

K32W0x SERIES: MULTIPROTOCOL WIRELESS MCUs SUPPORTING THREAD, ZIGBEE, BLUETOOTH LE AND NFC

K32W0x advanced ultra-low-power wireless MCUs for Zigbee®, Thread™ and Bluetooth® LE 5.0 applications integrate a comprehensive mix of analog and digital peripherals so developers can create products with rich features and robust RF performance.

TARGET APPLICATIONS

- Home and Building Automation
- Home Security and Access
- Home Gateways/Hubs
- Smart Thermostats
- Smart Locks
- Smart Lighting
- Sensor Networks

The K32W0x portfolio is designed to power the next generation of ultra-low-current multiprotocol wireless devices, supporting Zigbee 3.0/Thread/IEEE 802.15.4 and Bluetooth Low Energy 5.0. It includes several low-power modes and ultra-low TX and RX power consumption, which enables IoT devices to have extended battery life. The high Rx sensitivity and options for Tx output power of up to +10dBm or +15dBm delivers reliable and robust performance.

K32W0x MCUs are powered by an Arm® Cortex®-M4 MCU and with 640 KB on-board flash, optional 1 MB data flash (K32W041AM) and 152 KB SRAM, has enough room and flexibility for complex applications and over-the-air (OTA) upgrade capability. It has a rich set of MCU peripherals and multiple serial communication interfaces for embedded connected applications and a quad serial flash memory controller, SPIFI, that can be used to extend non-volatile memory.



PRODUCT FEATURES

- Multiprotocol and robust radio for Bluetooth 5 and IEEE 802.15.4
- Industry leading low-power solution
- Optional NFC NTAG® support for tap-to-pair commissioning
- Rich set of MCU peripherals and multiple serial communication interfaces
- 6 mm x 6 mm 40-pin QFN, hardware compatible with QN9090 and JN5189 families

NFC OPTION

K32W061 has an integrated NFC NTAG IC to implement contactless NFC commissioning, simplifying the network build-out while saving energy and increasing security for the designer and end consumer.

MATURE SOLUTION

The K32W0x development platform includes Zigbee 3.0, OpenThread, and Bluetooth LE 5.0 certified stacks assuring interoperability. These mature network stacks provide robust performance for wireless networks.

NXP has developed a suite of application examples in a complete software development kit (SDK) as well as several reference designs to assist developers with faster product creation.

The full MCUXpresso suite of software and tools provides a seamless software experience across all NXP devices as well as a fast path to add Zigbee/ Thread/Bluetooth LE capability to an existing design on other NXP devices. The IoT Toolbox and Connectivity Test Tool are also provided to help developers evaluate RF performance and test more efficiently.

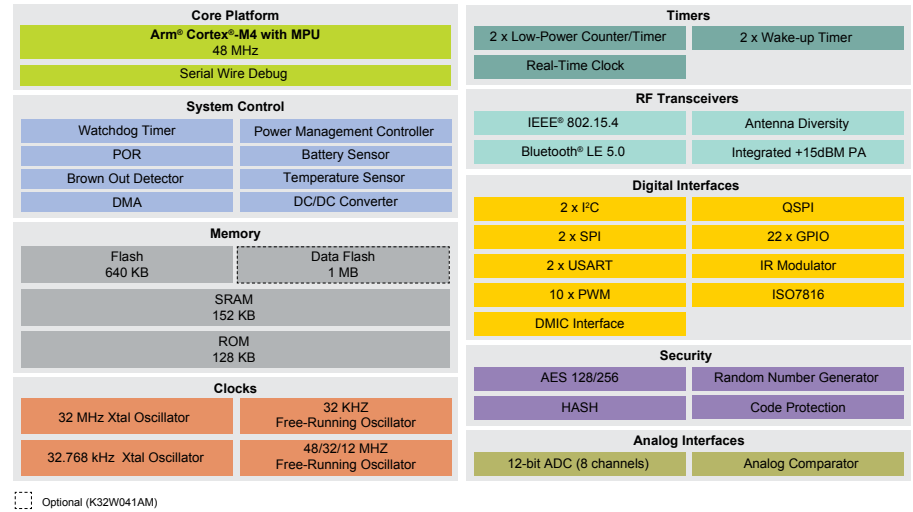
GETTING STARTED

The IOTZTB Development Kit's rich components include a control bridge/generic router with an NFC reader, generic switch node, light/sensor node and USB dongle that make quick prototyping possible for a small wireless network.

