February 2020

Qualcomm

Recommended Hardware and Software Platforms

Qualcomm® Vietnam Innovation Challenge – 2020

Quectel SC66 (featuring Qualcomm® SDM660 SoC)

High Tier Solution for extensive computation applications

Application Areas

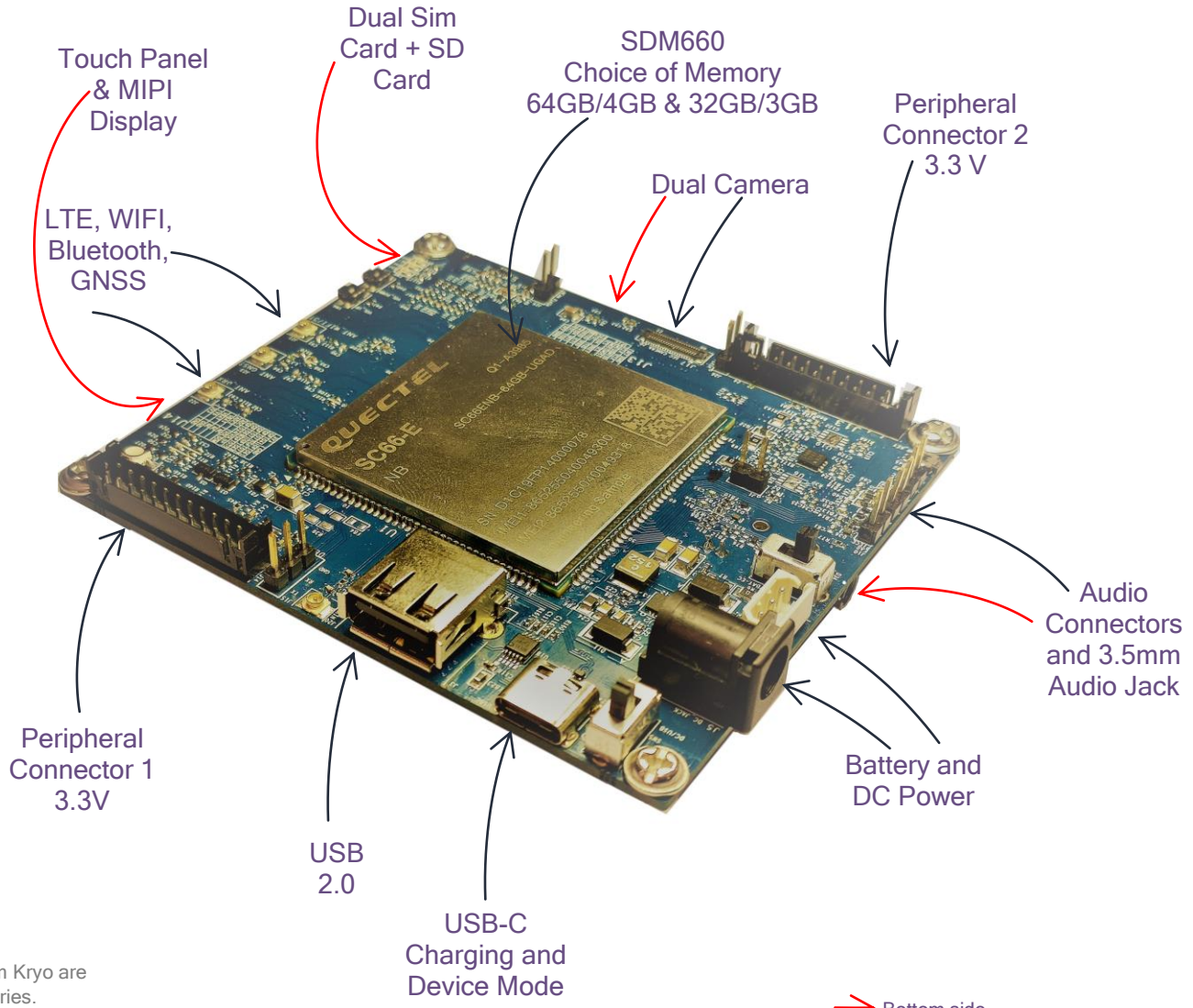
Machine Learning

Tensor Flow

High Computation needs

Dual Camera

GPU



Specifications

Android 9.0
32GB + 3GB &
64GB+4GB(optional)
Qualcomm SDM660 SoC
(64Bit,2.2Ghz, Octacore,
Qualcomm Kyro™ 260 CPU)

