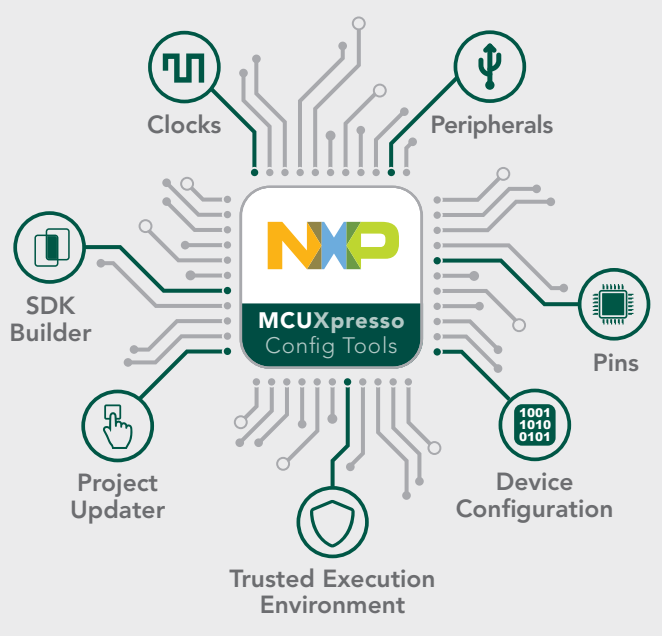
MCUXpresso CONFIG TOOLS FOR NXP's Arm® CORTEX®-M-BASED MCUs

MCUXpresso Config Tools, an integrated suite of system configuration tools from NXP guides users from first evaluation through production in the software development process.



OVERVIEW

The MCUXpresso Config Tools suite eases the design process for general-purpose, crossover and wireless Arm Cortex-M-based MCUs from NXP. This suite allows developers to quickly adapt an SDK example, update existing IDE projects, and leverage pins, clocks and peripherals tools to generate initialization C code for custom board support.

FEATURES

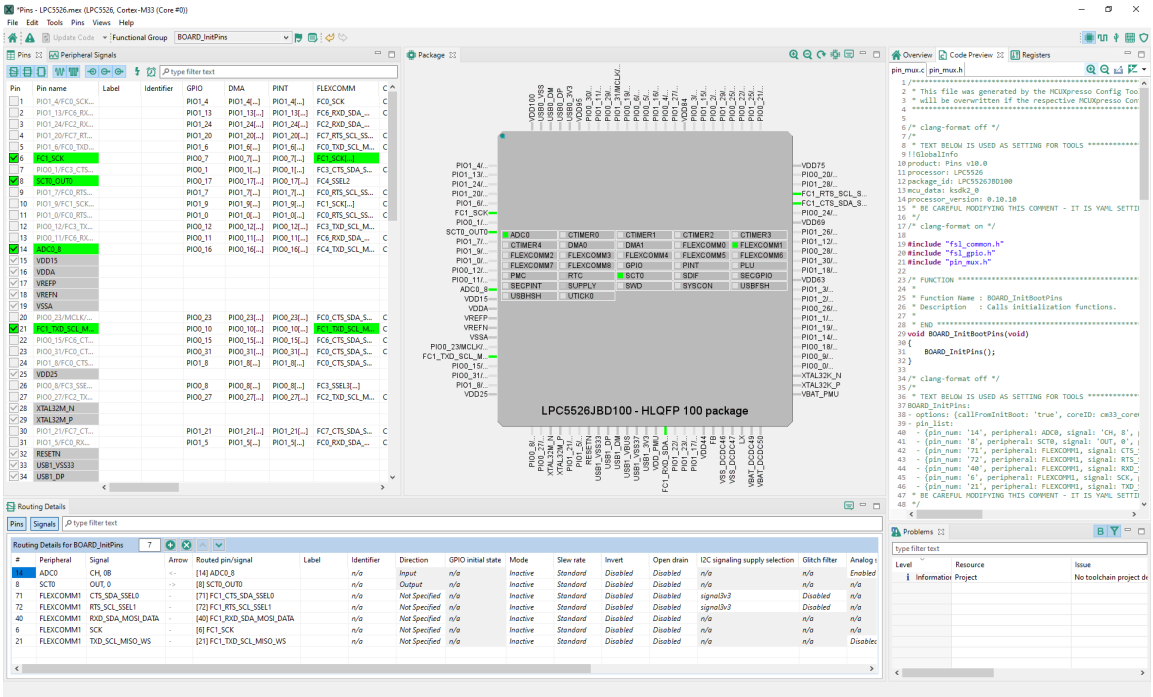
The MCUXpresso Config Tools suite is directly available within the MCUXpresso IDE. For other IDE options, a standalone desktop version of the Config Tools software is available for download at nxp.com/configtools and online within the SDK builder at mcuxpresso.nxp.com.

