

# Snapdragon 660: Benchmarks, accents and everything you need to know

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## The long-awaited Snapdragon 653 chip finally appeared

Qualcomm switched to manufacturing 14nm node with Snapdragon 820, launched in early 2016. The company also implemented 14nm nodes for the mid-range segment with Snapdragon 625 (the successor chip for Snapdragon 617). Note 14 FinFET helps Snapdragon to be more efficient, 35% less power than the Snapdragon 617 28nm. As a result, the Snapdragon 625 became extremely popular, appearing on many devices from Redmi Note 4 (150 USD) to BlackBerry KEYone (500 USD). By the second half of 2017, Qualcomm has also released important updates for two new chips in the Snapdragon 600 series: Snapdragon 630 and Snapdragon 660.

Snapdragon 630 is a legacy chip directly for Snapdragon 625, with 30% faster multiplication, faster Bluetooth 5 support, LTE modem, USB 3.1 with USB-C, new ISP and Quick Charge 4.0.

1. What is Bluetooth 5? What benefits does it have for our lives?

The Snapdragon 660 is the more interesting chip in these two new products, it is the "transmission" of the Snapdragon 653. The Snapdragon 660 is designed to provide high-end performance for the mid-range segment, with updated series of Qualcomm. add. The Snapdragon 630 has Kryo kernels - one of the first chips to feature this in the mid-range segment, the new Adreno 512 GPU, the Snapdragon X12 LTE modem with download speeds of 600Mbps, and three times the service provider's connection. service, WiFi with 2x2 MU-MIMO, Spectra 160 image signal processor, Bluetooth 5, Quick Charge 4.0, USB 3.1. Qualcomm is trying to boost the Snapdragon 660's performance by 20% compared to the Snapdragon 653 thanks to the new Kryo 260 and increase GPU performance by 30%.

Before going deeper into this chip, please read the specifications of Snapdragon 660.

## Specifications of Snapdragon 660:

Snapdragon 660 Snapdragon 653 CPU - 4 core 2.2GHz Kryo 260

- 4 1.8GHz Kryo 260 - 4 cores of 1.95GHz Cortex A72

- 4 core 1.44GHz Cortex A53 GPU

Adreno 512 850MHz

Adreno 510 600MHz Memory RAM LPDDR4 Dual-channel, 1866MHz, 29.9GB / s RAM LPDDR3 Dual-channel, 933MHz, 14.9GB / s LTE - Snapdragon X12 LTE (Cat. 12)

- Download speed of 600Mbps, upload to 150Mbps

- 3x20MHz CA, 256-QAM - Snapdragon X9 LTE ??(Cat. 7)

- Download speed of 300Mbps, upload to 150Mbps
- 2x20MHz CA, 64-QAM Wi-Fi - Wi-Fi ac Wave2
- Maximum transfer speed of 867Mbps
- 2x2 MU-MIMO - Wi-Fi ac Wave2
- Maximum transfer rate of 433Mbps ISP - Spectra 160 14-bit
- 24MP single, dual 16MP
- Zero shutter lag, auto focus, optical zoom - Dual ISP
- 21MP single Bluetooth Bluetooth 5 Bluetooth 4.1 Fast charging Quick Charge 4.0 Quick Charge 3.0 Node 14nm LPP (Battery saving) 28nm HPm (High performance)

There is no detailed information about the ARM core that Kryo 260 relies on, but it seems Qualcomm is using a semi-custom design, just like they did with the Kryo 280 on the Snapdragon 835. The core configuration is divided into two parts, efficient and efficient, with the presence of 2.2GHz and 4-core 1.8GHz.

The Spectra 160 is particularly interesting, because it allows for many camera experiences that are only found on high-end chips. ISP supports autofocus, dual camera settings (up to 16MP for each image sensor), auto focus 2 photodiode, smooth optical zoom and EIS for video.

### **The benchmark of Snapdragon 660:**

#### AnTuTu Benchmark

DevicePoint Overall POPO R11 (SD660) 118525 Smartron srt.phone (SD652) 78923 Xiaomi Mi 6 (SD835) 158292 Samsung Galaxy S8 + (Exynos 8895) 170219 Google Pixel XL (SD821) 132728 Lenovo Z2 Plus (SD820) 133341 Moto Z2 Play (SD626) ) 68644 Redmi Note 4 (SD625) 62230  
Geekbench 4.0

Device One MultiplierPOPOP R11 (SD660) 1608 5848 Smartron srt.phone (SD652) 1425 2815 Xiaomi Mi 6 (SD835) 1919 6095 Samsung Galaxy S8 + (Exynos 8895) 1996 6441 Google Pixel XL (SD821) 1604 4162  
Lenovo Z2 Plus (SD820) 1692 3239 Moto Z2 Play (SD626) 911 4594 Redmi Note 4 (SD625) 843 2754  
Basemark OS II

DevicePoint Total PO R11 (SD660) 2326 Smartron srt.phone (SD652) 1535 Xiaomi Mi 6 (SD835) 3424  
Samsung Galaxy S8 + (Exynos 8895) 2597 Google Pixel XL (SD821) 2340 Lenovo Z2 Plus (SD820) 2127  
Moto Z2 Play (SD626 ) 1221 Redmi Note 4 (SD625) 1082  
Google Octane 2.0

EquipmentPoint Total PO R11 (SD660) 9342 Smartron srt.phone (SD652) 8683 Xiaomi Mi 6 (SD835) 11658  
Samsung Galaxy S8 + (Exynos 8895) 8076 Google Pixel XL (SD821) 8032 Lenovo Z2 Plus (SD820) 6364  
Moto Z2 Play (SD626 ) 4828 Redmi Note 4 (SD625) 3887  
GFXBench GL Benchmark

Device Car chaseManhattanOPPO R11 (SD660) 8.6 15 Smartron srt.phone (SD652) 5.9 9.9 Xiaomi Mi 6 (SD835) 22 37 Samsung Galaxy S8 + (Exynos 8895) 25 41 Google Pixel XL (SD821) 19 30 Lenovo Z2 Plus (SD820) 19 32 Moto Z2 Play (SD626) 3.5 6.5 Redmi Note 4 (SD625) 3.4 6.2  
3DMark (Sling Shot Extreme)

DevicePoint Total PO11 R11 (SD660) 1354 Smartron srt.phone (SD652) 900 Xiaomi Mi 6 (SD835) 3321  
Samsung Galaxy S8 + (Exynos 8895) 2575 Google Pixel XL (SD821) 2655 Lenovo Z2 Plus (SD820) 2347  
Moto Z2 Play (SD626 ) 469 Redmi Note 4 (SD625) 455

OPPO R11 is the first phone equipped with Snapdragon 660, and it gives us a first look at the speed of the Snapdragon 660 compared to Snapdragon 652, Snapdragon 835 and others.

The benchmark score shows that the overall performance of the Snapdragon 660 has increased, almost equal to last year's SoC high-end chip. Battery life of Snapdragon also improved significantly.

Currently, the main problem of Snapdragon is that it is not yet popular. OPPO R11 has only been sold in Asia and not available for markets outside this region in the near future. In the fourth quarter of this year, the Moto X4 is also rumored to have a Snapdragon 660, if so, this will be the first phone equipped with a Snapdragon 660 in the US.

When the Snapdragon 660 becomes a trend, this chip will quickly become the most popular mid-range chip on the market. From a CPU perspective, it has a pretty close benchmark to the Snapdragon 835 in some respects and easily defeated SoC in terms of price. There are many things worth waiting for on this chip. Wait and watch it!

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