BSP Yocto Yogurt i.MX6 PD16.1.0 - phyFLEX i.MX6 Supported Features

This software release is maintained by www.phytec.de.

Versioning

Software

This BSP release supports various configurations of the phyFLEX-i.MX6 SOM and Rapid Development Kit. **You will need to know which Yocto machine configuration corresponds to your kit in order to build the appropriate BSP**. By default, only the standard kit configurations are shown in the table. If you have a different kit, use the filters below to search by SOM part number or population. The barebox images and kernel device tree file names are important when creating custom Barebox and kernel images outside of Yocto development.

Yocto Machine Config	SOM Description (i.MX6 type / RAM / SPI Flash)	SOM Part Numbers	Barebox Image	Kernel Device Tree File
phyflex-imx6-2	**Standard SOM** Quad / 1GB one bank / 16MB	PFL-A-02-13237E0.A1	barebox-phytec-pbab01-1gib-1bank.img	imx6q-phytec-pbab01.dtb

Linux Devicetree Summary

The following is an example describing the structure of the device tree for the standard phyFLEX-i.MX6 RDK (machine configuration phyflex-imx6-2).

Please look at the dts file corresponding to your machine configuration for the included dtsi files.

Default dts target	imx6q-phytec-pbab01.dtb
Default dtsi include description	**Default dtsi include list**
Processor	imx6q.dtsi (includes imx6qdl.dtsi)
SOM	imx6q-phytec-pfla02.dtsi (includes imx6qdl-phytec-pfla02.dtsi)
Carrier Board	imx6qdl-phytec-pbab01.dtsi
LCD	imx6qdl-phytec-lcd.dtsi

Supported Hardware Versions

Hardware Description	Part Number	PCB Version
Standard phyFLEX-i.MX6 SOM	PFL-A-02-13237E0.A3	PL1362.4
Carrier Board	PBA-B-01.A5	PL1364.6

Compatible Expansion Boards and Accessories

Displays

The following LCD displays are supported in the BSP. The default LCD for all Yocto machine configurations is in **bold.** See this How-To Guide for instructions on enabling expansion boards in Barebox.

LCD Display	Description
LCD-018-043-KAP	Display 4,3'' Capacitive touch
LCD-018-057-KAP	Display 5,7'' Capacitive touch
LCD-018-070-KAP.A1	Display 7,0'' AC138 Capacitive touch
LCD-018-070-KAP.A2	**Display 7,0'' AC158 Capacitive touch**
LCD-018-070-RES.A0	Display 7,0'' resistive

Cameras

The following camera modules are supported in the BSP. The default camera enabled in this BSP is in **bold**. Click Here for more details regarding PHYTEC's camera modules. See this How-To Guide for instructions on enabling expansion boards in Barebox.

Camera	Description
VM-006-BW	phyCAM-P MT9M001 bw 1.3MP
VM-006-BW-LVDS	phyCAM-S+t MT9M001 bw 1.3MP
VM-008	phyCAM-P/phyCAM-S+ PAL/NTSC Wandler
VM-009-LVDS	phyCAM-S+ MT9M131 col 1.3MP
VM-009	phyCAM-P MT9M131 col 1.3MP
VM-010-BW-LVDS	phyCAM-S+ MT9V024 bw WVGA
VM-010-BW	phyCAM-P MT9V024 bw WVGA
VM-010-COL-LVDS	phyCAM-S+ MT9V024 col WVGA
VM-010-COL	phyCAM-P MT9V024 col WVGA
VM-011-BW-LVDS	phyCAM-S+ MT9P006 bw 5MP
VM-011-BW	phyCAM-P MT9P006 bw 5MP
VM-011-COL-LVDS	phyCAM-S+ MT9P006 col 5MP
VM-011-COL	**phyCAM-P MT9P006 col 5MP**
VM-012-BW	phyCAM-P VITA1300 bw 1.3MP

Quickstart

Quickstarts for phyFLEX-i.MX6-PD16.1.0:

BSP Features

The following table lists the interfaces available from the phyFLEX-i.MX6 SOM.

- **Implemented** - driver support exists in the kernel.
- **Tested** - the interface has been configured in the device tree and was tested by PHYTEC
- **Enabled in DTS** - the corresponding device tree nodes are enabled in the device tree imx6q-phytec-pbab01.dts

> ⚠ The "Enabled in DTS" column is specifically for the standard phyFLEX-i.MX6 RDK (machine configuration phyflex-imx6-2).
>
> Please look at the dts file corresponding to your machine configuration for differences.

