure the flow of data for various applications. They come with a starter kit (BSP) required for industrial applications to simplify integration, accelerate time-to-market and minimize development cost.



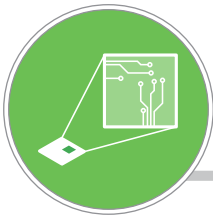
Rugged

Wide Temperature
Anti-Vibration, Fanless



Expandable

M.2 & Mini-PCIE For Wireless Connectivity
SD Socket For Storage



Compact

Slim Size , Ultra Low Power
Rich I/O, Versatile Mounting



Efficient

Customized BSP Package , Modularized SW
Complete Programming Guide



Comparison Table

IoT Gateway

Coming soon



Model	ISR215	ISR301	ISR201
Processor	NXP Cortex-A53, i.MX 8M Plus Quad processor	NXP Cortex-A53, i.MX 8M Quad processor	NXP Cortex-A9, i.MX 6Dual processor
Graphics	OpenGL 3.1, OpenCL 1.2, Vulkan	GC7000Lite OpenGL ES 1.1, 2.0, 3.0, 3.1 Open CL 1.2, and Vulkan	Vivante GC2000 OpenGL, GL ES 2.0 & Halti, CL EP Vivante GC355, OpenVG 1.1 Vivante GC320
System Memory	3GB LPDDR4,	3GB LPDDR4 on board	1GB DDR3 on board
Storage	16GB eMMC	16G eMMC on board	4GB eMMC on board
Construction	SGCC	SGCC	SGCC
Display	1x HDMI 1x LVDS 1x MIPI-DSI	1x HDMI	1x HDMI
Network	2x RJ45 GbE LAN	1x RJ45 GbE LAN	1x RJ45 GbE LAN
Standard I/O	2x USB 3.0 Type-A 2x RJ45 GbE LAN 1x Mini-USB OTG 1x on/off button 1x 12V~24V DC-in jack 1x SD socket (UHS-I SDR-104, 104MB/s max.) 1x Boot select switches	2x USB 3.0 Type-A 1x RJ45 GbE LAN 1x RS232 /422/485 (DB9) 1x Mini-USB OTG 1x 12~24V DC-in jack 1x on/off button 2x RS232 (DB9) 8x GPIO (DB9) 2x Antenna hole (reserved) 3x LED indicators 1x SD socket (UHS-I SDR-104, 104MB/s max.)	1x Mini-USB OTG 1x RS232 /422/485 2x USB 2.0 Type-A 1x Reset button 2x RS232 (DB9) 8x GPIO (DB9) 2x Antenna hole (reserved) 3x LED indicators
Watchdog	256 levels, 0~128 seconds	256 levels, 0~128 seconds	256 levels
Expansion slots	1x M.2 B-Key (3052) for 5G (Internal) 8x GPIO/SDIO and 3.3V (2*5 pin header 1.0mm), 2x UART header (6-pin header) 2x I2C header (6-pin header) 1x Audio header (Line-in and Line-out, 6-pin header) 3x headers, each 20x10-pin, 2mm pitch for IO expansion: 2x USB 3.0, 1x Mini PCI-E w/ USB 2.0, SIM, PCM for 4G/LTE wireless support 1x LVDS 2ch with back light control 1x MIPI-DSI 4 lanes with backlight control 1x Cap touch IF, 2x MIPI-CSI 1x 4-wires UART for RS232/422/485 2x CAN-FD, 1x 5V DC 1x DC power in (4-pin header)	1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E (PCI-E and USB) w/ SIM socket 1x SD card slot	1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E (USB only) w/ SIM socket 1x SD card slot
Fanless	Yes	Yes	Yes
Certification	CE/FCC Class-B	CE/FCC Class-B	CE/FCC Class-B
Dimensions	108mm x 82mm x 46 mm	172mm x 162mm x 36 mm (6.78" x 6.38" x 1.42")	172mm x 162mm x 36 mm (6.78" x 6.38" x 1.42")
Weight	0.5KG	0.8KG	0.6KG
Operating Temperature	-10°C ~ 60°C (14°F ~ 140°F)	-10°C ~ 60°C (14°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
OS Support	Yocto v3.0, Android 11, Other OS (by request)	Yocto v2.5, Android 9 Other OS (by request)	Yocto v2.1, Android 6.0.1
Power Input	12V~24V DC-in jack	12V-24V DC-in jack	12V DC-in jack
Page No.	P. 25	P. 26	P. 27



