



M2-SQ8A-xx – Snapdragon SD820 based SMARC Module & EVK

Using the SMARC standard 2.0 for embedded modules, Tessolve Embedded Systems introduces ultra-low power ARM COMs (Computer-On-Module) based on the Qualcomm SnapdragonSD820 Family which is powered by 64-bit ARMv8-compliant quad-core application CPU. Tessolve leverages its vast experience of product development in embedded multimedia systems for professional applications and systems combining audio/video, graphics and HMI.

Target applications for MAGIK2 ARM COMs are HMI units for machines and vehicles, Surround-View Systems, Industrial Tablets, Surveillance Recording Systems, High End Home Appliances and Multimedia/ Infotainment

applications in avionics and transportation environment.

The modules come with a complete software suite with unique differentiators (details below), including Device Drivers, BSP and support for Android 7.0.

Tessolve delivers application specific carrier boards along with reference software for related system solutions in the area of Multimedia/ Infotainment applications, video surveillance and HMI units like tablets or similar.

Product development made easy, with the industry leading complete system solution packages from Tessolve, is a clear differentiator!

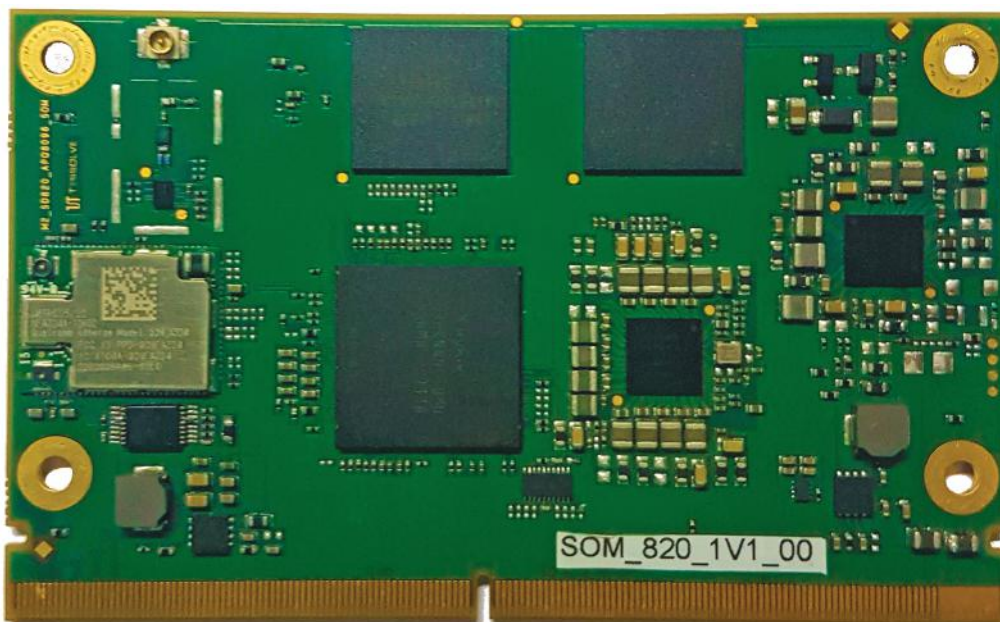


Figure 1:
SD820 SOM

The M2-SQ8A-xx modules are available in 64Bit Quad Core CPU with wide variety of IO feature sets.

