

# MCUXpresso software and Tools for Arm<sup>®</sup> Cortex<sup>®</sup>- M-Based MCUs

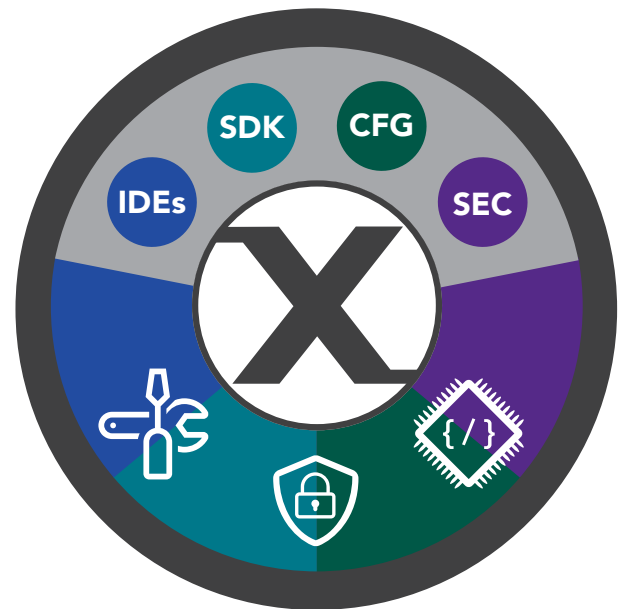
The MCUXpresso SDK, IDEs, secure provisioning and configuration tools help speed up development time with high-quality software and tools for general purpose, crossover and wireless Arm<sup>®</sup> Cortex<sup>®</sup>- M-based MCUs from NXP.

## Overview

The common set of MCUXpresso software and tools offer designers a high-quality and flexible toolset and software framework that includes:

- An open-source software development kit (SDK) built specifically for your processor and evaluation board selections
- Multiple easy-to-use integrated development environment (IDE) options for creating, building and debugging and optimizing your application
- A comprehensive suite of system configuration tools, including pins, clocks, peripherals, trusted execution environment and device setup, with easy project updating and code generation
- A programming and secure provisioning tool (SEC) for certificate and key management, certificate harvesting, over-production control, secure image preparation, and device provisioning
- Choice of debug probes from NXP, SEGGER or P&E Micro

A cohesive approach shared across the MCUXpresso SDK, IDEs, secure provisioning tool, and configuration tools brings inherent compatibility. The same synergistic development flow is supported when using the SDK, configuration and security tools, regardless of whether MCUXpresso IDE, MCUXpresso for Visual Studio Code, IAR Embedded Workbench or Arm Keil IDEs are being used.



Augmented by enabling tools and software technologies from NXP and its lead partners, MCUXpresso provides enhanced efficiency from evaluation through product development to production and deployment.

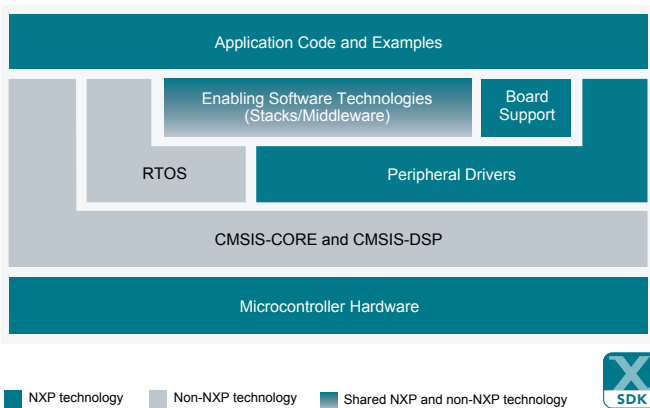
## MCUXpresso Software and Tools

### MCUXpresso SDK

Created as a software framework and reference for application development with NXP's Arm Cortex-M-based MCUs and embedded cores, MCUXpresso SDK includes production-grade software with integrated RTOS (optional), drivers, stacks and middleware from NXP with the option to add NXP Partner middleware using Open-CMSIS-Packs. Underscoring our commitment to high quality, the MCUXpresso SDK is MISRA-compliant and checked with Coverity® static analysis tools. SDK packages are available through GitHub, or customizable downloads based on user selections of MCU, evaluation board and optional software components. MCUXpresso SDK is available for use with and includes example projects for MCUXpresso IDE, MCUXpresso for Visual Studio Code, IAR Workbench and Keil IDEs, plus GCC with Cmake.



Learn more at [www.nxp.com/mcuxpresso/sdk](http://www.nxp.com/mcuxpresso/sdk)



### IDE Offerings

NXP and our partners offer multiple IDE options that include: MCUXpresso for Visual Studio Code, MCUXpresso IDE (Eclipse-based), IAR Embedded Workbench and Arm Keil IDEs. These IDEs provide developers with easy-to-use development environments for general purpose, i.MX RT crossover and wireless enabled Arm Cortex-M-based MCUs from NXP. NXP's IDE offerings are full-featured, providing intuitive and modern interfaces for professional editing, compiling and debugging at no cost. These IDEs are complemented by configuration tools, and offer various features for profiling and trace, energy measurement, multicore-capable debugging and more. All IDE options support on-board debug probes on NXP evaluation boards plus MCU-Link standalone probes, with PE Micro probes and SEGGER J-Link also being supported by MCUXpresso IDE and MCUXpresso for Visual Studio Code.

