Enquiry No.: IICB/PUR/24-25/599/580/307

Date: 06.12.24

Corrigendum Notice

It is hereby informed that the tender for supply, installation and commissioning of HPC Cluster of 3 GPU and 2 CPUs node with Rack and 10KVA Online UPS has been published in NIC CPP Portal (https://etenders.gov.in/eprocure/app) vide tender ID 2024_CSIR_214547_1. In this regard following corrigendum may kindly be noted before participating.

1. The bidders will be responsible for successful installation and integration of the different components of the order and also to ensure the warranty as per tender document.

2. Bidders will also have to provide Manufacturer's Authorization Certificate from Original Equipment Manufacturer (OEM) for different components as mentioned in technical specification.

3. The revised technical specification is mentioned at **Annexure A.**

Controller of Stores & Purchase
For & On Behalf of CSIR

Specifications

Description of Master Node 1 No

Module Name	Option Name	Qty
Base	Server	1
Trusted Platform Module	Trusted Platform Module 2.0 V3 or 3.0 V3	1
Chassis Configuration	Chassis 3.5'' or more height accommodating up to 12 SAS/SATA hard drives, compatible with a standard RAID controller, and 1 CPU configuration	1
Processor	Base Frequency: 2GHz or more, Total Core: 24 or more, Total threads: 48 or more, UPI speed: 16GT/s or higher, Cache memory: 45M or more, Max Turbo Frequency: 3.8 GHz or more	1
Processor Thermal Configuration	Heatsink must support CPU configuration with a thermal design power (TDP) of 165 watts or higher.	1
Memory Capacity	32GB RDIMM, 4800MT/s Dual Rank	4
RAID Configuration	C7, Unconfigured RAID for HDDs or SSDs/NVMe (RAID1 for SSD/NVMe and RAID5 or higher for HDD) (Mixed Drive Types Allowed)	1
SSD Drives	960GB or more SSD SATA Read Intensive 6Gbps 512 2.5in Hot- plug	2
Hard Drives	12TB Hard Drive SAS 12Gbps 7.2K 512e 3.5in Hot-Plug	5
Power Supply	Dual with Hot-Plug and Fully Redundant Power Supply (1+1), 2200W or higher, Mixed Mode	1
Power Cords	Jumper Cord – C13/C14, 2.5M, 250V, 16A	2
PCIe Riser	Riser Config 8, 2x8 FH Slots (Gen5), 1x16 LP Slot (Gen5)	1
Motherboard	Motherboard should be compatible with the above processor and should support only CPUs up to 250W	1
Network Adapters (OCP 3.0)	Dual Port 10/25GbE SFP28, OCP NIC 3.0	1
Additional Network Cards	Dual Port 1GbE LOM	1
Bezel	2U Standard Bezel	1

Optics & Cables for Network Cards	SFP+ SR Optic, 10GbE, for all SFP+ ports except high temp validation warning cards	2
Rack Rails	Ready Rails Sliding Rails with Cable Management Arm	1
OS certification	Certified for latest version of Red Hat Enterprise Linux, SUSE Linux Enterprise Server, Microsoft Windows Server, Ubuntu & VMWare	1
Cyber security certification	Systems integrated remote management system (current major release). should be minimum Evaluation Assurance Level (EAL) EAL2 certified or similar security certificate	1
BIOS	Server OEM should own the IP of the BIOS or have licensed agreement as per MII guidelines. Bidders should submit OEM's binding declaration confirming the above & that the BIOS is original, untampered, not frozen & not customized in any way from standard configuration.	1
Security	Publicly available links, verifiable evidence must be submitted against each of the feature below	1
	Silicon-based Hardware Root of Trust	
	Automatic BIOS recovery	
	Firmware drift detection & alerting	
	Intrusion alert in case chassis being opened.	
	Cryptographically verified trusted booting standards meeting NIST SP 800-147B, protection standards meeting NIST SP 800-193 standards & secure media sanitization standards meeting NIST SP 800-88 or equivalent	
Datasheet, Certifications & benchmarks Documents	Relevant product datasheets, certification, benchmark or reference documents verifiable from publicly available data sources must be submitted along with bill of material for detailed bid evaluation. Links for certifications to be submitted.	1
Monitoring & Alerts	Real-time power meter, graphing, thresholds, alerts & capping with historical power counters. Temperature monitoring & graphing	1
Pre-failure alert	Should provide predictive failure monitoring & proactive alerts of actual or impending component failure for fan, power supply, memory, CPU, GPU, RAID, NIC, HDD	1
Configuration & Management	Real-time out-of-band monitoring and alerting. Agent-free monitoring, driver updates, power capping, RAID. Supplier-provided same OEM supplied tool for health monitoring, periodic system monitoring during the contract.	1
Warranty	Comprehensive warranty with Next Business Day service, valid for 60 months.	1
Description of Compute Node 1 No		

