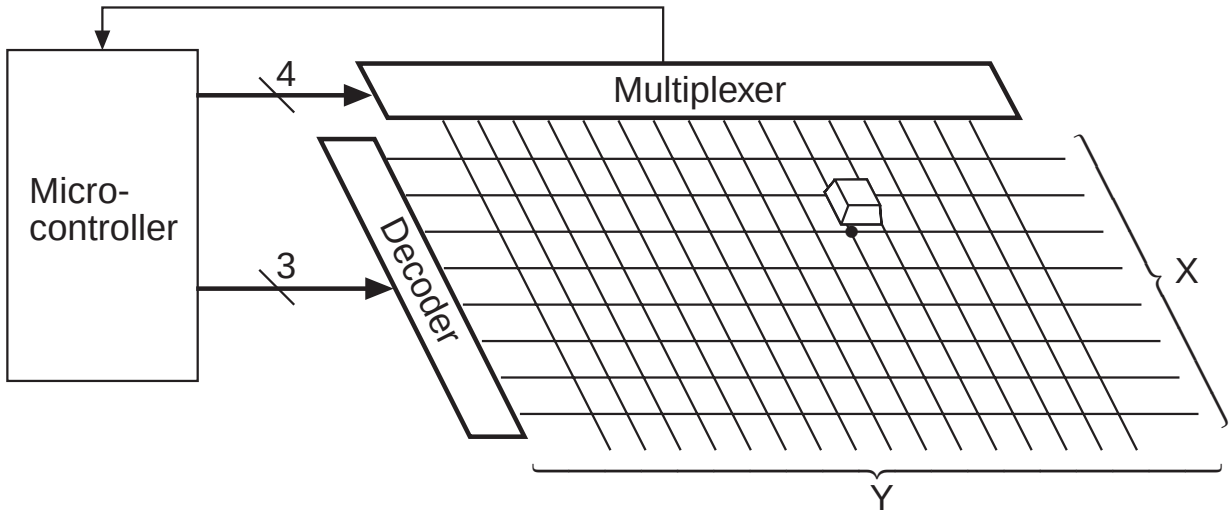
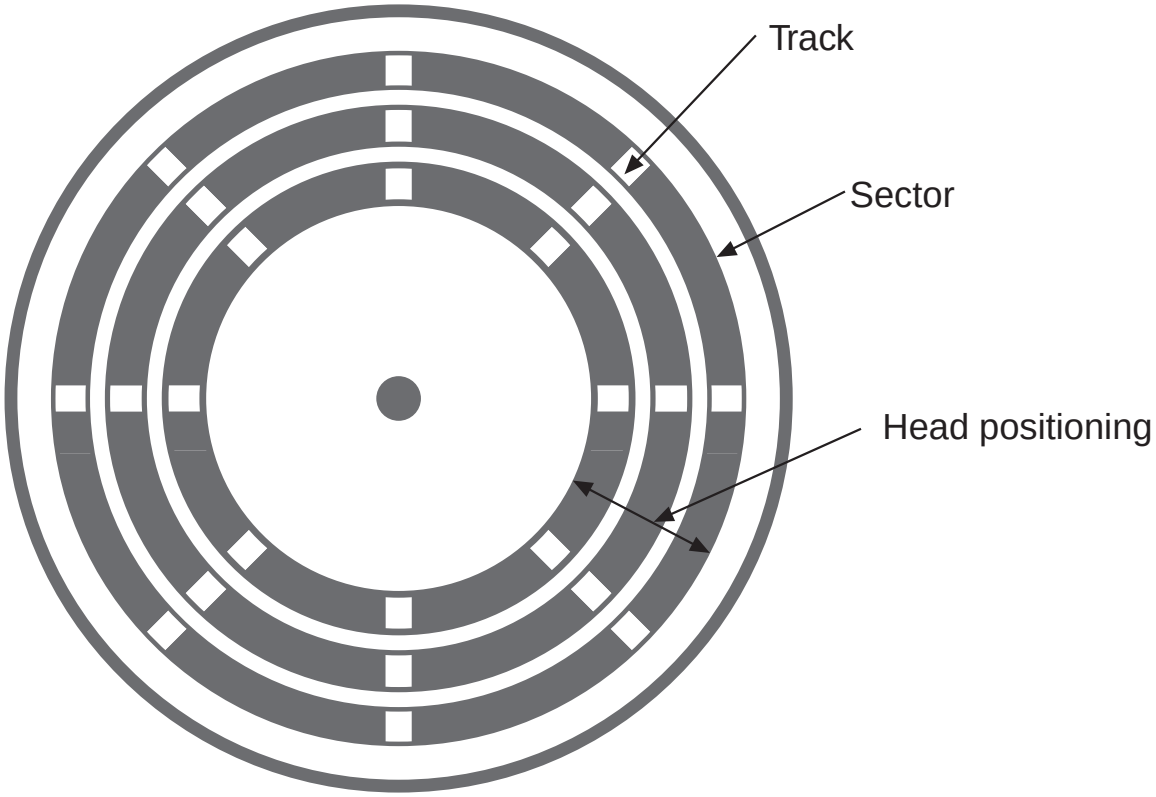
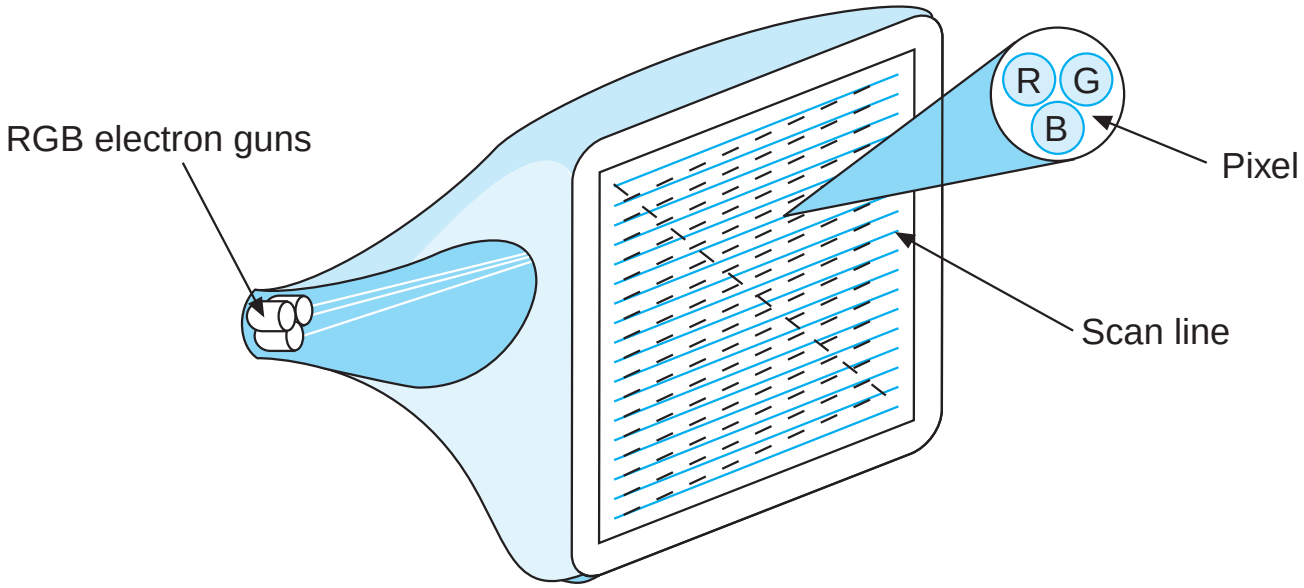
Keyboard Scan Matrix



