

PIC32CX-BZ and WBZ Family

Simple, Secure and Robust Arm® Cortex®-Based Multi-Protocol MCUs



Summary

This family of microcontrollers (MCUs), designed from the ground up, is powered by a general-purpose Arm® Cortex® core to get you to market, faster. It is packed with features such as:

- RF-ready, global regulatory-certified modules
- Advanced on-board security engine and secure boot
- AEC-Q100 Grade 1 (125°C) qualification and functional safety ready

The PIC32CX-BZ and WBZ family supports multiple wireless protocols and includes hardware arbitration for seamless operation.

Key Features

MCU Features

- 64 MHz Arm Cortex-M4F processor
- Up to 1 MB Flash
- Up to 128 KB RAM
- 12-bit ADCs
- 7-bit DAC
- Capacitive touch
- Up to 4 SERCOM supporting USART, I2C, SPI, LIN, RS485, ISO 7816
- Quad SPI
- 16-bit and 24-bit TCCs
- Up to 29 GPIO

Wireless Features

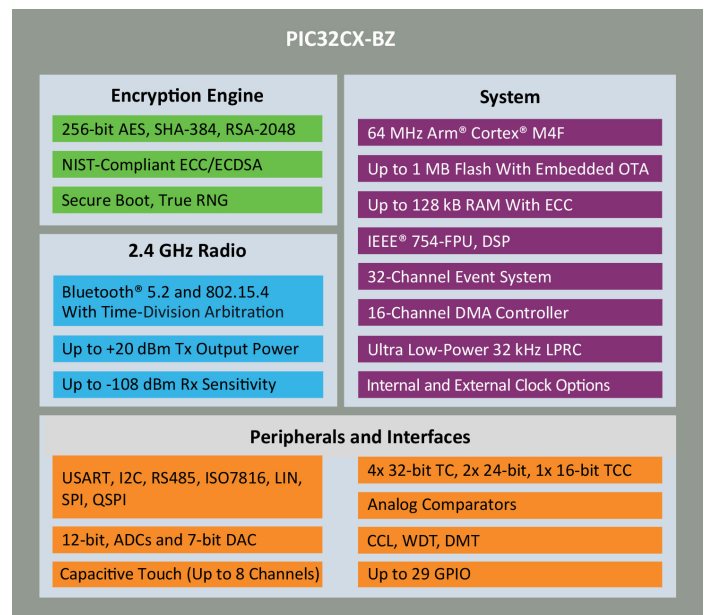
- Bluetooth® Low Energy (LE) 5.2 certified
- Zigbee® 3.0 certified
- Thread 1.3.0 certified
- IEEE® 802.15.4 support (for proprietary or MiWi™ protocols)
- Hardware arbiter for Bluetooth and 802.15.4 coexistence
- Up to +20 dBm transmit output power
- Up to -108 dBm receive sensitivity
- 2M uncoded PHY
- Long-range, coded PHY
- Multi-link and multi-role support
- Secure Over-The-Air (OTA) update

Security Features

- 256-bit AES, SHA-384, RSA-2048
- NIST-compliant ECC/ECDSA, true RNG
- Secure boot
- Anti-rollback counter

Module Features

- RF-ready, global regulatory certified
- Certifications:
 - CE (EU)
 - UKCA (UK)
 - FCC (USA)
 - ISED (Canada)
 - MIC (Japan)
 - KC (South Korea)
 - SRRC (China)
 - NCC (Taiwan)
- PCB or U.FL antennas



Product Highlights

Feature	Benefit
Advanced Analog	2 Msps, 12-bit Analog-to-Digital Converter (ADC) offering up to 8 channels with capacitive touch support 7-bit Digital-to-Analog Converter (DAC) Up to two analog comparators with window compare function
Smart Peripheral Mix	Up to 4 SERCOM supporting USART, I2C, SPI, LIN, RS485, ISO7816 Up to 29 General-Purpose Input Output (GPIOs) 16-bit and 24-bit Time Coordinated Computes (TCCs)
Robust Performance	Automotive AEC-Q100 Grade 1-qualified (125°C) SoCs and module Functional safety ready (automotive ISO 26262 ASIL B and industrial IEC 61508 SIL 2 compliant)

Product Selection Guide

Part Number	Device Type	Flash (KB)	RAM (KB)	GPIO	SERCOM	TX Output Power (dBm)	RX Sensitivity (dBm)	Operating Temperature (°C)	Antenna Type	Package Size (mm)
PIC32CX1012BZ25048	SoC	1024	128	29	4	+12	-103	125	-	7 × 7
WBZ451HPE	Module	1024	128	29	4	+20	-104	85	PCB	15.5 × 26.8
WBZ451HUE	Module	1024	128	29	4	+20	-104	85	U.FL	15.5 × 26.8
WBZ451PE	Module	1024	128	29	4	+12	-103	125	PCB	15.5 × 20.7
WBZ451UE	Module	1024	128	29	4	+12	-103	85	U.FL	15.5 × 20.7
PIC32CX1012BZ24032	SoC	1024	128	16	2	+5	-103	125	-	5 × 5
WBZ450PE	Module	1024	128	16	2	+5	-103	85	PCB	13.4 × 18.7
WBZ450UE	Module	1024	128	16	2	+5	-103	85	U.FL	13.4 × 18.7
PIC32CX5109BZ31048	SoC	512	96	27	3	+11	-108	125	-	6 × 6
WBZ351PE	Module	512	96	27	3	+11	-108	85	PCB	15.5 × 20.7
WBZ351UE	Module	512	96	27	3	+11	-108	85	U.FL	15.5 × 20.7
PIC32CX5109BZ31032	SoC	512	96	14	2	+11	-108	125	-	5 × 5
WBZ350PE	Module	512	96	14	2	+11	-108	85	PCB	13.4 × 18.7
WBZ350UE	Module	512	96	14	2	+11	-108	85	U.FL	13.4 × 18.7

Development Tools

Tool	Description	Part Number/Link
PIC32CX-BZ2 and WBZ451HPE Curiosity Board	Evaluate our WBZ451HPE modules with up to +20 dBm output power using this full-featured development platform.	EV79Y91A microchip.com/ev79y91a
PIC32CX-BZ3 and WBZ351 Curiosity Board	Evaluate the features of our WBZ351PE modules, including touch (with the QT7 Xplained Pro extension kit) and secure boot.	EV19J06A microchip.com/ev19j06a
MPLAB® X Integrated Development Environment (IDE)	MPLAB X IDE is an expandable, highly configurable software program that incorporates powerful tools to help you discover, configure, develop, debug and qualify embedded designs.	Learn more about MPLAB
MPLAB Harmony v3	This integrated software development framework provides flexible modules that simplify development and reduce time to market.	Learn more about MPLAB Harmony
Application and Code Examples	Jumpstart development with turnkey application examples, including smart building, Industrial IoT (IIoT) and other applications.	Browse MPLAB Discover