

# MCUXpresso SOFTWARE AND TOOLS FOR NXP's Arm® CORTEX®-M-BASED MCUs

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

## OVERVIEW

NXP's MCUXpresso software and tools offer comprehensive development solutions designed to optimize, ease and help accelerate embedded system development of applications based on Arm® Cortex®-M core devices from NXP, including its general purpose, crossover and wireless MCUs.

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

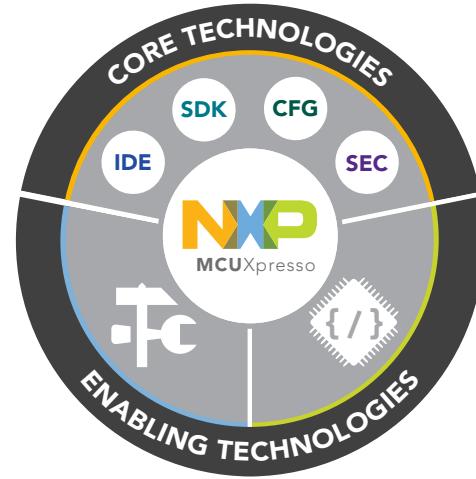
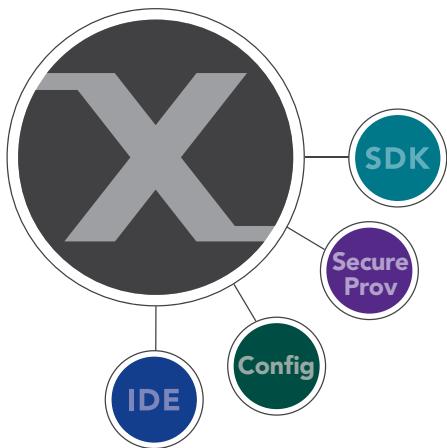
- An open-source software development kit (SDK) built specifically for your processor and evaluation board selections
- An easy-to-use integrated development environment (IDE) with integrated configuration tools for creating, building and debugging and optimizing your application
- A comprehensive suite of system configuration tools, including pins, clocks, peripherals, trusted execution environment and device startup, with easy project updating and code generation
- A programming and secure provisioning tool for certificate and key management, certificate harvesting, over-production control, secure image preparation, and device provisioning and programming
- Support for Arm Keil®, IAR and GCC/Cmake development flows



A cohesive approach shared across the MCUXpresso SDK, IDE, secure provisioning tool, and configuration tools brings inherent compatibility. The configuration tools, SEC tool and SDK offer the same synergistic development flow when using select third-party partner IDEs.

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



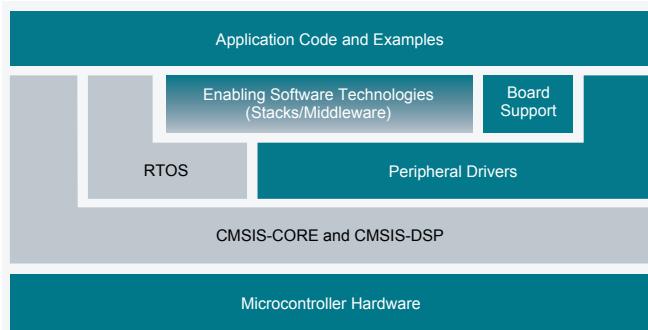
### MCUXpresso SDK

Created as a software framework and reference for application development with NXP's Arm Cortex-M-based MCUs, MCUXpresso SDK includes production-grade software with integrated RTOS (optional), integrated enabling software technologies (stacks and middleware) from NXP and its partners, reference software and more. Underscoring our commitment to high quality, the MCUXpresso SDK is MISRA-compliant and checked with Coverity® static analysis tools. SDK packages are available in custom downloads based on user selections of MCU, evaluation board and optional software components. In addition to working well with the MCUXpresso IDE, the MCUXpresso SDK also supports and includes example projects for IAR, Keil®, and GCC with Cmake.



