system_pl_wrapper.v

AUTHORS

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DATES

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INFORMATION

Brief

System wrapper for pl only for zc706 board.

License MIT

system_pl_wrapper

```
module system_pl_wrapper #(
parameter
FPGA_TECHNOLOGY
 =
0,
parameter
FPGA_FAMILY
 =
0,
parameter
SPEED_GRADE
```

```
 =
0,
parameter
DEV_PACKAGE
 =
0,
parameter
ADC_INIT_DELAY
 =
23,
parameter
DAC_INIT_DELAY
 =
0,
parameter
DELAY_REFCLK_FREQUENCY
 =
200
) ( input axi_aclk, input axi_aresetn, input s_axi_awvalid, input [31:0] s_
```

System wrapper for pl only for zc706 board.

Parameters

FPGA_TECHNOLOGY parameter	Type of FPGA, such as Ultrascale, Arria 10. 1 is for 7 series.
FPGA_FAMILY parameter	Sub type of fpga, such as GX, SX, etc. 4 is for zynq.
SPEED_GRADE parameter	Number that corresponds to the ships recommeneded speed. 20 is for -2.
DEV_PACKAGE parameter	Specify a number that is equal to the manufactures package. 3 is for ff.
DELAY_REFCLK_FREQUENCY parameter	Reference clock frequency used for ad_data_in instances
ADC_INIT_DELAY parameter	Initial Delay for the ADC
DAC_INIT_DELAY parameter	Initial Delay for the DAC

Ports

axi_aclk	AXI Lite control bus
axi_aresetn	AXI Lite control bus
s_axi_awvalid	AXI Lite control bus
s_axi_awaddr	AXI Lite control bus
s_axi_awready	AXI Lite control bus
s_axi_awprot	AXI Lite control bus
s_axi_wvalid	AXI Lite control bus
s_axi_wdata	AXI Lite control bus
s_axi_wstrb	AXI Lite control bus
s_axi_wready	AXI Lite control bus
s_axi_bvalid	AXI Lite control bus
s_axi_bresp	AXI Lite control bus
s_axi_bready	AXI Lite control bus

s_axi_arvalid	AXI Lite control bus
s_axi_araddr	AXI Lite control bus
s_axi_arready	AXI Lite control bus
s_axi_arprot	AXI Lite control bus
s_axi_rvalid	AXI Lite control bus
s_axi_rready	AXI Lite control bus
s_axi_rresp	AXI Lite control bus
s_axi_rdata	AXI Lite control bus
adc_dma_irq	fmcomms2-3 ADC irq
dac_dma_irq	fmcomms2-3 DAC irq
delay_clk	fmcomms2-3 delay clock
rx_clk_in_p	fmcomms2-3 receive clock in
rx_clk_in_n	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
up_enable	fmcomms2-3 enable input
up_txnrx	fmcomms2-3 txnrx select input
tdd_sync_t	fmcomms2-3 TDD sync i/o
tdd_sync_i	fmcomms2-3 TDD sync i/o
tdd_sync_o	fmcomms2-3 TDD sync i/o
adc_m_dest_axi_awaddr	fmcomms2-3 ADC DMA
adc_m_dest_axi_awlen	fmcomms2-3 ADC DMA
adc_m_dest_axi_awsize	fmcomms2-3 ADC DMA
adc_m_dest_axi_awburst	fmcomms2-3 ADC DMA
adc_m_dest_axi_awprot	fmcomms2-3 ADC DMA
adc_m_dest_axi_awcache	fmcomms2-3 ADC DMA
adc_m_dest_axi_awvalid	fmcomms2-3 ADC DMA
adc_m_dest_axi_awready	fmcomms2-3 ADC DMA
adc_m_dest_axi_wdata	fmcomms2-3 ADC DMA
adc_m_dest_axi_wstrb	fmcomms2-3 ADC DMA
adc_m_dest_axi_wready	fmcomms2-3 ADC DMA
adc_m_dest_axi_wvalid	fmcomms2-3 ADC DMA

adc_m_dest_axi_wlast	fmcomms2-3 ADC DMA
adc_m_dest_axi_bvalid	fmcomms2-3 ADC DMA
adc_m_dest_axi_bresp	fmcomms2-3 ADC DMA
adc_m_dest_axi_bready	fmcomms2-3 ADC DMA
dac_m_src_axi_arready	fmcomms2-3 DAC DMA
dac_m_src_axi_arvalid	fmcomms2-3 DAC DMA
dac_m_src_axi_araddr	fmcomms2-3 DAC DMA
dac_m_src_axi_arlen	fmcomms2-3 DAC DMA
dac_m_src_axi_arsize	fmcomms2-3 DAC DMA
dac_m_src_axi_arburst	fmcomms2-3 DAC DMA
dac_m_src_axi_arprot	fmcomms2-3 DAC DMA
dac_m_src_axi_arcache	fmcomms2-3 DAC DMA
dac_m_src_axi_rdata	fmcomms2-3 DAC DMA
dac_m_src_axi_rready	fmcomms2-3 DAC DMA
dac_m_src_axi_rvalid	fmcomms2-3 DAC DMA
dac_m_src_axi_rresp	fmcomms2-3 DAC DMA
dac_m_src_axi_rlast	fmcomms2-3 DAC DMA
iic_sda_fmc	i2c for fmc
iic_scl_fmc	i2c for fmc
iic2intc_irpt	i2c for fmc

INSTANTIANTED MODULES

iic_sda_iobuf

```
ad_iobuf #(
                                                                                .
DATA_WIDTH(1)
) iic_sda_iobuf ( .dio_t (sda_t), .dio_i (sda_o), .dio_o (sda_i), .dio_p (i
```

