

Category	Instruction	Example	Meaning	Comments
Arithmetic	add	add \$s1,\$s2,\$s3	$\$s1 = \$s2 + \$s3$	3 operands; overflow detected
	subtract	sub \$s1,\$s2,\$s3	$\$s1 = \$s2 - \$s3$	3 operands; overflow detected
	add immediate	addi \$s1,\$s2,100	$\$s1 = \$s2 + 100$	+ constant; overflow detected
Logic	and	and \$s1,\$s2,\$s3	$\$s1 = \$s2 \& \$s3$	3 operands; logical AND
	or	or \$s1,\$s2,\$s3	$\$s1 = \$s2 \$s3$	3 operands; logical OR
Data transfer	load word	lw \$s1,100(\$s2)	$\$s1 = \text{Memory}[\$s2 + 100]$	word from memory to register
	store word	sw \$s1,100(\$s2)	$\text{Memory}[\$s2 + 100] = \$s1$	word from register to memory
	load upper immediate	lui \$s1,100	$\$s1 = 100 * 2^{16}$	loads constant in upper 16 bits
Conditional branch	branch on equal	beq \$s1,\$s2,25	if ($\$s1 == \$s2$) goto PC + 4 + 100	equal test; PC relative branch
	set on less than	slt \$s1,\$s2,\$s3	if ($\$s2 < \$s3$) $\$s1 = 1$ else $\$s1 = 0$	compare less than; two's complement
	set less than immediate	slti \$s1,\$s2,100	if ($\$s2 < 100$) $\$s1 = 1$ else $\$s1 = 0$	compare < constant; two's complement
	set less than unsigned	sltu \$s1,\$s2,\$s3	if ($\$s2 < \$s3$) $\$s1 = 1$ else $\$s1 = 0$	compare less than; natural number
	set less than immediate unsigned	sltiu \$s1,\$s2,100	if ($\$s2 < 100$) $\$s1 = 1$ else $\$s1 = 0$	compare < constant; natural number
Unconditional branch	jump	j 2500	goto 10000	Jump to target address