

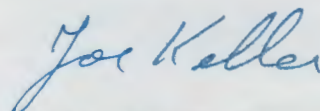
EMR TELEMETRY AND LORAL INSTRUMENTATION TO MERGE

I have stated in many of our meetings that Loral will consolidate some of its businesses where it makes good business sense. Loral has decided to combine EMR and LI into one organization by the end of Fiscal Year 1994 in order to broaden and improve Loral's ground-based telemetry product offerings and service. As a first step EMR's and LI's marketing and sales have been combined under the management of Bill Kirk, Group Vice President of Marketing. Bill reports to Hugh Bennett, a Loral Corporate Vice President, to whom I also report. Gary Schumacher and his counterpart in LI now report to Bill Kirk. A single marketing and sales force will be established which will represent both Divisions. Field Service will be combined shortly to provide a broader range of services.

The exact manner in which these businesses will be merged is not determined at this time. This merger will not have any major effect on other businesses of Data Systems including the new telecommunication switch. We will continue to migrate new technologies into existing Telemetry products where appropriate. We will not obsolete our Telemetry products or systems and Field Service will be enhanced as our field engineers and technicians will be cross-trained on all products of both Divisions.

EMR and LI will continue to operate independently until the new organization is announced. As with any merger, it is most important that we all continue to do the best possible job while changes are being determined. Poor performance is never rewarded in such a circumstance. I support the merger because I believe it is the right course of action but I can only speculate on the outcome because it is a difficult and complicated endeavor. I will continue to keep you informed on the progress.

Sincerely,



Joe Keller

Loral Data Recorder Saves Space Shuttle Experiment

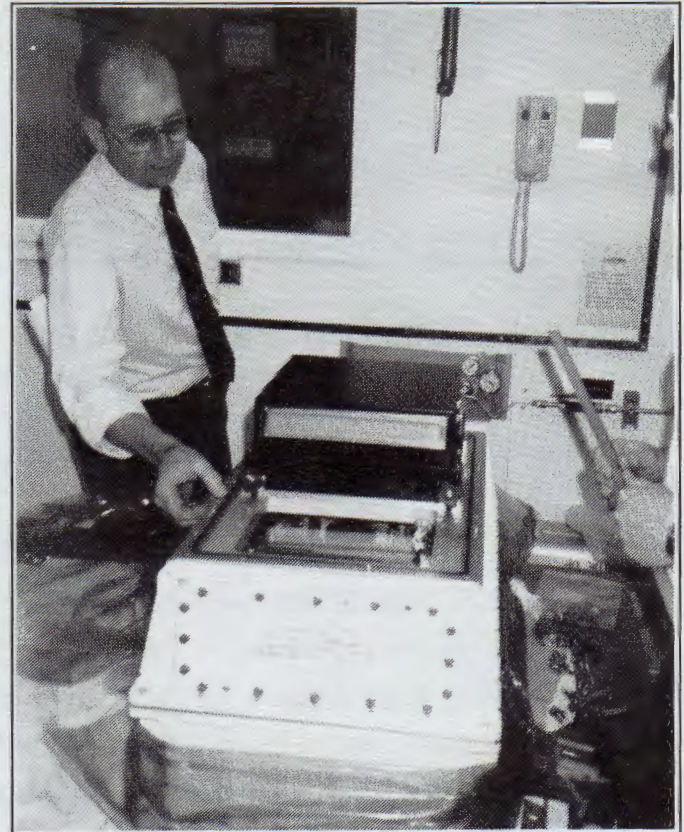
Ray Shuford reports that the first Rotary Recorder to fly on the shuttle saved all the Mission's data which otherwise would have been lost due to a failure in the datalink.

The DV6410 recorder, flown on the April Atmospheric Laboratory for Applications and Science (Atlas-2) shuttle flight, recorded the results of the Atmospheric Trace Molecule Spectroscopy experiment (ATMOS). ATMOS takes global measurements of the gases interacting in the upper atmosphere in order to predict its response to natural and man-made effects.

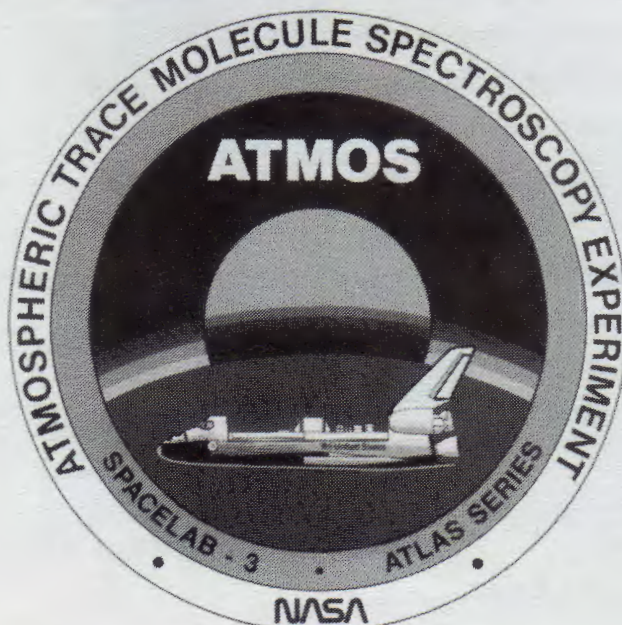
NASA's Jet Propulsion Laboratory (JPL) contracted with Loral in 1988 for this on-board high rate data recorder to reduce the risk of lost scientific data and to provide a clear recording to be analyzed after the ATMOS mission. The DV6410 recorder, which was designed by Schlumberger Industries, Velizy, France, was installed in **Discovery's** cargo bay to record data that was also telemetered live to Marshall Space Flight Center.

