

# SIGAda

The ACM Special Interest Group on Ada

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Dear SIGAda Members:

SIGAda 2006 took place in Albuquerque, New Mexico November 12-16. **Judith Klein** of Lockheed Martin, started off the conference with her keynote address *Use of Ada in Lockheed Martin for Air Traffic Management and Beyond*. She pointed out that Ada is the primary implementation language in Lockheed Martin for systems that have long life cycles, are mission critical, have high-assurance requirements, have a large amount of software content, or have high-reliability requirements. She discussed her group's project, En Route Automation Modernization (ERAM). The themes throughout her talk were redundancy, independence of failures, and automated recovery. She described the physical and software architectures and the tools used for development. In contrast to popular beliefs, she reported that the tools used for the C/C++ portions of ERAM were inferior to the Ada tools. Judith is confident that Ada will be used at Lockheed Martin for many years to come. She concluded her talk with a number of pictures of aircraft for which Lockheed Martin had used Ada.

**Robert Dewar**, President and CEO of AdaCore opened the second day of the conference with his talk *Ada 2005 & High Integrity Systems*. He pointed out that the folks at AdaCore frequently encounter environments where the common wisdom is that Java and C++ are the preferred languages for general programming these days. However, even in such environments, there is often an awareness that these languages are not ideal when it comes to high integrity applications, and safety-critical applications. After defining "safety-critical" programs, Robert pointed out that reliability is just as important in other domains. For example, E-Bay lost five billion dollars in company valuation in one week because their single program on which they rely failed. Attitude, programming languages, testing, formal methods, and certification all contribute to reliability. Robert made the case that the Ada culture embeds quality. The most important feature of Ada 2005 is Ada 95 compatibility (and the most important feature of Ada 95 is Ada 83 compatibility). He pointed out the Ada 2005 features for high integrity programs and discussed certification and OOP. While type extension and inheritance do not pose major problems for certification, dynamic dispatch does. Robert stated that no current programming language is acceptable for safety-critical systems and made a case for subsetting Ada. Ada's

orthogonal design and restriction pragmas make it much easier to subset than Java, C or C++. SPARK is a nice case study in this regard. Robert concluded that we do quite well using current approaches to build safe software, we can do even better to achieve reliability including using Ada 2005.

**Tucker Taft**, of SofCheck, opened the last day of the conference with his keynote *You Should Be Using Ada 2005 Now*. He began by stating that Ada 2005 has eliminated the few remaining excuses for not using Ada in embedded, real-time, and safety-critical systems. After some of his usual witty bashing of programming language fads, Tucker attacked some other common Ada myths—the lack of Ada programmers and the lack of reusable Ada components. He discussed today's hot topics of multi-core hardware, safety, and security and showed how Ada hits all of the buttons. He went on to describe how Ada 2005 completes the Ada OOP model, integrates OOP and concurrency, provides multiple scheduling paradigms, and has a flexible library. He concluded by encouraging the audience to go out and spread the word that Ada is more important than ever for writing quality software.

I won't dwell on the papers presented at the conference as they were published in the Conference Proceedings—the December 2006 issue of Ada Letters. I will comment on the high quality of the presentations. The papers are also on the post conference CD sent to all SIGAda members. In addition to the papers, the CD includes all of the speakers' slides and other conference materials.

The Outstanding Ada Community Contribution Award for 2005 was awarded to **Grady Booch** and **Ben Brosgol**. The ACM SIGAda Distinguished Service Award this year went to **Michael Berman**. This issue of Ada Letters contains citations for these awards

It is not too early to start thinking about your nominations for the 2007 ACM SIGAda Distinguished Service and Outstanding Ada Community Contribution awards. Nomination forms are available at <http://www.sigada.org/exec/awards/awards.html>.

A conference such as SIGAda 2006 is a considerable undertaking for volunteers. As Chair of previous SIGAda conferences I am in a position to appreciate the efforts of those who helped organize it. I would like to thank the folks who volunteered and spent many hours of their time to ensure the success of the conference. Conference Co-Chairs **Greg Gicca** and **Ricky (Ranger) Sward** did a fantastic job overseeing the entire conference process. Program Chair **Leemon Baird** was responsible for soliciting, choosing, and scheduling the presentations. **Martin Carlisle**, Conference Treasurer, made sure that we stayed within our budget. **David Cook** organized the ever popular tutorials and **Alok Srivastava** put together a large set of Birds of a Feather Workshops. Webmaster and Proceedings Chair **Clyde Roby** put in many hours on the web site and was diligent at the conference in obtaining the necessary permissions from authors to publish their papers in the proceedings. **Thomas Panfil** kept the registration system working and made sure that everyone was well instructed on how to assemble their name tags and ribbons. This year **David Cook** also served as Local Arrangements Chair.

