

system_wrapper.v

AUTHORS

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DATES

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INFORMATION

Brief

System wrapper for pl and ps for hanpilot board.

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system_wrapper

```
module system_wrapper #(
    parameter
    FPGA_TECHNOLOGY
    =
    103,
    parameter
    FPGA_FAMILY
    =
    1,
    parameter
    SPEED_GRADE
```

System wrapper for pl and ps for hanpilot board.

DDR port

hps_ddr_par	DDR port
hps_ddr_alert_n	DDR port
hps_ddr_dqs_p	DDR port
hps_ddr_dqs_n	DDR port
hps_ddr_dq	DDR port
hps_ddr_dbi_n	DDR port
hps_ddr_rzq	DDR port
hps_eth_rxclk	Ethernet Device
hps_eth_rxctl	Ethernet Device
hps_eth_rxd	Ethernet Device
hps_eth_txclk	Ethernet Device
hps_eth_txctl	Ethernet Device
hps_eth_txd	Ethernet Device
hps_eth_mdc	Ethernet Device
hps_eth_mdio	Ethernet Device
hps_sdio_clk	SD card interface
hps_sdio_cmd	SD card interface
hps_sdio_d	SD card interface
hps_usb_clk	USB interface
hps_usb_dir	USB interface
hps_usb_nxt	USB interface
hps_usb_stp	USB interface
hps_usb_d	USB interface
hps_uart_rx	UART interface
hps_uart_tx	UART interface
hps_i2c_sda	i2c interface
hps_i2c_scl	i2c interface
hps_gpio	GPIO interface
hps_led	LED output, heartbeat
hps_key	Used for reset
gpio_bd_i	fmcomms2-3 gpio
gpio_bd_o	fmcomms2-3 gpio
fmc_i2c_sda	fmcomms2-3 i2c
fmc_i2c_scl	fmcomms2-3 i2c
rx_clk_in	fmcomms2-3 receive clock in
rx_frame_in_p	fmcomms2-3 receive frame
rx_frame_in_n	fmcomms2-3 receive frame
rx_data_in_p	fmcomms2-3 receive lvds data
rx_data_in_n	fmcomms2-3 receive lvds data
tx_clk_out_p	fmcomms2-3 transmit clock
tx_clk_out_n	fmcomms2-3 transmit clock
tx_frame_out_p	fmcomms2-3 transmit frame

tx_frame_out_n	fmcomms2-3 transmit frame
tx_data_out_p	fmcomms2-3 transmit lvds data
tx_data_out_n	fmcomms2-3 transmit lvds data
enable	fmcomms2-3 enable
txnrx	fmcomms2-3 txnrx select
gpio_resetb	fmcomms2-3 gpio reset
gpio_sync	fmcomms2-3 gpio sync
gpio_en_agc	fmcomms2-3 gpio enable agc
gpio_ctl	fmcomms2-3 control
gpio_status	fmcomms2-3 status
spi_csn	fmcomms2-3 spi select
spi_clk	fmcomms2-3 spi clk
spi_mosi	fmcomms2-3 spi output
spi_miso	fmcomms2-3 spi input

INSTANTIATED MODULES

inst_system_pl_wrapper

```

system_pl_wrapper #(
    FPGA_TECHNOLOGY(FPGA_TECHNOLOGY),
    FPGA_FAMILY(FPGA_FAMILY),
    SPEED_GRADE(SPEED_GRADE),
    DEV_PACKAGE(DEV_PACKAGE),
    ADC_INIT_DELAY(ADC_INIT_DELAY),
    DAC_INIT_DELAY(DAC_INIT_DELAY),
    DELAY_REFCLK_FREQUENCY(DELAY_REFCLK_FREQUENCY)
) inst_system_pl_wrapper ( .axi_aclk(s_axi_clk), .axi_aresetn(s_axi_aresetn)

```

Module instance of system_pl_wrapper for the fmcomms2-3 device.

inst_system_ps_wrapper

```

system_ps_wrapper inst_system_ps_wrapper (
    s_axi_clk_clk(s_axi_clk),
    s_axi_aresetn_reset_n(s_axi_aresetn),
    m_axi_awaddr(w_axi_awaddr),
    m_axi_awprot(w_axi_awprot),
    m_axi_awvalid(w_axi_awvalid),

