

# Freescale MQX™ RTOS TWR-K24F120M for Kinetis SDK 1.0.0 Release Notes

## 1 Overview

These are the Release Notes for the TWR-K24F120M standalone package for Freescale Kinetis SDK 1.0.0 MQX™ RTOS. The Freescale MK24FN256VDC12 belongs to the Kinetis K series processor family of the 32-bit microcontrollers. The software is based on the Freescale Kinetis SDK version 1.0.0. It includes the full set of RTOS services and a standard set of peripheral drivers.

For more information, see the *Freescale MQX™ RTOS for Kinetis SDK Release Notes* (MQXKSDKRN) and *Getting Started with Freescale MQX™ RTOS for Kinetis SDK* (MQXKSDKGSUG).

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## 1.1 Development tools

The TWR-K24F120M release was tested with these development tools:

- IAR Embedded Workbench for ARM® Version 7.20.2
  - Support available for Kinetis ARM Cortex®-M4 devices
  - See build projects in the `iar` subdirectories
- ARM-MDK - Keil  $\mu$ Vision Version 5.11
  - Support available for Kinetis ARM Cortex-M4 devices
  - See build projects in `uv4` subdirectories
- Kinetis Design Studio IDE 1.1.0
  - Support available for Kinetis ARM Cortex-M4 devices
  - See build projects in `kds` 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-K24F120M package was tested with these hardware configurations:

- TWR -K24F120M Tower System module Rev. B with a MK24FN256VDC12 processor

## 2 Features

### 2.1 Key features

This package provides support for the TWR-K24F120M Tower System module with a MK24FN256VDC processor and a standard set of features and example applications.

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

- Core clock: 120 MHz (high speed run mode, default)
- Bus clock: 60 MHz (high speed run mode, default)
- BSP Timer: SysTick
- Default console: ttyb (OpenSDA)

The package supports these features:

- PSP support for the MK24FN256VDC microcontroller
- BSP for the TWR-K24F120M Tower System module with a MK24FN256VDC processor
- MQX STDLIB - C Standard library
- nShell - Command Line interface
- KSDK Support for the MK24FN256VDC microcontroller
- MFS file system

### 2.2 Limitations

This release does not support these features:

- CodeWarrior version 10
- GNU Tools for ARM Embedded Processors

### 2.3 Example applications

This package contains applications demonstrating kernel, peripheral, and file system on the TWR-K24F120M Tower System kit. The applications can be found at these locations:

- `<install_dir>rtos/mqx/mqx/examples`: standard set of examples for kernel features and basic peripheral drivers
- `<install_dir>rtos/mqx/mqx/examples_osa`: standard set of examples for kernel features and basic peripheral drivers
- `<install_dir>rtos/mqx/mfs/examples`: example applications demonstrating the MFS file system features

## 2.4 Release contents

This table shows the release content.

**Table 1 Release content**

Deliverable	Location
Specific content for the evaluation boards	<install_dir>rtos/mqx/...
MQX PSP source code for Kinetis	.../mqx/source/psp/cortex_m
MQX PSP build projects	.../mqx/build/<compiler>/psp_twrk24f120m/...
MQX example applications	.../mqx/examples/... .../mqx/examples_osa/...
MQX BSP Source Code	<install_dir>rtos/mqx/...
MQX BSP source code for TWR-K24F120M board	.../mqx/source/bsp/K24F25612 <install_dir>/board/twrk24f120m
MQX BSP build projects	.../mqx/build/<compiler>/bsp_twrk24f120m/...
MQX TDLIB Source Code	<install_dir>rtos/mqx_tdlib/...
MQX TDLIB build projects	.../mqx_tdlib/build/<compiler>/mqx_tdlib_twrk24f120m
MQX TDLIB Source Code	.../mqx_tdlib/source
KSDK MQX Source Code	<install_dir>/lib/ksdk_mqx_lib
KSDK build projects	.../ksdk_mqx_lib/build/<compiler>/ksdk_mqx_lib
KSDK Source	<install_dir>platform
Shell Library Source Code	<install_dir>rtos/nshell/...
Shell source code	.../shell/source
Shell build projects	.../shell/build/<compiler>/shell_twrk24f120m
MFS Library Source Code	<install_dir>filesystem/mfs/...
MFS source code	.../mfs/source
MFS build projects	.../mfs/build/<compiler>/shell_twrk24f120m
MFS example applications	.../mfs/examples/...
PC Host Tools	<install_dir>/tools
Documentation	<install_dir>/rtos

## 3 Installation Instructions

### 3.1.1 Build procedure

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

### 3.1.2 Default jumper settings

These are the default jumper settings for TWR-K24F120M standalone operation:

- J3 on
- J15, J16, J17, J21, J28, J29, J30, J40 on position 1- 2
- J28 on position 5- 6

### 3.1.3 Important jumper settings

- For Default UART output:
  - J22 and J25 on position 1-2 for Onboard Virtual UART
  - J22 and J25 on position 2-3 for TWR-SER UART
- For USB
  - J21 on position 1 – 2 to use micro USB connection
  - J21 on position 2 – 3 to use TWR-SER USB connection
  - J26 on position 1-2 for USB VBUS

### 3.1.4 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 Patch Description

Table 2 Patch description

Patch Name	Description
Keil.Kinetis_K20_DFP.1.1.0	Patch K24FN256xxx12 for Keil uVision 5.11

## 5 Applying Patches

Perform these steps to apply patches:

1. Install Patch K24FN256xxx12 for Keil uVision 5.11.

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