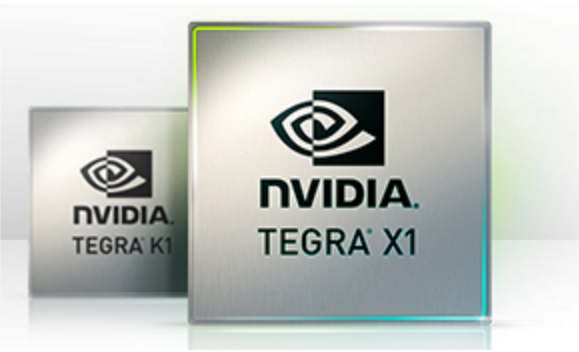




Nvidia Tegra X1

Erista

ISA Supported: GM20B (Maxwell)

Technical Specifications

CPU

CPU Cores



Primary CPU ⓘ	4x Cortex-A57
Companion CPU ⓘ	4x Cortex-A53
CPU Architecture ⓘ	ARM big.LITTLE
L1 Instruction Cache ⓘ	48 KB/Core
L1 Data Cache ⓘ	32 KB/Core
L2 Cache ⓘ	2 KB/Core

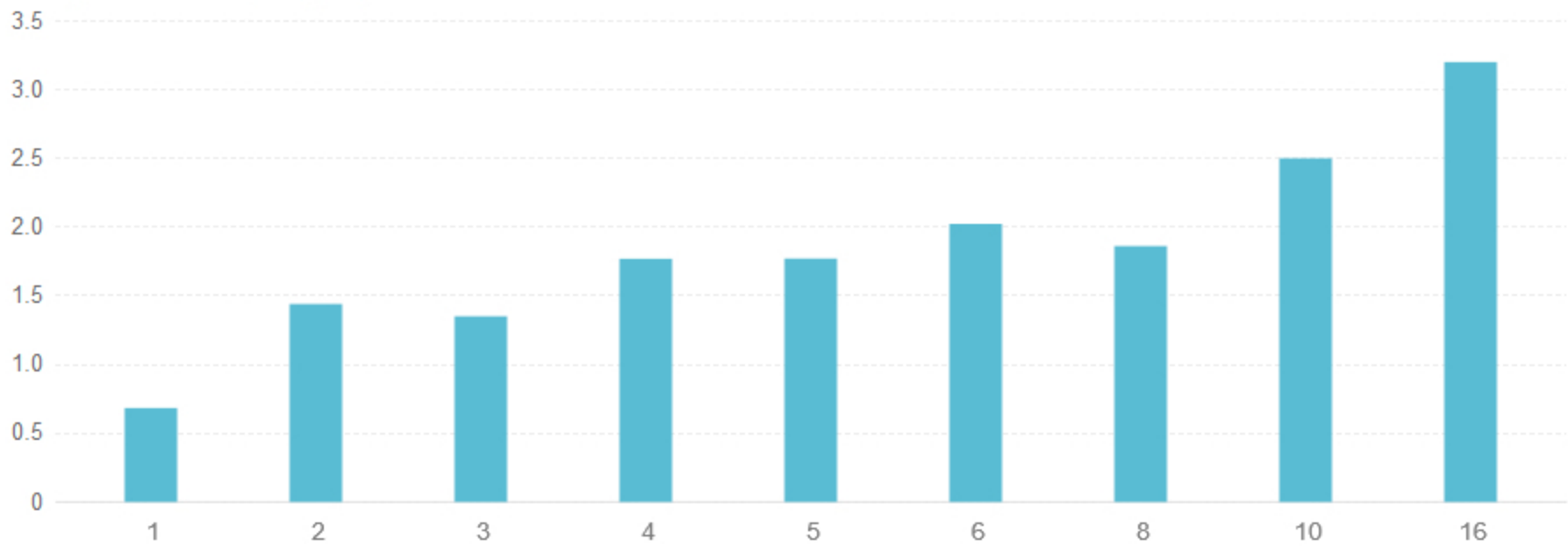
Performance

The Nvidia Tegra X1 CPU has 8 core(s), resulting in *extremely efficient* multi-tasking when compared to dual core processors.

