NEWS RELEASE

Apollo4 SoC Family from Ambiq Redefines “Ultra-low Power” in Battery-Powered, Intelligent Edge IoT Devices featuring Always-on Voice-Processing

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Running as Low as 3µA/MHz, the Latest SoC Family Enables Next-Generation Edge Devices with Record-Setting Energy Efficiency and New Levels of Performance

News Highlights:

- The Apollo4 SoC family is implemented on TSMC® 22nm ULL process and based on a 32-bit Arm® Cortex®-M4 processor with FPU and Arm Artisan® physical IP
- Achieving an unmatched 3 µA/MHz from MRAM with low deep sleep current modes
- Up to 192 MHz clock frequency using turboSPOT®
- 2D/2.5D graphics accelerator and MIPI DSI 1.2 with up to two lanes at 500Mbps per lane delivering a feature-rich user interface
- Apollo4 Blue integrates a Bluetooth® Low Energy 5 radio including 2Mbps support as well as direction-finding Angle of Arrival (AOA) and Angle of Departure (AOD) for always-on applications
- Proprietary audio interfaces and ultra-low power analog microphone for truly always-on voice processing
- 8 PDM channels, 2 stereo I^2S channels with ASRC, and an ultra-low power ADC for analog microphones

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Ambiq, a technology leader recognized in ultra-low power system on chips (SoCs) and real-time clocks (RTCs), is introducing the new Ambiq Apollo4 SoC family. The Apollo4 SoC family is the fourth generation system processor solution built upon Ambiq’s proprietary Sub-threshold Power-Optimized Technology (SPOT®) platform. The

Apollo4's complete hardware and software solution enables the battery-powered edge devices of tomorrow to achieve a higher level of intelligence without sacrificing battery life. The Apollo4 enables manufacturers to create leading-edge devices leveraging the unique SPOT platform with Ambiq's easy-to-use, rich peripheral set. The Apollo4 is available now with CSP and BGA offerings, as well as an Apollo4 Blue with Bluetooth Low Energy .

The Apollo4 is purpose-built to serve as both an application processor and a coprocessor for battery-powered edge devices, including smartwatches, children's watches, fitness bands, animal trackers, far-field voice remotes, predictive health and maintenance devices, smart security devices, and smart home devices.

"As the market is shifting towards adding billions of smart devices* at edge devices in the coming years, the need for energy efficiency is beyond critical to sustaining the realization of an IoT world where everything stays connected 24/7," said Dan Cermak, VP of Architecture and Product Planning at Ambiq. "Building on the advanced technologies from Arm and TSMC, our Apollo4 SoC family presents the perfect combination of increased system capability with significantly reduced power consumption for all battery-powered edge devices."

With up to 2MB of MRAM and 1.8MB of SRAM, the Apollo4 has enough compute and storage to handle complex algorithms and neural networks while displaying vibrant, crystal-clear, and smooth graphics. If additional memory is required, external memory is supported through Ambiq's multi-bit SPI and e.MMC interfaces.

"A world of trillion intelligent devices, many of which are battery-powered, emphasizes the need for power-efficient processing," said Kiran Burli, senior director of marketing and licensing, Physical Design Group, Arm. "The use of the Arm Cortex-M4 processor and Arm Artisan physical IP enables Ambiq to deliver an always-on user experience, including rich graphics and voice processing, for edge devices where ultra-low power consumption is critical."

"TSMC is delighted to have another successful collaboration with Ambiq building on what we achieved together starting from the 40nm generation to make smart IoT devices even smarter with extended battery life," said Simon Wang, Senior Director of IoT Business Development at TSMC. "Our 22ULL technology complements Ambiq's design expertise with the most competitive ultra-low power planar technology to enable low leakage with enhanced computing power to support value-added IoT features. TSMC's innovative 22nm embedded MRAM technology, which was adopted in Apollo4, is essential to support on-chip code storage for SoC functions to achieve industry-leading power performance."

For more product information, visit **www.ambiq.com**

About Ambiq

Ambiq was founded in 2010 with the mission to foster a cleaner, greener, and safer environment where mobile and portable devices could either reduce or eliminate their total power consumption from the batteries. For the last ten

years, we laser-focused on nothing but inventing and delivering the most revolutionary RTC and SoC solutions for the market. Through the advanced Sub-threshold Power Optimized Technology (SPOT®) platform, Ambiq has helped many leading manufacturers around the world create products that can operate for days, months, and sometimes years with a single charge.

In 2020, we achieved our most significant milestone – over 75 million devices are embedded with an Ambiq chip. On the heels of this success and the experience and know-how we've accumulated, we set out for another ambitious goal in the next decade. We aim to bring intelligence to all battery-powered edge devices and enable them to stay connected intuitively, and unobtrusively, to create a real IoT era. We hope to partner with you on our next journey.