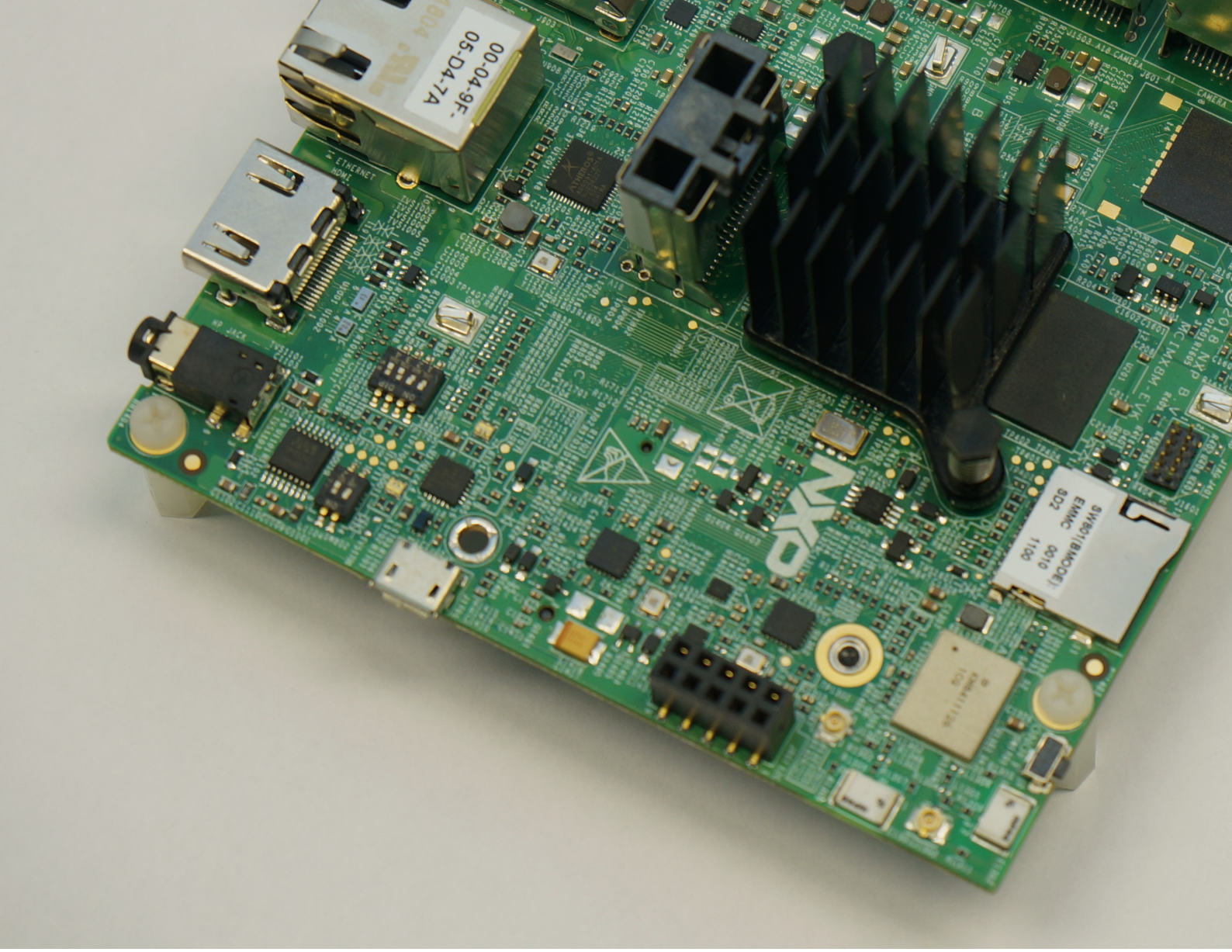

i.MX Windows 10 IoT Release Notes

for NXP i.MX Platform

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Rev. W1.0.0-ear, 10/2019

Microsoft NXP

Contents

1 Overview

This document contains important information about the package contents, supported features, known issues and limitations in this release. This release is an engineering release for Windows 10 IoT and supports SoC in the i.MX 6, iMX 7, and i.MX 8 families.

