NEWS RELEASE

Winbond and Ambiq Collaborate on Ultra-Low Power, Intelligent IoT, and Wearables

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- Winbond HyperRAM™ delivers low power and low pin count, speeds graphics, and optimizes UI display refresh
- Ambiq's Apollo4 ultra-low power SoC is purpose-built to serve as both an application processor and a coprocessor for battery-powered edge devices

TAICHUNG, Taiwan–2021-05-25– Winbond Electronics Corporation, a leading global supplier of semiconductor memory solutions, and Ambiq, a recognized technology leader in ultra-low power system on chips (SoCs), and real-time clocks (RTCs), today announced a collaboration to combine HyperRAM and Apollo4 to deliver ultra-low power system solutions for IoT edge devices and wearables. Several customers are in design with Ambiq's Apollo4 SoC and Winbond 256Mbx8 HyperRAM Hybrid Sleep Mode (HSM), with volume production expected in 2022. HSM power consumption is about 50% if comparing to normal standby mode. HSM can assist IoT edge devices and wearable to extend more battery life.

The emergence of artificial intelligence and innovations in battery-powered edge devices is driving the recent IoT market's rapid growth. The benefits of having everything connected to enable human communications and facilitate human-machine interactions are primarily evident in the smart home and smart industry. The Apollo4 complete hardware and software solution is purpose-built to allow battery-powered edge devices to achieve a higher level of intelligence without sacrificing battery life. Adding HyperRAM can further enhance its low power advantage and allow for faster delivery of high-resolution graphics to improve the performance.

"As the IoT market rapidly expands with the proliferation of diverse mobile and portable devices, how to deliver the most desirable user experience becomes the holy grail for manufacturers. Built on Ambiq's patented Sub-threshold

Power Optimized Technology (SPOT®) platform, the Apollo4 delivers higher performance at ultra-low power consumption," said Dan Cermak, VP of Architecture and Product Planning at Ambiq. "Leveraging Winbond's HyperRAM to enable expanded storage to support high-resolution displays and complex AI datasets, we can deliver low-power solutions while maintaining low pin count for smaller form-factor edge devices."

"The convergence of AI and IoT (AIoT) requires intelligence, low power consumption, and faster processing of graphics, data, and user interfaces," said Winbond. "By bringing together HyperRAM and Apollo4, we are setting a new benchmark in ultra-low power and simplifying the design of intelligent devices for our joint customers."

HyperRAM Key Features

- 256Mb HyperRAM operation frequency: 200MHz/250MHz
- 256Mb 30 ball WLCSP: 13 signal pads for x8 and 22 signal pads for x16
- Available in a variety of form factors of AIoT end product, including 24BGA, WLCSP, and KGD
- Sizes available from 32Mb to 256Mb

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. Ambiq has been laser-focused on inventing and delivering the most revolutionary system on chip (SoC) solutions in the market for the last ten years. Through the advanced Sub-threshold Power Optimized Technology (SPOT®) platform, Ambiq has helped many leading manufacturers worldwide create products that can operate for days, months, and sometimes years on a lithium battery or a single charge. For more information, visit **www.ambiq.com**.

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About Winbond

Winbond Electronics Corporation is a leading global supplier of semiconductor memory solutions. The Company provides customer-driven memory solutions backed by the expert capabilities of product design, R&D, manufacturing, and sales services. Winbond's product portfolio, consisting of Specialty DRAM, Mobile DRAM, Code Storage Flash, and TrustME® Secure Flash, is widely used by tier-1 customers in communication, consumer electronics, automotive and industrial, and computer peripheral markets. Winbond is headquartered in Central Taiwan Science Park (CTSP), and it has subsidiaries in the USA, Japan, Israel, China, Hong Kong, and Germany. Based on Taichung and new Kaohsiung 12-inch fabs in Taiwan, Winbond keeps pace to develop in-house technologies to

provide high-quality memory IC products.

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