```

m_axi_awready(w_axi_awready),	.
m_axi_wdata(w_axi_wdata),	.
m_axi_wstrb(w_axi_wstrb),	.
m_axi_wvalid(w_axi_wvalid),	.
m_axi_wready(w_axi_wready),	.
m_axi_bresp(w_axi_bresp),	.
m_axi_bvalid(w_axi_bvalid),	.
m_axi_bready(w_axi_bready),	.
m_axi_araddr(w_axi_araddr),	.
m_axi_arprot(w_axi_arprot),	.
m_axi_arvalid(w_axi_arvalid),	.
m_axi_arready(w_axi_arready),	.
m_axi_rdata(w_axi_rdata),	.
m_axi_rresp(w_axi_rresp),	.
m_axi_rvalid(w_axi_rvalid),	.
m_axi_rready(w_axi_rready),	.
sys_delay_clk_clk(s_delay_clk),	.
sys_clk_clk(sys_clk),	.
sys_gpio_bd_in_port(gpio_i[31:0]),	.
sys_gpio_bd_out_port(gpio_o[31:0]),	.
sys_gpio_in_export(gpio_i[63:32]),	.
sys_gpio_out_export(gpio_o[63:32]),	.
sys_hps_rstn_reset_n	.
sys_resetn),	(
sys_rstn_reset_n	.
sys_resetn_s),	(
sys_hps_io_hps_io_phery_emac0_TX_CLK	.
hps_eth_txclk),	(
sys_hps_io_hps_io_phery_emac0_TXD0	.
hps_eth_txd[0]),	(
sys_hps_io_hps_io_phery_emac0_TXD1	.
hps_eth_txd[1]),	(
sys_hps_io_hps_io_phery_emac0_TXD2	.

```

hps_eth_txd[2]),
sys_hps_io_hps_io_phery_emac0_TXD3
hps_eth_txd[3]),
sys_hps_io_hps_io_phery_emac0_RX_CTL
hps_eth_rxctl),
sys_hps_io_hps_io_phery_emac0_TX_CTL
hps_eth_txctl),
sys_hps_io_hps_io_phery_emac0_RX_CLK
hps_eth_rxclk),
sys_hps_io_hps_io_phery_emac0_RXD0
hps_eth_rxd[0]),
sys_hps_io_hps_io_phery_emac0_RXD1
hps_eth_rxd[1]),
sys_hps_io_hps_io_phery_emac0_RXD2
hps_eth_rxd[2]),
sys_hps_io_hps_io_phery_emac0_RXD3
hps_eth_rxd[3]),
sys_hps_io_hps_io_phery_emac0_MDIO
hps_eth_mdio),
sys_hps_io_hps_io_phery_emac0_MDC
hps_eth_mdc),
sys_hps_io_hps_io_phery_sdmmc_CMD
hps_sdio_cmd),
sys_hps_io_hps_io_phery_sdmmc_D0
hps_sdio_d[0]),
sys_hps_io_hps_io_phery_sdmmc_D1
hps_sdio_d[1]),
sys_hps_io_hps_io_phery_sdmmc_D2
hps_sdio_d[2]),
sys_hps_io_hps_io_phery_sdmmc_D3
hps_sdio_d[3]),
sys_hps_io_hps_io_phery_sdmmc_CCLK
hps_sdio_clk),

```

```
sys_hps_io_hps_io_phery_usb0_DATA0
hps_usb_d[0]),
sys_hps_io_hps_io_phery_usb0_DATA1
hps_usb_d[1]),
sys_hps_io_hps_io_phery_usb0_DATA2
hps_usb_d[2]),
sys_hps_io_hps_io_phery_usb0_DATA3
hps_usb_d[3]),
sys_hps_io_hps_io_phery_usb0_DATA4
hps_usb_d[4]),
sys_hps_io_hps_io_phery_usb0_DATA5
hps_usb_d[5]),
sys_hps_io_hps_io_phery_usb0_DATA6
hps_usb_d[6]),
sys_hps_io_hps_io_phery_usb0_DATA7
hps_usb_d[7]),
sys_hps_io_hps_io_phery_usb0_CLK
hps_usb_clk),
sys_hps_io_hps_io_phery_usb0_STP
hps_usb_stp),
sys_hps_io_hps_io_phery_usb0_DIR
hps_usb_dir),
sys_hps_io_hps_io_phery_usb0_NXT
hps_usb_nxt),
sys_hps_io_hps_io_phery_uart1_RX
hps_uart_rx),
sys_hps_io_hps_io_phery_uart1_TX
hps_uart_tx),
sys_hps_io_hps_io_phery_i2c0_SDA
hps_i2c_sda),
sys_hps_io_hps_io_phery_i2c0_SCL
hps_i2c_scl),
sys_hps_io_hps_io_gpio_gpio1_io1
```

```

hps_led),
sys_hps_io_hps_io_gpio_gpio1_io4
hps_key),
sys_hps_io_hps_io_gpio_gpio1_io15(mpu_int),
sys_hps_io_hps_io_gpio_gpio2_io8
hps_gpio[0]),
sys_hps_io_hps_io_gpio_gpio2_io9
hps_gpio[1]),
sys_hps_io_hps_io_gpio_gpio2_io10
hps_gpio[2]),
sys_hps_io_hps_io_gpio_gpio2_io11
hps_gpio[3]),
sys_hps_out_rstn_reset_n
sys_hps_resetn),
sys_hps_fpga_irq1_irq
32{1'b0}},
sys_hps_dma_data_awid(0),
sys_hps_dma_data_awaddr(adc_hp0_axi_awaddr),
sys_hps_dma_data_awlen(adc_hp0_axi_awlen),
sys_hps_dma_data_awsz(adc_hp0_axi_awsz),
sys_hps_dma_data_awburst(adc_hp0_axi_awburst),
sys_hps_dma_data_awlock(0),
sys_hps_dma_data_awcache(adc_hp0_axi_awcache),
sys_hps_dma_data_awprot(adc_hp0_axi_awprot),
sys_hps_dma_data_awvalid(adc_hp0_axi_awvalid),
sys_hps_dma_data_awready(adc_hp0_axi_awready),
sys_hps_dma_data_awuser(0),
sys_hps_dma_data_wid(0),
sys_hps_dma_data_wdata(adc_hp0_axi_wdata),
sys_hps_dma_data_wstrb(adc_hp0_axi_wstrb),
sys_hps_dma_data_wlast(adc_hp0_axi_wlast),
sys_hps_dma_data_wvalid(adc_hp0_axi_wvalid),
sys_hps_dma_data_wready(adc_hp0_axi_wready),