The MCUXpresso Config Tools suite includes:

- **Pins tool**—assigns internal signals to external pins, sets electrical properties and I/O conflict resolution options, and generates ANSI-C source code that drops into the MCUXpresso SDK environment; board expansion headers can be viewed and routed to the connected signals on the MCU.
- **Clocks tool**—provides a graphical and tabular representation of the MCU clock tree system and interactive user controls as well as automatic clock setup and error checking.
- **Peripherals tool**—generates MCUXpresso SDK driver initialization code and register settings for specialized peripherals (Flexio, SCTimer, PLU, ...) peripherals tool can also configure higher level application code for supported middleware
- **Project cloning**—creates a standalone SDK project based on an example application available within the SDK
- **Project updater**—works directly with existing SDK-based IDE projects with generated pins, clocks, and peripheral source files
- **Device configuration tool**—allows device configuration data commands sequence configuration for pre-initialization of devices at boot time and generation of binary files for use with MCUXpresso secure provisioning tools
- **Trusted execution environment**—configures protection and isolation of sensitive parts of an application, including the configuration of Arm TrustZone® technology

PINS TOOL

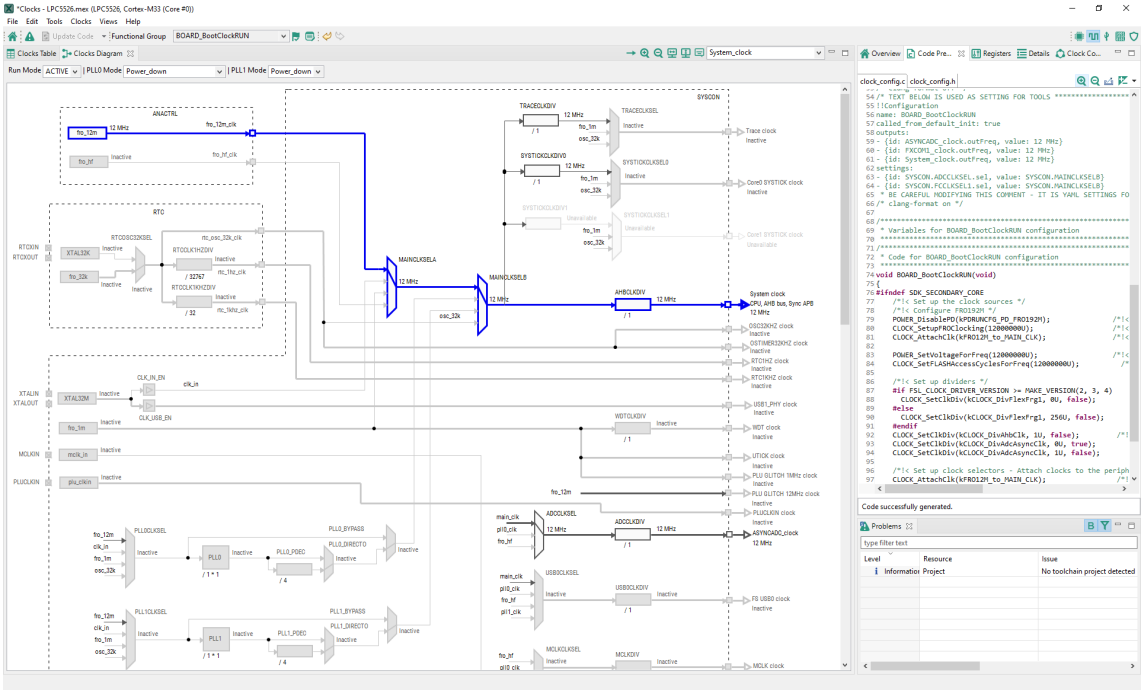
The MCUXpresso pins tool is used for pin routing configuration, validation and code generation. It provides pin settings for pin routing, signal muxing, electrical properties, and run-time configurations. Users can easily capture selections by using the graphical package view or searchable/sortable spreadsheet view. Expansion headers available on NXP development boards can be easily referenced and configured to connect external boards to the target microcontroller. The MCUXpresso pins tool generates easy-to-read ANSI-C initialization code suitable for C or C++ projects.