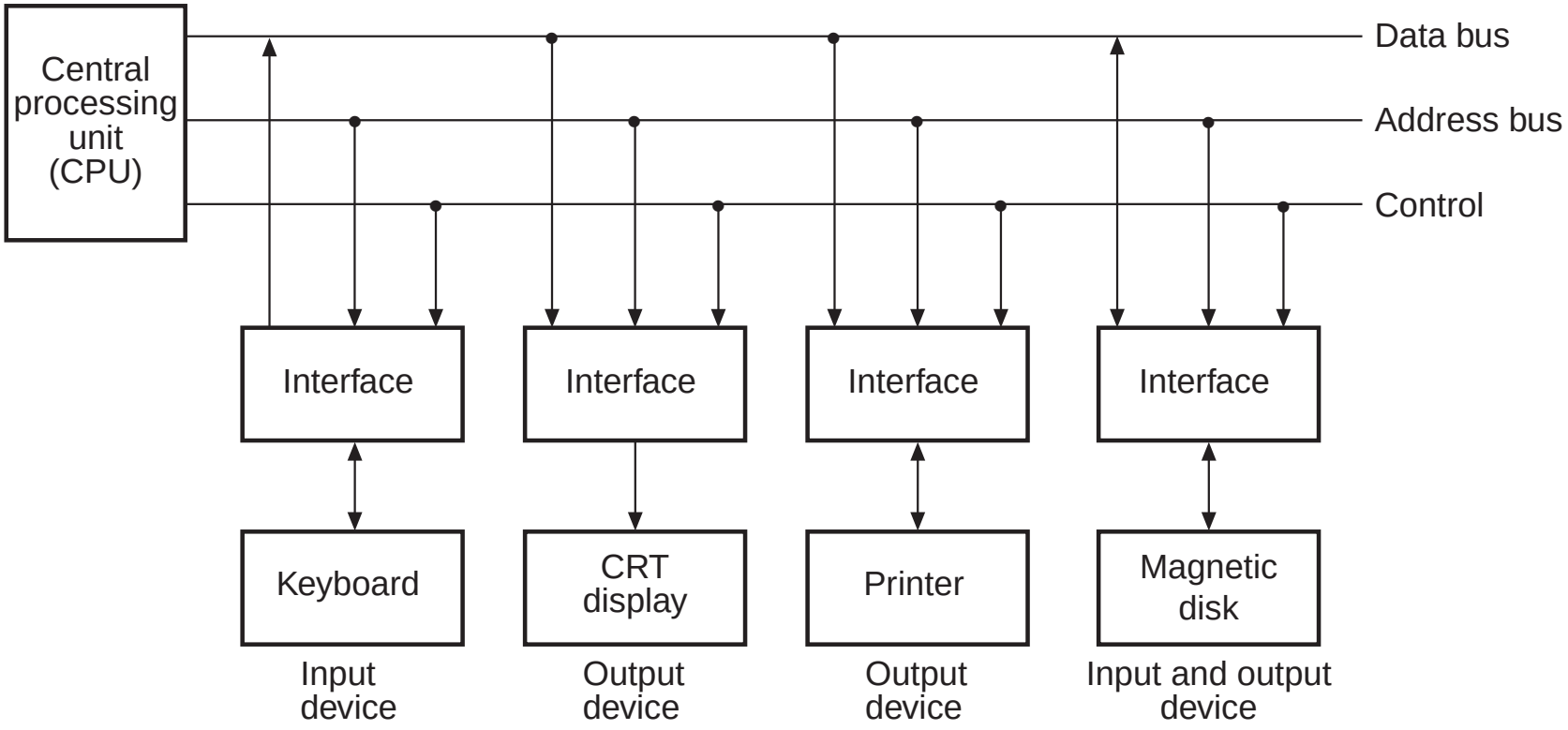
Hard Disk Format



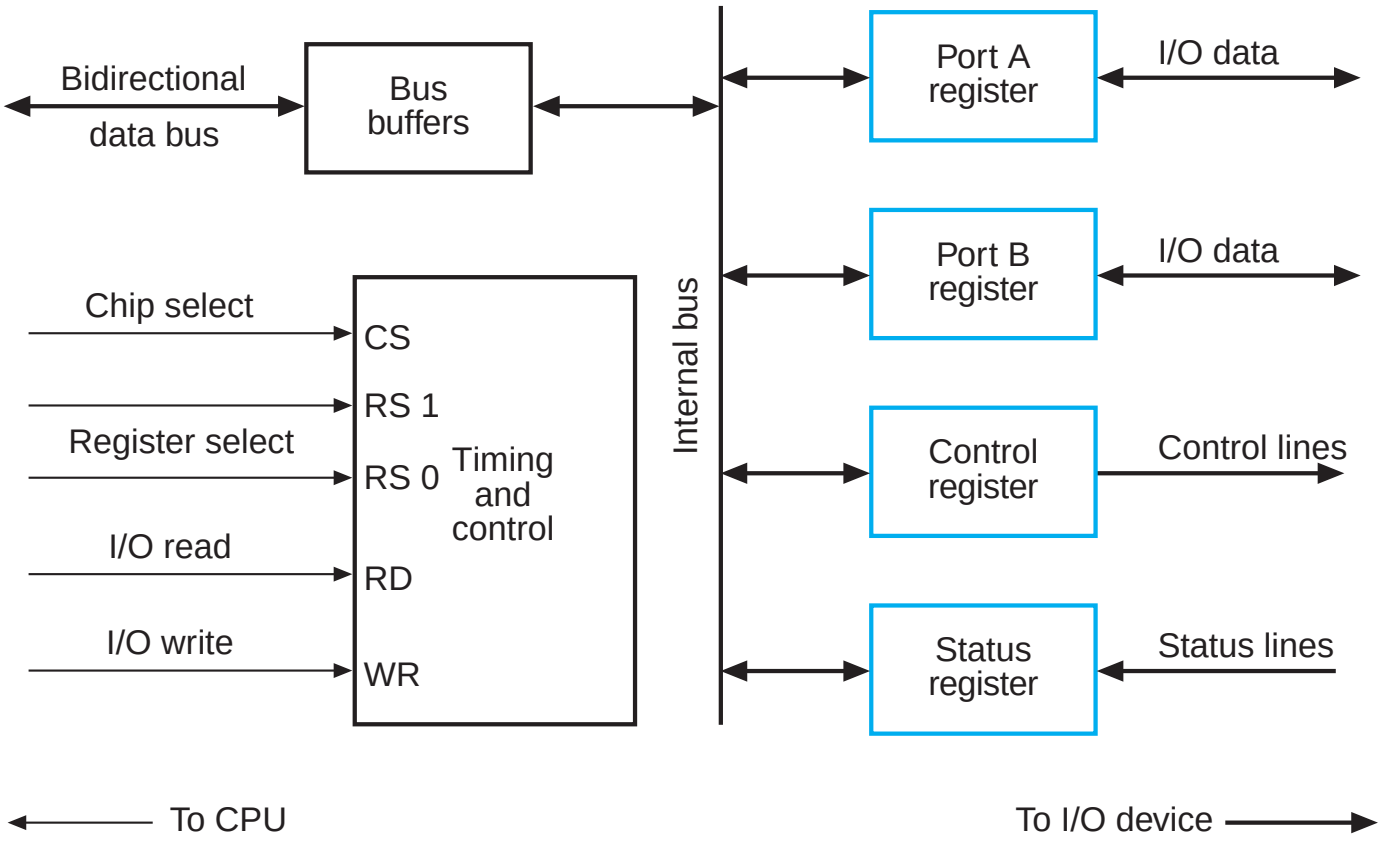
CRT Display



Connection of I/O Devices to CPU

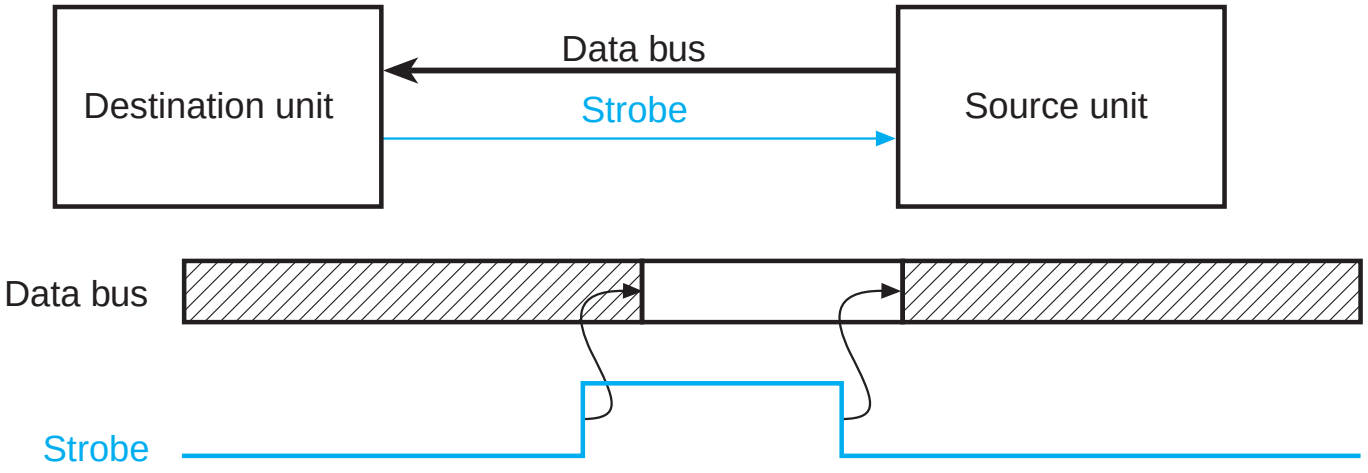


Example of I/O Interface Unit

