Qualcomm Dragonwing ™

Q-4390 Processor

The Dragonwing Q-4390 is a configurable processor platform ideal for building industrial, retail, and home connected product lines. The platform supports 4- or 8-core CPU options, 5G, 4G, Wi-Fi-only configurations, LPDDR4x and LPDDR5 memory, and Wi-Fi 6 or Wi-Fi 5 options.

By offering multiple combinations of compute, cellular connectivity, Wi-Fi, memory, and interfaces, the platform reduces board design work, BSP (board support package) maintenance, validation cycles, inventory complexity, and cost.

Software-configurable feature packs allow selected capabilities, such as CPU configuration, PCIe, and Wi-Fi 6E, to be enabled by product tier, deployment need, or price point.

Product teams can build from a common foundation, scale performance and connectivity across SKUs, and respond to memory supply transitions without starting over on hardware.

The result is a practical path to portfolio expansion: fewer platform decisions, better software reuse, lower redesign effort, and a cost-efficient entry point to advanced connectivity and LPDDR5 for connected devices.

Related Products

The Dragonwing Q-4390 is part of the Dragonwing Q4 processor series. It is the closest to Dragonwing QCS4490/QCM4490.

What the Dragonwing Q-4390 Processor Solves

One Platform for More Device Variants

The Dragonwing Q-4390 helps product teams create 5G, 4G, and Wi-Fi-based device options from a common platform strategy, reducing the need to plan each SKU as a separate design.

Cost-Efficient Access to Advanced Capabilities

The Dragonwing Q-4390 gives customers a more affordable path to 5G, LPDDR5, and Wi-Fi 6E for connected devices that need stronger performance without unnecessary feature cost.

Software-Configurable Product Tiers

Feature packs can enable 4- or 8-core CPU configurations, PCIe, and Wi-Fi 6E, helping teams create product tiers, regional variants, or upgrade paths without changing the base design.

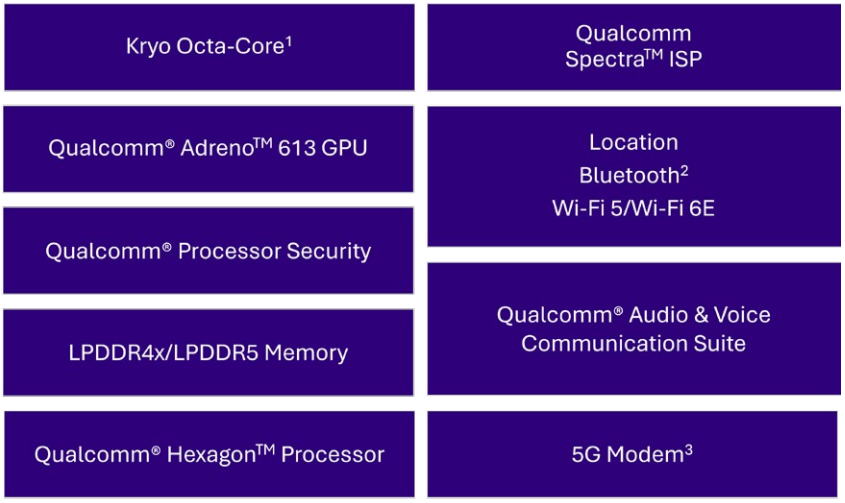
Built for Memory Transition Planning

LPDDR4x and LPDDR5 support helps product teams manage supply changes and performance needs while keeping more device programs on a consistent platform path.

Leverage Dragonwing QCS4490/QCM4490 Investments

The Dragonwing Q-4390 builds on Dragonwing QCS4490/QCM4490 software and platform compatibility, helping teams reuse existing development work, tools, and product planning across new device configurations.

