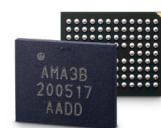
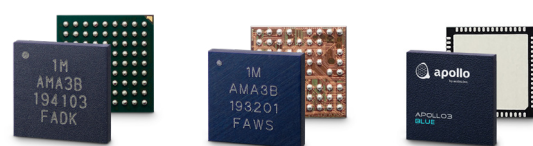


Available  
4Q2024

	Apollo	Apollo2	Apollo3	Apollo4 Plus	Apollo510
<b>SoC Frequency</b>	24 MHz	48 MHz	48 MHz 96 MHz turboSPOT®	96 MHz 192 MHz turboSPOT	96 MHz 250 MHz turboSPOT
<b>SoC</b>	32-bit Arm® Cortex®-M4F	32-bit Arm Cortex-M4F	32-bit Arm Cortex-M4F, DMA	32-bit Arm Cortex-M4F, DMA	32-bit Arm Cortex-M55 with Helium, DMA
<b>SoC CoreMark® Power Efficiency</b>	92 µW/MHz	39 µW/MHz	33 µW/MHz	29 µW/MHz	Contact Ambiq
<b>NVM</b>	512KB	1MB	1MB	2MB	4MB
<b>SRAM</b>	64KB	256KB	384KB	2.75MB	3.75MB
<b>Voltage</b>	2.2-3.8 V	1.755-3.63 V	1.755-3.63 V	1.71-2.2 V	1.71-3.63 V
<b>ADC</b>	10-bit, 13-channel, up to 800 kSps Sampling Rate 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
<b>UART</b>	1	2	2	4	4
<b>I/O</b>	I <sup>2</sup> C/SPI Master (2x) I <sup>2</sup> C/SPI Slave	I <sup>2</sup> C/SPI Master (6x)	I <sup>2</sup> C/SPI Master (6x) I <sup>2</sup> C/SPI Slave	I <sup>2</sup> C/SPI Master (8x) I <sup>2</sup> C/SPI Slave USB 2.0 FS/HS SDIO v3.0/eMMC (1x)	I <sup>2</sup> C/SPI Master (8x) 1x full-duplex/1x half-duplex I <sup>2</sup> C/SPI Slave USB 2.0 FS/HS SDIO v3.0/eMMC (2x)
<b>MSPI Master</b>	--	--	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) up to 96 MT/s (SDR/DDR) 1/2/4/8/16-bit wide (2x) up to 250 MT/s (SDR/DDR)
<b>I<sup>2</sup>S</b>	--	I <sup>2</sup> S Slave for PDM Audio Pass-through	I <sup>2</sup> S Slave for PDM Audio Pass-through	I <sup>2</sup> S Master/Slave (2x) full-duplex with ASRC	I <sup>2</sup> S Master/Slave (2x) full-duplex with ASRC
<b>Audio</b>	--	Dual Interface PDM for Mono and Stereo Audio Microphones	Dual Interface PDM for Mono and Stereo Audio Microphones	Stereo PDM (4x) Low Power Stereo Audio ADC (1x)	Stereo PDM (2x) Low Power Stereo Audio ADC (1x)
<b>Display</b>	--	--	SPI 3-wire/4-wire	SPI 3-wire/4-wire Dual/QuadSPI MIPI DSI (2x) 4-layer Display Controller	SPI 3-wire/4-wire Dual/QuadSPI MIPI DSI (2x) 4-layer Display Controller Memory in Pixel (MiP) Interface
<b>Graphics</b>	--	--	--	2D/2.5D GPU with anti-aliasing, dithering, and vector graphics assist	2D/2.5D GPU with anti-aliasing, dithering, and vector graphics acceleration
<b>Security</b>	--	--	secureSPOT®	secureSPOT 2.0	secureSPOT 3.0 Arm TrustZone®
<b>Connectivity</b>	--	--	--	--	--
<b>RF Sensitivity</b>	--	--	--	--	--
<b>Tx Output Power</b>	--	--	--	--	--
<b>Packages</b>	<ul style="list-style-type: none"> <li>4.5 mm x 4.5 mm, 64-pin BGA with 50 GPIO</li> <li>2.49 mm x 2.90 mm, 41-pin WLCSP with 27 GPIO</li> </ul>	<ul style="list-style-type: none"> <li>4.5 mm x 4.5 mm, 64-pin BGA with 50 GPIO</li> <li>2.5 mm x 2.5 mm, 49-pin WLCSP with 34 GPIO</li> <li>2.5 mm x 2.5 mm, 49-pin WLCSP with 300um with backside coating (Thin)</li> </ul>	<ul style="list-style-type: none"> <li>5 mm x 5 mm, 81-pin BGA with 50 GPIO</li> <li>3.25 mm x 3.37 mm, 66-pin WLCSP with 37 GPIO</li> </ul>	<ul style="list-style-type: none"> <li>5 mm x 5 mm, 146-pin BGA with 105 GPIO</li> </ul>	<ul style="list-style-type: none"> <li>6.6 mm x 6.6 mm, BGA with 183 GPIO</li> <li>4.9 mm x 4.7 mm, WLCSP with 144 GPIO</li> </ul>
<b>Ordering Information</b>	<ul style="list-style-type: none"> <li>APOLLO512-KBR (BGA)</li> <li>APOLLO512-KCR (WLCSP)</li> <li>AMAP1EVB (EVB)</li> </ul>	<ul style="list-style-type: none"> <li>AMAPH1KK-KBR (BGA)</li> <li>AMAPH1KK-KCR (WLCSP)</li> <li>AMAPH1KK-KCR-TB (Thin)</li> <li>AMAPHEVB (EVB)</li> </ul>	<ul style="list-style-type: none"> <li>AMAP31KK-KBR (BGA)</li> <li>AMAP31KK-KCR (WLCSP)</li> <li>AMA3BEVB</li> </ul>	<ul style="list-style-type: none"> <li>AMAP42KP-KBR (BGA)</li> <li>AMAP4PEVB (EVB)</li> <li>AMAP4PDISP (Display Kit)</li> </ul>	<ul style="list-style-type: none"> <li>AP510NFA-CBR (BGA)</li> <li>AP510NFA-CCR (CSP)</li> </ul>



