June 2020

Next Gen Wearable Experiences

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Smart Wearables Segment
Qualcomm Technologies, Inc.

Under Embargo Until June 30, 2020, 8am PST

What You Will Hear Today

Qualcomm snapdragon wear
4100+
4100

Growing Market   Hyper-segmentation

Voice, Video, Pictures, Music, Messaging, Health & Fitness, Sleep, Sports

Powerful Yet Flexible   **Hybrid Architecture**

Super-Fast Performance

Smarter AON Co-Processor   >85% Faster

4G Low Power Modem   12nm SoC

Choice of brands, IDs, price points, use cases

Enhanced and Personalized Experiences
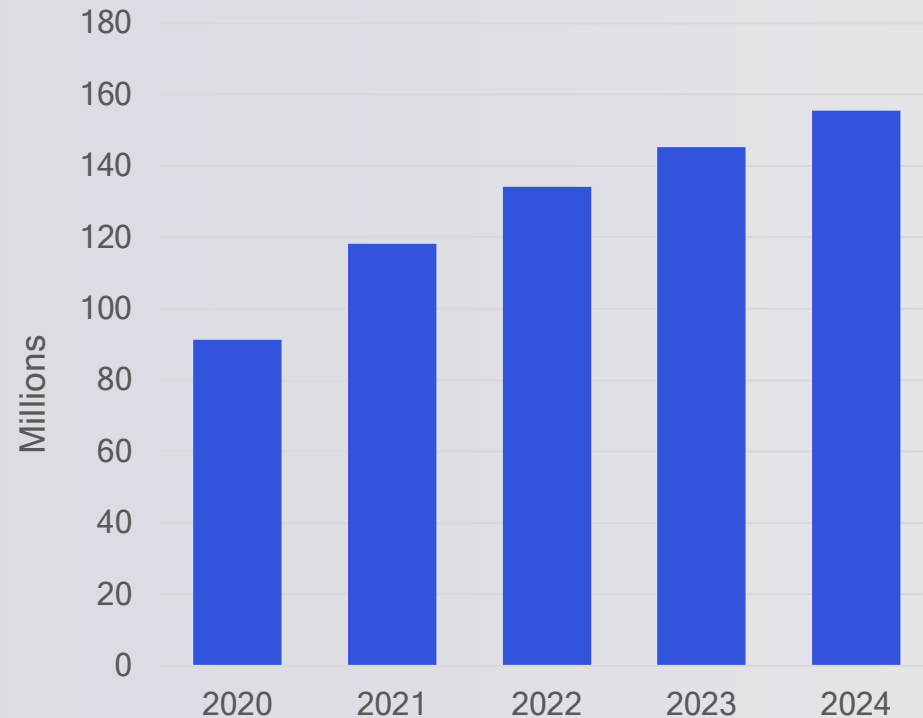
Smarter AON Co-Processor

BBK Z6 Ultra   >25% Longer Battery Life

Smartwatch is a watch   Mobvoi Tic Watch Pro Next Gen

Worldwide Smartwatch Forecast, 2020-2024

Source: IDC Worldwide Quarterly Wearables Tracker, June 2020. Watch includes both Basic Watches and Smart Watches. Basic watches incorporate a microprocessor, are capable of digitally processing data, and have wireless connectivity, but do not run third-party applications. Smart watches meet all four requirements.

The Growing Value of Wearables

Forbes, June 2020

Wearables have biggest year since 2015...
Health Explosion is on its way

Wareable, June 2020

Mobvoi's connected Ticwatch Pro 4G LTE takes on Apple and Samsung in the UK

Digital Trends, December 2019

Chinese Smartphone Makers Focusing on Smartwatch Opportunity

CCS Insights, June 2020

Wearables Industry: Growing Rapidly

Growing Market = Hyper-Segmenting Market

5-7 years ago | 2-3 years ago | TODAY

Adult Smartwatch

Kid Smartwatch

Flagship

Mass Market

Entry

Tracker

Senior Smartwatch

Tracker

Smartwatch

HELP
Contacting
Cancel

Luxury

Fashion

Phone Companion

Sports & Fitness
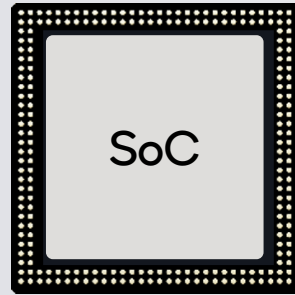
Enterprise

The "5-95" Rule

5%
Interactive

95%
Ambient

How do we use the smartwatch?

