Tour of Solid State Power Control Engineering and Manufacturing Facility

Presented by PES/IAS FWCS

Date & Time: Tuesday, 20th January 2004
Refreshments: 5:30 PM – 6 PM
Tour: 6 PM to 7:30 PM
Subject: Manufacturing Methods and Engineering Design Techniques for Solid State Power Control Devices
Presenter: Jim Mitchell, President and CEO of Motortronics, Inc.

Location: Motortronics, Inc., 1600 Sunshine Drive, Clearwater, FL
Cost: $5 per person
Questions: Call Tom Blair at (813) 228 – 1111 Ext 46171
E-mail: tom_blair@ieee.org

Detail of Facility: PES/IAS West Coast Chapter of IEEE invites you to an evening tour of a local solid state power control engineering and manufacturing facility. Methods of power control design and manufacturing will be presented and a tour of the manufacturing and testing facilities will be presented. If available, a demonstration of the testing procedures for some of their devices will be presented.

Motortronics is an engineering and manufacturing firm that specializes in solid-state electronic power controls. They design and manufacture devices such as SCR based AC and DC solid state power controls for non motor loads, electronic brakes and motor winding heaters for motor loads, variable frequency drives that range from fractional HP and 120 volt supply to 400 HP 460 volt supply, and motor soft start systems that range from fractional HP 230 volt supply to 15,000 HP, 15KV supply.

Directions from Tampa: Take SR-60 (Gulf-to-Bay Blvd) west toward Clearwater approx. 12 miles. Turn right on S. Belcher Road / CR-501 and travel 0.5 miles to Logan Street and turn left onto Logan. Follow to end and turn left on Sunshine Drive.

Directions from St. Petersburg: Take Roosevelt Blvd / FL-686 west to US19. Travel North on US19 approx. 3.5 miles to SR-60. Take SR-60 west to Belcher. Turn right on S. Belcher Road / CR-501 and travel 0.5 miles to Logan Street and turn left onto Logan. Follow to end and turn left on Sunshine Drive.
Chair’s Comments
By John Conrad

As you read these words I suspect that Christmas is a fading memory and the New Year has already started. However, as I write these words, Christmas shopping still lies ahead and I know that I will have to deal with rising panic as I run out of time! I have more immediate issues to deal with however as I am on a flight to Boston even though Logan airport has been closed for the last 24 hours due to a heavy dumping of snow by a double Nor’easter. I have every confidence that the skill of the Logan snowplows and our pilot will get us safely on the ground.

Before I left on this trip, I had the forethought to check on the IEEE Boston Section’s web site and found that I could attend an IEEE meeting every evening during my stay. I considered a talk on software reliability but finally selected a talk at MIT by Paul Graham on Spam Filtering. Paul Graham is a well-known guru on spam and is the author of the software Spam Bayes that I recently installed on my computer. It is a wonderful tool, which has virtually eliminated the menace of spam from my computer. I am really looking forward to listening to his words of wisdom. I mention all this as a tip to all you members who are also business travelers. Check the local IEEE section web site before your trip and you may be surprised at the alternatives to lonely evenings watching TV in your hotel room. Not many sections are as active as Boston but there are many offerings in the major cities across the country. Take advantage of your membership!

Thank you.

2004 Review Seminars For
PE Electrical & Computer and EIT/FE
APRIL 16 and 17 Examinations

Review seminars for the PE (Electrical and Computer) and Engineer In Training / Fundamentals of Engineering (EIT/FE) exams will be held: Mondays, January 19 through March 22 for the EIT/FE Exam & Thursdays, January 8 through March 25 for the EE Exam. Seminars are conducted from 7-10 P.M. (Monday or Thursday) for ten weeks for the FE and twelve weeks for the EE. The registration fee is $395 and includes text. The seminars will be held on the USF main campus in Tampa and will also be available via Internet.

To register, contact: Edward Scott, P.E., PO Box 14042, (EC37), St. Petersburg, FL 33733. Email: Edward.Scott@pgnmail.com; Phone (727) 384-7544, FAX (727) 384-7865
Pinellas Chapter, Florida Engineering Society
Celebrate Engineering 2004

You are invited!

Mark your calendar today!