Coming soon



Features

- NXP Cortex™-A53, i.MX 8M Plus Quad processor
- 3GB LPDDR4, 16GB eMMC & SD socket for expansion
- Embedded I/O for COM, USB, HDMI, Ethernet
- Supports M.2 B-Key(3052), M.2 E-Key(2230) and Mini PCI-E for wireless, 4G/LTE or 5G connectivity
- Ruggedized and fanless design

Specifications

System Board	IBR215-Q316I SBC
Processor	NXP Cortex™-A53 i.MX 8M Plus Quad processor
System Memory	3GB LPDDR4 on board (optional 1/2/4GB)
Storage	16GB eMMC on board (up to 128GB)
Construction	TBD
Color	Black
Display	HDMI 2.0a Edge connector LVDS 2ch heater expansion (IO board)
Network	2x RJ45 GbE LAN
Watchdog	256 levels, 0~128 seconds
Front I/O	1x HDMI 2.0a 2x USB 3.0 (Type-A) 2x RJ45 GbE 1x Mini-USB OTG 1x RS232/422/485 (I/O board)
Rear I/O	N/A
Side I/O	1x on/off button 1x 12V~24V DC-in jack 1x SD socket (UHS-I SDR-104, 104MB/s max) 1x Boot select switches (boot from eMMC or SD)
Expansion slots	1x M.2 B-Key(3052) with SIM socket (for 5G module) 2x I2C / 4x GPIO (6-pin header) 1x Audio Line-in and Line-out (6-pin header) 1x DC power in (4-pin header) 1x Mini PCI-E (IO board, for 4G/LTE USB interface module) 1x M.2 E-key w/ UART, SDIO for wireless on modules The following are also on the IO board but not at box edge 2x USB 3.0 (2x 10-pin header) 1x LVDS 2ch with back light control 1x Cap touch IF 2x MIPI-CSI for cameras 2x CAN-FD 1x 5V DC
Fanless	Yes
Dimensions (WxDxH)	108mm x 82mm x 46 mm
Mounting	DIN rail, wall mount

Operating Temperature	-10°C ~ 60°C (-40°F ~ 140°F)
Relative Humidity	0% ~ 90% (non-condensing)
OS Support	Yocto v3.0 Android 11 Other OS (by request)
Certification	CE/ FCC Class-B

Ordering Information

ISR215-Q316I	ARM-based IOT Gateway, NXP Cortex™-A53, i.MX 8M Plus Quad 1.6GHz processor, 3GB LPDDR4, 16GB eMMC
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Features

- NXP Cortex™-A53, i.MX 8M Quad processor
- 3GB LPDDR4, 16GB eMMC & SD socket for expansion
- Embedded I/O for COM, GPIO, USB, HDMI, Ethernet
- Supports M.2 E-Key (2230) and Mini PCI-E with SIM socket for wireless/4G/LTE connectivity
- Ruggedized and fanless design