Interface	Detail	Implemented	Tested	Enabled in DTS	Notes
UART	uart1	Yes	No	[click for info]	
	uart2	Yes	No	[click for info]	
	uart3 (labelled UART1)	Yes	Yes	Yes	RS-232 on Connector X50
	uart4 (labelled UART0)	Yes	Yes	Yes	enabled - Connector X51 (default serial console)
	uart5	Yes	No	[click for info]	
I2C	i2c1 (Only available on SOM)	Yes	Yes	Yes	
	i2c2 (labelled I2C0)	Yes	Yes	Yes	
	i2c3 (labelled I2C1)	Yes	Yes	Yes	
Ethernet	10/100/1000Mbit/s Eth0 from RGMII	Yes	Yes	Yes	Connector X28
Digital Audio Multiplexer	AUD3	Yes	No	[click for info]	
	AUD4	Yes	No	[click for info]	
	AUD5	Yes	Yes	Yes	Used with audio codec TLV32
	AUD6	Yes	No	[click for info]	
MMC/SDIO	SD1	Yes	No	[click for info]	
	SD2 (Labelled SD1)	Yes	Yes	Yes	Connector X56
	SD3 (Labelled SD0)	Yes	Yes	Yes	Connector X57
Communication	TiWi-BLE WiFi on SD3	Yes	No	[click for info]	Connector X58 (SD3 signals configured for MMC at X57 by default)
	TiWi-BLE Bluetooth	No	No	[click for info]	
USB	usb_otg (labelled USB0)	Yes	Yes	Yes	Connector X26
	usb_h1 (labelled USB1)	Yes	Yes	Yes	Connector X69 (USB_DN0)
CAN	flexcan1 (labelled CAN0)	Yes	Yes	Yes	Connector X52
	flexcan2	Yes	No	[click for info]	
ECSPI	ECSPI1	Yes	No	[click for info]	
	ECSPI2	Yes	No	[click for info]	
	ECSPI3 (Labelled SPI0)	Yes	Yes	Yes	Connector X53 Configured for spidev
	ECSPI5 (Labelled SPI1)	Yes	Yes	Yes	Connector X30 Configured for spidev
PCIe		Yes	Yes	Yes	Connector X59
SATA		Yes	Yes	Yes	Connector X62, X61
Display and Touch	24-bit LCD Interface	Yes	Yes	No	(Default LCD-018-070-KAP) Connector X65 Enabled by Barebox environment

	Analog LCD Touch - Capacitive, i2c2	Yes	Yes	No	Capacitive: ETM-FT5x06 (on LCD-018-070-KAP) Enabled by Barebox environment
	Analog LCD Touch - Resistive STMPE811 (on CB), I2C4	Yes	Yes	No	Connector X65 Can be enabled in Barebox environment (capacitive is enabled by default)
	HDMI	Yes	Yes	Yes	Connector X40
	PWM Backlight	Yes	Yes	No	Enabled by Barebox environment
DVFS		Yes	Yes	Yes	
GPIO	User Buttons and LEDs	Yes	Yes	Yes	GPIO1_30, 2_31, on SOM
Memory	8/16-bit NAND Flash	Yes	Yes	Yes	
	SPI NOR Flash	Yes	Yes	Yes	N25Q128A13ESE40F on ECSPI3
	EEPROM	Yes	Yes	Yes	at24c32 on I2C1
RTC	RTC-8564 Real-Time Clock on I2C2 on carrier board	Yes	Yes	Yes	
Power Management	PMIC	Yes	Yes	Yes	DA9063 on I2C1
	Internal watchdog	Yes	Yes	No	Uses PMIC watchdog and reboot handler by default
Audio	TLV320AIC3007 on CB on I2C2	Yes	Yes	Yes	X11, X8, X10, X9, X7
Camera	Camera0 on I2C3	Yes	Yes	No	Enabled in Barebox, VM-011-COL on CSI0
	Camera1 on I2C3	Yes	Yes	No	

[1] 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 the *External Signals and Pin Multiplexing* section of Freescale's i.MX6 Technical Reference manual for more information on the various modes each pin can be muxed to.

Technical Support

For further information or to report any problems, visit the PHYTEC Support Portal