Date: Friday, 13th February 2004
Time: Social, Registration: 5:30 – 7:00 pm
      Dinner, Events: 7:00 – 10 pm
Place: A LA CARTE EVENT PAVILION, Dana Shores Road,
      West of Tampa Airport. Check their website for directions
      and pictures of elegance!  http://www.alacarteeventpavilion.com/
Cost: $25 per person (What a bargain – subsidized by your Society!)

Reservations must be made in advance for planning purposes – no reservations taken
at the door! Contact John Conrad at 813-926-4004 for tickets or reserve online at:
http://weiquality.com/celebrate2004 Credit cards are accepted!

DON’T DELAY - RESERVE NOW - WE WANT TO SEE YOU THERE!

Join us for the LARGEST GATHERING of engineering professionals, companions, and guests! South from Naples, North to Inverness, East of Lakeland and Winter Haven!

What is the Celebrate Engineering Banquet about? Five major engineering societies in the Tampa Bay area joined forces to promote engineering awareness within our own societies and the local community, in conjunction with the promotion of National Engineers Week, co-sponsored by your society and many other engineering societies during early February.

AWARDS TO HEROES!

Each society will recognize outstanding officers and members for their contributions and accomplishments in the engineering community and profession, for engineering and technical achievement. Join us in congratulating them for their accomplishments!

ENTERTAINMENT!

For your most memorable experience of the year we have lined up a complement of entertainment to enhance your enjoyment of the evening! Start out with a musical serenade by local musicians to put you in the mood throughout the evening. Wander over to the caricaturist, to have your face emblazoned on canvas in a silly pose! A locally renowned personality will be our MC for the evening! He will not only pace the meeting, but also keep us all in stitches with his stories and anecdotes, plus hand out many DOOR PRIZES!

GUEST SPEAKER!

Our Keynote Event will be a presentation by Dr. Robin Murphy, Director, USF Center for Robot-Assisted Search & Rescue! A video and robot demonstrations will be highlights of the evening. Don’t miss this presentation! You can find out more about Dr Murphy’s accomplishments at her website http://www.csee.usf.edu/~murphy/

SPONSORS/VENDORS!

A number of vendors and sponsors have again graciously agreed to support our Celebrate Engineering Banquet. Because of their generous support, the Committee is able to provide this elegant event to our members at a significant discount (50%) over what it actually costs us to provide it to our members! New vendors/sponsors who would like to participate in our wonderful venue should contact Richard Beatie at r.beatie@ieee.org or John Chevalier at ChevalierEngCon@aol.com. All contributions are tax deductible!
Wireless and Microwave Technology Conference 2004  
Radisson Sand Key, Clearwater, FL  
April 15-16, 2004

The 6th annual IEEE Wireless and Microwave Technology (WAMI) Conference will be held on beautiful Sand Key beach in Clearwater, FL, on April 15 and 16, 2004. The conference will address up-to-date multi-disciplinary research needs and interdisciplinary aspects of wireless and RF technology. The program includes oral presentations, poster presentations, and tutorials.

Prospective authors are invited to submit original and high-quality paper summaries for presentation at the WAMI conference and for publication in its Conference Record. The technical program will cover wireless communication systems and RF technologies.

Important Dates
Extended Abstracts Due: 15th January 2004  
Author Notifications: 1st February 2004  
Final Papers Due: 25th February 2004

Conference Registration: Please see http://ee.eng.usf.edu/WAMI/conferences/2004/.  

Five FWCS Members Elevated to IEEE Senior Membership

The following five Florida West Coast Section Members were recently elevated from Full Membership to Senior Membership: John Conrad, Michael E. Haas, Ralph D. Painter, Xuejun Sun, and Daniel Teijido.  
Hearty Congratulations!!

Suncoast Signal

An Ad placed here reaches over 2,300 members!!

Business Card $30  
Quarter page - $50  
Half page - $90  
Full page - $175

Multiple Issue and Member Discounts available!!  
For more information, contact the Signal editor Srinivas Katkoori  
Email: katkoori@ieee.org Phone: 813-974-5737
IEEE Membership Dues - Special Circumstances

IEEE realizes that economic circumstances may impact some members' ability to pay the full amount of IEEE membership dues. For this reason, the following special circumstance categories have been established. Special circumstances are not available to Student members. Only one category may be claimed in any year.

