

IMXQSUG

i.MX 配置工具的快速入门指南

Rev. 3 — 20 September 2022

用户指南

Document information

Information	Content
Keywords	MCUXpresso 配置工具, i.MX
Abstract	i.MX 配置工具是一套用于配置基于NXP i.MX Cortex-A 和 Cortex-M 的处理器 的工具。



1 简介

i.MX 配置工具是一套用于配置基于 NXP i.MX Cortex-A 和 Cortex-M 的处理器工具。

“引脚”工具可定制包含电气特性配置（与所有引脚信号相关的）的器件配置引脚路由配置，并创建可用于实施器件初始化的源代码，通过寄存器直接初始化或 SDK API 代码和/或器件树代码段（如果支持）的方式。

使用 DDR 工具，您可以配置和验证双倍数据速率 RAM 配置。

2 从新配置开始

首次启动 i.MX 配置工具时，您会首先看到“开始运行”窗口。通过该窗口，您可以创建一个新的配置或者加载一个已存在的配置。

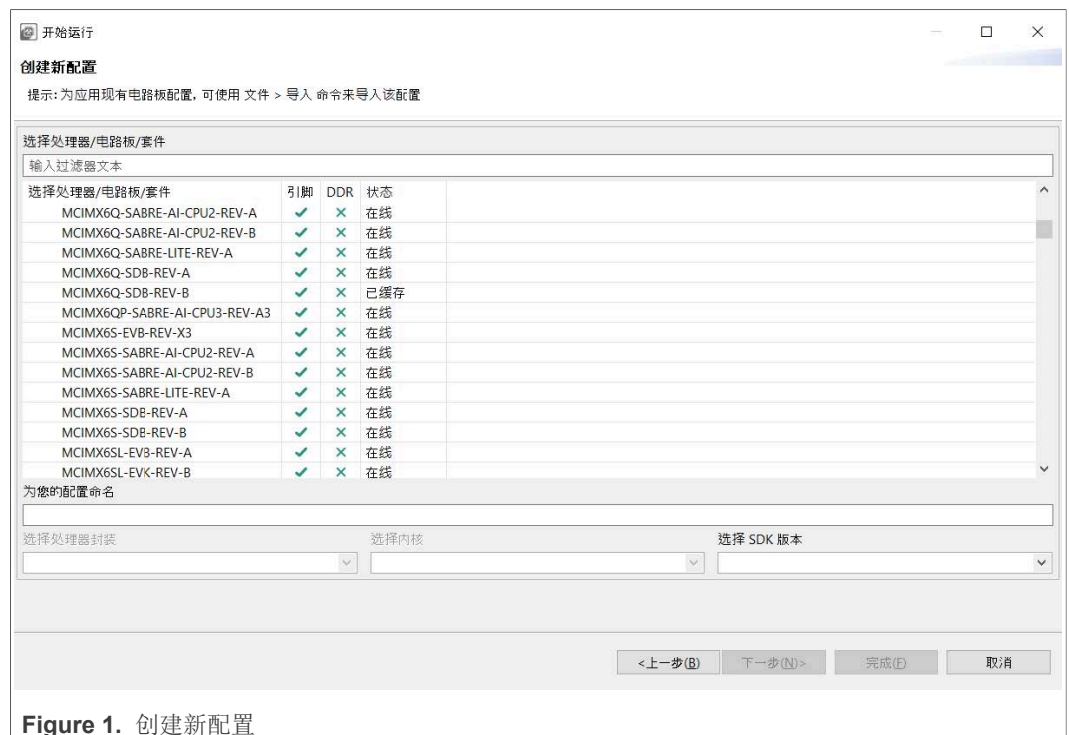


Figure 1. 创建新配置

如要为选定的处理器、电路板或套件创建新配置，请遵循以下步骤：

1. 启动工具，或者选择“文件” > “新建”。
2. 选择“为处理器、电路板或套件创建新配置”。
3. 选择“下一步”。
4. 展开选项树，选择任何处理器、电路板或套件配置。您也可以使用筛选域来快速找到需要的项目。
5. 自定义配置名称，然后单击“完成”按钮。

