

October 2002

Coop Job Fair and Job Status Page

The IEEE Coop Job Fair will take place Thursday, October 24th, 2002. in Wells Commons, beginning at 10:00am. and ending at 3:00pm. So far, we have [more than ten companies](#) that will be looking for engineering students from all departments. During economic hard times, companies often hire coop students even though they might not have the budget to hire permanent employees. When the time comes to hire permanent employees, a majority of companies will look at their coop students first. Of those graduating seniors who have had coop experience, nearly all indicate the experience was very worthwhile, and they would do it again..



In addition, note that companies have requested we post a web page that indicates the availability and interests of ECE students, along with their contact information. It's **very important** that your information be listed on the [Job Status page](#). Note this is a moderated data base entry, so your information will not be posted until it is approved. We eliminate bogus entries this way.

Army Renews Supercomputer Project for \$1.7M



A recent [Frontline documentary](#) discussed the threat, the technology, and the strategy behind the nation's anti-missile defense shield capability. U Maine is highly involved in research associated with this technology. The Army has funded a partnership between the University of Maine and [Applied Thermal Sciences](#) of Sanford, Maine to provide "Aerodynamic Analysis of Missile Interceptors". In so doing, UMaine and ATS are developing a cost effective supercomputer useful in the modeling of computational fluid dynamics (CFD) problems.

Year-one funding was \$1.2 million and supported the development of a cluster of 208 compute nodes interconnected with a high-speed fiber optic-based communication network. Work has been done to evaluate and improve the performance of this machine, particularly in the area of CFD. Year-two funding has just been received for \$1.7 million to expand and improve the performance. The most recent measurement of speed using the LINPACK benchmark was 225.8 billion floating point operations per second (225.8 GFLOPs).

ECE personel involved in the work are Bruce Segee, Rick Eason, Andy Sheaff, and Bruce Littlefield. The work also includes undergraduate and graduate students. Eric Wages, a 2001 CEN graduate is serving as a full-time supercomputer engineer.

UM Integrated Circuit Report Quality Exceeds All Others!

The ECE Department uses the MOSIS low-cost prototyping and small-volume production service for VLSI circuit development to fabricate integrated circuit designs our students create in their upper-level microelectronics courses. We send the designs to MOSIS, they fabricate the integrated circuits, they return them to us, and we test their performance. The following is a letter recently sent to Prof. Dave Kotecki, giving a MOSIS opinion of our student's test work. This letter is a glowing testament to our students' work and the guidance given by Dr. Kotecki.



Dear Prof. Kotecki,

I review all of the test reports submitted by participants in the MEP Instructional program. In all of the time MOSIS has had this program in operation, I have only seen four truly outstanding reports on MEP Instructional chip designs. Your group has the distinction for submitting the four best reports. Most reports submitted in the MEP Instructional program are at best acknowledgments that the chips were received and tested (occasionally not tested at all). There is rarely much information on how well the chips worked, or if they worked at all. Sometimes we get a brief outline, in three or four sentences, of test results. The following reports from your group were clear exceptions to the norm:

- **Design and Test of Digital Phase-Locked Loops, by Fang Yang**
- **Class-D Amplifier Front End, by Steven E. Turner and Wayne H. Slade**
- **5 MHz Pipeline Analog to Digital Converter, by Kannan Stockalingam and Rick Thibodeau**
- **Frequency-Band Selectable Signa-Delta Modulator, by Scott Saucier and Ron Bryant**

These four reports from your group are of a quality level that we would like to share with our co-sponsors of the MEP Instructional Program (Semiconductor Industry Association and Semiconductor Research Corporation). May we have permission to forward these reports (posters and full reports) to the SRC and the SIA for their review and interest? I am sure their member companies will be interested in seeing the quality of work your group is doing.

**Regards,
Vance Tyree**

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ECE Chair News



There will be a change of the ECE Chair, beginning in January. I will be joining the [National Technological University](#), a leading provider of graduate engineering distance education, as Vice-President for Academic Affairs. This is an opportunity to be involved in what I believe will be a major change in the way engineers engage life-long continuing education. I will have more to say in the December ECE newsletter.

Tidbits ...

