

## **Control signals**

Inst type	inst	PCSrc	ResultSrc	MemWrite	ALUControl	ALUSrc	ImmSrc	RegWrite
R-Type	Add	00	00	0	000	0	-	1
R-Type	Sub	00	00	0	001	0	-	1
R-Type	And	00	00	0	010	0	-	1
R-Type	Or	00	00	0	011	0	-	1
R-Type	Slt	00	00	0	100	0	-	1
I-Type	lw	00	01	0	000	1	000	1
I-Type	Addi	00	00	0	000	1	000	1
I-Type	xori	00	00	0	101	1	000	1
I-Type	Ori	00	00	0	011	1	000	1
I-Type	Slti	00	00	0	100	1	000	1
I-Type	jalr	10	10	0	000	1	000	1
S-Type	SW	00	-	1	000	1	001	0
J-Type	Jal	01	10	0		-	100	1
B-Type	Beq	{0,Zero}		0	001	0	010	0
B-Type	Bnq	{0,∼ Zero}		0	001	0	010	0
B-Type	Blt	{0,ALU[31]}		0	001	0	010	0
B-Type	Bge	{0,~ALU[31]}		0	001	0	010	0
U-Type	Lui	10	11	0		-	011	1

## **Standard decoded instructions**

Inst	Opcode	Func3	Func7
Add	0110011	000	0000000
Sub	0110011	000	0100000
And	0110011	111	0000000
Or	0110011	110	0000000
Slt	0110011	010	0000000
lw	0000011	010	
Addi	0010011	000	
xori	0010011	100	
Ori	0010011	110	
Slti	0010011	010	
jalr	1100111	000	
SW	0100011	010	
Jal	1101111		
Beq	1100011	000	
Bnq	1100011	001	
Blt	1100011	100	
Bge	1100011	101	
Lui	0110111		
	Add Sub And Or Slt Iw Addi xori Ori Slti jalr sw Jal Beq Bnq Blt Bge	Add 0110011 Sub 0110011 And 0110011 Or 0110011 Iw 0000011 Addi 0010011 xori 0010011 Slti 0010011 Slti 0010011 Slti 0010011 Jalr 1100111 Beq 1100011 Bnq 1100011 Blt 1100011 Bge 1100011	Add         0110011         000           Sub         0110011         000           And         0110011         111           Or         0110011         110           Slt         0110011         010           Iw         0000011         010           Addi         0010011         000           xori         0010011         100           Ori         0010011         010           jalr         1100111         000           sw         0100011         010           Jal         1101111            Beq         1100011         000           Bnq         1100011         100           Bge         1100011         101