Features

Cellular/WIFI/BT
Dual Camera(12MP)
Peripheral Connector at
3.3V(SPI/I2C/GPIO)
Touch Display
USB 3.0 TypeC Connector
USB 2.0 TypeA Host Connector
Dual Sim
Audio: 3.5mm Jack/Loud
Speaker/Mic/Earpiece Connector
Battery

Dimensions

80mm x 90mm

References

Qualcomm® Snapdragon™ 660 Processor

Quectel SC66 Product Specs

Quectel SC20 (featuring Qualcomm® MSM8909 SoC)

Entry Tier Solution for Smart IoT applications

Application Areas

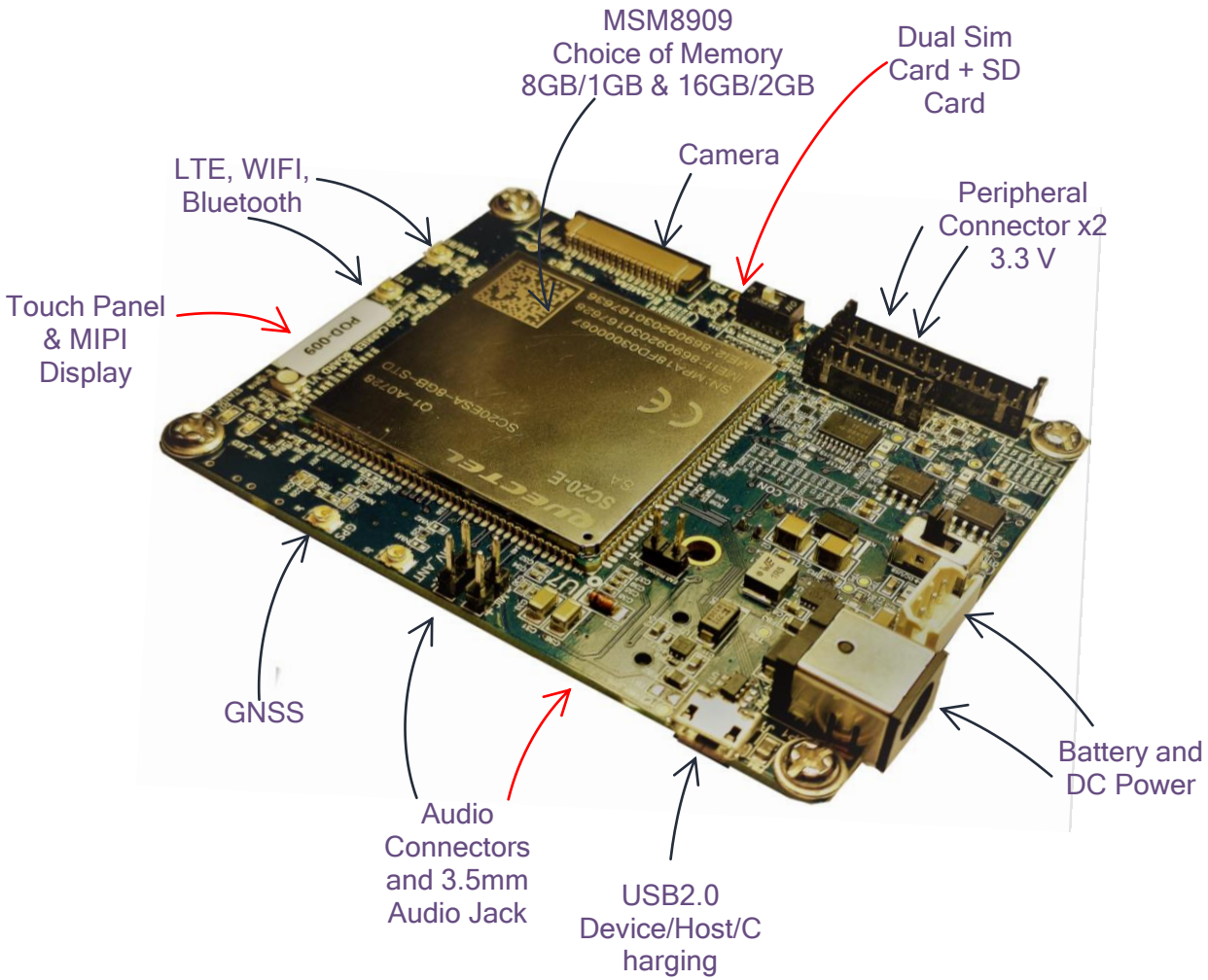
Machine Learning

Tensor Flow Lite

Gateways

Single Camera

Medical Applications



Specifications

Android 7.1/Linux
8GB + 1GB & 16GB +2GB
Qualcomm® MSM8909 (1.1Ghz Quadcore Processor)

Features

Cellular/WIFI/BT
Peripheral Connector at 3.3V(SPI/I2C/GPIO)
5inch MIPI-DSI Touch Panel Display
MIPI CSI Single Camera 5MP
Debug with USB OTG port
Debug with UART port
Battery Charging with USB and DC-IN
SD Card Support
LED Indicators: Status and Net-Light
Dual Sim
Audio: 3.5mm Jack/Loud Speaker/Mic/Earphones

Dimensions

85mm x 65mm

References

Qualcomm® Snapdragon™ 210 Processor

Quectel SC20 Product Specs

Bottom side

Quectel EC25 (featuring Qualcomm® MDM9207-1 IoT Modem)

