OpenMIPS 实现的所有指令及对应的机器码

B.1 逻辑操作指令

31–26	25–21	20–16	15–11	10–6	5–0	
SPECIAL 000000	rs	rt	rd	00000	AND 100100	and rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	OR 100101	or rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	XOR 100110	xor rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	NOR 100111	nor rd, rs, rt
ANDI 001100	rs	rt	immediate			andi rt, rs, immediate
XORI 001110	rs	rt	immediate			xori rt, rs, immediate
LUI 001111	00000	rt	immediate			lui rt, immediate
ORI 001101	rs	rt	immediate			ori rs, rt, immediate

B.2 移位操作指令

31–26	25–21	20–16	15–11	10–6	5–0	
SPECIAL 000000	00000	rt	rd	sa	SLL 000000	sll rd, rt, sa
SPECIAL 000000	00000	rt	rd	sa	SRL 000010	srl rd, rt, sa
SPECIAL 000000	00000	rt	rd	sa	SRA 000011	sra rd, rt, sa
SPECIAL 000000	rs	rt	rd	00000	SLLV 000100	sllv rd, rt, rs
SPECIAL 000000	rs	rt	rd	00000	SRLV 000110	srlv rd, rt, rs
SPECIAL 000000	rs	rt	rd	00000	SRAV 000111	srav rd, rt, rs

B.3 移动操作指令

31–26	25–21	20–16	15–11	10–6	5–0	
SPECIAL 000000	rs	rt	rd	00000	MOVN 001011	movn rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	MOVZ 001010	movz rd, rs, rt
SPECIAL 000000	00000	00000	rd	00000	MFHI 010000	mfhi rd
SPECIAL 000000	00000	00000	rd	00000	MFLO 010010	mflo rd
SPECIAL 000000	rs	00000	00000	00000	MTHI 010001	mthi rs
SPECIAL 000000	rs	00000	00000	00000	MTLO 010011	mtlo rs

B.4 算术操作指令

31–26	25–21	20–16	15–11	10–6	5–0	
SPECIAL 000000	rs	rt	rd	00000	ADD 100000	add rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	ADDU 100001	addu rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	SUB 100010	sub rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	SUBU 100011	subu rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	SLT 101010	slt rd, rs, rt
SPECIAL 000000	rs	rt	rd	00000	SLTU 101011	sltu rd, rs, rt
SPECIAL 000000	rs	rt	00000	00000	MULT 011000	mult rs, st
SPECIAL 000000	rs	rt	00000	00000	MULTU 011001	multu rs, st
SPECIAL 000000	rs	rt	00000	00000	DIV 011010	div rs, rt
SPECIAL 000000	rs	rt	00000	00000	DIVU 011011	divu rs, rt
SPECIAL2 011100	rs	rt	00000	00000	MADD 000000	madd rs, rt
SPECIAL2 011100	rs	rt	00000	00000	MADDU 000001	maddu rs, rt
SPECIAL2 011100	rs	rt	00000	00000	MSUB 000100	msub rs, rt
SPECIAL2 011100	rs	rt	00000	00000	MSUBU 000101	msubu rs, rt
SPECIAL2 011100	rs	rt	rd	00000	CLZ 100000	clz rd, rs
SPECIAL2 011100	rs	rt	rd	00000	CLO 100001	clo rd, rs
SPECIAL2 011100	rs	rt	rd	00000	MUL 000010	mul rd, rs, st
ADDI 001000	rs	rt	immediate			addi rt, rs, immediate
ADDIU 001001	rs	rt	immediate			addiu rt, rs, immediate
SLTI 001010	rs	rt	immediate			slti rt, rs, immediate
SLTIU 001011	rs	rt	immediate			sltiu rt, rs, immediate

