

OctoberBest 2008 Technical Program Guide - PRELIMINARY

Rev. 6/23/2008 12:09 AM

Time	Room A	Room B	Room C	Sydney
	IEEE SEMINARS		SME PORTLAND	PCB Designer/Engineer
8:00-11:45AM	<u>IEEE1</u> (\$75 / \$99) Practical Control Loop Design for Embedded Systems Tim Wescott	<u>IEEE2</u> (\$75 / \$99) Product Design and Regulatory Compliance Process Henry Benitez, Derick Skouby, Al Warren	<u>SME1</u> (\$80 / \$99) Manufacturing Leadership Briefing Bruce MacKender	<u>IPC1</u> (\$20) 8-9:45 New Tools for You, the Designer: IPC Land Calculator & IPC Xpert Tom Hausherr <hr/> <u>IPC2</u> (\$20) 10-11:45 Efficient Power Supply Layouts Frazier Pruitt
12:00AM-1:00PM	KEYNOTE “FLIR: an Oregon Manufacturing Success Story”, Terry Outcalt, General Manager, FLIR			
	OCTOBERBEST SEMINARS			PCB Designer/Engineer
1:15-2:15PM	<u>OB1A</u> Low Cost High Performance Autonomous Hybrid System Implementation Subject to Weight and Power Constraints Gary Viviani (\$10)	<u>OB1B</u> Thinking Inside the Box - Inexpensive Rapid-Prototyping for EEs Pat Barrett (\$10)	<u>OB1C</u> You Have a Great Idea! Now What? Chris Jacobs (\$10)	<u>IPC3</u> (\$20) 1:15-3:00 Explore the Cost Savings of Specialty PCB Materials and DFM Mark Thompson
2:15-3:15PM	<u>OB2A</u> Open Source Tools in Embedded Development Andrew Greenberg (\$10)	<u>OB2B</u> Techniques for Solution of Wireless EMI Issues Simon Chan, Yohei Tsuda (\$10)	<u>OB2C</u> Startups 101: Feasibility to Financing Kristin D. Shelton (\$10)	<hr/> <u>IPC4</u> (\$20) 3-4:45 Principles of Better Stencil Printing
3:15-3:45PM	AFTERNOON BREAK			
3:45-4:45PM	<u>OB3A</u> Development and Optimization Techniques for Multi-core Processors Max Domeika (\$10)	<u>OB3B</u> Designing Circuit Boards For Optimum Performance Of Boundary-Scan Test And Programming Robert Twigg (\$10)	<u>OB3C</u> Five Ways to Improve Your Time to Market Gary Hinkle (\$10)	Robert Dervaes

PCB Designer/Engineer Track sponsored by the Portland IPC Design Council

IEEE Seminars sponsored by the IEEE Oregon Section

Manufacturing Leadership Briefing sponsored by the Society of Manufacturing Engineers Portland Chapter.


OctoberBest 2008 Technical Session Program 6/23/2008 12:09 AM

Morning Sessions

- IEEE Oregon Seminars (2) (8am-11:45am)
- SME Portland Manufacturing Leadership Briefing (8am-11:45am)
- IPC PCB Designers/Engineer Track (8am-4:45pm) [all day]

IEEE Oregon Seminars

- Embedded Systems Design – 3hours
- Product Design and Regulatory Compliance Process – 3-4 hours

IEEE01: "Practical Control Loop Design for Embedded Systems"	
Time: 8:00 AM – 11:50 AM (3 hours)	
Speaker: Tim Wescott - Wescott Seminars / Wescott Design Services	
Cost: IEEE/ ASQ/EMA/ERA/SME \$75, non-members \$99	
CEUs: 0.3 CEUs (3 PDH) awarded upon completion <i>"The IEEE has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this approval, the IEEE has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally. As a result of their Authorized Provider membership status, IEEE is authorized to offer IACET CEUS for its programs that qualify under the ANSI/IACET Standards." IACET CEU Provider #1255</i>	

This is a half-day technical seminar sponsored by the IEEE Oregon Section.

Registration/check-in starts at 8:00 am, with the seminar starting promptly at 8:30.