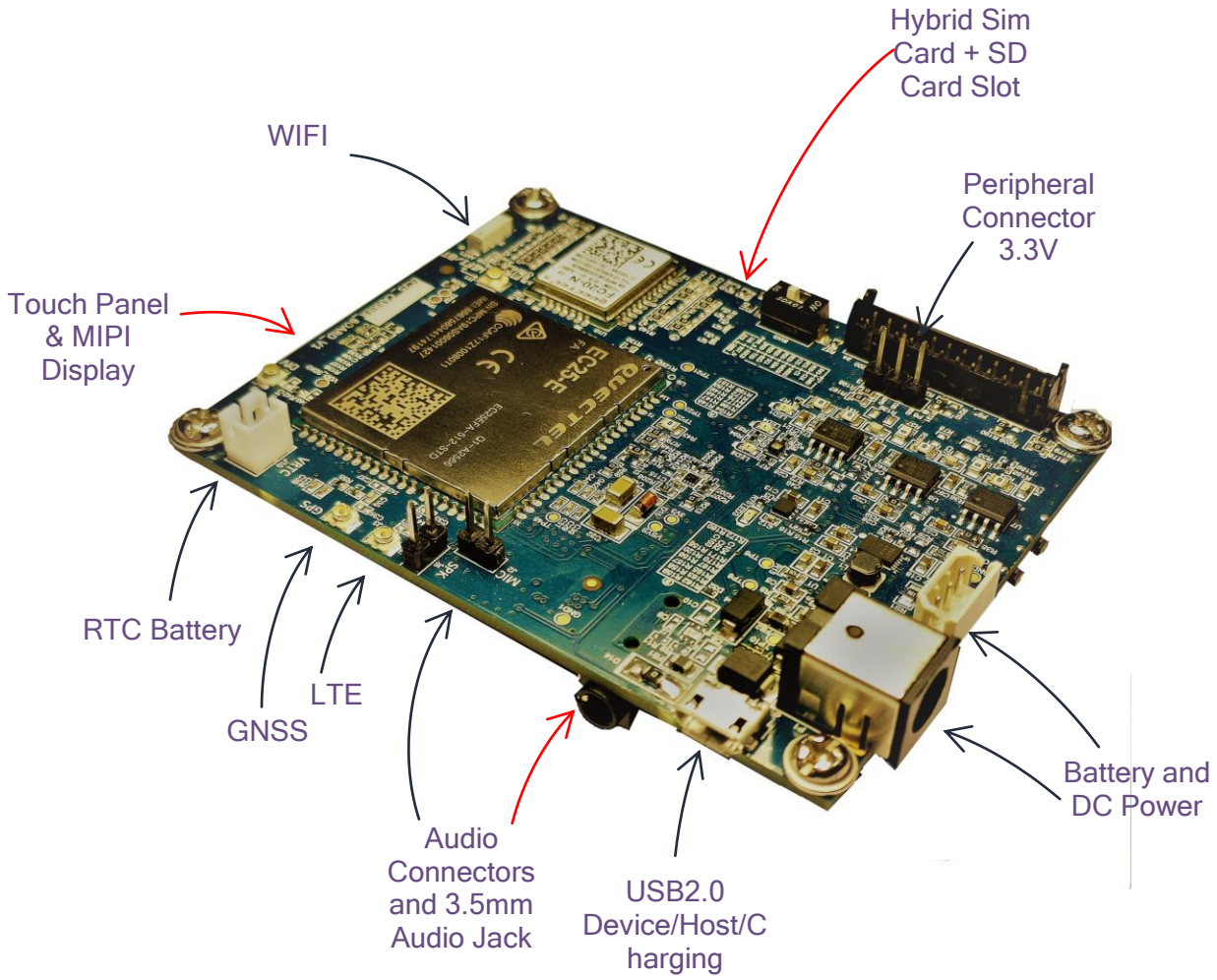
Edge Computing and LTE Solutions

Application Areas

Gateways

Sensor Interface

Edge Computing



Specifications

Linux
MDM9207 modem with integrated 1.3Ghz Cortex A7 Processor

Features

Cellular connectivity 2G, 3G, 4G
GNSS
WiFi/BT
Peripherals Connector at 3.3V(GPIO, I2C, SPI, UART)
Debug with USB, Debug with UART