1.1 References

For more information about Windows 10 IoT Core, see Microsoft online documentation.

- http://windowsondevices.com

The quick start guides contain basic information on the board and setting it up. They are on the NXP website.

- SABRE Platform Quick Start Guide (IMX6QSDPQSG)
- SABRE Board Quick Start Guide (IMX6QSDBQSG)
- i.MX 6UltraLite EVK Quick Start Guide (IMX6ULTRALITEQSG)
- i.MX 6ULL EVK Quick Start Guide (IMX6ULLQSG)
- i.MX 6SoloX Quick Start Guide (IMX6SOLOXQSG)
- i.MX 7Dual SABRE-SD Quick Start Guide (SABRESDBIMX7DUALQSG)
- i.MX 8M Quad Evaluation Kit Quick Start Guide (IMX8MQUADEVKQSG)
- i.MX 8M Mini Evaluation Kit Quick Start Guide (8MMINIEVKQSG)

Documentation is available online at nxp.com

- i.MX 6 information is at http://nxp.com/iMX6series
- i.MX SABRE information is at http://www.nxp.com/imxSABRE
- i.MX 6UltraLite information is at http://www.nxp.com/imx6ul
- i.MX 6ULL information is at http://www.nxp.com/imx6ull
- i.MX 6SoloX information is at http://www.nxp.com/imx6sx
- i.MX 7Dual information is at http://www.nxp.com/imx7d
- i.MX 8 information is at http://www.nxp.com/imx8

1.2 Release contens

This release consists of the following:

- Source code
- Pre-built images for NXP boards
- Documentation

The releases are named W<Windows10_version>_<x.y.z>

<Windows10_version>: Windows 10 IoT core version. (For example, “W1809” indicates that this BSP release is based on the Windows 10 IoT version 1809)

<x.y.z>: Semantic versioning specification, where X is the major version, Y is the minor version, and Z is the patch version.

The following tables list the contents included in each package.

Table 1.1: Release contents

Component	Description
U-Boot	2018.09
SD Card images	Pre-built images used for testing to use on target i.MX reference boards

See the i.MX User’s Guide for information on how to use these release contents.

2 What's New?

This chapter describes the changes in this release, including new features and defect fixes.

2.1 New features

A summary of the main new features is as follows.

New features added for all supported boards:

- The existing BSP from Microsoft ported to additional i.MX6, i.MX7 and i.MX8M NXP boards.
- WM8960 audio codec driver supported.
- Ethernet PHY configuration data moved from the driver code (mp_enet_phy.c) to the ENET ACPI table (_DSD in Dsdt-Network.asl).

3 BSP Supported Features

The following table displays the features supported in this BSP release. If no board is explicitly mentioned, the feature is shared across All boards listed in Supported Hardware in the Release contents section; otherwise, the feature is only supported on the boards listed.

Table 3.1: Supported boards

Board name	Board revision	Schema revision	BSP name
MCIMX6QP-SDB	700-28857 REV A1	SCH-28857 REV A2	Sabre_iMX6QP_1GB
MCIMX6Q-SDB	700-27516 REV B	SCH-27516 REV C4	Sabre_iMX6Q_1GB
MCIMX6Q-SDP	700-27392 REV C	SCH-27392 REV C4	Sabre_iMX6Q_1GB
MCIMX6DL-SDP	700-27417 REV C	SCH-27417 REV C4	Sabre_iMX6DL_1GB
MCIMX6SX-SDB	700-27962 REV X4	SCH-27962 REV A	Sabre_iMX6SX_1GB
MCIMX7SABRE	700-28590 REV D	SCH-28590 REV D1	Sabre_iMX7D_1GB
MCIMX6UL-EVK	700-28617 REV B	SCH-28617 REV B (CPU board)	EVK_iMX6UL_512MB
	700-28616 REV A1	SCH-28616 REV C2 (Base board)	
MCIMX6ULL-EVK	700-29364 REV A	SCH-29364 REV A1 (CPU board)	EVK_iMX6ULL_512MB
	700-28616 REV A1	SCH-28616 REV C3 (Base board)	
MCIMX8M-EVK	700-29615 REV A3	SCH-29615 REV B4	NXPEVK_iMX8M_4GB
MCIMX8MMINILPD4-EVK	700-31407 REV A	SCH-31407 REV C1 (Base board)	NXPEVK_iMX8M_Mini_2GB
	700-31399 REV A	SCH-31399 REV C1 (CPU board)	

