```
typedef struct packed {
        rv32i_opcode opcode;
        alu_op aluop;
        cmp_op cmpop;
        logic [1:0] alumux1_sel;
        logic alumux2_sel;
        logic [1:0] pcmux_sel;
        logic cmpmux_sel;
        logic load_pc;
        logic load_regfile;
        logic mem_read;
        logic mem_write;
} rv32i_control_word;
```

Opcode	ID signals	EX signals	MEM signals	WB signals
LUI	ID/EX u_imm	aluop = add alumux1_sel = zero alumux2_sel = u_imm	-	load_regfile = 1
AUIPC	ID/EX u_imm	aluop = add, alumux1_sel = rs1_out alumux2_sel = imm,	-	wb_sel = alu_out load_regfile = 1
JAL	ID/EX j_imm	aluop = add, pcmux_sel = alu_out, alumux1_sel = pc_out, alumux2_sel = j_imm, load_pc = 1	-	wb_sel = alu_out load_regfile = 1
JALR	ID/EX i_imm	alu_op = add, pcmux_sel = alu_out, alumux1_sel = rs1_out alumux2_sel = i_imm, load_pc = 1	-	wb_sel = alu_out load_regfile = 1
BRANCH	ID/EX b_imm	pcmux_sel =pcmux_sel(br_en) load_pc = 1 cmpop = branch3 cmpmux = rs2_out	-	-
LOAD	ID/EX i_imm	alu_op = add alumux1_sel = rs1_out alumux2_sel = i_imm	mem_read = 1	wb_sel = mem_rdata load_regfile = 1
STORE	ID/EX s_imm	alu_op = add	mem_write = 1	-

		alumux1_sel = rs1_out alumux2_sel = s_imm		
REG	-	alu_op = arith3 alumux1_sel = rs1_out alumux2_sel = rs2_out	-	wb_sel = alu_out load_regfile = 1
SLT	-	cmp_op = branch3 cmpmux_sel = rs2_out	-	wb_sel = br_en, load_regfile = 1
SLTU	-	cmp_op = branch3 cmpmux_sel = rs2_out	-	wb_sel = br_en, load_regfile = 1
SRA	-	alu_op = alu_sra alumux1_sel = rs1_out alumux2_sel = rs2_out	-	wb_sel = alu_out load_regfile = 1
IMM	ID/EX i_imm	alu_op = arith3 alumux1_sel = rs1_out alumux2_sel = i_imm	-	wb_sel = alu_out load_regfile = 1
SLTI	ID/EX i_imm	cmp_op = branch3, cmpmux_sel = i_imm	-	wb_sel = br_en load_regfile = 1
STLIU	ID/EX i_imm	cmp_op = branch3, cmpmux_sel = i_imm	-	wb_sel = br_en, load_regfile = 1
SRAI	ID/EX i_imm	alu_op = alu_sra alumux1_sel = rs1_out alumux2_sel = i_imm	-	wb_sel = alu_out load_regfile = 1

Default:
pcmux_sel = pc_plus4
load_pc = 0
alu_op = add
alumux1_sel = rs1_out
alumux2_sel =
mem_read = 0
mem_write = 0
load_regfile = 0
wb_sel = mem_rdata

load_pc will be set by hazard detection unit