Battery Charging with USB and DC-IN.
SD Card support
LED Indicators: Status and Net-Light
Audio: Speaker header, Headphone jack/ Mic/Earphones

Dimensions

85mm x 65mm

References

MDM9207 Processor
Quectel EC25 Product Specs

Quectel BG96 (featuring Qualcomm® MDM9206 IoT Modem)

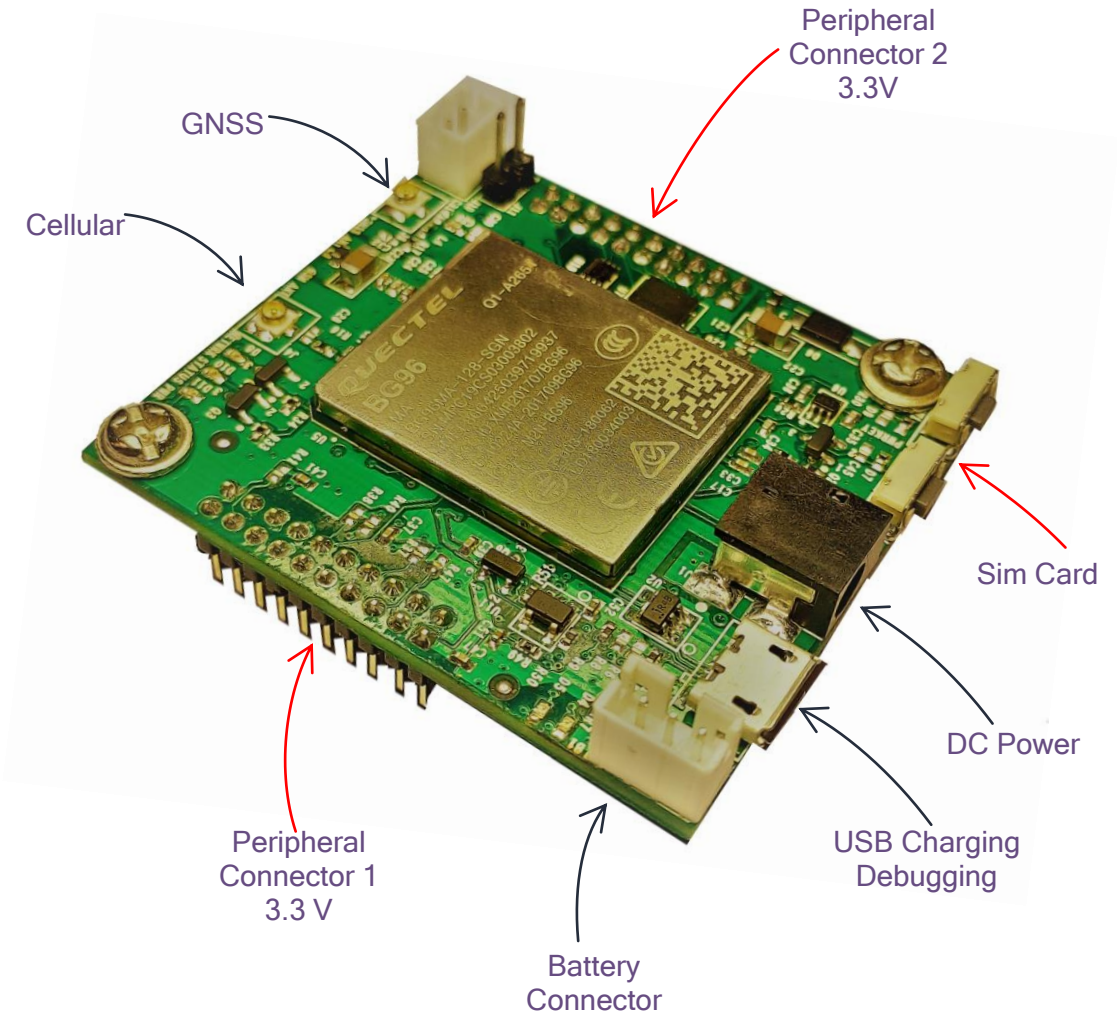
Low Power IoT Solutions (NB-IoT/CAT-M1/GPRS)

