

The CPU is the brains of a computer. The CPU has a few different functions including directing other components of a computer as well as running mathematical calculations. The CPU can also store small amounts of data inside itself in what are called **registers**. These registers hold data that the CPU is working with at the moment.

For example, say you write a program that reads in a 40 MB data file and then analyzes the file. When you execute the code, the instructions are loaded into the CPU. The CPU then instructs the computer to take the 40 MB from disk and store the data in memory (RAM). If you want to sum a column of data, then the CPU will essentially take two numbers at a time and sum them together. The accumulation of the sum needs to be stored somewhere while the CPU grabs the next number.

This cumulative sum will be stored in a register. The registers make computations more efficient: the registers avoid having to send data unnecessarily back and forth between memory (RAM) and the CPU.