Technical Information

Module Name	M2-SQ8-4Q
Processor	<ul style="list-style-type: none"> • QUALCOMM Snapdragon SD820 (APQ8096) • ARMv8 CPU 64 Bit • Quad core • 2 high-performance Kryo cores –Gold cluster (up to 2.15 GHz target) • 2 low-power Kryo cores –Silver cluster (up to 1.6 GHz target)
Graphics	<ul style="list-style-type: none"> • Adreno 530 3D graphics accelerator • Supports 64 bit addressing with 624 MHz
Memory	<ul style="list-style-type: none"> • LPDDR4-1866, 4GB (x64 bits) • Dual Channel PoP high-speed memory
Flash	<ul style="list-style-type: none"> • eMMC 5.1 (Optional)
UFC	<ul style="list-style-type: none"> • 64GB (Boot and Storage)
Display Interface	<ul style="list-style-type: none"> • 2x DSI DPHY 1.2(4-lane) • 1x HDMI 2.0(4k 60)
Camera	<ul style="list-style-type: none"> • 2x MIPI CSI DPHY1.2, maximum 8 Gbps (4 lane)
Audio	<ul style="list-style-type: none"> • On board Audio Codec
Video	<ul style="list-style-type: none"> • Encode up to 4K@30 • Decode up to 4K@60
SD/MMC	<ul style="list-style-type: none"> • 1x SDIO/MMC3.0(4 bits)
WIFI	<ul style="list-style-type: none"> • Wi-Fi 802.11a/b/g/n/ac • BTv4.2, BLE
USB	<ul style="list-style-type: none"> • 1x USB 2.0 OTG • 1x USB 3.0
High Speed Serial	<ul style="list-style-type: none"> • 2x PCIe 2.1 • 4x I2C • 2x SPI
Other Interfaces	<ul style="list-style-type: none"> • 1x UART • 2x UART with Flow Control • 12x GPIO
Operating Voltage Range	<ul style="list-style-type: none"> • 5V
Temperature Range	<ul style="list-style-type: none"> • - 20° C to + 85° C
Form Factor	<ul style="list-style-type: none"> • 82 mm x 50 mm



