

BSP Yocto FSL iMX7 PD17.1.1 Release Notes

Operating System	Linux
BSP Release Status	RELEASED
Release Date	14 Apr 2017
Repository	PHYTEC Public Repos
Binaries	BSP-Yocto-FSL-iMX7-PD17.1.1.tar.bz2
Source Archive	
Release Notes	Click Here

Introduction

This BSP provides a basis for development, deployment and execution of Linux based applications on the iMX7 System on Module (SOM). For detailed information on the various software components included in the release and how to use them, please refer to the [57312466](#).

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Versioning

Software

Linux Kernel	4.1.15 (Based on NXP Release L4.1.15-2.0.1_ga)
U-Boot	2016.03 (Based on NXP Release L4.1.15-2.0.1_ga)
Yocto	2.1.1 Krogth(Based on NXP Release L4.1.15-2.0.1_ga)
Qt	Not Supported (Click Here for more info)
Host OS	Tested on 64-bit Ubuntu 14.04 LTS

Linux Device Tree Summary

Default dts target	imx7d-phyboard-zeta.dts
Default dtsi include description	Default dtsi include list
SOM	imx7d-phycore-som.dtsi
Carrier Board	imx7d-pba-c-09.dtsi
LCD Display Adapter	imx7d-peb-av-02.dtsi
Evaluation Board	imx7d-peb-eval-02.dtsi

Alternate dts **imx7d-phyboard-zeta-m4.dtb**: configure u-boot to use this DTS if running Linux on the Cortex-A7 while running FreeRTOS on the Cortex-M4

Compatible Hardware

Supported Hardware Versions

Hardware Description	Part Number	PCB Version
phyCORE-i.MX7 SOM	PCM-061.A4	1458.2
	PCM-061-2110111C.A0	1458.2
	PCM-061-2110111C.A1	1458.2
phyBOARD-Zeta Carrier Board	PBA-C-09.A4	1459.2
	PBA-C-09.A5	1459.3



Device tree changes are required to support earlier SOM and Carrier Board revisions. Visit the [PHYTEC Support Portal](#) to open a support ticket for help on how to make the device tree changes.

Compatible Expansion Boards and Accessories

Module Name	Part Number	PCB Version	Description
LCD Display Adapter with 7" capacitive display	PEB-AV-02-070W.A0 (Includes AV module, display, and cable)	1415.1	ETM0700G0DH6 LCD Display/ Capacitive touch interface
Evaluation Board	PEB-EVAL-02	1460.0	Connects to expansion connector and provides: UART1, UART2, JTAG, I2C EEPROM, three user buttons, three user LEDs

BSP Download

Prebuilt images of BSP-Yocto-FSL-iMX7-PD17.1.1 can be downloaded and extracted from the link below:

[BSP-Yocto-FSL-iMX7-PD17.1.1.tar.bz2](#)

Quickstart

Quickstarts for BSP-Yocto-FSL-iMX7-PD17.1.1:

[BSP Yocto FSL i.MX7 PD17.1.1 Quickstart](#)

