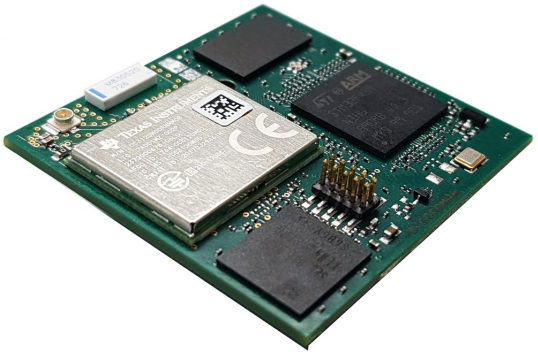
BMK professional electronics GmbH

BMK IoT modul – basic version

Technical description

The BMK IoT module was developed as a design in module (especially in the area of RTOS applications) to meet the requirements of new IoT products. Attention was focused on the fact that relevant security issues have already been implemented in advance in order to guarantee an accelerated TTM with increased security.

The multitude of freely configurable ports and interfaces enables the end user to design his application completely freely.



Technical data: (HW modules)

CPU	ARM Cortex®-M4 bis zu 180 MHz up to 2 MB of Flash up to 256+4 KB of SRAM
Modul	Design to Cost optimized
Security	Secure Boot, Cryptographic acceleration: - AES 128, 192, 256 - Triple DES, HASH (MD5, SHA-1, SHA-2) - HMAC True random number generator | CRC calculation unit | 96-bit unique ID
SDRAM	128 / 256 / 512 / Mbit (external)
eMMC	2/4/8 GB (external)
WiFi	WiFi IEEE802.11b/g/n, U.FL antenna connector onboard or PCB ceramic antenna
Supply	3,3 VDC / typ. 0.5 W
Temperatur range	HW Variants from 0˚C - +70˚C to -40 to +85 ˚C operational temperature/transport/shock
size	41.0 x 41.0 x 3.2 mm
Ethernet	1x 10 / 100 Mbit, IEEE 1588
CAN	2 × CAN 2.0B
UART	up to 4 USARTs/4 UARTs (11.25 Mbit/s,
SPI	up to 6 SPIs (45 Mbits/s),
I2C **others**	up to 3 × I2C interfaces (SMBus/PMBus) LIN, IrDA, modem control and SDIO interface, ISO7816 interface
USB OTG	USB 2.0 full-speed device/host/OTG controller with on-chip PHY USB 2.0 high-speed/full-speed device/host/OTG controller with dedicated DMA, on-chip full-speed PHY and ULP

Camera Interface	1x 8- to 14-bit parallel camera interface up to 54 Mbytes/s
Display RGB	LCD parallel interface, 8080/6800 modes LCD-TFT controller with fully programmable resolution (total width up to 4096 pixels, total height up to 2048 lines and pixel clock up to 83 MHz) Chrom-ART Accelerator™ for enhanced graphic content creation (DMA2D)
Touch	ADC with 4-wire / 5-wire Touch Controller
I2S / SAI	2 with muxed full-duplex I2S for audio class accuracy | 1 x SAI (serial audio interface)
GPIOs	up to ~100
PWM / Timer	up to 17 timers: up to twelve 16-bit and two 32bit timers up to 180 MHz, each with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input
Analog Inputs	3×12-bit, 2.4 MSPS ADC: up to 24 channels and 7.2 MSPS in triple interleaved mode · 2×12-bit D/A converters
Debug Interface	JTAG Interface
RTC	RTC: subsecond accuracy, hardware calendar
DMA	16-stream DMA controller with FIFOs and burst support
Mounting	LGA direct solder foot-print or interconnection SMD headers with a BMK Standard pinout

Technical data: (SW-Module)

Operating system	Baremetal or Rtos
Bootloader	ROM & Custom Bootloader incl. Secure Boot (BMK Security Suite)
Graphic	Up to 2 Graphic Libraries application optimized incl. (Multi) - Touchdrivers
Cloud Clients	Ready to go clients for: Azure; AWS (supported by BMK security Suite) Customized cloud clients via BMK Standard MQTT broker
Access Point	Mini AP (inkl http server)
TCP/IP	IPv4 & IPv6 supported
BMK security Suite	Including TLS 1.2 Secure FW Update (incl. SFOTA) Secure Certificate Update Secure Boot Secure Key Handling Secure Key generation
BMK Debugging Suite	BMK Standard Data Logger

Block diagram