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| 阶段 | 异常（按优先级） | 触发 |
| IF阶段 | IF Cache错误 |  |
| IF地址错误 | 地址未对齐：  If (Pc[0]|pc[1]==1)  IF\_addr\_error = Enable;  Else  IF\_addr\_error = Disable;  越界：  If ( ((UM==1)&&(pc>text\_upper\_limit))  || ((UM==0)&&(pc>mainmem\_upper\_limit))  || ((UM==0)&&(ERL==ENABLE)&&(pc  > uncached\_upper\_limit ||  (pc <uncached\_down\_limit))  IF\_addr\_error = Enable;  Else  IF\_addr\_error = Disable; |
| IF总线错误 |  |
| ID阶段 | 未定义的系统调用 | If((opcode == syscall)&&(系统调用编号未定义))  Undefined\_syscall\_num = Enable ;  Else  Undefined\_syscall\_num = Disable ; |
| 系统调用 | If(opcode == syscall)  Syscall = Enable ;  Else  Syscall = Disable; |
| 断点 | If(opcode ==break)  break= Enable ;  Else  break = Disable; |
| CP0不可用 | 1. 用户模式下cp0不可用时用了特权指令   If((UM==1)&&(cu0==0)&&(opcode ==eret/mfc0/mtc0/DI/EI))  Cp0\_unusable = Enable ;  Else  Cp0\_unusable = Disable; |
| 未知指令 | If(opcode == 未定义的操作码)  Undefined\_ins = Enable;  Else  Undefined\_ins = Disable; |
| EXE阶段 | CP0不可用 | 2. mtc0、mfc0等要访问的寄存器不存在  ((UM==0)&&(cp0[reg] ==未实现)) )  Cp0\_unusable = Enable ;  Else  Cp0\_unusable = Disable; |
| 算术溢出 | Result = a1 op a2  有符号数溢出：  If (a1[31]⊕ a2[31] ==0)  { if ((funct == add/addi)&& (a1[31]⊕result[31] ==1 ))  Signed\_overflow = Enable;  Else  Signed\_overflow = Disable;  }  else if (a1[31]⊕a2[31] ==1)  {if ((funct == sub) && (a1[31]⊕result[31] == 1))  Signed\_overflow = Enable;  Else  Signed\_overflow = Disable;  }  无符号数溢出(对于计算地址的指令)：  注：此处overflow信号的产生借鉴副本B-35  If((opcode ==branch/load类/store类)&&(overflow == enable))  Unsigned\_overflow = Enable;  Else  Unsigned\_overflow = Disable;  最终产生的overflow信号：  Overflow=Signed\_overflow||Unsigned\_overflow |
| MEM阶段 | MEM cache 错误 |  |
|  | MEM地址错误 | 地址不对齐：  If(((opcode == lw/sw)&&(addr[0]||addr[1]==1))  ||((opcode ==lh/sh)&&(addr[0]==1)))  Mem\_addr\_error = Enable;  Else  Mem\_addr\_error = Disable;  越界：  If( ((mem\_write == enable)&&  (  (  (UM==1)&&((addr< text\_upper\_limit)||  (addr>user\_area\_upper\_limit))  )  ||((UM==0)&&(addr>mainmem\_upper\_limit))  )  )  ||(  (mem\_read == enable)&&  (  ((UM==1)&&(addr>user\_area\_upper\_limit))  || ((UM==0)&&(addr>mainmem\_upper\_limit))  )  )  )  Mem\_addr\_error = Enable;  Else  Mem\_addr\_error = Disable; |
|  | MEM总线错误 |  |
| WB阶段 | 无 |  |