Qualcomm

Qualcomm® QCS4290/ QCM4290 Processors

The QCS4290/QCM4290 application processors deliver greater performance, a better AI engine, and broader connectivity options compared to our previous generations.

The QCS4290/QCM4290 processors offer maximum mid-tier benefits delivering greater[1] performance. With the Qualcomm® Kryo™ 260 CPU architecture for increased[1] speeds and robust on-device performance, in addition to the 3rd generation Qualcomm® AI Engine, this platform delivers powerful performance, dynamic camera capabilities, and Wi-Fi 6-ready connectivity, ideal for industrial and commercial IoT applications such as industrial handhelds in logistics and warehousing, security panels, and cameras. For increased intuitive on-device intelligence, devices based on this new solution can help enable productive and more efficient work environments.

Highlights

Robust performance

The QCS4290/QCM4290 delivers increased[1] speeds and sustained performance powered by the Kryo 260 CPU architecture, so multi-tasking can happen with less lag[1]. Videos have vivid graphics thanks to the Qualcomm® Adreno™ 610 GPU.

Connect confidently

Productivity revolves around strong connections. The QCS4290/QCM4290 is Wi-Fi 6-ready for powerful connections that include battery-saving benefits and enhanced Bluetooth® 5.1 capabilities. Wi-Fi 6 also supports WPA-3 security, so you can connect confidently.

Intuitive experiences from on-device AI intelligence

IoT devices should work smarter, not harder. The 3rd gen Qualcomm AI Engine delivers astonishing AI, powering more intuitive on-device AI intelligence. With the Qualcomm® Sensing Hub, a device can quickly respond to different needs.

Accelerate time to commercialization

The QCS4290/QCM4290 baseband processor is pin-to-pin compatible with the Qualcomm® QCS2290/QCM2290 which helps customers utilize hardware and software development across various IoT devices to reduce cost and time to commercialization.

[1] All comparisons are to our previous generations

Expected Product Longevity: September 2027

The QCS4290/QCM4290 processors are a part of the Product Longevity Program for Qualcomm IoT Portfolio. These products are developed and engineered with product longevity and durability in mind, helping to bring stability to our customer product designs. Product longevity dates are subject to change without notice.

87-28732-1 Rev. B

QCS4290/QCM4290 Target Applications

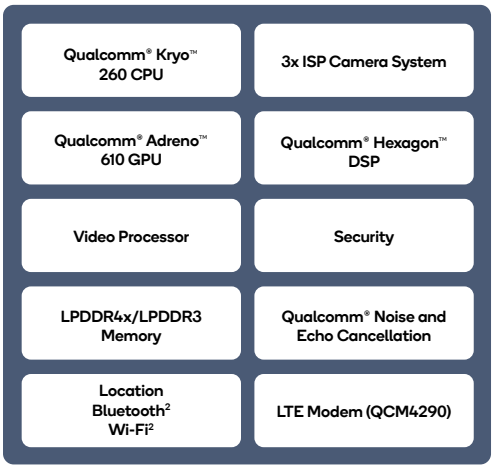
- Industrial Handhelds
- Security Panels
- Security Cameras

Features

- Kryo 260 CPU, octa-core CPU architecture for increased[1] and sustained speeds
- 11 nm Process Technology for improved performance and lower[1] power consumption
- Dual Frequency GNSS (L1 and L5) and support for India's NavIC satellite system
- Qualcomm® FastConnect™ 6100 system provides the Wi-Fi 6-ready subsystem, integrated with Bluetooth 5.1 and FM
- Dedicated Qualcomm® Hexagon™ 683 compute DSP with dual Hexagon Vector eXtensions (dual HVX at 1.0 GHz)
- Qualcomm® Universal Bandwidth Compression (UBWC) with display and GPU
- Display support: FHD+, four hardware layers, 10-bit end-to-end, and Qualcomm® True Palette Display feature
- One 4-lane DSI D-PHY 1.2 @ 1.5 Gbps per lane, split link supported
- 3x ISP (13 MP + 13 MP)/(25 MP + 5 MP) @ 30 fps
- Three 4-lane CSIs (4/4/4 or 4/4/2/1) D-PHY 1.2 @ 2.5 Gbps per lane or C-PHY 1.0 @ 10 Gbps (3.42 Gbps/trio)
- Support for USB 3.1 Type-C

[1] All comparisons to previous generations

Block Diagram



[2] Supported with a companion module

Specifications

Package	752 NSP, 12.0 x 12.4 x 0.91 mm; 0.4 mm pitch
CPU	8x Kryo 260 CPU from 1.8 up to 2.0 GHz
Modem	6th generation LTE multimode modem 3GPP Rel. 10 with selected 3GPP Rel. 12 features. (QCM4290 only)
Camera Support	13 MP + 13 MP/25 MP + 5 MP @ 30 fps or 16 MP + 16 MP @ 24 fps
Video	1080p60 8-bit decode for H.264/H.265/VP9, 1080p60 8-bit encode for H.264/H.265
GPU	Adreno 610 GPU @ 950 MHz with support for Open GL ES 3.2, Open CL 2.0, Vulkan 1.1
DSP	Hexagon 683 compute DSP with dual HVX @ 1.0 GHz
Display Support	Adreno 921 DPU
Memory	Dual-channel, non-PoP high-speed memory: LPDDR4x SDRAM @ 1866 MHz clock (2 x 16 bit); LPDDR3 SDRAM @ 933 MHz clock (1 x 32 bit)
Audio	Integrated low power island (LPI) for voice UI, Qualcomm® Noise and Echo Cancellation, Qualcomm® Voice Suite
Connectivity	WLAN: 1x1 802.11a/b/g/n/ac, Bluetooth 5.0, and FM with Qualcomm® WCN3950 or Qualcomm® WCN3988 (1x1 ax-ready)
Location	GPS, GLONASS, NavIC, BeiDou, Galileo, QZSS, and SBAS

To learn more visit: qualcomm.com

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