

TEC0850 Test Board

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Overview

ZynqMP PS Design with Linux example, simple frequency counter to some CLKs, MGT Aurora Test IP and USB 3 FTDI FIFO IP.

Refer to <http://trenz.org/tec0850-info> for the current online version of this manual and other available documentation.

Key Features

- PetaLinux
- SD
- ETH
- USB FIFO
- Aurora
- FMeTer
- Modified FSBL for SI5345 programming
- Special FSBL for QSPI programming

Revision History

Date	Vivado	Project Built	Authors	Description
2018-09-13	2018.2	TEC0850-test_board-vivado_2018.2-build_03_20180913143619.zip TEC0850-test_board_noprebuilt-vivado_2018.2-build_03_20180913143635.zip	Oleksandr Kiyenko, John Hartfiel	initial release

Table 1: Design Revision History

Release Notes and Know Issues

Issues	Description	Workaround	To be fixed version
No known issues	---	---	---

Table 2: Known Issues

Requirements

Software

Software	Version	Note
Vivado	2018.2	needed
SDK	2018.2	needed
PetaLinux	2018.2	needed
SI5345 Clock Builder	---	optional

Table 3: Software

Hardware

Basic description of TE Board Part Files is available on [TE Board Part Files](#).

Complete List is available on <design name>/board_files/*_board_files.csv

Design supports following modules:

Module Model	Board Part Short Name	PCB Revision Support	DDR	QSPI Flash	Others	Notes
TEC0850-02-15EG-1E	15eg_1e	REV02	SODIMM, configured for 8GB: CT8G4SFS824A	128MB		

Table 4: Hardware Modules

Design supports following carriers:

Carrier Model	Notes
CompactPCI compatible Backplanes	
standalone	separat 12V powersupply

Table 5: Hardware Carrier

Additional HW Requirements:

Additional Hardware	Notes

Table 6: Additional Hardware

Content

For general structure and of the reference design, see [Project Delivery - AMD devices](#)

Design Sources

Type	Location	Notes
Vivado	<design name>/block_design <design name>/constraints <design name>/ip_lib	Vivado Project will be generated by TE Scripts
SDK/HSI	<design name>/sw_lib	Additional Software Template for SDK/HSI and apps_list.csv with settings for HSI
PetaLinux	<design name>/os/petalinux	PetaLinux template with current configuration
SDSoC	<design name>/../SDSoC_PFM	SDSoC Platform will be generated by TE Scripts or as separate download

Table 7: Design sources

Additional Sources

Type	Location	Notes
SI5345	<design name>/misc/SI5345	SI5345 Project with current PLL Configuration

Table 8: Additional design sources

Prebuilt

File	File-Extension	Description
BIF-File	*.bif	File with description to generate Bin-File
BIN-File	*.bin	Flash Configuration File with Boot-Image (Zynq-FPGAs)
BIT-File	*.bit	FPGA (PL Part) Configuration File
DebugProbes-File	*.ltx	Definition File for Vivado/Vivado Labtools Debugging Interface
Diverse Reports	---	Report files in different formats
Hardware-Platform-Specification-Files	*.hdf	Exported Vivado Hardware Specification for SDK/HSI and PetaLinux
LabTools Project-File	*.lpr	Vivado Labtools Project File
OS-Image	*.ub	Image with Linux Kernel (On Petalinux optional with Devicetree and RAM-Disk)
Software-Application-File	*.elf	Software Application for Zynq or MicroBlaze Processor Systems

Table 9: Prebuilt files

Download

Reference Design is only usable with the specified Vivado/SDK/PetaLinux/SDx version. Do never use different Versions of Xilinx Software for the same Project.

Reference Design is available on:

- [TEC0850 "Test Board" Reference Design](#)

Design Flow



Reference Design is available with and without prebuilt files. It's recommended to use TE prebuilt files for first lunch.

Trenz Electronic provides a tcl based built environment based on Xilinx Design Flow.

