

Snapdragon® W5+ and Snapdragon® W5 Gen 1 Wearable Platforms

Snapdragon W5+ and Snapdragon W5 Advancements

The Snapdragon W5+ and W5 platforms are purpose-built for next generation wearables. Comprised of a new 4nm System-on-Chip (SoC) and new a 22nm ultra-low power co-processor, Snapdragon W5+ enhances our hybrid architecture with display, sensors, audio, and notifications offload use cases. Snapdragon W5 includes the SoC and forgoes the co-processor for segment specific wearables.

- **Powerful SoC (Qualcomm® SW5100 and Qualcomm® SW5100P)**

4nm quad core A53 processor @ 1.7 GHz, Qualcomm® Adreno™ 702 GPU, 1x16 LPDDR4 2133MHz memory, dual ISPs with support for 16-megapixel cameras, 4G LTE multi-mode modem, Wi-Fi, Bluetooth®, integrated location, and dual Qualcomm® Hexagon™ DSPs.

- **Always-on, ultra-low power co-processor (Qualcomm® QCC5100)**

22nm cortex M55 @ 250MHz. U55 ML core, HiFi5 DSP, 2.5D GPU, integrated Bluetooth 5.3, 802.11n RF, 8+ MB memory, and requisite IO capabilities.

- **Multiple configurations available**

Snapdragon W5+ Gen 1 wearable platform features SW5100 (4G) or SW5100P (Bluetooth) plus the QCC5100 AON Co-processor and supports Wear OS by Google, Android Open Source (ASOP), and RTOS. Also available without the QCC5100 AON co-processor as Snapdragon W5 wearable platform with support for Wear OS by Google and AOSP.

Highlights

Ultra-low power for extended battery life

The Snapdragon W5+ Gen 1 is designed for ultra-low power at every level. The platform features an enhanced hybrid architecture with a new 4nm SoC and 22nm highly integrated AON Co-Processor. It incorporates new Bluetooth 5.3 architecture, low power islands for Wi-Fi, GNSS, and Audio, and low power states such as Deep Sleep and Hibernate. These innovations result in 30-60% lower power on typical use cases*, which drives >50% longer battery life. The Snapdragon W5 Gen 1 platform brings all the low power capabilities of the SoC while foregoing the benefits on the co-processor.



Breakthrough performance for premium user experiences

The Snapdragon W5+ platform incorporates significant performance enhancements in both the quad core A53 SoC and the next gen M55 Co-processor. Together with dual GPUs, a new ML core, upgraded memory, camera, and audio/video subsystems, users will experience truly immersive interactive experiences, ultra-low power ambient experiences, and always sensing health-and-wellness experiences.



High integration for sleek, innovative designs

High integration and packaging innovation across the SoC and Co-Processor drives significant reductions* in SoC (30% smaller), chipset (35% smaller) and core PCB (40% smaller) areas. This enables smaller/thinner designs while also making it possible to do a single SKU covering global operators.



Easier to scale and differentiate for customers

Designed to meet customer requirements across consumer and enterprise segments. A range of ecosystem partners are supporting the platforms across sensors, audio, camera, payments, UX and software stacks with their optimized technologies. This provides OEMs with a reduction in development time and ability to focus on differentiation.



* Compared to previous generations



Materials are subject to change without notice.
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Snapdragon, Qualcomm SW5100, Qualcomm SW5100P, Qualcomm QCC5100, Qualcomm Adreno and Qualcomm Hexagon are products of Qualcomm Technologies, Inc. and/or its subsidiaries.

To learn more visit: [Qualcomm.com/wearables](https://www.qualcomm.com/wearables)

Snapdragon W5+ and Snapdragon W5 Wearable Platforms

Purpose-built for next generation wearables to deliver dramatic improvements in power, performance, and size



Features & Specifications

System-on-Chip

- 4nm
- Quad-core Arm Cortex A53 1.7 GHz optimized for wearables
- Features low power islands for Wi-Fi, GNSS, Audio
- Incorporates low power states such as Deep Sleep and Hibernate
- Runs Wear OS by Google and AOSP

Always On Co-Processor

- 22nm
- Cortex M55 @ 250MHz
- 2.5D GPU
- U55 Machine Learning core
- Integrated Bluetooth 5.3
- HiFi5 DSP
- 8+ MB Memory
- Runs FreeRTOS

