

MOBILE PROCESSOR

SAMSUNG
EXYNOS 9

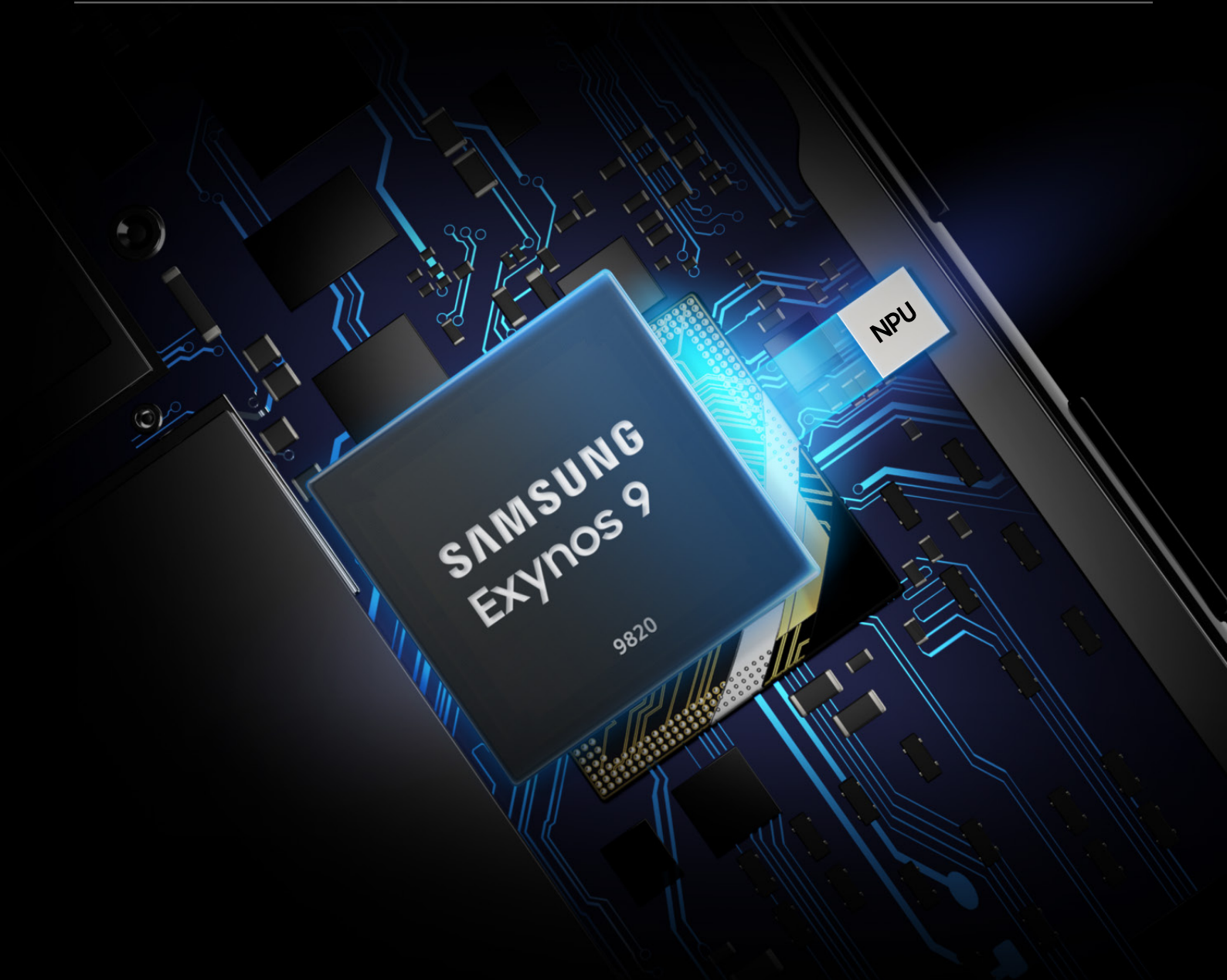
9820

| Exynos 9 Series 9820

The Next-level Processor for the Mobile Future

The Exynos 9 Series (9820) mobile processor is built to maximize intelligence on the go. From AI capabilities with NPU to powerful performance through tri-cluster CPU, the Exynos 9820 offers the blueprint and foundation for a smart, mobile future.