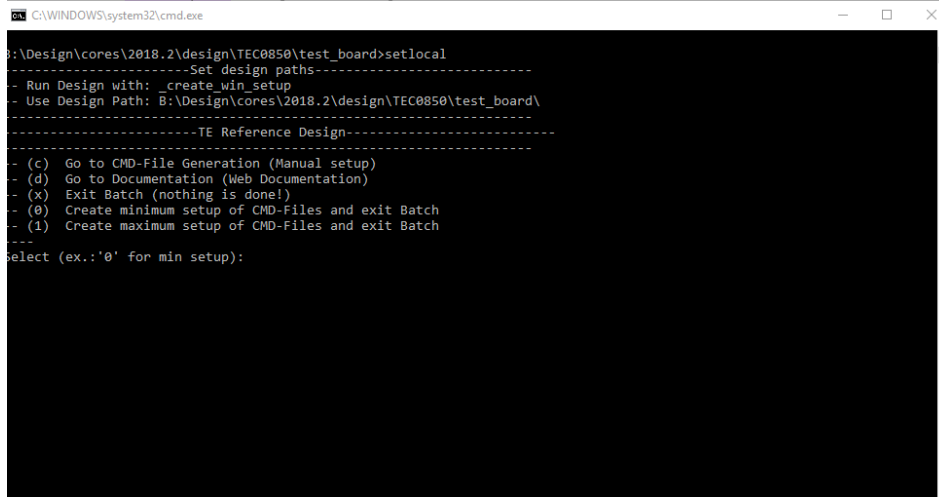
See also:

- [AMD Development Tools#XilinxSoftware-BasicUserGuides](#)
- [Vivado Projects - TE Reference Design](#)
- [Project Delivery](#).

The Trenz Electronic FPGA Reference Designs are TCL-script based project. Command files for execution will be generated with "_create_win_setup.cmd" on Windows OS and "_create_linux_setup.sh" on Linux OS.

TE Scripts are only needed to generate the vivado project, all other additional steps are optional and can also executed by Xilinx Vivado/SDK GUI. For currently Scripts limitations on Win and Linux OS see: [Project Delivery Currently limitations of functionality](#)

1. `_create_win_setup.cmd/_create_linux_setup.sh` and follow instructions on shell:



```
C:\WINDOWS\system32\cmd.exe
B:\Design\cores\2018.2\design\TEC0850\test_board>setlocal
--Set design paths--
Run Design with: _create_win_setup
Use Design Path: B:\Design\cores\2018.2\design\TEC0850\test_board\
--TE Reference Design--
(c) Go to CMD-File Generation (Manual setup)
(d) Go to Documentation (Web Documentation)
(x) Exit Batch (nothing is done!)
(0) Create minimum setup of CMD-Files and exit Batch
(1) Create maximum setup of CMD-Files and exit Batch
select (ex.: '0' for min setup):
```

2. Press 0 and enter for minimum setup
3. (optional Win OS) Generate Virtual Drive or use short directory for the reference design (for example x:\<design name>)
4. Create Project
 - a. Select correct device and Xilinx install path on "design_basic_settings.cmd" and create Vivado project with "vivado_create_project_gui mode.cmd"
Note: Select correct one, see [TE Board Part Files](#)
5. Create HDF and export to prebuilt folder
 - a. Run on Vivado TCL: `TE::hw_build_design -export_prebuilt`
Note: Script generate design and export files into \prebuilt\hardware\<short dir>. Use GUI is the same, except file export to prebuilt folder
6. Create Linux (uboot.elf and image.ub) with exported HDF
 - a. HDF is exported to "prebuilt\hardware\<short name>"
Note: HW Export from Vivado GUI create another path as default workspace.
Create Linux images on VM, see [PetaLinux KICKstart](#)
 - i. Use TE Template from /os/petalinux
Note: run `init_config.sh` before you start petalinux config. This will set correct temporary path variable.
7. Add Linux files (uboot.elf and image.ub) to prebuilt folder
 - a. "prebuilt\os\petalinux\default" or "prebuilt\os\petalinux\<short name>"
Notes: Scripts select "prebuilt\os\petalinux\<short name>", if exist, otherwise "prebuilt\os\petalinux\default"
8. Generate Programming Files with HSI/SDK
 - a. Run on Vivado TCL: `TE::sw_run_hsi`
Note: Scripts generate applications and bootable files, which are defined in "sw_lib/apps_list.csv"
 - b. (alternative) Start SDK with Vivado GUI or start with TE Scripts on Vivado TCL: `TE::sw_run_sdk`
Note: See [SDK Projects](#)

Launch

Programming



Check Module and Carrier TRMs for proper HW configuration before you try any design.

