

STATEMENT OF CONSIDERATIONS

CLASS ADVANCE WAIVER OF THE GOVERNMENT'S DOMESTIC AND FOREIGN PATENT AND COPYRIGHT RIGHTS UNDER DOMESTIC FIRST AND SECOND TIER SUBCONTRACTS ISSUED BY LLNL/LANL/SNL FOR THE ACCELERATED STRATEGIC COMPUTING INITIATIVE, THE PATHFORWARD PROJECT; DOE WAIVER NO. W(C)-97-004; SAN 675

Lawrence Livermore National Laboratory (LLNL), Los Alamos National Laboratory (LANL) and Sandia National Laboratories (SNL) (jointly referred to as the Laboratories) are working on the Accelerated Strategic Computing Initiative (ASCI) to develop supercomputers for DOE program needs. To meet the requirements of DOE'S Stockpile Stewardship and Management Program, DOE is enhancing its computational power by developing supercomputers with the capability of performing tera-scale computing. The ultimate goal is to have supercomputers capable of performing three-dimensional modeling and nuclear weapons relevant simulations. With these new capabilities, scientists can analyze the effects of stockpile aging and anticipate future problems with existing nuclear warheads and their components.

The ASCI Program is developing several generations of computers. In 1995, INTEL was selected for the ASCI Option Red System, and demonstrated one trillion operations per second computational speed. In 1996, IBM was selected by DOE for the ASCI Blue Pacific Project. This \$93 million contract was awarded to build a supercomputer (IBM RS/6000 SP) system consisting of clusters of shared-memory processors. The initial components were delivered to LLNL in September 1996 and operate at 138 gigaflops. These will be upgraded to a production model, a 3 teraFLOP/s system, in December 1998. In parallel, Cray Research, a subsidiary of Silicon Graphics, Inc., will provide a 3 teraFLOP/s system to LANL over a comparable time period.

The Pathforward Phase of the ASCI Project

The ASCI Pathforward Project is aimed at developing the technology necessary to enable 30 TeraFLOP/s computer systems by 2001 and 100 TeraFLOP/s by 2004. A Request for Expressed Interest (REI) was published in the Commerce Business Daily to determine what companies would bid on the Pathforward Project. On July 16, 1997, the Laboratories issued to 21 interested companies a Request for Proposal (RFP No. PF-01) to develop the key (critical path) interconnect technologies necessary to accelerate the development of balanced 30 to 100 TeraFLOP/s computer systems. More specifically, the RFP sought the participation by the domestic commercial computer industry to accelerate development of key

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high performance computing technologies that would subsequently be economically sustained in the marketplace. The technologies to be developed are expected to be part of a company's current business plan, but would not otherwise be available in the time frame needed or at the scale/performance level required by ASCI Program. More than the company's technology, it is the acceleration of the development and expansion of capability that is being required. In order to avoid directing industry on how to build computer systems or design interconnect fabric, DOE has defined the interconnect performance requirements to support the Stockpile Stewardship and Management Program. The RFP outlined DOE's interest in developing a low-latency, high-bandwidth interconnect and I/O technology that provides for scaling commodity-based shared memory computer units.

After receiving and reviewing several proposals, the Laboratories selected the proposals that best meet the ASCI goals and have begun negotiating first tier subcontracts with the respective companies. The projected total budget for these first tier subcontracts is approximately \$55 million over the next four years. In order to stay within the fiscal constraints of the program, the Laboratories expect each selected subcontractor to contribute at least a 20% share of the total cost of the contract. Before concluding the negotiations on these first tier subcontracts, this Class Advance Waiver should be executed in order to provide the appropriate provisions to be included in the first tier subcontracts. This Class Advance Waiver will also apply to domestic second tier subcontractors when the first tier subcontract qualifies for this Class Advance Waiver.

