

I-type instruction



Encodes: Loads and stores of bytes, half words, words, double words. All immediates ($rt \leftarrow rs \text{ op immediate}$)

Conditional branch instructions (rs is register, rd unused)
Jump register, jump and link register
($rd=0$, rs =destination, $immediate=0$)

R-type instruction



Register-register ALU operations: $rd \leftarrow rs \text{ funct } rt$
Function encodes the data path operation: Add, Sub, . . .
Read/write special registers and moves

J-type instruction



Jump and jump and link
Trap and return from exception

Figure A.22 Instruction layout for MIPS. All instructions are encoded in one of three types, with common fields in the same location in each format.