Problems with **Discovery's** high rate data link during the April Shuttle flight prevented real-time ATMOS readings from reaching scientists on the ground, making the DV6410 the experiment's only data storage alternative.

After completion of the mission and removal of the pod from the shuttle payload, the recorder's data was successfully played back at the Jet Propulsion Laboratory. The high quality of the DV6410 data will significantly contribute to JPL's mission analysis.



At JPL Lab, our recorder is installed in shuttle payload pod for Discovery flight.



Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
Pasadena, California 91109-8099
(818) 354-4321

JPL

June 2, 1993
FGO-93-027

Mr. Joe Keller
Loral Data Systems
P. O. Box 3041
Sarasota, FL 34230-3041

Subject: ATMOS Recorder's First Flight

Dear Joe:

This is a very happy event to report. The first flight of the ATMOS recorder was an outstanding success! It was due in large measure to the fine support of your organization over the years of development.

As fate would have it, the Shuttle's High Data Rate Signal Processor failed and, as a result, what little data that was downlinked had high bit error rates. The recorder worked fine, with 103 observational sequences recorded on one D1M tape. This tape was retrieved after the Mission and played back to the Model 9, which produced seven reels for playback into the computer. The quality is excellent with most data being error free!

This whole process has been a real pleasure for us in working with your team of very competent engineers and managers. It shows what can be accomplished by real teamwork.

The next ATMOS flight is scheduled for September 1994, and we will fly the recorder as our primary data source.

Thank you again for your help in making this a real success story for NASA and JPL.

Very best regards,

F. G. O'Callaghan
F. G. O'Callaghan
ATMOS Project Manager

FGO:ad
cc: L. Caudill
C. Elachi
B. Martin
F. Schutz
S. Tillord

Loral and ADC Sign Multi-Year Agreement to Market ATM Switch

Loral Data Systems and ADC Telecommunications have signed a multi-year marketing agreement for an asynchronous transfer mode (ATM) switching system that will be available for field trials by December 1993.

Under the agreement, ADC will provide North American public network marketing, sales, service and support for the switching system, while Loral Data Systems will develop and manufacture the product.

"This switch specifically addresses the carriers' needs to offer ATM and other data services with a low initial investment that will be commensurate with the revenues they can generate in the near-term. The ability of this switch to aggregate multiple services, such as Frame Relay, SMDS, and ATM, onto a shared facility at the edge of the public network meets the service and price demands of end users," said Alan G. Hutcheson, vice president and general manager of ADC's transmission division. "The switch is one part of ADC's Broadband Soneplex™ Platform, which is also comprised of a high performance ATM access concentrator that will be available in 1994."

As part of the multi-year agreement, ADC will initially purchase 10 systems to be used in customer field trials and training. After the initial product release, Loral and ADC intend to jointly develop additional ATM systems to meet the service requirements of public network carriers.

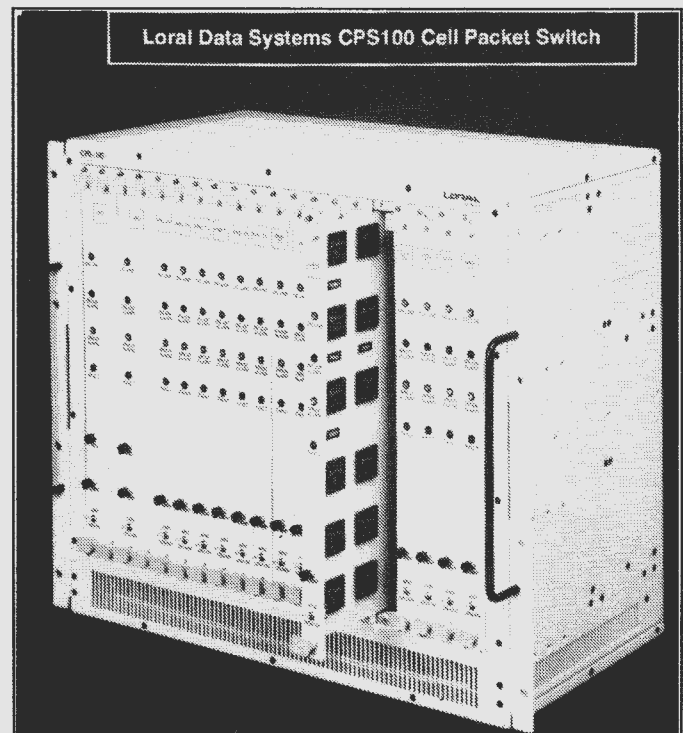
The switching system is designed around a multi-service ATM architecture for placement in central and remote offices as well as customer premises environments. As a single integrated multi-service platform, the system will serve as a remote switch or hubbing platform for Frame Relay, SMDS, ATM, and high performance isochronous services. The switch backbone is a shared medium virtual asynchronous transfer mode (VATM) bus with non-blocking bandwidth of up to five (5) Gigabits/second and seamless extension ability up to 80 Gigabits/second capacity. The system will conform to Bellcore's NEBS transmission product standard as well as emerging ANSI, CCITT and other industry standards for ATM, SMDS, and Frame Relay services.

