

Statement of Considerations

REQUEST BY IBM, FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN RIGHTS IN
SUBJECT INVENTIONS MADE IN THE COURSE OF OR UNDER UT-BATTELLE, LLC
SOLICITATION 6400015256 UNDER PRIME CONTRACT NO. DE-AC05-00OR22725; DOE
WAIVER DOCKET W(A)2018-007 [ORO-823]

IBM (Petitioner) has made a timely request for an advance waiver to worldwide rights in Subject Inventions made in the course of or under UT-Battelle, LLC Solicitation No. 6400015256 entitled "Methods and Interfaces for Quantum Acceleration of Scientific Interactions" under UT-Battelle, LLC Prime Contract No. DE-AC05-00OR22725. The scope of work is to assess the feasibility of quantum processing unit (QPU) prototypes for scientific computing by evaluating the performance of applications in machine learning, quantum chemistry, and quantum field theory. The work is sponsored by the Office of Science Advanced Scientific Computing Research (ASCR).

The dollar amount of the expected subcontract, including fee, is \$400,000 with Petitioner proposing to cost share 40% of the estimated work (\$160,000). The period of performance is approximately two (2) years.

Petitioner's experience and expertise will contribute substantially to the development of the inventions made under the proposed subcontract. Petitioner was one of the first providers of cloud-based quantum computing and has developed a full software stack for enabling this technology as well as a broad range of characterization methods which have helped make this platform one of the leading platforms in the field. In addition Petitioner has contributed to providing standards for metrics of quantum hardware performance.

Petitioner has also established the IBM Q Network which is a worldwide community of leading Fortune 500 companies, startups, academic institutions, and national research labs working with Petitioner to advance quantum computing and explore practical applications for business and science. Members include Keio University, the University of Melbourne, NC State University, Mistubishi, JSR, Samsung, JP Morgan Chase & Co, Daimler, Zapata, Quantum Benchmark, Q-CTRL, 1-QBit, and others. Additionally, Petitioner has also created an open source set of software tools, Qiskit, which has become one of the most popular quantum computing frameworks on Github, one of the world's leading software development platforms.

Petitioner has made a significant investment of private funding which will directly assist and further promote development of the work to be performed under the subcontract. Petitioner has made industry leading investments in quantum computing research and development for three decades and has led the field in the development of superconducting qubits, the integration of these devices into reliable systems for research, and the development and release of a full software stack for programming quantum computers. Recently, Petitioner's team has demonstrated significant progress in the ability to solve real, small scale, problems in chemistry, classification, and optimization using quantum computers. This has taken substantial commitments of research staff, software development, and capital investment in systems with a total investment by Petitioner orders of magnitude greater than the value of the proposed subcontract.

Petitioner has agreed to accept the attached DOE waiver terms and conditions if the requested waiver is granted. Specifically, Petitioner agrees to abide by the conditions set forth at 35 U.S.C. §202-204 relating to the Government license, march-in rights, preference for U.S. industry, as well as a modified U.S. Competitiveness provision below.

The Petitioner agrees to conduct research and development activities under the subcontract principally in U.S.-based facilities. 'Principally' is defined as greater than a ninety (90%) percent level of effort. The Petitioner also agrees that for a period of one (1) year following subcontract completion, subsequent research and development by the Petitioner for the purpose of commercializing technologies arising from the intellectual property developed under the subcontract shall be performed substantially in U.S.-based facilities. 'Substantially' is defined as greater than fifty (50%) percent level of effort. The Petitioner further agrees that any processes and services, or improvements thereof, which shall arise from the intellectual property developed under the subcontract when implemented outside the U.S., shall not result in a reduction of the Petitioner's research workforce in the U.S. Finally, it is understood between the DOE and the Petitioner that any subsequent follow-on subcontracts and/or future phases of work under the Government's ASCR Program will be subject to a separate U.S. Competitiveness determination. The Petitioner further agrees to make the above condition binding on any assignee or licensee or any entity otherwise acquiring rights to any waived invention, including subsequent assignees or licensees. Should the Petitioner or other such entity receiving rights in any waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license or other transfer of rights in any waived invention is suspended until approved in writing by DOE.

Granting of the waiver should have little effect on competition since there are several technology options, this being one of many previously or yet-to-be developed in the marketplace. Moreover, Petitioner's technology will require significant additional development prior to commercial introduction. Thus, there should not be undue market concentration of Petitioner products.

In view of the objectives and considerations set forth in 10 CFR 784.4, all of which have been considered, it is recommended that the requested waiver for worldwide patent rights in Subject Inventions be granted.


Emily G. Schneider
Assistant Chief Counsel for
Intellectual Property

Date 10/19/2018

Based on the foregoing Statement of Considerations and the representations in the attached Waiver Petition, it is determined that the interest of the United States and the general public will best be served by a waiver of U.S. and foreign patent rights, and therefore, the waiver is granted. This waiver shall not apply to a modification or extension of the subcontract where, through such a modification or extension, the purpose, scope or cost of the subcontract has been substantially altered.

CONCURRENCE:

[REDACTED]

Claire Cramer, Ph.D.
Program Manager
Office of Advanced Scientific Computing
Research
Office of Science

10/26/2018
Date

APPROVAL:

[REDACTED]

Brian Lally
Assistant General Counsel for Technology
Transfer and Intellectual Property

12/5/18
Date