MIPS64 Instruction Format Ver 3.0
*Note: the list is not comprehensive. For full listing, please refer to the book [See MIPS run, 2nd Edition, chapter 8.6].

J-type

Instruction	Opcode (6)	Offset (26)
J Label	2	Label
JAL Label	3	Label

R-type

Instruction	Opcode (6)	RS (5)	RT (5)	RD (5)	(5)	Func (6)
NOP	0	0	0	0	0	0
JR RS	0	RS	0	0	0	8
JALR RS	0	RS	0	31	0	9
MOVZ RD,RS,RT	0	RS	RT	RD	0	10
MOVN RD,RS,RT	0	RS	RT	RD	0	11
MFHI RD	0	0	0	RD	0	16
MTHI RS	0	RS	0	0	0	17
MFLO RD	0	0	0	RD	0	18
MTLO RS	0	RS	0	0	0	19
DSLLV RD,RS,RT	0	RS	RT	RD	0	20
DSRLV RD,RS,RT	0	RS	RT	RD	0	22
DSRAV RD,RS,RT	0	RS	RT	RD	0	23
DMULT RS,RT	0	RS	RT	0	0	28
DMULTU RS,RT	0	RS	RT	0	0	29
DDIV RS,RT	0	RS	RT	0	0	30
DDIVU RS,RT	0	RS	RT	0	0	31
AND RD,RS,RT	0	RS	RT	RD	0	36
OR RD,RS,RT	0	RS	RT	RD	0	37
XOR RD,RS,RT	0	RS	RT	RD	0	38
NOR RD,RS,RT	0	RS	RT	RD	0	39
SLT RD,RS,RT	0	RS	RT	RD	0	42
SLTU RD,RS,RT	0	RS	RT	RD	0	43
DADDU RD,RS,RT	0	RS	RT	RD	0	45
DSUBU RD,RS,RT	0	RS	RT	RD	0	47
MADD RS,RT	28	RS	RT	0	0	0

R-type (Shift)

Instruction	Opcode (6)	RS (5)	RT (5)	RD (5)	SHF (5)	Func (6)
DSLL RD,RS,SHF	0	0	RS	RD	SHF	56
DSRL RD,RS,SHF	0	0	RS	RD	SHF	58
DSRA RD,RS,SHF	0	0	RS	RD	SHF	59

Extended R-Type

Instruction	Opcode (6)	Ext Opcode (5)	T (5)	S (5)	D(5)	Func (6)
MFCO RD,CS	16	0	RD	CS	0	0
DMFCO RD,CS	16	1	RD	CS	0	0
MTCO RS,CD	16	4	RS	CD	0	0
DMTCO RS,CD	16	5	RS	CD	0	0
MFC1 RD,FS	17	0	RD	FS	0	0
DMFC1 RD,FS	17	1	RD	FS	0	0
MTC1 RS,FD	17	4	RS	FD	0	0
DMTC1 RS,FD	17	5	RS	FD	0	0
ADD.S FD,FS,FT	17	16	FT	FS	FD	0
ADD.D FD,FS,FT	17	17	FT	FS	FD	0
ADD.PS FD,FS,FT	17	22	FT	FS	FD	0
SUB.S FD,FS,FT	17	16	FT	FS	FD	1
SUB.D FD,FS,FT	17	17	FT	FS	FD	1
SUB.PS FD,FS,FT	17	22	FT	FS	FD	1
MUL.S FD,FS,FT	17	16	FT	FS	FD	2
MUL.D FD,FS,FT	17	17	FT	FS	FD	2
MUL.PS FD,FS,FT	17	22	FT	FS	FD	2
DIV.S FD,FS,FT	17	16	FT	FS	FD	3
DIV.D FD,FS,FT	17	17	FT	FS	FD	3
DIV.PS FD,FS,FT	17	22	FT	FS	FD	3
MOV.S FD,FS	17	16	0	FS	FD	6
MOV.D FD,FS	17	22	0	FS	FD	6
MOV.PS FD,FS	17	22	0	FS	FD	6
CVT.S.D FD,FS	17	17	0	FS	FD	32
CVT.S.W FD,FS	17	20	0	FS	FD	32
CVT.S.L FD,FS	17	21	0	FS	FD	32
CVT.D.S FD,FS	17	16	0	FS	FD	33
CVT.D.W FD,FS	17	20	0	FS	FD	33
CVT.D.L FD,FS	17	21	0	FS	FD	33
CVT.W.S FD,FS	17	16	0	FS	FD	36
CVT.W.D FD,FS	17	17	0	FS	FD	36
CVT.L.S FD,FS	17	16	0	FS	FD	37
CVT.L.D FD,FS	17	17	0	FS	FD	37
C.EQ.S FS,FT	17	16	FT	FS	0	50
C.EQ.D FS,FT	17	17	FT	FS	0	50
C.LT.S FS,FT	17	16	FT	FS	0	60
C.LT.D FS,FT	17	17	FT	FS	0	60
C.LE.S FS,FT	17	16	FT	FS	0	62
C.LE.D FS,FT	17	17	FT	FS	0	62
ERET	16	16	0	0	0	24
MADD.S FD,FR,FS,FT	19	FR	FT	FS	FD	32
MADD.D FD,FR,FS,FT	19	FR	FT	FS	FD	33

I-type

Instruction	Opcode (6)	RS (5)	RT (5)	Immediate (16)
BEQ RS,RT,Offset	4	RS	RT	Offset
BNE RS,RT,Offset	5	RS	RT	Offset
BLEZ RS,Offset	6	RS	0	Offset
BGTZ RS,Offset	7	RS	0	Offset
BLTZ RS,Offset	1	RS	0	Offset
BGEZ RS, Offset	1	RS	1	Offset
SLTI RD,RS,IMM	10	RS	RD	IMM
SLTIU RD,RS,IMM	11	RS	RD	IMM
ANDI RD,RS,IMM	12	RS	RD	IMM
ORI RD,RS,IMM	13	RS	RD	IMM
XORI RD,RS,IMM	14	RS	RD	IMM
LUI RD,IMM	15	0	RD	IMM
DADDIU RD,RS,IMM	25	RS	RD	IMM
LB RD, Offset(RS)	32	RS	RD	Offset
LH RD, Offset(RS)	33	RS	RD	Offset
LW RD, Offset(RS)	35	RS	RD	Offset
LBU RD, Offset(RS)	36	RS	RD	Offset
LHU RD, Offset(RS)	37	RS	RD	Offset
LWU RD, Offset(RS)	39	RS	RD	Offset
LD RD, Offset(RS)	55	RS	RD	Offset
SB RT, Offset(RS)	40	RS	RT	Offset
SH RT, Offset(RS)	41	RS	RT	Offset
SW RT, Offset(RS)	43	RS	RT	Offset
SD RT, Offset(RS)	63	RS	RT	Offset
L.S FD, Offset(RS)	49	RS	FD	Offset
L.D FD, Offset(RS)	53	RS	FD	Offset
S.S FT, Offset(RS)	57	RS	FT	Offset
S.D FT, Offset(RS)	61	RS	FT	Offset

Extended I-Type

Instruction	Opcode (6)	Ext Opcode (5)	N (3)	(2)	Immediate (16)
BC1F $fccN Offset (N default to 0)	17	8	N	0	Offset
BC1T $fccN Offset (N default to 0)	17	8	B	1	Offset