lab5

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1.在 AXI4 协议中，写操作分为哪三类握手，它们在一次写事务中的进行顺序是怎样的?

写地址握手、写数据握手、写回确认握手

1、写地址握手 2、写数据握手 3、写回确认握手

2、你认为为什么要先响应 DCache 的读请求? （提示：请你阅读流水线代码，观察 ICache 请求是否会阻塞 ID 之后的流水线？）

```
assign pc_stall         = stall_by_load_use || stall_by_icache || stall_by_dcache;
assign IF1_IF2_stall    = stall_by_load_use || stall_by_icache || stall_by_dcache;
assign IF2_ID_stall     = stall_by_load_use || stall_by_dcache;
assign ID_EX_stall      = stall_by_dcache;
assign EX_LS_stall      = stall_by_dcache;
assign LS_WB_stall      = stall_by_dcache;
assign icache_stall     = stall_by_load_use || stall_by_dcache;
```

```
assign pc_stall         = stall_by_load_use || stall_by_icache || stall_by_dcache;
assign IF1_IF2_stall    = stall_by_load_use || stall_by_icache || stall_by_dcache;
assign IF2_ID_stall     = stall_by_load_use || stall_by_dcache;
assign ID_EX_stall      = stall_by_dcache;
assign EX_LS_stall      = stall_by_dcache;
assign LS_WB_stall      = stall_by_dcache;
assign icache_stall     = stall_by_load_use || stall_by_dcache;

always_comb begin
```

```
assign pc_set           = flush_by_jump || flush_by_priv_ex || flush_by_exp;
assign IF1_IF2_flush    = flush_by_jump || flush_by_priv_ex || flush_by_exp;
assign IF2_ID_flush     = ((flush_by_jump || flush_by_icache) && !IF2_ID_stall) || flush_by_priv_ex || flush_by_exp;
assign ID_EX_flush      = ((flush_by_jump || flush_by_load_use || flush_by_priv_ex) && !ID_EX_stall) || flush_by_exp;
assign EX_LS_flush      = flush_by_exp;
assign LS_WB_flush      = flush_by_exp;
assign icache_flush     = flush_by_jump || flush_by_priv_ex || flush_by_exp;
```

从verilog代码中看出Icache阻塞不会影响IF之后的流水线，Dcache阻塞会影响WB之前的所有流水线。所以优先相应Dcache

3、你对本次实验有什么意见或建议?

无