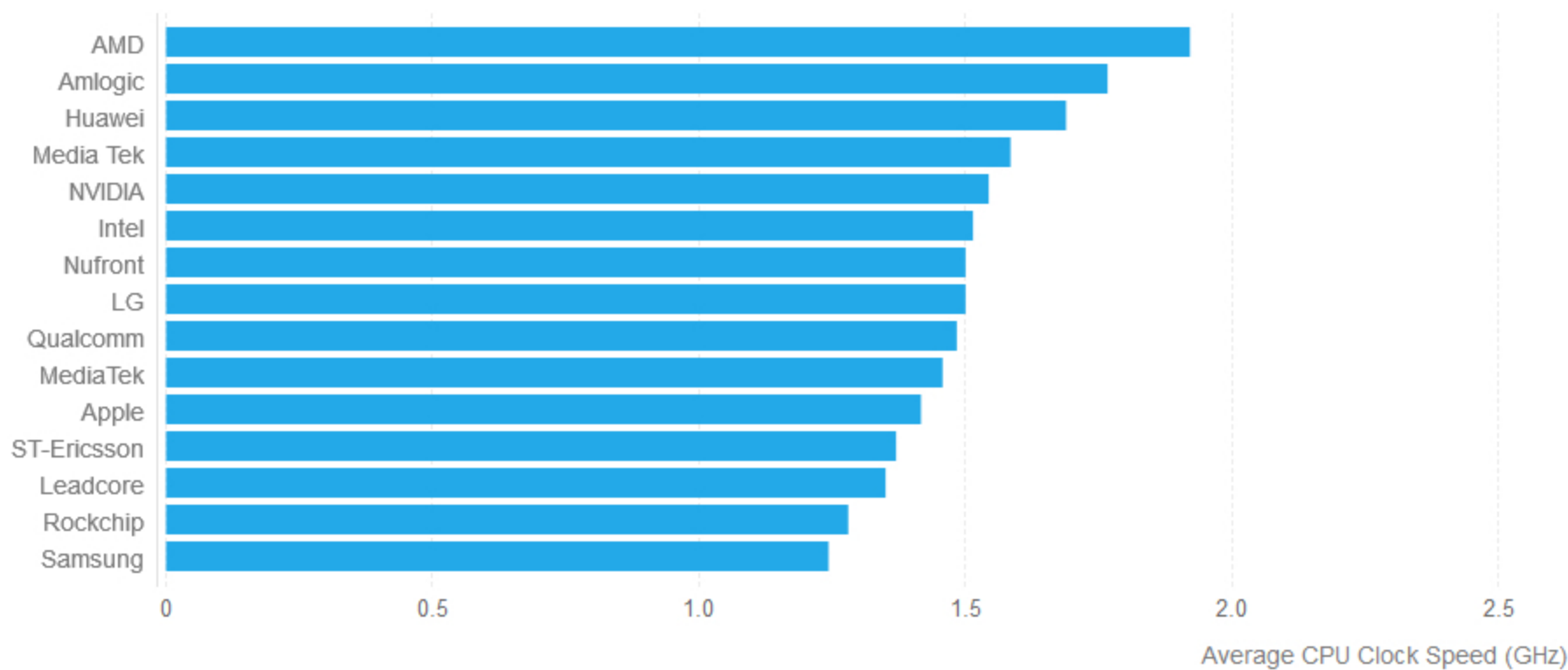
Power Management

By using the big.LITTLE heterogenous computing architecture, the Nvidia Tegra X1 couples slower, low-power processor cores with relatively faster, high-power processor cores in order to reduce energy consumption. The "big" or faster cores are used for computation-intensive tasks such as gaming, whereas the "little" or slower cores are used for less intensive tasks.

Average CPU Clock Speed (GHz)



The average clock speed by manufacturer



Graphics Processing Unit

GPU ⓘ	NVIDIA Maxwell 256-core GPU
Advanced Graphics APIs ⓘ	DirectX 12
	OpenGL 4.4
	OpenGL ES 3.1

The NVIDIA Maxwell 256-core GPU is a separate graphics processor solely intended for the accelerated creation of images to be outputted to a display. Its entire architecture is structured around processing large blocks of data in parallel.

Each API provides an interface for high-level languages to utilize the graphics processing options in order to deliver better graphics for various applications.

