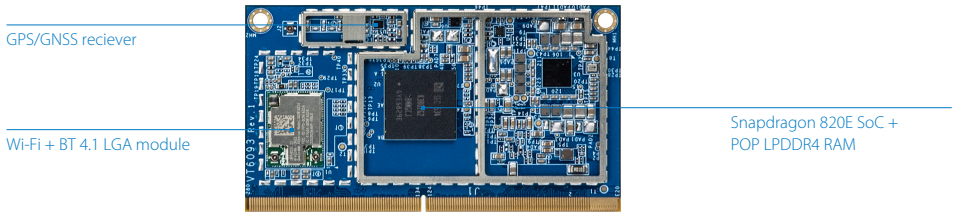
VIA

SOM-9X20

Ultra-compact solution for graphics-intensive edge computing applications

Board Placement



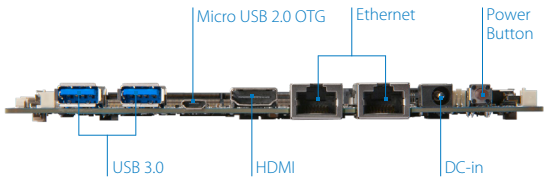
Features

- Qualcomm Snapdragon 820E quad-core SoC
- Enhanced video decoding supporting 4K@60fps, 8 x 1080p@30fps
- Built-in Wi-Fi 802.11 a/b/g/n/ac, Bluetooth 4.1, and GPS
- Compact form factor module with the MXM 3.0 314-pin connector
- Evaluation carrier board available

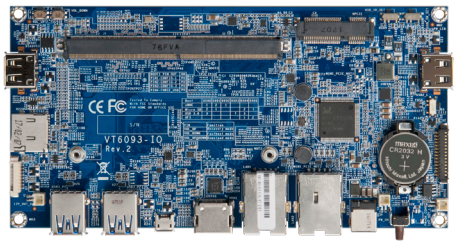
Specifications

Model Name	SOM-9X20
Processor	Qualcomm Snapdragon 820E quad-core SoC - Two high-performance Kryo cores up to 2.15GHz - Two low power Kryo cores up to 1.593GHz
System Memory	4GB POP LPDDR4 RAM
Storage	64GB eMMC 5.1/UFS 2.0 Flash Memory
Graphics	Qualcomm Adreno 530 GPU 3D graphics accelerator with 64-bit addressing 624 MHz Graphics engine supporting OpenGL ES 3.1/GEP, GL4.4, DX11.3/4, OpenCL 2.0, Renderscript-Next Supports H.264, VP8, HEVC 8/10-bit, VP9 video decoding up to: 4K@60fps, 1080p@240fps, 8 x 1080p@30fps
Trusted Platform Module	TPM1.2 : ST33TPM12I2C
Wireless Connectivity	NFA324A-12H32 QCA6174A-1 Wi-Fi 802.11 a/b/g/n/ac + BT 4.1 combo LGA module with 2 antenna connectors Qualcomm WGR7640 GPS/GNSS RF receiver with antenna connector
HDMI	Integrated HDMI 2.0 Transmitter
Supported I/O through MXM 3.0 connector	1 HDMI port 2 MIPI DSI 4-Lane connectors 3 MIPI CSI 4-Lane connectors 1 USB 3.0 OTG 1 USB 2.0 host 1 SDIO 2 PCM/MI2S Multi-function pins for UART, I^2C, SPI, GPIO 1 JTAG 2 PCIe 2.0 1-Lane
Operating System	Android 8.0, Linux Kernel 3.18.44
Operating Temperature	-20°C ~ 70°C
Operating Humidity	0% ~ 95% (non-condensing)
Form Factor	8.2cm x 4.5cm (3.23" x 1.77")

Carrier Board Back Panel I/O



Carrier Board (SOMDB2)



