

# Two ways to read/write those registers

## **I/O ports**

`in` and `out` instructions on x86 to read and write devices registers

## **Memory-mapped I/O**

Device registers are available as if they were memory locations and the OS can `load` (to read) or `store` (to write) to the device

# I/O Ports on PC

I/O address range (hexadecimal)	device
000–00F	DMA controller
020–021	interrupt controller
040–043	timer
200–20F	game controller
2F8–2FF	serial port (secondary)
320–32F	hard-disk controller
378–37F	parallel port
3D0–3DF	graphics controller
3F0–3F7	diskette-drive controller
3F8–3FF	serial port (primary)