BSP-RTOS-TI-AM57x-PD18.1.0 Release Notes

Operating System	TI-RTOS
BSP Release Status	RELEASED
Release Date	09 Nov 2018
Repository	PHYTEC TI-RTOS Repos
Binaries	BSP-RTOS-TI-AM57x-PD18.1.0.tar.bz2

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Introduction

This BSP provides a basis for development, deployment and execution of TI-RTOS 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

This RTOS BSP release is based upon Texas Instruments AM57x Processor SDK RTOS v05.01.00.11.

Software
Components

Component Name	Component Version	Location	Description
CG_XML	2.41.0	cg_xml	Code Generation Tools XML Processing Scripts
CTOOLSLIB	2.2.0.0	ctoolslib_2_2_0_0	Chip Tools System-Level Debug Libraries
DSPLIB	3.4.0.0	dsplib_c66x_3_4_0_0	C66x DSP Function Library
EDMA3 LLD	2.12.5.30C	edma3_lld_2_12_05_30C	Enhanced Direct Memory Access Low-Level Driver
FC	3.40.2.7	framework_components_3_40_02_07	XDAIS-Standard Framework Components
IMGLIB	3.1.1.0	imglib_c66x_3_1_1_0	C66x DSP Image and Video Processing Library
IPC	3.50.2.2	ipc_3_50_02_02	Inter-Processor Communication
MATHLIB	3.1.1.0	mathlib_c66x_3_1_1_0	C66x DSP Math Library
NDK	3.40.1.1	ndk_3_40_01_01	Network Developer's Kit
OPENCL	1.1.16.1	opencl_rtos_am57xx_01_01_16_01	TI OpenCL Runtime
OPENMP	2.6.2.1	openmp_dsp_am57xx_2_06_02_01	TI OpenMP Runtime
PDK	1.0.12	pdk_am57xx_1_0_12	Platform Development Kit
SYS/BIOS	6.73.0.12	bios_6_73_00_12	TI-RTOS SYS/BIOS
UIA	2.30.1.2	uia_2_30_01_02	Unified Instrumentation Architecture
XDAIS	7.24.0.4	xdais_7_24_00_04	XDAIS (eXpress DSP Algorithm Interoperability Standard) Developer's Kit
XDCTOOLS	3.50.7.20	xdctools_3_50_07_20_core	eXpress DSP Components Tools

Compilers

Compiler Name	Compiler Version	Location
GNU ARM Embedded	6-2017-q1-update	gcc-arm-none-eabi-6-2017-q1-update
TI ARM CGT	16.9.4	ti-cgt-arm_16.9.4.LTS
TI C6000 CGT	8.2.2	ti-cgt-c6000_8.2.2
TI PRU CGT	2.2.1	ti-cgt-pru_2.2.1

Compatible Hardware

Supported Hardware Versions

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

BSP Download

Pre-built package of BSP-RTOS-TI-AM57x-PD18.1.0 can be downloaded from the following link:

[BSP-RTOS-TI-AM57x-PD18.1.0 Release](#)

Quickstart

Quickstart for BSP-RTOS-TI-AM57x-PD18.1.x:

Content by label

There is no content with the specified labels

BSP Features

Interface	Detail	Driver Support		Tested	Notes
		Chip-Support Library	Platform Development Kit		
UART	uart3	Yes	Yes	Yes	Connector X18 (default serial console)
	uart4		(drv/uart)	No	
	uart5			Yes	Connector X17
	uart6			No	
	uart7			No	
	uart8			No	
	uart9			No	
	uart10			No	
I2C	i2c1	Yes	Yes	Yes	Available on expansion Connector X28
	i2c2		(drv/i2c)	Yes	Connected to HDMI1_DDC
	i2c3			No	
	i2c4			No	Used for Audio Codec - available on expansion Connector X28
	i2c5			No	

