

- ▶ The CPU doesn't know what it's connected to
  - CPU test bench? network router? toaster? brain implant?
- ▶ The CPU talks to the outside world through its pins
  - some pins to transmit the physical memory address
  - other pins to transmit the values
- ▶ The CPU's gateway to the world is the **front-side bus**

## Intel Core 2 QX6600

- ▶ 33 pins to transmit the physical memory address
  - so there are  $2^{33}$  choices of memory locations
- ▶ 64 pins to send or receive data
  - so data path is 64-bit wide, or 8-byte chunks

This allows the CPU to physically address 64GB of memory ( $2^{33} \times 8B$ )