Abstract:

As more and more control loops are being managed by microcontrollers, it becomes more necessary for designers to understand the methodologies to close control loops in software.

This course covers the elements of the ubiquitous PID (proportional-integral-derivative) controller as it is implemented on a microcontroller in software. The course will cover the basic elements of the PID controller and their effect on system behavior, some common pitfalls to PID design and how to avoid them, how to write code to implement a PID controller, and a "seat of the pants" PID controller tuning method. The course will conclude with a practical demonstration in the design and tuning of a PID controller.

Schedule:

- 8:00 am – Registration and Refreshments
- 8:30am – 9:45am – Seminar
- 9:45 – 10:00 am – Morning Break (approximate)
- 10:00 am – 11:30 am – Seminar
- 11:30 – 11:45 am Wrap-up
- Noon – OctoberBest 2008 Keynote, complimentary lunch

Intended Audience:

Software engineers, systems designers, and hardware engineers designing hardware and/or software to make the control loop work. Anyone who has a need to close control loops in software will find valuable information.

Course Objectives

The purpose of this seminar is for attendees to become familiar with elements of the ubiquitous PID (proportional-integral-derivative) controller as it is implemented in software on a microcontroller and to understand the methodologies to close these software control loops.

Prerequisites:

Knowledge of control theory is not required. The people who will get the most out of the class will be those with some experience with embedded software and/or systems design.

Registration:

The seminar will be held Wednesday, September 24 at the Tektronix Conference Center, on the Tektronix Beaverton Campus, 14200 SW Karl Braun Drive, Beaverton, OR 97077. Registration/check-in starts at 8:00 AM, with the seminar starting promptly at 8:30. Refreshments will be provided. Lecture notes will be provided to all attendees. In addition, 0.3 CEU's (3 PDH) will be awarded upon completion of the seminar.

	IEEE/ASQ/EMA/ERA/S ME	Other
Registration Fee	\$75	\$99


Directions:

The Tektronix Conference Center (Building 38) is located on the Tektronix Beaverton Campus. See http://www.tek.com/ir/campus_map.pdf From SW Jenkins, turn onto Hocken, then right onto Terman and then left onto Zworykin.

Instructor:

Tim Wescott has been designing closed-loop embedded software since 1988. He is the owner of Wescott Seminars, providing practical, high-quality education in control systems design to professionals across the United States. Mr. Wescott also owns Wescott Design Services, which provides embedded control systems design and consultation services in the US and Canada.

NOTE: The registration fee includes one copy of the lecture notes, CD-ROM with course materials, continental breakfast, morning break, and admission to OctoberBest. The organizing committee reserves the right to substitute speakers, restrict size, change venues, or to cancel the seminar. In the event the seminar is canceled by the organizing committee, registration fees only will be fully refunded. Individuals canceling their registration prior to September 1 will receive a full refund. No refunds will be made to individuals who cancel their registration after September 1. Substitute attendees accepted. Attendance is limited. Registration will be confirmed on a first come, first served basis.

IEEE02: “Product Design and Regulatory Compliance Process”	
Time: 8:00 AM – 11:50 AM (3 hours)	
Speakers: Henry Benitez, President, ElectroMagnetic Investigations, LLC Derick Skouby, Engineering Director, ElectroMagnetic Investigations, LLC Al Warren, Principle Engineer, Safety Thru Design, Inc.	
Cost: IEEE/ ASQ/EMA/ERA/SME \$75, non-members \$99	
<p>CEUs: 0.3 CEUs (3 PDH) awarded upon completion</p> <p><i>“The IEEE has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this approval, the IEEE has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally. As a result of their Authorized Provider membership status, IEEE is authorized to offer IACET CEUS for its programs that qualify under the ANSI/IACET Standards.”</i></p> <p><i>IACET CEU Provider #1255</i></p>	

This is a half-day technical seminar sponsored by the IEEE Oregon Section.

Registration/check-in starts at 8:00 am, with the seminar starting promptly at 8:30.

Abstract:

This short course will focus on the product design process from concept to end of life taking into account its design for regulatory compliance.

