

Sub-conjunto de instruções do MIPS

Grupo	Sintaxe	Tipo	Op	Func	Comentário
Transferência de informação	lb Rdest, Imm16(Rsrc)	I	0x20	-	load byte from memory
	lw Rdest, Imm16(Rsrc)	I	0x23	-	load word from memory
	lbu Rdest, Imm16(Rsrc)	I	0x24	-	load unsigned byte from memory
	sb Rsrc2, Imm16(Rsrc1)	I	0x28	-	store byte to memory
	sw Rsrc2, Imm16(Rsrc1)	I	0x2b	-	store word to memory
	lui Rdest, Imm16	I	0x0f	-	load upper immediate
	mfhi Rdest	R	00	0x10	move from hi
	mflo Rdest	R	00	0x12	move from lo
	mthi Rsrc	R	00	0x11	move to hi
	mtlo Rsrc	R	00	0x13	move to lo
li Rdest, Imm16/32					load immediate
la Rdest, address16/32					load address
move Rdest, Rsrc					move
Operações aritméticas	add Rdest, Rsrc1, Rsrc2	R	00	0x20	addition (with overflow)
	addi Rdest, Rsrc1, Imm16	I	08	-	addition imm. (with ov.)
	addu Rdest, Rsrc1, Rsrc2	R	00	0x21	addition (without overflow)
	addiu Rdest, Rsrc1, Imm16	I	09	-	addition imm. (without ov.)
	sub Rdest, Rsrc1, Rsrc2	R	00	0x22	subtract (with overflow)
	subu Rdest, Rsrc1, Rsrc2	R	00	0x23	subtract (without overflow)
	mult Rsrc1, Rsrc2	R	00	0x18	multiply
	multu Rsrc1, Rsrc2	R	00	0x19	unsigned multiply
	div Rsrc1, Rsrc2	R	00	0x1a	divide
	divu Rsrc1, Rsrc2	R	00	0x1b	unsigned divide
abs Rdest, Rsrc					absolute value
mul Rdest, Rsrc1, Rsrc2					multiply
div Rdest, Rsrc1, Rsrc2					divide
rem Rdest, Rsrc1, Rsrc2					remainder
Operações lógicas e de comparação	and Rdest, Rsrc1, Rsrc2	R	00	0x24	AND
	andi Rdest, Rsrc1, Imm16	I	0x0c	-	AND immediate
	or Rdest, Rsrc1, Rsrc2	R	00	0x25	OR
	ori Rdest, Rsrc1, Imm16	I	0x0d	-	OR immediate
	xor Rdest, Rsrc1, Rsrc2	R	00	0x26	XOR
	xori Rdest, Rsrc1, Imm16	I	0x0e	-	XOR immediate
	nor Rdest, Rsrc1, Rsrc2	R	00	0x27	NOR
	slt Rdest, Rsrc1, Rsrc2	R	00	0x2a	set if less than
slti Rdest, Rsrc1, Imm16	I	0x0a	-	set if less than immediate	
sltu Rdest, Rsrc1, Rsrc2	R	00	0x2b	set if less than unsigned	
sltiu Rdest, Rsrc1, Imm16	I	0x0b	-	set if less than unsigned imm.	
not Rdest, Rsrc					not
Operações de deslocamento de bits	sll Rdest, Rsrc1, Shamt5	R	00	00	shift left logical
	srl Rdest, Rsrc1, Shamt5	R	00	02	shift right logical
	sra Rdest, Rsrc1, Shamt5	R	00	03	shift right arithmetic
	rol Rdest, Rsrc1, Rsrc2				rotate left
ror Rdest, Rsrc1, Rsrc2				rotate right	
Instruções de salto	j address28	J	02	-	jump (absolute addr)
	jr Rsrc	R	00	08	jump register
	beq Rsrc1, Rsrc2, address18	I	04	-	branch on equal (relative addr)
	bne Rsrc1, Rsrc2, address18	I	05	-	branch on not equal (relative addr)
	bgez Rsrc, address18	I	01	01*	br. on greater than equal zero ("")
	bgtz Rsrc, address18	I	07	-	br. on greater than zero ("")
	blez Rsrc, address18	I	06	-	br. on less than equal zero ("")
	bltz Rsrc, address18	I	01	00*	br. on less than zero ("")
jal address28	J	03	-	jump and link (absolute addr)	
jalr Rsrc	R	00	09	jump and link register	
b address18/32					branch unconditional (relative addr)
b<cond> Rsrc1, Rsrc2, address18/32					br. on <cond> = [gt, ge, lt, le] ("")
b<cond>u Rsrc1, Rsrc2, address18/32					br. on <cond> = [gt, ge, lt, le] uns. ("")
Excepção	rfe	R	0x10	0x20	return from exception
	syscall	R	00	0x0c	system call
	break code20	R	00	0x0d	break

* especificado no campo rt

Formatos das instruções e exemplos

Instrução	Tipo	Op/6 bits	Rs/5 bits	Rt/5 bits	Rd/5 bits	Sa/5 bits	Func/6 bits
add \$a0, \$t0, \$s0	R	0	8 (\$t0)	0x10 (\$s0)	4 (\$a0)	0	0x20
addi \$8, \$9, 0x100	I	8	9	8		0x100	
sw \$6, -4(\$7)	I	0x2b	7	6		0xffff(-4)	
beq \$4, \$5, 0x60	I	4	4	5		0x18 (0x60/4)	
j 0x80000	J	2					0x20000 (0x80000/4)

Convenção dos registos do MIPS

Nome	Número	Utilização	Preservado na chamada?
\$zero	0	Constante 0	n.a.
\$v0-\$v1	2-3	Valores para resultados e avaliação de expressões	Não
\$a0-\$a3	4-7	Argumentos	Sim
\$t0-\$t7	8-15	Temporários	Não
\$s0-\$s7	16-23	Seguros	Sim
\$t8-\$t9	24-25	Mais temporários	Não
\$gp	28	Apontador global	Sim
\$sp	29	Apontador para pilha	Sim
\$fp	30	Apontador para a <i>frame</i>	Sim
\$ra	31	Endereço de retorno	Sim

O registo 1 (\$at) está reservado para o *assembler*, os registos 26-27 (\$k0-\$k1) estão reservados para o sistema operativo