Apollo and Apollo **Blue** System-on-Chip Family
Selector Guide

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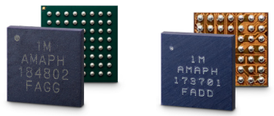
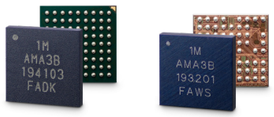


Available 1Q2025

	Apollo2	Apollo3	Apollo4 Lite	Apollo4 Plus	Apollo510
SoC Frequency	48 MHz	48 MHz 96 MHz turboSPOT®	96 MHz 192 MHz turboSPOT	96 MHz 192 MHz turboSPOT	96 MHz 250 MHz turboSPOT
SoC	32-bit Arm Cortex-M4F	32-bit Arm Cortex-M4F, DMA	32-bit Arm Cortex-M4F, DMA	32-bit Arm Cortex-M4F, DMA	32-bit Arm Cortex-M55 with Helium, DMA
SoC CoreMark® Power Efficiency	39 µW/MHz	33 µW/MHz	38 µW/MHz	29 µW/MHz	Contact Ambiq
NVM	1MB	1MB	2MB	2MB	4MB
SRAM	256KB	384KB	1.4MB	2.75MB	3.75MB
Voltage	1.755-3.63 V	1.755-3.63 V	1.71-2.2 V	1.71-2.2 V	1.71-2.2 V
ADC	14-bit, 15-channel, up to 2.67 MS/s Sampling Rate ADC	14-bit, 15-channel, up to 2.67 MS/s Sampling Rate ADC	12-bit, 11-channel, up to 2.8 MS/s Sampling Rate ADC	12-bit, 11-channel, up to 2.8 MS/s Sampling Rate ADC	12-bit, 11-channel, up to 2.8 MS/s Sampling Rate ADC
UART	2	2	4	4	4
I/O	I²C/SPI Master (6x)	I²C/SPI Master (6x) I²C/SPI Slave	I²C/SPI Master (8x) I²C/SPI Slave SDIO v3.0/eMMC (1x)	I²C/SPI Master (8x) I²C/SPI Slave USB 2.0 FS/HS SDIO v3.0/eMMC (1x)	I²C/SPI Master (8x) 1x full-duplex/1x half-duplex I²C/SPI Slave USB 2.0 FS/HS SDIO v3.0/eMMC (2x) Support for multiple I/O voltages ranging 1.14 to 3.63V
MSPI Master	--	1/2/4/8-bit wide up to 48 MT/s (SDR) ISO7816 Master	1/2/4/8-bit wide (2x) 1/2/4/8/16-bit wide up to 96 MT/s (SDR/DDR)	1/2/4/8-bit wide (2x) 1/2/4/8/16-bit wide up to 96 MT/s (SDR/DDR)	1/2/4/8-bit wide (2x) up to 96 MT/s (SDR/DDR) 1/2/4/8/16-bit wide (2x) up to 250 MT/s (SDR/DDR)
I²S	I²S Slave for PDM Audio Pass-through	I²S Slave for PDM Audio Pass-through	I²S Master/Slave (2x) full-duplex	I²S Master/Slave (2x) full-duplex with ASRC (2x)	I²S Master/Slave (2x) full-duplex, with ASRC (1x)
Audio	PDM stereo DMIC interface (1x)	PDM stereo DMIC interface (1x)	PDM stereo DMIC interface (1x)	PDM stereo DMIC interface (4x) Low Power Stereo Audio ADC (1x)	PDM stereo DMIC interface (1x) Low Power Audio ADC (1x) PLL for Precision Audio
Display	--	SPI 3-wire/4-wire	SPI 3-wire/4-wire Dual/QuadSPI	SPI 3-wire/4-wire Dual/QuadSPI MIPI DSI at 500 Mbps (2 lanes) 4-layer Display Controller	SPI 3-wire/4-wire Dual/QuadSPI MIPI DSI at 1.5 Gbps (2 lanes) 4-layer Display Controller Memory in Pixel (MiP) Interface
Graphics	--	--	2D/2.5D GPU with anti-aliasing, and dithering	2D/2.5D GPU with anti-aliasing, dithering, and vector graphics assist	2D/2.5D GPU with anti-aliasing, dithering, and HW vector graphics acceleration
Security	--	secureSPOT®	secureSPOT 2.0 Secure Boot, Root of Trust	secureSPOT 2.0 Secure Boot, Root of Trust	secureSPOT 3.0 Arm TrustZone®
Packages	• 4.5 x 4.5 mm, BGA-64 w/ 50 GPIO • 2.6 x 2.6 x 0.51 mm, CSP-49 w/ 34 GPIO • 2.6 x 2.6 x 0.33 mm, CSP-49 w/ 34 GPIO (Thin)	• 5 x 5 mm, BGA-81 w/ 50 GPIO • 3.25 x 3.37 mm, CSP-66 w/ 37 GPIO	• 5 x 5 mm, BGA-146 w/ 84 GPIO	• 5 x 5 mm, BGA-146 w/ 105 GPIO	• 6.6 x 6.6 mm, BGA with 183 GPIO • 4.9 x 4.7 mm, CSP with 144 GPIO
Ordering Information	• AMAPH1KK-KBR (BGA) • AMAPH1KK-KCR (CSP) • AMAPH1KK-KCR-TB (Thin CSP) • AMAPHEVB (EVB)	• AMAP31KK-KBR (BGA) • AMAP31KK-KCR (CSP) • AMA3BEVB	• AMAP42KL-KBR (BGA) • AMAP4LEVB (EVB)	• AMAP42KP-KBR (BGA) • AMAP4PEVB (EVB) • AMAP4PDISP (Display Kit)	• AP510NFA-CBR (BGA) • AP510NFA-CCR (CSP)

Product images shown are for illustration purposes only and may not be an exact representation of the products.