GPU

- Adreno 702 GPU @ 1Ghz

DSP

- Dual Hexagon QDSP V66K

Memory

- 1x16 LPDDR4- 2133 MHz

Display

- Up to 1080p 60fps, optimized for wearables
- Supports MIPI-DSI for the SoC and QSPI with DDR for the QCC5100 co-processor

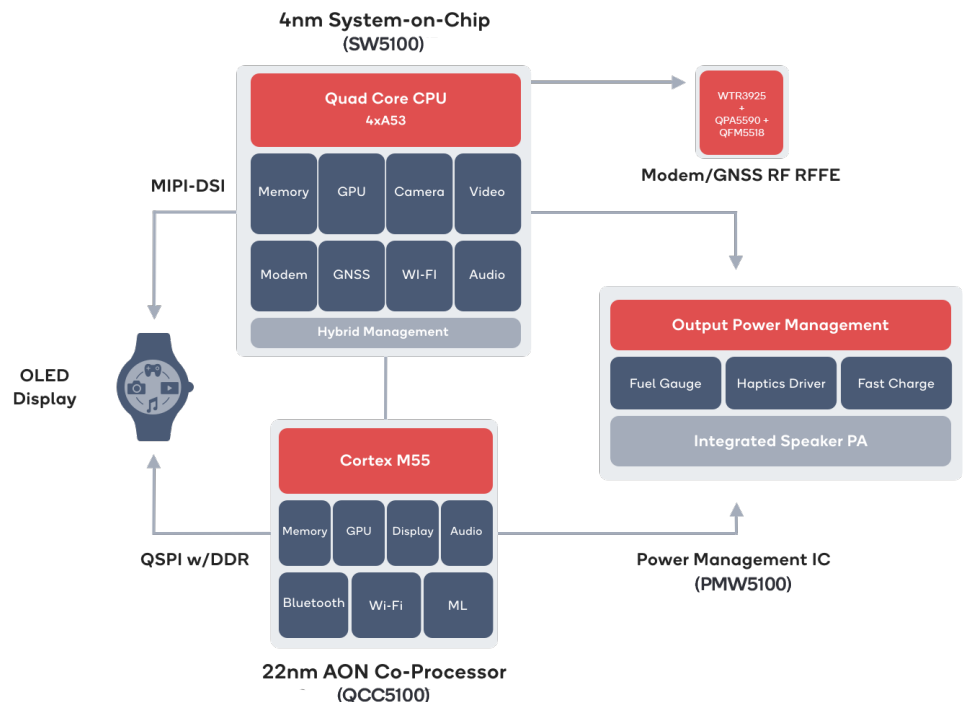
Connectivity

- Bluetooth 5.3
- 802.11/n (2.4GHz / 5Ghz)
- Integrated PA and LNA
- Co-ex for Bluetooth, Bluetooth LE, Wi-Fi and LTE
- USB 2.0
- NFC supported via third party

To learn more visit:

Qualcomm.com/wearables

Snapdragon W5+ Gen 1 Block Diagram



Modem

- Wearable optimized modem w/ Best-in-Class LTE Standby and VoLTE
- Rel 13 with Cat1 bis support
- E911 with z-axis support
- Cat 1/4, no CA
- Approved by >100 global network operators
- Snapdragon modem and GPS RF (Qualcomm® WTR3925, Qualcomm® WTR295)

Power Management

- New wearable PMIC optimized for low power and high integration (Qualcomm® PMW5100)

Location

- Gen 8C Satellite: GPS, Glonass, Beidou, Galileo
- Terrestrial: Wi-Fi, Cellular
- GNSS L1 (Qualcomm® WTR2965) or L1 + L5 (WTR3925)
- PDR4.5

Camera

- Next Gen Spectra ISP
- Dual ISP 16MP+16MP
- EIS 3.0, MFNR, Pseudo ZSL
- 2x CSI 4-lane DPHY/CPHY

RF Front End

- Qualcomm® RF Front End (RFFE) Solution
- Qualcomm® QPA5590 and Qualcomm® QFM5518

Operating System

- Wear OS by Google and Android Open Source supported on the SoC
- FreeRTOS support on the AON Co-Processor

Qualcomm WTR3925, Qualcomm WTR295, Qualcomm WTR2965, Qualcomm PMW5100, Qualcomm RFFE, Qualcomm QPA5590 and Qualcomm QFM5518 are products of Qualcomm Technologies, Inc. and/or its subsidiaries.

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