Xilinx documentation for programming and debugging: [Vivado/SDK/SDSoC-Xilinx Software Programming and Debugging](#)

QSPI

Optional for Boot.bin on QSPI Flash and image.ub on SD.

1. Connect JTAG and power on carrier with module
2. Open Vivado Project with "vivado_open_existing_project_gui mode.cmd" or if not created, create with "vivado_create_project_gui mode.cmd"
3. Type on Vivado TCL Console: TE::pr_program_flash_binfile -swapp u-boot
Note: To program with SDK/Vivado GUI, use special FSBL (zynqmp_fsbl_flash) on setup optional "TE::pr_program_flash_binfile -swapp hello_tec0850" possible
4. Copy image.ub on SD-Card
 - For correct prebuilt file location, see <design_name>/prebuilt/readme_file_location.txt
5. Insert SD-Card

SD

1. Copy image.ub and Boot.bin on SD-Card.
 - For correct prebuilt file location, see <design_name>/prebuilt/readme_file_location.txt
2. Set Boot Mode to SD-Boot.
 - Depends on Carrier, see carrier TRM.
3. Insert SD-Card in SD-Slot.

JTAG

Not used on this Example.

Usage

1. Prepare HW like described on section [Programming](#)
2. Connect UART USB (most cases same as JTAG)
3. Select SD Card as Boot Mode
Note: See TRM of the Carrier, which is used.
4. Power On PCB
Note: 1. ZynqMP Boot ROM loads PMU Firmware and FSBL from SD/QSPI Flash into OCM, 2. FSBL loads ATF(bl31.elf) and U-boot from SD into DDR, 3. U-boot load Linux from SD into DDR

Linux

1. Open Serial Console (e.g. putty)
 - a. Speed: 115200
 - b. COM Port: Win OS, see device manager, Linux OS see dmesg |grep tty (UART is *USB1)
2. Linux Console:
Note: Wait until Linux boot finished For Linux Login use:
 - a. User Name: root
 - b. Password: root
3. You can use Linux shell now.
 - a. lsusb show USB controller USB is connected to CIPIS connectors
 - b. I2C devices: i2cdetect -y -r 0
 - c. ETH0 works with udhpcp

Vivado HW Manager

GTH Transceiver with Aurora IP:

- MGT Control: looback, PMA Init, Power Down, Reset... see: [ug576-ultrascale-gth-transceivers](#)
 - Loopback 2 is Near-end PMA Loopback, if no lane is connected, 0 for normal operation
 - Set PMA Init one time after changing
- Channel up is link status for the lanes
- PLL GTP lock status of GTH PLLs,

LED

- Control of front panel user LEDs

FMeter

- Measurement of different CLKs

- Note: USB CLK is only available if USB 3 is connected.

