Initialization (computer system starts)
1. Initialize input queue to empty

Upper half (application performs write)
1. Deposit data item in queue
2. Use the CSR to request an interrupt
3. Return to application

Lower half (interrupt occurs)
1. If the queue is empty, stop the device from interrupting
2. If the queue is nonempty, extract an item and start output
3. Return from interrupt

Figure 17.4 The steps that the upper and lower halves of a device driver take for an output operation when queueing is used. The upper half forces an interrupt, but does not start output on the device.