Center for Embedded Systems

An NSF Industry/University Cooperative Research Center

Year 5: Industry Advisory Board (IAB) New Projects Meeting
May 16-17, 2013
Location: Drury Inn and Suites, 1118 Central Park Dr., O'Fallon, IL
Academic Host: Southern Illinois University Carbondale

Friday, May 17 – CLOSED DOOR MEETING Agenda
Revised: May 8, 2013

Objectives
- Conduct IAB business meeting

Friday, May 17, 2013

8:00 - 11:00 am	**IAB meeting (closed session)**
8 – 8:15 am	**Old Business** • Approve minutes from January 2013 meeting (Byron) • Review Year 5 financial projections (Byron) • Vote on by-law change for final project reporting process (Byron) • Update: Phase II planning – membership letters (Lisa) • Update: invention disclosures (Sarma) • Update: FRP- thermal energy harvesting (Sarma)
8:15 – 8:50 am	**New Business** • Review voting process (Byron) • Vote on year 5 proposals (Byron)
8:50 – 10:15 am	• De-brief of current meeting (Byron) • Set January meeting date (Byron)
10:15 -	**Open items & adjourn**

Year 4: Industry Advisory Board (IAB) Mid-term Update Meeting
IAB Annual Meeting - Minutes
January 23, 2013, 8 a.m.
IAB Host / Location: Intel Corporation, Chandler, AZ

CONFIDENTIAL
<u>revised: February 5, 2013</u>
The meeting was conducted by IAB chair Byron Gillespie, Intel – AZ.

IAB Members (ASU)

Byron Gillespie	byron.r.gillespie@intel.com	Intel - AZ
Kee Shik Chung	kschung@marvell.com	Marvell Semiconductor
Sujat Jamil	sujat.jamil@marvell.com	Marvell Semiconductor
Mohan Mohanraj	pmohanra@marvell.com	Marvell Semiconductor
Jennifer Wang	wangj@marvell.com	Marvell Semiconductor
Rudy Beraha	rberaha@qti.qualcomm.com	Qualcomm
Andrew Vandivort	amvandivort@raytheon.com	Raytheon
Ken Butts	ken.butts@tema.toyota.com	Toyota
Jyotirmoy Deshmukh	deshmukh@cs.utexas.edu	Toyota
Jim Kapinski	jim.kapinski@tema.toyota.com	Toyota
Prashant Ramachandra	prashant.ramachandra@tema.toyota.com	Toyota

IAB Members (SIU)

Stephen Phelps (phone)	Phelps_Stephen_K@cat.com	Caterpillar
David Andersen	david.andersen@gd-ots.com	General Dynamics
Rathish Jayabharathi	rathish.jayabharathi@intel.com	Intel - CA
Howard Wilson	howard.wilson@intel.com	Intel - OR
Matthew Wilding	mmwildin@rockwellcollins.com	Rockwell Collins
Greg Loken	greg.loken@utas.utc.com	UTC Aerospace Systems
Jeff Schmidt	jeff.schmidt@hs.utc.com	UTC Aerospace Systems

NSF Members

Thyaga Nandagopal	tnandago@nsf.gov	National Science Foundation
Alex Schwarzkopf	aschwarz@nsf.gov	National Science Foundation
Craig Scott	scottcs@uw.edu	University of Washington

CES Team

Sarma Vrudhula – center director	vrudhula@asu.edu	Arizona State University
Spyros Tragoudas – site director	spyros@engr.siu.edu	Southern Illinois University
Haibo Wang – site assoc. director	haibo@engr.siu.edu	Southern Illinois University
Lisa Christian – project manager	lisa.christian@asu.edu	Arizona State University

Old Business
- Approve minutes from June 2012 meeting. June 2012 Minutes approved with the following changes.
  - Roster: correct Mohan Mohanraj's email address.
  - Section 3: change dates for current chair / vice chair from "2013" to "2014."
  - Section 3: edit the point "Chair and vice chair eligible to serve for 2 consecutive terms" to clarify, "The vice chair will be elected for a 2-year term, after which he/she will serve a 2-year term as chair."
- Review by-law changes to reflect June 2012 vote on chair / vice chair selection process. Approved motion to amend section 3.7 in the by-laws as such: "The IAB chair and vice chair will be selected as outlined the CES Operating Processes."
- Review CES Operating Processes. Approved initial contents of the document. Contents to be updated per the discussion on chair/vice chair election (previous) and final project reports. The CES Operating Processes document will be available to members on the website.
- Show "general marketing brochure" sent to all members. Send additional copies to Matt Wilding (Rockwell Collins) and Greg Loken (UTC). Send additional copies of Year 3 Results Report to Howard Wilson (Intel) and Rathish Jayabharathi (Intel). (Lisa Christian)