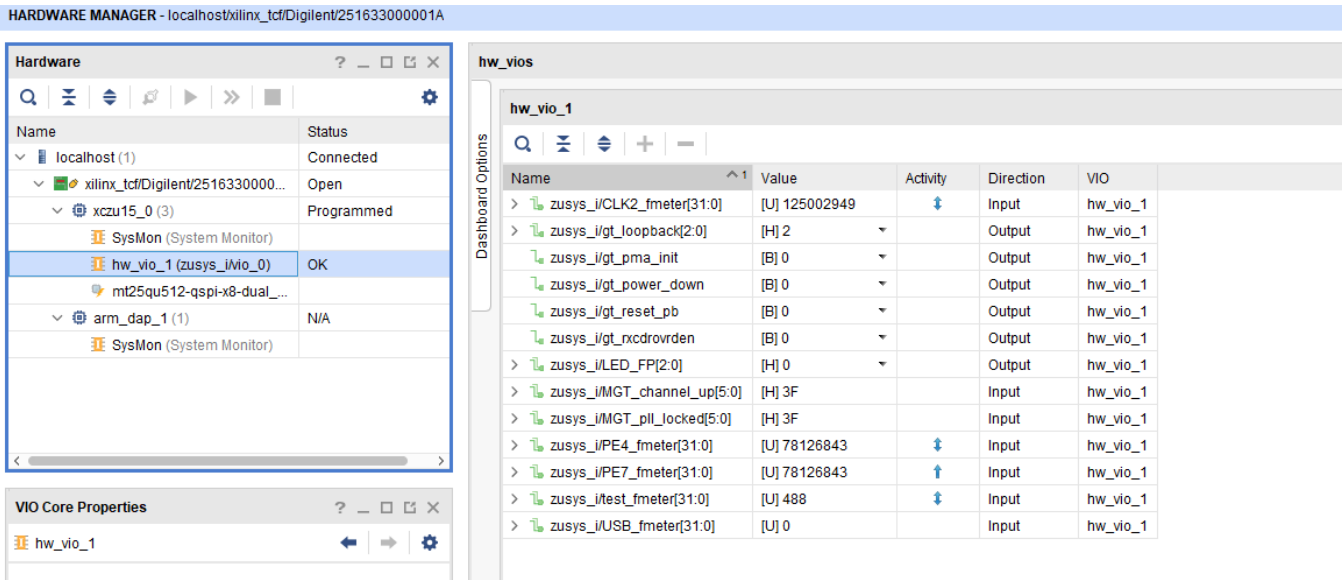


Figure 1: Vivado Hardware Manager

System Design - Vivado

Block Design

USB0	MIO, USB2.0
USB1	MIO, USB2.0

Table 10: PS Interfaces

Constrains

Basic module constrains

_i_bitgen_common.xdc

```
set_property BITSTREAM.GENERAL.COMPRESS TRUE [current_design]
set_property BITSTREAM.CONFIG.UNUSEDPIN PULLNONE [current_design]
```