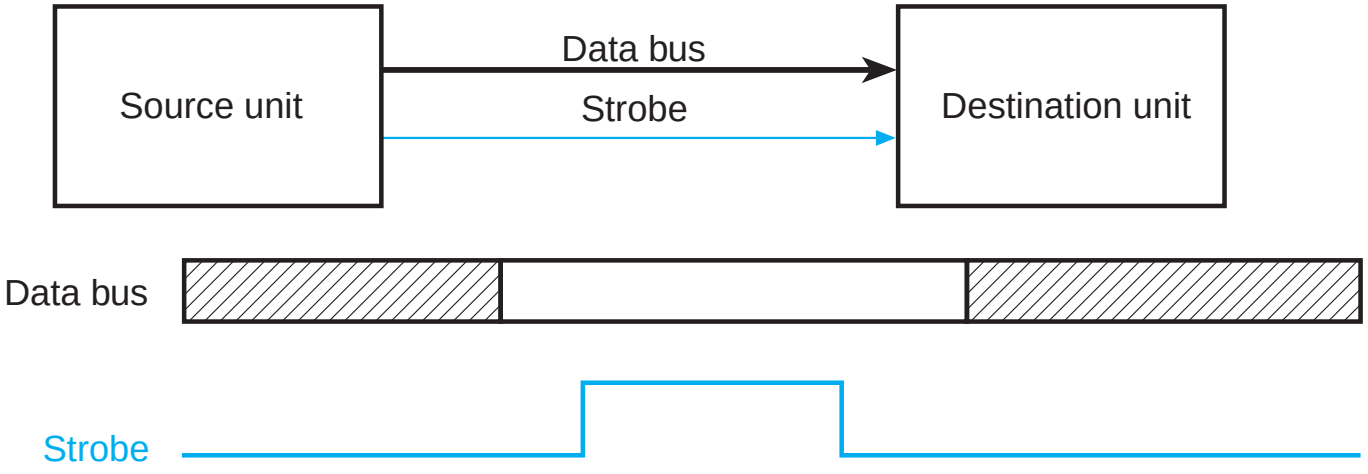


CS	RS1	RS0	Register selected
0	x	x	None: data bus in high-impedance state
1	0	0	Port A register
1	0	1	Port B register
1	1	0	Control register
1	1	1	Status register

