1 Control Unit

The control unit takes 4 bit input at PINDx , where x = 3,2,1,0 and sets the appropriate bits and gives output.

Opcode	**Ins**	**ALUOp**	**Branch**	**Jump**	**Bneq**	**Mem** to Reg	**Mem** Read	**Mem** Write	**Reg** Write	**RegDst**	**ALUSrc**
0000	and	011	0	0	0	0	0	0	1	1	0
0001	andi	011	0	0	0	0	0	0	1	0	1
0010	beq	001	1	0	0	0	0	0	0	0	0
0011	j	111	0	1	0	0	0	0	0	0	0
0100	bneq	001	1	0	1	0	0	0	0	0	0
0101	sub	001	0	0	0	0	0	0	1	1	0
0110	subi	001	0	0	0	0	0	0	1	0	1
0111	addi	000	0	0	0	0	0	0	1	0	1
1000	sll	101	0	0	0	0	0	0	1	0	1
1001	or	010	0	0	0	0	0	0	1	1	0
1010	add	000	0	0	0	0	0	0	1	1	0
1011	ori	010	0	0	0	0	0	0	1	0	1
1100	lw	000	0	0	0	1	1	0	1	0	1
1101	srl	110	0	0	0	0	0	0	1	0	1
1110	nor	100	0	0	0	0	0	0	1	1	0
1111	sw	000	0	0	0	0	0	1	0	0	1

Table 1: Control Bits For Opcodes

Opcode (Binary)	**Control (Hex Codes)**
0000	0x606
0001	0x605
0010	0x300
0011	0xe80
0100	0x340
0101	0x206
0110	0x205
0111	0x005
1000	0xa05
1001	0x406
1010	0x006
1011	0x405
1100	0x035
1101	0xc05
1110	0x806
1111	0x009

Table 2: Hex Code of Control bits