AMBA Wrapper

Summary

There are two modules in AMBA wrappers (as well as a variety of other AMBA modules):

- The CLB2AHB wrapper (a.k.a MLB2AHB) allows the C*Core to become a drop-in replacement for an ARM core. This is useful for systems which already have most AHB/APB components ready. APB blocks would connect via a AHB2APB bridge.

- The CLB2APB wrapper/bridge (a.k.a MLB2APB) allows APB peripherals to be connected to a CLB system. This is useful for systems which have mostly CLB/IPB components ready and need some APB blocks added.

The CLB2AHB wrapper is fully AHB2.0 compatible, including the advanced (but rarely used) features such as split/retry and arbitration. The AHB bus is limited to 32-bit.

The CLB2APB wrapper is fully APB2.0 compatible. The APB bus is also limited to 32-bit.

If the advanced (but rarely used) AHB features such as split/retry are not needed, then we also have a light-weight CLB2AHB wrapper which simply translates the basic AHB signals to CLB format, requiring only a handful of gates.

MLB2AHB input signals:

Signal Name	Source	Description
p_addr[31:0]	MLB	地址
p_treq_b	MLB	传输请求
p_rw_b	MLB	读/写选择
p_tc[2:0]	MLB	Transfer code
p_tsiz[1:0]	MLB	传输的数据大小
p_data_out[31:0]	MLB	来自 CPU 的输出数据
p_lpmd[1:0]	MLB	低电压模式
p_ifetch	MLB	取指令
p_aseq_b	MLB	按顺序传输控制信号
p_abort_b	MLB	传输异常中止信号
p_early_abort_b	MLB	Early version of the transaction abort strobe
p_tbusy_b	MLB	总线传输忙信号

m_tscd_b	MLB	Data bus tri-state enable signal
HCLK	AHB	系统时钟
HRESETn	AHB	异步的系统复位信号
HRDATA[31:0]	AHB	总线读数据信号
HREADY	AHB	传输准备好可以进行的状态信号
HRESP[1:0]	AHB	传输响应信号
HGRANTx	AHB	总线授权信号

MLB2AHB output signals:

Signal Name	Output To	Default Value	Description
HLOCKx	AHB	1b0	传输锁定
HBUSREQx	AHB	1b1	总线请求
HTRANS[1:0]	AHB	2b0	传输类型要求
HWRITE	AHB	1b0	读/写选择
HADDR[31:0]	AHB	32b0	传输地址
HSIZE[2:0]	AHB	3b0	传输数据大小
HBURST[2:0]	AHB	3b0	突发传输类型
HPROT[3:0]	AHB	4b0010	定义传输属性
HWDATA[31:0]	AHB	32b0	写数据
p_ta_b	MLB	1b1	传输握手
p_tea_b	MLB	1b1	传输错误握手
p_data_in[31:0]	MLB	32b0	CPU 的输入数据
m_br_b	MLB	1b1	总线请求信号
m_tbusy_b	MLB	1b1	总线传输忙

MLB2APB input signals:

Signal Name	Source	Description
m_clk	MLB	MLB 系统时钟
m_rst_b	MLB	MLB 系统复位
p_addr[31:0]	MLB	MLB 总线地址信号
p_treq_b	MLB	MLB 总线请求信号

Signal Name	Source	Description
p_rw_b	MLB	MLB 总线读些控制信号
p_tsiz[1:0]	MLB	MLB 总线传输
p_abort_b	MLB	MLB 总线异常放弃信号
p_early_abort_b	MLB	MLB 总线早版本的异常放弃信号
p_tbusy_b	MLB	MLB 总线忙信号
p_data_out[31:0]	MLB	MLB 总线写数据信号
p_ta_in_b	MLB slave	MLB 总线其它从设备的握手信号
p_tea_in_b	MLB slave	MLB 总线其它从设备的错误信号
PRDATA[31:0]	APB	APB总线读数据信号

MLB2APB output signals:

Signal Name	Destination	Default Value	Description
PCLK	APB	-	APB总线时钟
PRESET	APB	1b0	APB总线复位信号
PADDR	APB	(parameter)b0	APB总线地址信号
PWDATA	APB	32b0	APB总线写数据信号
PSELx	APB	(parameter)b0	APB 总线每个从设备对应的选择信号
PENABLE	APB	1b0	APB总线传输的使能信号
PWRITE	APB	1b0	APB总线的读写控制信号；1为写
p_ta_b	MLB	1b1	MLB 总线从设备的握手信号
p_tea_b	MLB	1b1	MLB 总线从设备的传输错误信号
p_data_in[31:0]	MLB	32b0	MLB 总线的读数据信号

Performance and Characteristics

➢ AMBA Gate Number is 2366
➢ Process：0.18μm (WCS, 1.62V, 120°)

Deliverables

The deliverables depend on the business model we use with the customer. We can deliver fully

verified soft or hard blocks, or assist the customer with the integration of our AMBA blocks in their system as required. We also have AMBA versions of our C*Core processors, such as the C310A, which have the CLB2AHB wrapper/gasket integrated inside the core hard macro.

To obtain more information about the AMBA or other C*Core^{TM} products, please contact the C*Core Technology Co., Ltd. by phone: 0512-68091375, email: support@china-core.com or web: http://www.china-core.com.

C*Core™ is a trade mark of C*Core Co., Ltd..