

1 MCUXpresso SDK Azure RTOS introduction

Azure RTOS is an embedded development suite including a small but powerful operating system that provides reliable, ultra-fast performance for resource-constrained devices. It is easy-to-use and market-proven, deployed on more than 6.2 billion devices worldwide. Azure RTOS supports the most popular 32-bit microcontrollers and embedded development tools. Azure RTOS components include Azure RTOS ThreadX, Azure RTOS FileX, Azure RTOS GUIX, Azure RTOS NetX Duo, and Azure RTOS USBX. This release includes the above components and corresponding examples. For more information and getting started instructions, see Getting Started with MCUXpresso SDK for Azure RTOS (document MCUXSDKAZURERTOSGSUG).

Contents

1	MCUXpresso SDK Azure RTOS introduction.....	1
2	Supported development systems....	1
3	Known issues.....	4

2 Supported development systems

This release supports the boards and examples listed in the following table.

Name	Boards	Description
azure_iot_embedded_sdk	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s28, lpcxpresso55s69	An example communicating with Azure IoT Hub using Azure IoT SDK.
azure_iot_embedded_sdk_pnp	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170	An example communicating with Azure IoT Hub using Azure IoT SDK and enabling Azure IoT Plug and Play feature.
azure_iot_mqtt	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170	An example communicating with Azure IoT Hub using MQTT.
ethernet_over_usb	lpcxpresso55s28, lpcxpresso55s69	An example doing iperf network test over a HP USB Ethernet adapter.
filex_levelx_spiflash	lpcxpresso55s06, lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	The example shows how to use FileX and LevelX based on SPI flash.
filex_ram_disk	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s06,	An example testing a RAM disk with FileX.

Table continues on the next page...



Table continued from the previous page...

Name	Boards	Description
	lpcpresso55s16, lpcpresso55s28, lpcpresso55s69	
filex_sdcard	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcpresso55s28, lpcpresso55s69	The example shows how to use the SD card middleware with Azure RTOS.
guix_washing_machine	evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064	A GUI example of washing machine.
guix_washing_machine_hd	evkmimxrt1160, evkmimxrt1170	A high-definition GUI example of washing machine.
i2c_example	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcpresso55s16, lpcpresso55s06, lpcpresso55s16, lpcpresso55s28, lpcpresso55s69	The example shows an application using Azure RTOS threads with the I2C driver.
netx_duo_iperf	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170	An example doing iperf network test.
netx_duo_ping	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170	Network ping example.
pnp_temperature_controller	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170	An example communicating with Azure IoT Hub using Azure IoT SDK and enabling Azure IoT Plug and Play feature, constantly reporting the device temperature value.
spi_b2b_example_master	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064	The example shows how to use the LPSPI driver in the master mode in Azure RTOS.
spi_b2b_example_slave	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064	The example shows how to use the LPSPI driver in the slave mode in Azure RTOS.
spi_example	lpcpresso55s06, lpcpresso55s16, lpcpresso55s28, lpcpresso55s69, evkbimxrt1050	The example shows how to use the SPI driver with Azure RTOS.
threadx_demo	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060,	An example of creating multiple threads.

Table continues on the next page...

Table continued from the previous page...

Name	Boards	Description
	evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s06, lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	
uart_example	evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s06, lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	The example demonstrates how to use the UART driver in Azure RTOS.
usb_device_audio_loopback	lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	This example works as a USB audio device. When connecting it to a PC, it will appear as a USB speaker and a USB microphone device.
usb_device_cdc_acm	lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	An example worked as a USB CDC ACM device.
usb_device_composite_cdc_acm_cdc_acm	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	This example works as two USB CDC ACM devices.
usb_device_hid_keyboard	lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	An example worked as a USB HID device.
usb_device_hid_mouse	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s16, lpcxpresso55s28, lpcxpresso55s69	This example works as a USB HID mouse device.
usb_device_mass_storage	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s28, lpcxpresso55s69	USB mass storage device example.
usb_host_cdc_acm	lpcxpresso55s28, lpcxpresso55s69	This example works as a USB host. It can communicate with a USB CDC ACM device.
usb_host_hid_keyboard	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s28, lpcxpresso55s69	An example worked as a USB HID host.