Design specific constrain

_i_tec0850_io.xdc

```
create_clock -period 12.800 -name GT_CLK1 [get_nets zusys_i/GT_system/aurora_m_left_0/inst/clock_module_i
/ultrascale_tx_userclk_1/user_clk_out]
create_clock -period 12.800 -name GT_CLK2 [get_nets zusys_i/GT_system/aurora_m_right_0/inst/clock_module_i
/ultrascale_tx_userclk_1/user_clk_out]
create_clock -period 12.800 -name GT_CLK3 [get_nets zusys_i/GT_system/aurora_s_left_1/inst/clock_module_i
/ultrascale_tx_userclk_1/user_clk_out]
create_clock -period 12.800 -name GT_CLK4 [get_nets zusys_i/GT_system/aurora_s_left_2/inst/clock_module_i
/ultrascale_tx_userclk_1/user_clk_out]
create_clock -period 12.800 -name GT_CLK5 [get_nets zusys_i/GT_system/aurora_s_right_1/inst/clock_module_i
/ultrascale_tx_userclk_1/user_clk_out]
create_clock -period 12.800 -name GT_CLK6 [get_nets zusys_i/GT_system/aurora_s_right_2/inst/clock_module_i
/ultrascale_tx_userclk_1/user_clk_out]
```

```
# Test
set_property PACKAGE_PIN W7 [get_ports {TEST_CLK_clk_p[0]}]
set_property PACKAGE_PIN W6 [get_ports {TEST_CLK_clk_p[0]}]
set_property IOSTANDARD LVDS [get_ports TEST_CLK_clk_*]
```

```
# Bank 44 HD 3.3V
```

```
set_property PACKAGE_PIN AF15 [get_ports {LED_FP[0]}]
set_property PACKAGE_PIN AG15 [get_ports {LED_FP[1]}]
set_property PACKAGE_PIN AE15 [get_ports {LED_FP[2]}]
set_property IOSTANDARD LVCMOS33 [get_ports LED_FP*]
```

```
# Bank 50 HD 3.3V
```

```
#set_property PACKAGE_PIN H11 [get_ports {DAC1_CLK}]
#set_property PACKAGE_PIN F10 [get_ports {DAC1_MODE[0]}]
#set_property PACKAGE_PIN D11 [get_ports {DAC1_D[0]}]
#set_property PACKAGE_PIN D10 [get_ports {DAC1_D[1]}]
#set_property PACKAGE_PIN G11 [get_ports {DAC1_D[2]}]
#set_property PACKAGE_PIN J11 [get_ports {DAC1_D[3]}]
#set_property PACKAGE_PIN G10 [get_ports {DAC1_D[4]}]
#set_property PACKAGE_PIN H10 [get_ports {DAC1_D[5]}]
#set_property PACKAGE_PIN J10 [get_ports {DAC1_D[6]}]
#set_property PACKAGE_PIN E10 [get_ports {DAC1_D[7]}]
```

```

#set_property IOSTANDARD LVCMOS33 [get_ports DAC1_*]

#set_property PACKAGE_PIN F12 [get_ports {DAC2_CLK}]
#set_property PACKAGE_PIN F11 [get_ports {DAC2_MODE[0]}]
#set_property PACKAGE_PIN G15 [get_ports {DAC2_D[0]}]
#set_property PACKAGE_PIN H14 [get_ports {DAC2_D[1]}]
#set_property PACKAGE_PIN J14 [get_ports {DAC2_D[2]}]
#set_property PACKAGE_PIN G14 [get_ports {DAC2_D[3]}]
#set_property PACKAGE_PIN G13 [get_ports {DAC2_D[4]}]
#set_property PACKAGE_PIN H13 [get_ports {DAC2_D[5]}]
#set_property PACKAGE_PIN H12 [get_ports {DAC2_D[6]}]
#set_property PACKAGE_PIN J12 [get_ports {DAC2_D[7]}]
#set_property IOSTANDARD LVCMOS33 [get_ports DAC2_*]

# Bank 44 HD 3.3V
#set_property PACKAGE_PIN AK15 [get_ports {DAC3_CLK}]
#set_property PACKAGE_PIN AK14 [get_ports {DAC3_MODE[0]}]
#set_property PACKAGE_PIN AG14 [get_ports {DAC3_D[0]}]
#set_property PACKAGE_PIN AE13 [get_ports {DAC3_D[1]}]
#set_property PACKAGE_PIN AG13 [get_ports {DAC3_D[2]}]
#set_property PACKAGE_PIN AJ15 [get_ports {DAC3_D[3]}]
#set_property PACKAGE_PIN AJ14 [get_ports {DAC3_D[4]}]
#set_property PACKAGE_PIN AH14 [get_ports {DAC3_D[5]}]
#set_property PACKAGE_PIN AF13 [get_ports {DAC3_D[6]}]
#set_property PACKAGE_PIN AH13 [get_ports {DAC3_D[7]}]
#set_property IOSTANDARD LVCMOS33 [get_ports DAC3_*]

#set_property PACKAGE_PIN AL12 [get_ports {DAC4_CLK}]
#set_property PACKAGE_PIN AK13 [get_ports {DAC4_MODE[0]}]
#set_property PACKAGE_PIN AP14 [get_ports {DAC4_D[0]}]
#set_property PACKAGE_PIN AN14 [get_ports {DAC4_D[1]}]
#set_property PACKAGE_PIN AM14 [get_ports {DAC4_D[2]}]
#set_property PACKAGE_PIN AN13 [get_ports {DAC4_D[3]}]
#set_property PACKAGE_PIN AP12 [get_ports {DAC4_D[4]}]
#set_property PACKAGE_PIN AN12 [get_ports {DAC4_D[5]}]
#set_property PACKAGE_PIN AL13 [get_ports {DAC4_D[6]}]
#set_property PACKAGE_PIN AM13 [get_ports {DAC4_D[7]}]
#set_property IOSTANDARD LVCMOS33 [get_ports DAC4_*]

# Bank 64 HP 1.8V
set_property PACKAGE_PIN AL6 [get_ports FIFO_CLK]
set_property IOSTANDARD LVCMOS18 [get_ports FIFO_CLK]
set_property PACKAGE_PIN AM8 [get_ports {FTDI_RESET_N}]
set_property IOSTANDARD LVCMOS18 [get_ports {FTDI_RESET_N}]
set_property PACKAGE_PIN AN8 [get_ports {WAKEUP_N}]
set_property IOSTANDARD LVCMOS18 [get_ports {WAKEUP_N}]

set_property PACKAGE_PIN AJ12 [get_ports {RXF_N}]
set_property IOSTANDARD LVCMOS18 [get_ports {RXF_N}]
set_property PACKAGE_PIN AK12 [get_ports {TXE_N}]
set_property IOSTANDARD LVCMOS18 [get_ports {TXE_N}]
set_property PACKAGE_PIN AM10 [get_ports {BE[0]}]
set_property PACKAGE_PIN AK10 [get_ports {BE[1]}]
set_property PACKAGE_PIN AM11 [get_ports {BE[2]}]
set_property PACKAGE_PIN AL11 [get_ports {BE[3]}]
set_property IOSTANDARD LVCMOS18 [get_ports {BE[*]}]
set_property PACKAGE_PIN AL10 [get_ports {SIWU_N}]
set_property IOSTANDARD LVCMOS18 [get_ports {SIWU_N}]
set_property PACKAGE_PIN AM9 [get_ports {WR_N}]
set_property IOSTANDARD LVCMOS18 [get_ports {WR_N}]
set_property PACKAGE_PIN AK9 [get_ports {RD_N}]