使用“文件” > “保存”菜单将现有配置保存到磁盘上。

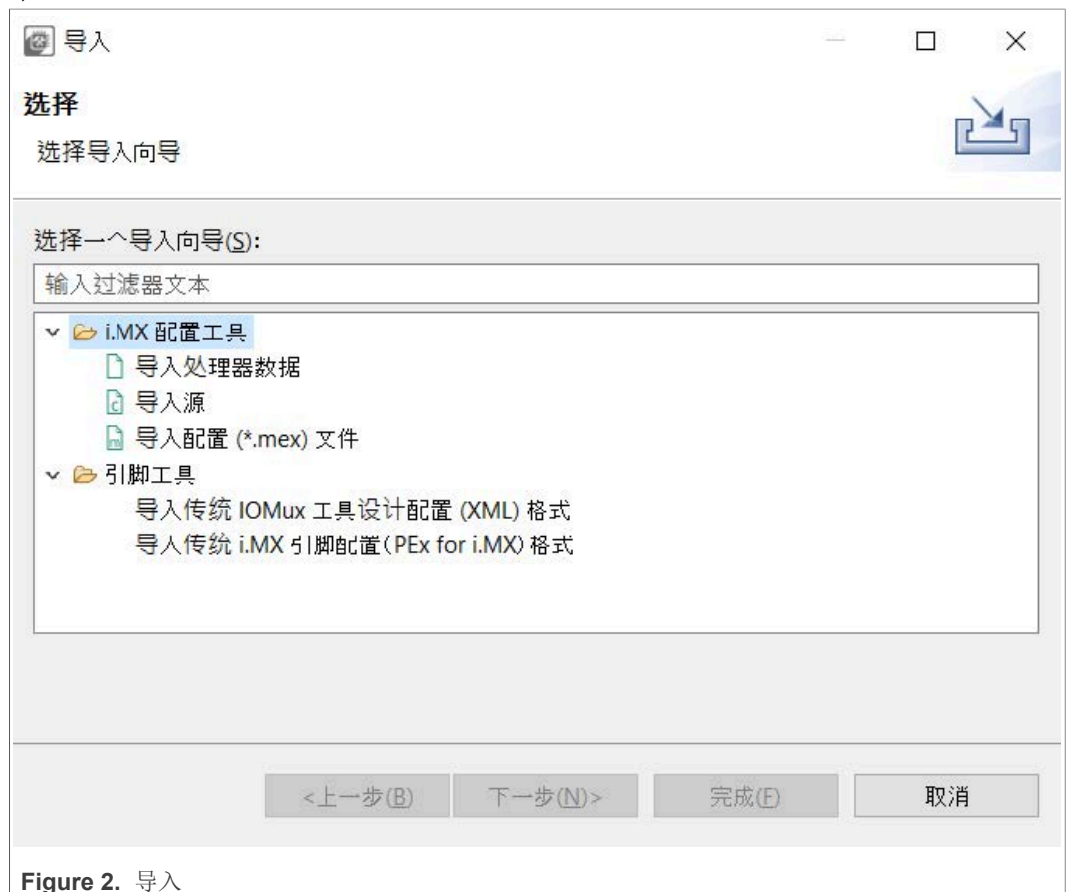
3 导入现有配置

您也可以使用内置导入向导导入现有配置，以便从旧版工程格式（IO 多路复用工具设计配置 XML 或 i.MX 的 PEx）或其他已有的配置文件（MEX）或由“引脚”工具生成、包含 YAML 配置详情的源文件中获得引脚配置和 DDR 配置。

用以导入现有配置

1. 选择“文件” > “导入”。
2. 选择“导入向导”，选择“下一步”，然后按照说明进行操作。
3. 选择“浏览”，然后选择需要导入的文件。
4. 单击“完成”，文件被导入。

如果文件导入成功，则新配置已被成功创建，使用“文件” > “保存”将其保存到磁盘中。



4 引脚工具

“引脚”工具允许显示和配置选定处理器的引脚。基本配置可在“引脚”、“外设信号”或“封装”视图中完成。

更高级的设置（引脚电气特性和功能），可在“已路由引脚”视图中查看和配置。

此外，i.MX 配置工具也允许在给定的功能组内，确认来自不同电源轨（已为给定处理器指定）的引脚配置中存在的电压电平问题（HW 电平）。可根据“电源组”视图中的当前配置，全局性地为受支持的电源组配置单个电压电平。