The multi-service architecture will enable network service providers to offer a variety of services to end users, including LAN interconnection, multi-media transfers, high speed data transfers, packet video and constant or variable bit rate bandwidth. The system can be deployed as a stand-alone access switch, configured

as an ATM backbone or as a concentrator for a very large ATM central office switch as they are deployed in the carrier's network. The system features industry standard interfaces such as NNI, UNI, SNI, and ICI. The network management system currently supports the Simple Network Management Protocol (SNMP), with future migration to the Common Management Information Protocol (CMIP) interface.

Loral also will continue to market, sell, and support ATM switches to private carriers and end users including government agencies worldwide.

ADC TELECOMMUNICATIONS, INC. is a leading supplier of transmission and networking systems for voice, data, and video networks and of physical connectivity products for fiber optic, twisted-pair, and coaxial networks. Customers include local exchange carriers, other network service providers and manufacturers, enterprise network organizations, broadcast and cable TV network operators. Wholly owned business units in North America include American Lightwave Systems, ADC Fibermux, ADC Kentrox, and ADC Canada. The company also operates international business units in Australia, Belgium, England, Mexico, and Venezuela.



CPS100 Cell Packet Switch

Anniversaries . . .

January, February and March 1993

15 YEARS

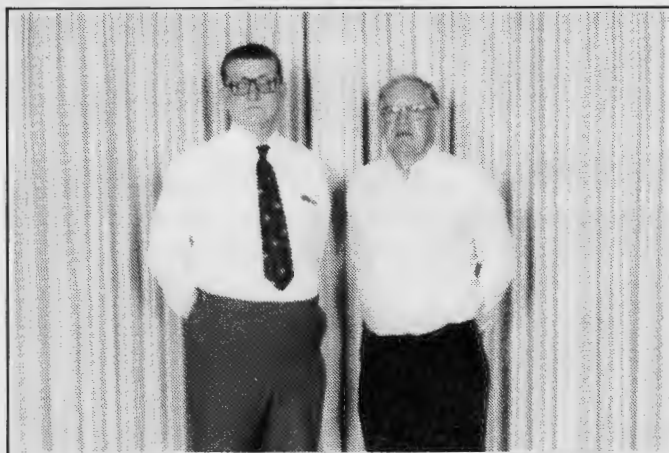


Pictured above: Iris Thompson, John Fierstos, Elizabeth Byrd, Chip Voss, Francis Wozniak, Paul Taylor. **Pictured below:** Pat Carney, Bill Burchette, Allan Orr, Norris Henderson, Bill Kirby, Mark Fogelson, Sue Obenauer, Karen Lewis, Loraine McFarlin, James Hornberger, Jeff Norris, Ron Sumner. **Not pictured:** Al Piscane, Jerry Lavelle, Dave Clark.



Pictured at right: Mark Mustico, Eduardo Carro, Ron Frank, Julie Northrup, Dennis Kamin, Elmer Yeager, Esther Roman, Paul Cater, Cheryl Tyburczy, Mark Hanley, Mary Kasper, Ruth Poirier, Rene Hernandez. **Not pictured:** Paul Connett, Bharat Patel, Daniel Smith, Gary Miller, John Wolfe, Ric Roehsner, Tim Wellman, David Perkins, Anthony Holliman.

25 to 35 YEARS



Ed Annaratone (30 years), George Phillips (35 years). **Not pictured:** Delta Wildermuth (30 years), Roger Mort (25 years).

10 and 20 YEARS



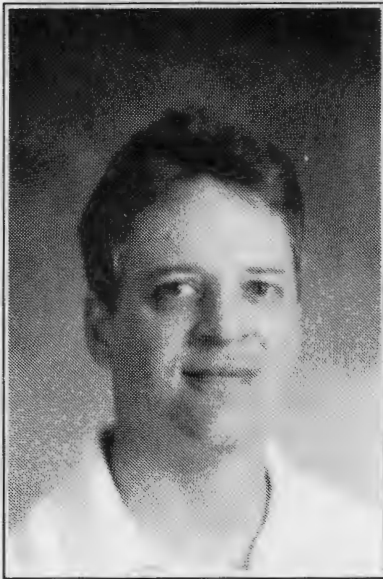
Sue Sutherland (20 years), Peggy Long (10 years). **Not pictured:** Rob Ramey (10 years).