	Apollo3 Blue	Apollo3 Blue Plus	Apollo4 Blue Lite	Apollo4 Blue Plus
<b>SoC Frequency</b>	48 MHz, 96 MHz turboSPOT	48 MHz, 96 MHz turboSPOT	96 MHz, 192 MHz turboSPOT	96 MHz, 192 MHz turboSPOT
<b>SoC</b>	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
<b>SoC CoreMark Power Efficiency</b>	33 $\mu$ W/MHz	33 $\mu$ W/MHz	38 $\mu$ W/MHz	29 $\mu$ W/MHz
<b>NVM</b>	1MB	2MB	2MB	2MB
<b>SRAM</b>	384KB	768KB	1.4MB	2.75MB
<b>Voltage</b>	1.755-3.63 V	1.755-3.63 V	1.71-2.2 V	1.71-2.2 V
<b>ADC</b>	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
<b>UART</b>	2	2	4	4
<b>I/O</b>	I <sup>2</sup> C/SPI Master (6x) I <sup>2</sup> C/SPI Slave	I <sup>2</sup> C/SPI Master (6x)	I <sup>2</sup> C/SPI Master (7x) I <sup>2</sup> C/SPI Slave SDIO v3.0/eMMC (1x)	I <sup>2</sup> C/SPI Master (7x) I <sup>2</sup> C/SPI Slave USB 2.0 FS/HS SDIO v3.0/eMMC (1x)
<b>MSPI Master</b>	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)
<b>I<sup>2</sup>S</b>	I <sup>2</sup> S Slave for PDM Audio Pass-through	I <sup>2</sup> S Slave for PDM Audio Pass-through	I <sup>2</sup> S Master/Slave full-duplex	I <sup>2</sup> S Master/Slave (2x) full-duplex with ASRC
<b>Audio</b>	Dual Interface PDM for Mono and Stereo Audio Microphones	Dual Interface PDM for Mono and Stereo Audio Microphones	Stereo PDM (1x)	Stereo PDM (4x) LP Analog Microphone with PGA (1x)
<b>Display</b>	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 (2x) 4-layer Display Controller
<b>Graphics</b>	--	--	2D/2.5D GPU with anti-aliasing and dithering	2D/2.5D GPU with anti-aliasing, dithering, and vector graphics assist
<b>Security</b>	secureSPOT	secureSPOT	secureSPOT 2.0	secureSPOT 2.0
<b>Connectivity</b>	Bluetooth® Low Energy 5	Bluetooth Low Energy 5	Bluetooth Low Energy 5.4	Bluetooth Low Energy 5.4
<b>RF Sensitivity</b>	-93 dBm (typical)	-93 dBm	-95 dBm	-95 dBm
<b>Tx Output Power</b>	Up to +3 dBm	Up to +3 dBm	Up to +6 dBm	Up to +6 dBm
<b>Packages</b>	<ul style="list-style-type: none"> <li>5 mm x 5 mm, 81-pin BGA with 50 GPIO</li> <li>3.25 mm x 3.37 mm, 66-pin WLCSP with 37 GPIO</li> <li>3.25 mm x 3.37 mm, 66-pin WLCSP 300um with backside coating (Thin)</li> <li>8 mm x 8 mm, 64-pin QFN with 38 GPIO</li> </ul>	<ul style="list-style-type: none"> <li>5.3 mm x 4.3 mm x 0.8 mm, 108-pin BGA with 74 GPIO</li> </ul>	<ul style="list-style-type: none"> <li>4.7 mm x 4.7 mm, 131-pin BGA with 75 GPIO</li> </ul>	<ul style="list-style-type: none"> <li>4.7 mm x 4.7 mm, 131-pin BGA with 81 GPIO</li> </ul>
<b>Ordering Information</b>	<ul style="list-style-type: none"> <li>AMA3B1KK-KBR-B0 (BGA)</li> <li>AMA3B1KK-KCR-B0 (WLCSP)</li> <li>AMA3B1KK-KCR-TB (Thin)</li> <li>AMA3B1KK-KQR-B0 (QFN)</li> <li>AMA3BEVB (EVB)</li> </ul>	<ul style="list-style-type: none"> <li>AMA3B2KK-KBR (BGA)</li> <li>AMA3B2EVB (EVB)</li> </ul>	<ul style="list-style-type: none"> <li>AMA4B2KL-KXR (BGA)</li> <li>AMA4BLEVB (EVB)</li> </ul>	<ul style="list-style-type: none"> <li>AMA4B2KP-KXR (BGA)</li> <li>AMA4B2KP-KBR (BGA)</li> <li>AMAP4BPXEVB (EVB)</li> </ul>