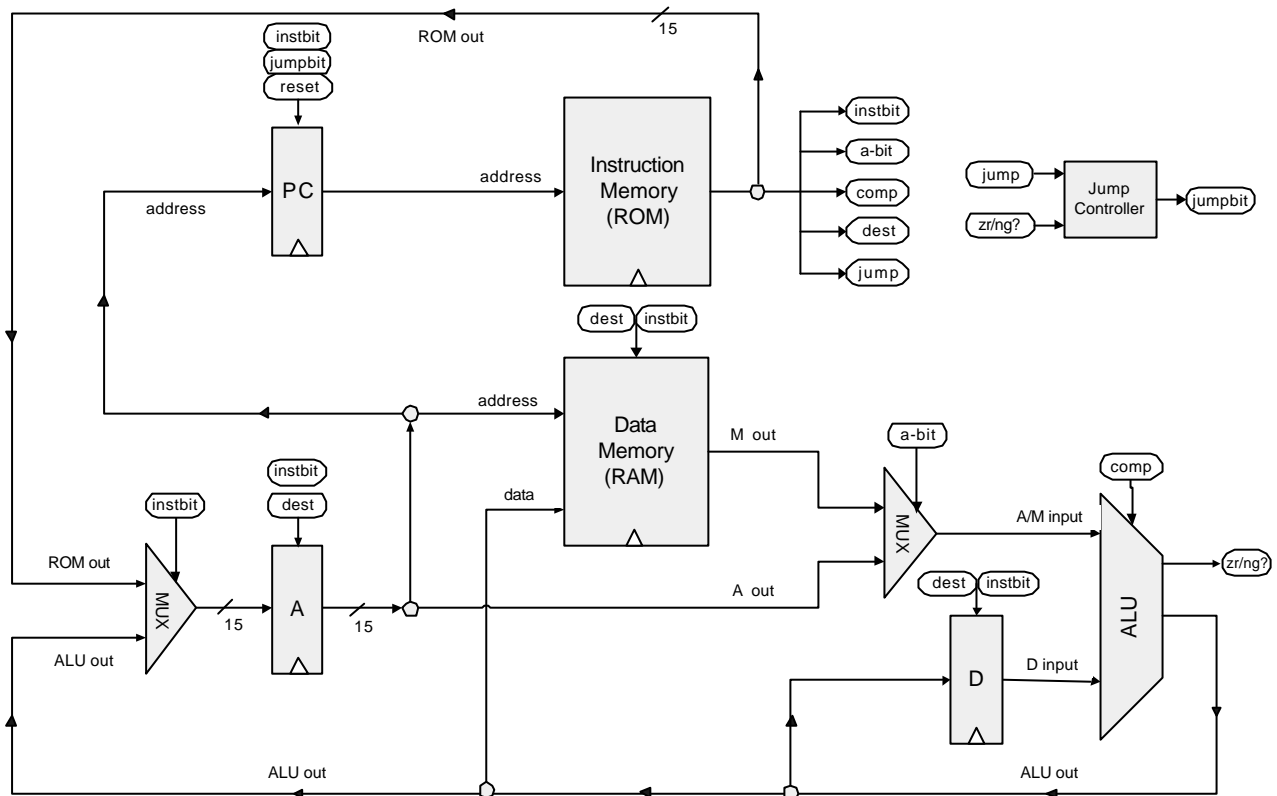


### 3. Overall Architecture

Hack is a single-cycle computer, modeled after the Von-Neumann paradigm, with one major difference. In the Von-Neumann architecture, a single memory unit stores both data and instructions. In Hack, the instruction memory and the data memory are separate units. This separation simplifies the architecture considerably.



**FIGURE 51: The computer architecture.** The data lines are 16-bit and the address lines are 15-bits. The small ovals represent control bits that is emitted by some chips and used by other chips.