5 YEARS



Congratulations Graduates

We are Very Proud of You



EMPLOYEE GRADUATE

JOHN WHITMIRE, Validation Engineer V, Quality Control Department, received his Masters in Engineering Management from USF in December, 1992. John has been employed at Loral in various capacities since September, 1977.



AMY BELT, daughter of John Belt, graduated from the Manatee Area Vocational & Technical Center School of Dental Assisting in Bradenton, Florida on June 22 as a Licensed Dental Assistant. Amy plans to continue on to receive an Associate's Degree in Dental Hygiene.



KATHRYN CATER, wife of Paul Cater, graduated from Eckerd College, St. Petersburg, Florida, with a Bachelor of Arts Degree in Business Management. Kathy plans to pursue a Master's Degree in Contracts Management.



JULIE ENGLAND, daughter of Bill England, graduated from Riverview High School in Sarasota on June 5. Julie plans a career in architectural drafting.



KEVIN KENEALY HART, son of Dave Hart, graduated from Clemson University, Clemson, South Carolina, in May. Kevin received his BSME degree and plans to go to graduate school.



SASHA DAUNÉ JENKINS, granddaughter of Ed Domrzalski, graduated on June 11 from Woodstock Union High School in Woodstock, Vermont. Sasha will be attending Champion College, majoring in education.



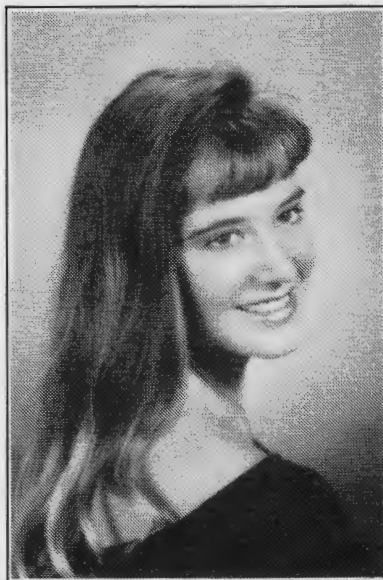
EMILY L. JOHNSON, daughter of Diane Hamel, graduated from Cardinal Mooney High School, Sarasota, on May 28. Emily will be attending Manatee Community College.



KRISTINE B. JOHNSON, daughter of Diane Hamel, received her Associate of Arts degree from Manatee Community College in May. Kristine plans to further her education at the University of Central Florida.



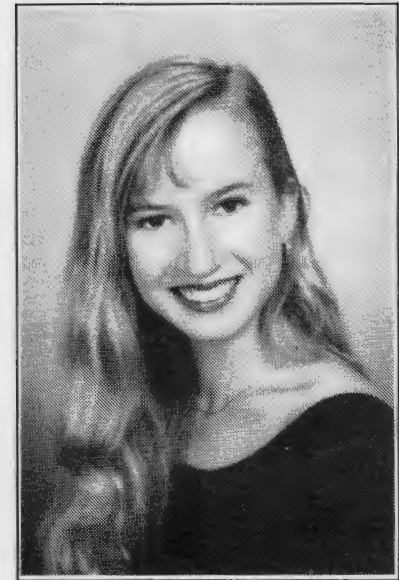
CHRISTINE KAISER, daughter of Hans Kaiser, graduated from Riverview High School, Sarasota, on June 5. Christine plans a career as a physical therapist.



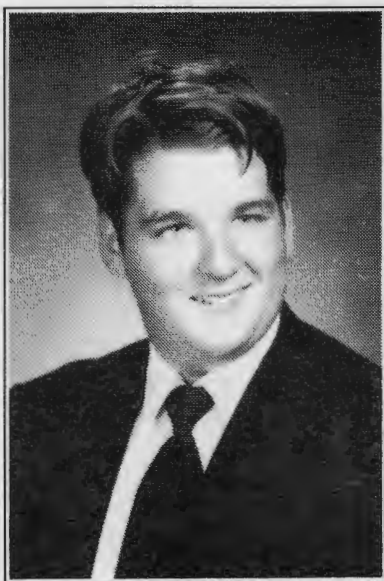
EMILY KERWIN, daughter of John Kerwin, graduated from Sarasota High School on June 1. Emily plans to attend college, majoring in psychology.



ROWAN LITTLE, daughter of Susan Sparks, graduated from Riverview High School in Sarasota on June 5. Rowan will be studying accounting at Manatee Community College.