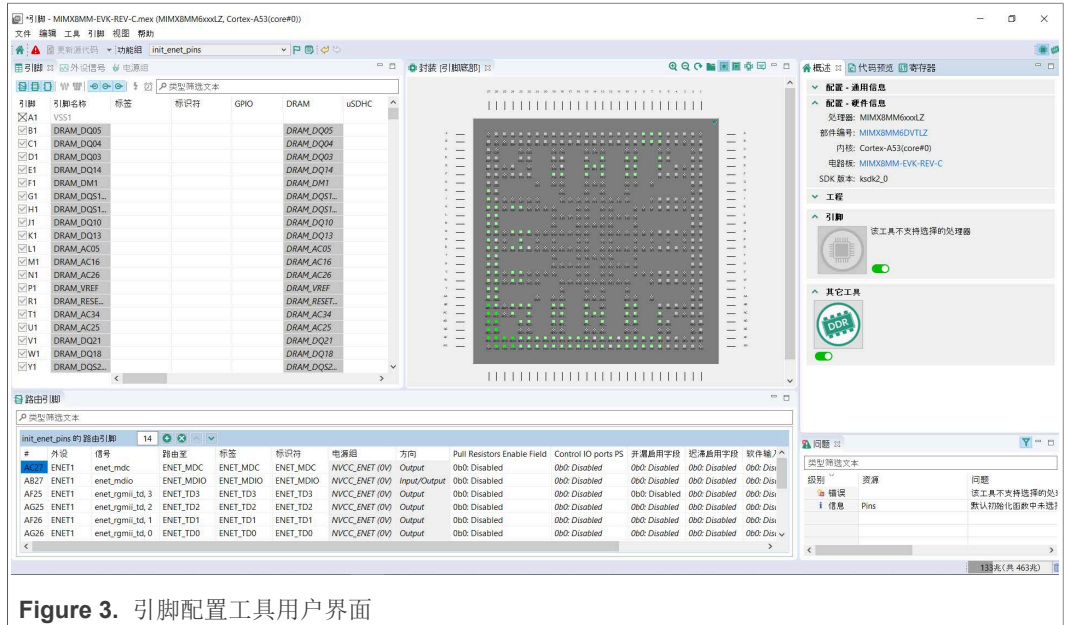


Figure 3. 引脚配置工具用户界面

5 DDR 工具

在 DDR 视图中，您可以浏览或配置基本的 DDR 属性，比如，内存类型，频率。通道数量，及其它。

在“验证”视图中，您可以提交 DDR 配置用以各种测试。当指定连接类型后，您可以选择场景和场景中要进行的测试，也可以浏览测试结果，日志，和小结。

6 可信执行环境工具

“可信执行环境”或“TEE”工具可用于为内存区域，总线主导，以及外设配置安全策略，以此保护和隔离应用的敏感地区。

在“安全访问配置”及其子界面上，您可以为应用的各个部分设置安全策略，并在“内存属性映射”、“访问概述”、和“域概述”视图中查看这些策略。使用“用户内存区域”视图，您可以方便地查看内存区域及其安全级别。