Learn more at

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



NXP technology   Non-NXP technology   Shared NXP and non-NXP technology

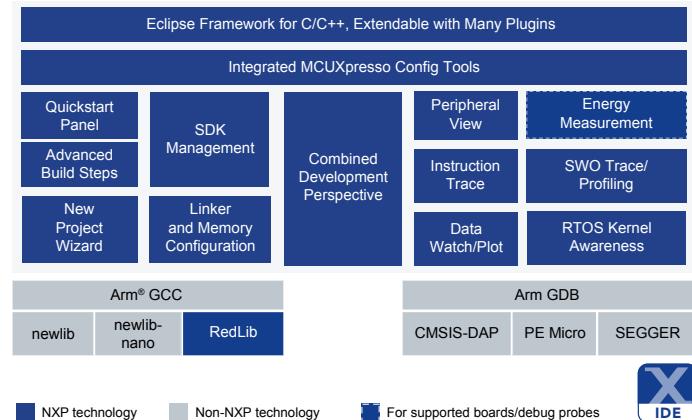
### MCUXpresso IDE

The GNU and Eclipse-based MCUXpresso IDE provides developers with an easy-to-use development environment for general purpose, crossover and wireless enabled Arm Cortex-M-based MCUs from NXP. Full-featured and not limited by code size, MCUXpresso IDE provides an intuitive and powerful interface for professional editing, compiling and debugging at no cost. The MCUXpresso IDE offers integrated configuration tools, profiling, energy measurement on supported boards, GNU tool integration and library, multicore-capable debugger, profiling, trace functionality and more. MCUXpresso IDE debug connections support NXP evaluation boards and custom development boards with widely popular commercial debug probes including MCU-Link, LPC-Link2 and OpenSDA probes from NXP, PE Micro probes and SEGGER J-Link.



Learn more at

[www.nxp.com/mcuxpresso/ide](http://www.nxp.com/mcuxpresso/ide)



## 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.

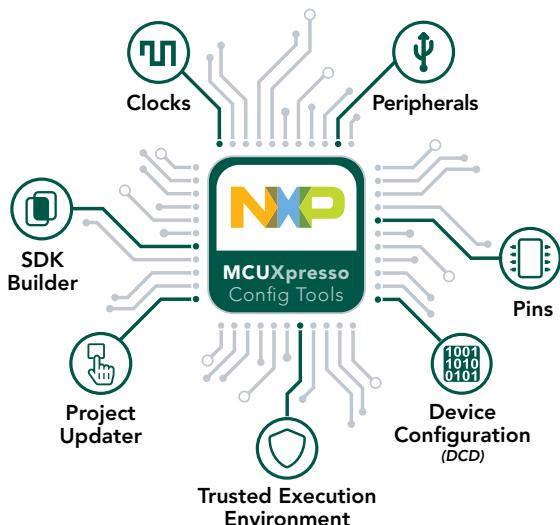
The Config Tools provide pin, clock and peripheral configuration and generate initialization C code for use within MCUXpresso SDK projects. Additional tools are enabled on supported devices, such as the trusted execution environment (TEE) tool for microcontrollers with enhanced domain resource control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

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 IAR and Keil IDE projects, 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 third-party IDEs and toolchains.

Learn more at

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



## MCUXpresso SECURE PROVISIONING TOOL

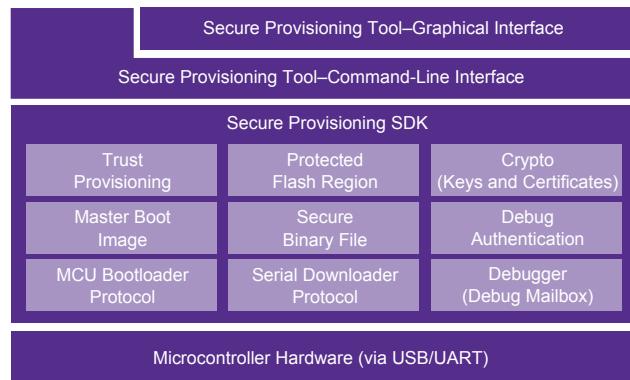


The MCUXpresso secure provisioning tool (SEC) enables programming and secure provisioning through certificate and key management, certificate harvesting, over-production control, secure image preparation, and device provisioning and programming. The MCUXpresso SEC offers a GUI-based application aimed at simplifying the generation and provisioning of bootable executables on NXP MCUs. It is built upon existing security enablement utilities and takes advantage of the breadth of programming interfaces provided by the BootROM 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 open source Secure Provisioning SDK. The [Secure Provisioning SDK \(SPSDK\)](#) provides a unified software library replacing many of the existing security utilities 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. Users can customize even more advanced secure provisioning flows by modifying scripts that the tool generates.

Learn more at

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



## GET STARTED:

Learn more:

[www.nxp.com/mcuxpresso](http://www.nxp.com/mcuxpresso)

Join the MCUXpresso SW and Tools community:

<https://community.nxp.com/community/mcuxpresso>

Professional Support and Services:

[www.nxp.com/services](http://www.nxp.com/services)

---

[www.nxp.com/mcuxpresso](http://www.nxp.com/mcuxpresso)

NXP, the NXP logo, Kinetis and Tower are trademarks of NXP B.V. All other product or service names are the property of their respective owners. Arm, Cortex and Keil are trademarks or registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere. The related technology may be protected by any or all patents, copyrights, designs and trade secrets. All rights reserved.  
© 2022 NXP B.V.

Document Number: MCUXPRESSOFS REV 9