Block Diagram



[1]Quad-Core available via SW feature packs
[2]Supported with a companion module
[3]5G is Q-4390M-0; hardware options also exist for 4G-only and Wi-Fi-only

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87-A2118-1 Rev A

Target Applications

- Industrial handhelds
- Retail point-of-sale terminals
- Home control panels and displays
- Industrial computing devices
- Logistics and asset tracking devices
- Smart kiosks and service terminals

Features

- Three pin-compatible hardware SKUs (5G, 4G, and Wi-Fi only) on a single silicon foundation can support an entire product family across connectivity tiers without hardware redesigns
- Software-based feature packs enabled through software licensing that control CPU cores (quad/octa), Wi-Fi (5/6E), and PCIe for scalable configuration
- Built-in OTA (over-the-Air) upgrade capabilities tied to feature pack licensing, enabling post-deployment tier configuration
- LPDDR5 support at up to 2.75 GHz (2x16-bit) with continued LPDDR4x support for transition designs helps enable a clear memory upgrade path without forcing an immediate BOM change
- Integrated 5G modem via 3GPP release 16 sub-6 for cellular-grade connectivity at the IoT cost tier, Wi-Fi 6E with 2x2 160 MHz, and dual band simultaneous (DBS) available via feature pack, and scalable CPU configuration (quad-core or octa-core) via feature pack selection
- Full pin and software compatible with Dragonwing QCS/QCM4490, to carry forward validated board designs, BSPs, and ecosystem partnerships
- Unified companion chipset ecosystem (RF, PMIC, Audio, Wi-Fi, NFC), including SDR435 transceiver and PM4450 PMIC is designed to simplify validation, certifications, and lifecycle management across product portfolio
- Common BSP, driver stack, and development toolchain across all SKUs aiming to enable faster SKU expansion

Ordering Information

Product	Part Numbers
Q-4390M-0	CQ4390M-0-AB
Q-4390M-4	CQ4390M-4-AB
Q-4390S	CQ4390S-0-AB

Specifications

Dragonwing Q-4390	
SKUs	CQ4390S, CQ4390M-0, CQ4390M-4
Process Node	4 nm
Feature Pack Options	• CPU core configuration options, PCIe Gen 3 1-lane enablement, and Wi-Fi 6E support, subject to SKU and platform configuration
CPU	Qualcomm® Kryo™ CPU with octa-core and quad-core software-configuration options: • Octa-core: 2x Gold @ 2.2 GHz + 6x Silver @ 1.8 GHz, 1 MB L3 cache • Quad-core: 2x Gold @ 2.2 GHz + 2x Silver @ 1.8 GHz, 1 MB L3 cache
GPU	Qualcomm® Adreno™ 613 GPU
Memory	2x16-bit LPDDR4X @2100 MHz 2x16-bit LPDDR5 @2750 MHz
Audio DSP (LPASS)	eNPU processor, Integrated SVA
Display Support	FHD+ (1080x2520) 60/90/120 Hz
Video Decode	Up to 1080p60 for H.264/H.265/VP9
Video Encode	Up to 1080p60 for H.264/H.265
Camera	Qualcomm Spectra™ ISP, 16+16 MP / 25 MP, 64 MP NZSL, HW MCTF
PCIe	PCIe Gen 3 (1-lane)
USB	1x USB 3.1 Gen 1 Type-C
Storage	eMMC v5.1, SD 3.0, UFS 3.1
Modem	CQ4390M: 5G NR Sub-6, 3GPP Rel. 16 or 4G LTE Cat 16 DL/UL CQ4390S: No integrated cellular modem
Wi-Fi/Bluetooth/WAN	WLAN: Wi-Fi 6E (802.11b/g/n/ac/ax) 2x2 160MHz, 4K QAM, 2x2 DBS (Qualcomm® WCN6856) Bluetooth® 5.2 wireless technology
Location	Gen 9 VT v5, GPS, BeiDou, GLONASS, Galileo, dual-frequency L1/L5 NavIC
OS	Android
Package	11.1 x 12 x 0.89 mm
Temp. Range (Tj)	Maximum temperature: Tj = 95 °C

To learn more visit: qualcomm.com

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The Dragonwing Q-4390 Series is 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.