

# **SpecC Reference Compiler (SCRC) Project Proposal**

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# SCRC Overview

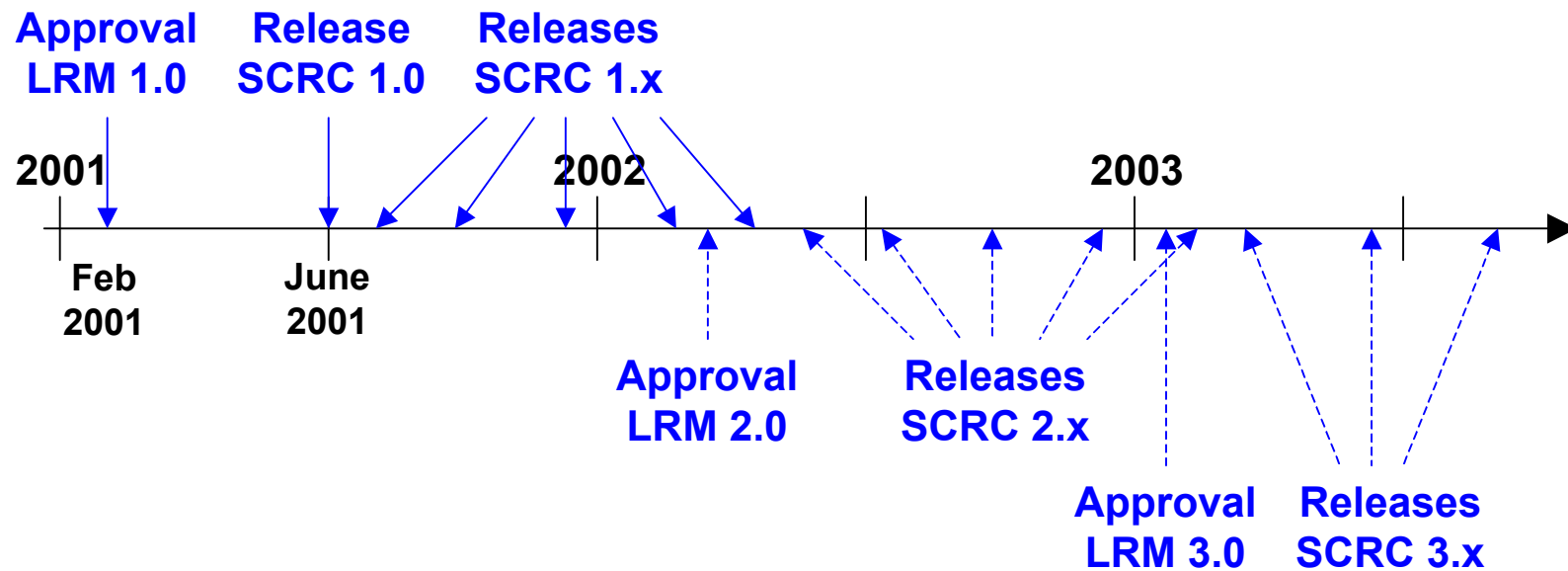
- **Goals**
- **Roadmap**
- **Organization**
- **Deliverables**
- **Support**

# SCRC Goals

- **Promote SpecC Standardization**
- **Provide a Reference Implementation**
  - Compliant with Language Reference Manual (LRM)
  - Open Source (BSD license)
- **Reference Compiler Components**
  - SpecC Compiler
  - SpecC Simulation Engine
  - Test suite
- **Provide Basis for SpecC Tool Development**

# SCRC Roadmap

- **SpecC LRM compliant Reference Implementation**
  - V1.0 available June 2001
- **Maintenance releases (bug fixes)**
  - monthly / on demand



# SCRC Organization (1)

- **STOC**
  - promotes SpecC Language, Methodology and Reference Tools
  - approves SpecC LRM
    - SpecC LRM V1.0 is donated to STOC
    - SpecC LRM V2.0+ will be created by LS-WG
  - promotes and approves SCRC project
  - authorizes UCI to develop SCRC
  - invites industry to fund activities
- **STOC LS-WG**
  - discusses, improves and proposes SpecC LRM future versions
  - co-develops LRM compliance test suite with SCRC Group
- **Industry members of STOC**
  - can use SCRC for own products
  - fund SCRC project through donation or contract with UCI

