

MIPS Instruction Summary

Opcode	Example Assembly	Semantics
add	add \$1, \$2, \$3	\$1 = \$2 + \$3
sub	sub \$1, \$2, \$3	\$1 = \$2 - \$3
add immediate	addi \$1, \$2, 100	\$1 = \$2 + 100
add unsigned	addu \$1, \$2, \$3	\$1 = \$2 + \$3
subtract unsigned	subu \$1, \$2, \$3	\$1 = \$2 - \$3
add immediate unsigned	addiu \$1, \$2, 100	\$1 = \$2 + 100
multiply	mult \$2, \$3	hi, lo = \$2 * \$3
multiply unsigned	multu \$2, \$3	hi, lo = \$2 * \$3
divide	div \$2, \$3	lo = \$2/\$3, hi = \$2 mod \$3
divide unsigned	divu \$2, \$3	lo = \$2/\$3, hi = \$2 mod \$3
move from hi	mfhi \$1	\$1 = hi
move from low	mflo \$1	\$1 = lo
and	and \$1, \$2, \$3	\$1 = \$2 & \$3
or	or \$1, \$2, \$3	\$1 = \$2 \$3
and immediate	andi \$1, \$2, 100	\$1 = \$2 & 100
or immediate	ori \$1, \$2, 100	\$1 = \$2 100
shift left logical	sll \$1, \$2, 10	\$1 = \$2 << 10
shift right logical	srl \$1, \$2, 10	\$1 = \$2 >> 10
load word	lw \$1, 100(\$2)	\$1 = memory[\$2 + 100]
store word	sw \$1, 100(\$2)	memory[\$2 + 100] = \$1
load upper immediate	lui \$1, 100	\$1 = 100 << 16
branch on equal	beq \$1, \$2, label	if (\$1 == \$2) goto label
branch on not equal	bne \$1, \$2, label	if (\$1 != \$2) goto label
set on less than	slt \$1, \$2, \$3	if (\$2 < \$3) \$1 = 1 else \$1 = 0
set on less than immediate	slti \$1, \$2, 100	if (\$2 < 100) \$1 = 1 else \$1 = 0
set on less than unsigned	sltu \$1, \$2, \$3	if (\$2 < \$3) \$1 = 1 else \$1 = 0
set on less than immediate unsigned	sltui \$1, \$2, 100	if (\$2 < 100) \$1 = 1 else \$1 = 0
jump	j label	goto label
jump register	jr \$31	goto \$31
jump and link	jal label	\$31 = PC + 4; goto label