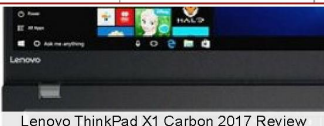




Apple MacBook Pro 15 Mid 2017 Review



Lenovo ThinkPad X1 Carbon 2017 Review



Apple MacBook Pro 13 Touch Bar 2017 Review



Lenovo ThinkPad P51 Review

Samsung Exynos 5430 Octa

The **Samsung Exynos 5430 Octa** (also called Exynos 5 Octa) is a system-on-a-chip (SoC) for smartphones and tablets. It was launched in mid-2014 alongside the Samsung **Galaxy Alpha** and features four Cortex-A15 cores clocked at up to 1.8 GHz. Furthermore, there are four additional Cortex-A7 cores at up to 1.3 GHz, an ARM Mali-T628 MP6 GPU and a 2x 32 bit LPDDR3(E)-2133 memory controller up to 14.9 GB/s. As the SoC lacks an internal cellular modem, an additional module will be necessary for use in smartphones.

Processor

Compared to the commonly used Cortex-A9 and Cortex-A7 architecture, the A15 cores offer an at least 50 percent better performance per clock as well as relatively high frequencies, which makes the Exynos 5430 one of the high-end ARM SoCs of 2014. On average, the CPU performance is roughly on par with the Qualcomm **Snapdragon 801** or Nvidia **Tegra 4**. Compared to the very similar **Exynos 5420** (28 nm), the more efficient 20 nm process allows a better utilization of the clock headroom leading to a slightly higher performance.

In addition, Samsung has integrated four Cortex-A7 cores clocked up to 1.3 GHz. Depending on the system load, the SoC will automatically switch between the more powerful A15 cores and the more efficient A7 cores to improve power consumption and battery life in a concept ARM calls "big.LITTLE". Similar to previous models, all eight cores can be used simultaneously, so that the chip can be described as a "true" octa-core SoC.

Graphics

Just like the Exynos 5420, the Exynos 5430 integrates a **Mali-T628 MP6** GPU, which offers six shader clusters clocked at up to 600 MHz (122 GFLOPS). The Mali-T628 supports OpenGL ES 3.0, OpenCL 1.1 and DirectX 11 and offers a performance that is just slightly behind the **Adreno 330** (Snapdragon 801) or a **PowerVR G6430** (Apple A7). However, Nvidia's **Tegra K1** or the **Apple A8** are even faster. Nevertheless, the GPU can run even the most demanding Android games at high resolutions (up to 2560 x 1600 pixels) and detail settings.

Power Consumption

Thanks to a new 20 nm process, the Exynos 5430 is significantly more efficient than the Exynos 5420 and other 28 nm high-end SoCs. Overall, the power consumption is still relatively high and best suited for medium-sized (or bigger) smartphones as well as tablets.

» Mobile CPU Comparison

Comparison of all mobile CPU series

» Mobile Processors - Benchmarklist

Benchmarklist of all known CPUs that are used in laptops (desktop and laptop CPUs)

Other CPUs of the series Samsung Exynos

- » **Samsung Exynos 8895 Octa**
2.3 GHz / 0 MB
- » **Samsung Exynos 8890 Octa**
2.6 GHz / 0 MB
- » **Samsung Exynos 7420 Octa**
2.1 GHz / 0 MB
- » **Samsung Exynos 5433 Octa**
1.9 GHz / 0 MB
- » **Samsung Exynos 5430 Octa**
1.8 GHz / 0.5 MB
- » **Samsung Exynos 5420 Octa**
1.8 GHz / 0.5 MB
- » **Samsung Exynos 7880**
1.9 GHz / 0 MB
- » **Samsung Exynos 7870 Octa**
1.6 GHz / 0 MB
- » **Samsung Exynos 5410 Octa**
1.6 GHz / 0.5 MB
- » **Samsung Exynos 5260 Hexa**
1.7 GHz / 0 MB
- » **Samsung Exynos 5410 Octa**
1.6 GHz / 0.5 MB
- » **Samsung Exynos 5250 Dual**
1.7 GHz / 1 MB
- » **Samsung Exynos 7580 Octa**
1.6 GHz / 0 MB
- » **Samsung Exynos 7578**
1.5 GHz / 0 MB
- » **Samsung Exynos 7570 Quad**
1.4 GHz / 0 MB
- » **Samsung Exynos 4412 Quad**
1.4 GHz / 0 MB
- » **Samsung Exynos 3470 Quad**
1.4 GHz / 0 MB
- » **Samsung Exynos 3475 Quad**
1.3 GHz / 0 MB
- » **Samsung Exynos 4212 1.5 GHz**
1.5 GHz / 1 MB