# SCRC Organization (2)

- **UCI, Center of Embedded Computer Systems (CECS)**
  - owns SCRC copyright
  - freely licenses SCRC under BSD license
  - performs research and consults in SpecC issues
  - takes active part in STOC LS-WG
  - hosts SCRC Group in University environment
    - independent
    - non-commercial
    - fair
- **SCRC Group (part of CECS, leader Rainer Dömer)**
  - develops SCRC compliant to SpecC LRM
  - makes SCRC freely available (Internet)
  - maintains SCRC (bug fixes, extensions, etc.)
  - supports users of SCRC
  - extends reference tool set (e.g. SpecC debugger)

# SCRC Deliverables (1)

- **SpecC Reference Compiler Components:**
  - **Compiler**
    - SpecC Parser
    - Internal Representation (minimal)
    - Semantic Checker
    - C++ Code Generator
  - **Simulation Engine**
    - Run-time libraries
  - **Test suite**
    - SpecC LRM compliance test cases
- **Open Source Implementation**
  - Source code freely available under BSD license
- **Pre-compiled Binaries**
  - Linux
  - Solaris
  - Windows (future)

# SCRC Deliverables (2)

- **Technical Report (for contracts)**
  - “Architecture and Implementation of the SpecC Reference Compiler”
- **Ongoing Support for SCRC**
  - Maintenance
  - Bug fixes
  - Support for STOC members
- **SCRC extension for compliance with future LRM**

# BSD License

- **Berkeley Software Distribution (BSD) License**
- **BSD license is Open Source**
- **BSD license is *not* GNU license**
  - copyright is *not* transferred to Free Software Foundation (FSF)
    - UCI owns copyright on SCRC
  - **BSD license allows full commercial use**
    - code changes are owned by their author
    - code changes don't have to be made public
    - derived code can be sold

# SCRC Project Support

- **Estimated total cost: \$100K+ per year**
  - 1 professional position, full-time
- **Support mechanisms: Donation or Contract**
  - Donation: min. \$10K (5% UC overhead)
  - Contract: min. \$25K (50% UC overhead)
- **Cost calculation**

**Donation:**

Company cost: \$15.2K  
Japan tax (45%): - \$ 4.7K  
\$10.5K  
UC ovrhd. (5%): - \$ 0.5K  
Effective: \$10.0K

**Contract:**

Company cost: \$16.5K  
Japan tax (10%): - \$ 1.5K  
\$15.0K  
UC ovrhd.(50%): - \$ 5.0K  
Effective: \$10.0K

# Donation Letter

<Date>

**Professor Daniel Gajski  
Center for Embedded Computer Systems  
444 Computer Science Bldg.  
University of California, Irvine  
Irvine, CA 92697-3425**

Dear Professor Gajski,

Enclosed please find a check in the amount of \$<XXXXXX> from <Company Name>. This is an unrestricted gift in support of your SpecC language and technology research.

If you have any questions please feel free to contact me at <Phone Number> or <Email address>.

Sincerely,

<Name>

<Title/Rank>

<Company Name>

**Note: Please make check payable to UCI Foundation**

# Contract

RESEARCH AGREEMENT NO. \_\_\_\_\_

This agreement ("Agreement") is entered into this \_\_\_\_ day of \_\_\_\_\_, by and between THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, on behalf of its Irvine campus ("University") \_\_\_\_\_, a \_\_\_\_\_ corporation, with offices \_\_\_\_\_ ("Sponsor"). University and Sponsor shall be collectively referred to as parties and agree as follows:

**SCOPE OF WORK.** Professor Daniel Gajski is the University's Principal Investigator for this project and is responsible for the direction of all effort hereunder in accordance with applicable University policies. University's Center for Embedded Computer Systems will develop a SpecC Reference Compiler ("SCRC") which will translate SpecC language into C++ language for simulation and synthesis ("Research Project"). The SCRC will be based on the Language Reference Manual approved by the SpecC Technology Open Consortium (STOC) and will include SpecC parser, C++ writer, run time library and test suite. The SCRC will be non-proprietary and publicly available under the Berkeley Software Distribution ("BSD") license by posting it on an open web site. Version 1.0 of the SCRC will be available by June 2001. The University will maintain the SCRC and provide upgrades as requested by the STOC as long as sufficient funding is available.