SAMSUNG



NPU

An Intelligent Powerhouse

The Exynos 9820 pushes the limit of mobile intelligence with an integrated Neural Processing Unit (NPU), a component that specializes in processing artificial intelligence tasks. It allows the processor to perform AI-related functions seven times faster than its predecessor.* From enhancing photos to advanced AR features, the Exynos 9820 with NPU expands AI capabilities of mobile devices.

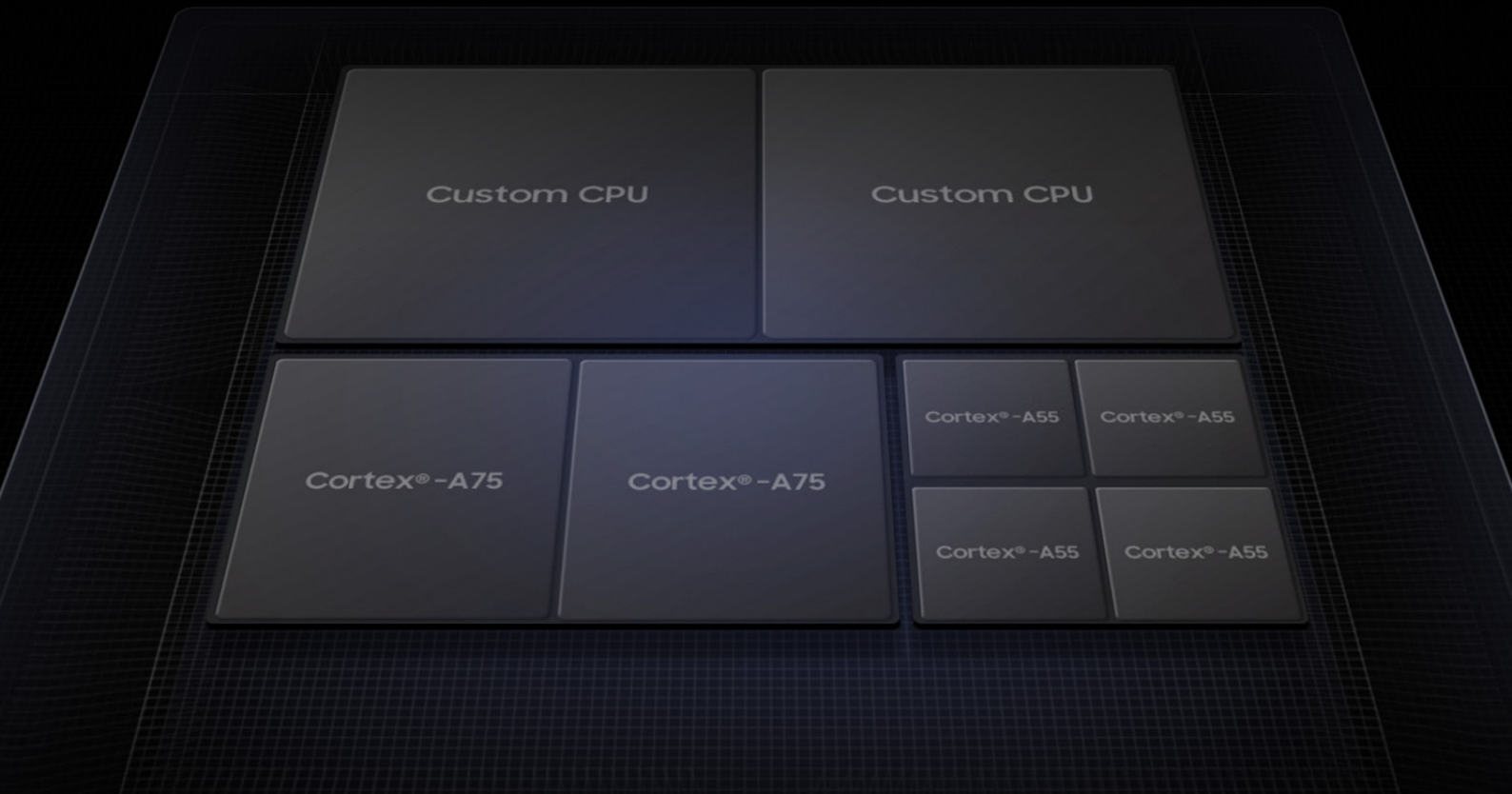
* Tested internally on the Exynos 9820 and the Exynos 9810.