Application Areas

Trackers

Sensor Interface

Edge Computing



Specifications

ThreadX OS
MDM9206 with integrated 1.3Ghz Cortex A7 Processor

Features

Cellular connectivity 2G, 3G, 4G
GNSS
Peripherals Connector at 3.3V(GPIO, I2C, SPI, UART)
Debug with USB, Debug with UART
Battery Charging with USB and DC-IN.
Boot without battery with DC-IN or USB.
LED Indicators: Status and Net-Light

Dimensions

85mm x 65mm

References

MDM9206 Processor

Quectel BG96 Product Specs

Thundercomm TurboX AI Kit (featuring Qualcomm® SDA845 SoC)

A powerful on-device AI vision-enabled edge device for developers.

Category	Item	Description
Computing	Chipset	Qualcomm® SDA845 SoC
	GPU	Qualcomm® Adreno™ 630 GPU
	DSP	Qualcomm® Hexagon™ 685 DSP
	ISP	Qualcomm Spectra™ 280 image sensor processor
Memory	RAM	8GB LPDDR4
	ROM	64GB UFS2.1
	SD Card	Support MicroSD Card
Camera	Built in Camera	8MP, FOV 120 degree;
	External Camera	USB3.0 camera (accessory, not included in release)
Display Support	HDMI	1x Micro HDMI, 4k Ultra HD
Audio Support	Speaker	1x speaker
	Audio out	1x Headsetout
	Microphone	1x microphone
Video	VPU	Support for HDR10, HLG, and H.265 (HEVC) 4k@60fps video capture
Wireless Connectivity	WIFI	2.4G/5G,802.11 a/b/g/n/ac 2x2 MIMO
Debug Port	Micro USB	1x Micro USB (connecting to serial port for debug purpose)
Indicator	LED	RGB Led: Power status, WIFI status, Ethernet status;
Input	Buttons	Power key/ Volume up/down key/Camera snapshot key
Sensors	9-axis sensor	Gyroscope & accelerometer & geomagnetic sensor
Power	Power charging	12v DC

Purchase here: https://www.thundercomm.com/app_en/store/detail/1536844968290219

Thundercomm TurboX AI Kit: Software Support

Module	Feature
OS	Android O
AI Framework	Tensorflow, Tensorflow Lite, Caffe/Caffe2, ONNX, Qualcomm® Neural Processing SDK, Android NN
AI Algorithm SDK	Face Detection & Face Recognition & Emotion Detection & Age Detection & Gender Detection algorithm & Eye blink
	Object Detection algorithm
AI Sample Application	Face Recognition & Emotion Detection & Age Detection & Gender Detection algorithm demo
	Objection Detection algorithm demo
Camera	Support USB3.0 Camera, 1080p@30fps
	Ultra HD camera preview, recording and snapshot
	RTSP Client
Graphic	OpenGLES3.2, OpenCL2.0 full

