



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076.

Ref. PR No.: 1000049062

Rfx. No.:6100002291

Item Description: Add on Component for Existing HPC Cluster with Additional Compute Nodes

Sr. No	Item Description	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
1. Compute Nodes CPU only – Qty 3				
1	CPU	2 x Intel Xeon Gold 6430 32C 270W 2.1GHz Processor System should be able to support highest TDP processor		
2	Memory	16x16GB 4800MHz with capability to scale upto 8TB		
3	Memory Dimms	Should have 32 memory DIMM slots		
4	Memory Correction	ECC detection/correction Bounded Fault detection/correction SDDC (for x4-based memory DIMMs; look for "x4" in the DIMM description) ADDDC (for 10x4-based memory DIMMs, not supported with 9x4 DIMMs) Memory mirroring		
5	HDD	2 x 480GB SSD with hardware RAID. Server to support Up to 4x 3.5-inch or 12x 2.5-inch hot-swap drive bays		
6	Networking Adapter	Quad port 1G RJ45 adapter		
7	PCIe Slots	Server should support upto 5xPCIe Gen 4.0 x8/x16 slots		
8	Ports	1 x VGA port, 4 x USB 3.2 G1, 1 x RJ45 for management		
9	Power supply	Redundant Hot swap power supplies		
10	Fan	Redundant (N+1) hot swap fans		
11	Form Factor	1U		
12	Diagnostics	The light path diagnostics feature uses LEDs should lead the technician to failed (or failing) components.		
13	Security	TPM 2.0 with secure boot NIST 800-131A or FIPS 140-2 compliant cryptographic standards		
14	System management	It should monitor all vital components of systems and trigger alerts. Service data can be saved to USB keys or remote CIFS for troubleshooting. It should be able to boot video capture and crash video capture		

		Mounting remote ISO image via HTTP, SFTP, CIFS, NFS SNMP 3.0 System management with all available features including all required license		
15	System Environment	System should support ISO7779 and ISO 9296		
16	Mobile management	Should connect to mobile via USB for server management		
17	Mobile Management	Server should be connected to smartphone or tablet (Android or IOS) via USB and check server status and error logs.		
18	Warranty	3 years onsite warranty with advanced replacement of parts.		
19	GPU	System should have supports for upto 3 single wide GPUs		
20		The Supply, installation and commissioning of the system should be completed within 12 weeks from the date of purchase order.		

2. SOFTWARE - 1 Set.				
Commercial Software with Support from it's OEM's				
1	Cluster Management Software	Proposed cluster management tool to be fully supported by it's OEM.		
		Proposed cluster management tool should have web based graphical remote access interface.		
		Should be compatible to work on RHEL 5.x to RHEL 9.x / CentOS 5.x to CentOS 9.x/ Fedora 9.x / Rocky Linux 8.x/9.x		
		Should be able to provision above operating systems to compute nodes. Should be able to auto-provision applications to compute nodes		
		Should allow HPC management console to be accessible from any system in the network.		
		Should support role-based access to the HPC system.		
		Every role should be able to be remotely managed using the Graphic User Interface.		
		Should provide profile-based and fully automated provisioning features.		
		Proposed cluster management tool should have a graphic user interface.		
		Should support Add/Modify/Delete compute nodes from GUI window.		
		GUI (Web) based monitoring feature to be part of proposed solution.		
		Should support major power management modules like bullpap, wti, apc_snmp, ether_wake, ipmilan, drac, ipmitool, ilo, rsa, lpar, bladecente as per the hardware proposed.		
2	Job scheduler:	Bidder should propose a job scheduler which is fully supported by them. Job Scheduler proposed should only be OGE / Torque /		

		Open PBS or Licensed and supported version of PBS Pro. No other scheduler to be proposed.		
3	Libraries, MPI and Compilers	Bidder should propose GNU Compilers & Intel Cluster Studio minimum single user perpetual license with one year support.		
		Bidder should implement Open MP and MPI network.		
		Bidder should set up the Cluster for MPI Communication over IB/GigE		
		Vendor specific InfiniBand stack on Linux OS, if available, should be supplied.		
		Vendor specific MPI implementation on Linux OS should be supplied.		
		Open source software/platforms like Python, Perl, Abaqus, Matlab, Comsol, openFOAM should be integrated with the cluster. Integration of NAMD will be a major plus.		
		IIT Bombay also has licenses from Abaqus, Matlab, Comsol, ANSYS, Erdas etc. These also to be integrated with the cluster.		
4	Jobs Submission Portal:	Bidder should propose for ISV supported GUI Based Job submission portal.		
		Proposed GUI Based job submission portal should be in production mode with at least 3 organizations in India of which 2 have to be Govt/research organization. At least 1 location from the same to be in production mode for last 3 years.		
		Proposed portal should be integrated with existing LDAP or NIS authentication. Integration of NAMD into the cluster will be a major plus.		
		Proposed job submission Portal should be fully integrated with proposed Cluster management tool and Scheduler		
5	Operating System	Linux 64 bit		
		Scheduler – Scheduler proposed should be compatible with hardware and software infrastructure proposed and to be supported by bidder.		

3. BILL OF MATERIAL				
1	Server : ThinkSystem SR630 V3 - 3yr Warranty - HPC	3		
2	ThinkSystem V3 1U 10x2.5" Chassis	3		
3	Operating mode selection for: "Efficiency - Favoring Performance Mode"	3		
4	Data Center Environment 30 Degree Celsius / 86 Degree Fahrenheit	3		
5	Intel Xeon Gold 6430 32C 270W 2.1GHz Processor	6		
6	ThinkSystem 16GB TruDDR5 4800MHz (1Rx8) RDIMM	48		
7	Select Storage devices - no configured RAID required	3		
8	ThinkSystem M.2 RAID B540i-2i SATA/NVMe Adapter	3		
9	M.2 SATA	3		
10	ThinkSystem M.2 ER3 480GB Read Intensive SATA 6Gb NHS SSD	6		
11	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	3		
12	ThinkSystem V3 1U x16 Riser1 PCIe Gen4 with Rear drive	3		

13	ThinkSystem 1U LP+FH BF Riser Cage for Slot3	3		
14	ThinkSystem V3 1U x16 PCIe Gen4 Riser2	3		
15	ThinkSystem 1100W 230V/115V Platinum Hot-Swap Gen2 Power Supply v3	6		
16	4.3m, 10A/100-250V, C13 to C14 Jumper Cord (India)	6		
17	ThinkSystem 1U V3 10x2.5" Media Bay w/ Ext. Diagnostics Port	3		
18	ThinkSystem V3 1U Performance Fan Option Kit v2	24		
19	ThinkSystem Toolless Slide Rail Kit v2	3		
20	TPM 2.0 with Secure Boot	3		
21	Enable IPMI-over-LAN	3		
22	ThinkSystem 1U Intrusion Cable	3		
23	Enable System Guard	3		
24	ThinkSystem SR630 V3 MB	3		
25	Auto-Derived Part Items			
26	AI & HPC - ThinkSystem Hardware	3		
27	3Yr Premier NBD Resp SR630 V3	3		
28	3Yr KYD Add-On SR630 V3	3		
29	Hardware Installation Standard Server (Business Hours)	3		
30	XClarity Pro, Per Endpoint w/3 Yr SW S&S	3		
31	Lenovo XClarity Pro, Per Managed Endpoint w/3 Yr SW S&S	3		
32	Registration only	3		
33	ADDITIONAL SOLUTION COMPONENTS			
34	Fuji Electric FINCH UPS 30Kva 3ph 3ph	1		
35	Cat6 Cables with 3 meter length	6		