The following aspects will be addressed:

- Overview of product regulatory requirements for electromagnetic compatibility and product safety.
- Update on changes to EMC and Product Safety European Regulatory requirements and test standards.
- Introduction of product regulatory steps within the product design cycle.
- EMC test standards will be discussed in detail to include discussion of each EMC phenomena and test methods.
- Product design guidance for EMC and Product Safety compliance.

Schedule:

- 8:00 am – Registration and Refreshments
- 8:30am – 9:45am – Seminar
- 9:45 – 10:00 am – Morning Break (approximate)
- 10:00 am – 11:30 am – Seminar
- 11:30 – 11:45 am Wrap-up
- Noon – OctoberBest 2008 Keynote, complimentary lunch

Intended Audience

This course is intended for engineering professionals – design and manufacturing engineers, compliance engineers/managers, product engineers/managers, manufacturing and product development managers.

Course Objectives

The purpose of this seminar is to present recent developments in EMI and Product Safety regulations, provide attendees with an understanding of world wide compliance regulations for EMC and Safety, and

how that may impact their work, and teach practical design for EMC compliance techniques attendees can apply to their product designs.

Prerequisites

Experience or education (AS or BS level) in electronic (or electrical) engineering, physics, computer engineering, related scientific fields.

Registration:

The seminar will be held Wednesday, September 24 at the Tektronix Conference Center on the Tektronix Beaverton Campus, 14200 SW Karl Braun Drive, Beaverton, OR 97077. Registration/check-in starts at 8:00 AM, with the seminar starting promptly at 8:30. Refreshments will be provided. Lecture notes will be provided to all attendees. In addition, 0.3 CEU's (3 PDH) will be awarded upon completion of the seminar.

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	IEEE/ASQ/EMA/ERA/SME	Other
Registration Fee	\$75	\$99

Instructors:

Henry Benitez is a NARTE certified EMC and Telecommunications Engineer with 30 plus years experience. Henry has over 30 articles published in technical magazines, colloquiums, workshops and conferences. He gives presentations on EMC and Product Regulations topics at conferences in the United States, Europe and Asia.

He received his Bachelor of Science degree in Electrical Engineering from the University of Portland. He is a member of the University of Portland Electrical Engineering Faculty/Industry Advisory Board.

He is President of ElectroMagnetic Investigations, LLC, an electromagnetic compatibility test laboratory in Hillsboro, Oregon.

Derick Skouby has been in EMC for approximately 10 years. He received his Bachelors degree from the University of Missouri-Rolla in Electrical Engineering. Following graduation from UMR with his Bachelor's degree, Derick continued his education in EMC and, under the direction of Dr. Todd Hubing, earned his Masters Degree from the University on Missouri-Rolla in one year. After obtaining his Masters Degree, Derick has led numerous projects through design for compliance to FCC, CE, BSMI, VCCI, SAE, GM, and MIL Std specifications. He is a NARTE certified engineer.

Derick is currently the Director of Engineering, and principal consultant at ElectroMagnetic Investigations, LLC an EMC test facility in Hillsboro, Oregon.

Al Warren is the owner of Safety thru Design, Inc. providing a Regulatory consulting and Product Safety consulting and testing services. Al is a former employee of TUV America and is now a TUV America Representative, with 10 years of experience in product safety and regulatory.

Al has 15 years of experience in product design and development. Thirteen years spent at Electro Scientific Industries in Portland, OR.

Al is a member and officer of the IEEE Product Safety Engineering Society Oregon chapter, a NARTE certified Product Safety Engineer and a Laser Institute of America certified Laser Safety Officer.

Al received his Bachelor of Science in Electronic Engineering from DeVry Institute of Technology in Phoenix, Arizona in 1978.

NOTE: The registration fee includes one copy of the lecture notes, CD-ROM with course materials, continental breakfast, morning break, and admission to OctoberBest. The organizing committee reserves the right to substitute speakers, restrict size, change venues, or to cancel the seminar. In the event the seminar is canceled by the organizing committee, registration fees only will be fully refunded. Individuals canceling their registration prior to September 1 will receive a full refund. No refunds will be made to individuals who cancel their registration after September 1. Substitute attendees accepted. Attendance is limited. Registration will be confirmed on a first come, first served basis.

