Central Glass & Ceramic Research Institute
KOLKATA (WEST BENGAL) INDIA
CORRIGENDUM

REFERENCE NO. : - P/NC/67/IT/DB/OTE/23-24(Re-2) DATE: 16/01/2025

NAME OF EQUIPMENT: INSTALLATION, COMMISSIONING, DEMONSTRATION & TRAINING OF "SUPPLY OF AMD MILAN PROCESSOR BASED HPC CLUSTERAND NVIDIA RTX A6000 BASED INTEL SERVER" [CPP PORTAL TENDER ID 2025_CSIR_222453_1].

NOTE: The Bids must be submitted in the Central Public Procurement Portal (URL:https://etenders.gov.in/eprocure/app) only. Manual/Offline bids shall not be accepted under any circumstances. Bidders should quote in INR only.

CONSEQUENT TO THE PRE-BID MEETING HELD ON 14/01/2025, THE REVISED TECHNICAL SPECIFICATION IS ATTACHED .

All other Tender terms and conditions remain unchanged.

16/1/2025

Stores & Purchase Officer

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भण्डार एवं क्रय अधिकारी/Stores & Purchase Officer
सीएसआईआर - केन्द्रीय काँच एवं सिरामिक अनुसंधान संस्थान
CSIR - CENTRAL GLASS & CERAMIC RESEARCH INSTITUTE
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Item Name: AMD Milan processor Based HPC Cluster and Nvidia RTX A6000 based Intel Server

Scope of work: Supply, installation and commissioning of an AMD Milan processor Based HPC Cluster and Nvidia RTX A6000 based Intel Server

Detailed specifications:

S.No	Parameters	Description	Qty	Qty
1	Master and Storage Node			1
		Processor Details		
		Master node should have 16 AMD EPYC Milan CPU Cores or higher. The master node have minimum clock speed of 3.0 GHz or better. The processors Must have Native support of AVX2 instructions or better. Along with CPU specifications, the node should have the following configurations		
		Memory Details – 256 GB DDR4 ECC RAM or higher (32 GB Each)	8	
		960 GB Enterprise SATA SSD configured in RAID 1	2	
		20 TB 7.2K RPM Enterprise SATA Hard drive configured in RAID 5 with one hot spare.	6	
		1 GB RAID Card supporting RAID Levels 0,1,5,6 and 10	1	
		1 G Ethernet Ports,	2	
		1 x 10G Copper Ethernet Ports	1	
		IPMI 2.0 or equivalent with KVM and media over LAN features	1	
		Form factor - 2U or better full width server form factor with sliding rack mount kit and peripherals		
		80 Plus platinum or better redundant power supply with IEC C13 to IEC C14 cables		

S.No	Parameters	Description	Qty	Qty
2	**Compute Nodes**			**3 Nos. (128 cores per node) or as per core density per node quoted by bidders for a total of 384 Cores**
		Processor Details		
		Each compute nodes should have minimum 128 AMD EPYC Milan or higher CPU cores with a minimum clock speed of 2.45 GHz or better. The processors Must have Native support of AVX2 instructions or better. Each node should have a memory of minimum 2 GB/Core DDR4 ECC RAM or better in a fully balanced configuration with populating all DIMM slots to its fully available bandwidth. RAM speed should be the maximum memory speed supported by the quoted CPUs. **The bidders should submit the linpack of a single node as a part of technical bid in CD/DVD** and the bidders should run linpack across all nodes and submit the results as a part of commissioning. Along with the CPU ratings, the nodes should have the following configurations or better.		
		Memory Details		
		480 GB Enterprise M.2/SATA SSD for operating System	1	
		4 TB Enterprise SATA for local scratch	1	
		1 G Ethernet Ports	2	
		10 G Network adapter for the switch getting quoted on Sl. No 3 Networking/interconnect	1	
		IPMI 2.0 or equivalent with KVM and media over LAN features	1	

S.No	Parameters	Description	Qty	Qty
		Form factor - 2U or better full width server form factor with sliding rack mount kit and peripherals		
		80 Plus platinum or better dual power supply with required IEC C13 to IEC C14 cables		
3	**Networking/Interconnect**			
		16 Ports fully non-blocking 1 G Copper Ethernet Switch with required Ethernet cables for management connectivity.	1	
		16 Ports fully non-blocking 10 G Ethernet Switch with required cables for compute nodes connectivity.	1	
4	**Nvidia RTX A6000 based Intel Server**			1
		Processor Details		
		Intel Xeon scalable 3rd gen Silver 16 Cores, 2.4 GHz	1	
		128 GB ECC DDR4 3200MHz RAM or higher (32 GB each)	4	
		480 GB Enterprise M.2/SATA SSD for Operating System	1	
		4 TB Enterprise SATA HDD for data and local scratch	1	
		Nvidia RTX A6000 48 GB Quadro GPU or higher	1	
		1 G Ethernet ports	2	
		IPMI 2.0 or equivalent with KVM and media over LAN features	1	
		80 Plus platinum or better power supply with required IEC C13 to IEC C14 cables.		
		Form factor – Tower convertible 5U or better full width server form factor with sliding rack mount kit and peripherals		
5	**Fully Automated System Provisioning**			1
		Operating System – Rocky Linux latest stable version		
		Clustering Tool kit – XCAT open source		
		Scheduler – SLURM/Open PBS (Queues/partitions needs to be configured according to user requirements)		

