

# BSP-Yocto-TISDK-AM57xx-PD17.1.0 Release Notes

Operating System	Linux
BSP Release Status	RELEASED
Release Date	15 Mar 2017
Repository	<a href="#">PHYTEC Public Repos</a>
Binaries	<a href="#">BSP-Yocto-TISDK-AM57xx-PD17.1.0.tar.bz2</a>
Source Archive	
Release Notes	<a href="#">Click Here</a>

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## Introduction

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This BSP provides a basis for development, deployment and execution of Linux based applications on the phyCORE-AM57x 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 [72908877](#).

## Versioning

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### Software

Linux Kernel	4.4.32 (Based on TI SDK 03.02)
U-boot	2016.05 (Based on TI SDK 03.02)
Yocto	2.1 (Krogoth) (Based on TI SDK 03.02)
Qt	5.6.2
OpenCL	1.1.11
OpenCV	3.1

## Linux Device Tree Summary

Default dts target	am57xx-phycore-rdk.dts
Default dtsi include description	Default dtsi include list
SOM	am57xx-phycore-som.dtsi
Carrier Board	am57xx-pcm-948.dtsi
LCD-018 display (7" display w/ cap. touch)	am57xx-phytec-lcd-018.dtsi
WiLink8	am57xx-phytec-wlan-wilink8.dtsi
VM-009 Camera Module	am57xx-phytec-vm-0xx.dtsi

## Compatible Hardware

### Supported Hardware Versions

Hardware Description	PCB Version
phyCORE-AM57x SOM	1428.3
phyCORE-AM57x Carrier Board	1435.2

## BSP Download

Prebuilt images of BSP-Yocto-TISDK-AM57xx-PD17.1.0 can be downloaded from the link below:

[BSP-Yocto-TISDK-AM57xx-PD17.1.0 Release](#)

## Quickstart

Quickstarts for BSP-Yocto-TISDK-AM57xx-PD17.1.0:

### Content by label

There is no content with the specified labels

## BSP Features

Interface	Detail	Implemented	Tested	Status in Device tree	Notes
UART	uart3	Yes	Yes	Yes	Connector X18 (default serial console)
	uart4	Yes	No	<a href="#">SupportedInterfacesFootnote_1</a>	
	uart5	Yes	Yes	<a href="#">SupportedInterfacesFootnote_1es</a>	Connector X17
	uart6	Yes	No	<a href="#">SupportedInterfacesFootnote_1</a>	
	uart7	Yes	No	<a href="#">SupportedInterfacesFootnote_1</a>	
	uart8	Yes	No	<a href="#">SupportedInterfacesFootnote_1</a>	
	uart9	Yes	No	<a href="#">SupportedInterfacesFootnote_1</a>	
	uart10	Yes	No	<a href="#">SupportedInterfacesFootnote_1</a>	
I2C	i2c1	Yes	Yes	Yes	Available on expansion Connector X28

	i2c2	Yes	Yes	Yes	Connected to HDMI1_DDC
	i2c3	Yes	No	SupportedInterfacesFootnote_1	
	i2c4	Yes	Yes	Yes	Used for Audio Codec - available on expansion Connector X28
	i2c5	Yes	No	SupportedInterfacesFootnote_1	
Ethernet	cpsw_emac0 (RGMII0 on SoM)	Yes	Yes	Yes	RGMII0 - KSZ9031RNX SoM PHY Connector X7
	cpsw_emac1 (RGMII1 on CarrierBoard)	Yes	Yes	Yes	RGMII1 - KSZ9031RNX Connector X8
Display and Touch	Analog Touch Control 1	Yes	Yes	Yes	Capacitive: ETM-FT5x06 (on LCD-018), I2C4
	Analog Touch Control2	No	No	No	Resistive: STMP811 (on CB), I2C4
	PWM Backlight	Yes	Yes	Yes	ehrpwm0 (EHRPWM1A on CB)
	24-bit LCD Interface	Yes	see Known Issues	Yes	LVDS Connector X25 requires LCD-018
	HDMI	Yes	see Known Issues	No	hdmi1_ddc Connector X24 (encoder TPD12S on carrier board)
McASP	mcasp1	Yes	Yes	Yes	
	mcasp2	Yes	No	SupportedInterfacesFootnote_1	
	mcasp5	Yes	No	SupportedInterfacesFootnote_1	
	mcasp6	Yes	No	SupportedInterfacesFootnote_1	
	mcasp7	Yes	No	SupportedInterfacesFootnote_1	
	mcasp8	Yes	No	SupportedInterfacesFootnote_1	
eMMC/SD /SDIO	mmc1	Yes	Yes	Yes	Connector X2
	mmc2	Yes	Yes	Yes	eMMC on SOM
	mmc3	Yes	Yes	SupportedInterfacesFootnote_1es	Connector X26 (WiFi/BT connector)
USB	usb1	Yes	Yes	Yes	USB 3.0 Standard-A Connector X30 (Host only)
	usb2	Yes	Yes	Yes	USB 2.0 Mini-AB Connector X9 (device default); signals may also be routed to X19 (Standard-A)
CAN	can1	Yes	Yes	Yes	DB9 Connector X6
	can2	Yes	Yes	Yes	Pin Header Connector X5
MCSPi	spi1	Yes	Yes	SupportedInterfacesFootnote_1es	Connector X28 (Expansion connector) enabled using spidev on X_SPI1_nCS0
	spi2	Yes	No	SupportedInterfacesFootnote_1	
	spi3	Yes	No	SupportedInterfacesFootnote_1	
	spi4	Yes	No	SupportedInterfacesFootnote_1	
QSPI	qspi1	Yes	see Known Issues	Yes	NOR Serial Flash on SOM
SATA	sata1	Yes	Yes	Yes	Connector X11 (SATA) and X12 (power connector)
PCIe	pcie1	Yes	Yes	Yes	Connector X27 (PI6C557 4x PCIe connector)
IPU	ipu1	Yes	Yes	Yes	
	ipu2	Yes	Yes	Yes	
DSP	dsp1	Yes	Yes	Yes	
	dsp2	Yes	Yes	Yes	
GPIO	User Buttons and LEDs	Yes	Yes	Yes	