New Business
- Discuss Day 1 meeting format.
  Feedback on the January meeting format:
  - 2-minute presentation concept with applause meter worked well
  - List primary industry sponsor on agenda next to each project name
  - Try to avoid scheduling presenters for multiple topics in the same "group" and ideally, schedule 2 people per poster if possible as travel budgets allow
  - Liked large, open room and seating set up classroom style with posters in back or separate area
  - Recommendations for speakers
    - ✓ Revise template to 2-3 slides.
    - ✓ Improve the problem statement – make them better defined, clearer.
    - ✓ Identify primary industry sponsor on slide. Emphasize the target application for the research early in the presentation.
    - ✓ Reduce amount of information on presentation slides: save detail for poster.
    - ✓ Do not introduce all contributors to the project in the presentation – listing on title slide and in poster session is adequate.
    - ✓ Use larger font size on all slides, presentations <u>and</u> posters.
    - ✓ Encourage faculty to use full-size slides on posters, as many as needed to represent the research. Use of additional poster boards is fine / encouraged.
    - ✓ Add to posters an "IP Generated" slide that includes: publications, talks, tools, invention disclosures or plans to file.
    - ✓ Consider potential demos if available.
    - ✓ Consider using bar-height tables for poster sessions to elevate height for easier viewing.

- CES updates (Sarma)
  International collaboration. Discussion on opportunities for international collaboration with Karlsruhe University (Frankfurt, Germany) and the IMS Laboratory at the University of Bordeaux (Bordeaux, France). Concerns from the IAB center on the IP agreement and compliance by all organizations within CES, regardless of country of origin. Also, that future IAB meetings MUST be located in the U.S. Sarma Vrudhula will share the membership agreement with interested parties and proceed only after compliance with the membership agreement is confirmed.

Phase II planning. CES, now in its 4th year on a 5-year NSF award, will apply for Phase II funding this year (extending the Center for an additional 5 years). Phase II letter of intent and proposal deadlines are in June and September, respectively. As part of the proposal, IAB members are asked to express their intent (not commitment) to continue their membership in the center. Lisa Christian will obtain a sample letter and distribute by March 15 to IAB members to start this process at each organization (Nancy Beasley will follow-up with SIU-signed members). Deadline for signed letters is June 1, 2013.

Invention disclosures. On December 31, 2012, ASU invention disclosures were filed with the university for the following projects. ASU's technology office will notify CES members of the filings, which starts the notification process outlined in the CES membership agreement, section 6, Intellectual Property and Publication. SIU-signed members will be included in this notification, either directly by ASU or by Spyros Tragoudas / Nancy Beasley, under the same timeframe (distribution process still being identified). Lisa Christian will pull this part of the membership agreement and forward to IAB members. Craig Scott reminded directors to share terms of all disclosures, including prior to article publication, with faculty members.
- ✓ A Smart Temperature and Energy aware Scheduling and Task Migration for Operating Systems (STEAM)
- ✓ Temperature-aware Robust Controller for Multi-core Processors
- ✓ Performance and Energy Optimal DVFS, Task migration and Active Cooling for Multi-core Processors

New FRP proposal (Spyros). CES will create a second Fundamental Research Proposal (FRP), titled, "Collaborative: Embedded Thermal Energy Harvesting System for Low Power Applications," a collaboration between four CES professors: Spyros Tragoudas, Sarma Vrudhula, Constantine Hatziadoniu, and led by Carole-Jean Wu. The board approved (by majority of members, with one objection) a motion to support the proposal topic through a "letter of endorsement." Byron Gillespie will sign a letter to this intent on behalf of the IAB. The abstract and proposal for this FRP will be available to the IAB on the website after February 6, 2013. If IAB members are interested in participating in a teleconference with the PIs to hear the details of this proposal, please let either Lisa Christian or Nancy Beasley know and a time will be arranged.

- Discuss Center expansion (Craig). Craig Scott, center evaluator, continued the discussion on the benefits of signing another academic site at CES. If IAB members have particular contacts or universities that they feel might be a good fit, please contact the CES directors. In the meantime, the directors emphasized that the most effective way for this collaboration to happen is to find a university with complementary technical focus AND geography that is considering creating an I/UCRC (vs. "selling" a school on the I/UCRC concept; therefore, requiring it to start looking for industry members). This ensures that potential schools have the ability to sign the minimum 3 industry members that is required to join. The directors will pursue this, with the goal to have one or more university presentations at the May 2013 meeting.

- Propose process: project final reports. (Byron / Lisa)
  Discussion on how the IAB wants final project results delivered in light of time constraints at annual meetings. The following was proposed as the yearly cycle:
  - ✓ Sept : PIs update presentations with final results, send to Lisa Christian
  - ✓ Oct/Nov: Center website updated with "final" report posters (including all IP deliverables) – serves as an "IP Repository"
  - ✓ Dec/Jan: Center publishes "Year X Results Report" (electronic on web site and hard copy at January meeting)

✓ Ongoing: PIs available for phone conference / in-person meeting upon request to review final report (in other words--no formal meeting/update scheduled)

Comments on this process included:
– Ensure that all related documents are on a secure website, more secure than CES is currently hosting.
– Label the annual reports as "CONFIDENTIAL" to make this more clear.
– This process change will be outlined in the CES Operating Processes document, but requires a vote for a by-laws change. Lisa Christian will summarize the change for a vote at the next IAB meeting.

