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

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 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 (AOSP), and RTOS. Also available without the QCC5100 AON co-processor as Snapdragon W5 wearable platform with support for Wear OS by Google and AOSP.

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

To learn more visit: Qualcomm.com/wearables

Materials are subject to change without notice.
87-43671-1 Rev. A
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 @ 250 MHz
- 2.5D GPU
- U55 Machine Learning core
- Integrated Bluetooth 5.3
- HiFi5 DSP
- 8+ MB Memory
- Runs FreeRTOS

GPU
- Adreno 702 GPU @ 1 GHz

DSP
- Dual Hexagon QDSP V66K

Memory
- 1x16 LPDDR4x 2133 MHz

Display
- Up to 1080p 60 fps, optimized for wearables
- Supports MIPI-DSI for the SoC and QSPI with DDR for the QCCS100 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

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® WTR2965)

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

Location
- Gen BC 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

To learn more visit:
Qualcomm.com/wearables

©2022 Qualcomm Technologies, Inc. and/or its affiliated companies. All Rights Reserved. Qualcomm, Snapdragon, Hexagon and Adreno are trademarks or registered trademarks of Qualcomm Incorporated. Other products and brand names may be trademarks or registered trademarks of their respective owners.