GINA ELIZABETH OPDYCKE, daughter of Don Opdycke, graduated from Booker High School, Sarasota, on June 5, where she was in the VPA Art Program and the National Honor Society. Gina was the recipient of an Allen H. Sims Scholarship for Academic Achievement. She will attend Brevard College in Brevard, NC.



DEREK R. PARKER, son of Don Parker, graduated from Manatee Community College in May with an Associate in Science degree in Computer Engineering Technology.



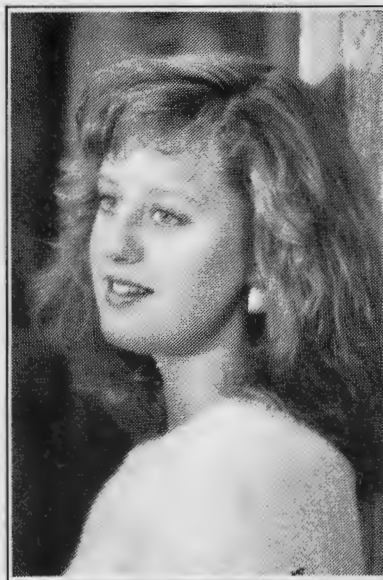
BRENDA CHRISTINE PEET, daughter of Carolyn Peet, graduated from New Directions High School, Sarasota, on June 5. Brenda will enter into a job training program at Goodwill Industries.



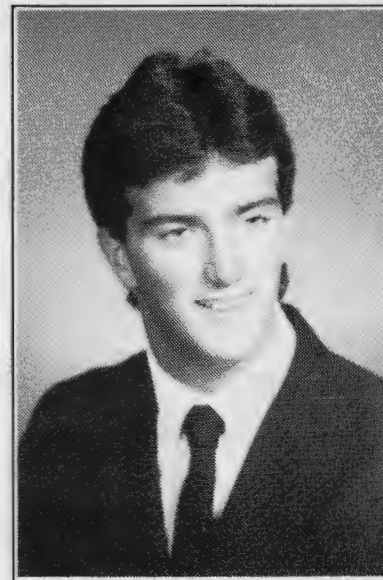
CHRISTINE RAMSAY, daughter of John Ramsay, graduated with honors from Dunwoody High School in Atlanta, Georgia on June 11. Christine will be attending FSU, Tallahassee, this fall.



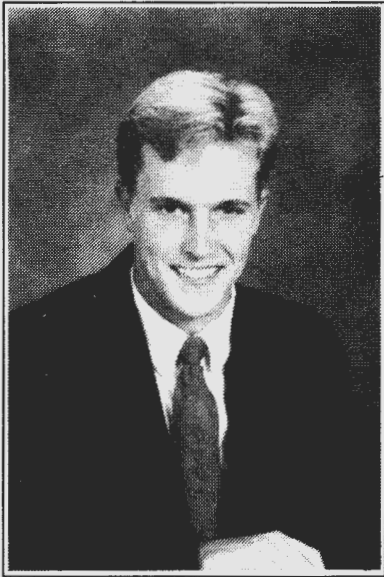
LARA RICE, daughter of David Rice, graduated from Antelope Valley Jr. College, Lancaster, CA, in May. Lara will attend San Diego State University majoring in psychology.



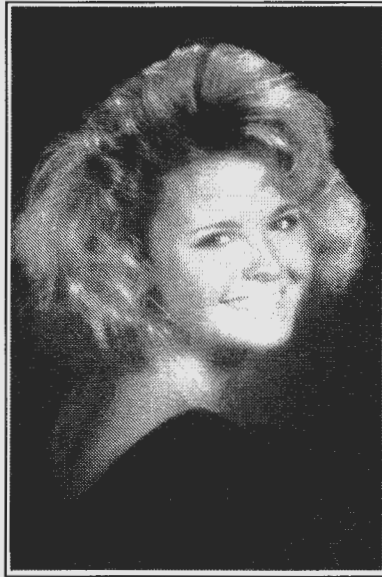
KATHERINE SNIDER, daughter of Jack Snider, graduated from New College of USF in May with a Bachelor of Arts degree in History. Katherine plans a journalism career.



GREG R. SNYDER, son of Gary R. Snyder, will graduate this summer from the University of Florida, Gainesville, with a BA degree in Finance and Economics. Greg plans to work in restaurant chain management.



RUSTY SUTHERLAND, son of Sue Sutherland, graduated from East Bay High School in Gibsonton on June 2. Rusty will study engineering at USF.



ANNIKA WALKER, daughter of Dave Walker, received her Bachelor of Arts degree in Journalism from Troy State University, Troy, Alabama, in May. Annika plans to obtain a Master's degree while working in her chosen field.



LEANNE MARIE WELLS, daughter of Larry Wells, graduated from Sarasota High School on June 1. Leanne will attend Mercer University in Macon, GA this fall.

No Photo Available

ALBERT PAINE, son of Fred Paine, graduated from Bridgewater State College, Bridgewater, MA in May. Albert received a Bachelor of Science degree in Psychology.