RoHS Compliant

Module Architecture Diagram

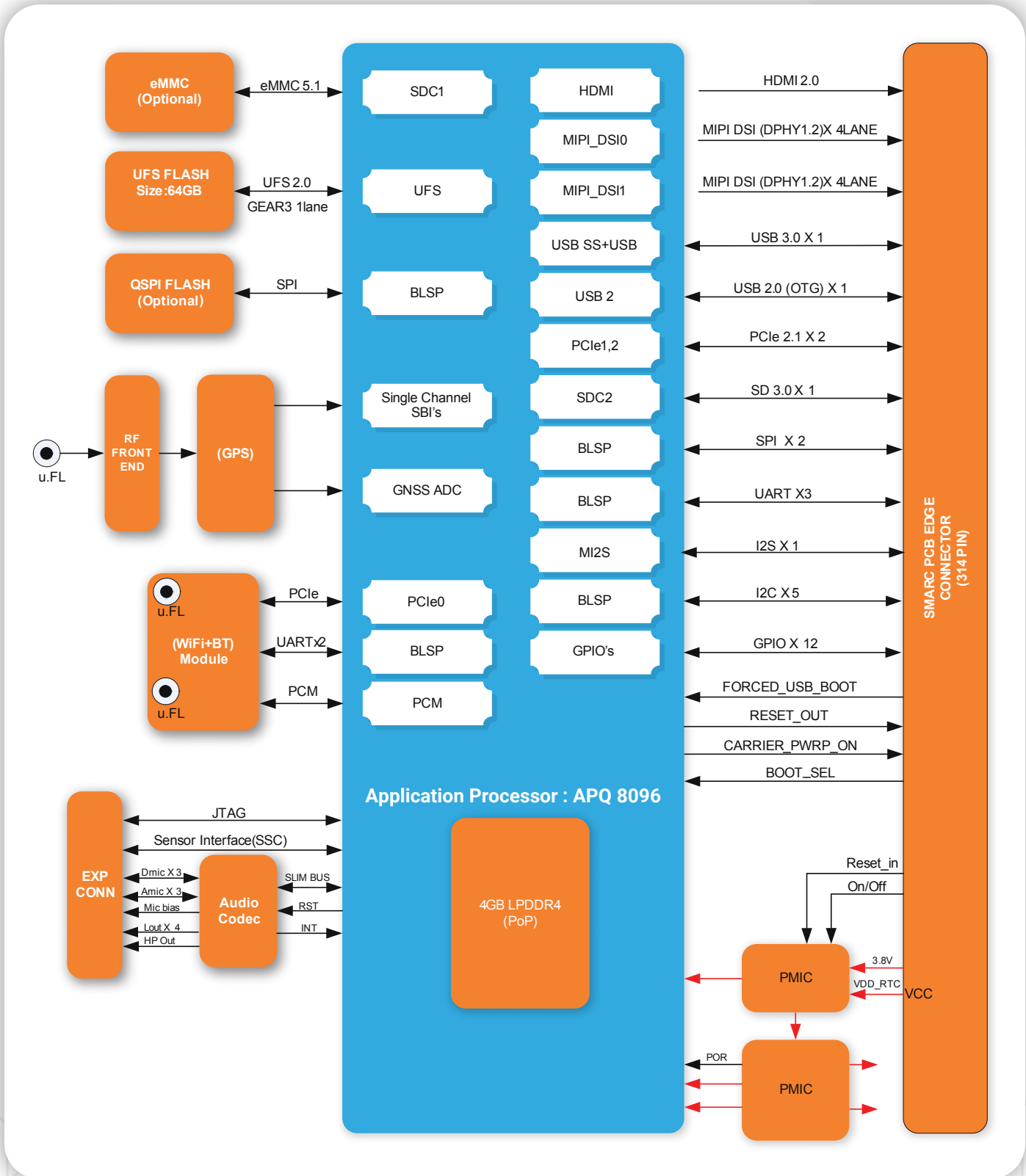


Figure 2: SD820

SD820 module and carrierboard snapshot

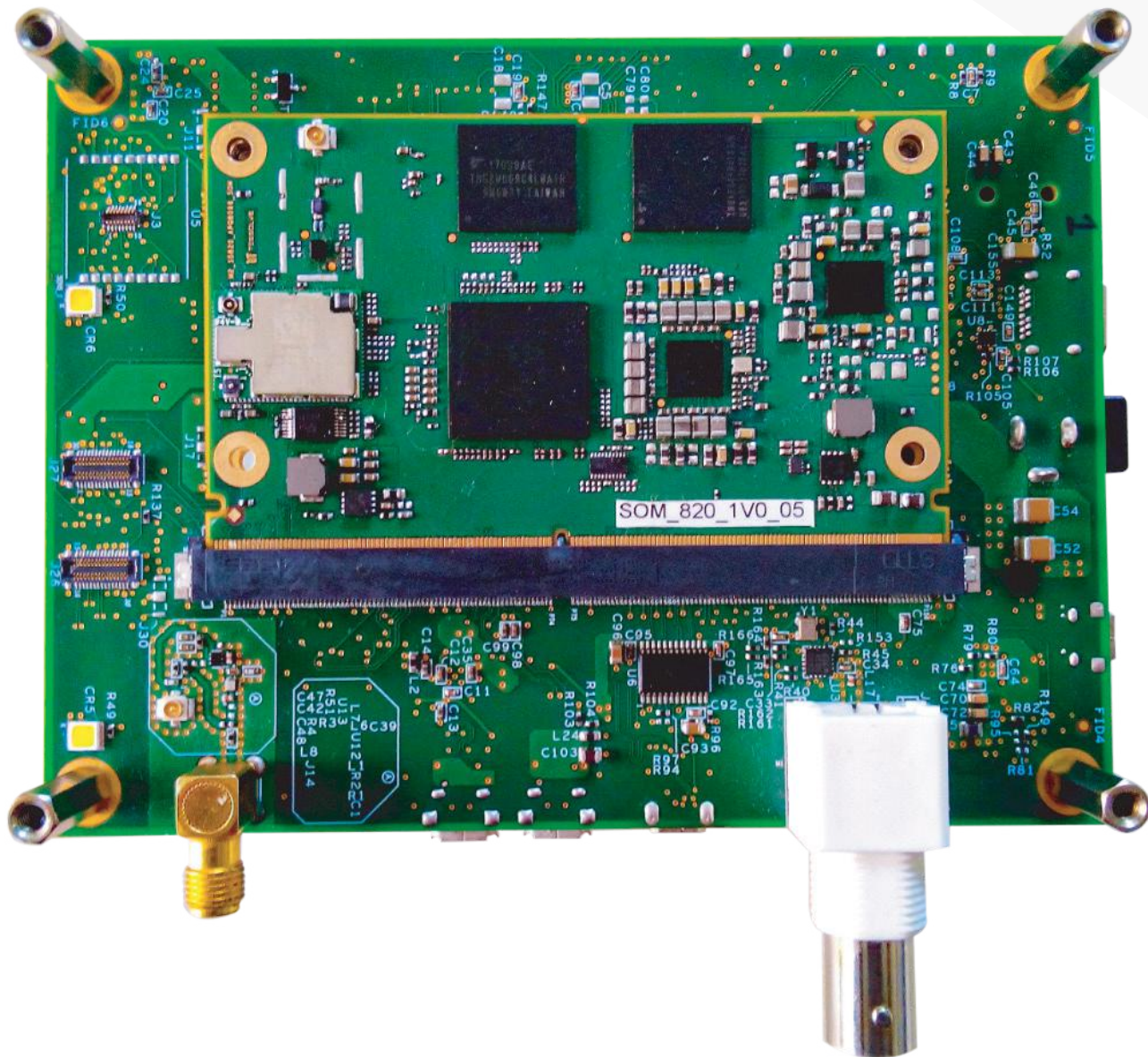


Figure 3: SD820 SOM & EVK

M2_SD820_APQ8096_EVK (Evaluation Kit) is designed to house the module (SOM) along with peripherals for the intended application. The connectors for all the peripherals on module board are placed in carrier board.

The M2-SQ8A-xx EVK features are listed below.

Technical Information

EVK Name	M2-SQ8-4Q-EVK
SD/MMC	<ul style="list-style-type: none"> • 1 x SDIO 4 bits
High Speed Interfaces	<ul style="list-style-type: none"> • 2 x PCIe 2.0
Display Interfaces	<ul style="list-style-type: none"> • 2 x MIPI DSI: Two; 4-lane + 4-lane; DSI DPHY 1.2; VESA DSC 1.1 • 1 x HDMI: v2.0 (4k 60)
Camera Interface	<ul style="list-style-type: none"> • 2 x MIPI CSI • Legacy mode CSIx_LANE_x_P/M (DPHY1.2, maximum 8 Gbps 4-lanes)
USB	<ul style="list-style-type: none"> • 1x USB 3.0 super speed • 1x USB 2.0 OTG • 1x USB 2.0 Micro B debug connector
Peripheral Interfaces	<ul style="list-style-type: none"> • 2x SPI • 3x I2C • 1x UART • 2x UART with Flow Control
GNSS	<ul style="list-style-type: none"> • 1 x GPS, GLONASS t
FM	<ul style="list-style-type: none"> • 1 x FM Receiver
Audio	<ul style="list-style-type: none"> • Headphone out
Sensors	<ul style="list-style-type: none"> • MAG,ACC,GYRO SENSOR • Sensor tile module
OS Support	<ul style="list-style-type: none"> • Android 7.0 Nougat 7.0
Form Factor	<ul style="list-style-type: none"> • 120 mm x 90 mm
Temperature Range	<ul style="list-style-type: none"> • - 30° C to + 85° C



