

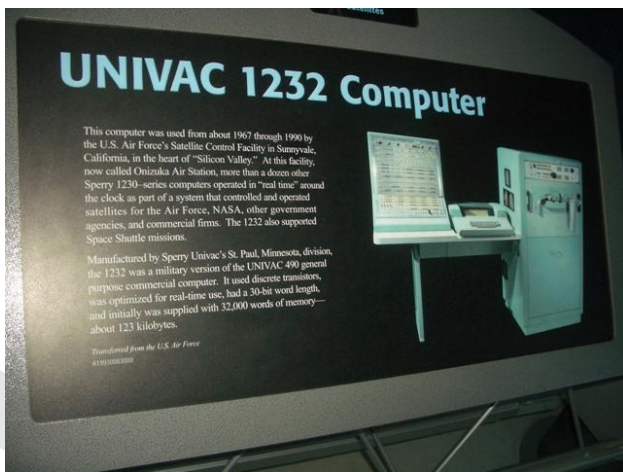
Smithsonian Air & Space Museum
Steven F. Udvar-Hazy Center at Dulles Airport

Attn: Curator Office

April 22, 2013

Dear Sir or Madam:

One of our *VIP CLUB* UNIVAC/UNISYS retiree members recently visited your Udvar-Hazy Center at the Dulles International Airport. There he took these two photos of your "UNIVAC 1232 Computer" poster and hardware display. The poster has two factual errors which we urge you to correct.



1. The UNIVAC 1232 **was not** a computer per se', but a man/machine operator station connected to the AF's 1230 mTc computer in the Sunnyvale facility. The **Mobile Tactical Computer** developed for the U.S. Air Force, was called the 1230 MTC because it performed many of the same system functions as the Type 1230 computers developed earlier for NASA (<http://vipclubmn.org/Articles/Apollo.pdf>.) The UNIVAC Type 1232 operator station was originally developed by UNIVAC for the **Naval Tactical Data Systems (NTDS)** project. This NTDS 1232 console design was also used in AF, NASA, and FAA systems.
2. The 1232 **was not** "a military version of the UNIVAC 490 general purpose commercial computer." Rather, the UNIVAC Type 1230 (military) and Type 490 (commercial) were both 'progeny' of the NTDS AN/USQ-20A (Type 1206) computer.

The following two pages provide supporting references and a UNIVAC COMPUTER GENEALOGY chart. Please contact me at labenson@q.com if you have questions about this memo and our computer history.

Thanks for your attention to this matter.

Sincerely,

Lowell A. Benson - 2013 *VIP CLUB* Vice President:
Retired Engineering Manager from UNIVAC, 1960 => UNISYS, 1994.

Club History: The *VIP CLUB* started an IT Legacy Committee in 2006 to capture, preserve, and exhibit our Twin Cities Information Technology Legacy; name changes illustrated in this logo → .

1. We invited retirees and the browsing public to submit their IT Legacy stories for our Club/Legacy website – so far over 200 have done so, browse to <http://vipclubmn.org>.
2. We've collected well over 1,000 documents now being archived by the Charles Babbage Institute (CBI) at the University of Minnesota – Dr. Tom Misa, Director.
3. We've collected almost 500 hardware artifacts – Our volunteers are in the early stages of setting up an educational exhibit at the Dakota County Historical Society's Lawshe Museum in South St. Paul, MN.



Reference Material for this letter:

- One of our employees, Don Neuman, was on-site at Sunnyvale for about twenty years. He has written several sections for our web site. The UNIVAC 1232 which you have on exhibit is shown 'in Situ' on our web site at, <http://vipclubmn.org/sysmissles.html#MissileTracking>. Don also contributed to our web site sections <http://vipclubmn.org/sysmissles.html#RemoteSites> and <http://vipclubmn.org/CP30bit.html#Type1530>. In those sections, he gives photo credit to a couple of government Remote Tracking System web sites.
- The Naval Tactical Data System (NTDS) development history is well chronicled in a 1987 IEEE publication: "When Computers Went to Sea - The Digitization of the United States Navy", by Captain (USN retired) David Boslaugh, et al'.
- UNIVAC COMPUTER GENEALOGY chart reproduced on the next page is from my personal history files. The 1st footnote at the left states: "This chart indicates primary Design Parent/Offspring and/or Design Influence Relationships."
- Genealogy chart: The 1230 MTC 'box' is on the right side, second down from the top in the MAY 1968 column. As the arrows show, it evolved from the 1230 CP-855 computer [1966 column] which was the NASA computer [Reference: <http://vipclubmn.org/Articles/Apollo.pdf>.] The 1230 was an updated design from the Navy's AN/USQ-20B CP642B (Type 1212) computer [in the 1963 column] which in turn was an upgrade from the Navy's AN/USQ-20A (Type 1206) [in the 1960 column.] The AN/USQ-20 technology upgrades were germanium to silicon transistor electrical design changes, faster core memories and packaging refinements.
- Genealogy chart: In the 1961 column just above and to the right of the 1206 'box' is the Commercial Product Line Type 490 'box', the beginning of that series of UNIVAC commercial computers.
- Genealogy chart and personal research: The Type 1230 computer was a transistor technology based machine as were its predecessor Navy computers. In the 1967 column is an M3 box {paper design for the 1969 AN/UYK-8}. The inputs to M3 are from the Type 1230, the CP-901 (Type 1830A), and the MTDS (Marine Tactical Data System) CP-808. The M3 concepts combined floating point arithmetic and expanded memory logic from the 1230, Diode-Transistor-Logic flat-pack circuit technology from the CP-901, and dual processor technology Nike-X Central Logic and Control (CLC not shown on the chart). The M3 arrows out go to the 1230 MTC and the CNC/C3 CP-890 computers. The CP901 and M3 shared conduction cooling printed circuit card designs. The CP-890 and 1230 MTC shared convection cooling circuit card designs – they actually had some common cards. The CP-890 was the Polaris submarine navigation computer; the CP-901 was the P3C Orion ASW systems computer. Other notes indicate that we delivered 120 Type 1230s and 20 Type 1230 MTCs.

Personal Experiences:

During my career at UNIVAC/UNISYS, I was a computer operator for Types 1206, 1218, 1219, CP-667, 1004, SS-80 and Transtec. I was part of the CP-901A and Phoenix design teams. I also did field maintenance for the CP-901,

CP-642B, and the commercial 9200. I've worked with or on another two dozen later computer types not shown on this early genealogy chart – thus my interest in computer history, I've been a small part of it. LABenson