```



```

sys_hps_dma_data_bid(),
sys_hps_dma_data_bresp(adc_hp0_axi_bresp),
sys_hps_dma_data_bvalid(adc_hp0_axi_bvalid),
sys_hps_dma_data_bready(adc_hp0_axi_bready),
sys_hps_dma_data_arid(0),
sys_hps_dma_data_araddr(dac_hp1_axi_araddr),
sys_hps_dma_data_arlen(dac_hp1_axi_arlen),
sys_hps_dma_data_arsize(dac_hp1_axi_arsize),
sys_hps_dma_data_arburst(dac_hp1_axi_arburst),
sys_hps_dma_data_arlock(0),
sys_hps_dma_data_arcache(dac_hp1_axi_arcache),
sys_hps_dma_data_arprot(dac_hp1_axi_arprot),
sys_hps_dma_data_arvalid(dac_hp1_axi_arvalid),
sys_hps_dma_data_arready(dac_hp1_axi_arready),
sys_hps_dma_data_aruser(0),
sys_hps_dma_data_rid(),
sys_hps_dma_data_rdata(dac_hp1_axi_rdata),
sys_hps_dma_data_rresp(dac_hp1_axi_rresp),
sys_hps_dma_data_rlast(dac_hp1_axi_rlast),
sys_hps_dma_data_rvalid(dac_hp1_axi_rvalid),
sys_hps_dma_data_rready(dac_hp1_axi_rready),
sys_hps_ddr_mem_ck(hps_ddr_clk_p),
sys_hps_ddr_mem_ck_n(hps_ddr_clk_n),
sys_hps_ddr_mem_a(hps_ddr_a),
sys_hps_ddr_mem_act_n(hps_ddr_act_n),
sys_hps_ddr_mem_ba(hps_ddr_ba),
sys_hps_ddr_mem_bg(hps_ddr_bg),
sys_hps_ddr_mem_cke(hps_ddr_cke),
sys_hps_ddr_mem_cs_n(hps_ddr_cs_n),
sys_hps_ddr_mem_odt(hps_ddr_odt),
sys_hps_ddr_mem_reset_n(hps_ddr_reset_n),
sys_hps_ddr_mem_par(hps_ddr_par),
sys_hps_ddr_mem_alert_n(hps_ddr_alert_n),

```

```

sys_hps_ddr_mem_dqs(hps_ddr_dqs_p),
sys_hps_ddr_mem_dqs_n(hps_ddr_dqs_n),
sys_hps_ddr_mem_dq(hps_ddr_dq),
sys_hps_ddr_mem_dbi_n(hps_ddr_dbi_n),
sys_hps_ddr_oct_oct_rzqin(hps_ddr_rzq),
sys_hps_ddr_ref_clk_clk(hps_ddr_ref_clk),
sys_hps_ddr_rstn_reset_n(sys_resetn),
sys_spi_MISO(spi_miso),
sys_spi_MOSI(spi_mosi),
sys_spi_SCLK(spi_clk),
sys_spi_SS_n(spi_csn),
sys_i2c_sda_in(fpga_i2c_sda_in),
sys_i2c_scl_in(fpga_i2c_scl_in),
sys_i2c_sda_oe(fpga_i2c_sda_oe),
sys_i2c_scl_oe(fpga_i2c_scl_oe),
fmc_i2c_sda_in(fmc_i2c_sda_in),
fmc_i2c_scl_in(fmc_i2c_scl_in),
fmc_i2c_sda_oe(fmc_i2c_sda_oe),
fmc_i2c_scl_oe(fmc_i2c_scl_oe),
irq_irq({s_dac_dma_irq, s_adc_dma_irq, {2{1'b0}}})
)

```

Module instance of inst_system_ps_wrapper for the built in CPU.