SME Portland Seminar

SME01: “Manufacturing Leadership Briefing”

8:00AM-11:45AM

Includes Continental Breakfast

Registration/check-in starts at 7:30 am, with the seminar starting promptly at 8:00.

Organizer:

Bruce G. MacKender

Industry & Member Relations Manager

The Society of Manufacturing Engineers

Abstract: The Manufacturing Leadership Briefing is designed for leaders of small and medium sized manufacturing companies who work in the electronic and high technology markets. Using an executive briefing, Q&A, and open discussion formats, attendees will hear from industry leaders and subject matter experts on those “horizon level” trends, challenges, and opportunities which enterprise leaders will face in the immediate future.

Today’s business indicators tell us that leaders of Small & Medium sized manufacturing companies will face increasing challenges to compete in a global market as raw materials, human capital, and resources increase in scarcity and cost. Presenters at this session will share their observations from their respective areas of expertise on the current economy and how leaders of small and medium sized manufacturing companies can watch for indicators of change and better prepared for changes that will affect their enterprise.

Agenda: A panel of four industry leaders and subject matter experts from the local area will provide 30~40 minute presentations followed by 10~15 minutes of questions & answers and open discussion on their presentations materials.

Attendees: Ideally, attendees for this session are individuals who are in leadership roles with their respective businesses and employers, and work in the manufacturing sector and servicing the high technology market.

Portland IPC Design Council

PCB Designers/Engineer Track

Registration/check-in starts at 7:30 am, with the seminar starting promptly at 8:00.

Time	Topic
8:00 - 9:45 AM	New Tools for You, the Designer: IPC Land Calculator & IPC Expert
10:00 - 11:45 AM	Efficient Power Supply Layouts
Noon - 1:00 PM	Keynote
1:15 - 3:00 PM	Explore the Cost Savings of Specialty PCB Materials and DFM
3:00 - 4:45 PM	Principles of Better Stencil Printing

Cost: \$20 per class

\$50 for all day (IPC DC members)

- **IPC1: “New Tools for You, the Designer: IPC Land Calculator & IPC Xpert”
Tom Hausherr, PCB Matrix
8:00 - 9:45 AM**

Abstract:

IPC is developing a new standard IPC-7251 for through-hole component and land pattern technology. PCB Matrix is creating a new IPC-7251 Land Pattern Calculator to automate through-hole CAD library construction.

IPC Xpert is a new delivery system for Fabrication, Assembly and Design standards. Using a web browser, the user can search for any topic in the IPC standards and every occurrence of that subject will be displayed on your computer screen. The IPC Xpert will bring every IPC standard to your desktop.

Speaker:

Tom Hausherr, CEO, PCB Matrix

Tom is working with the world Standards Groups helping to transition the electronics industry to the metric measurement system. Tom opened a website www.PCBMatrix.com to offer metric technology transition materials to the electronics industry for free download.

Here are some of Tom’s career highlights:

- IPC Advanced Certified Designer CID+
- Helped IPC develop the IPC-7351 Land Pattern Calculator which won first place DesignVision award in 2007 for the best “new” CAD software tool in the electronics industry
- Won two IPC “Award of Excellence” for participation in IPC standards development
- Owned and operated a PCB layout service bureau (CADPRO) for 12 years and developed of over 2,000 PCB products

- **IPC2: “Efficient Power Supply Layouts”**
Frazier Pruitt
10:00 - 11:45 AM

Abstract:

This presentation will discuss how to create “efficient” layouts for power supplies – layout effects for EMI, and thermal management and its effects on system efficiency.

Speaker:

Frazier Pruettt received his BSEE, University of Florida in 1984. He was Staff Engineer for Lite-On Trading USA, co-founder Bespoke Power LLC, and Principal Engineer at InFocus. His specialty is lighting for projection systems, LCD backlighting, and aircraft lighting. He has 10 Patents.