Table 3.2: Supported features

Feature	Supported board	Comment
Boot Image		

Feature	Supported board	Comment
U-Boot	All i.MX	• Clock, Anatop regulator, ENET, UART, MMC/SD, eMMC4.3/4.4/4.5. • SPI-NOR, Parallel NOR, SATA, NAND, FlexSPI-NOR, USB MassStorage. • i.MX 6QuadPlus/Quad/DualLite SABRE-SD and i.MX 6SoloX SABRE-SD support LDDR3 400 MHz @ 32 bit. • i.MX 6UltraLite EVK supports DDR3 400 MHz @ 16 bit. • i.MX 6ULL supports DDR3 400 MHz @ 16 bit.
OP-TEE	All i.MX 6 All i.MX 7 All i.MX 8M	• OP-TEE OS is required on the boot partition with the TEE file for OP-TEEenablement
Machine-specific layer		
Arm® Core	All i.MX	• i.MX 6 SABRE-SD, 6SLL, 6 SoloX-SD support the Arm Cortex-A9 processor. • i.MX 7Dual SABRE-SD support the Arm Cortex-A7 processor. • i.MX 6UltraLite EVK, 6ULL EVK, support the Arm Cortex-A7 processor. • i.MX 8M Quad and i.MX 8M Mini supports four Cortex-A53 cores.

Feature	Supported board	Comment
Memory	All i.MX	• On i.MX 6 and i.MX 7 SoC, the user/kernel space is split. • i.MX 6QuadPlus/Quad/DualLite SABRE-SD support DDR3 528 MHz @ 64 bit. • i.MX 6SoloX SABRE-SD support LDDR3 400 MHz @ 32 bit. • i.MX 7Dual SABRE-SD supports DDR3 533 MHz @ 32 bit. • i.MX 8M Quad supports one 32-bit LPDDR4 channel @ 1600 MHz and 50 MHz. • i.MX 8M Mini supports one 32-bit LPDDR4 channel @ 1500 MHz and 50 MHz.
Interrupt	All i.MX	• GIC
Clock	All i.MX	• Controls the system frequency and clock tree distribution.
Timer	All i.MX	• System timer tick and broadcast timer support. • GPT Timer used for i.MX 6 and i.MX 7. • On i.MX 8M Quad, 8M Mini system counter timer instead of GPT. • On i.MX 8, Arm Arch timer used instead of GPT
GPIO/EDIO	All i.MX	• GPIO is initialized in earlier phase according to hardware design.
IOMUX	All i.MX	• Provides the interfaces for I/O configuration. IOMUX-V3 version is used on i.MX 6and i.MX 7, i.MX 8M Quad, and i.MX 8M Mini boards.
DMA engine		

Feature	Supported board	Comment
SDMA	All i.MX 6 All i.MX 7 8M Quad 8M Mini	• SDMA HAL.
Character device drivers		
UART	All i.MX	• i.MX 6 SABRE-SD support console through internal Debug UART1. • i.MX 6SoloX SABRE-SD support Cortex-A9 processor through UART1 and Cortex-M4 processor through UART2. • i.MX 7Dual SABRE-SD Cortex-A7 processor through UART1 and Cortex-M4 processor through UART2. • i.MX 6UltraLite, 6ULL EVKs Corttex-A7 processor through UART1. • i.MX 8M Mini EVK supports CA53 through UART2 and CM4 through UART4. • i.MX 8 supports Cortex-A53 processor through UART0 and Cortex-M4 processor through UART2.
Networking drivers		
ENET	All i.MX 6 7D-SABRE-SD All i.MX 8	• i.MX 6Quad/SoloX board supports AR8031 PHY, i.MX 6UltraLite EVK board supports KSZ8081 PHY, and i.MX 7Dual SABRE-SD board supports BCM54220 PHY. • i.MX 8 supports Atheros AR8031 PHY with 10/100/1000 bps mode
PCIe	6SABRE_SD 6SoloX-SD 7D-SABRE-SD All i.MX 8	• i.MX 6 and i.MX 7 listed support the mini PCIe interface.i.MX 8 supports M.2 interface.
Sound drivers		