Table continues on the next page...

Table continued from the previous page...

Name	Boards	Description
usbx_host_hid_mouse	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s28, lpcxpresso55s69	This example works as a USB host. When connecting a USB HID mouse and clicking the mouse buttons, the serial console will output which button has been clicked.
usbx_host_mass_storage	evkmimxrt1010, evkmimxrt1015, evkmimxrt1020, evkbimxrt1050, evkmimxrt1060, evkbmimxrt1060, evkmimxrt1064, evkmimxrt1160, evkmimxrt1170, lpcxpresso55s28, lpcxpresso55s69	USB mass storage host example.

3 Known issues

3.1 NetX Duo iperf example

The NetX Duo iperf example works for Linux but not for Windows 10.

How To Reach Us

Home Page:

nxp.com

Web Support:

nxp.com/support

Limited warranty and liability — Information in this document is provided solely to enable system and software implementers to use NXP products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits based on the information in this document. NXP reserves the right to make changes without further notice to any products herein.

NXP makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does NXP assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in NXP data sheets and/or specifications can and do vary in different applications, and actual performance may vary over time. All operating parameters, including "typicals," must be validated for each customer application by customer's technical experts. NXP does not convey any license under its patent rights nor the rights of others. NXP sells products pursuant to standard terms and conditions of sale, which can be found at the following address: nxp.com/SalesTermsandConditions.

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.

Security — Customer understands that all NXP products may be subject to unidentified or documented vulnerabilities. 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.

NXP, the NXP logo, NXP SECURE CONNECTIONS FOR A SMARTER WORLD, COOLFLUX, EMBRACE, GREENCHIP, HITAG, ICODE, JCOP, LIFE, VIBES, MIFARE, MIFARE CLASSIC, MIFARE DESFire, MIFARE PLUS, MIFARE FLEX, MANTIS, MIFARE ULTRALIGHT, MIFARE4MOBILE, MIGLO, NTAG, ROADLINK, SMARTLX, SMARTMX, STARPLUG, TOPFET, TRENCHMOS, UCODE, Freescale, the Freescale logo, Altivec, CodeWarrior, ColdFire, ColdFire+, the Energy Efficient Solutions logo, Kinetics, Layerscape, MagniV, mobileGT, PEG, PowerQUICC, Processor Expert, QorIQ, QorIQ Qonverge, SafeAssure, the SafeAssure logo, StarCore, Symphony, VortiQa, Vybrid, Airfast, BeeKit, BeeStack, CoreNet, Flexis, MXC, Platform in a Package, QUICC Engine, Tower, TurboLink, EdgeScale, EdgeLock, eIQ, and Immersive3D are trademarks of NXP B.V. All other product or service names are the property of their respective owners. AMBA, Arm, Arm7, Arm7TDMI, Arm9, Arm11, Artisan, big.LITTLE, Cordio, CoreLink, CoreSight, Cortex, DesignStart, DynamIQ, Jazelle, Keil, Mali, Mbed, Mbed Enabled, NEON, POP, RealView, SecurCore, Socrates, Thumb, TrustZone, ULINK, ULINK2, ULINK-ME, ULINK-PLUS, ULINKpro, uVision, Versatile are trademarks or registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. Oracle and Java are registered trademarks of Oracle and/or its affiliates. The Power Architecture and Power.org word marks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org. M, M Mobileye and other Mobileye trademarks or logos appearing herein are trademarks of Mobileye Vision Technologies Ltd. in the United States, the EU and/or other jurisdictions.

© NXP B.V. 2021.

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: 27 December 2021

Document identifier: MCUSDKARTOSRN