CLOCKS TOOL

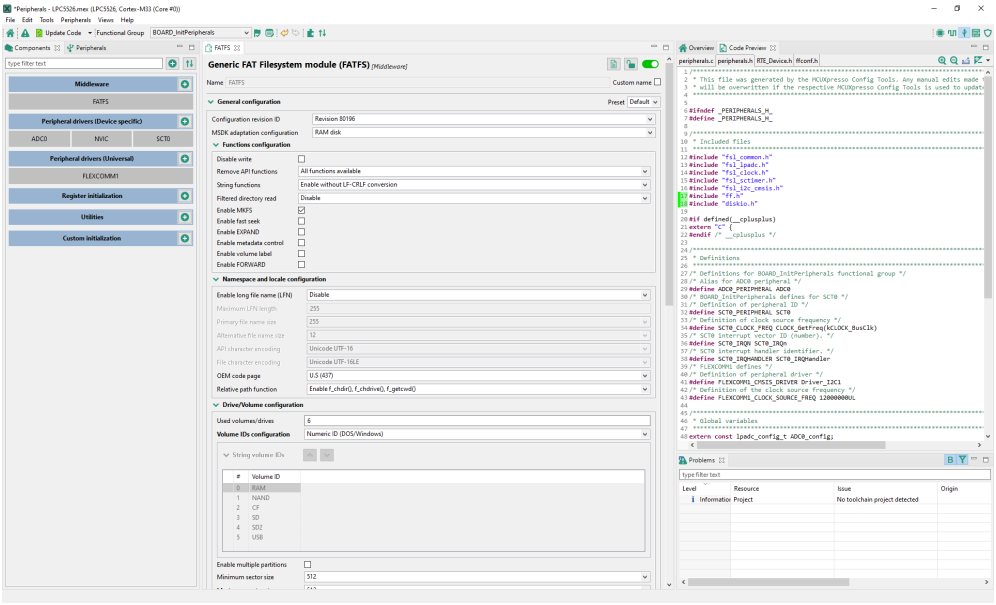
The MCUXpresso clocks tool allows the user to easily configure initialization of the system clocks (core, system, bus, peripheral clocks) and to generate C code with MCUXpresso SDK clock initialization functions and configuration structures.

Visual inspection of the configured clock paths is available using the graphical clock tree. The MCUXpresso clock tool validates clock settings and provide calculations of the resulting clock frequencies. The Clock tool also provides automatic clock setup capability and functionality for automatic adjustment of pin output parameters.



