C　その他

a　簡易なグラフィカルユーザインターフェイスにより、スーパーコンピュータシステム及びクラウドシステムの利用・運用管理を連携して円滑に行える、一体的な利用・運用管理支援システムを有すること。

b　ハードウェア及びソフトウェアの信頼性が高く、24時間365日の連続したサービスが安定的に行えること。

c　導入システム全体の電力使用量は1.2MVA以下であること。省電力、省スペース、管理自動化、運用支援など、システム全体としての運用コストを最小化するシステム基盤、サポート体制を有すること。

d　ハードウェア及びソフトウェアの保守支援体制を有し、システムの障害対策及びセキュリティ対応がなされていること。

e　現有システム上の利用者データ及びファイル資産、ソフトウェア資産、仮想マシンやネットワークなどの設定情報を含む運用システムを、本システムへと移行すること。

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の要求要件等に関するコメント並びに提供可能なライブラリーに関する資料等の提供を招請する。

⑴　資料等の提供期限　平成27年12月16日17時00分（郵送の場合は必着のこと。）

⑵　提供先　〒060―0808 札幌市北区北８条西５丁目　北海道大学財務部調達課係長（物品契約担当）　小笠原美勝　電話011―706―4552

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　平成27年９月16日から平成27年12月16日まで。

⑵　交付場所　上記２⑵に同じ。

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　平成27年９月28日13時30分

⑵　開催場所　北海道大学情報基盤センター北館会議室（４階）

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 : Interdisciplinary Large-Scale Computing System 1 Set

⑶　Type of the procurement : Rent

⑷　Basic requirements of the procurement :

A　Supercomputer system

The system to be procured consists of two parallel computing subsystems, a storage system, and other hardware and software components for stable and efficient operation of the total system.

①　Subsystem A

a　The subsystem A must be a cluster type parallel computer composed of multiple computer nodes. Hereafter, the computer node, or the node in short, is defined as a computer system composed of multiple CPU cores and a main memory shared by them.

b　Each node must have multiple multi-core processors and a main memory of 384 GiByte or larger, and its theoretical peak performance on double-precision floating point must be 2 TFLOPS or higher.

c　The aggregate theoretical peak bandwidth of the main memory access in each node must be 230 GByte／sec or higher.

d　Each node must be equipped with SSDs, or secondary storages that have the same capabilities, of 150 GiByte or larger in total.

e　The total sum of the theoretical peak performance on double-precision floating point in all nodes of the Subsystem A must be 2 PFLOPS or higher, and the total main memory size must be 375 TiByte or larger.

f　The theoretical peak injection bandwidth of each node to inter-node interconnect must be 24 GByte／sec or higher, and the bi-section bandwidth of the Subsystem-wide interconnect must be at least half of the product of the bandwidth of each node and the number of nodes in the Subsystem A.

g　Each node must have hardware management mechanisms and software that monitors the operational state.

h　The subsystem A must operate with peak load consuming 450 kW electric power or less.

i　The subsystem A must have the software stack shown in Item ③.

②　Subsystem B

a　The subsystem B must be a cluster type parallel computer composed of multiple nodes.

b　Each node must have a processor that has many-cores, a main memory of 96 GiByte or larger and a high-bandwidth memory of 16 GiByte or larger accessible from all processing cores in the node as a cache memory, and its theoretical peak performance on double-precision floating point must be 3 TFLOPS or higher.

c　The aggregate theoretical peak bandwidth of the main memory access in each node must be 100 GByte／sec or higher, and that of the high-bandwidth memory must be 480 GByte／sec or higher.

d　The total sum of the theoretical peak performance on double-precision floating point in all nodes of the Subsystem B must be 1.2 PFLOPS or higher, and the total main memory size must be 40 TiByte or larger.

e　The theoretical peak injection bandwidth of each node to inter-node interconnect must be 12 GByte／sec or higher, and the inter-node interconnect must have full bi-section bandwidth.

f　Each node must have hardware management mechanisms and software that monitors the operational state.

g　The subsystem B must operate with peak load consuming 180 kW electric power or less.

h　The subsystem B must have the software stack shown in Item ③.

③　Software stack

a　Automatic parallelizing compilers for Fortran, C, and C^{++} must be provided. These compilers must support OpenMP version 3.0 or later.

b　Java and Python platform must be provided.

c　High-performance parallel numerical libraries, program development environment and debuggers must be provided.

d　Parallel programming library that supports MPI version 3.0 or later must be provided.

e　A UNIX operating system must be provided.

f　System software for both interactive and batch processing modes must be provided.

g　Job management software that supports the following two types of operations must be provided : (i)the conventional metered operation, (ii)the group occupation operation in which a specific user group is allowed to occupy a certain amount of computational resources.

④　Storage system

a　The total capacity of disk arrays must be 12 PByte or larger.

b　The aggregate data transfer bandwidth between the storage system and the subsystems A and B must be 120 GByte／sec or higher.

c　The storage system must operate with peak load consuming 100 kW electric power or less.