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Established in 1980

# John Enstad's Story

43-years at Sperry Univac/Unisys/Paramax/Loral/Lockheed Martin.

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Editing and formatting by LABenson, Legacy Committee Co-chair

## Sperry Rand Univac – Warminster, PA activities -September 1967 thru 1972

I was interviewed in St Paul but hired as Associate Scientific Programmer Trainee to re-locate to Warminster, Pa. office.  My primary activity at Warminster office was to support the Naval Air Development Center (NADC) with the P-3C Research and Development Program referred to as ANEW. After completing basic programming course including AS-1 Assembler and CS-1 Compiler I joined the Airborne Early warning project and assigned responsibility to design code and integrate an Auxiliary Readout Display Module, Manual Entry Module and Data Extraction module using CS-1 to run on a type 1206 and 1230 computers and interface with the 1240 magnetic tape unit and a 1004 printer.

In April 1969 I joined the Mod 7 Avionics group and assigned responsibility to design, code and integrate the OMEGA Navigation program into the Mod 7.0 System aboard the P-3C platform using a CP-901 computer.  Two new navigation systems were being tested aboard the P-3C with the second system being Transit Satellite Navigation, which eventually proved to be used worldwide and referred to as GPS, but in 1969 very few satellites were airborne.  Omega navigation was based upon using low frequency radio signals transmitted from eight locations around the world and transmitted in a programmed repeatable 10 second cycle using three frequencies (10.2Khz, 11.3Khz and 13.6Khz).  The software task required programming a Kalman filter algorithm along with other Omega unique software to determine the aircraft position.

After development and testing in the NADC laboratory, the software was integrated and tested with the operational baseline aboard the P-3C aircraft.  It was an exciting period for a young programmer as I joined the flying P-3C programmers club (http://vipclubmn.org/flyingps.html) and supported multiple flights out of NADC, Warminster and the Naval Air Test Center (NATC) Patuxent River, Md.  Numerous flights were made over the Atlantic Underseas Test and Evaluation (AUTEC) range to measure the accuracy of Omega Navigation.   In addition to multiple domestic USA flights a flight to Kefllavik, Iceland in 1972 was flown to test northern latitude navigation.

Beyond the operational flight test, I was responsible for design and coding of an Omega/Transit Replay program that provided ability to replay navigation missions in the laboratory using Transit and Omega data recorded on flights.  The Omega program developed on the Mod 7 program, was the baseline used in the production P-3C Omega program and used until Omega Navigation Systems Operations were discontinued.

## Sperry Univac – NAVY Systems, Eagan, Mn. 1973 thru 1983

### RAN Sim Program

I re-located to Plant 8, Eagan, Mn in 1973 and was assigned to the Application Simulation group and after attending CMS-2 compiler classes assigned to Royal Australian Navy (RAN) Sim Program.  Initially my task was to write code to modify four existing executive control modules (Common Control, Common System, DEAC Interface, and Maintenance Module) from the JPTDS Operational system to adapt and to be used within the RAN Sim Program.  Later my role expanded to include design and coding of Fire Control Simulation Module which simulated the Tartar Fire Control System including missile & gun radar directors, engage-ability, and launch functions.  The RAN Sim Program operated on a single processor AN/UYK-7 computer and was controlled from multiple display consoles with final checkout and testing performed at the Military Equipment Test Center (METC) at Sperry Plant 2 in St Paul.

### Proposal activities

During this period, I worked multiple proposals including Iranian DD 993 proposal, Tactical Flag Control Center (TFCC) and DSS Simulation Software to be used at CSMTF facility at Mare Island Naval Shipyard, Ca.  My expertise was in the simulation area and besides responsibility for the simulation proposal sections I worked the Phase A TFCC Program developing a Specification for the TFCC simulation software.  For the DSS proposal two technical proposals were developed with both requiring cost and technical information and I supported technical negotiations with the customer for the DSS program with Sperry Univac receiving a contract based upon our alternate proposal developed.