* Image simulated for illustration purposes.

The 4th generation
Custom CPU x 2

Cortex®-A75 x 2

Cortex®-A55 x 4



CPU

Superior Performance for Seamless Multi-tasking

Featuring a 4th generation custom CPU, the Exynos 9820's innovative tri-cluster architecture delivers premium processing power. The CPU consists of two custom cores for ultimate processing power, two Cortex-A75 cores for optimal performance, and four Cortex-A55 cores for greater efficiency, resulting in superior performance that lasts. Tri-cluster with intelligent task scheduler boosts multi-core performance by 15 percent when compared to the Exynos 9810, while the 4th generation custom CPU with enhanced memory access capability and cutting-edge architecture design improves single core performance by up to 20 percent or boosts power efficiency by up to 40 percent.*

* Tested internally on the Exynos 9820 and the Exynos 9810.

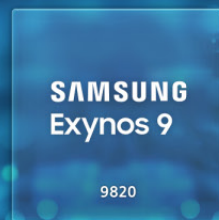
* Image simulated for illustration purposes.

Modem

Lightning-fast Mobile Connectivity

Experience blazing download speed and smooth online gameplay with the Exynos 9820's LTE-Advanced Pro modem. The integrated modem supports LTE Category 20 to offer downlink speed of up to 2.0Gbps with 8x carrier aggregation (CA) and uplink speed of up to 316Mbps.* Stability and speed of the modem is enhanced even further with the expansion of 4x4 Multiple-Input, Multiple-Output (MIMO), 256-QAM (Quadrature Amplitude Modulation), and Enhanced Licensed-Assisted Access (eLAA) technology

* Actual speed may differ by country and carrier.



GPU

A Game Changer

Equipped with high performing Mali-G76 MP12 GPU, the Exynos 9820 delivers the ultimate gaming experience. The GPU features wider execution engines with double the number of lanes when compared to its predecessor, resulting in better performance and efficiency for complex graphics. Compared to the Exynos 9810, the Exynos 9820 offers up to 40 percent improvement in performance or 35 percent enhancement in power efficiency for more immersive, uninterrupted gameplay.*

* Tested internally on the Exynos 9820 and the Exynos 9810.

* Image simulated for illustration purposes.



Camera

Photography Reinvented

The Exynos 9820's advanced image signal processor (ISP) supports up to five sensors, including an IR sensor, to enable flexible multi-camera solutions. With advanced design for greater photo quality and faster auto-focus, the Exynos 9820 offers best-in-class photography experience, which is further enhanced by the AI-capabilities of the NPU.

* Image simulated for illustration purposes.



Video

Capture Reality in 8K

Record precious memories in extraordinary detail with the Exynos 9820's multi-format codec (MFC), which supports encoding and decoding of 8K videos at 30fps. By rendering colors in 10-bit and a wide range of tones and hues, the Exynos 9820 delivers life-like representations of multimedia content on HDR display.

* Image simulated for illustration purposes.