XR (VR/AR) tools and kits

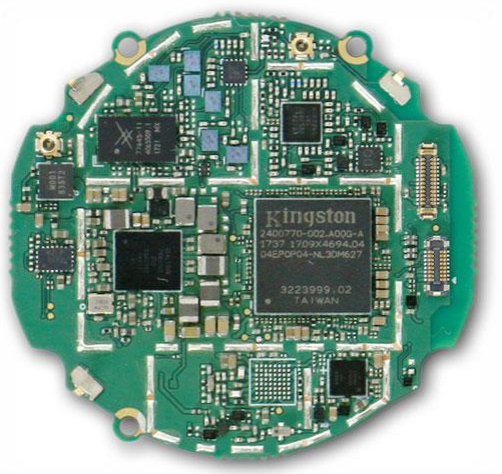
Topic	Details
XR and VR Tools	Qualcomm® Snapdragon™ VR SDK – provides developers with access to optimized, advanced VR features on Snapdragon VR devices.
App Performance Optimization	Snapdragon Developer Tools - help you optimize your applications running on Snapdragon mobile platforms. Tools include: Snapdragon Profiler Snapdragon Power Optimization SDK Snapdragon Heterogeneous Compute SDK Snapdragon Math Libraries
Specialized Core Optimization: SDKs for specific processor cores are also available	Qualcomm® Adreno™ GPU SDK - excels at repeating similar computations on large quantities of data, as in graphics processing and machine learning. Adreno GPU SDK for Vulkan – provides the SDK for the Adreno GPU with an implementation of the Vulkan graphics API that runs on Snapdragon processors. Vulkan facilitates cross-platform graphics development. Qualcomm® Hexagon™ DSP SDK - best suited to processing digital signals from the outside world in real time, like those generated by a smartphone camera and microphone.
Audio	3D Audio Tools - create, capture, and render true-to-life immersive 3D audio experiences for VR applications. 3D Audio Plugin for Unity - a binaural spatial audio plugin for Unity, ideal for XR experiences and games
Computer Vision	Qualcomm® Computer Vision SDK – adds computer vision capabilities such as gesture, recognition, face detection, and text recognition.

Qualcomm® Robotics RB3 Development Kit

Category	Description
Processor	Qualcomm® SDA845 / Qualcomm® SDM845
ISP	Qualcomm Spectra™ 280 Image Signal Processor
Camera	Single HFR 16 MPix camera @ 60fps ZSL, Dual 16 MPix cameras @ 30fps ZSL, Single 32 MPix camera at 30fps ZSL
Video	Ultra HD Premium video capture @ 4K (3840x2160) 60fps, 10bit HDR, Rec 2020 color gamut; H.264 (AVC), H.265 (HEVC) and VP9 support; Slow motion HEVC video encoding of either HD (720p) video up to 480fps or FHD (1080p) up to 240fps
GPU	Qualcomm® Adreno™ 630 GPU with support for Open GL ES 3.2 and Open CL 2.0
DSP	Qualcomm® Hexagon™ 685 DSP with 3rd Gen Vector Extensions
Memory & Storage	LPDDR4x, 4x16 bit; up to 1866MHz, 8GB RAM
Wireless Connectivity	Wi-Fi integrated 802.11ac 2x2 with MU-MIMO; Tri-band Wi-Fi: 2.4 GHz and 5 GHz with Dual Band Simultaneous (DBS), Bluetooth 5.0
Audio	Qualcomm TrueWireless™ Stereo
Location	GPS, Glonass, BeiDou, Galileo, QZSS, and SBAS

Thundercomm TurboX SDW2500 SBC

Designed for wearable devices, powered by Arm Cortex-A7 microprocessor quad cores up to 1.094 GHz, targeted to deliver a robust foundation with extended battery life, an integrated sensor hub with pre-optimized algorithms, low power location tracking, and the fifth generation 4G LTE modem, and optimized version of Android.