The "5-95" Rule

BIG

SoC

Interactive
5%

Ambient
95%

Traditional Architecture

The "5-95" Rule

BIG

LITTLE

SoC

Co-Processor

Interactive
5%

Ambient
95%
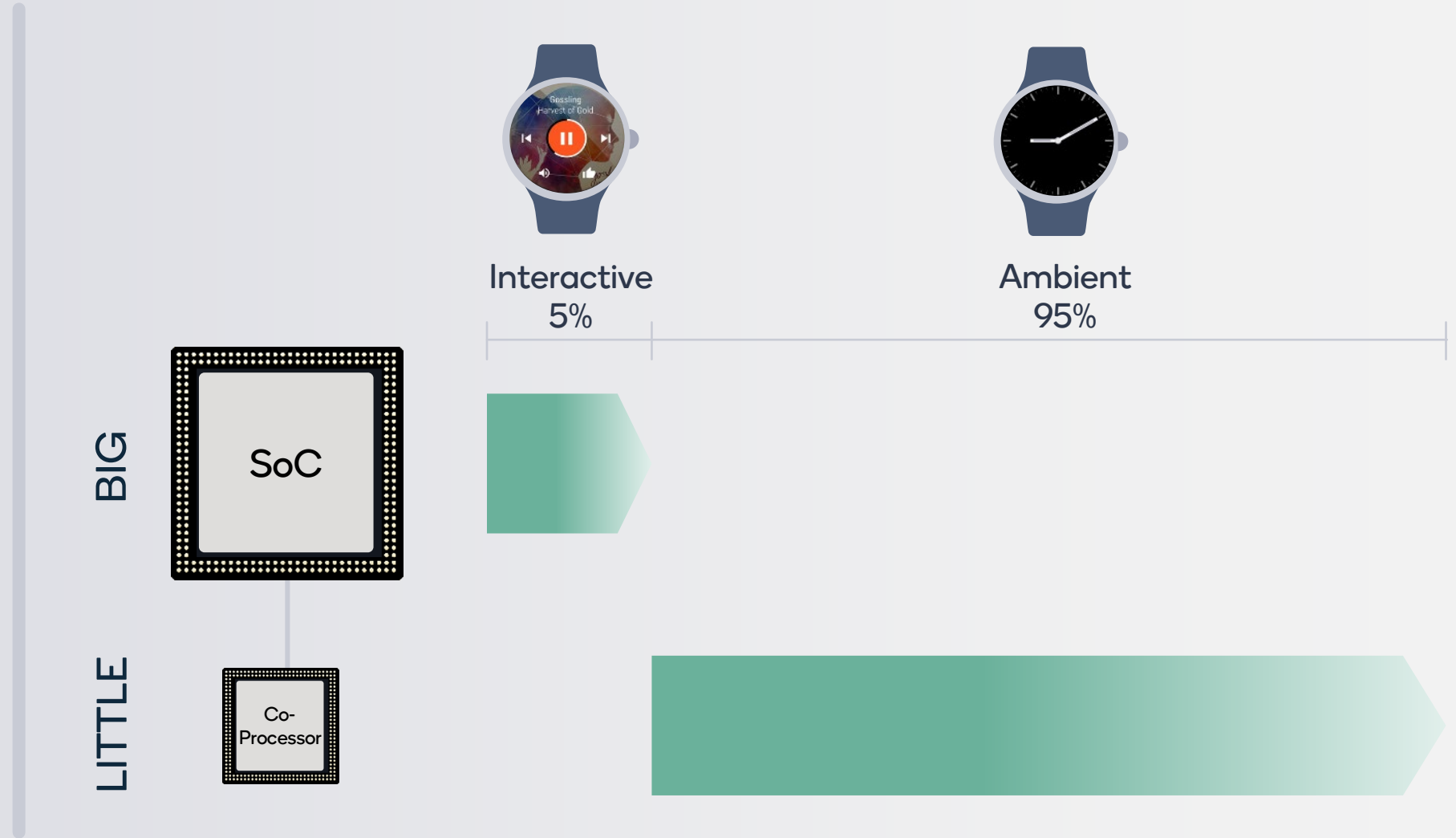
Hybrid Architecture: Powerful Yet Flexible

Luxury

Fashion

Phone
Companion

Sports & Fitness

Kids & Seniors

Qualcomm
snapdragon wear
3100 platform

Introduced in 2018, Based on Hybrid Architecture

Qualcomm Snapdragon Wear 3100 is a product of Qualcomm Technologies, Inc. and/or its subsidiaries.

Introduced in 2018, Based on Hybrid Architecture

Qualcomm Snapdragon Wear 3100 is a product of Qualcomm Technologies, Inc. and/or its subsidiaries.

Smart + Sports

- Up to 12 Hours GPS Tracking + Heart Rate

- Up to 48 Hours smartwatch use

- 70+ sports modes

- Offline outdoor maps

Qualcomm
snapdragon wear
3100 platform

SUUNTO 7

Sports and life, combined

Wear OS by Google

SUUNTO

Smart + Fashion

- Sleek design
- Extended battery life
- Rich ambient modes

Qualcomm
snapdragon wear
3100 platform

Source: Fossil

FOSSIL

Smart + Connected

- 4G LTE

- 21 days battery in power save mode

- 3D flexible display
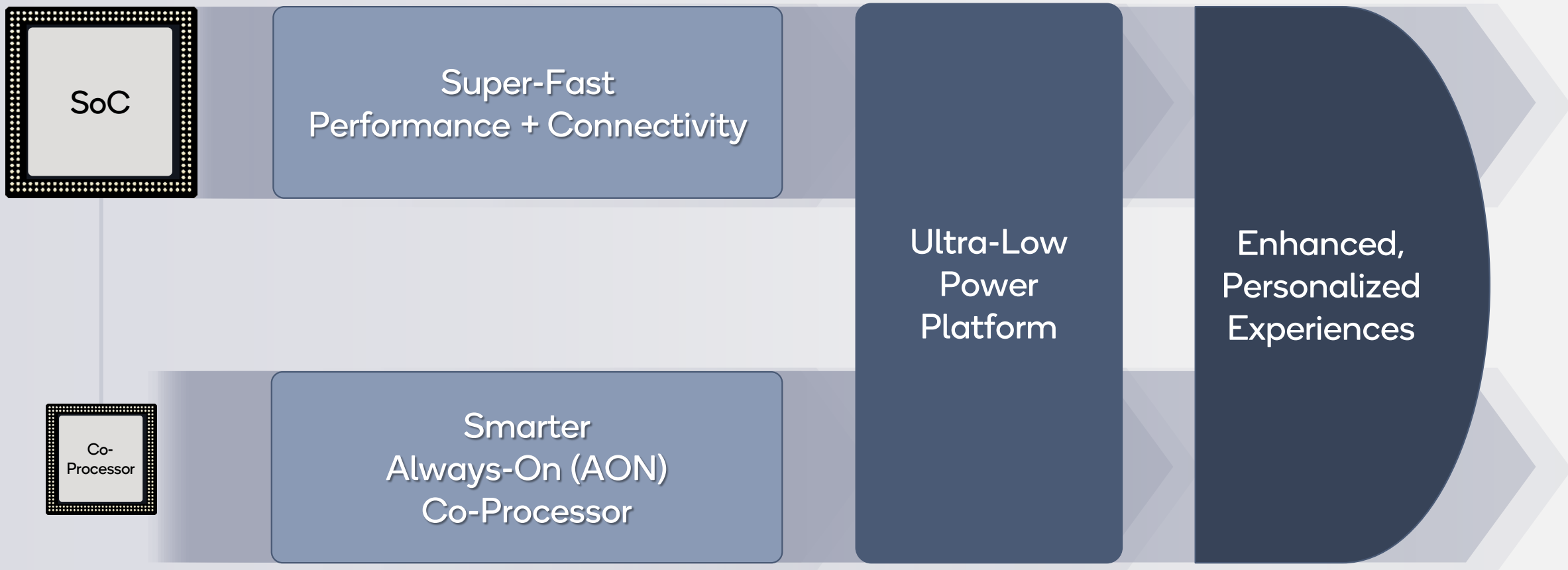
Qualcomm
snapdragon wear
3100 platform

OPPO

Source: Oppo.com

What's Next?