```

```

set_property IOSTANDARD LVCMOS18 [get_ports {RD_N}]
set_property PACKAGE_PIN AL8 [get_ports {OE_N}]
set_property IOSTANDARD LVCMOS18 [get_ports {OE_N}]

set_property PACKAGE_PIN AK1 [get_ports {DATA[0]}]
set_property PACKAGE_PIN AJ10 [get_ports {DATA[1]}]
set_property PACKAGE_PIN AJ9 [get_ports {DATA[2]}]
set_property PACKAGE_PIN AK7 [get_ports {DATA[3]}]
set_property PACKAGE_PIN AK5 [get_ports {DATA[4]}]
set_property PACKAGE_PIN AM1 [get_ports {DATA[5]}]
set_property PACKAGE_PIN AL2 [get_ports {DATA[6]}]
set_property PACKAGE_PIN AK4 [get_ports {DATA[7]}]
set_property PACKAGE_PIN AN1 [get_ports {DATA[8]}]
set_property PACKAGE_PIN AL3 [get_ports {DATA[9]}]
set_property PACKAGE_PIN AK8 [get_ports {DATA[10]}]
set_property PACKAGE_PIN AN2 [get_ports {DATA[11]}]
set_property PACKAGE_PIN AP2 [get_ports {DATA[12]}]
set_property PACKAGE_PIN AL7 [get_ports {DATA[13]}]
set_property PACKAGE_PIN AL5 [get_ports {DATA[14]}]
set_property PACKAGE_PIN AM4 [get_ports {DATA[15]}]
set_property PACKAGE_PIN AN4 [get_ports {DATA[16]}]
set_property PACKAGE_PIN AM5 [get_ports {DATA[17]}]
set_property PACKAGE_PIN AM6 [get_ports {DATA[18]}]
set_property PACKAGE_PIN AN3 [get_ports {DATA[19]}]
set_property PACKAGE_PIN AP3 [get_ports {DATA[20]}]
set_property PACKAGE_PIN AP4 [get_ports {DATA[21]}]
set_property PACKAGE_PIN AP5 [get_ports {DATA[22]}]
set_property PACKAGE_PIN AN6 [get_ports {DATA[23]}]
set_property PACKAGE_PIN AN7 [get_ports {DATA[24]}]
set_property PACKAGE_PIN AP6 [get_ports {DATA[25]}]
set_property PACKAGE_PIN AP7 [get_ports {DATA[26]}]
set_property PACKAGE_PIN AP11 [get_ports {DATA[27]}]
set_property PACKAGE_PIN AP10 [get_ports {DATA[28]}]
set_property PACKAGE_PIN AP9 [get_ports {DATA[29]}]
set_property PACKAGE_PIN AN9 [get_ports {DATA[30]}]
set_property PACKAGE_PIN AP8 [get_ports {DATA[31]}]
set_property IOSTANDARD LVCMOS18 [get_ports {DATA[*]}]

# Bank 66 HP 1.8V
set_property PACKAGE_PIN Y8 [get_ports {CLK2_clk_p[0]}]
set_property IOSTANDARD LVDS [get_ports {CLK2_clk_p[0]}]
create_clock -period 8.000 -name CLK2 [get_ports {CLK2_clk_p[0]}]

# MGT
set_property PACKAGE_PIN L27 [get_ports {CLK4_clk_p}]
set_property PACKAGE_PIN G8 [get_ports {CLK1_clk_p}]

```

Software Design - SDK/HSI

For SDK project creation, follow instructions from:

[SDK Projects](#)

Application

Template location: ./sw_lib/sw_apps/

zynqmp_fsbl

TE modified 2018.2 FSBL

Changes:

- Si5345 Configuration,
 - see xfsbl_board.c, xfsbl_board.h, xfsbl_main.c
 - Add register_map.h, si5345.c, si5345.h