Target Markets

Category	Item	Description
Platform	Chipset	Qualcomm® Snapdragon Wear™ 2100
	CPU	4 x ARM Cortex-A7, Up to 1.094GHz
	GPU	Qualcomm® Adreno™ 304, 3D graphics accelerator Up to 409.6 MHz
	DSP	Q6 v5 core at up to 691.2 MHz
	OS	Android 8.1 for Wearables
	Memory and Storage	eMCP: DDR3 4Gb + eMMC 4GB
Multimedia	Display	1x MIPI-DSI 4-lane, 1.5 Gbps each, HD (720p) at 60 fps
	Camera	2 x MIPI CSIs supports up to 8MP camera
	Decode	H.264,VP8,(HEVC) H.265 : 1080p, 30fps
	Encode	H.264 BP/MP: 720p, 30 fps MPEG-4 SP/H.263 P0: WVGA, 30 fps VP8: WVGA, 30 fps
Connectivity	WiFi/BT	802.11 b/g/n ,BT 4.0 LE and earlier
	Wireless WAN	GSM/CDMA/WCDMA/TD-SCDMA/LTE
Interface	Interface	UART/I2C/SPI/UIM/USB/SDIO/DMIC/MI2S/PDM/JTAG/GPIOx113
Dimension	Size	42*42mm
System Environment	Power	5V/500MmA
	Operating Tempearture	-20℃ ~ 70℃
	Storage Temperature	-20℃ ~ 80℃
	Relative Humidity	5%~95%, non-condensing

Purchase here: https://www.thundercomm.com/app_en/store/detail/1545620051310053

Qualcomm® QCC5100 Series: Bluetooth Audio SoCs

The SoC architecture supports ultra-low power performance and includes a Bluetooth 5 dual-mode radio, low-power audio and application subsystems. The platform supports features including Qualcomm TrueWireless™ stereo, Qualcomm® aptX™ HD audio, Integrated Hybrid Active Noise Cancellation (ANC), voice UI control, and support for voice assistant through cloud services.

Target Application

- Bluetooth Earbuds
- Bluetooth Hearables
- Bluetooth Headphones
- Bluetooth Portable Speakers
- Bluetooth Headsets

Please contact Qualcomm Technologies to reach regional agent.

Category	Item
Bluetooth	Bluetooth 5 including 2 Mbps Bluetooth LE
	Single ended antenna connection with on-chip balun and Tx/Rx switch
Audio DSP	Dual 120MHz Qualcomm® Kalimba™ audio DSP cores
	Flexible clock speed from 2MHz up to 120MHz
Application Subsystem	32-bit firmware processor
	32-bit 32/80MHz developer processor
Memory	80KB program RAM
	256KB data RAM, 5Mb ROM
Interface	Micro USB 2.0 High Speed
	UART
	2x Bit Serializers (I2C/SPI)
	SDIO
	QSPI
	NOR flash
	Up to 55x PIO
Power Management	Integrated power management unit (PMU)
	Dual switch-mode power supply (SMPS)
Battery Support	Integrated battery charger supporting internal mode
	(up to 200 mA) & external mode (up to 1.8 A)
Packaging	124-ball 6.5 x 6.5 x 1.0mm VFBGA, 0.5mm pitch

Neoway NB-IoT Module N27 (featuring Qualcomm® 9205)

Category	Sub-category	Description
Processor	Qualcomm® 9205	ARM Cortex-A7 up to 800MHz with 256KB L2 cache
Memory		32MB(DDR 2) + 64MB (Nand)
Air Interface	LTE FDD	Band 1/2/3/4/5/8//1213/14/18/19/20/25/26/27/28/66/71/85 (Cat M1, Cat NB1/NB2), VoLTE
	EGPRS	Band 2/3/5/8
	GNSS	GPS, GLONASS, BeiDou, Glioleo, QZSS (optional)
Data Rate	CAT.M1	Max 588 kbps(DL), Max 1119 kpbs(UL)
	CAT.NB2	Max 127 kpbs(DL), Max 158.5 ps(UL)
Dimension		24mm x 18mm x11.85mm
Temperature		Operational: -40C to +85C
OS		ThreadX or OpenThreadX

http://www.neoway.com/product/info/141

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Thank you!

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