Specifications

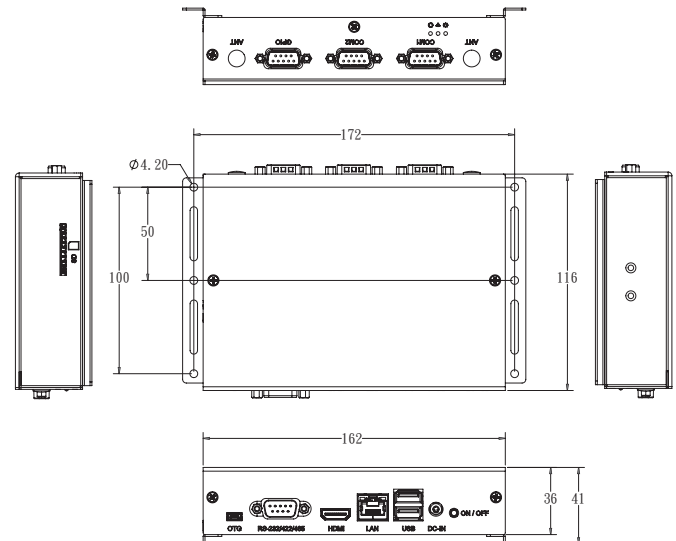
System Board	IBR210-Q316I 3.5-inch SBC
Processor	NXP Cortex™ -A53 i.MX 8M Quad processor
System Memory	3GB LPDDR4 on board
Storage	16GB eMMC on board (default)
Construction	SGCC
Color	Black
Display	1x HDMI 2.0a, supports up to 4K resolution
Network	1x RJ45 GbE LAN
Watchdog	256 levels, 0~128 seconds
Front I/O	1x HDMI Type-A, up to 4K 2x USB 3.0 Type-A 1x RJ45 GbE LAN 1x RS232 /422/485 (DB9) 1x Mini-USB OTG 1x 12V~24V DC-in jack 1x on/off button
Rear I/O	2x RS232 (DB9) 8x GPIO 2x Antenna hole (reserved) 3x LED indicators
Side I/O	1x SD socket (UHS-I SDR-104, 104MB/s max.)
Expansion slots	1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E (PCI-E and USB) w/ SIM socket
Fanless	Yes
Dimensions (WxDxH)	172mm x 162mm x 36 mm (6.78" x 6.38" x 1.42")
Mounting	VESA 75 / 100, DIN rail, wall mount
Operating Temperature	-10°C~ 60°C (14°F ~ 140°F)
Relative Humidity	10%~90% (non-condensing)
OS Support	Yocto v2.5 Android 9 UBUNTU 18.04 evaluation Other OS (by request)
Certification	CE/ FCC Class-B

Ordering Information

ISR301-Q316I

ARM-based IOT Gateway, NXP Cortex™ -A53, i.MX 8M Quad 1.3GHz processor, 3GB LPDDR4, 16GB eMMC, HDMI, RS-232/422/285, USB 3.0, M.2 E-Key(2230) & Mini PCI-E w/ SIM socket

Dimensions





Features

- NXP Cortex™-A9, i.MX 6Dual processor
- 1GB DDR3, 4GB eMMC & SD socket for expansion
- Embedded I/O for COM, GPIO, USB, USB-OTG, Ethernet
- Supports M.2 E-Key (2230) and Mini PCI-E with SIM socket for wireless/4G/LTE connectivity
- Ruggedized and fanless design

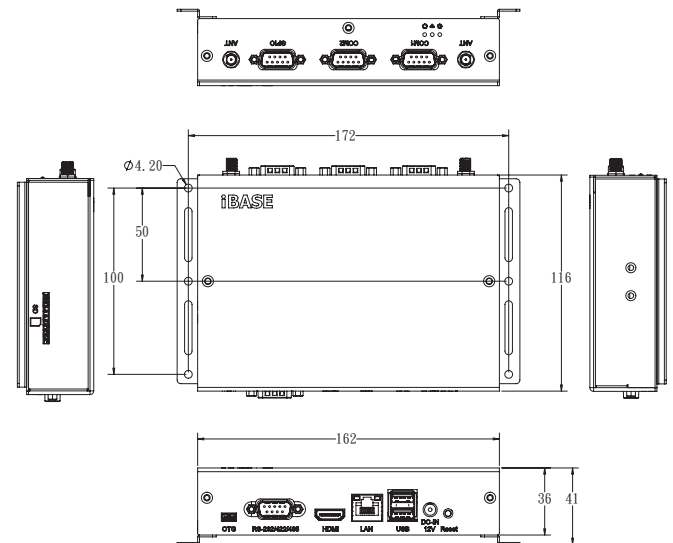
Specifications

System Board	IBR117 3.5-inch SBC
Processor	NXP Cortex™-A9 i.MX 6Dual processor
System Memory	1GB DDR3 on board
Storage	4GB eMMC on board (optional 8/16/32/64 GB)
Construction	SGCC
Color	Black
Display	1x HDMI 1.4 (FHD)
Network	1x RJ45 GbE LAN
Watchdog	256 levels, 0~128 seconds
Front I/O	1x HDMI Type-A, up to FHD 2x USB 2.0 Type-A 1x RJ45 GbE LAN 1x RS232 /422/485 (DB9) 1x Mini-USB OTG 1x 12V DC-in jack 1x Reset button
Rear I/O	2x RS232 (DB9) 8x GPIO 2x Antenna hole (RP SMA jack) 3x LED indicators
Side I/O	1x SD socket (UHS-I SDR-104, 104MB/s max.)
Expansion slots	1x M.2 E-Key (2230) w/ USB, SDIO, UART, PCI-E 1x Mini PCI-E (USB only) w/ SIM socket
Fanless	Yes
Dimensions (WxDxH)	172mm x 162mm x 36 mm (6.78" x 6.38" x 1.42")
Mounting	VESA 75 / 100, DIN rail, wall mount
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F)
Relative Humidity	10%~90% (non-condensing)
OS Support	Yocto v2.1 Android 6.0.1
Certification	CE/ FCC Class-B