Minimum Income Provision: Applicants who certify that their prior year's income did not exceed US $11,300 or equivalent are granted a 50% reduction in IEEE dues, regional assessment and dues for one IEEE Society and its optional publications. Please submit written certification with application and payment. Student members are NOT eligible.

Retired Provision: A retired member, not gainfully employed and not qualifying for Life Member Status, on attaining the age of 62 years, may apply for a 50% reduction in dues and assessments. An individual who qualifies for the IEEE Retired Member category may continue any and all Society memberships held for not less than the 5 prior years. Optional publication fees equal those established for Student members.

Unemployed Provision: A 50% reduction in membership dues, Society dues, other subscriptions and assessments are available to a member or applicant who informs the IEEE Operations Center Office that he or she: (1) has become involuntarily unemployed and is seeking reemployment; or (2) has become voluntarily unemployed for reasons of raising children. Statement of continued unemployment shall be provided with each annual dues payment. In the case of voluntary unemployment, the provisions of this Bylaw shall not exceed four years. The reduced payments may not be made in installments. IEEE Career Resources can be found at http://careers.ieee.org

Calling All Science Fair Volunteers!

IEEE members are encouraged to help out as judges in the local science fairs. Most of the fairs will be held around the end of January or early February. Updates will be posted via the science fair website located at: http://www.dionson.com/ieeefair. Interested members can go to the website for more information. Alternatively, members may contact Carlo at 813-621-5935 or carlomagno@ieee.org. Reminder about volunteer signup for science fairs http://www.dionson.com/ieeefair
**Joint SPIN/IEEE Meeting**

**Tampa Bay SPIN (Software Process Improvement Network) Presents**

**VS.NET & CMMI**

By Mr. Richard W. Root

**Date & Time:** Tuesday, 27th January 2004  
**Refreshments:** 6 PM  
**Meeting:** 6:30PM to 7:30 PM  
**Location:** Grand Salon, Plan Hall, University of Tampa  
**Questions:** Farah Tavakoli, Ph: 1-800-763-8522 (X: 4561) Email: faraht@softcomputer.com

**Come and Learn This New Technology and how it Can Benefit You**

**Executive Managers:** Do you need to know if this will reduce the development time?  
**Programmer/Engineers:** The use of the intelligent drop down boxes used in coding and the ability to debug and run your programs on the fly. Can it be true? Is it that simple?  
**QA/PI/Product/Project Managers:** Document development using commenting from the code. Developing processes that can be easily used and run during the code Configuration Management for Managers and Developers.

Visual Studio Dot Net (VS.Net) is the latest Integrated Development Environment (IDE) tool to be developed by Microsoft used to develop applications that can run in the windows environment and uses several different languages (C sharp (C#), C++, and Visual Basic (VB.Net)) to support the code development.

The meeting will introduce VS.Net and the strength of some of the uses in CMMI process. Web based applications will be discussed that lead us to some weaknesses that can hurt a developer in the process

**About the Speaker:** Richard W. Root holds a Masters a Science, Management degree and a B.S. degree in (Computer) Electrical Engineering. He is currently the Chief Software Engineer for rapid prototyping of Commercial off the Shelf (COTS) software utilizing Microsoft Visual Studio.Net at Exceptional Software Strategies. He is developing C# programs that execute to download Certificate Revocation lists from several different servers located around the country. He is responsible for integrating the new software applications into existing software architectures to enhance the Public Key Infrastructure (PKI) implementation.

**About SPIN:** According to Software Engineering Institute, a “Software Process Improvement Network is [a group] comprised of individuals who want to improve software engineering practice. The individuals are organized into regional groups called “SPIN” that meet and share their experiences initiating and sustaining software process improvement progress.” The Tampa Bay SPIN (Software Process Improvement Network) was founded in June, 2000 when 15 people form 8 organizations got together to start a grassroots effort to bring process improvement professionals together to meet and learn. The Tampa Bay SPIN is governed by a Steering Committee that meets monthly to organize and plan SPIN meetings and other activities for the group.