PHOEBE PAINE, daughter of Fred Paine, graduated in May from Manatee Community College with an Associate of Arts degree. Phoebe has been chosen to participate in the "Up With People" production to be staged in 18 countries next year. She will continue her education in pre-medical.

LISA ANN ROTH, daughter of Bill Waggener, Sr., graduated in December, 1992, from Webster University, St. Louis, MO, with a Masters in Engineering Management degree.

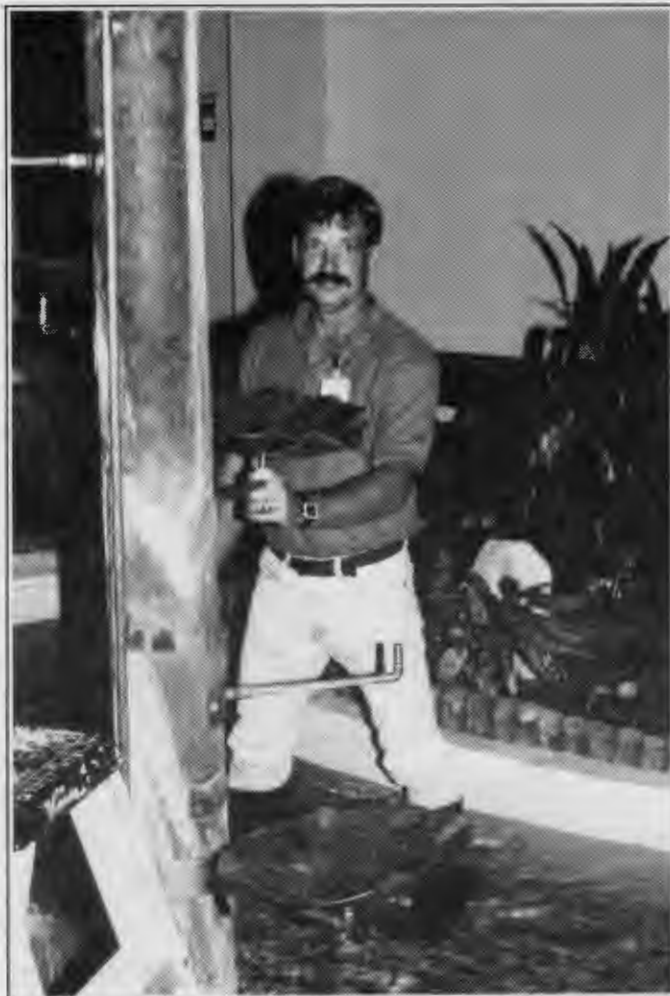
LARRY SANGER, son of Alma Sanger, graduated from Manatee Community College in December, 1992 with an Associate of Arts degree in Criminology. Larry is continuing his education at the University of Florida.

CAROL WAGGENER, daughter of Bill Waggener, Sr., graduates in July from the University of South Florida, Tampa, with her Masters in Business Administration degree.

FISH POND TAKES ON NEW LOOK!



Mike Schlubatis with the sparkling new fountain designed and rebuilt by Mike and the members of the Facilities Department. The Fish Pond has taken on a whole new look!



LDS Honors Long-Term Employees

A dinner honoring LDS employees celebrating milestone anniversaries during the months of July through December, 1992, was held on Thursday evening, February 11, at Michael's on East. Attending were honorees and their guests, supervisors and managers.

Following opening remarks by Joe Keller, honorees were presented with either a 20 year timepiece or a plaque denoting years of service. Memorable anecdotes, activities and events of the past years were shared with all. This group of devoted employees represents 230 years of service to our company.



Left to right: Tom Bray (20 years), Len Zeiler (30 years), Nancy DuPlantier (30 years), Frank Bost (30 years), Ron Basham (30 years), Phil Stockton (20 years). Missing from the photo are Alyene Andrews (30 years), Janet Ellis (20 years) and Marie Valence (20 years).