Note: Remove compiler flags "-Os -fno-lto -ffat-lto-objects" on 2018.2 SDK to generate FSBL

zynqmp_fsbl_flash

TE modified 2018.2 FSBL

Changes:

- Set FSBL Boot Mode to JTAG
- Disable Memory initialisation
- see xfsbl_initialisation.c, xfsbl_hw.h, xfsbl_handoff.c, xfsbl_main.c

Note: Remove compiler flags "-Os -fno-lto -ffat-lto-objects" on 2018.2 SDK to generate FSBL

zynqmp_pmufw

Xilinx default PMU firmware.

hello_tec0850

Hello TEC0850 is a Xilinx Hello World example as endless loop instead of one console output.

u-boot

U-Boot.elf is generated with PetaLinux. SDK/HSI is used to generate Boot.bin.

Software Design - PetaLinux

For PetaLinux installation and project creation, follow instructions from:

- [PetaLinux KICKstart](#)

Config

No changes.

U-Boot

```
#include <configs/platform-auto.h>
#define CONFIG_SYS_BOOTM_LEN 0xF000000

#define DFU_ALT_INFO_RAM \
    "dfu_ram_info=" \
    "setenv dfu_alt_info " \
```

```

"image.ub ram $netstart 0x1e00000\0" \
"dfu_ram=run dfu_ram_info && dfu 0 ram 0\0" \
"thor_ram=run dfu_ram_info && thordown 0 ram 0\0"

#define DFU_ALT_INFO_MMC \
    "dfu_mmc_info=" \
    "set dfu_alt_info " \
    "${kernel_image} fat 0 1\\\\;" \
    "dfu_mmc=run dfu_mmc_info && dfu 0 mmc 0\0" \
    "thor_mmc=run dfu_mmc_info && thordown 0 mmc 0\0"

/*Required for uartless designs */
#ifndef CONFIG_BAUDRATE
#define CONFIG_BAUDRATE 115200
#endif
#define CONFIG_DEBUG_UART
#undef CONFIG_DEBUG_UART
#endif
#endif

/*Define CONFIG_ZYNQMP_EEPROM here and its necessities in u-boot menuconfig if you had EEPROM memory. */
#ifndef CONFIG_ZYNQMP_EEPROM
#define CONFIG_SYS_I2C_EEPROM_ADDR_LEN 1
#define CONFIG_CMD_EEPROM
#define CONFIG_ZYNQ_EEPROM_BUS 5
#define CONFIG_ZYNQ_GEM_EEPROM_ADDR 0x54
#define CONFIG_ZYNQ_GEM_I2C_MAC_OFFSET 0x20
#endif

```

Device Tree

```

/include/ "system-conf.dtsi"
/ {
};

/* QSPI PHY */
&qspi {
    #address-cells = <1>;
    #size-cells = <0>;
    status = "okay";
    flash@0: flash@0 {
        compatible = "jedec,spi-nor";
        reg = <0x0>;
        #address-cells = <1>;
        #size-cells = <1>;
    };
};

/* ETH PHY */

&gem0 {
    phy-handle = <&phy0>;
    phy0: phy0@1 {
        device_type = "ethernet-phy";
        reg = <1>;
    };
};

```

```

};

/* USB 2.0 */

&dwc3_0 {
    status = "okay";
    dr_mode = "host";
    maximum-speed = "high-speed";
    /delete-property/phy-names;
    /delete-property/phys;
    /delete-property/snps,usb3_lpm_capable;
};

&dwc3_1 {
    status = "okay";
    dr_mode = "host";
    maximum-speed = "high-speed";
    /delete-property/phy-names;
    /delete-property/phys;
    /delete-property/snps,usb3_lpm_capable;
};

/* SD*/

&sdhc1 {
    disable-wp;
    no-1-8-v;
};

/* SPI */
// &spi0 {
//     num-cs = <1>;
//     ext_command:spidev@0{
//         compatible="spidev";
//         reg = <0>; //chipselect 0
//         spi-max-frequency= <100000>;
//         spidev-name = "EXT";
//     };
// };
//

/* I2C */
// &i2c0 {
//     #address-cells = <1>;
//     #size-cells = <0>;
// };

&i2c1{ // TEC0850
    #address-cells = <1>;
    #size-cells = <0>;
    // Instantiate EEPROM driver
    eeprom153: eeprom@53 {
        compatible = "atmel,24c02";
        reg = <0x53>;
    };
    // Instantiate EEPROM driver
    eeprom150: eeprom@50 {

