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

Ref. PR No. 1000048800 Rfx. No. 6100002303

Technical Specifications for Add on of existing HPC with one GPU Compute Node Server & one Master Node Server

Sr. No	Item Description	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
1.	GPU Node	ThinkSystem SR675 V3 4DW PCIe GPU Base ThinkSystem AMD EPYC 9255 24C 200W 3.25GHz Processor ThinkSystem 32GB TruDDR5 6400MHz (2Rx8) RDIMM-A v2 Select Storage devices - no configured RAID required ThinkSystem RAID 5350-8i PCIe 12Gb Adapter ThinkSystem 2.5" VA 480GB Read Intensive SATA 6Gb HS SSD v2 ThinkSystem V3 2U 8x2.5" AnyBay Gen5 Backplane 1 ThinkSystem Intel I350 1GbE RJ45 4-port OCP Ethernet Adapter ThinkSystem NVIDIA H200 NVL 141GB PCIe GPU Gen5 Passive GPU ThinkSystem SR675 V3 x16 PCIe Gen5 Rear IO Riser ThinkSystem SR675 V3 2x16 PCIe Front IO Riser ThinkSystem SR670 V2/ SR675 V3 OCP Enablement Kit ThinkSystem SR675 V3 Direct 4x16 PCIe DW GPU Riser ThinkSystem 2400W 230V Platinum Hot-Swap Gen2 Power Supply v2 2.5m, 16A/100-250V, C19 to C20 Jumper Cord 4 ThinkSystem SR675 V3 Front Video/USB/Diagnostic for 4-DW GPU model ThinkSystem SR670 V2/SR675 V3 Heavy Systems Toolless Slide Rail Kit TPM 2.0 with Secure Boot Enable System Guard		

		Enable IPMI-over-LAN XClarity Pro, Per Endpoint w/3 Yr SW S&S Lenovo XClarity Pro, Per Managed Endpoint w/3 Yr SW S&S Registration only 3Yr Standard NBD Resp SR675 V3 3Yr KYD Add-On SR675 V3 Hardware Installation Advanced Server (Business Hours)		
2.	Master Node	ThinkSystem R665 V3 2U 24x2.5" Chassis Operating mode selection for: "Maximum Efficiency Mode" Data Center Environment 30 Degree Celsius / 86 Degree Fahrenheit ThinkSystem AMD EPYC 9015 8C 125W 3.6GHz Processor ThinkSystem SR665 V3 2U High Performance Heatsink Platform Secure Boot Enable ThinkSystem 16GB TruDDR5 6400MHz (1Rx8) RDIMM-A Select Storage devices - no configured RAID required ThinkSystem RAID 5350-8i PCIe 12Gb Adapter ThinkSystem 2.5" VA 480GB Read Intensive SATA 6Gb HS SSD v2 ThinkSystem 2.5" VA 3.84TB Read Intensive SATA 6Gb HS SSD v2 ThinkSystem 2U 8x2.5" SAS/SATA Backplane ThinkSystem Broadcom 5719 1GbE RJ45 4-port OCP Ethernet Adapter ThinkSystem V3 2U x16/x8/x8 PCIe Gen4 Riser1 or 2 ThinkSystem 1100W 230V/115V Platinum Hot-Swap Gen2 Power Supply v3 ThinkSystem 2U V3 Performance Fan Module ThinkSystem Toolless Slide Rail Kit v2 ThinkSystem 2U V3 EIA Latch Standard TPM 2.0 with Secure Boot Enable IPMI-over-LAN Enable System Guard ThinkSystem SR665V3 Intrusion Cable 110mm XClarity Controller Platin-FOD Lenovo XClarity XCC2 Platinum Upgrade (FOD) XClarity Pro, Per Endpoint w/3 Yr SW S&S Lenovo XClarity Pro, Per Managed Endpoint w/3 Yr SW S&S Registration only 3Yr Standard NBD Resp SR665 V3 3Yr KYD Add-On SR665 V3 Hardware Installation Standard Server (Business Hours) Standalone Items		

		2.8m, 16A/100-250V, 2 Short C13s to Long C20 Rack Power Cable			
3.	Commercial Software with Support from it's OEM's	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.		
		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.		
		Libraries, MPI and Compilers	Bidder should propose GNU Compilers & Inte 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.		
		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 las 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		
		Operating System	Linux 64 bit Scheduler – Scheduler proposed should be compatible with hardware and software infrastructure proposed and to be supported by bidder.		
4.	Warranty	3 years onsite warranty with advanced replacement of parts			