Ordering Information

ISR201	ARM-based IOT Gateway, NXP Cortex™-A9, i.MX 6Dual 1GHz processor, 1GB DDR3, 4GB eMMC, HDMI, RS-234/422/285, USB 2.0, M.2 E-Key(2230) & Mini PCI-E w/ SIM socket
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Dimensions



Digital Signage Player

High Quality Signage Players that Cater to Your Needs

IBASE's Signature Book™ digital signage players have created unique and successful experiences for our users across different industries. Our Digital Signage players have been widely adopted in Various applications, covering major cities around the world. So contact us now and explore new opportunities!



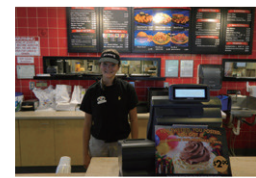
Public Venues

- Airport Flight Schedule
- Building Directory
- Event & Tradeshow
- Safety Alert Sign



Advertisement

- Virtual Dressing Room
- Multimedia Ads
- Instant Content Updates



Retail Environment

- Food Menu Display
- Video Playback Content
- POS Register & Kiosk

Comparison Table

Digital Signage Players



Model	SA-112-N	SA-101-N
Processor	NXP Cortex-A9 i.MX 6Dual Lite/ iMX 6Quad	NXP Cortex-A9 i.MX 6Quad
Chipset	Integrated	Integrated
OS Support	Android 4.4.2 Other OS (by request)	Android 4.4.2 Other OS (by request)
System Memory	Onboard 1GB DDR3L, 533MHz (1066MT/s)	Onboard DDR3L 2 GB 533MHz, (1066MT/s)
Graphics	2D+3D (2 /3 GPUs) (35Mtri/s / 200Mtri/s)	2D+3D (2 /3 GPUs) (35Mtri/s / 200Mtri/s)
Display	1x HDMI + 1x VGA	1x Mini-HDMI (Type-C)
Ethernet	1x RJ45 (1000M)/AR8031-AL1B	None
Expansion slots	1x Mini PCI-E (full-size) 1x SD/SDHC card slot (up to 32GB)	1x MicroSD card slot (up to 32GB)
Video Capability	1x FHD	1x FHD
Fanless	Yes	Yes
Certification	CE, FCC Class-B, cULus & CCC	CE, FCC class A , VCCI class A, TELEC
Storage	1x eMMC (default 8GB)	1x eMMC (default 8GB)
USB	2x USB 2.0 1x Mini USB (OTG)	1x USB 2.0 (Type-A)
Dimensions	117mm x 104.5mm x 35.1mm (4.61" x 4.11" x 1.38")	85mm x 45mm x 15mm (3.35" x 1.77" x 0.59")
Weight	0.5 kgs (1.1lbs)	0.1 kgs (0.22lbs)
Operating Temperature	-40°C ~ 75°C (-40°F ~ 167°F)	0°C ~ 50°C (32°F ~ 122°F)
Power Supply	optional 25W power adaptor	10W power adaptor
Page No.	P. 30	P. 31



Features

- NXP i.MX 6Dual/6Quad processor
- With eMMC NAND Flash 8GB on board
- Onboard DDR3L, 1GB 533MHz, (1066MT/s)
- 1x VGA + 1x HDMI (w/o HDCP)
- 1x GbE RJ45 LAN, 1x COM (RS-232), 1x Mini-USB (OTG), 2x USB, 1x SD card slot
- Supports Wi-Fi 802.11 b/g/n
- 1x SIM card slot and 1x Mini PCI-E slot for 4G
- Supports 5V DC-in power input and wide-range operating temperature (-40°C ~ 75°C)
- Ruggedized, fanless and compact design