- Discuss Y5 proposal process (Byron)
The next IAB meeting (May 16-17) will focus on reviewing proposals for Year 5 projects, concluding with a vote at the closed door IAB meeting. The IAB recommends following a similar agenda as the January meeting (short presentations with extended poster sessions); however, presentation times will be increased to 5 minutes. NOTE: IAB members agreed that working closely with the universities during the proposal process and reviewing all proposals BEFORE the next meeting will help them maximize their time interacting with PIs and students in poster sessions, thereby, helping in preparation for the vote. Lisa Christian and Nancy Beasley will work with Byron Gillespie to quickly update the spring timeline with milestone dates / deliverables and distribute to the IAB. Similarly, they will update the presentation template to accommodate 5-minute presentations, and discuss the voting procedures, implementing any improvements noted from last year's voting meeting.

- Set next meeting date (Byron)
May 16-17, 2013. In the CES operations calendar, the next meeting would typically be held in June; however, early finals at both universities makes a May meeting more desirable to ensure faculty and students are there to attend. All IAB members were fine with a May date and agreed upon May 16-17. The meeting will be held in the Midwest, location to be announced.

- De-brief current (IAB closed) meeting (Byron). See actions required list below.

Actions Required

- Make following changes to June 2012 Minutes. Update on website. (Lisa Christian)
  – Roster: correct Mohan Mohanraj's email address.
  – Section 3: change dates for current chair / vice chair from "2013" to "2014."
  – Section 3: edit the point "Chair and vice chair eligible to serve for 2 consecutive terms" to clarify, "The vice chair will be elected for a 2-year term, after which he/she will serve a 2-year term as chair."

- Update CES by-laws as follows. Update on website. (Lisa Christian)
  – Amend section 3.7 in the by-laws as such: "The IAB chair and vice chair will be selected as outlined the CES Operating Processes."

- Update CES Operating Processes document as follows. Update on website. (Lisa Christian)
  – Contents to be updated per the discussion on chair/vice chair election and final project reports.

- Send additional copies of the general marketing brochure to Matt Wilding (Rockwell Collins) and Greg Loken (UTC). Send additional copies of Year 3 Results Report to Howard Wilson (Intel) and Rathish Jayabharathi (Intel). (Lisa Christian)

- Summarize IAB feedback on January meeting format. Distribute to Sarma and Spyros to share with respective faculty and students. (Lisa Christian)

- Integrate IAB feedback into May meeting agenda / format. (Nancy Beasley)

- Pursue international collaboration with existing contacts by sharing membership agreement and assessing willingness to comply. (Sarma Vrudhula)

- Provide samples of IAB letters for Phase II proposal to IAB so members. (Lisa Christian / Nancy Beasley)

- IAB members to create Phase II letters of intent, gain approval from their own organizations, and forward to Lisa Christian by June 1, 2013. (Caterpillar, General Dynamics, Intel – AZ, Intel – CA, Intel – OR, Marvell Semiconductor, Qualcomm, Raytheon, Rockwell Collins, Toyota, UTC Aerospace Systems)

- Pull IP sections from CES membership agreement and forward to IAB members. (Lisa Christian)

- Communicate status of ASU invention disclosures to IAB. (Lisa Christian / Nancy Beasley)

- Write, approve, sign letter of intent on behalf of IAB for FRP proposal. (Lisa Christian / Byron Gillespie)

- Pursue universities with potential as 3rd CES academic site and ask to present at May IAB meeting. (Sarma Vrudhula / Spyros Tragoudas)

- Summarize process for project final reports in CES Operating Processes document. Summarize required by-laws change for vote at May IAB meeting. (Lisa Christian)

- In CES website re-design, increase security of members' area, including exploring individual password access. (Lisa Christian)

- In future Results Reports, label cover with "CONFIDENTIAL." (Lisa Christian)

- Update the spring proposal timeline with dates / deliverables and forward to the IAB immediately. (Lisa Christian / Nancy Beasley / Byron Gillespie)

- IAB members to prepare their detailed topics of interest to share with directors in the next month or so, deadline to be announced. (Caterpillar, General Dynamics, Intel – AZ, Intel – CA, Intel – OR, Marvell Semiconductor, Qualcomm, Raytheon, Rockwell Collins, Toyota, UTC Aerospace Systems)

- IAB members to review Year 5 proposals, conduct a "soft" vote, and give feedback to directors. Deadline TBA. (Caterpillar, General Dynamics, Intel – AZ, Intel – CA, Intel – OR, Marvell Semiconductor, Qualcomm, Raytheon, Rockwell Collins, Toyota, UTC Aerospace Systems)

- Update May meeting presentation template for 5-minute presentations, and discuss voting procedures. (Lisa Christian / Nancy Beasley / Byron Gillespie)

- Review presentations prior to IAB meeting for formatting and focus. (Sarma Vrudhula)

- Select city / venue and plan May IAB meeting, announce to IAB. (Spyros Tragoudas / Nancy Beasley)