

Category	Instruction	Operands	Operation	Opcode	Fields
No-operation	nop	N/A	none	00 00 00	00 0000 0000 0000 0000 0000 0000
Arithmetic	add	rt,ra,rb	rt <= ra + rb	00 10 00	00 0000 0000 BBBB BAAA AA0T TTTT
	sub	rt,ra,rb	rt <= ra - rb	00 01 00	00 0000 0000 BBBB BAAA AA0T TTTT
	addi	rt,ra,imm	rt <= ra + immediate value	00 10 01	II IIII IIII IIII 0AAA AA0T TTTT
	subi	rt,ra,imm	rt <= ra - immediate value	00 01 01	II IIII IIII IIII 0AAA AA0T TTTT
	inc	rt,ra	rt <= ra + 1	00 10 10	00 0000 0000 0000 0AAA AA0T TTTT
	dec	rt,ra	rt <= ra - 1	00 01 10	00 0000 0000 0000 0AAA AA0T TTTT
Logic	not	rt,ra	rt <= NOT ra	01 11 11	00 0000 0000 0000 0AAA AA0T TTTT
	and	rt,ra,rb	rt <= ra AND rb	01 01 00	00 0000 0000 BBBB BAAA AA0T TTTT
	or	rt,ra,rb	rt <= ra OR rb	01 10 00	00 0000 0000 BBBB BAAA AA0T TTTT
	xor	rt,ra,rb	rt <= ra XOR rb	01 11 00	00 0000 0000 BBBB BAAA AA0T TTTT
	andi	rt,ra,imm	m rt <= ra AND immediate value	01 01 01	II IIII IIII IIII 0AAA AA0T TTTT
	ori	rt,ra,imm	rt <= ra OR immediate value	01 10 01	II IIII IIII IIII 0AAA AA0T TTTT
	xori	rt,ra,imm	rt <= ra XOR immediate value	01 11 01	II IIII IIII IIII 0AAA AA0T TTTT
	shl	rt,ra,n	rt <= ra shifted left by n bits	01 00 01	00 NNNN 0000 0000 0AAA AA0T TTTT
	shr	rt,ra,n	rt <= ra shifted right by n bits	01 00 00	00 NNNN 0000 0000 0AAA AA0T TTTT
	rol	rt,ra,n	n rt <= ra rotated left by n bits	01 00 11	00 NNNN 0000 0000 0AAA AA0T TTTT
rор	rt,ra,n	rt <= ra rotated right by n bits	01 00 10	00 NNNN 0000 0000 0AAA AA0T TTTT	
Transfer	move	rt,ra	rt <= ra	10 00 00	00 0000 0000 0000 0AAA AA0T TTTT
	loadi	rt,addr	rt <= DMEM[addr] {direct addressing}	10 01 01	AA AAAA AAAA AAAA AAAA AA0T TTTT
	loadr	rt,ra	rt <= DMEM[ra] {register indirect addressing}	10 01 10	00 0000 0000 0000 0AAA AA0T TTTT
	loado	rt,ra,off	rt <= DMEM[ra+off] {base plus offset addressing}	10 01 11	00 0000 0000 0000 0AAA AA0T TTTT
	stori	rt,addr	DMEM[addr] <= rb {direct addressing}	10 10 01	AA AAAA AAAA AAAA AAAA AA0T TTTT
	storr	rt,ra	DMEM[ra] <= rb {register indirect addressing}	10 10 10	00 0000 0000 0000 0AAA AA0T TTTT
	storo	rt,ra,off	DMEM[ra+off] <= rb {base plus offset addressing}	10 10 11	00 0000 0000 0000 0AAA AA0T TTTT
control	jmp	off	Jump to IMEM[PC+off]	11 00 00	00 0000 0000 0000 0000 0000 0000
	brc	ra,cond,off	f If condition is true, then jump to IMEM[PC+off], else continue Conditions: ra = 0 ; ra ≠ 0 ; ra = 1; ra < 0; ra > 0; ra ≤ 0; ra ≥ 0	11 10 00	00 0000 0000 0000 0AAA AA00 0CCC