Asynchronous Transfer Using Strobing

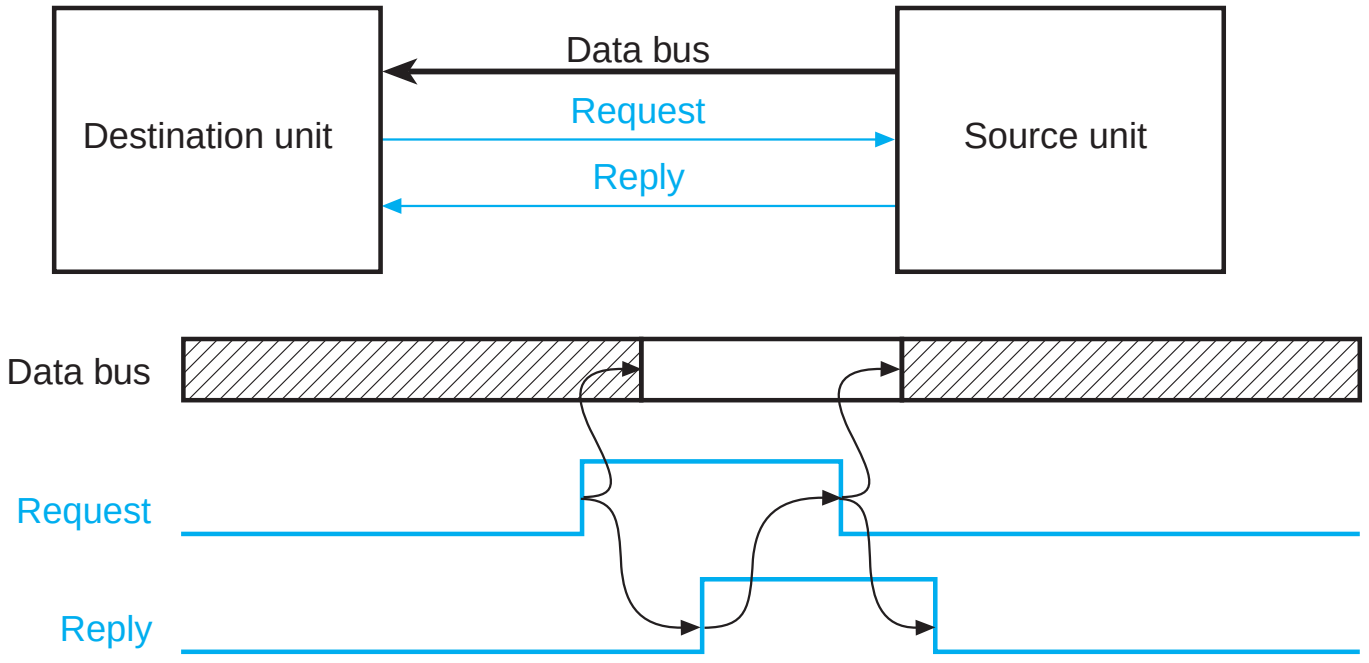


(a) Destination-initiated transfer

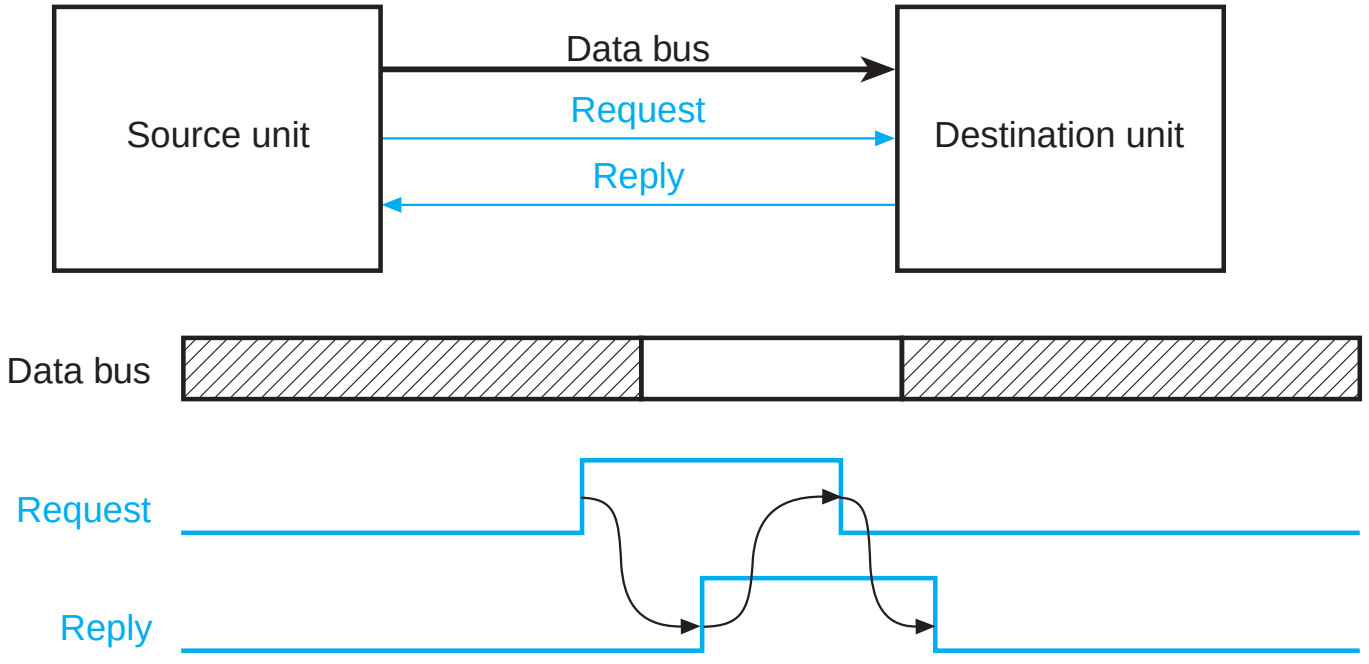


(b) Source-initiated transfer

Asynchronous Transfer Using Handshaking