### Integrated Combat Systems Test Facility (ICSTF)

In 1977, I was assigned to the Integrated Combat Systems Test Facility project responsible for integrating a baseline executive Common Program (SL, CS, CC, CP and DB) Modules.  This program was similar to my previous tasks with these executive control modules, except ICSTF Simulation operated in a multi-processing AN/UYK-7 computer environment.  I was also promoted to supervisory programmer and had a dual role with technical responsibility for the ICSTF Program and management responsibility for our team.  The purpose the ICSTF Program was to provide warp around environment simulation for multiple ship class tactical data system being integrated at the newly constructed San Diego ICSTF facility with the first ship class being integrated being the DDG ship class.

While the ICSTF program design, coding and integration was St Paul's responsibility, the facility was located in San Diego and our corporate plan was to transition the program to San Diego office after successful integration testing was complete.  This required developing a transition plan, integrating San Diego personal into the St Paul's staff and manage the transition to San Diego which happened successfully by the end of 1983.

## Sperry Univac – Australia DDG Simulation effort and on-site assignment- 1983-1985

The Royal Australian Navy (RAN) purchased three USN DDG Frigates and contracted with Sperry to develop RAN DDG Tactical Data System (TDS) and a wrap-around simulation environment at their land-based test facility in Canberra Australia to test the TDS operational program.  The program selected to use as the sim baseline was ICSTF Simulation program described above and tailor or develop new modules for the RAN unique ship class requirements.  Program design and initial development was be performed by the ICSTF Simulation group in St Paul augmented by a budding RAN Sim group in Canberra and eventually transition efforts to this group in a manner similar to the San Diego transition.

I was the manager of the ICSTF Sim group in St Paul when the effort started in 1983.  Along with several other St Paul personal I agreed to a temporary 18-month assignment on-site in Canberra to support integration and transition of the RAN Sim program.  Along with a being a great family experience spending time in Australia, the program transition was a success with the RAN Sim group having full responsibility within a few years and the technology transfer complete in both TDS and Simulation areas.

## Sperry/Unisys – Canadian Patrol Frigate/Canadian Operations – 1985-1993

After my Australia return, I joined the Canadian Patrol Frigate Program Management Team.  The CPF contract was awarded by the Canadian Government to Saint John's Ship Building to build six Patrol Frigate Ships.  Sperry/Unisys Great Neck, in Long Island, NY were the prime ship systems integrators and Sperry/Unisys, St Paul was subcontracted to provide the Tactical Data System Operational and Simulation software developed jointly between St Paul and Paramax in Montreal.  Paramax was a new company started by Sperry to partner with the US Team and perform life cycle support in Canada.  My task within the Program Management office was management and coordination of multiple St Paul activities with the Montreal office.  These included CPF Cost/Schedule System to meet 7000.2 requirement including supporting associated government audits, Project planning activities using Open Plan scheduling tool, Customer Interface requirements and Program Management liaison activities with Paramax office in Montreal.

In February 1988, I was CPF Business, Manager working for the CPF Director.  In addition to my CPF Program Management tasks, additional tasks assumed were: Identifying new business areas, Supporting expansion of the CPF business into configuration management, Software Maintenance, Operational Training and Spares management.  I was also Program manager of several contracts within the Canadian Business area covering equipment repair, spares procurement, software services and Information support.  I was also Deputy PM to the USN TEAMS Contract and supported the TEAMS IV Proposal.

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In 1992, Paramax was awarded contract for New Shipboard Aircraft (NSA) from European Helicopter Industries to provide the Command and Control System for the new Canadian Helicopter EH101. I re-located to Montreal In February 1993 and joined the Paramax Program Management (PM) organization to support the new program. I managed the PM group responsible for the NSA Cost/Schedule System that did project planning, maintained the master schedules, established cost account budgets and earned value measurement techniques to support the 7000.2 cost/schedule requirements for the program. The NSA program became controversial during the fall 1993 Canadian elections and with a government change, the new Canadian Prime Minister canceled NSA contract and I returned to Unisys, St Paul in November 1993.