BSP Features

Interface	Detail	Implemented	Tested	Status in Device tree	Notes
UART	uart1	Yes	Yes	Enabled	DB9 connector on PEB-EVAL-02
	uart2	Yes	Yes	Enabled	DB9 connector on PEB-EVAL-02
	uart3	Yes	No	[click for info]	expansion header
	uart4	Yes	No	[click for info]	
	uart5	Yes	Yes	Enabled	RS232 default serial console at Connector X2
	uart6	Yes	No	[click for info]	expansion header
	uart7	Yes	No	[click for info]	expansion header
I2C	i2c1	Yes	Yes	Enabled	expansion header
	i2c2	Yes	Yes	Enabled	AV Connector X4
	i2c3	Yes	No	[click for info]	
	i2c4	Yes	Yes	Enabled	expansion header
Ethernet	RGMII1	Yes	Yes	Enabled	KSZ9031RNX PHY on SOM, Connector X8
	RGMII2	Yes	Yes	Enabled	KSZ9031RNX PHY on CarrierBoard, Connector X7
SAI	sai1	Yes	No		Audio/Video Connector X4
	sai2	Yes	No	[click for info]	expansion header
	sai3	Yes	No	[click for info]	
MMC/SDIO	SD1	Yes	Yes	Enabled	microSD slot connector X11
	SD2	Yes	No	[click for info]	expansion header
	SD3	Yes	Yes	Enabled	signals routed to eMMC.
Communication	MultiCore Communication with Cortex-M4 (RPMsg)	Yes	Yes	Yes	See FreeRTOS release for more info.
	TiWi-BLE Bluetooth	No	No		
	TiWi-BLE WiFi	No	No		
USB	usb1	Yes	Yes	Enabled	USB-A Host Connector X9
	usb2	Yes	Yes	Enabled	USB-AB OTG Connector X10
CAN	can1	Yes	Yes	Enabled	Header X1
	can2	Yes	No	[click for info]	
SPI	spi1	Yes	No	[click for info]	expansion connector
	spi2	Yes	No	[click for info]	expansion connector
	spi3	Yes	No	[click for info]	expansion connector
	spi4	Yes	No	[click for info]	
Display and Touch	LCD Display	Yes	Yes	Enabled	via expansion board PEB-AV-02
	Analog LCD Touch	Yes	Yes	Enabled	Capacitive ETM-FT5x06 via expansion board PEB-AV-02
	HDMI	No	No		via expansion board PEB-AV-01
	Backlight	Yes	Yes	Enabled	PWM via pwm4 via expansion board PEB-AV-02
GPIO	User Buttons and LEDs	Yes	Yes	Enabled	User LED GPIO2_10 on CarrierBoard Three user LEDs and three buttons on PEB-EVAL-02
Memory	8/16-bit NAND Flash (GPMC)	Yes	No		MT29F4G08 - not populated in default SOM configuration
	SPI NOR Flash	Yes	Yes	Enabled	N25Q128A on QSPI_A
	EEPROM on SOM	Yes	Yes	Enabled	M24C32 on i2c1
	EEPROM on eval board	Yes	Yes	Enabled	CAT24C32 on i2c4 PEB-EVAL-02

	eMMC	Yes	Yes	Enabled	On SD3 PCM-061.A0 -.A4 SOMs: MTF4GMDEA-4M PCM-061-2110111C.A1: MTF4GACAJCN-4M IT
RTC	Internal i.MX7	Yes	Yes	Enabled	SNVS RTC
	External RTC	Yes	Yes	Enabled	RV-4162-C7 on I2C1
Power Management	PMIC	Yes	Yes	Enabled	PF3000 on I2C1
JTAG	JTAG				ARM JTAG 20 connector on PEB-EVAL-02
PCIe	mini-pcie	Yes	Yes	Enabled	connector X12

[1] Interface requires additional configuration, such as pinmuxing. It may be possible to change the software configuration to utilize this interface even if it is not being set in the board's default configuration. Please see [NXP's i.MX7D Technical Reference Manual](#) for more information on the various modes each pin can be muxed to.

Fixed In This Release

- PCIe:
 - Updated PCIe initialization process to toggle the device #PERST signal after the PCIE controller is reset. This solved issues with certain PCIe cards failing to initialize, such as Intel WiFi Link 3160.

New In This Release

- Support for eMMC 5.0, HS400 mode

Not Tested

- Booting via network
- Qt5 - NXP includes "fsl-image-qt5" Yocto Image in the BSP but it is meant for i.MX SoCs with hardware graphics, and is not supported by NXP or PHYTEC for the i.MX7D.

Known Issues

PHYTEC Known Issues

- Ethernet:
 - iperf3 is included with the Krogoth Yocto BSP. With UDP, this command reports much lower bandwidth than expected when compared with iperf command.
- eMMC:
 - The following error messages may appear in Linux when running in HS400 mode. This is expected with high speed SD card protocols, and is not an actual error. This patch changes the message to debug level instead: <https://patchwork.kernel.org/patch/8122111/>

```
mmcblk2: error -110 sending stop command, original cmd response 0x900, card status 0x400900
mmcblk2: retrying because a re-tune was needed
```

- Flashing with U-Boot: fsl-image-gui-imx7d-phyboard-zeta.sdcard image is too large to be loaded into memory (1GB) from u-boot. Workaround: Partition and flash eMMC from Linux instead. See [Quickstart](#) for instructions.

NXP Known Issues

- See i.MX Linux Release Notes from NXP in [L4.1.15_2.0.0_LINUX_DOCS](#)

Technical Support

For further information or to report any problems, visit the [PHYTEC Support Portal](#)