SoC

Co-Processor

Super-Fast
Performance + Connectivity

Smarter
Always-On (AON)
Co-Processor

Ultra-Low
Power
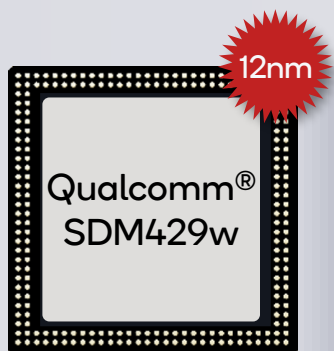Platform

Enhanced,
Personalized
Experiences

Enhancing Hybrid Architecture

Introducing the...

Qualcomm® Snapdragon Wear™ 4100+ Platform

Next generation connected smartwatch platform based on our ultra-low power hybrid architecture

4100+

Qualcomm
snapdragon wear

12nm

Qualcomm®
SDM429w

Qualcomm®
QCC1110

>85% Higher Performance
Improvements across: CPU, GPU, Memory, Modem, Camera

Super-Fast
Performance + Connectivity

Offloaded Use Cases
Display, Steps, cHRM, Tilt, Time, Maps

Smarter
AON Co-Processor

>25% Lower Power
12nm + Platform Optimizations

Ultra-Low Power Platform

Across Modes
Interactive, Ambient, Sports, Watch

Enhanced, Personalized Experiences

Snapdragon Wear 4100+ Value Proposition

SDW4100+ : Advancing the hybrid architecture

Snapdragon Wear 3100

Big

28nm

Quad-Core
Cortex-A7

Qualcomm® Adreno™ A304	LPDDR3 400MHz
MDSP	
ISP	SEE
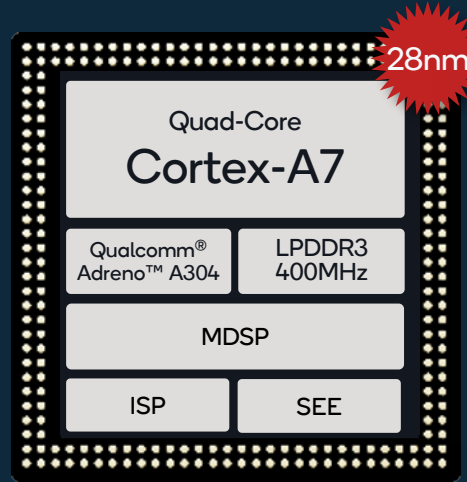
Significantly Faster Processor

28nm	→ 12nm
4x A7 @ 1.1GHz	→ 4x A53 @ 1.7GHz
Adreno 304	→ Adreno A504
400MHz	→ 750MHz

Snapdragon Wear 4100+

12nm

Quad-Core
Cortex-A53

Qualcomm® Adreno™ A504	LPDDR3 750MHZ
ADSP	MDSP
ISP x2	SEE
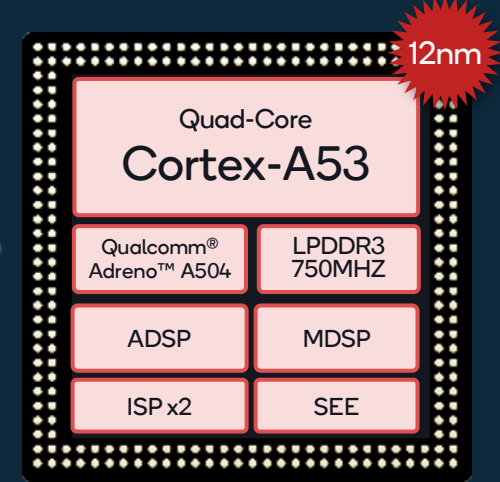
Stronger Always-On (AON) Software Interface

QCC1110

Little

Cortex-M0
Memory

PMU	DSP	SEE
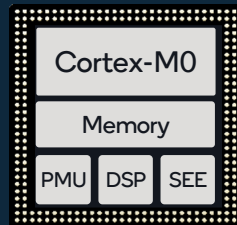
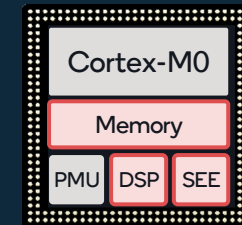## Smarter AON Co-Processor

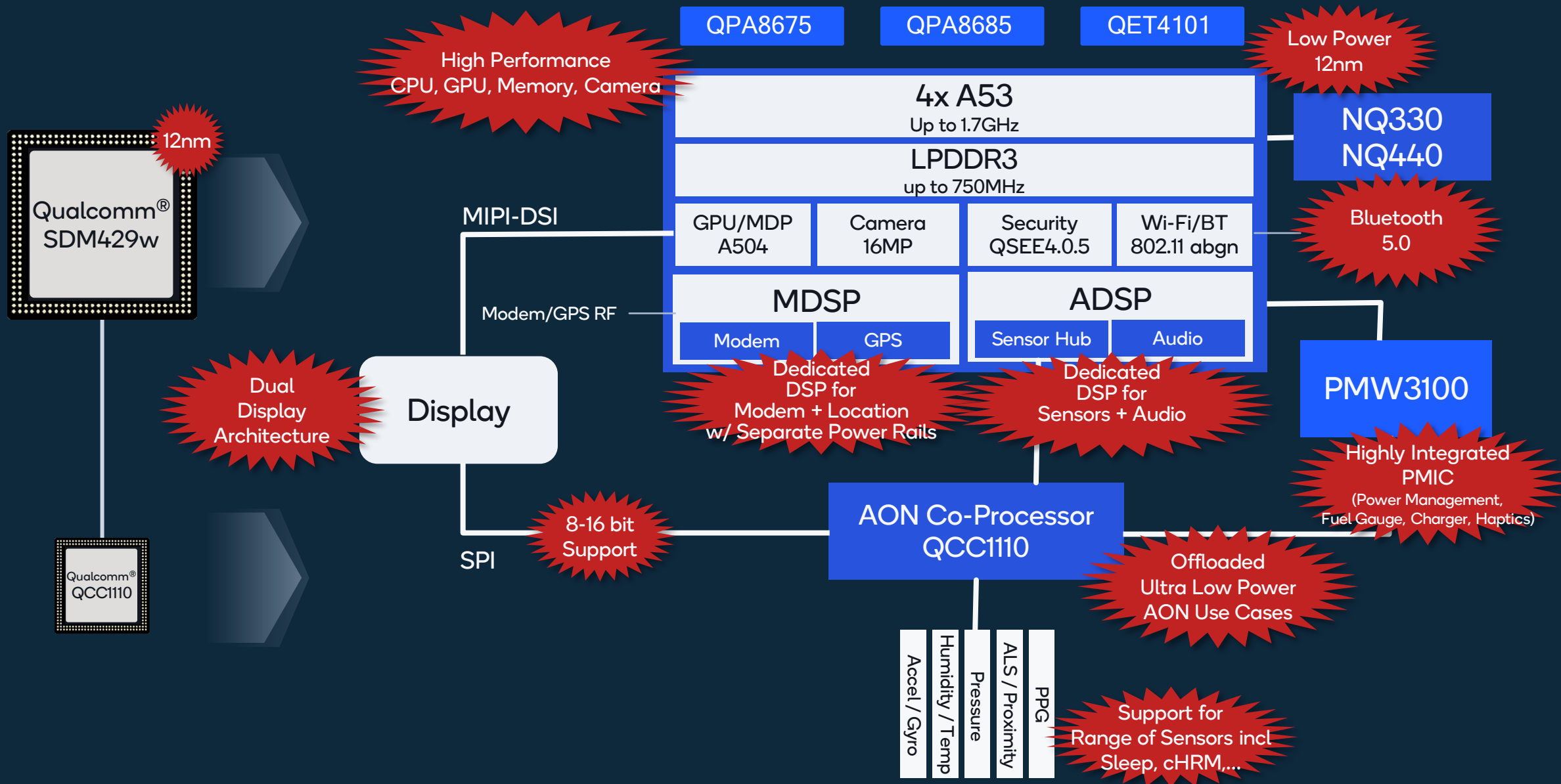**Richer Ambient Mode**
(16 colors → 64K colors)