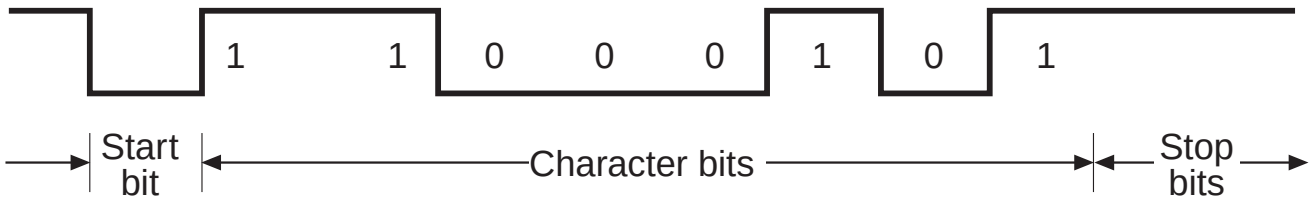


(a) Destination-initiated transfer

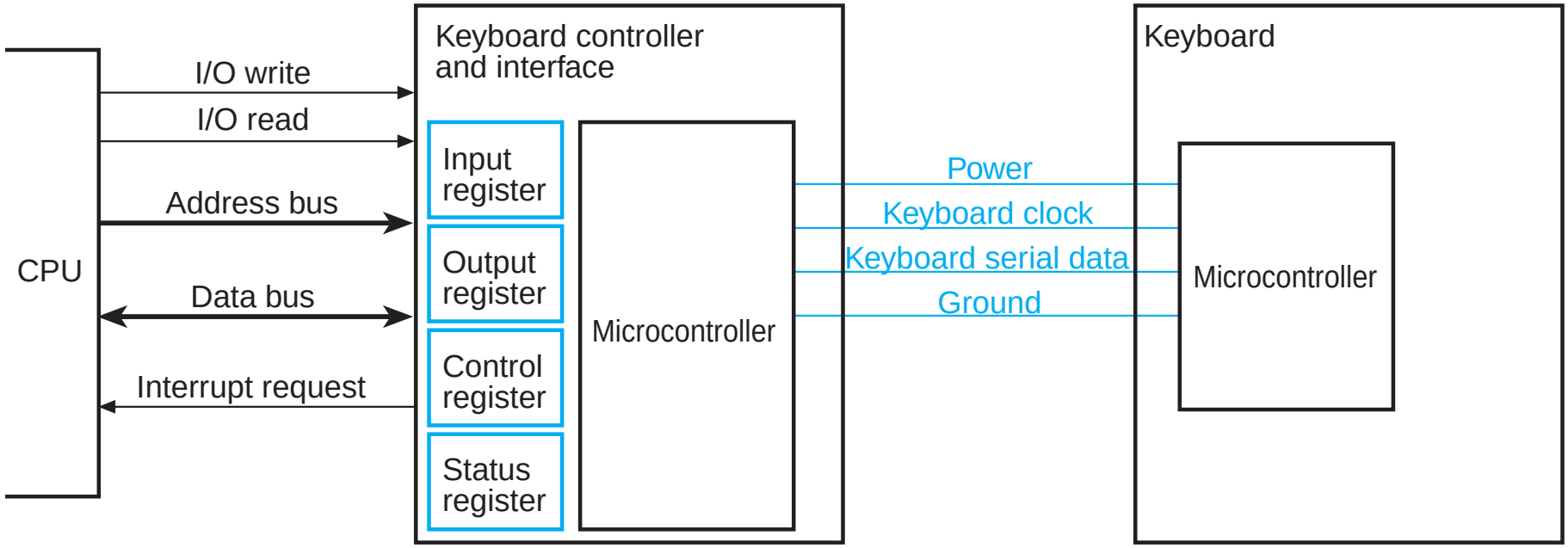


(b) Source-initiated transfer

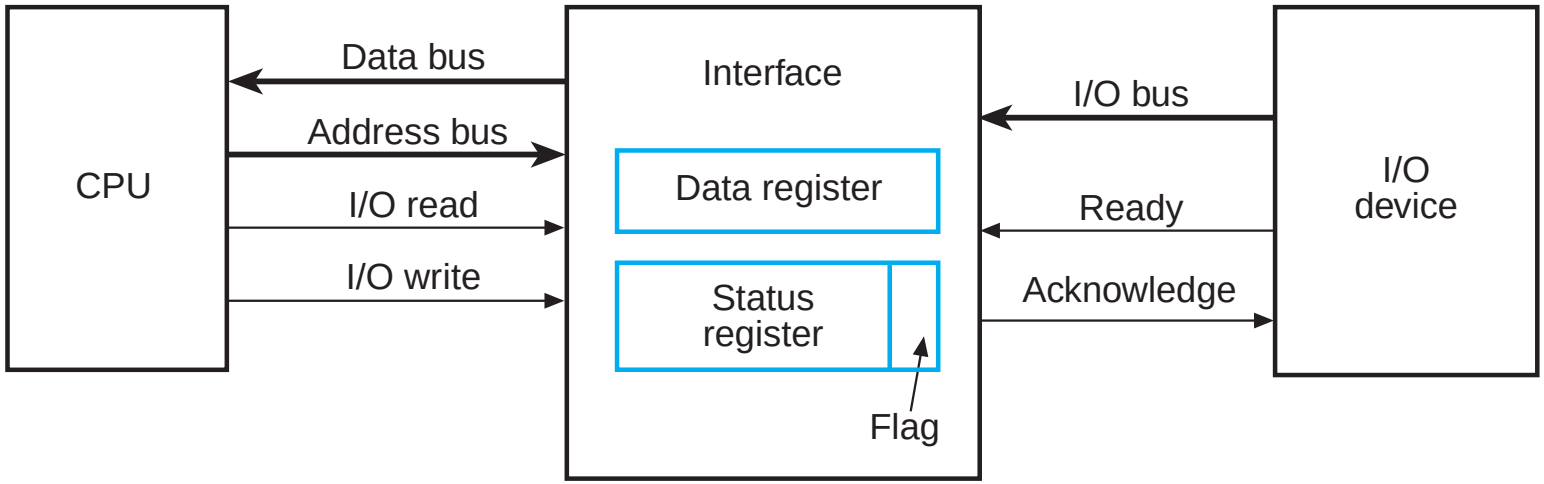
Format of Asynchronous Serial Transfer of Data