Feature	Supported board	Comment
WM8524	8M Quad 8M Mini	• Supports playback
WM8962/SSI WM8960/SSI	6SABRE-SD 6SoloX-SD 7D-SABRE-SD 6UltraLite 6ULL	• Supports playback
SAI/WM8962	6SoloX-SD 7D-SABRE-SD 6UltraLite 6ULL 8M Quad 8M Mini	• Supports 16 bit, 24 bit, and 32 bit PCM format. • Supports sample rate 44.1 kHz for record and playback . • Supports WM8962 only on i.MX 8QuadMax
Input device drivers		
USB drivers		
USB Host	All i.MX	• Supports USB HOST1 and USB OTG host.
USB	All i.MX	• Supports USB OTG2.0, USB Host2.0. • USB Host mode: MSC, HID, UVC, and USB audio.
Video		
LVDS	6SABRE-SD 6SoloX-SD	• Supports HannStar LVDS panel on i.MX 6.
HDMI Display	6SABRE-SD 7D-SABRE-SD	• i.MX 6SABRE-SD, 7Dual support on-chip HDMI hardware.
HDMI/Display Port	8M Quad	• i.MX 8M Quad supports HDMI through DCSS.

Feature	Supported board	Comment
MIPI to HDMI	8M Mini	• Uses Advantec adv7535.
MIPI-DSI Display	8M Mini	• Supports 4 lanes driven by eLCDIF up to 720p60 on i.MX 8M Mini.
Parallel-LCD Display	6UltraLite 6ULL 7D-SABRE-SD	• Supports Embest LCD8000-43T LCD panel.
General drivers		
uSDHC	All i.MX	• Supports SD, SDXC, eMMC.
I2C	All i.MX	• Supports I2C master.
SPI	All i.MX	• Supports SPI master mode.

4 Known Issues/Limitations

Read through all hardware-related reference material and ensure that you have made all the necessary hardware modifications before using the software.

The imx-iotcore reference BSP has the following limitations:

- SD/eMMC is the only supported boot media

Table 4.1: Common known issues and workarounds for i.MX Family SoC

SoC	Module	Source	Description	Workaround
All SoC	USB	Software	Only USB HOST mode is supported.	No wokaround
i.MX 6UL, 6ULL, 6SX, 6DL	PEP	Software	PEP driver is not implemented, the power management may not be fully functional.	No wokaround
i.MX 6SX, 6UL, 6ULL	IMXDOD	Software	Display backlight is not turned off after switch to PowerDeviceD3 mode (parallel LCD display should be “freezed”, LCD signals stop to generate)	No wokaround
i.MX 7D	IMXDOD	Software	Display backlight is not turned off after switch to PowerDeviceD3 mode (parallel LCD display should be “freezed”, LCD signals stop to generate)	No wokaround
i.MX 8MM	Display	Software	Display driver supports 1920 x 1080 60 Hz resolution only.	No wokaround
i.MX 8MQ	Display	Software	Display driver supports 1280 x 720 60 Hz resolution only.	No wokaround

SoC	Module	Source	Description	Workaround
i.MX8	eMMC Boot	Software	eMMC boot on ARM64. flash.bin is not deployed from WinPE onto eMMC device thus execution of boolotader from SD card is still needed when booting from eMMC.	No wokaround
i.MX8	USB	Software	USB Type-C port driver is not implemented yet. Port properties are detected/configured only in UBOOT and are not enumerated when OS is running.	USB cable must be plugged before UBOOT is running.

5 Revision History

Table 5.1: Revision history

Revision number	Date	Substantive changes
W1.0.0_ear	10/2019	Initial engineering release for i.MX6, i.MX7 and i.MX8M platform