通过 TEE 工具，您可以在“寄存器”视图中查看寄存器，在“代码预览”中检测代码。

Note: 为了使您的配置生效，请确保您已在“安全访问配置”视图的“其他”子视图中启用了相关的安全检测选项。

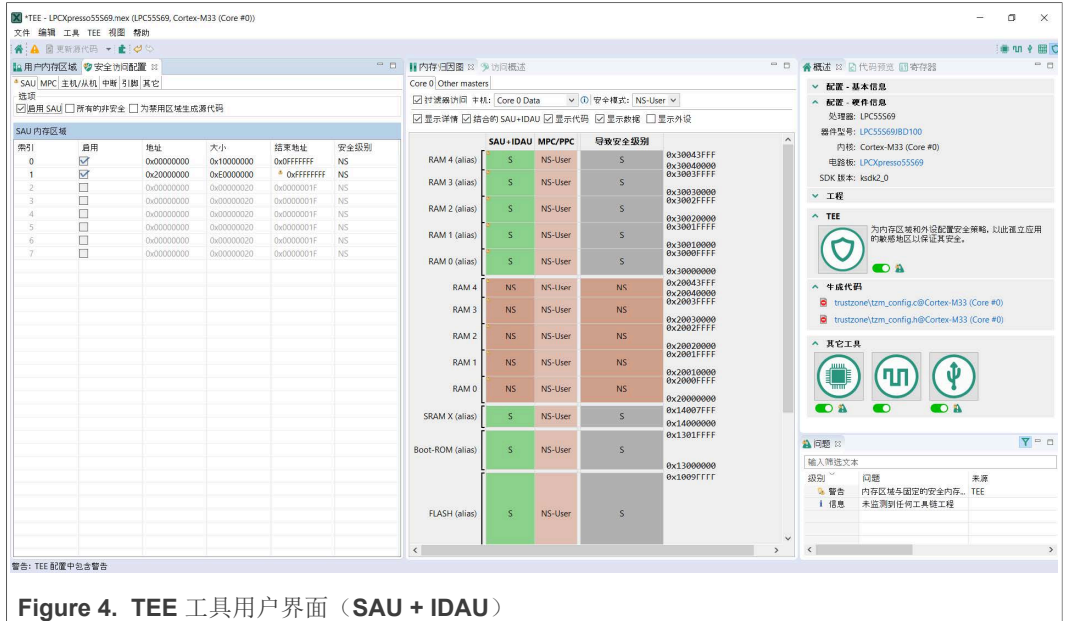


Figure 4. TEE 工具用户界面 (SAU + IDAU)

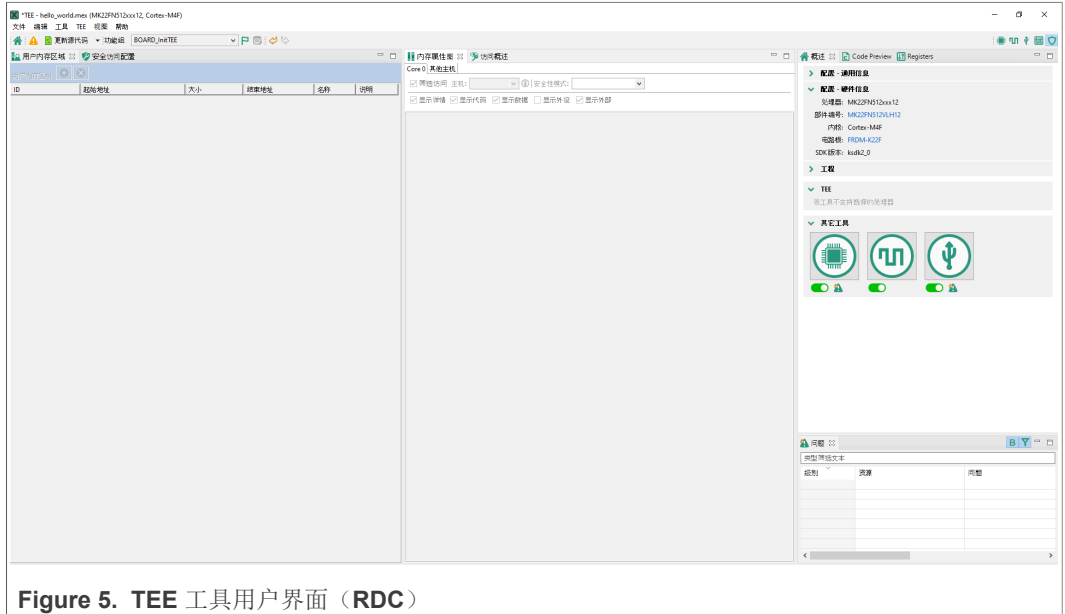


Figure 5. TEE 工具用户界面 (RDC)

7 生成源代码

“引脚”工具可自动为当前配置生成输出代码。您也可以选择“引脚”。在“主菜单”中，点击“刷新”，以手动更新代码。所有输出代码文件都显示在“代码预览”视图中。如要复制该代码，可直接进行复制/粘贴操作或使用“代码预览”视图右上角的“导出”按钮。



Figure 6. 生成源代码

或者，您也可以导出各种类型的输出中的生成输出，如源文件、CSV 中的纯引脚配置数据、已更改的寄存器内容、或是在“主菜单”中选择“文件” > “导出”后可选的特定导出向导以HTML 格式导出的引脚配置报告。

8 修订记录

Table 1. 修订记录

版本号	日期	重大更新
0	2021年6月23日	初始版本
1	2021年12月22日	较小更新
2	2022年6月30日	为 v.12 更新
3	2022年9月20日	为 v.12.1 更新

9 Legal information

9.1 Definitions

Draft — A draft status on a document indicates that the content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included in a draft version of a document and shall have no liability for the consequences of use of such information.