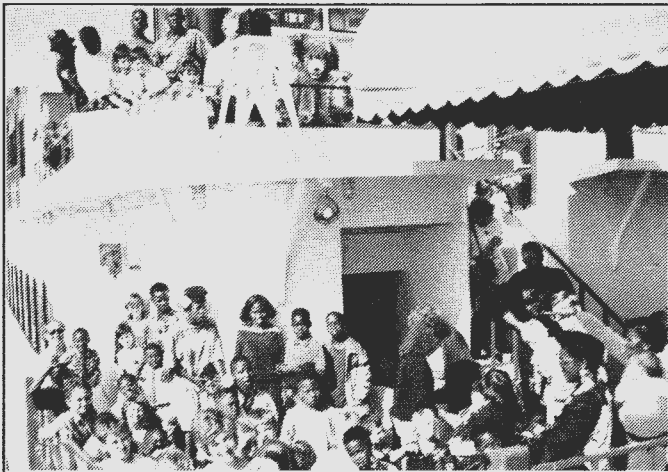


**you have earned
your wings**



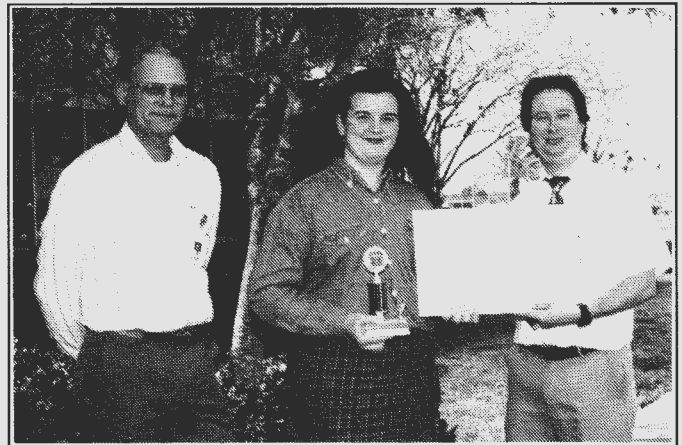
Loral Employees Earn Their Wings as Foster Angels

There is a wonderfully unselfish woman in Sarasota named Deborah Downes. For the past 15 years she has been helping foster children in Sarasota County have merrier Christmases by encouraging Sarasotans to become Foster Angels. This year, several LDS employees filled wish lists for one or more of these abused and/or abandoned children, thus earning their wings as Foster Angels. Pictured below are "Deborah's children" offering a huge "thank you" to everyone who participated.



Toothpick Bridge Building Contest Held

The fourth annual Toothpick Bridge Building Contest was held the weekend of the 13th and 14th of February at Gulf Gate and DeSoto Square Malls. The competition is open to all middle and high school students in Sarasota and Manatee counties. The contest is used to introduce students to Engineering as a future career choice. This year's participation again exceeded all previous years; a total of 514 students submitted 327 bridges for testing. These young students have built some amazing structures. As you look at the results, keep in mind that 1 gram is 1/28 of an ounce, so a 70 gram bridge is only 2.5 ounces. As you can see, this year we had two bridges which held over 200 pounds before they broke. This has sent the designers of our tester back to the drawing board to make allowances next year to increase its capability. Loral employees who participated in organizing and running the contest this year were Rick Wilson, Earl Tonkin, Al Marion and Greg Williams.



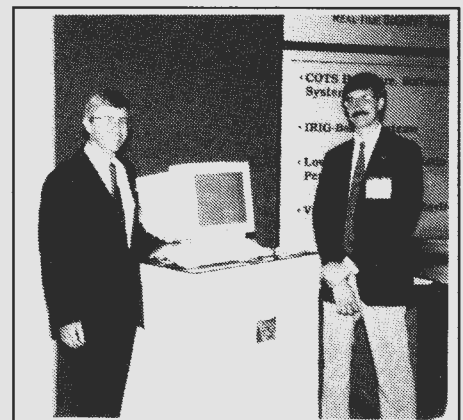
Al Marion and Rick Wilson with second prize winner Jacqueline Pendola.



AFCEA SHOW

The Armed Forces Communications and Electronics Association Show, held June 8-10, 1993 was attended by three Loral Data Systems product lines: Instrumentation Recorders, Telecommunications CPS100 and SPS.

Pictured left: Bill Vernoooy, Jack Long, Joel Weber and Steve Crabtree. **Pictured right:** Bob Buell and Tim Wellman.



Loral Employees Serve As Judges In Local Science Fairs

by Jean Henry

Several Loral Data Systems employees recently served as judges at two area science fairs.

Tony Reali, Ken Lee and Ed Kreyling were on hand to judge projects at the Sarasota County District Science Fair held at the National Guard Armory on March 11. Students participating in this county-wide event, which is affiliated with the International Science and Engineering Fair, were at the primary and intermediate levels, grades K-5. The junior and senior level projects, grades 6-12, were judged on April 8 at the University of South Florida's Sudakoff Center. Loral Data Systems is a major sponsor of this annual event.

March 11 was also the date for the McIntosh Middle School Science Fair, coordinated by science teacher Jim VanFleet. Thad McCulloch, Don Opdycke, Kristi Weaver, Luis Sandoval, Bill Mandakis, and Jim Schadl spent the morning with clipboards and evaluation sheets, judging a whole gymnasium-full of science projects. The winners from this competition advanced to the April 8th county-wide science fair.

Loral Data Systems is committed to the students of our community and is proud to help make these events quality experiences for all.



Jim VanFleet, Science Teacher at McIntosh Middle School.



Toni Reali confers with other judges at District Fair.



District Science Fair at National Guard Armory on March 11.



Ken Lee evaluating projects at the District Fair.