The Allocation of Patent Rights

A small business or non-profit organization will retain the patent rights to their subject inventions under the Bayh-Dole Act. See 35 USC 200-212. If a non-Bayh-Dole subcontractor under the subject RFP does not agree to cost-share at least 20% of the total contract cost, that subcontractor will receive the standard DEAR patent and FAR data clauses in connection with the R&D procurement. However, such a subcontractor can still petition the government for either a separate Advance Waiver of its own or an Identified Invention Waiver to obtain title to specific subject inventions.

In the ASCI Blue Pacific Project, the DOE issued a memorandum regarding intellectual property rights for the ASCI Blue procurement. See Appendix A. The provisions in this Appendix A were used as the basis for the provisions being used

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to negotiate the first tier subcontracts for the ASCI Pathforward Project. See Appendix B. If a non-Bayh-Dole subcontractor is willing to cost-share by an amount of at least 20% of the total contract cost, the DOE agrees to waive, in advance, patent rights to the for-profit subcontractor in the subcontractor's subject inventions. See Appendix B, sections I and II. The patent rights waiver is subject to the retained government-use license, march-in rights, reporting requirements, DOE approval of assignments, 35 U.S.C. 204, and a U.S. Competitiveness provision. See Appendix B, sections I and II.

The Allocation of Rights in Computer Software

The Bayh-Dole Act only applies to the allocation of patent rights. Therefore, a subcontractor (small business, non-profit or for-profit organization) may assert copyright in computer software without the Contracting Officer's prior approval only if DOE has specifically granted this right. Under the subject RFP, when a subcontractor is willing to cost-share by an amount of at least 20% of the total contract cost, the DOE agrees, in advance, to authorize the subcontractor to assert copyright without the Contracting Officer's prior approval in software produced under the subcontract by their employees. See Appendix B, sections I and III. The right to assert copyright in software is subject to a limited government-use license for a period of five years to allow the subcontractor sufficient time to commercialize the computer software. In the limited government-use license, the subcontractor grants to the Government and others acting in its behalf, a paid-up nonexclusive, irrevocable worldwide license in such copyrighted computer software to reproduce, prepare derivative works, and perform publicly and display publicly by or on behalf of the Government. However, the limited government-use license in copyrighted software will revert to a broad Government license, which allows the Government to distribute copies to the public, if DOE march-in rights are exercised, for example, where the subcontractor has not taken effective steps to commercialize the software. See Appendix B, section III, (c)(1), third paragraph.

It is not expected that any software or hardware will be delivered to the Laboratories under the subject RFP. The expected deliverables will be: (1) the demonstration of the interconnect technology performance to prove functionality of key hardware and software components as well as overall integration of the approach; (2) a document or a demonstrated methodology to scale to 30-100 TeraFLOP/s systems; and (3) detailed reports of technical activities, performance results, and lessons learned associated with the endeavor. Thus, the limited

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amount of software developed under the subcontracts to accommodate changes in hardware components such as switch and adapter designs is not a deliverable item that would be delivered to DOE's Energy Science and Technology Software Center (ESTSC). The developed computer software will be modifications of the subcontractors' software used for operating interconnect capabilities. Thus, the software would have very specific applicability to the functioning and scaling of specific hardware systems and would be practically useless to DOE without the specific hardware equipment and the underlying proprietary software of the subcontractors. In fact, DOE Program intends to purchase the commercial products that should be developed by the subcontractors after the research and development of the present subcontracts is concluded. However, if there is deliverable software developed and delivered to the Laboratories, DOE expects the Laboratories to comply with their contract obligations of providing this delivered software to DOE's ESTSC. DOE believes granting the copyright in software is warranted here in order to stimulate developed end products to purchase in the future.

Conclusion

The Initially selected domestic subcontractors are U.S. companies, representing a combination of small and large entities, with extensive backgrounds in the supercomputer technologies. There was adequate notice of the issuance of the subject RFP in the Commerce Business Daily. In addition, the Laboratories have made other contacts during the ASCI Program. Technical experts from each Laboratory reviewed all of the proposals and based their initial selection of proposals on technical capability of the companies, cost sharing and adequacy of deliverables.