Module Name	Option Name	Qty
Base	Server	1
Trusted Platform Module	Trusted Platform Module 2.0 V3 or 3.0 V3	1
Chassis Configuration	Chassis 2.5'' or more height accommodating up to 10 SAS/SATA hard drives, compatible with a standard RAID controller, and 2 CPU configuration	1
Processor	Base Frequency: 2GHz or more, Total Core: 16 or more, Total threads: 32 or more, UPI speed: 16GT/s or higher, Cache memory: 30M or more, Max Turbo Frequency: 4.0 GHz or more	2
Memory Capacity	32GB RDIMM, 4800MT/s Dual Rank	8
RAID Configuration	C7, Unconfigured RAID for HDDs or SSDs/NVMe (RAID1 for SSD/NVMe and RAID5 or higher for HDD) (Mixed Drive Types Allowed)	1
RAID/Internal Storage Controllers	Adapter compatible with specific RAID controllers, designed for secure and efficient integration with rear-load brackets	1
SSD Drives	480GB or more SSD SATA Read Intensive 6Gbps 512 2.5in Hot- plug AG Drive, 1 DWPD	2
Power Supply	Dual, Fully Redundant (1+1), Hot-Plug Power Supply, 1100W or higher MM (100-240VAC) Titanium	1
Power Cords	Jumper Cord - C13/C14, 4M, 250V, 10A	2
PCIe Riser	Riser Config 3, Full Height, 2x16 FH Slots (Gen5)	1
Motherboard	Motherboard should be compatible with the above processor and should support only CPUs up to 250W	1
Network Adapters OCP 3.0	Dual Port 10/25GbE SFP28, OCP NIC 3.0	1
Additional Network Cards	Dual Port 1GbE LOM	1
Optics & Cables for Network Cards	SFP+ SR Optic, 10GbE, for all SFP+ ports except high temp validation warning cards	2
Bezel	Standard Bezel	1
Rack Rails	Ready Rails Sliding Rails with Cable Management Arm	1
OS certification	Certified for latest version of Red Hat Enterprise Linux, SUSE Linux Enterprise Server, Microsoft Windows Server, Ubuntu & VMWare	1

Cyber security certification	Systems integrated remote management system (current major release). should be minimum Evaluation Assurance Level (EAL) EAL2 certified or similar security certificate	1
BIOS	Server OEM should own the IP of the BIOS or have licensed agreement as per MII guidelines. Bidders should submit OEM's binding declaration confirming the above & that the BIOS is original, untampered, not frozen & not customized in any way from standard configuration.	1
Security	Publicly available links, verifiable evidence must be submitted against each of the feature below	1
	Silicon-based Hardware Root of Trust	
	Automatic BIOS recovery	
	Firmware drift detection & alerting	
	Intrusion alert in case chassis being opened.	
	Cryptographically verified trusted booting standards meeting NIST SP 800-147B, protection standards meeting NIST SP 800-193 standards & secure media sanitization standards meeting NIST SP 800-88 or equivalent	
Datasheet, Certifications & benchmarks Documents	Relevant product datasheets, certification, benchmark or reference documents verifiable from publicly available data sources must be submitted along with bill of material for detailed bid evaluation. Links for certifications to be submitted.	1
Monitoring & Alerts	Real-time power meter, graphing, thresholds, alerts & capping with historical power counters. Temperature monitoring & graphing	1
Pre-failure alert	Should provide predictive failure monitoring & proactive alerts of actual or impending component failure for fan, power supply, memory, CPU, GPU, RAID, NIC, HDD	1
Configuration & Management	Real-time out-of-band monitoring and alerting. Agent-free monitoring, driver updates, power capping, RAID. Supplier-provided same OEM supplied tool for health monitoring, periodic system monitoring during the contract.	1
Warranty	Comprehensive warranty with Next Business Day service, valid for 60 months.	1

Description of 3 Nos. GPU Node		
Module Name	**Option Name**	**Qty**
Base	Server	1
Trusted Platform Module	Trusted Platform Module 2.0 or 3.0 V3	1
Chassis Configuration	Chassis 2.5'' or more height accommodating up to 16 SAS/SATA hard drives, compatible with a standard RAID controller, and 2 CPU configuration	1
Processor	Base Frequency: 2GHz or more, Total Core: 16 or more, Total threads: 32 or more, UPI speed: 16GT/s or higher, Cache memory: 30M or more, Max Turbo Frequency: 4.0 GHz or more	2
Memory	32GB RDIMM, 4800MT/s Dual Rank	8