More Capable Watch Mode
(Steps, cHRM, Alarms, Haptics, Tilt-to-Wake)

Enhanced QCC1110

Cortex-M0
Memory

PMU	DSP	SEE

Snapdragon Wear 4100+ Highlights

High Performance CPU, GPU, Memory, Camera

12nm

Qualcomm® SDM429w

Qualcomm® QCC1110

Dual Display Architecture

Display

MIPI-DSI

Modem/GPS RF

SPI

8-16 bit Support

QPA8675

QPA8685

QET4101

Low Power 12nm

4x A53
Up to 1.7GHz

LPDDR3
up to 750MHz

| GPU/MDP A504 | Camera 16MP | Security QSEE4.0.5 | Wi-Fi/BT 802.11 abgn |

MDSP
| Modem | GPS |

ADSP
| Sensor Hub | Audio |

NQ330 NQ440

Bluetooth 5.0

Dedicated DSP for Modem + Location w/ Separate Power Rails

Dedicated DSP for Sensors + Audio

PMW3100

Highly Integrated PMIC (Power Management, Fuel Gauge, Charger, Haptics)

AON Co-Processor QCC1110

Offloaded Ultra Low Power AON Use Cases

Accel / Gyro

Humidity / Temp

Pressure

ALS / Proximity

PPG

Support for Range of Sensors incl Sleep, cHRM,...

Qualcomm® SDM429w

12nm

>85% Higher Performance
Improvements across: CPU, GPU, Memory, Modem, Camera

Super-Fast Performance + Connectivity

Qualcomm® QCC1110

Smarter AON Co-Processor

Ultra-Low Power Platform

Enhanced, Personalized Experiences

Snapdragon Wear 4100+ Value Proposition

Super Fast Performance
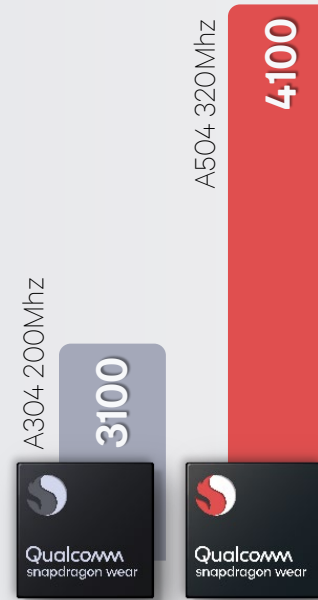## More fluid and feature-rich experiences
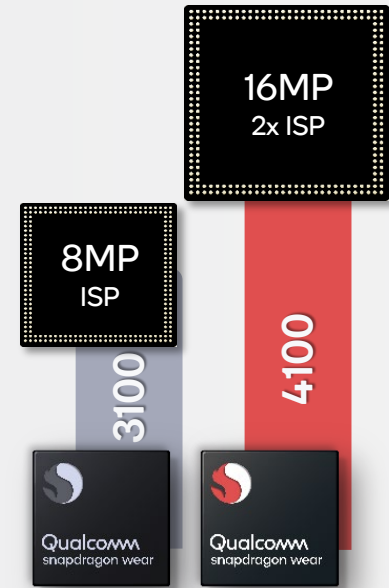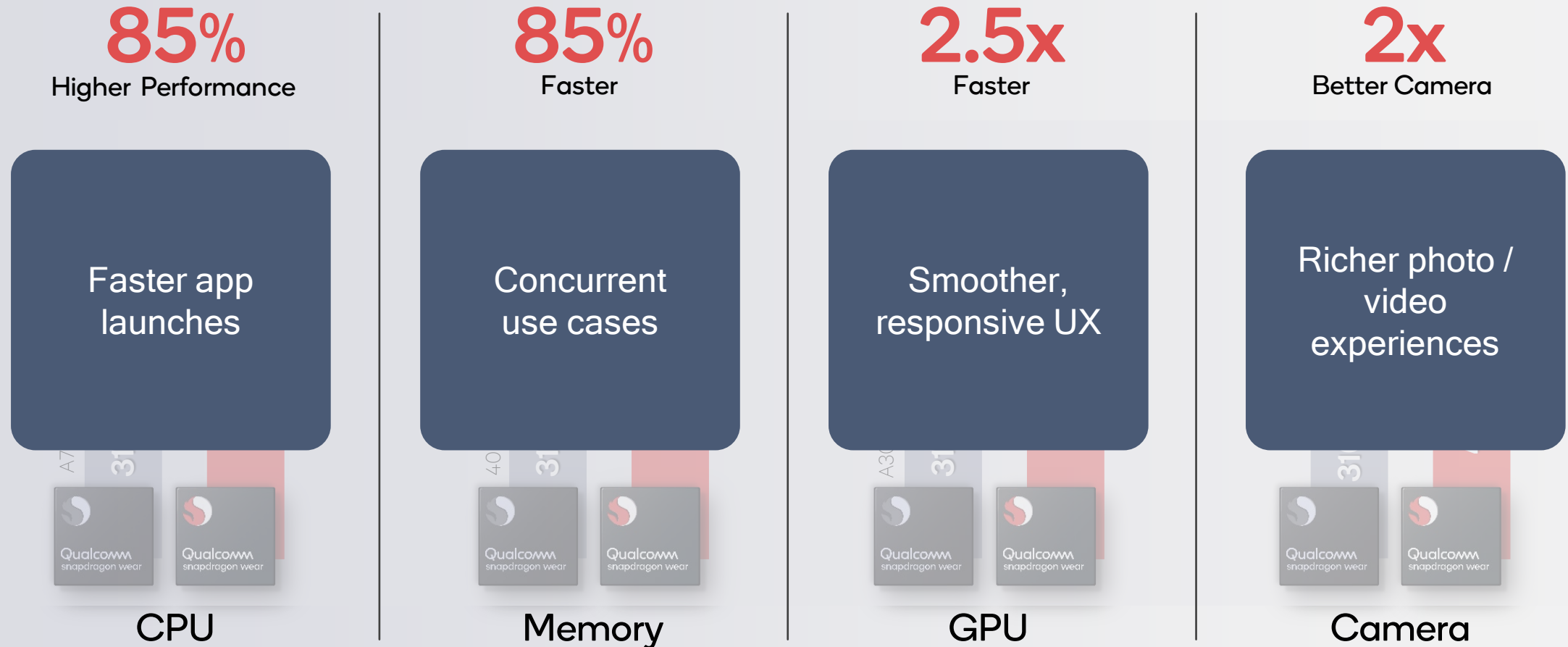
85%
Higher Performance