This Class Advance Waiver and the terms of the intellectual property clauses included within the subject subcontracts are meant to cover the scope of the work under the particular RFP No. PF-01 of the Pathforward Project and shall not serve as precedent for any follow-on work to be negotiated separately with the subcontractors in the future. Also, this Class Advance Waiver shall apply to second tier subcontracts that a first tier subcontractor issues. However, this Class Advance Waiver will not apply to foreign owned or controlled companies. DOE Patent Counsel will qualify each subcontractor by written certification that this Class Advance Waiver is applicable to their subcontract. Such certification will include verification of the minimum percentage cost share by the subcontractor, a determination that the subcontractor is a U.S. company, and verification of the acceptability of the terms and conditions of the subcontract. If any company does

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not qualify for this Class Advance Waiver or is not satisfied with the terms and conditions of the subcontract necessary to qualify for this Waiver, then that company may separately petition DOE for their own Advance Waiver.

For the foregoing reasons, and in view of the objectives and considerations set forth in 10 CFR 784 and DOE Acquisition Letter 87-5, all of which have been considered, it is recommended that the requested waiver be granted for domestic first tier and second tier subcontracts, which meet the above requirements, executed under the RFP No. PF-01.

[REDACTED]
Gary Draw
Counsel for Intellectual Property
DOE, Oakland Operations Office, CA

Date: 11/6/97

Based on the foregoing Statement of Considerations, it is determined that the interests of the United States and the general public will best be served by waiver of the United States' domestic and foreign patent rights and copyright in software copyright as set forth herein, and therefore, the waiver is granted. This waiver shall not apply to a modification or extension of the subcontracts where, through such modification or extension, the purpose, scope or DOE cost of the subcontracts has been substantially altered. This waiver shall not affect any waiver previously granted.

CONCURRENCE:

[REDACTED]
[REDACTED]
Gilbert G. Welgand
Deputy Assistant Secretary for
Strategic Computing and Simulation (DP-50)

Date: 11/6/97

APPROVED:

[REDACTED]
Paul Gottlieb
Assistant General Counsel
for Technology Transfer and Intellectual Property

Date: 11/7/97

DEPARTMENT OF ENERGY
OFFICE OF LEGAL COUNSEL

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ASCI BLUE INTELLECTUAL PROPERTY

The following is the text of Department of Energy Memorandum regarding Intellectual Property Rights for the ASCI Blue Procurement:

If the respondent to the RFP does not agree to cost-share at least 20% of the total contract cost, that respondent if successful would get the standard patent and data clauses in connection with such a procurement. On the other hand, if the respondent is willing to cost-share by an amount of at least 20% excluding waived fee, the DOE will agree to waive, in advance, patent rights to the respondent in its inventions and authorize the respondent to assert copyright in software produced under the contract subject to the following requirement:

1. With respect to Patent Rights, a standard DOE Patent Rights Clause including the waiver will contain the following provisions:

- A. Any waived rights to inventions will be subject to a reserved government use license as follows: "The government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world."
- B. The government will have march-in rights to any subject inventions consistent with the march-in rights set out in 35 U.S.C. 203 and 48 C.F.R. 27.304-1(g).
- C. That the recipient of such rights agree to submit, upon the request of DOE, a non-proprietary report no more frequently than annually on efforts to utilize any technology arising under the contract.
- D. Any assignment of invention rights is subject to DOE approval.
- E. That the recipient agree to the following United States Competitiveness provision:

U.S. Competitiveness Provision

"The waiver recipient agrees that any products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States, unless the waiver recipient can show to the satisfaction of DOE that it is not commercially feasible to do so. Processes, services, and improvements thereof which are covered by any waived invention developed under this contract shall be incorporated into the contractor's manufacturing facilities in the United States either prior to or simultaneously with implementation outside the United States, shall not result in reduction of the use of the same processes, services, or improvements in the United States. The waiver recipient further agrees to make the above conditions binding on any assignee or licensee or any entity otherwise acquiring rights to any waived invention, including subsequent assignees or licensees."

- F. U.S. Preference per 35 USC 204 will apply.