p　スーパーコンピュータシステムの消費電力量を監視し、制限する機能を持つこと。

q　スーパーコンピュータシステムの保守支援体制は、提案する構成要素に対し、発生した障害を速やかに解決する保守支援体制を有すること。また、システム障害の発生が通常運用に重大な支障をきたすと当機構が判断した場合は、緊急対策チームを発足させ早急に問題解決を図ること。

B　性能評価試験の概要

性能評価のために行うベンチマークテストの概要は導入説明書に示す。

C　総合評価の概要

落札方式は、価格及び性能・機能等の総合評価による。総合評価の概要は導入説明書に示す。

2　資料及びコメントの提供方法　上記１⑵の物品に関する一般的な参考資料及び同⑹の要求要件に関するコメント並びに本システムの構成や性能等の見地から有用と思われる資料等の提供を招請する。

⑴　資料等の提供期限　令和５年８月22日17時00分（郵送の場合は必着のこと。）

⑵　提供先　〒263―8555　千葉市稲毛区穴川４－９－１　国立研究開発法人量子科学技術研究開発機構　財務部　契約課　電話043―206―6262

E-mail : nyuusatsu_qst@qst.go.jp

3　説明書の交付　本公表に基づき応募する供給者に対して導入説明書を交付する。

⑴　交付期間　令和５年７月12日から令和５年８月21日まで。

⑵　交付場所　上記２⑵に同じ。電子形式による交付も可能。

4　説明会の開催　本公表に基づく導入説明会を開催する。

⑴　開催日時　令和５年７月19日14時00分

⑵　開催場所　国立研究開発法人量子科学技術研究開発機構　六ヶ所研究所　管理研究棟会議室

5　その他　この導入計画の詳細は導入説明書による。なお、本公表内容は予定であり、変更することがあり得る。

6　Summary

⑴　Classification of the products to be procured : 14

⑵　Nature and quantity of the products to be rent : Supercomputer System 1 Set

⑶　Type of the procurement : rent

⑷　Basic requirements of the procurement :

A　Outline of Basic Requirements

a　The supercomputer system should be composed of a large-scale parallel computer, an external storage system, and network switching equipments, etc.

b　Each component of the supercomputer system should have high reliability. Proper countermeasures should be taken against even a small component trouble so that the entire system would not crash and the influence would be minimized.

c　The total theoretical peak performance of the supercomputer system should exceed 20 petaflops in double-precision floating-point format. The system composition is not restricted to a single architecture. About 10 percent of compute nodes should be equipped with GPGPU (General Purpose Graphics Processing Unit) or processing unit unifying CPU and GPGPU. The system should satisfy performance criteria through benchmark tests designed by QST.

d　The capacity of the main memory of the supercomputer system should be 250 terabytes or more. And the compute nodes should have, per node, 128 gigabytes or more memory with theoretical bandwidth over 800 gigabytes per second.

e　The external storage system should be equipped with 27 petabytes or more of highly reliable magnetic disk device system which is able to store results of massively parallel simulations at a high speed. And more than 10 percent of the total storage capacity should be provided as SSD (Solid State Drive) to accelerate I／O in computation.

f　A file server system with high reliability is to be equipped for storing and serving user's program files.

g　Unified and single front-end system for user access providing graphical user interface should be equipped.

h　Back-end network is to be equipped, that can connect to external storages for experimental data (these storages are planned to be installed in Rokkasho Fusion Institute separately from this supercomputer system) with a theoretical transmission speed of 100 Gbps or more.

i　A data processing and visualization server system consisting of nodes with large shared memory and GPU is to be equipped for supporting usage of data processing and visualization.

j　Operating System is to be based on UNIX and is to be equipped with batch queuing system. Interactive jobs, batch jobs, and the combination of them run on the system.

k　Application development environments supporting the programing languages as FORTRAN, C, C++ and Python, parallel programing environments as MPI library for message passing, parallelized scientific technology simulation libraries optimized for the architecture, ecosystem for machine learning (as TensorFlow, PyTorch) should be provided on the supercomputer system.

l　The supercomputer system should have appropriate application development environments (parallelizing compilers, parallelization tuning tools, etc.) to efficiently use hundreds of thousands of cores, and experienced operation tools to efficiently and stably manage all of the cores.

m　Support for software maintenance and support for development of programs (including support for smooth porting of the user codes to the new system) should be provided.

n　UPS (Uninterruptible Power Supplies) and cooling system are to be equipped.

o　Total power consumption of the supercomputer system should be lower than 1.3 megawatt.

p　Functions to monitor and control power consumption of the system should be equipped.

q　The immediate support for a maintenance and a trouble shooting should be provided for the supercomputer system. When QST judges that a system trouble is serious, an urgent trouble shooting team should be established to settle the trouble quickly.

B　Outline of Performance Evaluation

The introduction manual shows the outline of the benchmark tests for the performance evaluation.

C　Outline of Total Evaluation

The successful bid depends on total evaluation of the price, the performance, the functions, etc. The introduction manual shows the outline of the total evaluation.

⑸　Deadline for the submission of the requested materials : 5 : 00 PM, 22, August, 2023.

⑹　Contact point for the notice : Contract Section, National Institutes for Quantum Science and Technology, 4－9－1 Anagawa, Inage-ku, Chiba-shi 263―8555 JAPAN (TEL. 043―206―6262,

E-mail : nyuusatsu_qst@qst.go.jp)