- **CEN curriculum change** The ECE Department has recently made a CEN curriculum change. [MAT 481](#), Discrete Mathematics, or [COS 250](#), Discrete Structures, may now be taken to satisfy CEN degree requirements. Previously, COS 250 was required, and MAT 481 was not - students now have a choice between the two classes. This change is effective immediately.
- **Open House with ECE Sleepover**, Nov. 10/11 and Feb 16/17. If you're coming to a UM Open House, come a day early, have dinner with us (high school students with current ECE students and parents with ECE faculty), and spend the night in one of the residence halls with an ECE student host. See our [invitation letter](#) for more information and contact Janice Gomm (janice@eece.maine.edu) to make your reservation!
- **Scholarship application deadline dates**: Feb 13 for current high school students seeking [First Year ECE](#) or [Microelectronics Scholarship Consortium](#) awards, and March 1 for current ECE students seeking ECE or upper class MSC awards.
- **IEEE Tech Talks** - This fall, the [IEEE](#) has sponsored two Tech Talks: On October 9, **Dr Ross Davis** spoke about a penny-size microelectronic, wireless, nerve stimulator that is implanted in the body and receives instructions from a small computer worn by the patient. On October 16, **Ken Winter**, from Bath Iron Works, will be speaking about some recent BIW projects. Two projects include a speaker that can broadcast crystal clear audio up to 500 meters and a fan with no moving parts! If you are interested in giving a Tech Talk on a subject of interest to ECE students, please contact John.Roberts@umit.maine.edu

And finally ...

A tourist in Vienna is going through a graveyard and all of a sudden he hears music. No one is around, so he starts searching for the source. He finally locates the origin and finds it is coming from a grave with a headstone that reads: Ludwig van Beethoven, 1770-1827. Then he realizes the music is the Ninth Symphony, and it is being played backward! Puzzled, he leaves the graveyard and persuades a friend to return with him.



By the time they arrive back at the grave, the music has changed. This time it is the Seventh Symphony, but like the previous piece, it is being played backward. Curious, the men agree to consult a music scholar. When they return with the expert, the Fifth Symphony is playing, again backward. The expert notices that the symphonies are being played in the reverse order in which they were composed, the 9th, then the 7th, then the 5th.

By the next day, the word has spread, and a throng has gathered around the grave. They are all listening to the Second Symphony being played backward. Just then, the graveyard's caretaker ambles up to the group. Someone in the crowd asks him if he has an explanation for the music. "Oh, it's nothing to worry about" says the caretaker. "He's just decomposing."

Publications, proposals, etc.

UNIVERSITY/COLLEGE/DEPARTMENT SERVICE

- E. Beenfeldt, M. Da Cunha, C. Domnisoru, R. Eason, J. Field, D. Hanselman, D. Hummels, D. Kotecki, J. Patton, H. Resson, B. Segee, A. Sheaff, A. Whitney and E. Williams attended new student dinner, Sept. 11 at Wells Dining Commons

INDUSTRY VISITS: DATE INDUSTRY SCHOOL

H. Resson	7/25, 26, 8/9, 15, 16, 21	International Paper, Bucksport
M. Musavi, H. Resson, M. Driss, K. Shannak	9/13	International Paper, Bucksport
M. Musavi	9/26	International Paper, Bucksport

GRANTS RECEIVED

- M. Da Cunha, "High Temperature Oscillator and Digital Clock," year 2 funding, Linear Measurements, \$27,480, September 30.

PROPOSALS SUBMITTED

- M. Da Cunha, "Testing New Acoustic Wave Materials for High Temperature Chemical Sensors," Maine Space Grant Consortium, \$20,000, September 16.
- C. Domnisoru, "RAW Sequencing Data Processing and Base Calling," NIH, \$551,250, October 1.
- M. P. Da Cunha (50%), J.F. Vetelino (25%) and R. Lad (25%), "Characterization of the LGX Family of Crystals for Military Electronic Systems Applications," DEPSCoR, \$1,066,000, October 11.

PUBLICATIONS

- J. Hammond, J.F. Vetelino, A. Bushway, B. Marquis, B. Oickle, B. Segee, M.E. Camire, and K. Davis-Dentici, "A Semiconducting Metal Oxide Array for Monitoring Fish Freshness," Sensors and Actuators, B84, pp. 113-122, May 2002.

PROFESSIONAL ACTIVITY

- J. Patton and J. Vetelino attended Engineering and Computing Education Grantees Conference, Washington, DC, September 30-October 1.
- F. Irons completed review of paper for the IEEE Transactions on Instrumentation & Measurements, September 24.
- D.E. Kotecki reviewed a paper for the Journal of the American Ceramic Society on October 2, 2002.

UPDATE

- J. Vetelino and M. DaCunha are attending the IEEE Ultrasonics Meeting in Munich, Germany, Oct. 5-12.