Security

Rock-solid Security

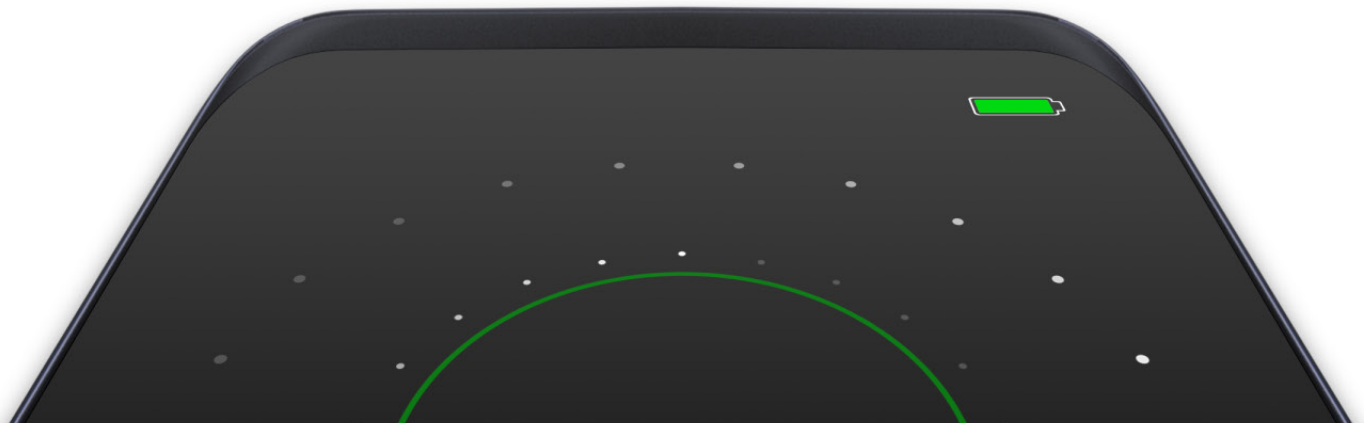
To keep user's information safe and secure, the Exynos 9820 uses physically unclonable function (PUF) to store and manage personal data in perfect isolation. While PUF provides the unique key, secure key manager supports other security protocols, such as key generation, storage and derivation.



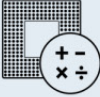









Power Efficiency

All-day Productivity

The Exynos 9820 delivers round-the-clock mobile productivity by enhancing battery life with an innovative low power design. 8nm LPP (Low Power Plus) FinFET process reduces power consumption by up to 10 percent compared to 10nm LPP process³, while the Exynos 9820 also optimizes power consumption of CPU and GPU through reduced operating voltage, idle, and leakage power.



Spec

 <p>CPU Dual-core (Custom CPU) +, Dual-core (Cortex®-A75) +, Quad-core (Cortex®-A55)</p>	 <p>GPU ARM Mali™-G76 MP12</p>	 <p>NPU Integrated</p>	 <p>Process 8nm LPP FinFET</p>	 <p>Display WQXGA (3840x2400), 4K UHD (4096x2160)</p>
 <p>LTE Modem LTE-Advanced Pro Cat.20 8CA, 2Gbps (DL) / Cat.20 3CA, 316Mbps (UL)</p>	 <p>Storage UFS 3.0, UFS 2.1</p>	 <p>Memory LPDDR4x</p>	 <p>Camera Rear 22MP, Front 22MP, Dual-camera 16MP+16MP</p>	 <p>Video 8K 30fps or 4K UHD 150fps, encoding and decoding with 10-bit HEVC(H.265), H.264, VP9</p>

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions. For the latest news, please visit the Samsung Newsroom at <http://news.samsung.com>.

For more information

- For more information about Samsung Exynos, please visit and follow
- Samsung Semiconductor Website : www.samsung.com/semiconductor
 - Exynos Website : www.samsung.com/Exynos
 - Facebook : www.facebook.com/SamsungExynos
 - Twitter : www.twitter.com/SamsungExynos
 - Weibo : www.weibo.com/SamsungExynos

Copyright ©2018 Samsung Electronics Co., Ltd. All rights reserved. Samsung is registered trademark of Samsung Electronics Co., Ltd. Specifications and designed are subject to change without notice. Non-metric weights and measurements are approximate. All data were deemed correct at time of creation. Samsung is not liable for errors or omissions. All brand, product, service names and logos are trademarks and/or registered trademarks of their respective owners and are hereby recognized and acknowledged.