# BSP-Android-TI-AM57x-PD17.1.0 Release Notes

| | |
|---|---|
| **Operating System** | Android |
| **BSP Release Status** | RELEASED |
| **Release Date** | 12 Jun 2017 |
| **Repository** | PHYTEC Android Repos |
| **Binaries** | BSP-Android-TI-AM57x-PD17.1.0.tar.bz2 |
| **Source Archive** | |
| **Release Notes** | Click Here |

# Introduction

This BSP provides a basis for development, deployment and execution of Android-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 Quickstart.

# Versioning

## Software

| | |
|---|---|
| **Linux Kernel** | 4.4.45+ (Based on TI ASDK repo) |
| **U-boot** | 2016.05 (Based on TI ASDK repo) |
| **Android** | Nougat-MR1 (Based on TI ASDK repo) |

### 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 |

### Compatible Expansion Boards and Accessories

| Module Name | Part Number | PCB Version | Description |
|---|---|---|---|
| 7" WVGA LCD w/ Capacitive Touch | LCD-018-070-KAP | 1365.1 | ETM0700G0DH6 LCD Display w/ EDT-FT5406 Capacitive Touchscreen Controller |

# BSP Download

Prebuilt images of BSP-Android-TI-AM57x-PD17.1.0 can be downloaded from the link below:

[BSP-Android-TI-AM57x-PD17.1.0 Release](BSP-Android-TI-AM57x-PD17.1.0 Release)

# Quickstart

Quickstarts for BSP-Android-TI-AM57x-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 | [click for info] | |
| | uart5 | Yes | Yes | Yes | Connector X17 |
| | uart6 | Yes | No | [click for info] | |
| | uart7 | Yes | No | [click for info] | |
| | uart8 | Yes | No | [click for info] | |
| | uart9 | Yes | No | [click for info] | |
| | uart10 | Yes | No | [click for info] | |
| I2C | i2c1 | Yes | Yes | Yes | Available on expansion Connector X28 |
| | i2c2 | Yes | Yes | Yes | Connected to HDMI1_DDC |
| | i2c3 | Yes | No | [click for info] | |
| | i2c4 | Yes | Yes | Yes | Used for Audio Codec - available on expansion Connector X28 |
| | i2c5 | Yes | No | [click for info] | |

| | | | | | |
|---|---|---|---|---|---|
| Ethernet | cpsw_emac0 (RGMII0 on SoM) | Yes | see Known Issues | Yes | RGMII0 - KSZ9031RNX SoM PHY<br><br>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: STMPE811 (on CB), I2C4 |
| | PWM Backlight | Yes | see Known Issues | Yes | ehrpwm0 (EHRPMW1A on CB) |
| | 24-bit LCD Interface | Yes | Yes | Yes | LVDS Connector X25<br><br>requires LCD-018 |
| | HDMI | Yes | Yes | Yes | hdmi1_ddc<br><br>Connector X24 (encoder TPD12S on carrier board) |
| McASP | mcasp1 | Yes | Yes | Yes | |
| | mcasp2 | Yes | No | [click for info] | |
| | mcasp5 | Yes | No | [click for info] | |
| | mcasp6 | Yes | No | [click for info] | |
| | mcasp7 | Yes | No | [click for info] | |
| | mcasp8 | Yes | No | [click for info] | |
| eMMC/SD /SDIO | mmc1 | Yes | Yes | Yes | Connector X2 |
| | mmc2 | Yes | Yes | Yes | eMMC on SOM |
| | mmc3 | Yes | Yes | Yes | 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 | Yes | Connector X28 (Expansion connector) enabled using spidev on X_SPI1_nCS0 |
| | spi2 | Yes | No | [click for info] | |
| | spi3 | Yes | No | [click for info] | |
| | spi4 | Yes | No | [click for info] | |
| 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 Known Issues | 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 | TiWi-BLE WiFi | No | No | No | Connector X26 |
|---|---|---|---|---|---|
| | TiWi-BLE 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 | Yes | 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

ⓘ  This is the first release so all features supported in the Features section are new to this release. See below for some specific interface details.

- **Android**
  - **Version:** Nougat-MR1 (7.1.1)
  - **Connectivity**
    - WiFi: Wilink8 support
    - Ethernet: Gigabit on ETH1 port (see Known Issues)
  - **Displays**
    - Parallel (via LVDS): LCD-018-070 7" display with capacitive touch (EDT-FT5406)
    - HDMI
  - **Storage**
    - USB1, USB2, SATA, SD, and PCIe storage devices all automatically mount as removable storage
  - **Audio**
    - Stereo playback available out of X13 (Headphones) and X15 (Line Out)
    - HDMI
- **Kernel**
  - **Version:** v4.4.45
- **U-Boot**
  - **Version:** v2016.05
  - **Boot**
    - MLO and u-boot.img can load from SD or eMMC based on boot switches. The Android Filesystem and kernel will always load from eMMC.
  - **Environment**
    - The U-Boot environment is stored in eMMC.

# Fixed In This Release

N/A

# Known Issues

- **Android**
  - Ethernet: ETH0 is available from the kernel but is not configured properly in the AFS.
  - Backlight: The Android brightness slider does not adjust the actual display brightness on the parallel display.
  - CAN: canutils package (cansend, candump) is not part of the current AFS so there are no available SocketCAN utilities.
  - Camera and Music built-in applications are not functional.
- **Kernel**
  - 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 and use internal weak pull-ups. The hardware workaround is to disable the internal pull-ups and add 10k pull-ups on X_QSPI1_D2 & X_QSPI1_D3.
  - PCIe: Native Command Queuing (NCQ) is unsupported and will need to be disabled if using a PCIe device that utilizes this feature.
- **U-Boot**
  - **Boot:** Booting the kernel and rootfs are currently only supported from eMMC.

# Technical Support

For further support please visit PHYTEC's Support Portal