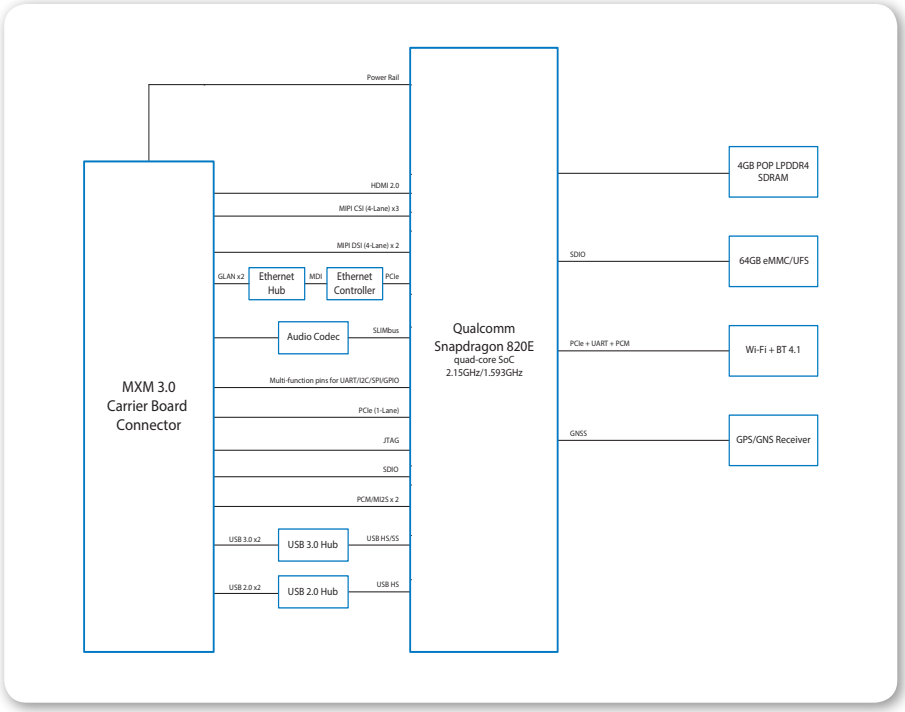
Specifications

Model Name	SOMDB2
Audio	Qualcomm WCD 9335 Audio Codec
LAN	RealTek RTL8111G Ethernet Controller RealTek RTL8365MB LAN Hub
Onboard I/O	1 MIPI DSI LCD panel connector 1 MIPI CSI Interface for camera module 1 P-Cap Touch connector 2 USB 2.0 ports 1 USB 2.0 OTG switch (for Host mode/Device mode) 1 COM connector (TX/RX only for debugging) 1 GPIO connector (8 GPIO) 2 I^2C connectors (for light & proximity sensor and NFC module) 1 Front panel connector 1 JTAG connector 1 Mic-in connector 2 2W speaker connectors 2 Audio module connectors (for VT6093 audio module) 2 Volume buttons 1 Boot switch 1 RTC battery connector 1 Micro SD card slot 1 miniPCIe slot 1 MXM 3.0 slot
Back Panel I/O	1 HDMI port 2 USB 3.0 ports 1 Micro USB 2.0 OTG port (for debugging) 2 Gigabit Ethernet ports 1 Power button 1 12V DC-in jack
Operating Temperature	-20°C ~ 70°C
Operating Humidity	0% ~ 95% (non-condensing)
Form Factor	17cm x 8.6cm (6.69" x 3.89")
Compliance	RoHS

Ordering Information

Part Number	SoC Frequency	Description
10GWG21Q00020	Qualcomm Snapdragon 820E quad-core SoC @ 2.15GHz/1.593GHz	SOM module with Qualcomm Snapdragon 820E quad-core SoC, 64GB eMMC/UFS, 4GB POP LPDDR4 RAM, HDMI, 2 DSI, 3 CSI, USB 3.0, USB 2.0, UART, GPIO, 1 SDIO, Wi-Fi + Bluetooth 4.1, GPS/GNSS, 2 PCIe 2.0 1-Lane
10GWH00000020	N/A	SOMDB2 carrier board
STK-VT6093-00A1	Qualcomm Snapdragon 820E quad-core SoC @ 2.15GHz/1.593GHz	SOM-9X20 starter kit

Block Diagram



Packing List (Starter Kit)

Items for STK-VT6093-00A1
SOM-9X20 module
SOMDB2 carrier board
VT6093 audio module
COM cable
AC adapter
Power cord
2 Antennas for Wi-Fi & Bluetooth