**PERIOD OF PERFORMANCE.** The work under this Agreement shall be performed during the period beginning January 1, 2001, and ending December 31, 2001, unless extended by mutual written agreement.

**PAYMENT.** Sponsor will pay a fixed price of \$ \_\_\_\_\_. University will invoice Sponsor for the total amount on receipt of a fully executed Agreement. Sponsor will make payment within thirty (30) days of receipt of invoice from University by electronic fund transfer or by check. Electronic fund transfer should be made to the following account:

Name of Bank: Bank of America  
Address: 1850 Gateway Boulevard  
Concord, California 94520  
Account Name: The Regents of the University of California  
Account Number: 14990-50106 Routing #121000358

The transfer form should indicate that the funds are for this Agreement number, Professor Daniel Gajski, Principal Investigator.

By check, it should be made payable to "The Regents of the University of California" and reference Agreement number. Checks should be sent to: Contracts and Grants Accounting Office, 2650 Berkeley Plaza, University of California, Irvine, California, 92697-1050.

### RIGHTS IN DATA AND REPORTS.

- University shall provide Sponsor with a comprehensive report "SCRC Software Architecture Implementation" by September 1, 2001, and any new reports with software upgrades.
- University shall own the data and information developed under this Agreement and shall have the right to copyright and use, in whole or in part, any data and information received, collected, or developed under this Agreement.
- Sponsor shall have the right to use any technical reports, data and information delivered hereunder for internal use.
- Sponsor agrees that it will not use the names of University or its employees in any advertisement, press release or publicity with reference to this Agreement without the prior written approval of University. University shall have the right to acknowledge Sponsor's support of the research performed under this Agreement in scientific publications and other scientific communications.

**INDEMNIFICATION.** Sponsor agrees to defend, indemnify and hold University, its officers, employees and agents harmless from and against any and all liability, loss, expense, attorneys' fees, or claims for injury or damages arising out of the performance of this Agreement but only in proportion to and to the extent such liability, loss, expense, attorneys' fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of Sponsor's officers, agents, or employees. University agrees to defend, indemnify and hold Sponsor, its officers, employees and agents harmless from and against any and all liability, loss, expense, attorneys' fees, or claims for injury or damages arising out of the performance of this Agreement but only in proportion to and to the extent such liability, loss, expense, attorneys' fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of University, its officers, agents, or employees.

**NOTICE.** Whenever any notice is to be given hereunder, it shall be in writing and shall be deemed received, if delivered by first-class courier on a business day, on the day delivered, or on the second business day following mailing, if sent by first-class registered mail, postage prepaid, to the following addresses:

University:	The Regents of the University of California Sponsored Projects Administration Office of Research Administration University of California, Irvine 160 Administration Building Irvine, California 92697-1875	Sponsor:	_____
Attention:	Doug Bickham	Attention:	_____

**TERMINATION.** This Agreement may be terminated by University or Sponsor upon the giving of ninety (90) days written notice to the other if either party determines, in its discretion, that Research Project is no longer academically, technically, or commercially feasible. Upon receipt of such notice of termination, University shall exert its best effort to complete or terminate any outstanding financial commitments for which Sponsor is to be liable. University shall refund to Sponsor any remaining funds provided for the Research Project beyond University's costs incurred through the date of termination, including without limitation, all uncancelable obligations.

**APPLICABLE LAW.** This Agreement shall be governed by the laws of the State of California.

**ENTIRE AGREEMENT.** This Agreement represents the entire understanding of the Parties with respect to the subject matter. No change, modification, extension, termination or waiver of this Agreement, or any of the provisions hereof, shall be valid unless made in writing and signed by duly authorized representatives of the Parties hereto.

**IN WITNESS WHEREOF** duly authorized representatives of the Parties have entered into this Research Agreement on the date first written above.

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

SPONSOR

By _____ (signature)	By _____ (signature)
By _____ (name)	By _____ (name)
Title _____ (title)	Title _____ (title)
Date _____	Date _____

