**RFP for Server, Storage & workstations**

**Item Required:**

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| **Sl. No** | **Item** | **Qty.** |
| 1 | Server System | 1 |
| 2 | Unified Flexible and scalable storage System | 1 |
| 3 | Computational Graphics System workstation | 5 |
| 4 | i5 Laptops | 2 |
| 5 | Microsoft office 2016 student edition with Academic license | 5 |
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1. Technical Specification for Server System:

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| **Features** | **Descriptions** | **compliance (Yes/No)** | **Page Reference in the datasheet & Remarks** |
| Chassis | 1U/2U rack-mountable with sliding rails |  |  |
| Processor(s) | 2 x Intel® Xeon procs -Skylake-6152 (22-Core, 2.1GHz, 30.25M Cache or higher) |  |  |
| Accelerator(s) | System to support minimum 3 Nvidia Tesla P100 Cards (double width accelerators) or equivalent. To include 1 Nvidia Tesla P100 Card |  |  |
| RAM | 512GB DDR4-2666 ECC RDIMM (Max 2TB, at least 12 DIMMs) |  |  |
| HDD(s) | 2 x 1.8 TB 10K RPM, Enterprise SAS HDD (at least 2 hot swap HDD Bays or more), 1x 240GB SDD Drive. |  |  |
| NIC | 2 x 10 Gigabit(10/100/1000Mbps) Ethernet ports (RJ-45) |  |  |
| Graphics | Graphics using on board server grade controller |  |  |
| Interconnect | 1 x Hi Speed 56Gbps Interconnect using low latency interconnect HCA for storage connectivity |  |  |
| Exp Slot(s) | at least 6 x PCI-Express x16 slots |  |  |
| Ports | 2 USB, 2 x Network,1 x Video ports |  |  |
| P. Supply | High Efficient (80PLUS Certified) power supply , minimum 1800W Redundant Power Supply |  |  |
| Compliance | OEM must be registered with Bureau of Indian Standards, ISO 9001 ,14001 Certified with registered office in India. |  |  |
| Management | Should be quoted with remote management & configuration software (Advance premium edition) |  |  |
| Software & Installation | RHEL 7.3 licenced version with Virtualization installed |  |  |
| Warranty | 5yrs onsite  comprehensive warranty |  |  |
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1. Technical Specification for Unified Flexible and scalable storage System: A 2U/4U rack-mountable storage system with Redundant Power supplies to be supplied with the specification below:

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| **Features** | **Descriptions** | **compliance (Yes/No)** | **Page Reference in the datasheet & Remarks** |
| Controller | Single Controller Unified NAS Storage System. Each processor per-controller should have at least quad Core xeon Processor or Higher |  |  |
| Controller Cache | The system should have minimum 4GB battery backed cache or more across the controller with an ability to protect data on cache if the system fails and it results into controller failure. The cache on the storage should have battery backup. Cache shall be dynamically managed for both Read and Write operations. |  |  |
| Storage Operating System | The Storage should have embedded Operating Systems and there should be only one OS to provide the required Protocols. (It should not be a general purpose OS such as Windows, Linux etc.) The OS should be of the same make as that of storage or as per OEM standard. |  |  |
| Protocol | Storage OS should Support iSCSI and/or FC protocol and/or SAS. The Proposed Storage Should be capable of direct host connectivity. |  |  |
| Storage to Host Connectivity | 1 x Hi Speed 56Gbps Interconnect using low latency interonnect HCA for storage connectivity Storage must have additional FC HBA Controller ports available as well. ICGEB may decide for connecting servers using FC controller in future |  |  |
| Storage Capacity | At least 12 hot-swap SAS/SATA internal HDD bays, out of which 10 bays to be populated with 4 TB 7200 rpm SAS drives each. The system must support future expansion of storage upto 192 drives. |  |  |
| Redundancy | There should be complete Redundancy at the data storage level and hot swappable disks for easy operations |  |  |
| RAID Support | The solution to be configured with RAID 6 or equivalent protection and for every 30 disks, 1 disk should be configured as Global hot spare. |  |  |
| Storage Feature | Storage system (disk shelves) should support SSD/ SATA/ NL-SAS/ SAS disks simultaneously with different rpm. Storage back end connectivity should be at least 6Gbps SAS Ports (for optional connectivity) |  |  |
| Storage Disks Types | SAS, NL-SAS and SSD drives to be support |  |  |
| Storage Management | Should have Single Graphic Use Interface (GUI) for both File and Block as well as command line interfacing. Must include real time performance monitoring tools giving information on CPU utilization, volume throughput, I/O rate and latency etc. |  |  |
| User License | Storage must support unlimited user license |  |  |
| Compliance | Storage OEM must have registered office in India and proven installation base at atleast 5 Govt Education & Research Organisations as part of HPC Clusters . Necessary Documents to be provided. |  |  |
| Host / Server OS Support | RedHAT Linux, MS Windows etc. |  |  |
| Warranty | 5yrs onsite  comprehensive warranty |  |  |