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Series	Samsung Exynos	» Samsung Exynos 4210 1.4 GHz
Codename	Cortex-A7/-A15	1.4 GHz / 1 MB
Clock Rate	1800 MHz	» Samsung Exynos 4210 1.2 GHz
Level 1 Cache	8x 64 KB	1.2 GHz / 1 MB
Level 2 Cache	512 + 2048 KB	
Number of Cores / Threads	8 / 8	
Manufacturing Technology	20 nm	
Features	ARM Mali-T628 MP6 GPU (600 MHz), 4x Cortex-A15 (1.8 GHz) + 4x Cortex-A7 (1.3 GHz, big.LITTLE), 2x 32 Bit LPDDR3(E)-2133 Memory Controller	
GPU	ARM Mali-T628 MP6 (? - 600 MHz)	
64 Bit	no 64 Bit support	
Announcement Date	08/14/2014	
Product Link (external)	Samsung Exynos 5430 Octa	

Benchmarks

Vellamo 3.x - Metal

0%

100%

min: 1577 avg: 1577 (42%) median: 1577 (42%) max: 1577 Points

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Vellamo 3.x - Multicore Beta

0%

100%

min: 1679 avg: 1679 (37%) median: 1679 (37%) max: 1679 Points

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Vellamo 3.x - Browser

0%

100%

min: 2707 avg: 2707 (36%) median: 2707 (36%) max: 2707 Points

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Octane V2 - Total Score

0%

100%

min: 5640 avg: 5640 (13%) median: 5640 (13%) max: 5640 Points

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Mozilla Kraken 1.1 - Total Score

0%

100%

min: 5056 avg: 5056 (9%) median: 5056 (9%) max: 5056 ms

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Geekbench 3 - 32 Bit Multi-Core Score

0%

100%

min: 3209 avg: 3209 (10%) median: 3209 (10%) max: 3209 Points

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Geekbench 3 - 32 Bit Single-Core Score

0%

100%

min: 951 avg: 951 (20%) median: 951 (20%) max: 951 Points

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3DMark - Ice Storm Unlimited Physics 1280x720 offscreen

0%

100%

min: 15934 avg: 15934 (23%) median: 15934 (23%) max: 15934 Points

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3DMark - Ice Storm Extreme Physics 1920x1080

0%

100%

min: 7221 avg: 7221 (11%) median: 7221 (11%) max: 7221 Points

Surrounding CPUs

- Intel Core i5 430UM
1.2 GHz / 0.5 MB + 3 MB
- Qualcomm Snapdragon 801 MSM8974AC
2.45 GHz / 2 MB
- AMD A-Series A6-4455M
2.1 GHz / 2 MB
- AMD A-Series A4-5145M
2 GHz / 1 MB
- AMD A-Series A4-4355M
1.9 GHz / 2 MB
- » Samsung Exynos 5430 Octa
1.8 GHz / 0.5 MB
- + Mediatek MT6595
2.2 GHz / 2048 KB
- + Intel Celeron N2830
2.16 GHz / 1024 KB
- + Qualcomm Snapdragon 801 APQ8074AB
2.36 GHz / 2048 KB
- + Qualcomm Snapdragon 801 MSM8974AB
2.36 GHz / 2048 KB
- + Intel Celeron N2820
2.17 GHz / 1024 KB



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AnTuTu Benchmark v5 - Total Score



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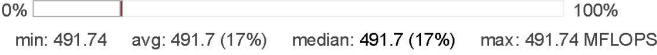
Sunspider - 1.0 Total Score



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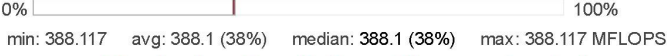
Linpack Android / IOS - Multi Thread



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Linpack Android / IOS - Single Thread



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- Range of benchmark values for this graphics card

- Average benchmark values for this graphics card

Reviews for the Samsung Exynos 5430 Octa processor

- Samsung Galaxy Alpha (ARM Mali-T628 MP6, 4.7")
- » Samsung Galaxy Alpha SM-G850F Smartphone Review - Review
 - » Samsung Galaxy Alpha - External Review

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Klaus Hinum (Update: 2014-10-19)

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