

# MQX™ RTOS Release Notes for Kinetis SDK v1.1.0 TWR-K21F120M Freescale Tower System Development Platform

## 1 Overview

These are Release Notes for the MQX™ RTOS for Kinetis SDK 1.1.0 TWR-K21F120M Freescale Tower System development platform using the MK21FN1M0V12 microcontroller. Freescale CPU\_MK21FN1M0VMC12 belongs to the Kinetis K series processor family of the 32-bit microcontrollers. The software is based on Freescale Kinetis SDK (KSDK) version 1.1.0. It includes the full set of RTOS services and a standard set of peripheral drivers.

### Contents

1	Overview	1
2	Features	3
3	Installation Instructions	5
4	Other Notes	5
5	Revision history	6

## 1.1 Development tools

The TWR-K21F120M Freescale Tower System development platform release was tested with the following development tools:

- IAR Embedded Workbench<sup>®</sup> for ARM<sup>®</sup> Version 7.30
  - Support available for Kinetis ARM<sup>®</sup> Cortex<sup>®</sup>-M4 devices
  - See build projects in the iar subdirectories
- ARM-MDK for Keil  $\mu$ Vision<sup>®</sup> Version 5.11
  - Support available for Kinetis ARM Cortex-M4 devices
  - See build projects in mdk subdirectories
- Kinetis Design Studio IDE (KDS) 2.0
  - Support available for Kinetis ARM Cortex
  - See build projects in KDS IDE subdirectories
- Atollic TrueSTUDIO for ARM Pro 5.2.0
  - Support available for Kinetis ARM Cortex
  - See build projects in atl subdirectories
- GCC ARM Embedded tool chain 4.8.3
  - Support available for Kinetis ARM Cortex
  - See build projects in armgcc subdirectories

## 1.2 System requirements

The system requirements are defined by the development tool requirements. There are no special host system requirements for the Freescale Kinetis SDK distribution itself.

The minimum PC configuration is determined by the development tools.

The recommended PC configuration is 2 GHz processor, 2 GB RAM, and 2 GB free disk space.

## 1.3 Target requirements

The TWR-K21F120M MQX RTOS package was tested with this hardware configuration:

- TWR-K21F120M Rev. A with a MK21FN1M0V12 processor.

## 2 Features

### 2.1 Key features

This package provides support for the TWR-K21F120M Freescale Tower System development platform with a MK21FN1M0V12 processor and a standard set of features and example applications.

This section describes the major changes and new features implemented in this release.

- MQX RTOS Timer: SysTick.
- Default console: UART5 (CDC virtual COM).

The package supports these features:

- MQX RTOS for the TWR-K21F120M Freescale Tower platform with a MK21FN1M0V12 processor.
- MQX RTOS STDLIB
- nShell
- KSDK support for the MK21FN1M0V12 Microcontroller.

### 2.2 Limitations

This release does not support these features:

- CodeWarrior v10

### 2.3 Example applications

This package contains applications demonstrating the MQX RTOS kernel and peripherals on the TWR-K21F120M Freescale Tower System development platform. The applications can be found at the following locations:

- `<install_dir>rtos/mqx/mqx/examples`: A standard set of examples for kernel features and basic peripheral drivers.

## 2.4 Release contents

This section provides an overview of the release content.

Deliverable	Location
Specific content for the evaluation boards	<install_dir>rtos/mqx/...
MQX RTOS source code for Kinetis	../mqx/source/
MQX RTOS build projects	../mqx/build/<compiler>/ mqx_twrk21f120m/
MQX example applications	../mqx/examples/
MQX RTOS STDLIB Source Code	<install_dir>rtos/mqx_stdlib/...
MQX RTOS STDLIB build projects	../mqx_stdlib /build/<compiler>/ mqx_stdlib_twrk21f120m/
MQX RTOS STDLIB Source Code	../mqx_stdlib /source/
KSDK MQX Source Code	<install_dir>/lib/ ksdk_mqx_lib/...
KSDK build projects	../ksdk_mqx_lib /<compiler>/K21FA12/
KSDK source	<install_dir>platform/
Shell Library Source Code	<install_dir>rtos/nshell/...
Shell source code	../nshell/source/
Shell build projects	../nshell/build/<compiler>/ nshell_twrk21f120m/
PC Host Tools	<install_dir>/tools/
Documentation	<install_dir>/doc/

## 3 Installation Instructions

### 3.1 Installation guide

Run the installer and select "Kinetis SDK+MQX" to install MQX RTOS to the folder <SDK\_install\_dir>/rtos/mqx/.

#### 3.1.1 Build procedure

For build procedures, see the *Getting Started with Freescale MQX™ RTOS for Kinetis SDK* (Document MQXKSDKGSUG).

#### 3.1.2 Jumper settings

These are the jumper settings for TWR-K21F120M standalone operation:

- J8(1-2), J17(3-5)
- J24 default 1-2, use the USB micro connector
- J24 at position 2-3, use TWR USB pin

#### 3.1.3 Board-specific build targets

Internal Flash (Debug and Release): These targets enable building applications suitable for booting the system from the internal Flash memory. After reset, the code is executed from the internal Flash.

## 4 Other Notes

### 4.1 IAR 7.20.2 Download Issue

Downloading will fail using the flash loader provided by IAR in versions prior to 7.20.5. The TWR-K21F120M platform is not publicly supported before version 7.20.5.

## 5 Revision history

This table summarizes revisions to this document.

Revision History		
Revision number	Date	Substantive changes
0	1/2015	Initial release

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