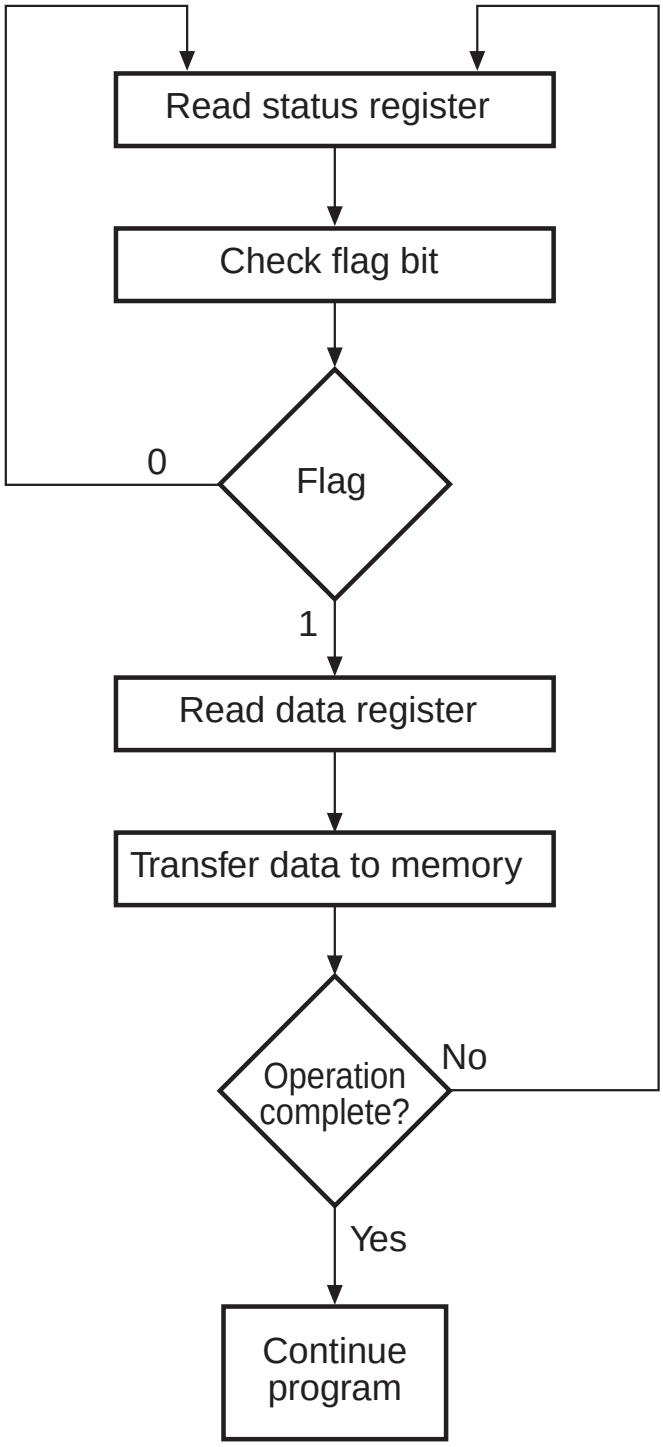
Keyboard Controller and Interface



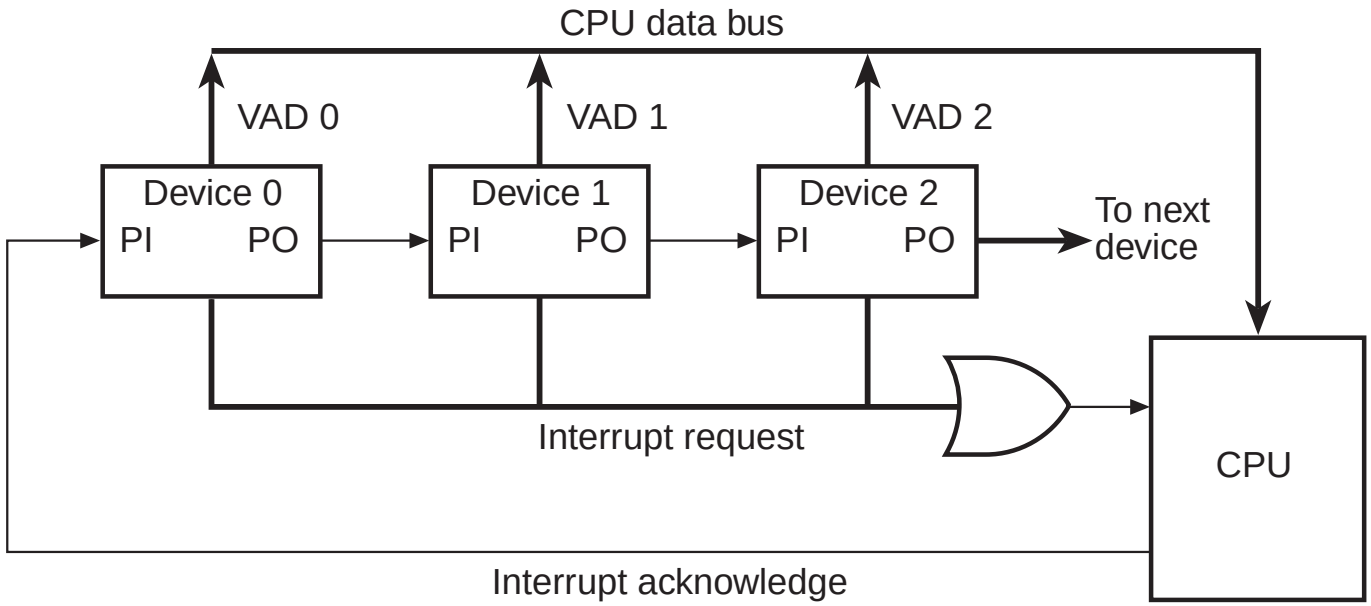
Data Transfer from I/O Device to CPU



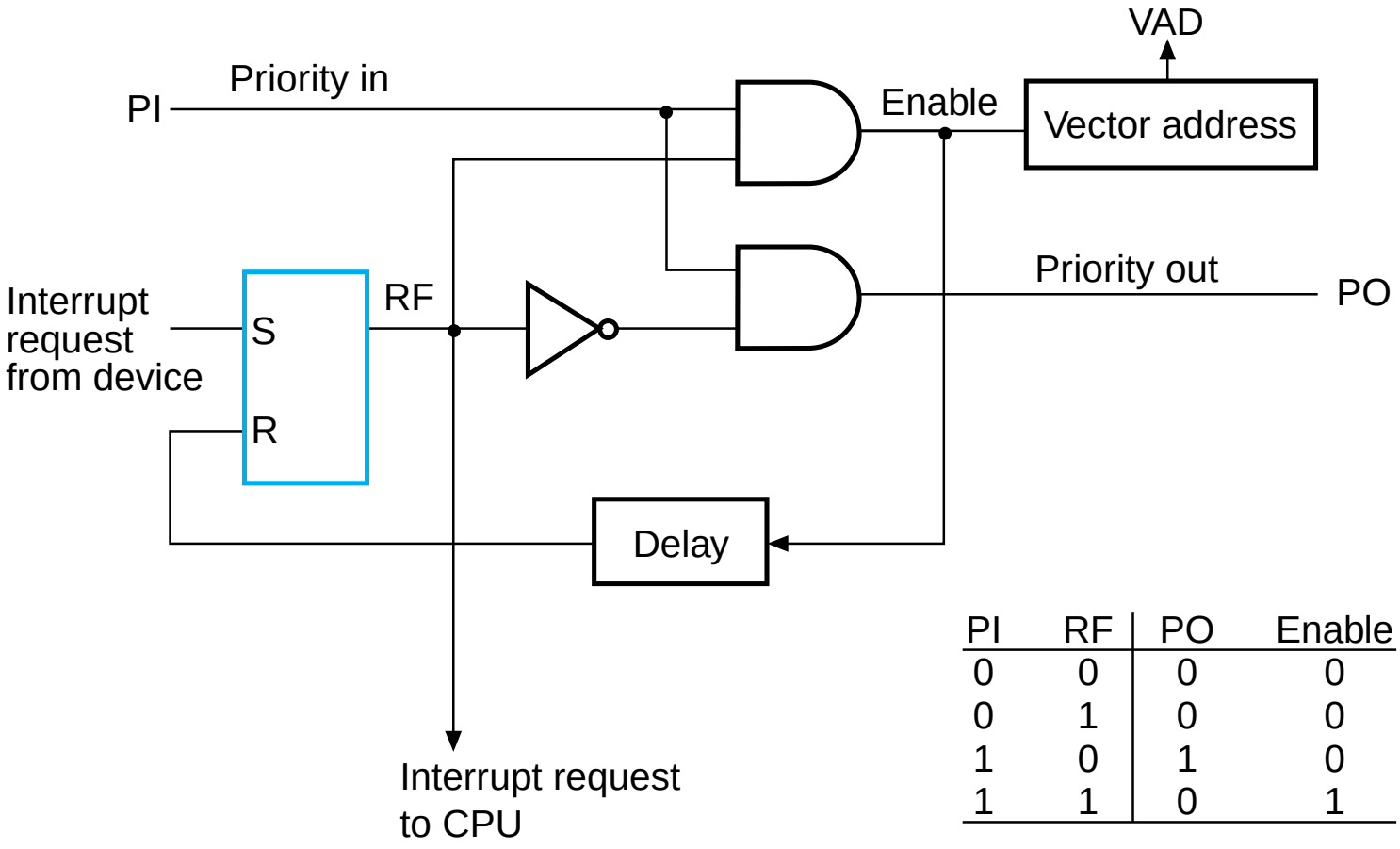
Flowchart for CPU Program to Input Data



Daisy Chain Priority Interrupt



