Freescale Semiconductor
Release Notes

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MQX™ RTOS Release Notes for Kinetis SDK v1.1.0 TWR-KV46F150M Freescale Tower System Development Platform

1 Overview

These are the Release Notes for the MQX™ RTOS for Kinetis SDK 1.1.0 TWR-KV46F150M Freescale Tower System development platform using the MKV46F256VLL15 microcontroller. Freescale CPU_MKV46F256VLL15 belongs to the Kinetis V 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.

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1.1 Development tools

The TWR-KV46F150M Freescale Tower System development platform release was tested with the following 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 for Keil µVision® Version 5.11
    - Support available for Kinetis ARM Cortex-M4 devices
    - See build projects in uv4 subdirectories
- Kinetis Design Studio IDE 2.0
    - Support available for Kinetis ARM Cortex
    - See build projects in kds subdirectories
- Atollic TrueStudio for ARM pro 5.2.1
    - Support available for Kinetis ARM Cortex
    - See build projects in atl subdirectories
- ARM GCC 4.8_2014q1
    - 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-KV46F150M MQX RTOS package was tested with this hardware configuration:

- TWR-KV46F150M Rev. C with a MKV46F256VLL15 processor

2 Features

2.1 Key features

This package provides support for the TWR-KV46F150M Freescale Tower System development platform with a MKV46F256VLL15 processor and a standard set of features and example applications.

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

- MQX Timer: SysTick
- Default console: UART1 (OpenSDA virtual COM)

The package supports these features:

- MQX support for the MKV46F256VLL15 Microcontroller
- MQX RTOS STDLIB
- nShell
- Board support for the TWR-KV46F150M Freescale Tower System development platform
- KSDK support for the MKV46F256VLL15 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-KV46F150M 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 source code for Kinetis	.../mqx/source
MQX build project	.../mqx/build/<compiler>/ mqx_twrkv46f150m256r /…
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_twrkv46f150m256r
MQX RTOS STDLIB Source Code	../mqx_stdlib /source
KSDK MQX Source Code	<install_dir>/lib/ ksdk_mqx_lib
KSDK build projects	.../<compiler>/ KV46F25615/...
KSDK source	<install_dir>/platform
MFS Library Source Code	<install_dir>/filesysystem/mfs/...
MFS source code	.../mfs/source
MFS build projects	.../mfs/build/<compiler>/mfs_twrkv46f150m256r
Shell Library Source Code	<install_dir>/rtos/nshell/...
Shell source code	.../nshell/source
Shell build projects	.../nshell/build/<compiler>/nshell_twrkv46f150m256r
PC Host Tools	<install_dir>/tools/...
Documentation	<install_dir>/rtos/mqx/doc/...

3 Installation Instructions

3.1 Installation guide

Run the installer and select "Kinetis SDK+MQX" to install the 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-KV46F150M standalone operation:

J1	Thermistor RT1 Connect	**1-2, 3-4**	**Connect RT1 circuit to the KV46F256VLL15.**
		none	Disconnect RT1 circuit from the KV46F256VLL15.
J2	Thermistor RT2 Connect	**1-2, 3-4**	**Connect RT2 circuit to the KV46F256VLL15.**
		none	Disconnect RT2 circuit from the KV46F256VLL15
J4	IRQ1 Select	**1-2**	**Connect SW1 to KV46F256VLL15 pin PTC7/UART0_TX.**
		2-3	Connect SW1 to KV46F256VLL15 pin PTB23/PWM_X3.
		none	Disconnect SW1 from the KV46F256VLL15.
J5	IRQ0 Select	**1-2**	**Connect SW2 to KV46F256VLL15 pin PTE6/FTM3_CH1.**
		2-3	Connect SW2 to KV46F256VLL15 pin PTE5/FTM3_CH0.
		none	Disconnect SW2 from the KV46F256VLL15.
J519	VBRD Select	1-2	SDA_VOUT33 connect to VBRD.
		3-4	**P3V3_SELECTED connect to VBRD.**
		5-6	P1V8 connect to VBRD.
J518 and J517	P3V3_SELECTED	J517-1 to J517-1	P3V3_MOTOR connects to P3V3_SELECTED.
		J518 to J517-2	**P3_3V_REG_OUT connects to P3V3_SELECTED.**
		J517-2 to J517-3	P3_3_ELEV connects to P3V3_SELECTED.
J514 and	VREG_IN	**J514-1 to J514-2**	**P5V_TRG_USB connects to VREG_IN.**

		J515 to J514-2	PWR_IN connects to VREG_IN.
		J514-3 to J514-2	P5V_ELEV connects to VREG_IN.
J505	TXD Source Select (note that only one connection can be made to pin 3 at a time)	1-2	Connect ELEV_TXD0 from the Tower connector to KV46F256VLL15 pin PTC7/TXD0.
		2-3	Connect TXD_SEL from the USB Serial Bridge to KV46F256VLL15 pin PTE0/TXD1.
		Pin 2 open	Disconnect KV46F256VLL15 pin PTC7/TXD0.
		3-4	**Connect TXD_SEL from the USB Serial Bridge to KV46F256VLL15 pin GPIOF5/RXD1/XB_OUT5.**
		4-5	Connect ELEV_TXD1 from the Tower connector to KV46F256VLL15 pin PTE0/TXD1.
		Pin 4 open	Disconnect KV46F256VLL15 pin PTE0/TXD1.
J506	RXD Source Select (note that only one connection can be made to pin 3 at a time)	1-2	Connect ELEV_RXD0 from the Tower connector to KV46F256VLL15 pin PTC6/RXD0.
		2-3	Connect RXD_SEL from the USB Serial Bridge to KV46F256VLL15 pin PTC6/RXD0.
		Pin 2 open	Disconnect KV46F256VLL15 pin PTC6/RXD0.
		3-4	**Connect RXD_SEL from the USB Serial Bridge to KV46F256VLL15 pin PTE1/RXD1.**
		4-5	Connect ELEV_RXD1 from the Tower connector to KV46F256VLL15 pin PTE1/RXD1.
		Pin 4 open	Disconnect KV46F256VLL15 pin PTE1/RXD1.
J15	CAN Termination Enable	**1-2**	**Connect the120 ohm CAN termination resistor.**
J15 J16	CAN Termination Enable CAN Enable	open	No CAN termination.
		1-2, 3-4	**Connect the CAN transceiver TXD and RXD to KV46F256VLL15 pins PTA12/CAN0_TX PTA13/CAN0_RX.**
J16	CAN Enable	open	Disconnect the CAN transceiver.
J19	Thermistor RT3 Connect		**Connect RT3 circuit to the KV46F256VLL15.**
J19	Thermistor RT3 Connect	none	Disconnect RT3 circuit from the KV46F256VLL15.
J23	Thermistor RT4 Connect	**1-2, 3-4**	**Connect RT4 circuit to the KV46F256VLL15.**
J23	Thermistor RT4 Connect	none	Disconnect RT4 circuit from the KV46F256VLL15.

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 Patch Description

Patch Name	Description
Keil.Kinetis_KVxx_DFP.1.3.0.pack	Patch MKV46F256xxx15 for Keil µVision 5.11

The patch can be found on www.keil.com/dd2/

5 Applying Patches

Install Patch MKV46F256xxx15 to apply patch for Keil µVision 5.11.

6 Revision history

This table summarizes revisions to this document.

Revision History		
Revision number	**Date**	**Substantive changes**
0	2/2015	Initial release

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