Arm's Cortex-A76 set to deliver performance uplifts with good battery life

June 3 2018, by Nancy Owano

British semiconductor IP company Arm is making news for in the laptop marketplace. Arm has unveiled its Cortex-A76 CPU design. Arm licenses chip designs and the instruction set that the chips use, said Peter Bright in *Ars Technica.* Now Arm has introduced its processor design, the Cortex-A76. Cortex-A76 based laptops are expected to deliver twice the performance on the current Arm based generation.

ExtremeTech's headline said that the Cortex-A76 SoC is targeting the Windows laptop market. *TechSpot* on Friday similarly ran a story "ARM looks to challenge Intel in the laptop market with its Cortex-A76 chip." The Cortex-A76 is set to arrive in the market next year.

Dan Thorp-Lancaster in *Windows Central* cut right to the chase. He said

the new Cortex-A76 CPU was billed as "a laptop workhorse, citing a 35-percent performance improvement over its last-generation design. That's backed up by a 40 percent uptick in power efficiency and a fourfold increase in performance for AI and machine learning tasks."

The Cortex-A76 CPU "delivers laptop-class performance while maintaining the power efficiency of a smartphone."

"If the figures are accurate," said Rob Thubron in *TechSpot*, "the Cortex-A76 could result in ARM-based Windows 10 machines that actually challenge Intel/AMD-powered device."

One key topic amongst the Arm chip design reports centered on battery life. Expect to see longer battery life—as the company put it, battery life that can outlast your work day.

Dan Thorp-Lancaster in *Windows Central* said that "battery life gains are what could ultimately threaten Intel's stranglehold on the market if Windows 10 on ARM is a success."

Rene Haas, president, Arm's IP Products Group, wrote about laptops and battery life.

He said, "Over the last five years, we've seen CPU performance on smartphones increase an average of 20+ percent every year without compromising battery life. However, the same cannot be said for laptops, which have struggled to adapt to a slowing Moore's Law over the last few years, delivering annual performance gains averaging only single-digit percentages while failing to enable any significant increases in battery life."

He said they already saw the success of recently launched Arm-based Windows10 PCs— delivering 20-plus hours of battery life and a trusted

Windows app ecosystem. He said the new Cortex-A76 CPU brings choice and flexibility to consumers from a trusted architecture.

Cortex-A76 in the laptop space was also addressed by Arm in the company's processor blog. Lionel Belnet wrote about the laptop vis a vis smartphone growth. "As our smartphones have become capable of so much more than the basic call and text functions they were originally intended for, they've also become more and more central to our lives, adding value and allowing us to complete tasks we never could have dreamed of on a mobile phone. The flip side of this impressive growth is that our laptops have arguably become less impressive."

Belnet addressed the difficulty had by laptop users—working, untethered, without running into some serious battery issues. Belnet said that "this is no longer acceptable to a user who is used to having serious compute functionality permanently at their fingertips."

Belnet said Cortex-A76 was a good fit for the laptop space. He said the "performance uplifts allow exceptional delivery of the most important productivity apps such as the Microsoft Office suite, providing a much faster, smoother user experience."

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