NXP’s MCUXpresso software and tools offer comprehensive development solutions designed to optimize, ease and accelerate embedded system development of applications based on Arm® Cortex®-M core devices, including K32, LPC and i.MX RT crossover 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 generation.
- A programming and secure provisioning tool for certificate and key management, secure image preparation, and device provisioning and programming.

MCUXpresso Software and Tools

The MCUXpresso SDK, IDE, secure provisioning and configuration tools speed development time with highest quality software and tools for K32, LPC and i.MX RT crossover MCUs from NXP.
COHESIVE AND COMPATIBLE SOFTWARE AND TOOLS

Developed as a cohesive set of software development tools, MCUXpresso software and tools bring together the best of NXP’s software enablement into one enablement platform for a shared software experience across a broad set of Cortex-M MCUs. The toolkit supports the K32, LPC, and i.MX RT portfolios, further streamlining end application development and enabling easy migration and scalability for your future design needs.

A cohesive software framework shared across the MCUXpresso SDK, IDE, secure provisioning tool, and configuration tools brings inherent compatibility. This framework also eases your design with a complete set of synergistic development tools that support third-party partner IDEs.

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

MCUXpresso SDK

Created as a software framework and reference for application development with NXP’s i.MX RT crossover MCUs and K32 and LPC microcontrollers based on Arm Cortex-M cores, 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 the highest quality, MCUXpresso SDK is MISRA-compliant and checked with Coverity® static analysis tools. This SDK is available in custom downloads based on user selections of MCU, evaluation board, and optional software components. In addition to working seamlessly with the MCUXpresso IDE, the MCUXpresso SDK also supports and provides example projects for IAR, Keil®, and GCC with Cmake.

Learn more at www.nxp.com/mcuxpresso/sdk

MCUXpresso IDE

The GNU and Eclipse-based MCUXpresso IDE brings developers an easy-to-use and unlimited code size development environment for NXP MCUs based on Cortex-M cores (LPC, K32, and i.MX RT portfolios). 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, power measurement on supported boards, GNU tool integration and library, multicore-capable debugger, trace functionality and more. MCUXpresso IDE debug connections support Freedom, Tower®, LPCxpresso, i.MX RT EVK and your custom development boards with industry-leading commercial debug probes including LPC-Link2, P&E and SEGGER.

Learn more at www.nxp.com/mcuxpresso/ide
MCUXpresso CONFIG TOOLS

Offered as a suite of evaluation and configuration tools, MCUXpresso Config Tools help guide users from initial evaluation to production software development supporting K32, LPC and i.MX RT crossover microcontrollers.

The configuration tools are available directly within the MCUXpresso IDE as Config Tool perspectives. Additionally, the MCUXpresso Config Tools can be downloaded standalone for use with IAR and Keil IDEs projects or for use independent of a toolchain project. The configuration tools provide pin, clock and peripheral perspectives and generate initialization C code.

Additional tools are enabled on supported devices, such as the trusted execution environment (TEE) tool for Cortex-M33-based microcontrollers, and device configuration data (DCD) and SEMC memory configuration and validation tools for i.MX RT crossover MCUs. The standalone MCUXpresso Config Tools enable easy project updating to the project directory structure and SDK example cloning for use with third-party IDEs (such as IAR and Keil). The integrated configuration tools within the MCUXpresso IDE project seamlessly project the update and coordination of peripheral drivers and device package selection.

Learn more at
www.nxp.com/mcuxpresso/config

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MCUXpresso Secure Provisioning Tool

The MCUXpresso secure provisioning tool (SEC) enables programming and secure provisioning through certificate and key management, secure image preparation, and device provisioning and programming. The MCUXpresso SEC is a GUI-based application aimed at simplifying the generation and provisioning of bootable executables on NXP MCU devices. It is built upon proven security enablement utilities and takes advantage of the breadth of programming interfaces provided by the Boot ROM available of security-focused devices.

The unified graphical interface provides an improved development flow, making it simpler to prepare, flash and fuse images while leveraging and providing access to existing utilities. The underlying utilities available as part of the MCUXpresso SEC application are the MCU bootloader host application (blhost) and ELF-to-Secure binary conversion tool (elftosb), as well as the i.MX RT10xx bootloader specific utilities, the serial download protocol host application (sdphost) and code-signing tool (CST) with super root key generation (srktool). 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