PERIPHERALS TOOL

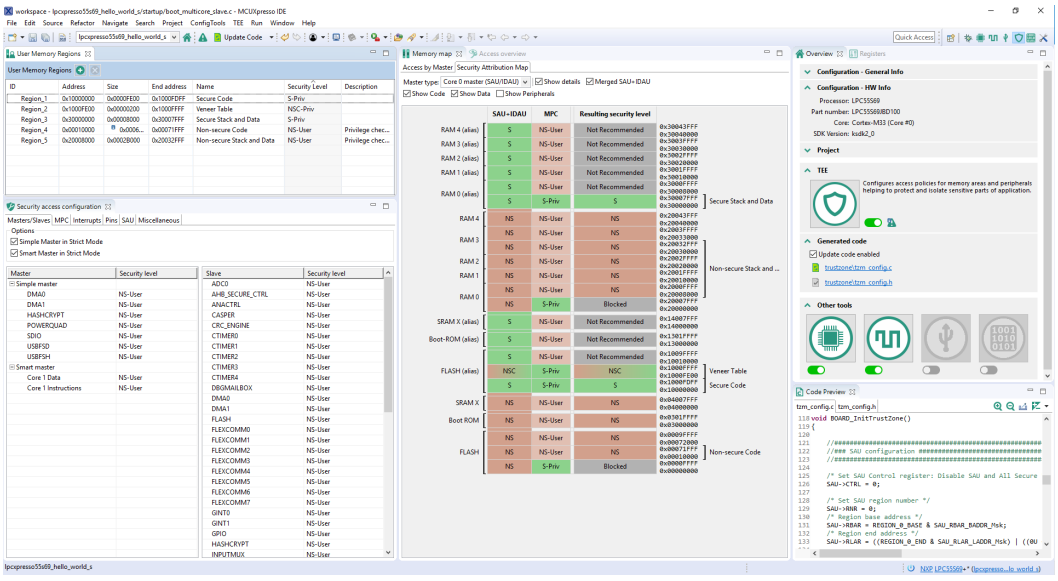
The MCUXpresso peripherals tool allows users to add desired peripherals to their designs, including UART, ADC, SPI, I²C and more. The tool generates initialization structures for the MCUXpresso SDK drivers and offers an easy-to-use quick selection feature that allows starting references to be pre-populated based on peripheral selections. Key peripherals that benefit from precise configuration feature additional register-level configuration, with code-generation of direct register level writes. Additional tools are built in for specialized peripherals such as PLU and SCTimer. The MCUXpresso peripherals tool also allows the user to easily generate reference example code for supported middleware along with the configuration structures used by the respective software APIs. Supported middleware components include USB, file systems, LwIP, FreeMASTER, camera and PMSM. In addition, users can also quickly validate their selections to confirm that the settings are conflict free, and an alert will call out conflicts when they arise.



TRUSTED EXECUTION ENVIRONMENT TOOL

The MCUXpresso trusted execution environment (TEE) tool allows users to generate configuration code for enabling hardware isolation of secure and non-secure applications. The TEE tool supports TrustZone for Armv8-M configuration in addition to device-specific implementations, such as secure bus controllers, memory and peripheral protection checkers, and secure attribution settings. The tool also supports i.MX RT11xx devices with hardware security protections.

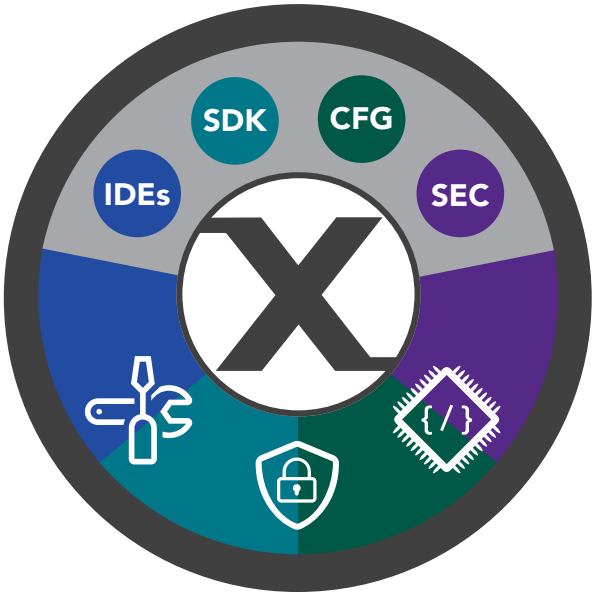
The tool provides visualizations of the processor's memory map with annotations of the configured security settings based on the level of application access. Levels of errors, warnings, and informational details guide a user through, ensuring they have correctly configured the processor to achieve the desired level of security.



MCUXPRESSO SOFTWARE AND TOOLS

The MCUXpresso Config Tools suite is part of the cohesive MCUXpresso Software and Tools suite. It is inherently compatible with the MCUXpresso Software Development Kit (SDK), MCUXpresso Integrated Development Environment (IDE) and MCUXpresso Secure Provisioning Tools, and can also be used seamlessly with partner IDEs, such as those from IAR and Keil.

Designed to help ease and accelerate embedded system development and optimization, the MCUXpresso Software and Tools suite brings high-quality comprehensive enablement to NXP's general-purpose, crossover and wireless Arm Cortex-M-based MCUs, allowing easy migration and scalability between families.



GET STARTED:

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

Join the MCUXpresso Config Tools community:
https://community.nxp.com/community/mcuxpresso/mcuxpresso-config

Professional Support and Services:
www.nxp.com/services

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