One Stage of the Daisy Chain Priority Arrangement



PI	RF	PO	Enable
0	0	0	0
0	1	0	0
1	0	1	0
1	1	0	1

Parallel Priority Interrupt Hardware

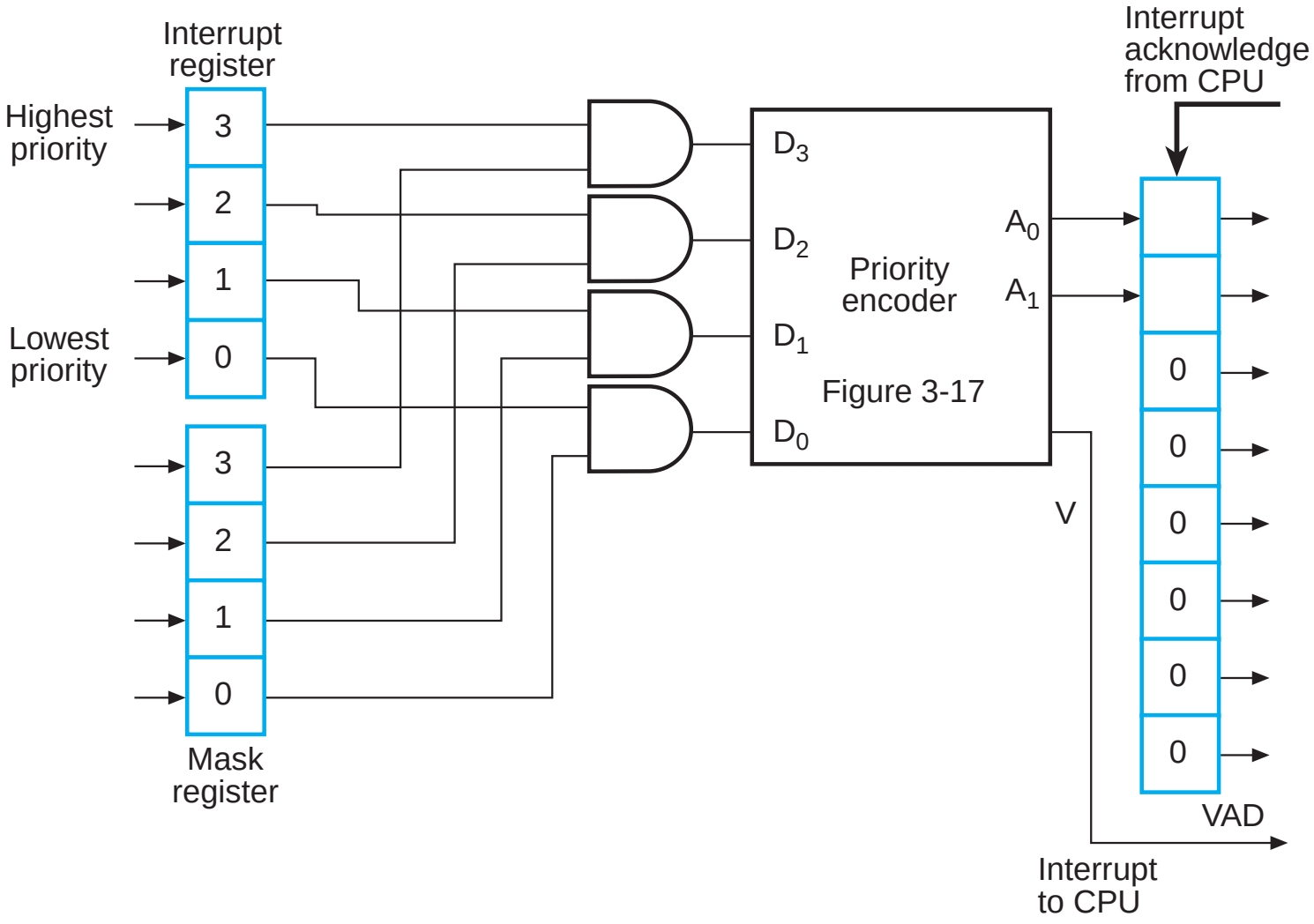
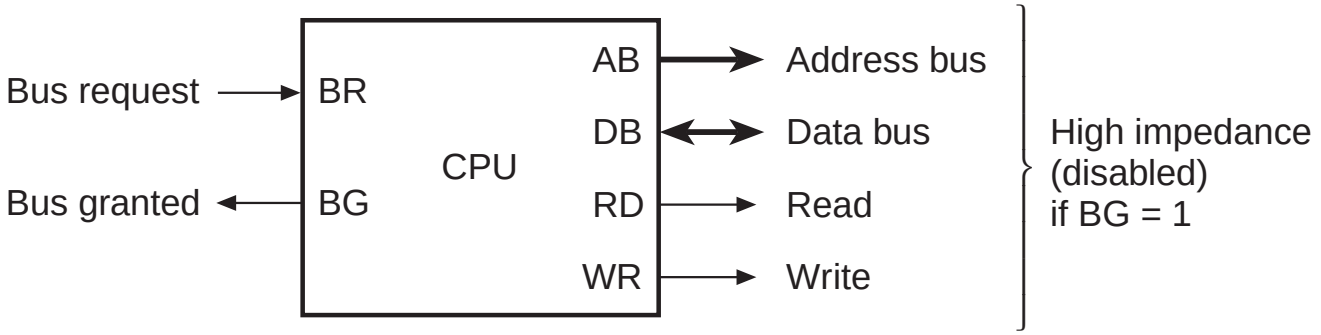
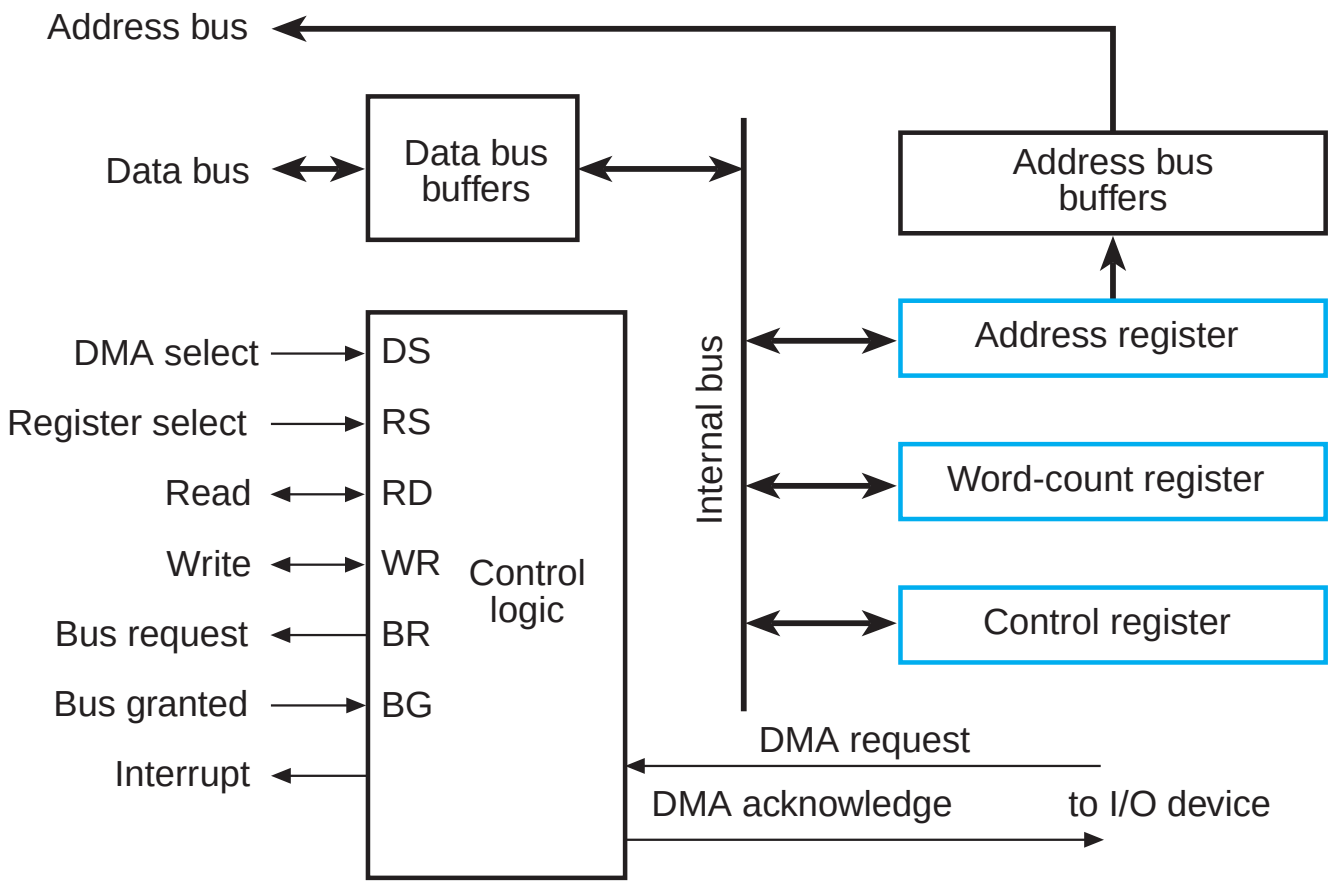


