Kohl Johnson

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Activity 5

# Northbridge and Southbridge

The Northbridge is located on the northern side of the motherboard (close to the CPU). Its main function is to manage communications between the CPU and parts of the motherboard. The Southbridge is located (you guessed it) on the southern end of the motherboard near the peripheral component interconnect (PCI). Its main function is controlling the I/O.

Regarding the question “why are there 2 bridges”, I have not found a definitive answer. Since the northbridge is directly connected to the CPU and can manage very high data throughput rates, my guess is that having two bridges separates out components that require high data transfer from those that do not require extremely high data transfer rates, therefore increasing the overall efficiency of the system.

Northbridge manages communications between the CPU, memory, GPU, and I think data storage like HDD and SSDs. The Southernbridge manages the input/output devices, like USBs, serial ports, keyboards, mice, floppy disks, ethernet, audio, and a few others.

According to Geeks for Geeks, the Southernbridge provides direct memory access (DMA) controller support which allows devices to transfer information into memory without the processor’s intervention.

## Sources

General Comparison: <https://www.geeksforgeeks.org/difference-between-north-bridge-and-south-bridge/#>

Speed Differences: <https://www.quora.com/Why-is-the-North-bridge-of-the-motherboard-faster-than-the-South-bridge-when-it-comes-to-transferring-data>

Southernbridge DMA: <https://www.geeksforgeeks.org/south-bridge-and-its-functions/>

# Part A

A screenshot of a computer

Description automatically generated

**Theory of Operation:** Works by first comparing the supplied value against 50 with the -gt (greater than) comparison, if true, prints out that the number is greater than 50. If not, it checks if the value is -eq (equal to) 50, if true, prints that out. Lastly, if its not either of those, than the number must be less than 50 and prints that out.

# Part B

A screenshot of a computer

Description automatically generated

**Theory of Operation:** Code works by using a for loop with n being a number in the set of 1..10 inclusive. Every iteration, it prints out “Number: “ followed by the number in the set.

# Part C

A screenshot of a computer

Description automatically generated

**Theory of Operation:** Code works similar to part B, with file being a file in the returned results of running the “ls” command. From there, we simply echo/print the name of the file.

# Part D

A screenshot of a computer

Description automatically generated

**Theory of Operation:** Code works by first initializing “i” to 1, then running a while loop until “i” is greater than 10 (or while I is less than equal to 10). From there we echo out the current iteration and increment the value of i.

# Part E

A screenshot of a computer

Description automatically generated

**Theory of Operation:** Code works by first setting the search name to “Kohl”. From there we store each line of the file in an array called “names” using “cat” and then sort it for eye candy. After that, we cycle through the array using a for loop, print out the name, and check if that name is a match to the search name.