85%
Faster

2.5x
Faster

2x
Better Camera

A7 @1.1GHz — 3100
A53 @1.7GHz — 4100

CPU

400Mhz — 3100
750MHz — 4100

Memory

A304 200Mhz — 3100
A504 320Mhz — 4100

GPU

8MP ISP — 3100
16MP 2x ISP — 4100

Camera

Compared to Snapdragon Wear 3100 Platform, CPU performance gain calculated at *(1.7GHz x 2.3 DMIPS/MHz) / (1.1GHz 1.9 DMIPS per/MHz) = 85%

Super Fast Performance
More fluid and feature-rich experiences

85%
Higher Performance

85%
Faster

2.5x
Faster

2x
Better Camera

Faster app launches

Concurrent use cases

Smoother, responsive UX

Richer photo / video experiences

CPU

Memory

GPU

Camera

Plus Leading Edge 4G Modem

Take Your Experiences With You

4G

Efficient Modem Architecture
- Dedicated Modem DSP and power rails
- Right-sized modem

New Low Power Features
- 12nm
- Power optimizations for VoLTE, music, voice assistant
- eDRX to manage active and idle cycles

Performance Flexibility
- Support for Cat 4, 3, 1
- Single / Dual antenna for better range

Ecosystem Acceleration
- eSIM support
- Easy onboarding
- Simplified operator certs / GTM

Music Streaming On-The-Run

Voice Assistant On Your Wrist
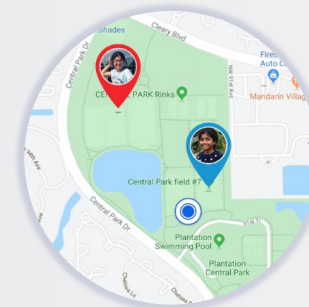
Real-time Maps On-The-Go

Phone-Free VoLTE & Messaging

12nm

Qualcomm® SDM429w

Qualcomm® QCC1110

Super-Fast Performance + Connectivity

Offloaded Use Cases
Display, Steps, cHRM, Tilt, Time, Maps

Smarter AON Co-Processor

Ultra-Low Power Platform

Enhanced, Personalized Experiences
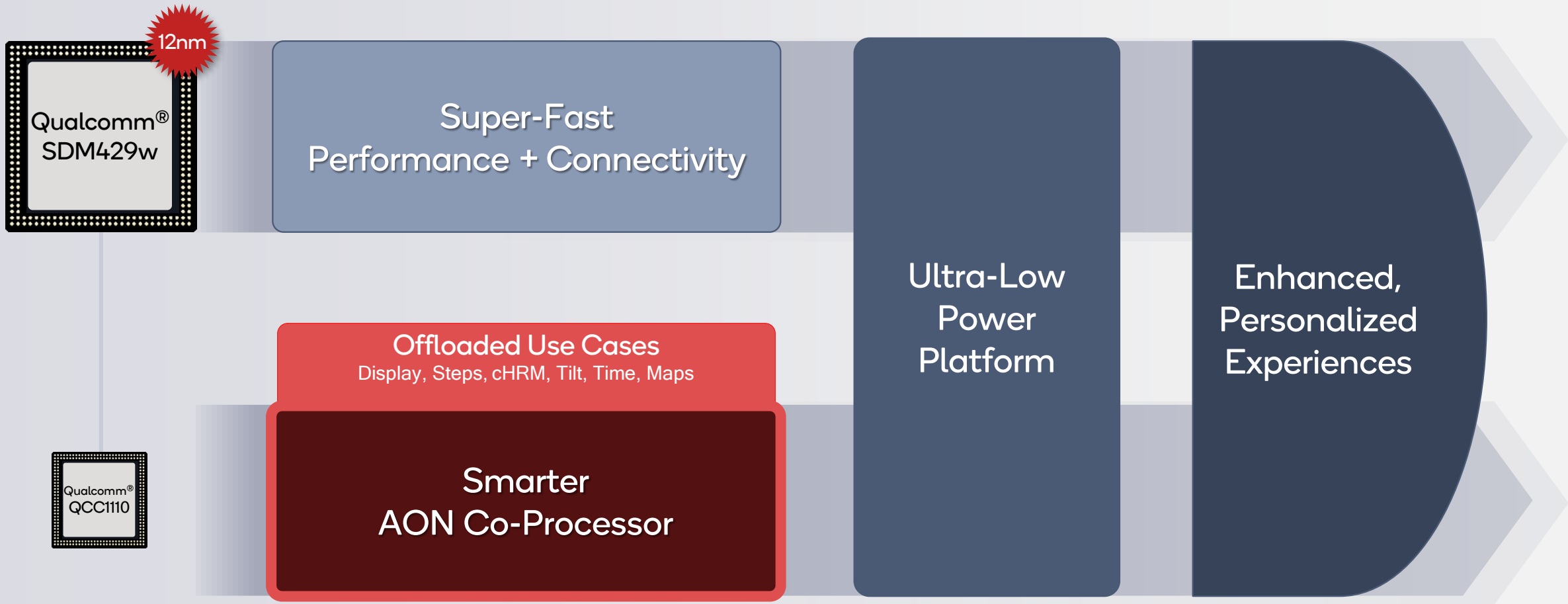
Snapdragon Wear 4100+ Value Proposition