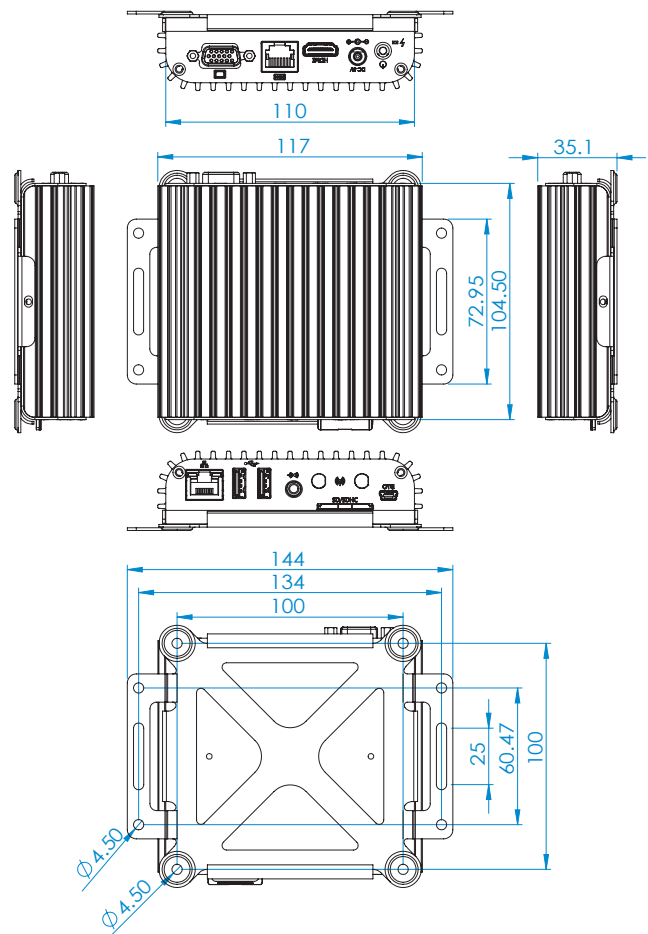
Specifications

System Mainboard	MBD112
Processor	NXP IMX6Q Automotive CPU / IMX6DL processor
Chipset	Integrated
System Memory	1GB DDR3L, 533MHz (1066MT/s)
Graphics	i.MX53 + VP6 / WebM VP8, H.264 MVC
LAN	1x RJ45 (1000M)/AR8031-AL1B
Expansion slots	1x Mini PCI-E (full-size) for Wi-Fi, Bluetooth, 4G, or TV tuner options
I/O	1x HDMI 1x VGA 2x USB 2.0 1x Mini USB (OTG) (USB device; supports host) 1x Power on/off button 1x COM RS-232 1x 3.5mm jack for Line out 1x RJ45 LAN 1x DC power jack
Auto Control and Monitoring	Watchdog Timer:256 segments,0, 1, 2...255(sec/min)
Power Requirement	+5V DC-in
Construction	Aluminum + SGCC
Weight	0.5kgs (1.1lbs)
Chassis Color	Black & white
Storage	1x eMMC (default 8GB) 1x SD/SDHC card slot (up to 32GB)
Power Supply	optional 25W power adaptor
Mounting	Standard system bracket
Dimensions	117mm x 104.5mm x 35.1mm (4.61" x 4.11" x 1.38")
Operating Temperature	-40°C ~ 75°C (-40°F ~ 167°F) (w/o adaptor)
Storage Temperature	-50°C ~ 85°C (-58°F ~ 185°F)
Relative Humidity	5~90% @ 45°C, (non-condensing)
OS Support	SA-112-NDL- Android 4.4.2: HDMI output SA-112-NQC- Android 4.4.2: VGA+HDMI Other OS (by request)
Vibration	eMMC: 5 grms / 5~500Hz / random operation
Certification	CE, FCC Class-B, cULus & CCC

Ordering Information

SA-112-NQC	ARM-based signage player with IMX6QC MCIMX-6Q6AVT10AD Automotive 1GHz processor, 8GB eMMC NAND Flash & 1GB DDR3L, 25W power adaptor
SA-112-NDL	ARM-based signage player with IMX6DL MCIMX-6U5DVM10AB Commercial 1GHz processor, 8GB eMMC NAND Flash & 1GB DDR3L, 25W power adaptor, (operating temperature 0°C ~ 50°C)

