**VIP CLUB**
Established in 1980

## Chronology of Ocean Surveillance & Univac/Sperry/Unisys/LMCO

1) During the Cuban Missile Crisis in 1962, the US Navy realized that their detection and tracking systems were inadequate for high-speed, deep-diving Soviet submarines.

2) In 1963 the Navy evaluated an airborne Anti-Submarine Warfare (ASW) flight system with UNIVAC computer type AD1020, nomenclature CP-754. This was a quick modification of an on-board missile guidance 24-bit computer developed and built by UNIVAC for the Air Force.

3) In 1965 the Navy evaluated a new airborne flight system with UNIVAC computer type 1830, nomenclature CP-823. This was a new design of a 30-bit computer to provide an airborne computer that would be programming compatible with the Naval Tactical Data System's shipboard computers - also built by UNIVAC. See page 6 of http://vipclubmn.org/Articles/CP823CommLog.pdf.

4) In 1967 UNIVAC delivered the first computer type 1830a, nomenclature CP-901 to the Naval Air Development Center at Johnsville, PA. {*Lowell Benson, engineering and Jack Anderson, Field Service were the delivery & installation team.*} With 48k words of 30-bit memory and multiport 2 micro-second memory units, the performance was ready for operations aboard the Lockheed P-3C Anti-Submarine Warfare (ASW) 4-propellor aircraft. We then delivered 499 CP-901 computers over a 25-year manufacturing time span.



5) In 1968 S/N2 CP-901 was installed into an A-6 jet aircraft for ASW system experiments off a carrier deck. This test system developed the specifications which led to the Lockheed S-3A carrier based ASW airplane. The on-board computer was new design Sperry type 1832, nomenclature AN/AYK-10 which was program compatible with the Navy's 32-bit NTDS AN/UYK-7. This was a dual processor with 1.5 microsecond multi-port memory system.

6) In the late-70's, the Canadian Forces purchased the P-3 aircraft from Lockheed for their ocean surveillance missions, including the 32-bit computer from Sperry - a new Canadian nomenclature of AN/AYK-502. Their aircraft nomenclature was the CP-140, Aurora.

7) At the time of the 'Falklands skirmishes' between the Brit's and Argentine forces, Sperry engineers designed a modification to the AN/AYK-10 computer to give it Harpoon missile launch capability. {note the missile beneath the folded wing.} The aircraft became the S-3B and included a semiconductor memory technology replacement for the aging original mated-film memories. The memory technology update was done in conjunction with the Sperry facility in Winnipeg Canada. The Canadian AN/AYK-502 computer was later upgraded with a newly developed semi-conductor memory for a total of 96k of in-flight operational memory. {Lowell Benson was the engineering manager responsible for the Harpoon interface design and for the memory development.}



8) In the early 90s, UNISYS developed the CP-2044 as a technology replacement for the P-3C's CP-901 computers. A CP-2044 is one of the artifacts at the Lawshe Memorial Museum, donated in 2015 by the LMCO Clearwater FL manufacturing facility. It has the same physical outline as the CP-901 it replaced.

9) In 2012, retiring LMCO program manager, Bob Pagac, noted that there were still 40 CP-901 computers flying aboard Japanese P-3C aircraft. How many 1967 engineering design teams would have imagined that their creation [CP-901] would have a 45-year service life?

*During 50 years of 'ASW' there were thousands of employees who had parts of their careers supporting these technologies! Thanks to each and everyone of them.*