



FIGURE e4.5.14 Finite-state machine controllers are typically implemented using a block of combinational logic and a register to hold the current state. The outputs of the combinational logic are the next-state number and the control signals to be asserted for the current state. The inputs to the combinational logic are the current state and any inputs used to determine the next state. In this case, the inputs are the instruction register opcode bits. Notice that in the finite-state machine used in this chapter, the outputs depend only on the current state, not on the inputs. The elaboration below explains this in more detail.