Dimensions





Features

- NXP Cortex™-A9 i.MX 6Quad processor
- 1x eMMC NAND flash 8GB on board
- 2GB DDR3L on board, 533MHz, (1066MT/s)
- 1x Mini-HDMI (Type-C)
- 1x USB, 1x microSD card slot (up to 32GB)
- Supports 802.11 a/b/g/n
- 5V DC-in power input
- Ruggedized, fanless and compact design

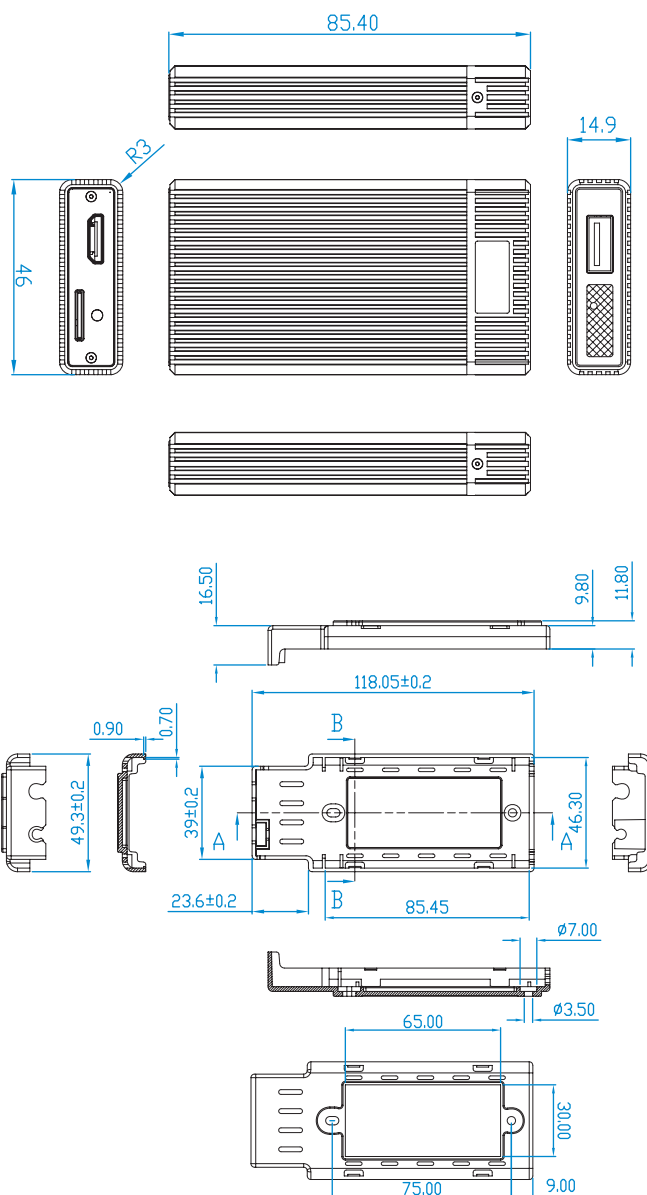
Specifications

System Mainboard	MBD101
Processor	NXP Cortex™ -A9 i.MX 6Quad processor
Chipset	Integrated
System Memory	DDR3L 2GB on board
Graphics	2D+3D (2 /3 GPUs) (35Mtri/s / 200Mtri/s)
I/O	1x USB host USB 2.0 (Type-A) 1x Mini-HDMI (Type-C) connector 1x MicroSD card 1x Power jack
Power Requirement	+5V DC-in
Construction	Aluminum
Weight	0.085 kgs (0.19lbs)
Chassis Color	Silver
Storage	1x eMMC (8GB) 1x MicroSD card slot (up to 32GB)
Power Supply	10W power adaptor
Mounting	Standard system bracket
Dimensions	85mm x 45mm x 15mm (3.35" x 1.77" x 0.59")
Operating Temperature	0°C ~ 50°C (40°F ~ 122°F)
Storage Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Relative Humidity	10~90% @ 45 °C, (non-condensing)
OS Support	Android 4.4.2 Other OS (by request)
Vibration	eMMC: 5 grms/ 5~500Hz/ random operation
Certification	CE, FCC class A , VCCI class A, TELEC

Ordering Information

SA-101-NQC	ARM-based signage player with IMX6QC 1GHz processor, eMMC NAND flash 8GB & DDR3L 2GB on board, 10W power adaptor
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Dimensions



HEADQUARTERS

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