Memory	EEPROM	Yes	Yes	Yes	M24C32 on I2C1
	NAND (8/16 bit)	Yes	No	No	No NAND populated
	QSPI NOR Flash	Yes	see <a href="#">Known Issues</a>	Yes	N25Q128A connected to QSPI1_CS2
	eMMC	Yes	Yes	Yes	mmc2 on SOM
RTC	Internal AM57xx	Yes	Yes	Yes	Internal to processor
	PMIC TPS659037	Yes	Yes	Yes	TPS659037 I2C1
	External RTC	Yes	Yes	Yes	RV-4162-C7 on I2C1
Audio	Stereo Codec on CarrierBoard	Yes	Yes	Yes	TLV320AIC3007 codec; connected to McASP1 and I2C4
Communication	<a href="#">TiWi-BLE</a> WiFi	No	No	No	Connector X26
	<a href="#">TiWi-BLE</a> Bluetooth	No	No	No	Connector X26
	WiLink8 WiFi	Yes	Yes	Yes	Connector X26
Parallel Camera	VIN3 on i2c3	Yes	Yes	Yes	VM-009 at Connector X23 (phyCAM-P connector)
Hardware Acceleration	Graphics (PowerVR SGX544)	Yes	see <a href="#">Known Issues</a>	Yes	

[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.

## New In This Release

- **Yocto**
  - **SDK:** Ported to TI's Processor SDK v03.02.00.05
- **Kernel**
  - **Version:** Migrated from Linux Kernel v4.4.12 to v4.4.32
  - **PCIe:** x2 lane support
  - **Parallel Camera:** Support added for VIN3 interface. Enabled and tested with VM-009-M12.
  - **QSPI**
    - Support added for QSPI1
    - QSPI NOR (N25Q128A) using QSPI1\_CS2 is tested and enabled (see [72908877](#))
  - **MCSPi:** Support added for SPI1. Enabled and tested using X\_SPI1\_nCS0 on connector X28 ([Expansion Connector](#)).
- **U-Boot**
  - **SD Card**
    - U-Boot will always boot the kernel and roots from SD card, when present.
    - The U-Boot environment is strictly stored on the SD card, and cannot be saved without an SD card present.

## Fixed In This Release

- **Kernel**
  - **GPIO:** GPIO mapping now appears in contiguous order according to register assignments (see output of command: "cat /sys/kernel/debug/gpio"). Previous ordering was: GPIO1,2,3,4,6,7,8,5.
  - **Power:** VBUS\_DET implementation prevents complete poweroff. USB2 uses the PMIC VBUS\_DET circuit, and when VBUS is provided by the processor (USB2 in host mode), the USB2\_VBUS signal connected to the PMIC generates a WAKE event. As a result, the PMIC powers the system back up as soon as the shutdown finishes.

## Known Issues

- **Yocto**
  - Package ccs6 fetch fails due to TI export approval requirement. Workaround is to download the package manually as noted in the [BSP-Yocto-TISDK-AM57xx-PD17.1.0 Quickstart](#).
- **Kernel**
  - **Display:** TI's Matrix-GUI demo only displays to either HDMI or LCD, not both. The workaround is to enable one or the other. LCD-018 is currently the default.
  - **QSPI:** Possible read failures on flash devices with HOLD function (Erratum i916). A software workaround has been implemented to limit QSPI to DIO-SPI mode. The hardware workaround is to disable internal pull-ups and add 10k pull-ups on X\_QSPI1\_D2 & X\_QSPI1\_D3.
    - For the software workaround, [this commit](#) also needs to be added to the source before building the .dtb. It is currently configured correctly when external pull-ups are installed.

[Texas Instruments Known Issues \(Kernel\)](#)

[Texas Instruments Known Issues \(U-Boot\)](#)

## Technical Support

For further support please visit [PHYTEC's Support Portal](#)