- **IPC3: “Explore the Cost Savings of Specialty PCB Materials and DFM”**
Mark Thompson, Prototron
1:15 - 3:00 PM

Abstract:

This presentation will focus on various types of available materials , their applications, their manufacturing and assembly drawbacks (RoHS considerations, handling characteristics, etc); specifics about why one material is better suited than another for a specific application; and a small portion on DFM relative to material selection (effective Dk modeling for various materials , etc)

Speaker:

Mark Thompson is Engineering Consultant for Prototron Circuits Inc. He has been in PCB manufacturing for over 26 years. He has worked in most front-end processes but for the last 5-10 years has been most involved in Pre-engineering and design review. Mark has recently passed his C.I.D. and is looking forward to future certifications. He is also the V.P. of the Cascade Chapter IPC Designers Council. Mark has been working for Prototron Circuits Inc. for some 11 years in Redmond, Washington.

- **IPC4: “Principles of Better Stencil Printing”**
Robert Dervaes, Fine Line Stencil
3:00 - 4:45 PM

Abstract:

Contract and OEM manufacturers are facing enormous pressure to manufacture assemblies faster and more cost-effectively. However, as design complexity increases, increasing throughput and yields is a struggle. Optimizing the stencil printing process is a requirement if both are to be accomplished. This presentation will include a discussion on PCB, stencil printer, solder paste, and stencil design variables as well as optimization and troubleshooting techniques.

Speaker:

Robert Dervaes is V.P. Technology & Engineering at Fine Line Stencil. He received a BSME from Kansas State University in 1991. He has worked in the electronics industry since 1992 in both design and manufacturing. Over the past 11 years he has established the technical foundation of Fine Line Stencil, Inc. - a premier stencil supplier to the electronics industry.

OctoberBest Sessions

KEYNOTE:

“FLIR: an Oregon Manufacturing Success Story”

Terry Outcalt, General Manager, FLIR Systems, Inc.

FLIR Systems was established in the Portland area in 1978 to pioneer the development of high-performance, low-cost infrared (thermal) imaging systems for airborne applications. Thermal imaging systems detect the infrared energy (heat) that is emitted by all people, objects and materials. Infrared cameras allow the operator to see in total darkness and adverse weather, and through such air pollutants as smoke and haze. Much of the technology that enables the detection and display of infrared energy was developed right here in Portland.

Portland-based FLIR has grown and diversified through acquisitions designed to strengthen the brand. As a result of these acquisitions, FLIR Systems now operates eight manufacturing plants: four in the US, three in Sweden, and one in France. Coupled with a worldwide sales, marketing and service network in over 60 countries, FLIR employs a total of over 1850 dedicated infrared specialists, ready to help customers with their infrared needs

Portland largely manufactures airborne systems: The SAFIRE, Star SAFIRE, BRITE Star and UltraMedia product lines - many of which are currently deployed overseas in the war against terror. Our service men and women are protected every day by FLIR: roadside bomb detection, 24-hour surveillance around military camps and bases, missile guidance, and recon operations. These systems are also guarding our nation's borders, finding those who are lost at sea, and helping nation-wide police forces keep our hometowns safe.

Portland remains both the corporate headquarters and the fastest growing unit within FLIR systems. From its early days as a struggling startup during the first energy crisis to its current state as a multimarket / multinational company approaching \$1 billion dollars in sales, the heart and brain-trust of the company remain in Oregon.

Terry Outcalt, the General Manager of FLIR Government Systems, will present a brief history of the company and its diverse products. Terry will also give an overview of several applications of FLIR products currently in use, and will have multiple FLIR products on display for attendee demonstrations.

OctoberBest Afternoon Seminars:

- **OB1C: “You Have a Great Idea! Now What?”**
Dr. Chris Jacobs, PhD. EE, Jacobs Research and Development

Abstract:

The Initial Eight Steps You Must Do Steps to Convert Your Idea Into Money

Once you or your company have a great idea (product or service), the next steps are critical and well defined. There are eight steps that will tell you if you have a really good idea, and what you should do to capitalize on it. This talk will describe these eight steps and how to proceed to make your idea market ready. These same steps will allow you to write an attractive business plan to obtain venture capital or other funding.

Speaker:

Dr. Chris Jacobs is an entrepreneur and inventor who, for the last 32 years has profitably specialized in valuably bringing ideas to market. Dr. Jacobs holds 23 domestic and international patents. He is author of the best selling, “Doctor’s Step-by-Step Guide to Optimizing Your Ignition”, and has written hundreds of articles that have appeared in numerous publications throughout the world.