Always On Co-Processor
Designed to Offload AON Use Cases

Qualcomm
QCC1110

Cortex-M0

Custom SRAM

PMU | DSP | SEE
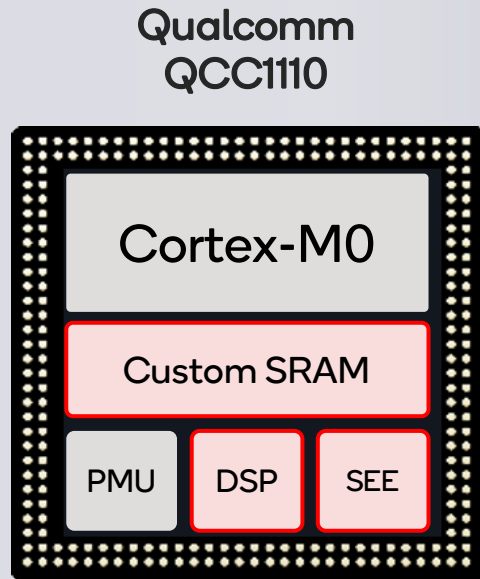
What is it?

- Tiny (5.2mm x 4mm)

- Ultra low power

- Integrates M0, PMU, custom designed SRAM

- Smart memory and performance partitioning

- Runs Sensor Execution Environment (SEE)

- Runs highly efficient event-driven RTOS

What does it make possible?

- Support for range of sensors (Sleep, cHRM, …)

- Support for extended functionality in Watch mode (Steps, cHRM, Tilt, Time, Maps,…)

- Supports dual display architecture (8-16 bit)

- Leverages Android open tool-chain

- Extensible over time

12nm

Qualcomm®
SDM429w

Qualcomm®
QCC1110

Super-Fast
Performance + Connectivity

Smarter
AON Co-Processor

>25% Lower Power
12nm + Platform
Optimizations

Ultra-Low
Power
Platform

Enhanced,
Personalized
Experiences
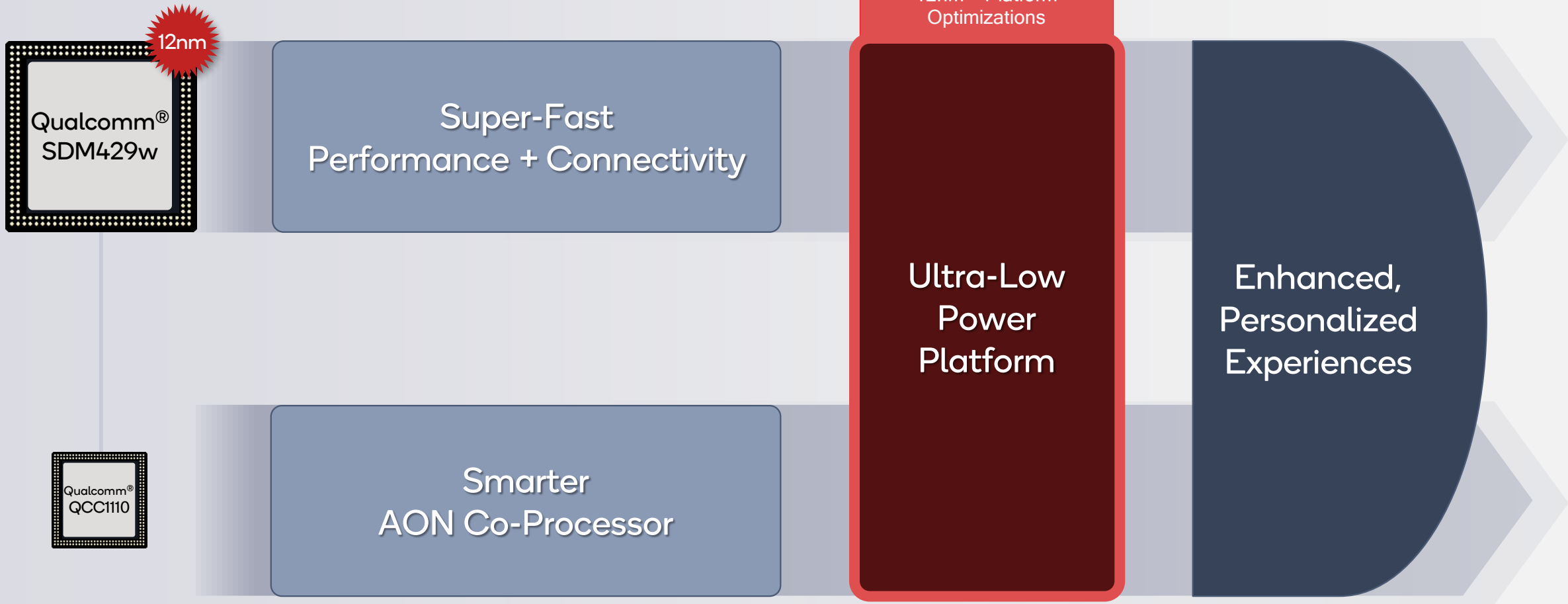
Snapdragon Wear 4100+ Value Proposition

Lower Power

Platform power reductions SDW4100+ vs SDW3100
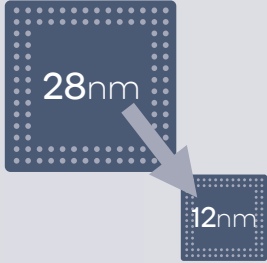
New Process Node

- Lower active power
- Higher energy efficiency
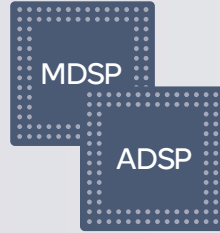
Low Power Platform Architecture

- Dual Dedicated DSPs
  - Modem + GNSS
  - Sensors + Audio
- Dynamic Clock and Voltage scaling

GPS Enhancements

- Qualcomm® Sensor Assisted Positioning for Wearables 2.0
- Support for: GPS, BDS, GLONASS, Galileo
- Low power tracking

Enhanced BT Architecture

- Bluetooth 5.0
- A2DP Streaming
- HFP voice

Qualcomm Sensor Assisted Positioning is a product of Qualcomm Technologies, Inc. and/or its subsidiaries.