Bill Waggener, Jr. Awarded U.S. Patent

Bill Waggener, Jr. of Loral Telemetry Engineering has been awarded \$500 in accordance with the Loral Data Systems Operations Directory Policy OD-4.82 for the issuance of U.S. Patent #5161117 for a **Floating Point Conversion Device and Method**. This is the first patent to be awarded as a result of the model 8715 design. Bill Waggener, Sr., in making this award, said, "Patents are becoming increasingly important as a means for protecting our intellectual rights and Bill, you should be very proud of your accomplishment."



US005161117A

United States Patent [19]
Waggener, Jr.

[11] Patent Number: **5,161,117**
[45] Date of Patent: **Nov. 3, 1992**

[54] **FLOATING POINT CONVERSION DEVICE AND METHOD**
[75] Inventor: William N. Waggener, Jr., Sarasota, Fla.
[73] Assignee: Fairchild Weston Systems, Inc., Sarasota, Fla.
[21] Appl. No.: 361,588
[22] Filed: Jun. 5, 1989
[51] Int. Cl.⁵ G06F 7/00
[52] U.S. Cl. 364/715.03; 364/748
[58] Field of Search 364/748, 715.01, 715.03, 364/715.05

1985, "SN54AS8838, SN74AS8838 32-Bit Barrel Shifters", pp. 2-523 through 2-532.

Primary Examiner—Tan V. Mai
Attorney, Agent, or Firm—Stern, Kessler, Goldstein & Fox

[57] **ABSTRACT**

A high-speed floating point conversion apparatus and method are disclosed, with special reference to selectable conversion of "source" IEEE format numbers to any of the "destination" IBM, DEC, or SEL formats. In the preferred embodiment, the exponent is input to a shift control block. The exponent is converted to a different base, resulting in a remainder. The remainder of the exponent base conversion is input to the shift position control input of a shift register (preferably a barrel shifter) which has received the fraction (or mantissa) of the original floating point number. The fraction is shifted an amount necessary to compensate for the exponent's base conversion. The shift position control bits are available after a very short period of time, so that the shifting process of the barrel shifter is also completed quickly. The exponent and shifted fraction (or mantissa) are then input to format conversion units which format the data bitwise as necessary for a particular output format. Advantageously, clamping functions within the format conversion units handle special cases such as infinities. From the format conversion units the converted data is steered to appropriate output buffers. In parallel with the floating point data conversion process occur such processes as tag and index processing.

[56] **References Cited**

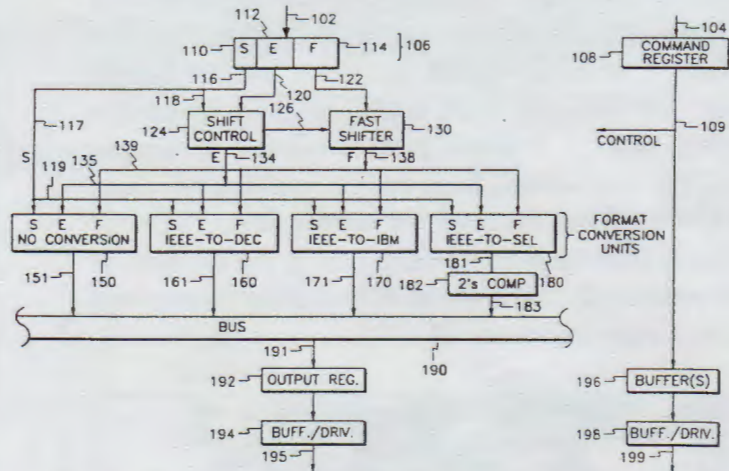
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The Programmable Gate Array Data Book, Xilinx, Inc., San Jose, California, 1988, Chapter 2 (Product Specifications) and Chapter 6 (Applications).
Production Data, Texas Instruments, Inc., Dallas, TX.

24 Claims, 11 Drawing Sheets



**LORAL
DATA SYSTEMS
FAMILY
PICNIC
OCTOBER 9, 1993**



Place:
Royal Coachman Resort

PULSE is published quarterly for the employees of Loral Data Systems.

Data Systems

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Jim Horvath, *Managing Editor*

EMPLOYEE ETHICS RESPONSIBILITIES

To comply with Loral's Code of Ethics to report

- If requested to engage in any activity contrary to the policy
- If you have reason to believe any other employee or representative of the company is engaged in conduct contrary to the policy

Channels for Reporting:

- His/her supervisor
- Supervisor's manager
- Person designated within the division for investigating reports

Compliance matters:

Mark Mustico, SPS Group
Dave Taylor, All Others

Security matters:

Dennis Potoka, All Groups

Calling the Division Hotline #6869

Calls may be anonymous. All hotline calls will be handled confidentially. You may call back to learn what action was taken.

Calling/writing Loral Corp. Vice President & Controller:

Bob Lapenta
600 Third Ave., NY, NY 10016
(212) 697-1105

Calling/writing Independent Ombudsman:

Robert Gregg
c/o Hazel, Thomas, Fiske, Beckhorn, and Hanes
3110 Fairview Park Dr., Ste. 1400
Falls Church, VA 22042
1-800-842-2651