Graduating with honors from MIT, Worcester Polytechnic, and Columbia, Dr. Jacobs received his Ph.D. from USC in electrical and medical engineering.

- **OB2C: “Startups 101: Feasibility to financing”
Kristin D. Shelton, Merrill Lynch**

Abstract:

Engineers have lots of great ideas and the necessary expertise to shape those ideas. But what happens when they want to get those ideas off of the ground? Bridging the gap from idea to business can be a tricky road to navigate. This seminar will explain the basics of starting a business - from conducting a feasibility analysis to writing a business plan to finding financing. In addition to resources provided, there will be ample Q&A time to address the questions and concerns of new and potential business owners.

Speaker:

Kristin Shelton grew up in southern California and graduated from USC’s Marshall School of Business. There she was accepted into the entrepreneurship program, ranked nationally only behind Harvard and Stanford. Kristin’s background includes project management for the largest parking company in California, where she managed teams of employees and regularly generated new business and negotiated contracts. She has also written business plans and consulted on startup companies. Her passion in working with people and applying her business knowledge has led her to join Merrill Lynch in Portland and its team of financial advisors. Kristin devotes a tremendous amount of time to developing strong client relationships that allow her to develop tailored and comprehensive financial strategies. Kristin enjoys traveling and spending her free time in southern California with her family.

- **OB3C: “Five Ways to Improve Your Time to Market”
Gary Hinkle, Auxilium, Inc.**

Abstract:

There are many things teams can do to get projects completed more quickly. Some form of investment is usually required – typically staffing, tools, or time. This presentation will provide some practical tips that don’t necessarily require additional staffing or investment other than project managers’ time and dedication to improve.

Five areas will be explored, including comprehensive project planning practices, cost of delay assessments, and tips for eliminating activities that aren’t producing project results.

Speaker:

Gary C. Hinkle is President and Founder of Auxilium, Inc., where his 23 years of engineering, management, training and consulting experience helps clients improve productivity, morale, and collaboration. Gary regularly contributes articles for professional organizations such as IEEE-USA and SPIE, and serves as editor and contributor for Auxilium’s newsletter, The Learning Professional.

He also serves as Chair for the IEEE Oregon Section and on the Program Management Forum Board of Directors.

Gary can be reached at 503-293-3557 or gary@auxilium-inc.com.

- **OB1B: “Thinking Inside the Box - Inexpensive Rapid-Prototyping for EEs”**
Pat Barrett, Barrett & Associates Engineering

Abstract

You can design the circuit and the system, but what about the mechanical parts? The enclosure? ...The schedule?

Electrical Designers and Engineers may not have the necessary mechanical expertise or the tools to fabricate mechanical prototypes. This session explores how a local design house added rapid-prototyping to its arsenal of capabilities.

Speaker

Pat Barrett, BSEE, Portland State University 1981, is licensed in the practices of electrical and control systems engineering, and founder of Barrett & Associates Engineering, www.barrettengineering.com, a local high-tech firm specializing in embedded systems development.

- **OB2B: “Techniques to Reduce Intra-system EMI”**
Simon Chan, Yohei Tsuda
Product Marketing Engineers/Murata Electronics

Abstract:

Nowadays, wireless technology has been integrated to not only cell phones, but also laptops, MP3 players, etc. On the other hand, more and more complicated functions are included into these gadgets. High speed signals of these functions often cause interference with the wireless circuits, and vice versa; hence it creates intra-system EMI problem. In this presentation, we will explain typical examples of intra-system EMI problem, as well as our suggested solutions.

Speakers:

Yohei Tsuda received his bachelor's in Solid-state physics from KOBE University, KOBE/JAPAN, in 1998. He is currently a Sr. Product Engineer of EMI and Inductor products in Murata Electronics North America.

Simon Chan received his bachelor's in Electrical Engineering from University of California, Santa Barbara, in 2007. He is currently a Product Engineer of EMI and Inductor products in Murata Electronics North America.