## Unisys/Lockheed Martin Navy – Systems Engineering 1994-1999

### Rapid Optical Screening Tool (ROST)- 1994-1995

Upon return from Montreal I joined Systems Engineering and the ROST project. The ROST project was an IRAD program done in partnership with Dakota Technologies, Inc., Fargo, ND to support building a prototype tunable laser induced fluorescence spectrometer designed for field application to detect and assess subsurface petroleum contamination. Dakota Technologies founders were professors and staff from NDSU. The prototype was successfully built in a laboratory environment and deployed on cone penetrometer vehicles with successful testing. After the testing was complete, Unisys management decision was not to pursue any further as a business opportunity.

### Update Improvement Program (UIP)- 1996-1999

I joined the UIP Program as Deputy Project Engineer. The UIP Program was an FMS contract to perform an AIP type upgrade on four Norwegian P-3C aircraft. The System Engineering and software development were done in St Paul (Eagan) with the installation, integration and testing performed at Lockheed Martin's Greenville, SC facility. It was a great program with lots of interaction with Norwegian Air Force personnel, a great team and appreciative customer. I spent extensive time in Greenville as the aircraft installation and testing was performed in Greenville and all four aircraft were delivered on time with final test flights from Greenville.

## Lockheed Martin (LM) – Subcontracts- 2000-2010

### Wescam

Following successful completion of the Norwegian UIP Program I joined the Subcontracts Organization within the P-3C Maritime Surveillance Area of Business as a Subcontracts Program Manager. The priority task was to work with Wescam Company from Burlington, Ontario, Canada and delivery of the Model 20 (MX-20) Electrical Optical Infra-Red (EOIR) sensor for the P-3C AIP Program. The MX-20 had been selected by LM in a source selection process as for the P-3C AIP as the most advanced EOIR sensor available. Because of development issues, deliveries were delayed and units that were ready for delivery had random environmental failures. My job working with system engineering was to support Wescam and help solve the development problems and get deliveries back on track.

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The lead System Engineer and I spent weeks at Wescam and supported their efforts as best we could and after several months the environmental and production issues were solved allowing AIP installation and testing issues to stay on schedule.   The resulting EOIR sensor continues to be an extremely valuable P-3C sensor and I continued to support the EOIR subcontract procurement for several years as units were delivered for the production AIP aircraft.

## Proposals

In parallel with the Wescam subcontract activities I also supported two major proposals during the 2004-2008 timeframe.  The first was a USN Source Selection (P-8 Proposal) to replace the P-3C aircraft, with Lockheed Martin Marietta bidding an upgraded and significantly more powerful/faster P-3C aircraft and Boeing bidding an upgraded 737 Jet aircraft referred to as P-8 Poseidon.  The Eagan LM role was to provide the Combat System using the AIP baseline as the starting point and building upon it.  The proposal required multiple subcontracts bidding efforts with RFP development, source selection activities and negotiations to determine prices.  I believe our proposal efforts were outstanding but, the USN decided the preferred solution was a jet vice a turbo-prop aircraft and Boeing was awarded the contract.

The second major proposal was to support the Broad Area Maritime Surveillance (BAMS) proposal which was a USN Source Selection to determine type of Unassisted Air Vehicle (UAV) to be used for Maritime Surveillance.   LM teamed with General Atomics using their Predator UAV aircraft as the baseline. Northrop Grumman was the competition with their baseline being the Global Hawk UAV aircraft.  My task was like the P-3 replacement as multiple subcontracts source selections and negotiations were required to support the proposal.  Northrop Grumman won the BAMS contract in 2007/2008 timeframe and losing both proposals was a major disappointment to the maritime surveillance group.

## AIP Program

During the timeframe of the above activities I was assigned manager of the Subcontracts Group within Maritime Surveillance area of Business and continued to perform in this role up until my retirement in 2010.   The efforts were to continue supporting the production AIP aircraft upgrades following the development efforts previously accomplished and work with AIP subcontractors as required to support this program.

I have written this career summary at the urging of IT Legacy committee co-chair John Westergren.  Snapshot by Paul Hove at the 2019 Annual Old Timers' Reunion.

*John Enstad*