Lower Power

Platform power reductions SDW4100+ vs SDW3100

GPS
Active

22%
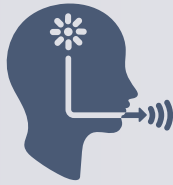
VoLTE
Call

29%

Stream Music
over 4G

35%

MP3
Over BT

35%
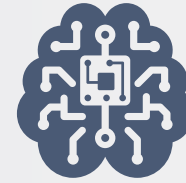
Voice Assistant
over LTE

37%

Scrolling through
Notifications

42%

Extended battery life
Maximizing on-wrist time across various segments

Fashion Watch

25% Longer
Battery Life

1.2" Display
360 mAH Battery

Sportswatch

18 Hours
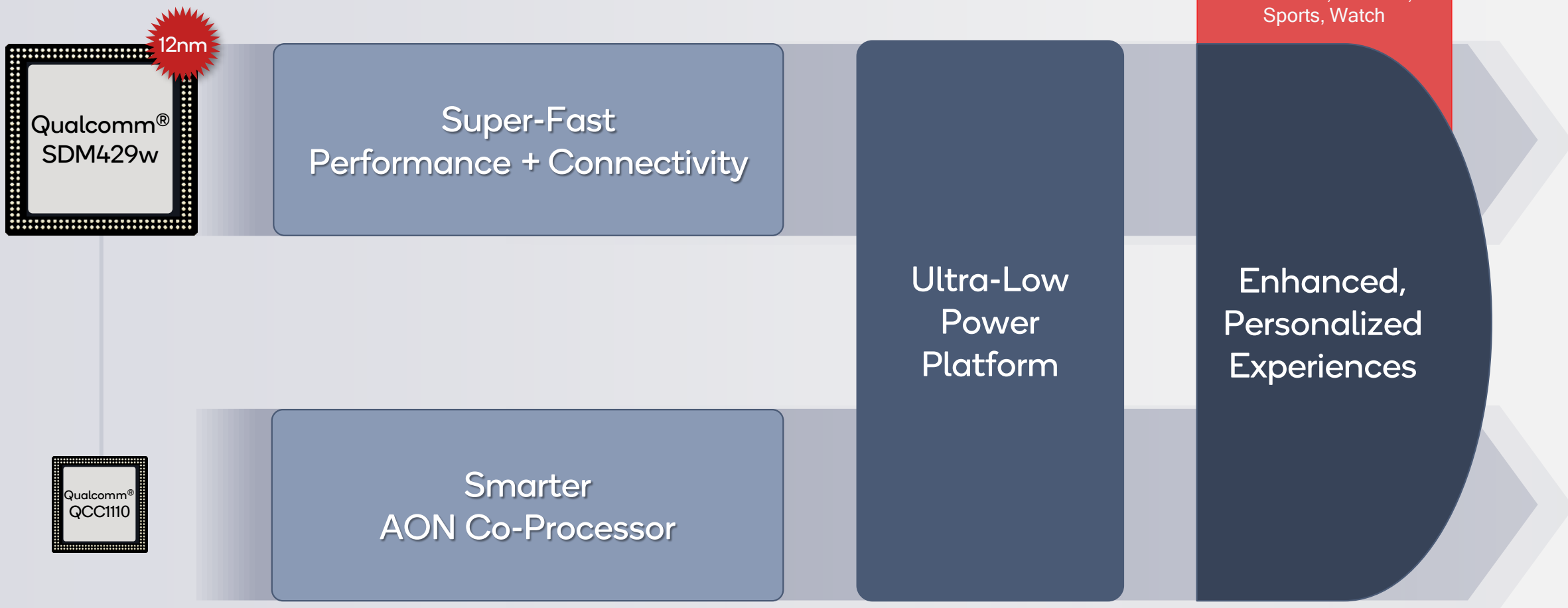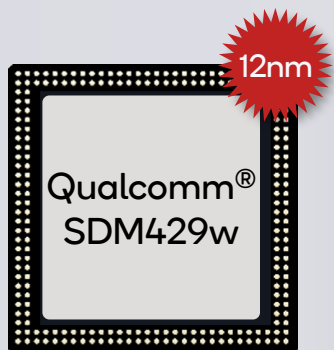Sports Mode

1.4" Display
450 mAH Battery

Connected Smartwatch

25% Longer
Battery life

1.3" Display
420 mAH Battery

What do we make possible?

