

## الجدول المستخدمة في ترميز التعليمات بلغة الآلة

INSTRUCTION SET			OPCODE
NAME, MNEMONIC	FOR- MAT		/ FUNCT (Hex)
Add	add	R	0 / 20 <sub>hex</sub>
Add Immediate	addi	I	8 <sub>hex</sub>
Add Imm. Unsigned	addiu	I	9 <sub>hex</sub>
Add Unsigned	addu	R	0 / 21 <sub>hex</sub>
And	and	R	0 / 24 <sub>hex</sub>
And Immediate	andi	I	c <sub>hex</sub>
Branch On Equal	beq	I	4 <sub>hex</sub>
Branch On Not Equal	bne	I	5 <sub>hex</sub>
Jump	j	J	2 <sub>hex</sub>
Jump And Link	jal	J	3 <sub>hex</sub>
Jump Register	jr	R	0 / 08 <sub>hex</sub>
Load Byte Unsigned	lbu	I	24 <sub>hex</sub>
Load Halfword Unsigned	lhu	I	25 <sub>hex</sub>
Load Linked	ll	I	30 <sub>hex</sub>
Load Upper Imm.	lui	I	f <sub>hex</sub>
Load Word	lw	I	23 <sub>hex</sub>
Nor	nor	R	0 / 27 <sub>hex</sub>
Or	or	R	0 / 25 <sub>hex</sub>
Or Immediate	ori	I	d <sub>hex</sub>
Set Less Than	slt	R	0 / 2a <sub>hex</sub>
Set Less Than Imm.	slti	I	a <sub>hex</sub>
Set Less Than Imm. Unsigned	sltiu	I	b <sub>hex</sub>
Set Less Than Unsig.	sltu	R	0 / 2b <sub>hex</sub>
Shift Left Logical	sll	R	0 / 00 <sub>hex</sub>
Shift Right Logical	srl	R	0 / 02 <sub>hex</sub>
Store Byte	sb	I	28 <sub>hex</sub>
Store Conditional	sc	I	38 <sub>hex</sub>
Store Halfword	sh	I	29 <sub>hex</sub>
Store Word	sw	I	2b <sub>hex</sub>
Subtract	sub	R	0 / 22 <sub>hex</sub>
Subtract Unsigned	subu	R	0 / 23 <sub>hex</sub>

### BASIC INSTRUCTION FORMATS

	opcode	rs	rt	rd	shamt	funct
R	31	26 25	21 20	16 15	11 10	6 5
I	31	26 25	21 20	immediate		

### REGISTER NAME, NUMBER, USE

NAME	NUMBER	USE
\$zero	0	The Constant Value 0
\$at	1	Assembler Temporary
\$v0-\$v1	2-3	Values for Function Results and Expression Evaluation
\$a0-\$a3	4-7	Arguments
\$t0-\$t7	8-15	Temporaries
\$s0-\$s7	16-23	Saved Temporaries
\$t8-\$t9	24-25	Temporaries
\$k0-\$k1	26-27	Reserved for OS Kernel
\$gp	28	Global Pointer
\$sp	29	Stack Pointer
\$fp	30	Frame Pointer
\$ra	31	Return Address