```

```
compatible = "atmel,24c128";
reg = <0x50>;
};
// There is also Clock generator chip
// Si5345 at address 0x69, but there is
// no standard driver in Linux kernel yet
};
```

Kernel

Deactivate:

- CONFIG_CPU_IDLE (only needed to fix JTAG Debug issue)
- CONFIG_CPU_FREQ (only needed to fix JTAG Debug issue)

Rootfs

Activate:

- i2c-tools

Applications

startup

Script App to load init.sh from SD Card if available.

See: \os\petalinux\project-spec\meta-user\recipes-apps\startup\files

Additional Software

No additional software is needed.

SI5345

File location <design name>/misc/Si5345/RegisterMap.txt

General documentation how you work with these project will be available on [Si5345](#)

Appx. A: Change History and Legal Notices

Document Change History

To get content of older revision got to "Change History" of this page and select older document revision number.

Date	Document Revision	Authors	Description

<div data-bbox="235 342 428 405">Error rendering macro 'page-info'</div> <div data-bbox="235 443 459 1260"><p>Ambiguous method overloading for method jdk.proxy241.\$Proxy3496#hasContentLevelPermission. Cannot resolve which method to invoke for [null, class java.lang.String, class com.atlassian.confluence.pages.Page] due to overlapping prototypes between: [interface com.atlassian.confluence.user.ConfluenceUser, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject] [interface com.atlassian.user.User, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject]</p></div>	<div data-bbox="625 342 911 363">Error rendering macro 'page-info'</div> <div data-bbox="625 401 911 1060"><p>Ambiguous method overloading for method jdk.proxy241.\$Proxy3496#hasContentLevelPermission. Cannot resolve which method to invoke for [null, class java.lang.String, class com.atlassian.confluence.pages.Page] due to overlapping prototypes between: [interface com.atlassian.confluence.user.ConfluenceUser, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject] [interface com.atlassian.user.User, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject]</p></div> <div data-bbox="524 1129 959 1190"><div> Unknown macro: 'metadata'</div></div>	<div data-bbox="1076 342 1269 405">Error rendering macro 'page-info'</div> <div data-bbox="1076 443 1300 1299"><p>Ambiguous method overloading for method jdk.proxy241.\$Proxy3496#hasContentLevelPermission. Cannot resolve which method to invoke for [null, class java.lang.String, class com.atlassian.confluence.pages.Page] due to overlapping prototypes between: [interface com.atlassian.confluence.user.ConfluenceUser, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject] [interface com.atlassian.user.User, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject]</p></div>	<div data-bbox="1386 296 1468 336"><ul style="list-style-type: none">• change list</div>
<div data-bbox="131 1392 147 1402">--</div>	<div data-bbox="524 1392 540 1402">all</div>	<div data-bbox="1076 1478 1269 1541">Error rendering macro 'page-info'</div> <div data-bbox="1076 1579 1295 1839"><p>Ambiguous method overloading for method jdk.proxy241.\$Proxy3496#hasContentLevelPermission. Cannot resolve which method to invoke for [null, class java.lang.String,</p></div>	<div data-bbox="1359 1392 1375 1402">--</div>

		<pre>class com.atlassian. confluence.pages.Page] due to overlapping prototypes between: [interface com.atlassian. confluence.user. ConfluenceUser, class java. lang.String, class com. atlassian.confluence.core. ContentEntityObject] [interface com.atlassian. user.User, class java.lang. String, class com.atlassian. confluence.core. ContentEntityObject]</pre>	
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Table x: Document change history.

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Please also note our data protection declaration at <https://www.trenz-electronic.de/en/Data-protection-Privacy>

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Error rendering macro 'page-info'

Ambiguous method overloading for method `jdk.proxy241.$Proxy3496#hasContentLevelPermission`. Cannot resolve which method to invoke for `[null, class java.lang.String, class com.atlassian.confluence.pages.Page]` due to overlapping prototypes between: `[interface com.atlassian.confluence.user.ConfluenceUser, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject]` `[interface com.atlassian.user.User, class java.lang.String, class com.atlassian.confluence.core.ContentEntityObject]`