Figure 3-17

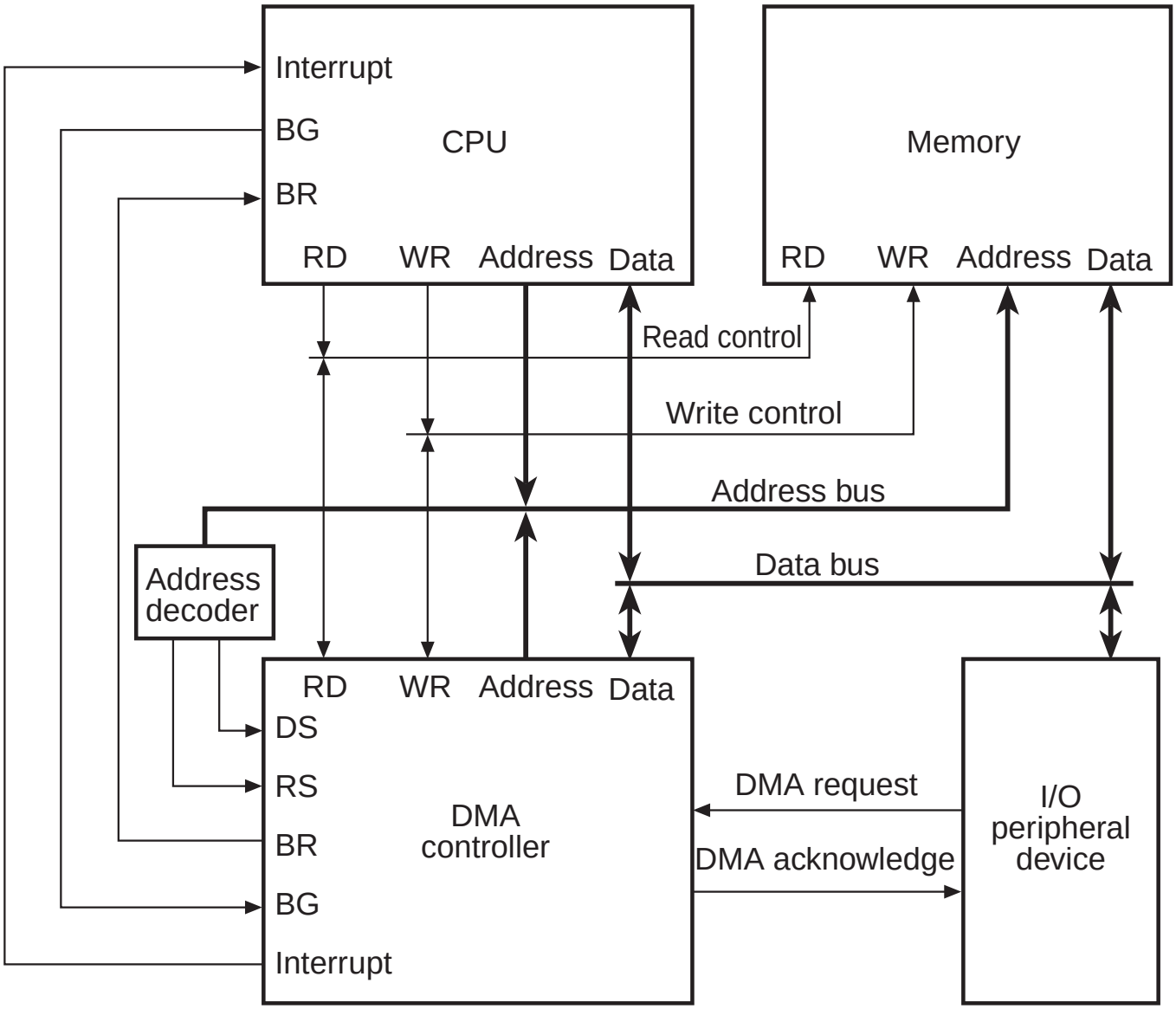
CPU Bus Control Signals



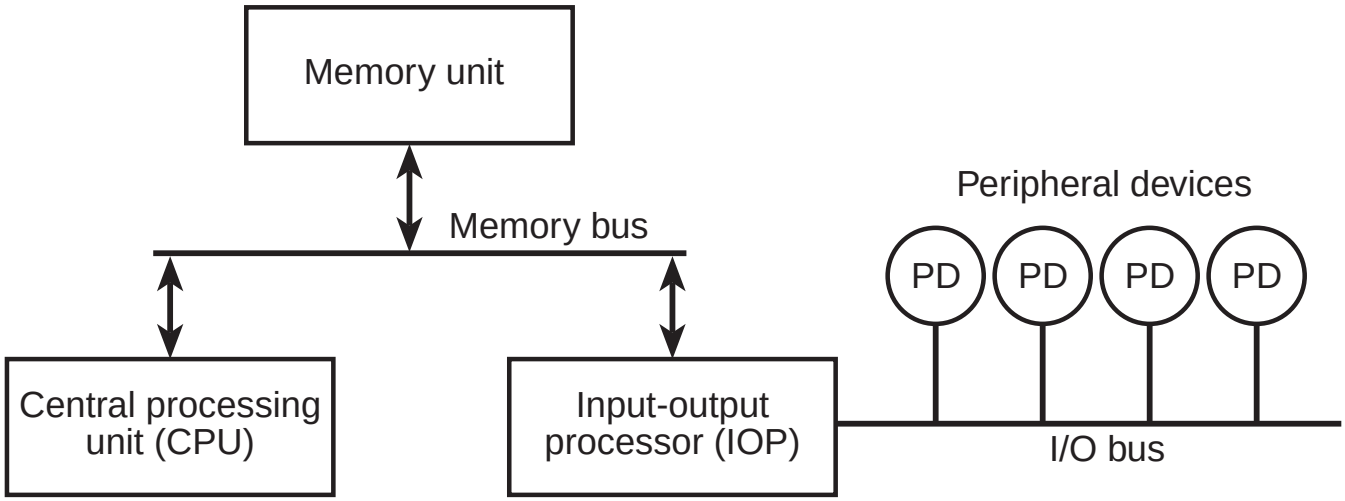
Block Diagram of a DMA Controller



DMA Transfer in a Computer System



T-314 Block Diagram of a Computer with I/O Processor



CPU-IOP Communication