B.5 转移指令

31 26	25 21	20 16	15 11	10 6	5 0	
SPECIAL 000000	rs	00000	00000	00000	JR 001000	jr rs
SPECIAL 000000	rs	00000	rd	00000	JALR 001001	jalr rs或jalr rd, rs
J 000010	instr_index					j target
JAL 000011	instr_index					jal target
BEQ 000100	rs	rt	offset			beq rs, rt, offset
BEQ 000100	00000	00000	offset			b offset
BGTZ 000111	rs	00000	offset			bgtz rs, offset
BLEZ 000110	rs	00000	offset			blez rs, offset
BNE 000101	rs	rt	offset			bne rs, rt, offset
REGIMM 000001	rs	BLTZ 00000	offset			bltz rs, offset
REGIMM 000001	rs	BLTZAL 10000	offset			bltzal rs, offset
REGIMM 000001	rs	BGEZ 00001	offset			bgez rs, offset
REGIMM 000001	rs	BGEZAL 10001	offset			bgezal rs, offset
REGIMM 000001	00000	BGEZAL 10001	offset			bal offset

B.6 加载存储指令

31 26	25 21	20 16	15 0	
LB 100000	base	rt	offset	lb rt, offset(base)
LBU 100100	base	rt	offset	lbu rt, offset(base)
LH 100001	base	rt	offset	lh rt, offset(base)
LHU 100101	base	rt	offset	lhu rt, offset(base)
LW 100011	base	rt	offset	lw rt, offset(base)
SB 101000	base	rt	offset	sb rt, offset(base)
SH 101001	base	rt	offset	sh rt, offset(base)
SW 101011	base	rt	offset	sw rt, offset(base)
LWL 100010	base	rt	offset	lwl rt, offset(base)
LWR 100110	base	rt	offset	lwr rt, offset(base)
SWL 101010	base	rt	offset	swl rt, offset(base)
SWR 101110	base	rt	offset	swr rt, offset(base)
LL 110000	base	rt	offset	ll rt, offset(base)
SC 111000	base	rt	offset	sc rt, offset(base)

B.7 协处理器访问指令

31 26	25 21	20 16	15 11	10 3	2 0	
COP0 010000	MT 00100	rt	rd	00000000	sel	mtc0 rt, rd
COP0 010000	MF 00000	rt	rd	00000000	sel	mfc0 rt, rd

B.8 异常相关指令

31 26	25 21	20 16	15 6	5 0	
SPECIAL 000000	rs	rt	code	TEQ 110100	teq rs, rt
SPECIAL 000000	rs	rt	code	TGE 110000	tge rs, rt
SPECIAL 000000	rs	rt	code	TGEU 110001	tgeu rs, rt
SPECIAL 000000	rs	rt	code	TLT 110010	tlt rs, rt
SPECIAL 000000	rs	rt	code	TLTU 110011	tltu rs, rt
SPECIAL 000000	rs	rt	code	TNE 110110	tne rs, rt
REGIMM 000001	rs	TEQI 01100	immediate		teqi rs, immediate
REGIMM 000001	rs	TGEI 01000	immediate		tgei rs, immediate
REGIMM 000001	rs	TGEIU 01001	immediate		tgeiu rs, immediate
REGIMM 000001	rs	TLTI 01010	immediate		tlti rs, immediate
REGIMM 000001	rs	TLTIU 01011	immediate		tltiu rs, immediate
REGIMM 000001	rs	TNEI 01110	immediate		tnei rs, immediate
SPECIAL 000000	code			SYSCALL 001100	syscall
COP0 010000	CO 1	0000 0000 0000 0000 000		ERET 011000	eret

B.9 空指令及其他指令

31 26	25 21	20 16	15 11	10 6	5 0	
SPECIAL 000000	00000	00000	00000	00000	SLL 000000	nop
SPECIAL 000000	00000	00000	00000	00001	SLL 000000	ssnop
SPECIAL 000000	00000	00000	00000	00001	SYNC 001111	sync
PREF 110011	base	hint	offset			pref