Tristate i2c sda

iic_scl_iobuf

```
ad_iobuf #(
                                                                                .
DATA_WIDTH(1)
) iic_scl_iobuf ( .dio_t (scl_t), .dio_i (scl_o), .dio_o (scl_i), .dio_p (i
```

Tristate i2c scl

inst_ad9361_pl_wrapper

```
ad9361_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_ad9361_pl_wrapper ( .axi_aclk(axi_aclk), .axi_aresetn(axi_aresetn),
```

Module instance of ad9361_pl_wrapper for the fmcomms2-3 device.

inst_axi_crossbar_pl

```
axi_crossbar_pl inst_axi_crossbar_pl (
                                                                                .
aclk(axi_aclk),                                                                 .
aresetn(axi_aresetn),                                                           .
s_axi_awaddr(s_axi_awaddr),                                                     .
s_axi_awprot(s_axi_awprot),                                                     .
s_axi_awvalid(s_axi_awvalid),                                                   .
s_axi_awready(s_axi_awready),                                                   .
s_axi_wdata(s_axi_wdata),                                                       .
s_axi_wstrb(s_axi_wstrb),                                                       .
s_axi_wvalid(s_axi_wvalid),                                                     .
s_axi_wready(s_axi_wready),                                                     .
s_axi_bresp(s_axi_bresp),                                                       .
s_axi_bvalid(s_axi_bvalid),                                                     .
s_axi_bready(s_axi_bready),                                                     .
s_axi_araddr(s_axi_araddr),                                                     .
s_axi_arprot(s_axi_arprot),                                                     .
s_axi_arvalid(s_axi_arvalid),                                                   .
s_axi_arready(s_axi_arready),                                                   .
s_axi_rdata(s_axi_rdata),                                                       .
s_axi_rresp(s_axi_rresp),                                                       .
s_axi_rvalid(s_axi_rvalid),                                                     .
s_axi_rready(s_axi_rready),
```

```
 m_axi_awaddr({iic_fmc_axi_awaddr, connect_axi_awaddr}),
 m_axi_awprot({iic_fmc_axi_awprot, connect_axi_awprot}),
 m_axi_awvalid({iic_fmc_axi_awvalid, connect_axi_awvalid}),
 m_axi_awready({iic_fmc_axi_awready, connect_axi_awready}),
 m_axi_wdata({iic_fmc_axi_wdata, connect_axi_wdata}),
 m_axi_wstrb({iic_fmc_axi_wstrb, connect_axi_wstrb}),
 m_axi_wvalid({iic_fmc_axi_wvalid, connect_axi_wvalid}),
 m_axi_wready({iic_fmc_axi_wready, connect_axi_wready}),
 m_axi_bresp({iic_fmc_axi_bresp, connect_axi_bresp}),
 m_axi_bvalid({iic_fmc_axi_bvalid, connect_axi_bvalid}),
 m_axi_bready({iic_fmc_axi_bready, connect_axi_bready}),
 m_axi_araddr({iic_fmc_axi_araddr, connect_axi_araddr}),
 m_axi_arprot({iic_fmc_axi_arprot, connect_axi_arprot}),
 m_axi_arvalid({iic_fmc_axi_arvalid, connect_axi_arvalid}),
 m_axi_arready({iic_fmc_axi_arready, connect_axi_arready}),
 m_axi_rdata({iic_fmc_axi_rdata, connect_axi_rdata}),
 m_axi_rresp({iic_fmc_axi_rresp, connect_axi_rresp}),
 m_axi_rvalid({iic_fmc_axi_rvalid, connect_axi_rvalid}),
 m_axi_rready({iic_fmc_axi_rready, connect_axi_rready})
)
```

Module instance of axi_crossbar_pl for the fmcomms2-3 device.

inst_axi_iic_fmc

```
axi_iic_fmc inst_axi_iic_fmc (
 s_axi_aclk(axi_aclk),
 s_axi_aresetn(axi_aresetn),
 iic2intc_irpt(iic2intc_irpt),
 s_axi_awaddr(iic_fmc_axi_awaddr[8:0]),
 s_axi_awvalid(iic_fmc_axi_awvalid),
 s_axi_awready(iic_fmc_axi_awready),
 s_axi_wdata(iic_fmc_axi_wdata),
 s_axi_wstrb(iic_fmc_axi_wstrb),
 s_axi_wvalid(iic_fmc_axi_wvalid),
```

```
                                                                                .
 s_axi_wready(iic_fmc_axi_wready),                                              .
 s_axi_bresp(iic_fmc_axi_bresp),                                                .
 s_axi_bvalid(iic_fmc_axi_bvalid),                                              .
 s_axi_bready(iic_fmc_axi_bready),                                              .
 s_axi_araddr(iic_fmc_axi_araddr[8:0]),                                         .
 s_axi_arvalid(iic_fmc_axi_arvalid),                                            .
 s_axi_arready(iic_fmc_axi_arready),                                            .
 s_axi_rdata(iic_fmc_axi_rdata),                                                .
 s_axi_rresp(iic_fmc_axi_rresp),                                                .
 s_axi_rvalid(iic_fmc_axi_rvalid),                                              .
 s_axi_rready(iic_fmc_axi_rready),                                              .
 sda_i(sda_i),                                                                  .
 sda_o(sda_o),                                                                  .
 sda_t(sda_t),                                                                  .
 scl_i(scl_i),                                                                  .
 scl_o(scl_o),                                                                  .
 scl_t(scl_t),                                                                  .
 gpo()
)
```

Module instance of axi_iic_fmc for the fmcomms2-3 device.