1. Specification for Computational Graphics System workstation:

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| **Features** | **Descriptions** | **compliance (Yes/No)** | **Page Reference in the datasheet & Remarks** |
| Processor(s) | Intel® Xeon® Processor Model -E5-2620v4(8 Cores, 2.1Ghz, 20MB Cache), Scalable to dual processor. 2nd Socket must be available on board |  |  |
| Chipset | Intel® C612 Chipset |  |  |
| Accelerator | Supports 2 double width GPGPU cards for acclerated computing- Nvidia Tesla |  |  |
| RAM | 1\*32GB DDR4-2400 ECC RDIMM (Max 1TB, thru16 DIMMs or more) |  |  |
| RAID | SATA/SAS 6Gbps RAID Controller with RAID 0, 1, 5 &10 support |  |  |
| HDD(s) | 1\* 4TB Enterprise SATA 7.2K RPM HDD. |  |  |
| HDD Bays | at least 4x 3.5" HDD bays, 4 x 2.5"/3.5" Hot Swap drive bays |  |  |
| ODD | 16x or better DVDRW Drive |  |  |
| SLI Connector | System with on board SLI Connectors for multiGPU interlink |  |  |
| GPU Card | 1 x Nvidia Quadro Professional Graphics card with dedicated 4GB Graphics Memory |  |  |
| NIC | 2 x Gigabit(10/100/1000Mbps) Ethernet on-board or thru AOC |  |  |
| Audio | High Definition Audio on board |  |  |
| Exp Slots(s) | at least 3 x PCI-E 3.0 x16(supports two or more double width/accelerator cards), |  |  |
| Ports | At least 6 USB Ports (minimum 3 xUSB 3.0 ports), 1x Serial, 2 x LAN |  |  |
| Cooling | Liquid Cooling Mechanism with auto controller mechanism |  |  |
| Compilers | GNU Toolchain preloaded with required support included |  |  |
| Diagnostics | CPU and chassis environment ,Thermal Control provision, PECI, Thru LEDs for power on/off, HDD activity, Network activity, System Overheat |  |  |
| Chassis | Mid-Tower/Tower form factor |  |  |
| P. Supply | High Efficient 850W or higher power supply (80PLUS Level Certified) |  |  |
| OS Certification | RHEL/SUSE, Open Source (Cent OS/Fedora/Debian) , Windows Certified |  |  |
| Peripherals | 24" LED Professional Anti Glare Monitor (with High Resolution 1920 x 1080) , Wireless KBD & Wireless Mouse |  |  |
| Compliance | OEM must be registered with Bureau of Indian Standards, ISO 9001 ,14001 Certified with registered office in India. |  |  |
| warranty | 5 yrs onsite comprehensive warranty |  |  |

1. Laptop Specification:

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| **Features** | **Descriptions** | **compliance (Yes/No)** | **Page Reference in the datasheet & Remarks** |
| Laptop Specification | 6th Gen Intel® Core™ i5-6200U,1TB HDD, 8 GB RAM, 2GB Graphics, Windows 10 pro with MS Office Student 2016 with Academic License. 3 yrs onsite warranty. |  |  |

Scope of work:

* The successful bidder (hereinafter System Integrator/SI) shall supply the required Items at ICGEB Campus, Aruna Asaf Ali Marg, New Delhi 110067 .
* The SI shall undertake to install, test & commission all the supply Server, Storage workstation & Laptops at required locations.
* All computational application shall install by SI whenever users has to require.
* The SI shall supply all relevant documents/drawings/test certificates and manuals.
* The acceptance report shall be mutually signed between ICGEB and SI after successful supply, installation, commissioning of the Computational and storage system.