9.2 Disclaimers

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. NXP Semiconductors takes no responsibility for the content in this document if provided by an information source outside of NXP Semiconductors.

In no event shall NXP Semiconductors be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, NXP Semiconductors' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms and conditions of commercial sale of NXP Semiconductors.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors and its suppliers accept no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer' s own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using NXP Semiconductors products, and NXP Semiconductors accepts no liability for any assistance with applications or customer product design. It is customer' s sole responsibility to determine whether the NXP Semiconductors product is suitable and fit for the customer' s applications and products planned, as well as for the planned application and use of customer' s third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP Semiconductors does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer' s applications or products, or the application or use by customer' s third party customer(s). Customer is responsible for doing all necessary testing for the customer' s applications and products using NXP Semiconductors products in order to avoid a default of the applications and the products or of the application or use by customer' s third party customer(s). NXP does not accept any liability in this respect.

Terms and conditions of commercial sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at <http://www.nxp.com/profile/terms>, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. NXP Semiconductors hereby expressly objects to applying the customer' s general terms and conditions with regard to the purchase of NXP Semiconductors products by customer.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

Suitability for use in non-automotive qualified products — Unless this data sheet expressly states that this specific NXP Semiconductors product is automotive qualified, the product is not suitable for automotive use. It is neither qualified nor tested in accordance with automotive testing or application requirements. NXP Semiconductors accepts no liability for inclusion and/or use of non-automotive qualified products in automotive equipment or applications.

In the event that customer uses the product for design-in and use in automotive applications to automotive specifications and standards, customer (a) shall use the product without NXP Semiconductors' warranty of the product for such automotive applications, use and specifications, and (b) whenever customer uses the product for automotive applications beyond NXP Semiconductors' specifications such use shall be solely at customer' s own risk, and (c) customer fully indemnifies NXP Semiconductors for any liability, damages or failed product claims resulting from customer design and use of the product for automotive applications beyond NXP Semiconductors' standard warranty and NXP Semiconductors' product specifications.

Translations — A non-English (translated) version of a document, including the legal information in that document, is for reference only. The English version shall prevail in case of any discrepancy between the translated and English versions.

Security — Customer understands that all NXP products may be subject to unidentified vulnerabilities or may support established security standards or specifications with known limitations. Customer is responsible for the design and operation of its applications and products throughout their lifecycles to reduce the effect of these vulnerabilities on customer' s applications and products. Customer' s responsibility also extends to other open and/or proprietary technologies supported by NXP products for use in customer' s applications. NXP accepts no liability for any vulnerability. Customer should regularly check security updates from NXP and follow up appropriately. Customer shall select products with security features that best meet rules, regulations, and standards of the intended application and make the ultimate design decisions regarding its products and is solely responsible for compliance with all legal, regulatory, and security related requirements concerning its products, regardless of any information or support that may be provided by NXP.

NXP has a Product Security Incident Response Team (PSIRT) (reachable at PSIRT@nxp.com) that manages the investigation, reporting, and solution release to security vulnerabilities of NXP products.

9.3 Trademarks

Notice: All referenced brands, product names, service names, and trademarks are the property of their respective owners.

NXP — wordmark and logo are trademarks of NXP B.V.

Contents

1	简介	2
2	从新配置开始	2
3	导入现有配置	3
4	引脚工具	3
5	DDR 工具	4
6	可信执行环境工具	4
7	生成源代码	5
8	修订记录	6
9	Legal information	7

Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.

© NXP B.V. 2022.

All rights reserved.

For more information, please visit: <http://www.nxp.com>

For sales office addresses, please send an email to: salesaddresses@nxp.com

Date of release: 20 September 2022

Document identifier: IMXQSUG