Ethernet	cpsw_emac0 (RGMII0 on SoM)	Yes	Yes (drv/emac and drv/icss_emac)	Yes	RGMII0 - KSZ9031RNX SoM PHY Connector X7
	cpsw_emac1 (RGMII1 on CarrierBoard)			Yes	RGMII1 - KSZ9031RNX Connector X8
Display and Touch	Analog Touch Control 1	No	No	No	Capacitive: ETM-FT5x06 (on LCD-018), I2C4
	Analog Touch Control2			No	Resistive: STMPE811 (on CB), I2C4
	PWM Backlight	Yes	No	Yes	ehrpwm0 (EHRPMW1A on CB)
	24-bit LCD Interface	No	No	No	LVDS Connector X25 requires LCD-018
	HDMI	Yes	Yes (drv/vps)	Yes	hdmi1_ddc Connector X24 (encoder TPD12S on carrier board)
McASP	mcasp1	Yes	Yes (drv/mcasp)	Yes	
	mcasp2			No	
	mcasp5			No	
	mcasp6			No	
	mcasp7			No	
	mcasp8			No	
eMMC/SD/SDIO	mmc1	Yes	Yes (drv/mmcsd)	Yes	Connector X2
	mmc2	Yes	Yes (drv/mmcsd)	Yes	eMMC on SOM
	mmc3	No	No	No	Connector X26 (WiFi/BT connector)
USB	usb1	Yes	Yes (drv/usb)	Yes	USB 3.0 Standard-A Connector X30 (Host only)
	usb2			see **Known Issues**	USB 2.0 Mini-AB Connector X9 (device default); signals may also be routed to X19 (Standard-A)
CAN	can1	Yes	No	Yes	DB9 Connector X6
	can2			Yes	Pin Header Connector X5
MCSPI	spi1	Yes	Yes (drv/spi)	No	Connector X28 (Expansion connector) enabled using spidev on X_SPI1_nCS0
	spi2			No	
	spi3			No	
	spi4			No	
QSPI	qspi1	Yes	Yes (drv/spi)	Yes	NOR Serial Flash on SOM
SATA	sata1	Yes	No	No	Connector X11 (SATA) and X12 (power connector)
PCIe	pcie1	Yes	Yes (drv/pcie)	No	Connector X27 (PI6C557 4x PCIe connector)
IPU	ipu1	Supported via C66x DSP libraries		No	
	ipu2			No	
DSP	dsp1	Supported via C66x DSP libraries		Yes	
	dsp2			see **Known Issues**	
GPIO	User Buttons and LEDs	Yes	Yes (drv/gpio)	Yes	
Memory	EEPROM	No	No	No	M24C32 on I2C1
	NAND (8/16 bit)	No	Yes (board/src/flash)	No	No NAND populated

	QSPI NOR Flash	No	Yes (board/src/flash)	Yes	N25Q128A connected to QSPI1_CS2
	eMMC	Yes	Yes (drv/mmcsd)	Yes	mmc2 on SOM
RTC	Internal AM57xx	Yes	No	No	Internal to processor
	PMIC TPS659037	No	Yes (drv/pm)	No	TPS659037 I2C1
	External RTC	Yes	No	No	RV-4162-C7 on I2C1
Audio	Stereo Codec on CarrierBoard	No	Yes (drv/mcasp)	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	No	No	No	Connector X26
Parallel Camera	VIN3 on i2c3	No	Yes (drv/vps)	No	Connector X23 (phyCAM-P connector)

New In This Release

- The PHYTEC source repository branch structure for repositories pulled from TI has been changed for this release. Previous release sources are now archived under branches named after their respective release version. For example, the sources for the previous PHYTEC TI-RTOS release PD17.1.1 are now archived under *release/BSP-RTOS-TI-AM57x-PD17.1.1*.

> ⚠️ Repo manifests will target the correct source versions for all archived BSP releases. No changes to any manifest are necessary.

- **Component changes:**
  - **NDK**
    - **Supported demos/examples:** NIMU_BasicExample (ndk/nimu driver)
  - **PDK**
    - **Board:**
      - Added driver for Micron N25Q128A QSPI NOR Flash
    - **Ethernet:**
      - **Supported demos/examples:** EmacLoopbackTest (emac driver)
    - **GPIO:**
      - **Supported demos/examples:** GPIO_LedBlink (gpio driver)
    - **MCASP:**
      - Added support for TI TLV320AIC3007 Audio Codec
      - **Supported demos/examples:**
        - MCASP_Audio (mcasp driver)
        - MCASP_DeviceLoopback (mcasp driver)
    - **MMCSD:**
      - **Supported demos/examples:**
        - MMCSD_FatfsConsole (mmcsd driver)
        - MMCSD_FatfsConsole with DMA (mmcsd driver)
    - **OSAL:**
      - **Supported demos/examples:** OSAL_BasicExample (OSAL driver)
    - **QSPI:**
      - **Supported demos/examples:** QSPI_BasicExample (spi driver)
  - **SDK**
    - Added support for TI-RTOS template application (demos/rtos_template_app)

Fixed In This Release

N/A

Known Issues

- **Board**
  - **Diagnostics**
    - led: when loaded into memory through secondary bootloader, led diagnostics program toggles LEDs faster than intended. This behavior is not observed when led diagnostics program is loaded into memory through Code Composer Studio.
    - timer: when loaded into memory through secondary bootloader, timer diagnostics program runs approximately 0.5 seconds too quickly. This behavior is not observed when timer diagnostics program is loaded into memory through Code Composer Studio.
- **Demos/Example Projects**
  - **DSP2**
    - bigdataipc: example fails if the server DSP file is placed on DSP2.
  - **USB2**
    - USB_DevMsc: RAMDisk instantiated as mass storage device as part of example project does not operate normally on some connected PCs.

Texas Instruments Processor SDK RTOS Known Issues

Technical Support

For further support please visit **PHYTEC's Support Portal**