(Approx. 346 words)

Bits & Bytes of Memory

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*by**Dorothy Fitch**,*Green Bytes*Editor*



Down in these parts of AZ south of Tucson, if your memory momentarily fails you, you might say you are having a "Green Valley moment." Your computer, of course, also has memory. Let's take a look at how it is organized.

You have probably heard of bits and bytes, megabytes, and gigabytes. Do you know what each one is? What comes after a gigabyte?

A bit (BInary digiT) is like a light switch. It is either on or off. On represents a 1 and Off represents a 0. Your computer works by combining bits with each other to make larger units.

4 bits = 1 nibble, as in 0000, 0010, 0111, 1011, 1111, etc.

8 bits = 1 byte. You can do a lot more with a byte! There are 256 possible combinations of bits in a byte. A byte can store one letter of the alphabet. For example, an uppercase letter A is stored as 01000001 (which is 65 in the decimal system).

2 bytes (16 bits) = 1 word

1 megabyte (MB) = 1024 bytes (1024 is 2 to the 10th power)
1 gigabyte (GB) = 1024 megabytes
1 terabyte (TB) = 1024 gigabytes
1 petabyte (PB) = 1024 terabytes
1 exabyte (EB) = 1024 petabytes
1 yottabyte (YB) = 1024 exabytes (a yottabyte = 1 trillion terabytes)

Those are the officially recognized units of memory, However, additional ones have been proposed (each one is 1024 times the previous one): Brontobyte, Geopbyte, Saganbyte, Pijabyte, Alphabyte, Kryatbyte, Amosbyte, Pectrolbyte, Bolgerbyte, Sambobyte, etc., all the way to Blamnebyte!

[You can see them all here.](http://www.sciencepic.com/the-largest-unit-of-storage/) This website says that if you are downloading 1YB (yottabyte) of data using a super high-speed Broadband, it will take 11 trillion years to download. It's all quite mindboggling, isn't it?

Now when you have a "Green Valley moment," you can call it something classier, such as a Yottabyte moment!