	VARIABLE	STAGE1	STAGE2	STAGE3	STAGE4
FETCH()	Wire [31:0] current_pc;	Wire [31:0] inst; Current_pc = PC.read(); Inst=IMAU.read(current_pc); Null=IR.written(inst; Null=PC.inc();			
GPR2READ(arg1, arg2)	Wire [31:0] source0; Wire [31:0] source1;	Source0=GPR.read0(arg1); Source1=GPR.read1(arg2);			
GPR1READ1EXT(arg1, arg2)	Wire [31:0] source0; Wire [31:0] source1;	Source0=GPR.read0(arg1); Source1=EXT0.sign(arg2);			
GPR1READ1CONST(arg1, arg2)	Wire [31:0] source0; Wire [31:0] source1;	Wire [15:0] zero_16; Source0=GPR.read0(arg1); Zero_16 = 0000 Source1=<zero_16,arg2>;			
SHIFT(ope, src1, src2)	Wire [31:0] result;	Wire [4:0] shamt; Shamt=src2[4:0]; Result=SFT0.ope(src1,shamt);			
WRITEBACK(arg1, arg2)		Null=GPR.write0(arg1,arg2);			
JUMP()	Wire [31:0] target;	Target=GPR.read0(rs0);	Null=PC.write(target);		
WRITELINKREG()	Wire [31:0] link;	Link=PC.read();			Wire [4:0] reg_num; Reg_num = “11111”; Null=GPR.write0(reg_num,link);
MUL(ope, arg1, arg2)	Wire [31:0] result;	Wire [63:0] tem_result; Temp_result=MUL0.ope(arg1,arg2); Result= tmp_result[31:0];			
DIVIDE(ope, arg1, arg2)	Wire [31:0] result; Wire [31:0] mod_result;	Wire div_flag; <result, mod_result,div_flag>=DIV0.ope(arg1,arg2);			
ALUEXEC(ope, arg1, arg2)	Wire [31:0] result;	Wire [3:0] flag; <result, flag>=ALU0.ope(arg1,arg2);			
COMP()	Wire [3:0] flag;	Flag=ALU0.cmp(source0,source1);		Wire [2:0] tmp_flag; Wire cond1,cond2,cond3,cond4; Wire cond; Wire [30:0] zero31; Wire [31:0] result; Wire [2:0] tmp_flag1; Wire tmp_flag2; Wire [1:0] tmp_flag3; Wire [2:0] tmp_flag4; Zero31=000..00	
JUMPADDR()	Wire [31:0] offset;	Wire [1:0] zero2; Wire [27:0] ext_const; Wire [31:0] tmp_offset; Wire [1:0] first; Wire [29:0] second; Zero2=00 Ext_const=<const,zero2> Temp_offset=EXT1.sign(ext_const); First=tmp_offset[31:30]; second=tmp_offset[31:2]; offset=<first,second>	Wire [31:0] target; Wire [3:0] flag; <target,flag>=ALU0.add(current_pc,offset); Null=PC.write(target);		
BRANCH(ope)	Wire [31:0] offset; Wire [31:0] source0;	Source0=GPR.read(rs0); Offset=EXT0.sign(const)	Wire cond; Wire [31:0] target; Wire [3:0] flag; Cond = source0 ope “000..000” <target,flag>=ALU0.add(current_pc,offset); Null=[cond]PC.write(target);		
LOAD(ope)	Wire [31:0] addr; Wire [31:0] result;	Wire [3:0] flag; <addr,flag>=ALU0.add(source0,source1);	Wire addr_errr; <result,addr_err>=DMAU.ope(addr);	Null=GPR.write0(rd,result);	
STORE(ope)	Wire [31:0] data; base, offset, addr:	Data=GPR.read0(rd) base=GPR.read1(rs0) offset=EXT0.sign(const);	Wire [3:0] flag; <addr,flag>=ALU0.add(base,offset);	Wire addr_err; addr_err=DMAU.ope(addr,data);	
EQ()	Wire [3:0] flag;	Flag=ALU0.cmp(sourc0,source1);		Wire coond; Wire [30:0] zero31; Wire [31:0] result; Zero31=00..000 Cond=flag==”1100”; Result <zero31,cond> Null=GPR.write0(rd,result);	
NE()	Wire [3:0] flag;	Flag=ALU0.cmp(sourc0,source1);		Wire cond; Wire [30:0] zero31; Wire [31:0] result; Zero31=00..000 Cond=flag!=”1100”; Result <zero31,cond> Null=GPR.write0(rd,result);	
MODULO(ope, arg1, arg2)	Wire [31:0] result; Wire [31:0] div_result;	Wire div_flag; <div_result,result,div_flag>=DIV0.ope(arg1,arg2);			
LT(ope)	Wire [3:0] flag;	Flag=ALU0.ope(sourc0,source1);		Wire [2:0] tmp_flag; Wire cond, conod1, cond2; Wire [30:0] zero31; Wire [31:0] result; Zero31=00..000 Tmp_flag=flag[2:0]; Cond1= temp_flag ==010 Cond2= flag ==1001 Cond=cond1 | cond2; Result <zero31,cond> Null=GPR.write0(rd,result);	

GT(ope)	Wire [3:0] flag;	Flag=ALU0.ope(sourc0,source1);		Wire [2:0] tmp_flag; Wire cond, conod1, cond2; Wire [30:0] zero31; Wire [31:0] result; Zero31=00..000 Tmp_flag=flag[2:0]; Cond1= temp_flag ==000 Cond2= flag ==0011 Cond=cond1 | cond2; Result <zero31,cond> Null=GPR.write0(rd,result);	
LE(ope)	Wire [3:0] flag;	Flag=ALU0.ope(sourc0,source1);		Wire [2:0] tmp_flag; Wire cond, conod1, cond2; Wire coond3, cond4; Wire [30:0] zero31; Wire [31:0] result; Zero31=00..000 Tmp_flag=flag[2:0]; Cond1= temp_flag ==010 Cond2= flag ==1001 Cond3= flag ==1100 Cond4=cond1 | cond2; Cond=cond3 | cond4; Result <zero31,cond> Null=GPR.write0(rd,result);	
GE(ope)	Wire [3:0] flag;	Flag=ALU0.ope(sourc0,source1);		Wire cond, conod1, cond2; Wire coond3, cond4; Wire [30:0] zero31; Wire [31:0] result; Wire [2:0] tmp_flag1; Wire [2:0] tmp_flag4; Wire [1:0] tmp_flag3; Wire tmp_flag2; Zero31=00..000 Tmp_flag1=flag[2:0]; Tmp_flag2=flag[3]; Tmp_flag3=flag[1:0]; Tmp_flag4=<tmp_flag2, tmp_flag3>; Cond1= temp_flag1 ==000 Cond2= tmp_flag ==100 Cond3= flag ==0011 Cond4=cond1 | cond2; Cond=cond3 | cond4; Result <zero31,cond> Null=GPR.write0(rd,result);	