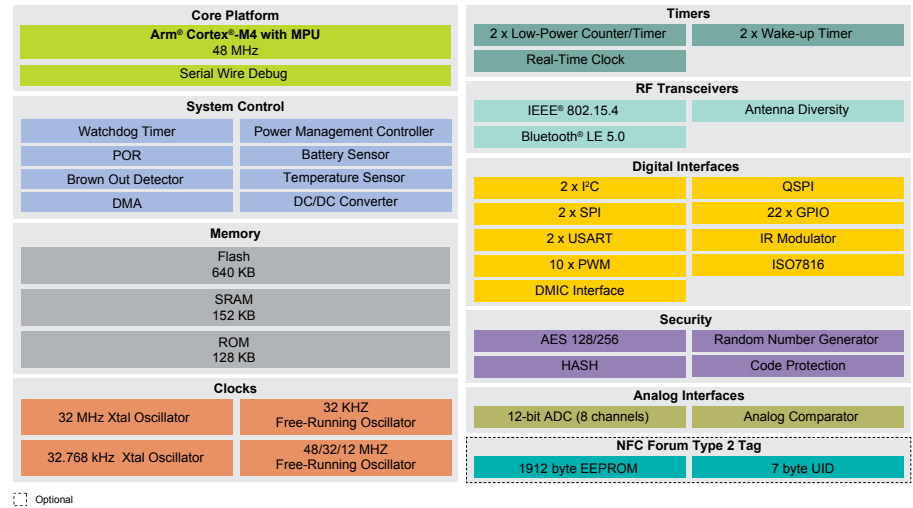
In addition to the development kit, a dual-mode USB dongle and module with mezzanine upgrade boards for each device is available separately.

Part Number	Description
IOTZTB-DK006	Development Kit for Zigbee 3.0, Open Thread and Bluetooth LE 5.0 Connectivity/Enablement, includes three K32W061 upgrade modules on mezzanine.
OM15080-K32W	USB dongle pre-programmed with Zigbee and Bluetooth LE sniffer applications
K32W-001-T10	Upgrade module on mezzanine for the K32W061/41 to attach to the base board.
K32WA-001-T10	Upgrade board for the K32W01A to attach to the base board
K32WAM-001-T10	Upgrade board for the K32W041AM to attach to the base board.

K32W041AM/A BLOCK DIAGRAM



K32W061/41 BLOCK DIAGRAM



K32W0x MULTIPROTOCOL MCUS SNAPSHOT

Products	Memory	Radio Performance			Other	
	Flash/SRAM	Transmit Power	Receive Current	Transmit Current	NFC Tag	Voltage/Temp Range
K32W061	Flash: 640 kB SRAM: 152 kB	Up to +11dBm	4.3mA DC/DC on at 3 V	7.4mA @ 0 dBm	Yes	1.9 V-3.6 V -40 °C to +125 °C
K32W041	Flash: 640 kB SRAM: 152 kB	Up to +11dBm	4.3mA DC/DC on at 3 V	7.4mA @ 0 dBm	No	1.9 V-3.6 V -40 °C to +125 °C
K32W041A	Flash: 640 kB SRAM: 152 kB	Up to +15dBm	4.3mA DC/DC on at 3 V	12.1mA @ 0 dBm	No	2.4 V-3.6 V -40 °C to +85 °C
K32W041AM	Flash: 640 kB Data Flash: 1MB SRAM: 152 kB	Up to +15dBm	4.3mA DC/DC on at 3 V	12.1mA @ 0 dBm	No	2.4 V-3.6 V -40 °C to +85 °C