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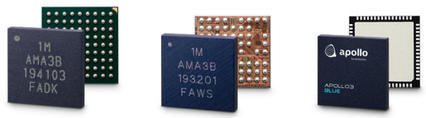

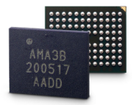

	Apollo3 Blue	Apollo3 Blue Plus	Apollo4 Blue Lite	Apollo4 Blue Plus
SoC Frequency	48 MHz, 96 MHz turboSPOT	48 MHz, 96 MHz turboSPOT	96 MHz, 192 MHz turboSPOT	96 MHz, 192 MHz turboSPOT
SoC	32-bit Arm Cortex-M4F, DMA, Arm Cortex-M0 for Bluetooth Low Energy	32-bit Arm Cortex-M4F, DMA, Arm Cortex-M0 for Bluetooth Low Energy	32-bit Arm Cortex-M4F, DMA, Arm Cortex-M0 for Bluetooth Low Energy	32-bit Arm Cortex-M4F, DMA, Arm Cortex-M0 for Bluetooth Low Energy
SoC CoreMark Power Efficiency	33 µW/MHz	33 µW/MHz	38 µW/MHz	29 µW/MHz
NVM	1MB	2MB	2MB	2MB
SRAM	384KB	768KB	1.4MB	2.75MB
Voltage	1.755-3.63 V	1.755-3.63 V	1.71-2.2 V	1.71-2.2 V
ADC	14-bit, 15-channel, up to 2.67 MS/s Sampling Rate ADC	14-bit, 15-channel, up to 2.67 MS/s Sampling Rate ADC	12-bit, 11-channel, up to 2.8 MS/s Sampling Rate ADC	12-bit, 11-channel, up to 2.8 MS/s Sampling Rate ADC
UART	2	2	4	4
I/O	I²C/SPI Master (6x) I²C/SPI Slave	I²C/SPI Master (6x)	I²C/SPI Master (7x) I²C/SPI Slave SDIO v3.0/eMMC (1x)	I²C/SPI Master (7x) I²C/SPI Slave USB 2.0 FS/HS SDIO v3.0/eMMC (1x)
MSPI Master	1/2/4/8-bit wide up to 48 MT/s (SDR) ISO7816 Master	1/2/4/8-bit wide (3x) up to 48 MT/s (SDR) ISO7816 Master	1/2/4/8-bit wide (2x) 1/2/4/8/16-bit wide up to 96 MT/s (SDR/DDR)	1/2/4/8-bit wide (2x) 1/2/4/8/16-bit wide (KXR pkg only) up to 96 MT/s (SDR/DDR)
I²S	I²S Slave for PDM Audio Pass-through	I²S Slave for PDM Audio Pass-through	I²S Master/Slave full-duplex	I²S Master/Slave (2x) full-duplex with ASRC (2x)
Audio	PDM stereo DMIC interface (1x)	PDM stereo DMIC interface (1x)	PDM stereo DMIC interface (1x)	PDM stereo DMIC interface (4x) Low Power Stereo Audio ADC (1x)
Display	SPI 3-wire/4-wire	SPI 3-wire/4-wire Dual/QuadSPI	SPI 3-wire/4-wire Dual/QuadSPI	SPI 3-wire/4-wire Dual/QuadSPI MIPI DSI at 500 Mbps (1 lane) 4-layer Display Controller
Graphics	--	--	2D/2.5D GPU with anti-aliasing and dithering	2D/2.5D GPU with anti-aliasing, dithering, and vector graphics assist
Security	secureSPOT	secureSPOT w/ Secure Boot	secureSPOT 2.0 Secure Boot, Root of Trust	secureSPOT 2.0 Secure Boot, Root of Trust
Connectivity	Bluetooth® Low Energy 5	Bluetooth Low Energy 5	Bluetooth Low Energy 5.4	Bluetooth Low Energy 5.4
RF Sensitivity	-93 dBm (typical)	-93 dBm	-95 dBm	-95 dBm
Tx Output Power	Up to +3 dBm	Up to +3 dBm	Up to +6 dBm	Up to +6 dBm
Packages	• 5 x 5 mm, BGA-81 w/ 50 GPIO • 3.25 x 3.37 x 0.51 mm, CSP-66 w/ 37 GPIO • 3.25 x 3.37 x 0.34 mm, CSP-66 w/ 37 GPIO (Thin) • 8 x 8 mm, QFN-64 w/ 38 GPIO	• 5.3 x 4.3 x 0.8 mm, BGA-108 w/ 74 GPIO	• 4.7 x 4.7 mm, BGA-131 w/ 75 GPIO	• 4.7 x 4.7 mm, BGA-131 w/ 81 GPIO
Ordering Information	• AMA3B1KK-KBR-B0 (BGA) • AMA3B1KK-KCR-B0 (CSP) • AMA3B1KK-KCR-TB (Thin CSP) • AMA3B1KK-KQR-B0 (QFN) • AMA3BEVB (EVB)	• AMA3B2KK-KBR (BGA) • AMA3B2EVB (EVB)	• AMA4B2KL-KXR (BGA) • AMA4BLEVB (EVB)	• AMA4B2KP-KXR (BGA) • AMA4B2KP-KBR (BGA) • AMAP4BPXEVB (EVB)

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