



Qualcomm Technologies, Inc.

Qualcomm[®] Robotics RB3 Platform

Robotics DragonBoard[™] 845c Specifications

Rev. A

February 15, 2019

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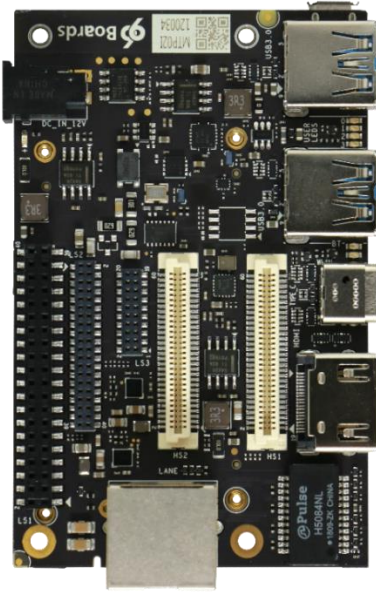
Revision history

Revision	Date	Description
A	February 2019	Initial release

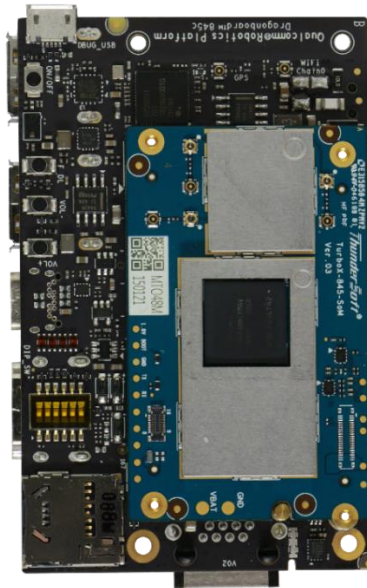
Robotics DragonBoard 845c development board

The Robotics DragonBoard 845c development board is based on the top-tier Qualcomm® SDA845 processor embedded platform. The Snapdragon processor introduces the new Qualcomm® Hexagon™ 685 Vector DSP architecture, plus GPU and CPU optimizations, that deliver up to three times faster processing of neural networks running on-device compared to the prior generation SoCs.

The Robotics DragonBoard 845c development board supports new architectures for AI, 4K@60fps H.264/H.265 Encode & Decode, rich interfaces, and many I/O expansion headers. It is an ideal platform for developers to quickly start product development work.



Top view



Back view

Features

- Top-tier octa-core Qualcomm® Kryo™ 385 CPU, up to 2.8 GHz
- Powerful computing GPU and DSP cores
- Qualcomm® Snapdragon™ Neural Processing Engine
- Multi cameras concurrency
- 6-Axis sensor supported
- 4K@60fps video H.264/H.265 Encode & Decode
- Wi-Fi integrated 2x2 802.11ac with MU-MIMO
- Rich interfaces on the small form factor board

Applications

- Service robots
- Industrial drones
- Automated guided vehicles
- Consumer/Entertainment robots
- Self-driving vehicles for logistics

Technical specifications

Component	Description
SoC	<ul style="list-style-type: none"> Qualcomm SDA845 Processor
CPU	<ul style="list-style-type: none"> SDA845 embedded platform Custom 64-bit ARM v8-compliant octa-core CPU Up to 2.8 GHz, 10nm LPP FinFET process technology
GPU	<ul style="list-style-type: none"> Qualcomm® Adreno™ 630 GPU OpenGL ES 3.2 + AEP, DX next, Vulkan 2 OpenCL 2.0 full profile, RenderScript
DSP	<ul style="list-style-type: none"> Hexagon 685 DSP
RAM	<ul style="list-style-type: none"> 4 GB LPDDR4x SDRAM @ 1866 MHz
Storage	<ul style="list-style-type: none"> 64 GB UFS 2.1 onboard storage 1 x MicroSD card slot
Ethernet	<ul style="list-style-type: none"> 1 x GbE Ethernet
Wireless	<ul style="list-style-type: none"> WLAN 802.11a/b/g/n/ac 2.4/5GHz 2x2 MIMO Bluetooth 5.0, on-board WLAN/BT/GPS antennas
USB	<ul style="list-style-type: none"> 1 x USB 2.0 Micro B (Debug only) 1 x USB 3.0 Type C (OTG mode) 2 x USB 3.0 Type A (Host mode only)
Display	<ul style="list-style-type: none"> Two 4-lane DSI, D-PHY 1.2 or C-PHY 1.0; VESA DSC 1.1 1 x HDMI 1.4 (Type A - full) connector
Video	<ul style="list-style-type: none"> 4K60 decode for H.264 High Profile, H.265 Main 10 Profile and VP9 Profile 2 4K60 encode for H.264 High Profile, H.265 Main 10 Profile
Audio	<ul style="list-style-type: none"> MP3; aacPlus, eAAC; WMA 9/Pro
Camera	<ul style="list-style-type: none"> Qualcomm Spectra™ 280 ISP, dual 14-bit ISP+one Lite ISP, 32 MP 30 fps ZSL with a dual ISP
Sensor	<ul style="list-style-type: none"> Accelerometer + Gyro Sensor/ Proximity sensor
Expansion interfaces	<p>Expansion connectors:</p> <ul style="list-style-type: none"> HS1:1 x 60 pin high-speed connector (4L-MIPI DSI, USB 2.0 x2, I2C x2, 2L+4L-MIPI CSI, SDIO) HS2:1 x 60 pin high-speed connector (4L-MIPI CSI x 2, SSC SPI, PCIe 3.0, USB 3.0 x1, GPIO x 9) LS1:1 x 96boards 40 pin low-speed connector (UART x 2, SPI, I2S, I2C x2, GPIO x 12, DC power) LS2:1 x 96boards 40 pin low-speed connector (headset, stereo speaker, DMIC I/F x 3, CAN, I2S, GPIO x 7, PWM x 2, ADC x 2) LS3:1 x 96boards 20 pin Low-Speed connector (SSC SPI x 3, SSC I2C, sensor interrupt x 5)
LED	<p>7 LED indicators:</p> <ul style="list-style-type: none"> 4 - User controllable 2 - For radios (BT and WLAN activity) 1 - Power indicator
Buttons	<ul style="list-style-type: none"> Power Volume Up/Down Force USB Boot Dip Switch (6 PIN)
Power source	<ul style="list-style-type: none"> 12 V @2.5A adapter with a DC plug Plug specification is inner diameter 1.75mm and outer diameter 4.75mm
OS support	<ul style="list-style-type: none"> Linux Embedded
Size	<ul style="list-style-type: none"> 85 mm x 54 mm meeting 96Boards Consumer Edition Standard form dimensions specifications