

- 6.35 (a) Convert the following C-like code to a high-level state machine. (b) Use the RTL design process shown in Table 5.1 to convert the high-level state machine for the C code to a controller and a datapath. Design the datapath to structure, but design the controller to the point of an FSM only. (c) Redesign your datapath to allow for concurrency in which four multiplications and two additions can be performed concurrently.

```
Inputs: byte a[256], b[256]
Output: byte sum, byte c[256]
MULT:
int i=0;
int sum = 0;
while( i < 256 ) {
    c[i] = a[i] * b[i];
    sum = sum + c[i];
    i++;
}
```