We are always indebted to our corporate sponsors, without which, we would be unable to conduct a financially successful conference. As Exhibits Chair, **Ron Oliver** did an excellent job soliciting and organizing our sponsors. I thank AdaCore, Polyspace Technologies, Ellidiss Software (TNI Europe Limited), Telelogic, GrammaTech, and Aonix for their support.

Next year we will meet in Fairfax, VA, just outside of Washington DC, November 4 – 8. As usual, SIGAda 2007 is organized by volunteers. We always welcome additional help. If you would like to help out with the planning of SIGAda 2007, please contact our Program Chair **Alok Srivastava** at [alok.srivastava@auatac.com](mailto:alok.srivastava@auatac.com). He looks forward to hearing from you.

Now is the time to think about submitting a technical paper, extended abstract, experience report, workshop, panel session, or tutorial proposal for SIGAda 2007. You can find the call for participation at the conference website <http://www.acm.org/sigada/conf/sigada2007>

**Mike Feldman** has volunteered to be the Conference Chair for SIGAda 2008 which will be held in Portland, OR October 26 – 30, 2008. This is certainly the most advance planning for a SIGAda conference that I have seen during my association with the conferences. Thanks to Mike for beginning the preparations ahead of our usual schedule.

Traditionally, the ISO/IEC JTC1/SC22/WG9 group meets each year after the conclusion of the SIGAda conference. WG9 is the ISO working group responsible for developing the standard for the Ada language. **Jim Moore** has been the convener of WG9 since December



1996. He worked long and hard to bring the Ada 95 and Ada 2005 standards to life. These standards help make Ada what it is. I'm sure that most all of you regularly turn to the *Standard* when programming in Ada. I would guess that no other programming language standard is so commonly read by practitioners. This month Jim announced his retirement from WG9. On behalf of SIGAda, I would like to thank Jim for his work on creating these standards. In the short time I have attended WG9 meetings as SIGAda's liaison representative, I have come to appreciate and admire Jim's knowledge of the standardization process and his skills in advancing international cooperation. Jim is the face on what was previously for me an anonymous standardization bureaucracy. Thank you Jim for helping to make Ada what it is today. Joyce Tokar will act as interim convener of WG9 at the upcoming meeting in Geneva, Switzerland.

Since 1994 SIGAda has conducted an **Ada Awareness Initiative** whose centerpiece has been our professional booth display unit in exhibition halls at various major U.S. software conferences, both inside and outside the DoD arena. Via this exhibiting, SIGAda sustains Ada visibility (name recognition), provides various Ada-awareness materials such as dozens of Ada Success Stories and Ada-related CD-ROMs, and makes available Ada experts (our booth staff volunteers) who can intelligently answer questions, provide pointers and help, and debunk the misinformation about Ada that many attendees at these shows have. Funding for taking the booth to these shows comes primarily from the Ada Resources Association (ARA). Funds for the new booth came from the SIGAda treasury.

After over a decade of hard use, the original booth display unit reached the end of its life. We recently purchased a new booth which made it debut at the ACM SIGCSE (Special Interest Group in Computer Science Education) held in March. Here is a photograph of the new booth at SIGCSE.



New SIGAda booth in the exhibit hall at ACM SIGCSE 2006

## **Can You Help with the SIGAda Booth?**

### **New Posters**

As you might be able to see in the photograph of the new booth, the current set of posters we have is very outdated. We are looking for ideas and materials for new posters. We need exciting images of systems where Ada plays a role. If you have some ideas, please contact myself or Chris Sparks <mr\_ada@cox.net>. Chris is SIGAda's Ada Awareness Initiative coordinator. Enlargement to poster size requires an original photograph with enough resolution that we can print a 24" by 30" poster at 300 dots per inch.

### **Staffing at SSTC**

We are also searching for a few volunteers to staff the booth at the upcoming Systems and Software Technology Conference (SSTC) being held in Tampa, FL June 18 – 21. If you live nearby and are willing to spend a few hours talking about Ada with the SSTC attendees, please contact myself or Chris Sparks.

I'll end this letter with a personal story. Five years ago the University of Northern Iowa followed the trends of many universities in changing the language used in our beginning courses to Java. We changed from using Ada in the first two courses and Java in the third course to Java in the first two courses and Ada in the third course. This year the faculty unanimously agreed that the venture to Java was a failure for our students. As a result, this Fall I will begin teaching Ada in the first two courses. We will return Java to the third course in the introductory sequence. I think we may be the first university to switch our introductory course from Java to Ada. It is very unusual to go back to a former language—I still hear many educators wishing that they had never given up Pascal. I was amazed that my colleagues did not take the usual route of switching to the next fad language. Particularly given the hoopla at SIGCSE about Ruby on Rails and Python as the latest languages for teaching beginner programmers.

John W. McCormick  
Chair, ACM SIGAda