- **OB3B: “Designing Circuit Boards For Optimum Performance Of Boundary-Scan Test And Programming”**
Robert Twigg, JTAG Technologies

Abstract:

Circuit Testing is a never-ending challenge for designers. Devices continually evolve and become more complex, making testing even more complicated. Many components like processors, I/O chipsets, and

Systems-on-Chip (SoCs) have shrunk in size while gaining more functionality and increased performance levels. Most types of devices adopted the JTAG boundary-scan standard for testing many years ago, and by adopting and following simple JTAG Design For Test rules during the circuit design phase, test coverage can be greatly increased to include non scan devices and circuits. Embedded DFT techniques even permit remote testing and re-configuring via boundary-scan.

Speaker:

Robert Twigg has been a Field Applications Engineer for JTAG Technologies for over 6 years. Prior to this he was with Medtronic Physio Control and Honeywell Marine Systems where he gained experience in Design and test engineering ranging from Medical equipment to in water acoustic systems.

- **OB1A: “Low Cost High Performance Autonomous Hybrid System Implementation Subject to Weight and Power Constraints”**
Gary Viviani, Insitu

Speaker:

Gary Viviani is Vice President of Software & Avionics Engineering at Insitu Inc. He has extensive experience in computer-based system-control design, implementation and manufacture. His experience includes various non-reusable autonomous UAV's (smart weapons), aircraft landing systems such as MMLS (Mobile Microwave Landing System) and other systems involved with airborne surveillance, all while serving at Textron Defense Systems. Super fault tolerant design principles were successfully realized by a common autonomous system of hardware and software, VCS™, for all Varian Ion Implanter products, while serving as the Director of Control Systems. Most recently, as the Global Vice President of Engineering for LDS (part of SPX), the same principles that have resulted in other leading edge products were applied to produce Dimension™, a next generation portable signal analysis system. This product development took advantage of the talents of engineers at multiple sites around the world, in a well-coordinated manner, in order to significantly improve time to market.

- **OB2A: “Open Source Tools in Embedded Development”**
Andrew Greenberg, TOVA Company

Abstract:

Open source software, and more recently open hardware, have finally reached the point where they should be seriously considered as real alternatives to traditional proprietary tools. While some open projects are not yet ready for prime time, a surprising amount are shockingly sophisticated and far surpass their proprietary counterparts. In this talk, we'll touch on open licenses, the open source/hardware community and how it tends to operate, and why "open" makes a lot of sense for many projects. Then we'll skim over the gamut of open tools, from the more traditional office tools to the more esoteric but mission critical engineering tools including CAD, source control, FPGA cores, compilers, break-out boards, and debuggers. We'll end by discussing possible future directions of open source/hardware in engineering.

Speaker:

Andrew Greenberg is the Director of Development for the TOVA Company, a small medical software and hardware company in Portland, OR. He's been tangled up in open source, open hardware and embedded systems for the last 7 years or so.

- **OB3A: “Development and Optimization Techniques for Multi-core Processors”**
Max Domeika, Intel

Attendees will learn software considerations for programming multi-core processors and performing optimization for high performance.

Abstract

Microprocessor design is experiencing a shift away from a predominant focus on pure performance to a balanced approach that optimizes for power as well as performance. Multi-core processors continue this trend and are capable of sharing work and executing tasks on independent execution cores concurrently. In many cases, taking full advantage of the performance benefits of these processors will require developers to thread their applications. This talk provides an understanding of multi-core architecture and various threading techniques such as OpenMP. In addition, some of the common challenges to overcome when applying threading such as data races & cache conflicts are also discussed. Finally, tools support and practical techniques available to assist with stability and performance are covered.

Speaker

Max Domeika is a senior staff software engineer in the Developer Products Division at Intel, creating tools targeting the Intel Architecture market. Over the past 12 years, Max has held several positions at Intel in compiler development which include project lead for the C++ front end and developer on the optimizer and IA-32 code generator. Max currently provides technical consulting for a variety of products targeting Embedded Intel Architecture & Mobile Internet Devices. Max also provides software tools training as an instructor with the Intel Software College. Max earned a BS in Computer Science from the University of Puget Sound, an MS in Computer Science from Clemson University, and a MS in Management in Science & Technology from Oregon Graduate Institute. Max recently authored, "Software Development for Embedded Multi-core Systems" from Elsevier Inc.