Field name	Values for field	Function of field with specific value
Label	Any string	Used to specify labels to control microcode sequencing. Labels that end in a 1 or 2 are used for dispatching with a jump table that is indexed based on the opcode. Other labels are used as direct targets in the microinstruction sequencing. Labels do not generate control signals directly but are used to define the contents of dispatch tables and generate control for the Sequencing field.
ALU control	Add	Cause the ALU to add.
	Subt	Cause the ALU to subtract; this implements the compare for branches.
	Func code	Use the instruction's funct field to determine ALU control.
SRC1	PC	Use the PC as the first ALU input.
	A	Register A is the first ALU input.
SRC2	B	Register B is the second ALU input.
	4	Use 4 for the second ALU input.
	Extend	Use output of the sign extension unit as the second ALU input.
	Extshft	Use the output of the shift-by-two unit as the second ALU input.
Register control	Read	Read two registers using the rs and rt fields of the IR as the register numbers, putting the data into registers A and B.
	Write ALU	Write the register file using the rd field of the IR as the register number and the contents of ALUOut as the data.
	Write MDR	Write the register file using the rt field of the IR as the register number and the contents of the MDR as the data.
Memory	Read PC	Read memory using the PC as address; write result into IR (and the MDR).
	Read ALU	Read memory using ALUOut as address; write result into MDR.
	Write ALU	Write memory using the ALUOut as address; contents of B as the data.
PCWrite control	ALU	Write the output of the ALU into the PC.
	ALUOut-cond	If the Zero output of the ALU is active, write the PC with the contents of the register ALUOut.
	Jump address	Write the PC with the jump address from the instruction.
Sequencing	Seq	Choose the next microinstruction sequentially.
	Fetch	Go to the first microinstruction to begin a new instruction.
	Dispatch i	Dispatch using the ROM specified by i (1 or 2).

FIGURE 5.7.2 Each field of the microinstruction has a number of values that it can take on. The second column gives the possible values that are legal for the field, and the third column defines the effect of that value. Each field value, other than the label field, is mapped to a particular setting of the datapath control lines; this mapping is described in Appendix C, Section C.5. That section also shows how the label field is used to generate the dispatch tables. As we will see, the microcode implementation will differ slightly from the finite state machine control, but only in ways that do not affect instruction semantics.

Label	ALU control	SRC1	SRC2	Register control	Memory	PCWrite control	Sequencing
Fetch	Add	PC	4		Read PC	ALU	Seq
	Add	PC	Extshft	Read			Dispatch 1
Mem1	Add	A	Extend				Dispatch 2
LW2					Read ALU		Seq
				Write MDR			Fetch
SW2					Write ALU		Fetch
Rformat1	Func code	A	B				Seq
				Write ALU			Fetch
BEQ1	Subt	A	B			ALUOut-cond	Fetch
JUMP1						Jump address	Fetch

FIGURE 5.7.3 The microprogram for the control unit. Recall that the labels are used to determine the targets for the dispatch operations. `Dispatch 1` does a jump based on the IR to a label ending with a 1, while `Dispatch 2` does a jump based on the IR to a label ending with 2.