

CSE220 MIPS Reference Sheet

MIPS Instruction Formats

Register format

Op-code	Rs	Rt	Rd		Function code
000000	sssss	ttttt	ddddd	00000	ffffff

Immediate format

Op-code	Rs	Rt	Immediate
ffffff	sssss	ttttt	iiiiiiiiiiiiiiii

Jump format

Op-code	Target
000010	tttttttttttttttttttttttttttttttt

MIPS Arithmetic Instructions

add Rd,Rs,Rt
addu Rd,Rs,Rt
sub Rd,Rs,Rt
subu Rd,Rs,Rt
mult Rs,Rt
multu Rs,Rt
div Rs,Rt
divu Rs,Rt
addi Rt,Rs,Imm
addiu Rt,Rs,Imm

MIPS Data Transfer Instructions

li Rd,immed
la Rd, addr
lb Rt,Imm(Rs)
lh Rt,Imm(Rs)
lwl Rt,Imm(Rs)
lw Rt,Imm(Rs)
lbu Rt,Imm(Rs)
lhu Rt,Imm(Rs)
lwr Rt,Imm(Rs)
sb Rt,Imm(Rs)
sh Rt,Imm(Rs)
swl Rt,Imm(Rs)
sw Rt,Imm(Rs)
swr Rt,Imm(Rs)
lui Rt,Imm
mfhi Rd
mthi Rd
mflo Rd
mtlo Rd
mfc0 Rt,Cd
mtc0 Rt,Cd
move Rd,Rs

MIPS Shift Instructions

sll Rd,Rt,i
srl Rd,Rt,i
sra Rd,Rt,i
sllv Rd,Rt,Rs
srlv Rd,Rt,Rs
srav Rd,Rt,Rs
ror Rd,Rs,Rt
rol Rd,Rs,Rt

MIPS Logical Instructions

and Rd,Rs,Rt
or Rd,Rs,Rt
xor Rd,Rs,Rt
nor Rd,Rs,Rt
slt Rd,Rs,Rt
sltu Rd,Rs,Rt
slti Rt,Rs,Imm
sltiu Rt,Rs,Imm
andi Rt,Rs,Imm
ori Rt,Rs,Imm
xori Rt,Rs,Imm
neg Rd,Rs
abs Rd,Rs
not Rd,Rs
neg Rd,Rs
seq Rd,Rs,Rt
sge Rd,Rs,Rt
sgt Rd,Rs,Rt
sle Rd,Rs,Rt
sne Rd,Rs,Rt

MIPS Conditional Branch Instructions

beq Rs,Rt,addr
bne Rs,Rt,addr
blez Rs,addr
bgtz Rs,addr
bltz Rs,addr
bgez Rs,addr
bltzal Rs,addr
bgezal Rs,addr
beqz Rs,addr
bge Rs,Rt,addr
bgt Rs,Rt,addr
ble Rs,Rt,addr
blt Rs,Rt,addr
bnez Rs,addr

MIPS Unconditional Jump Instructions

jr Rs
jalr Rd,Rs
syscall
j addr
jal addr