

Ambiq Micro: Ultra-Low Power MCUs

The World's Most Energy-Efficient Solutions "Apollo Family"

ARM® Cortex®-M4F, up to 1MB Flash and 256KB RAM

Active mode down to under **10µA/MHz****, Standby mode down to **143nA***

*Apollo, **Apollo2



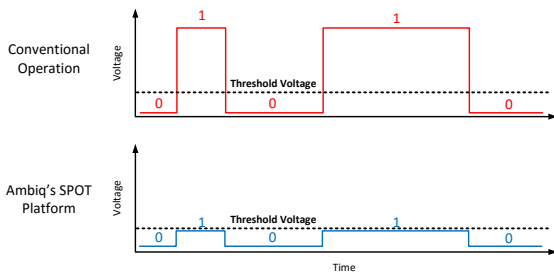
EEMBC ULPBench™*



Target Applications

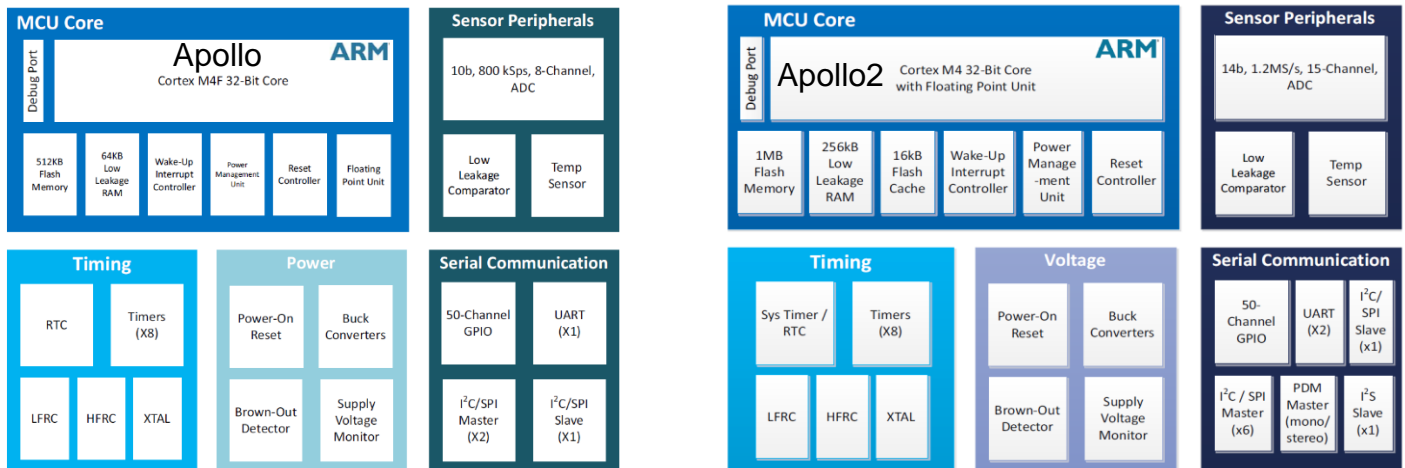
- Wearables
- Smart watches
- Activity trackers
- IoT devices
- Wireless sensors
- Sensing modules
- Meter (Gas + Electric)
- Energy harvesting

SPOT™ Ultra-Low Power technology



The Ambiq Micro SPOT™ is the patented **Subthreshold Power Optimized Technology** and reduces the internal operating voltage to below 0.5V. It enables Apollo to achieve its best-in-class power consumption. Apollo achieves a score of 377 and smashes through EEMBC ULPBench ceiling, doubling the highest score on record.

Block Diagram



Ambiq Micro: Ultra-Low Power MCUs

Product Families

	Apollo 1	Apollo 2
Core	Cortex-M4F @ 24 MHz	Cortex-M4F @ 48 MHz
Memory	512KB Flash/64KB SRAM 256KB Flash/32KB SRAM	1M Flash/256KB SRAM
Active Power	35uA/MHz	10uA/MHz
ADC	10 bit, 8 channels, 800kSps	14 bit, 10 channels, 1.2MSps
SPI/I2C Masters	2x I ² C/SPI master interfaces at up to 8MHz with 64B FIFO	6x I ² C/SPI master interfaces at up to 24MHz with 128B FIFO
SPI/I2C Slave	I ² C/SPI slave interface at up to 8MHz with 64B FIFO	I ² C/SPI slave interface at up to 24MHz with 128B FIFO
Timers	8	9
UART	1	2
PDM	No	Yes
Supply Voltage	2.2V – 3.8V	1.8V – 3.6V
Package/Pinout	4.5mm x 4.5mm 64-pin BGA with 50 GPIO, 0.5mm ball pitch 2.49 x 2.90mm 41-pin CSP with 27 GPIO, 0.4mm ball pitch	4.5mm x 4.5mm 64-pin BGA with 50 GPIO, 0.5mm ball pitch 2.5mm x 2.5mm 49-pin CSP with 34 GPIO, 0.35mm ball pitch

Memory/Package lineup (Apollo 1)

Part Number	Flash	RAM	Package	Size
APOLLO512-KCR	512KB	64KB	41-pin WLCSP	2.49 x 2.90 mm
APOLLO512-KBR	512KB	64KB	64-pin BGA	4.50 x 4.50 mm
APOLLO256-KCR	256KB	32KB	41-pin WLCSP	2.49 x 2.90 mm
APOLLO256-KBR	256KB	32KB	64-pin BGA	4.50 x 4.50 mm

Documentation

Datasheets, several application notes, EVK user guide are available at: <http://www.fujitsu.com/feeu>

or at the Ambiq Micro website:
<http://www.ambiqmicro.com>

Contact:

manuel.schreiner@de.fujitsu.com
Phone: +49 6103 690 613