Learn more about our IDE offerings at [www.nxp.com/mcuxpresso](http://www.nxp.com/mcuxpresso)



MCUXpresso for Visual Studio Code



MCUXpresso IDE

**arm KEIL** Arm Keil

**iar** IAR Embedded Workbench

## MCUXpresso Config Tools

Offered as a suite of evaluation and configuration tools, MCUXpresso Config Tools greatly simplify the task of MCU and driver configuration, from initial evaluation to production.

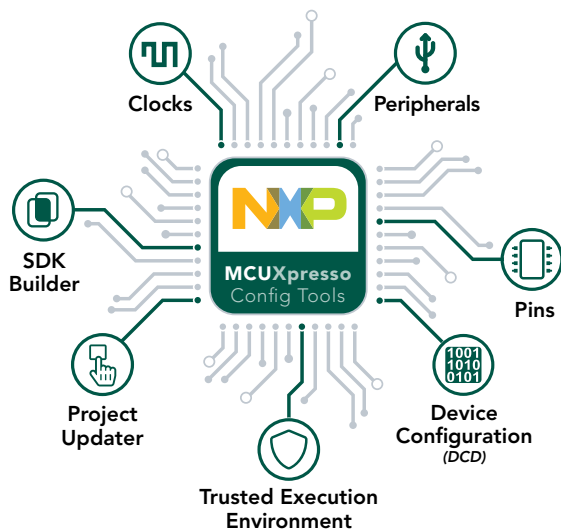


The Config Tools provide pin, clock and peripheral configuration and generate initialization C code for use within MCUXpresso SDK projects. Additional tools are enabled on supported devices, such as the trusted execution environment (TEE) tool for microcontrollers with enhanced domain resource control like TrustZone, device configuration data (DCD) and SEMC memory configuration and validation tools for i.MX RT crossover MCUs, plus special design tools for advanced peripherals.

The configuration tools are available directly within the MCUXpresso IDE as Config Tool perspectives, enabling seamless project updates and the coordination of peripheral drivers and device package selections.

The MCUXpresso Config Tools can also be downloaded standalone for use with other supported IDEs, or for use independent of a toolchain project. The standalone MCUXpresso Config Tools enable easy project updating to the project directory structure and SDK example cloning for use with IDEs and toolchains.

Learn more at [www.nxp.com/mcuxpresso/config](http://www.nxp.com/mcuxpresso/config)



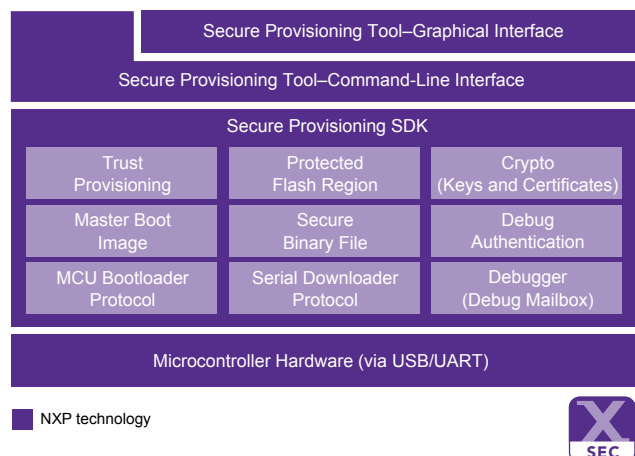
## MCUXpresso SECURE PROVISIONING TOOL

MCUXpresso SEC offers a GUI-based application aimed at simplifying the preparation of secured, bootable executables for NXP MCUs, plus key and certificate generation and management. For supported MCUs, the Tool also provides secure provisioning through certificate and key management, certificate harvesting, over-production control, secure image preparation, and device provisioning and programming. The tool takes advantage of the breadth of programming interfaces provided by the Boot ROM capabilities on security-focused devices.



The graphical interface provides an intuitive image preparation flow, making it simple to prepare and flash secure applications and program fuses and OTP memory, while providing access to command line instructions to underlying utilities for offline scripting. The underlying functionality is based on the opensource Secure Provisioning SDK. The Secure Provisioning SDK (SPSDK) provides a unified software library to provide a solid, feature-rich security foundation across the full range of supported devices. Additionally, the Secure Provisioning SDK is available in source form for the development of fully customized provisioning workflows. Advanced scripting can be achieved using the command-line interface.

Learn more at [www.nxp.com/mcuxpresso/secure](http://www.nxp.com/mcuxpresso/secure)



## Get Started:

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