S.No	Parameters	Description	Qty	Qty
		Monitoring/Admin tools - Ganglia, Nagios, LDAP, PDSH, PDCP, automated emails, usage report generations, etc.,		
6	All in one Desktop	13th Gen Intel Core i7 (or higher), 16GB DDR4 RAM, MX550 2 GB GDDR6, 1TB SSD, 27" FHD WVA Touch, Win11+MS Office 21		1
7	27" HD LED Monitor with USB Keyboard and Mouse			1

S. No	Parameters	Description
8	**Installation, commissioning and integration:**	Supplier should install and accommodate the entire solution in a 42 U rack available and existing at CSIR-CGCRI. The supplier shall install and configure all required hardware and software suites, including but not limited to racking and stacking, Cluster networking, Configuring all nodes, Execution and submission of jobs, Installation of compilers (with flags for optimization) and applications, Configuration of environment variables and license utility configuration. Entire installation should be done at the local site where the existing 42U rack is available. Remote control of network will not be given till the commissioning of the HPCC. All the hardware and software deployment will be in supplier's scope of work. The entire computer nodes must be factory integrated, tested, validated and certified in the supplier site before supply. No on-site or local assembling of the system at CSIR-CGCRI site is allowed. Only rack-mounting, OS and application installation is allowed on-site.
9	**Software upgrade and software support:**	During warranty if OS/software upgrade is needed due to functionality requirements, the supplier should reinstall/Upgrade the OS and clustering tools and benchmark the cluster and re-commission the system at any point of time. Open source HPC software required by the user and full software support needs to be provided till the end of warranty period.
10	**Cabling**	All LAN cabling should be done at or near the 42 U rack as per the length required using CAT6. All cabling should be done to provide efficient air circulation and

		should not block any air circulation behind the servers. Different colors of cable for computing and management should be used.
11	**Future expansion**	The supplier need to keep provision for future expansion or upgrade of the cluster like adding additional nodes, GPUs to the existing setup.
12	**Model number and operational guideline**	Provide all model numbers of master nodes, compute nodes, hybrid nodes, storage nodes, Network switch model, Accelerator card details (if any), maximum number of port in IB/OPA switch (if any) and how many ports populated. The OEM part code of all the equipment / devices proposed should be provided with the technical bid. Supplier should provide the detailed operational guideline clearly explaining how to use the cluster. During maintenance supplier must notify the user in advance and ensure proper handling of the user's data.
13	**Acceptance test:**	Part of testing, the supplier should run the user provided codes and provide the satisfactory results of the same. Apart from this, the supplier has to run and submit Linpack, Lapack, Scalapack benchmark results to the CSIR-CGCRI. Part of the acceptance test, the CSIR-CGCRI team will check all the software and will cross-check benchmarking and all other tests based on our input files in the fully offered solution for at least 4 days.
14	**Training:**	On-site training after installation and commissioning: 4 persons or higher at CGCRI, including - tasks such as user/node management, installation/upgrade, queuing system management, job submission (single, parallel and multithread jobs in m multiple cpu), and file system management with documentation.
15	**Service support:**	One trained personnel should be available to help remotely (9.00 AM to 6.00 PM, 5 Days a week) or onsite for technical support for administration/maintenance (both software and hardware levels) of HPC during warranty period.

16	**Comprehensive Warranty:**	Minimum 5 years covering onsite comprehensive advance Hardware replacement and software support. All warranty and support must be serviced directly by the OEM or should be from an authorized System Integrator Partner who is authorized to Support the product quoted. The should have a Single Point of Contact (SPOC) between CSIR-CGCRI and the supplier who is responsible for all issues between them. Faulty parts should be replaced by NBD (Next Business Day) during warranty period.
17	**Bidder Experience**	The supplier should have successfully executed minimum two projects at premier academics and research organizations/institutions like CSIRs, IITS, IISERs, TIFR or equivalent, who are performing scientific computation using High Performance Computing Clusters across India within the last five years.