RoHS Compliant

EVK Architecture Diagram

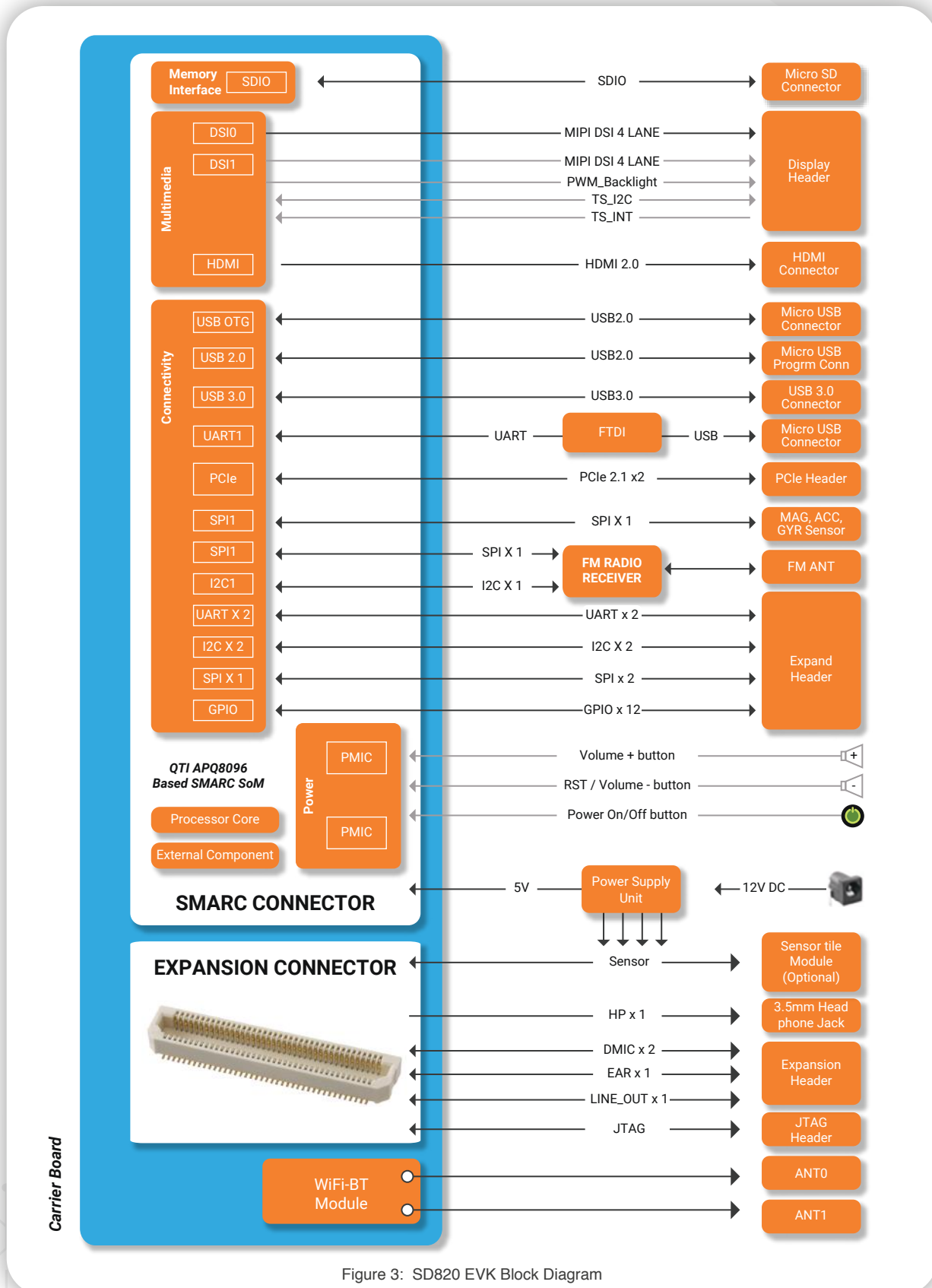


Figure 3: SD820 EVK Block Diagram

Included Software Packages – Tessolve Differentiators!

Tessolve provides ready to use SDK for evaluation and application development. The section below lists high level details on the included software packages.

- ✓ Board Support Packages (BSP) available for Android
- ✓ Operating System Android Nougat 7.0

Ordering Information

Article	Part No**.	Description
MAGIK 2 SMARC Module	M2-SQ8A-4Q2G-4G-64G-C-S	SD820 Quad, 2.15GHz, 4GB RAM, 64GBytes UFS, Comercial Grade, 80 mm x 52 mm
MAGIK 2 SMARC Module EVK	M2-SQ8A-CB-EVA-BOARD	Carrier Board For SD820 Module Evaluation & Software Development

**Contact Tessolve for other possible memory and temperature configurations

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