Qualcomm® SDM429w

12nm

Qualcomm® QCC1110

Super-Fast Performance + Connectivity

Smarter AON Co-Processor

Ultra-Low Power Platform

Enhanced, Personalized Experiences

Across Modes
Interactive, Ambient, Sports, Watch

Snapdragon Wear 4100+ Value Proposition

12nm

Qualcomm®
SDM429w

Qualcomm®
QCC1110

Across Modes
Interactive, Ambient,
Sports, Watch

Enhanced,
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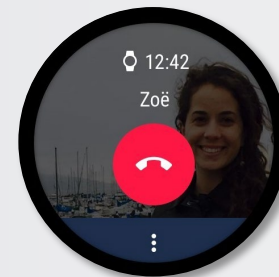
...when you are interacting
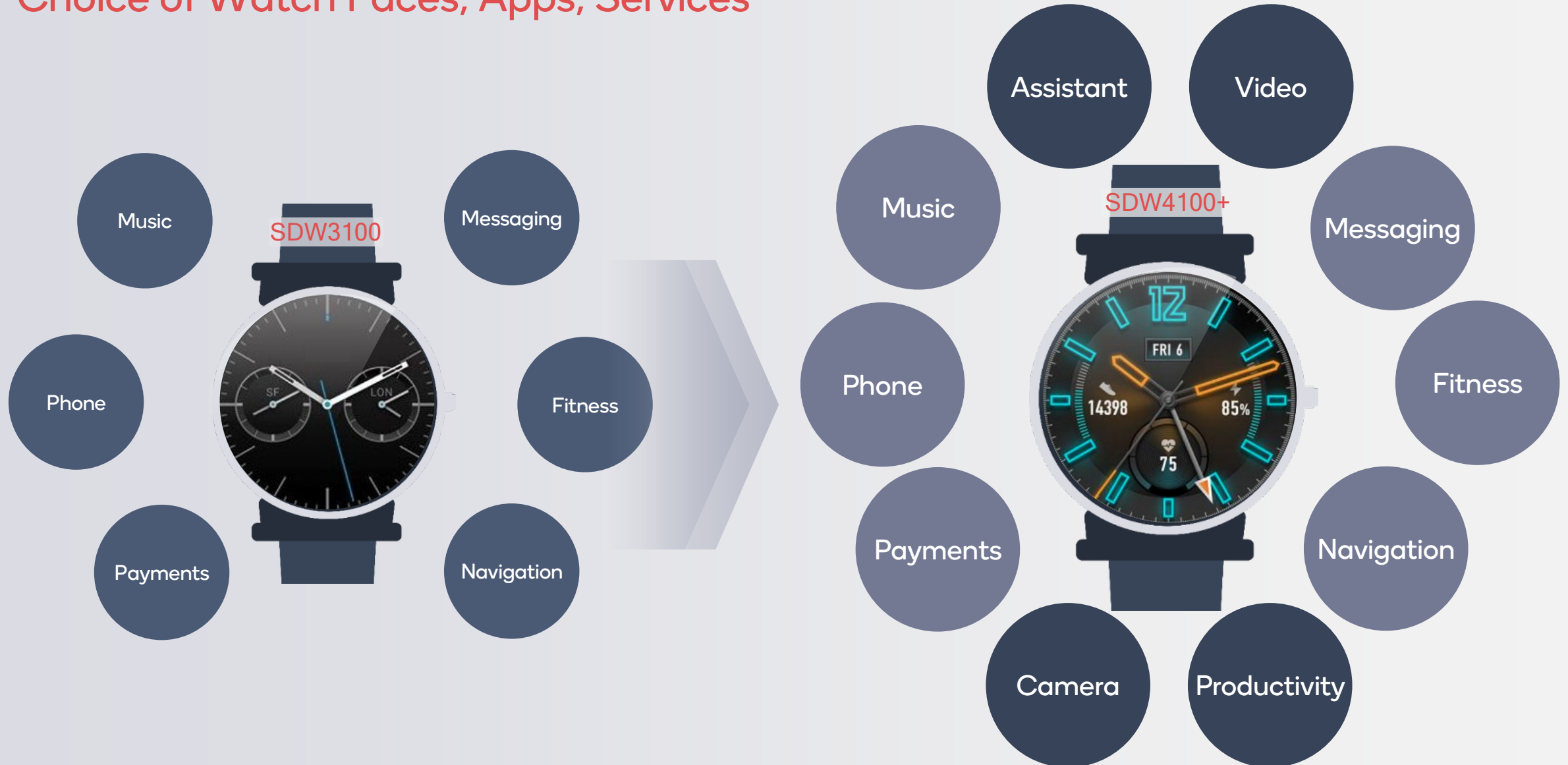with the watch

...when you are
in ambient mode

...when you go
for a run
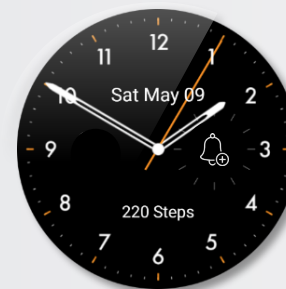
...when you forget your
charger

Immersive Interactive Experience
Choice of Watch Faces, Apps, Services

Music

Messaging

SDW3100

Phone

Fitness

Payments

Navigation

Assistant

Video

Music

SDW4100+

Messaging

Phone

Fitness

Payments

Navigation

Camera

Productivity

Richer Ambient Mode

Fashion Meets Smart

SDW3100

- 16 colors (4 bit)
- Smooth second hand
- Live complications
- Adaptive brightness and touch

SDW4100+

- Up to 64K colors (16 bit) for crisper image rendering - New
- Number kerning - New
- Support for Sleep, cHRM - New
- Smooth second hand
- Live complications
- Adaptive brightness and touch

Powerful Sports Mode
Sports Meets Smart

SDW3100

08:47:26

185 BPM   2503 CAL   36 MILES

- 16 colors (4 bit)
- Sensors offload

SDW4100+

2100 m
2000 m
2000 m
START
50 m

- Up to 64K colors (16 bit) for crisper image rendering - New
- Number kerning - New
- Sensors and Maps offload - New

Enhanced Watch Mode
Week-Long Battery Life

SDW3100

- 16 colors (4 bit)
- Time & Date

SDW4100+

- Up to 64K colors (16 bit) for crisper image rendering - New
- Number kerning - New
- Steps and Heart Rate - New
- Battery Indicator - New
- Alarms, Reminders, Haptics – New
- Time & Date

Portfolio of Wearable Platforms

Announcing
First Customers

小·天才

旋转双摄 | Z6 巅峰版

能 视 频 的 电 话 手 表

Xiaotiancai
1st Smartwatch for Kids
based on SDW4100

mobvoi

1st Wear OS by Google Smartwatch based on SDW4100

Summary

Qualcomm *snapdragon wear*
4100+ platform

Wearables growing and segmenting
- Require a powerful and flexible architecture
- Hybrid = best of experience and battery life, introduced w/ SDW3100
- Suunto 7 represents what is possible (Sports + Smarts)

Advancing with SDW4100+ announcement today
- Super-Fast Performance and Connectivity (>85% perf improvement)
- Smarter AON Co-Processor (From 16 to 64K colors)
- Ultra-Low Power Platform (>25% longer battery life)

Enabling Enhanced, Personalized Experiences
- Immersive experience when you interact
- Richer experience when you are in ambient
- Powerful experience when you go for a run
- Enhanced experience when you loose your charger

First products coming soon
- BBK = Flagship Kid Watch
- Mobvoi = First Wear OS by Google smartwatch

Qualcomm

Thank you

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