## **COMPUTER GURU**

## By Don Benjamin

## Univac

The progress in digital computing technology has been nothing short of miraculous. When I was a computer science student<sup>1</sup> at the University of Florida in the late 1960's, most of my programs ran on the school's IBM 370, a behemoth "mainframe" computer that was, at the time, the bees' knees.

The first commercial computer was the **UNIV**ersal **A**utomatic **C**omputer, or UNIVAC. Invented by J. Prespert Eckert and John Mauchly from the University of Pennsylvania, the first UNIVAC was

UNIVAC at U.S. Census Bureau

used by the U.S. Census Bureau in 1951. CBS employed the fifth UNIVAC to predict the results of the 1952 presidential election. (Spoiler alert: Eisenhower beat Stevenson).

UNIVAC used 5,000 vacuum tubes, weighed 8 tons, occupied 380 square feet, used 125kW of electricity (your home uses, on average, 1.2kW), and could perform 2000 operations per second. (Such as adding 1 + 1 = 2).

Its random-access memory that held the program being executed totaled 1,000 characters, and its mass storage comprised 10 magnetic tape drives that held 1 million characters each.

UNIVAC didn't have an operating system (such as Windows or MacOS); rather, the computer operators performed the functions manually by loading magnetic tapes, starting programs, and feeding punch-cards into the typewriter to print the results.

To explain how far we've come in computing technology, the table below compares the UNIVAC to the iPhone X:

	Univac 1	iPhone X	Approximate Difference
Calculations per second	2000	2.4 billion	1.2 million times faster
Memory	1000 characters	3 billion "bytes" <sup>2</sup>	3 million times larger
Mass Storage	10 million characters	64 billion "bytes"	88,000 times more
Electronics	5000 tubes	4.3 billion transistors	860,000 times more
Weight	8 tons	6 ounces	42,000 times less
Size	380 square feet	Shirt pocket	A lot
Power	125 kW	0.813 W	150,000 times less
Cost	\$1.2 million (1952)	\$1,000	12,000 times less (after inflation)

Nanotechnology (really tiny stuff) shrank the Univac into the iPhone: A computer you can hold in your hand that has almost infinitely more calculating power, plus a cell phone and a camera. And a GPS receiver. And your music and photos. And apps you can buy for a buck.

We can't fix a Univac, but we can help you use your smart phone, laptop, or other digital device. Just drop by the Technology Lab on Tuesdays or Wednesdays from 1:00 to 4:00 p.m. or Fridays from 10:00 a.m. to 1:00 p.m.

<sup>1</sup> Not my career field, which was electric power.

<sup>2</sup> Assumes each Univac's "character" = 1 "byte" or 8 binary bits (one's and zero's).