**General Meeting Information:** Collaboration between SPIN and the University of Tampa is to promote educational opportunities for Software Process Improvement throughout the Tampa Bay community. Meetings are traditionally held on the last Tuesday of the month at University of Tampa in Grand Salon, Plan Hall. A sponsor company provides “Dinner-type” refreshments; we request a $5 donation to cover SPIN operating expenses. Our events start at 6:00PM with a mixer; the meeting itself begins at 6:30PM sharp, followed by a presentation relevant to process improvement, then door prizes are given away. The meeting ends by 7:30PM. We pride ourselves on starting and ending on time! SPIN’s membership has reached 410 members representing 112 companies and 25 independent consultants (as of Feb/02).

**How to Become a Tampa Bay SPIN Member:** Just email your company name and your phone number to cmoors@thetainfo.com and we’ll add you to our membership roster. You’ll soon start receiving meeting notices & other event info regularly. To learn more about SPIN, visit [http://www.tampabayspin.com](http://www.tampabayspin.com)
Southcon Exhibit Hours 10-5 10-4
Tues. 1/13 Weds. 1/14 Thurs. 1/15
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Day Planner
Southcon Conference Hours
8-4 8-5 8-5
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Southcon Exhibit Hours 10-5 10-4

Day Planner

Southcon Conference Hours
8-4 8-5 8-5
9-4 9-5 9-5

Keynote Luncheon (Noon to 2:00 pm)
K1 What Lies Ahead for the Electronics Industry?, Susan Mulcahy, Vice President and Director of Research, Reed Electronics Group $25

Special Events
SP1 Workshop in a Box: An Introduction to Designing with PICmicros using the PICkit1 Starter Board $50
SP2 Take the Low Power Challenge: Develop Ultra Low-Power Embedded MCU Application $50

Design and Manufacturing Tutorials (Lunch Included)
SC1 Analog Electronic Design $310
SC2 Advanced Signal Conditioning Design $310
SC3 BGAs - Layout Techniques, Routing, PCB Stackups and Rework Issues $310
SC4 EMC Printed Circuit Board Design Practices $310
SC5 FPGA Design with VHDL - Basics for Design Engineers $310
SC6 FPGA Design with VHDL - Advanced Topics $310
SC7 FPGA Design with VHDL - Test Benches and Design Verification $310
SC8 Grounding, Bonding and Shielding $310
SC9 Opto-Electronic Design Considerations $160
SC10 Reflow and Wave Soldering with Emphasis on BGAs $310
SC11 Thermal Aspects of Electronics Cooling $160
SC12 Troubleshooting the SMT Manufacturing Line - Defect Causes & Solutions $310

CEUs will be awarded for all tutorials.

Register Early – Prices above are effective through December 23, 2003. Beginning on December 24, the cost of each course increases by $50.

Special Assistance - If you require special assistance covered under the Americans with Disabilities Act, please contact us at (310) 524.4100, Ext. 218 by December 24.
# Registration Form

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Last Name  

Job Title  
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Company  

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___ Southcon Exhibits (Weds. and Thurs. – January 14 & 15)  
No Charge  

___ Keynote Luncheon ($25)  
Subtotal _____  

Engineering Tutorials (All courses shown below include lunch)  

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Subtotal _____  

Grand Total (total of all subtotals above)  

Grand Total $ ____________  

Method of Payment  

___ Check (payable to Southcon 2004)  
___ I agree to pay the grand total amount according to my credit card issuer (circle one)  
    VISA    MC    AMEX  

Card No. ________________________  CVV2 No.** ______________  Expiration Date ______________________  

Name appearing on card (Printed) ___________________________  (Signature) _____________________________  

Billing address of card  
(Street/City/State/Zip)  

** For Visa and Mastercard – the CVV2 number appears on the back of the card in the signature area. American Express cards do not contain this number.  

Please note: Your credit card statement will show “ECI - Electronic Conventions, Inc.” as payee – not “Southcon 2004”.
Students’ Corner

IEEE Student Branch, USF

The hard work and long hours our graduating Seniors put into their final projects were on display on Friday December 5\textsuperscript{th}, 2003, as they presented their senior design projects at the Ninth Annual Mini Circuits Presentation. Projects ranged from a Crystal AM Radio to Frequency Voltage Converters, and there was certainly a great amount of talent evident in all projects. The following students were recognized for their outstanding projects, Carrie Jadus, Evan Brewer, Kharlile Barnaby, William Rothenbach, Daniel Quintela, Anthony Shields, and Larry Mastromoro. The IEEE Student Branch would like to congratulate all students on their hard work and efforts they put forth into their projects and wish them all the best as they head off into the engineering workplace.