External Components

RAM Interface ⓘ	LPDDR3, LPDDR4
Video Encoding ⓘ	2160p
Video Decoding ⓘ	2160p

Additional Information

Feature Size ⓘ	20nm
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Huawei HiSilicon
Kirin 935

vs



Nvidia Tegra X1
Erista

vs



Qualcomm
Snapdragon 430
MSM8937

vs



Samsung Exynos 7
Octa 7580

vs

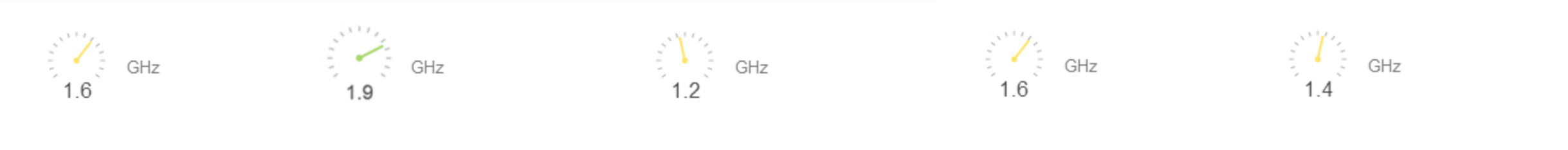


Qualcomm
Snapdragon 415
MSM8929

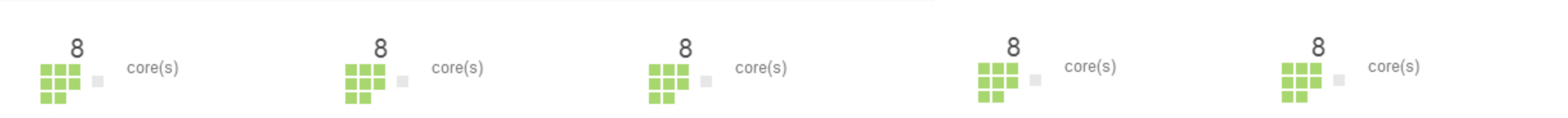
ISA Supported ⓘ				
ARMv8-A	GM20B (Maxwell)	ARMv8 (A32, A64)	ARMv8-A (A32, A64)	ARMv8 (A32, A64)

⌵ CPU

CPU Clock Speed ⓘ



CPU Cores ⓘ



Primary CPU ⓘ				
Cortex-A53	4x Cortex-A57	8x ARM Cortex-A53 MPcore	4x ARM Cortex-A57 MPcore	64-bit octa-core ARM Cortex A53
Companion CPU ⓘ				
Cortex-A53	4x Cortex-A53	–	4x ARM Cortex-A53 MPcore	–
CPU Architecture ⓘ				
✔ ARM big.LITTLE ✘ Harvard	✔ ARM big.LITTLE ✘ Harvard	✘ ARM big.LITTLE ✔ Harvard	✔ ARM big.LITTLE ✘ Harvard	✘ ARM big.LITTLE ✔ Harvard
Word Length ⓘ				
64 bit	–	64 bit	64 bit	64 bit
Data Bus ⓘ				
64 bit	–	32 bit	32 bit	32 bit
GPU				
GPU ⓘ				
Mali-T628 MP4	NVIDIA Maxwell 256-core GPU	Adreno 505 GPU	ARM Mali-T720	Adreno 405 GPU
Advanced Graphics APIs ⓘ				
✘ DirectX 11.2 ✘ DirectX 12 ✘ OpenGL 4.4 ✘ OpenGL ES 3.1	✘ DirectX 11.2 ✔ DirectX 12 ✔ OpenGL 4.4 ✔ OpenGL ES 3.1	✔ DirectX 11.2 ✘ DirectX 12 ✘ OpenGL 4.4 ✔ OpenGL ES 3.1	✘ DirectX 11.2 ✘ DirectX 12 ✘ OpenCL 1.2 ✘ OpenGL 4.4 ✘ OpenGL ES 3.0 ✔ OpenGL ES 3.1	✔ DirectX 11.2 ✘ DirectX 12 ✔ OpenCL 1.2 ✘ OpenGL 4.4 ✔ OpenGL ES 3.0 ✘ OpenGL ES 3.1

Video Encoding ⓘ				
1080p	2160p	–	–	–
Video Decoding ⓘ				
–	2160p	–	–	–
▼ Additional Information				
Feature Size ⓘ 				
–	20nm	28nm	20nm	28nm