j　High performance interconnection network interface of each computation node must provide 200Gbps or higher theoretical peak speed. If a single network link cannot provide it, it is acceptable to combine multiple port to satisfy it. In this case, these multiple ports must be transparent from user-level communication such as in MPI.

k　Each computation node must be equipped with NVMe SSD with 3.2TByte or larger capacity, which is connected by PCIe gen3 x8 lanes or larger. It must have 3DW／D (Drive Write per Day) or higher durability.

l　High performance interconnection network for parallel processing must be equipped with a network switch system with full bisection bandwith.

m　GPU part, FPGA part (for FPGA equipped node only) and high performance interconnection network interface must be connected by PCIe gen3 or higher specification of interface to CPU part. Here, GPU part and FPGA part must have x32 and x16 lanes or larger PCIe bus, respectively, and high performance interconnection network interface must have x32 lanes or large PCIe bus. Each node must be equipped with a PCIe switching system not to make any bottleneck on devcice-to-device communication. It is acceptable to be included in CPU part as long as there is no performance bottleneck on device-to-device communication.

n　The aggregated peak performance of double precision floating point of CPU part must be 112TFLOPS or higher. That of single precision floating point of GPU part must be 7.1PFLOPS or higher. That of single precision floating point of FPGA part mus be 204TFLOPS or higher.

o　The aggregated memory capacity of CPU part must be 24.5TiByte or larger.

B　The large scale shared file server must satisfy the following conditions.

a　The large scale shared file server mut be connected to high performance interconnection network with all computation nodes.

b　The capacity of user available space must be 5PByte or larger, and it must be accessed from all computation nodes with an identical method and bandwidth.

c　The theoretical peak bandwidth to access the large scale shared file server must be 60GByte／sec or higher.

d　It must be operated with RAID technology with redundancy and each part of disk system must be swappable without stopping the entire system.

C　The software available on all the computation nodes must satisfy the following conditions.

a　The system must be operated by Linux operating system.

b　On each computation node, Fortran, C and C++ languages must be supported with automatic parallelization function and OpenMP API for CPU part.

c　On each computation node, CUDA and OpenACC programming　for GPU with C／C++ and Fortran language must be supported　for GPU part.

d　On each FPGA equipped node, Verilog HDL and high level language synthesis environment such as OpenCL must be supported for FPGA part.

e　MPI 3.0 or later specification of MPI library must be　provided for parallel processing over all computation nodes.

f　Highly parallelized numerical library must be provided.

g　Batch-job scheduling system to manage all the computation nodes must be provided.

D　The power consumption of the massively parallel processing server, the large scale storage system and all the cooling system must be equal to or less than 300kVA in total. To support the continuous operation of CPU, memory and storage system which are fully powered, power supply unit capacity, cooling system, floor plan, and all the environments must be carefully considered.

(5)　Time limit for the submission of the requested material : 17 : 00　3 April, 2018

(6)　Contact point for the notice : Akira Shigeta, Associate Head, Center for Computational Sciences, University of Tsukuba, 1―1―1 Tennodai Tsukuba-shi 305―8577 Japan, TEL 029―853―6486

資料提供招請に関する公表

次のとおり物品の導入を予定していますので、当該導入に関して資料等の提供を招請します。

平成30年2月21日

国立大学法人鳥取大学長　豐島　良太

◎調達機関番号　415　◎所在地番号　31

○第3号

1　調達内容

(1)　品目分類番号　22、31

(2)　導入計画物品及び数量　遠隔操作型内視鏡下手術システム　一式

(3)　調達方法　借入

(4)　導入予定時期　平成30年度10月以降

(5)　調達に必要とされる基本的な要求要件

①　内視鏡下手術を支援するシステムであること。

②　術者が遠隔で操作できるシステムであること。

③　患者への安全性が十分確保されていること。

④　術者は高画質な三次元画像で術野を同定できること。

2　資料及びコメントの提供方法　上記1(2)の物品に関する一般的な参考資料及び同(5)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。

(1)　資料等の提供期限　平成30年4月9日17時00分（郵送の場合は必着のこと。）

(2)　提供先　〒683―8504 米子市西町36―1 鳥取大学医学部経理・調達課特定調達係　紀村　昌弘　電話0859―38―7068

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。

(1)　交付期間　平成30年2月21日から平成30年4月9日まで。

(2)　交付場所　上記2(2)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。

(1)　開催日時　平成30年2月28日11時00分

(2)　開催場所　鳥取大学医学部附属病院会議室

(4)

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

(1)　Classification of the products to be procured : 22, 31

(2)　Nature and quantity of the products to be rent : Remote controlled endoscopic surgical system 1 Set

(3)　Type of the procurement : Rent

(4)　Basic requirements of the procurement :

①　The system should be a medical device to assist endoscopic surgery.

②　The system should be remote-controlled by surgeon.

③　Safety to patient should be sufficiently secured in the system.

④　The system enables surgeon to identify the operative field during surgery,with high definition 3D image.

(5)　Time limit for the submission of the requested material : 17 : 00　9 April, 2018

(6)　Contact point for the notice : Masahiro Kimura, Specific Procurement Section, Accounting and Procurement Division, Faculty of Medicine, Tottori University, 36―1 Nishi-cho Yonago-shi 683―8504 Japan, TEL 0859―38―7068