With all our returning officers refreshed and ready to work after a restful break, the Student Branch has many new interesting ventures to present. Our joint picnic with IEEE-FWCS, a tour of Harris Corporation with the student branch of the American Society of Mechanical Engineers, Engineering Fun Day with the College of Engineering and the National Society of Black Engineers, and, of course, our annual laser show at EXPO 2004, are just some of the things the students can look forward to this upcoming semester. We would like to encourage all our students to participate in as many events as they can throughout the semester. To contact the IEEE Student Branch please email us at ieee@eng.usf.edu or call 813.974.4776. Have a great semester everyone!

Brain Teaser Challenge Column

By Butch Shadwell

December BTC Solution Due to the publishing schedule, at the time I am writing this I have only received one correct answer for this BTC. If you recall last month I was acquainting you with my cousin Otis and “these vacuum tubes (that) were named for the fruit/nut of a common tree. With just this much information, can you tell me what the common name for this type of tube was? And to really impress me, what were the five leads connected to inside the envelope?”

Of course the old timers in the audience immediately recognized “acorn” tubes. They were used in many applications that required very small size and perhaps higher resistance to vibration. Charles Lord sent me the attached photo. As you can see, two leads were for the heater, one lead was the cathode, one lead was the grid, and the last one was to the plate or anode. I started working in electronics 40 years ago, and the engineers of that era and before were brilliant. When I think about some of the great designs our predecessors did with such limited technology, those guys were real pioneers. I hope that that creative genius and tenacity is still alive in our numbers today.

January BTC The other day as I was reading a book about medieval England, I fell asleep and had the most realistic dream. In this dream I was a famous knight. I was known throughout Europe for my unmatched skill with the sword and lance. The dream was so realistic, I found myself often gasping from the pungent odors from everywhere and everyone.

This was not a bad dream, as dreams go. After having been named MVP on the tournament circuit for the last five years, I had collected some great endorsement deals, set myself up with a huge castle, and was having to beat off the jousting groupies with a stick. Except for the constant danger of getting my head cracked with a lance, and of course the smell, it was a pretty good life.

In order to impress the local wizard, I thought I would make a fire start magically. Somehow my dream alter ego found a 9-volt alkaline battery, and managed to recall that they have an output impedance of about 18 ohms. I did mention that this was a dream right? Anyway my medieval self thought about taking the battery and attaching a length of wire to make a heating element with which to light a fire. Unfortunately, probably due to a few too many head shots with a lance, I couldn’t remember what resistance the wire should be to get the most power out of this battery to generate heat in my little wire fire starter. I’m sure that all of my readers know the answer to this one. What is the optimal resistance of my older heating coil?

Reply to Butch Shadwell by December 20 at b.shadwell@ieee.org (email), 904-223-4510 (fax), 904-223-4465 (v), 3308 Queen Palm Dr., Jacksonville, FL  32250-2328. (http://www.shadtechserv.com) The names of correct respondents may be mentioned in the solution.
### January 2004 Calendar of Events

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<td>4</td>
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<td>6 5:30-7:30PM IEEE FWCS Excom Meeting TECO Hall, Tampa</td>
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<td>13 9am-4pm Southcon 2004, Orlando</td>
<td>14 9am-5pm Southcon 2004, Orlando</td>
<td>15 9am-5pm Southcon 2004, Orlando WAMI Conf; Abstracts Due.</td>
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<td>20 6-7:30pm PES/IAS Tour of Solid State PowerEngg Motortronics, Clearwater, FL</td>
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<td>27 6:30-7:30pm SPIN/IEEE Meeting on VS.NET &amp; CMMI Univ. of Tampa</td>
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Institute of Electrical and Electronics Engineers, Inc. Florida West Coast Section 3133 W. Paris Tampa, Florida 33614

Sections Congress 2005 is coming to Tampa!

DATE SENSITIVE MATERIAL. DO NOT DELAY


Or send address changes including your name, IEEE Member number and all pertinent information to:

IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 or call (800) 678-4333

Or fax your address changes to (732) 562-5445