Capacity		
RAID Configuration	C7, Unconfigured RAID for HDDs or SSDs (RAID1 for SSD and RAID5 or higher for HDD) (Mixed Drive Types Allowed)	1
RAID/Internal Storage Controllers	Adapter compatible with specific RAID controllers, designed for secure and efficient integration with rear-load brackets	1
SSD Drives	480GB or more SSD SATA Read Intensive 6Gbps 512 2.5 in Hot- plug AG Drive, 1 DWPD	2
Power Supply	Dual, Hot-Plug, Fully Redundant Power Supply (1+1), 2200W or higher, Mixed Mode	1
Power Cords	Jumper Cord – C13/C14, 2.5M, 250V, 16A	2
PCIe Riser	Riser Config 3, Full Length,2x8 FH Slots (Gen5),2x16 LP Slots (Gen5), 2x16 FH DW GPU Capable Slots (Gen5)	1
Motherboard	Motherboard should be compatible with the above processor and should support only CPUs up to 250W	1
Network Adapters OCP 3.0	Dual Port 10/25GbE SFP28, OCP NIC 3.0	1
Additional Network Cards	Dual Port 1GbE LOM	1

GPU/FPGA/ Acceleration Cards	Max Power Consumption 350W, Memory size: 48GB DDR6 or more, Memory clock: 9,001 MHz, Memory clock speed: 18GBPS, Cuda Core – Minimum 18000, Memory type: GDDR6, Thermal solution: Passive, Mechanical Form Factor: Full-height, full- length (FHFL), GPU clocks: Base: 735 MHz Boost: 2,490 MHz, VBIOS: EEPROM size 8 Mbit, Connectors: One PCIe 16-pin auxiliary power connector Four DisplayPort connectors. FP32 (Single Precision) performance: minimum 90 TFLOPs FP64 (Double Precision) performance: minimum 1 TFLOPs Tensor Core Performance:
	        TF32: minimum 180 TFLOPs
	        FP16/BFLOAT16: minimum 360 TFLOPs
	        FP8: minimum 720 TFLOPs
	RT Core Performance: minimum 200 TFLOPs
		1

GPU/FPGA/ Acceleration Cables	Suitable power cable for GPU	1
Bezel	2U Standard Bezel	1
Optics & Cables for Network Cards	SFP+ SR Optic, 10GbE, for all SFP+ ports except high temp validation warning cards	2
Rack Rails	Ready Rails Sliding Rails with Cable Management Arm	1

OS certification	Certified for latest version of Red Hat Enterprise Linux, SUSE Linux Enterprise Server, Microsoft Windows Server, Ubuntu & VMWare	1
Cyber security certification	Systems integrated remote management system (current major release). should be minimum Evaluation Assurance Level (EAL) EAL2 certified or similar security certificate	1
BIOS	Server OEM should own the IP of the BIOS or have licensed agreement as per MII guidelines. Bidders should submit OEM's binding declaration confirming the above & that the BIOS is original, untampered, not frozen & not customized in any way from standard configuration.	1
Security	Publicly available links, verifiable evidence must be submitted against each of the feature below	1
	Silicon-based Hardware Root of Trust	
	Automatic BIOS recovery	
	Firmware drift detection & alerting	
	Intrusion alert in case chassis being opened.	
	Cryptographically verified trusted booting standards meeting NIST SP 800-147B, protection standards meeting NIST SP 800-193 standards & secure media sanitization standards meeting NIST SP 800-88 or equivalent	
Datasheet, Certifications & benchmarks Documents	Relevant product datasheets, certification, benchmark or reference documents verifiable from publicly available data sources must be submitted along with bill of material for detailed bid evaluation. Links for certifications to be submitted.	
Monitoring & Alerts	Real-time power meter, graphing, thresholds, alerts & capping with historical power counters. Temperature monitoring & graphing	1
Pre-failure alert	Should provide predictive failure monitoring & proactive alerts of actual or impending component failure for fan, power supply, memory, CPU, GPU, RAID, NIC, HDD	1
Configuration & Management	Real-time out-of-band monitoring and alerting. Agent-free monitoring, driver updates, power capping, RAID. Supplier-provided same OEM supplied tool for health monitoring, periodic system monitoring during the contract.	1
Warranty	Comprehensive warranty with Next Business Day service, valid for 60 months.	1
Parallel Implementation on HPC	Support for parallel software installations, scalable computing, and proven successful installations.	1

Specification 10G Switch -- 1 No.

Description	Qty
Intelligent Edge Managed L3 Stackable Switches having 8 X 10GBASE-T RJ45 ports and 10 suitable copper connectivity cables. 8 X 10GBASE-X SFP+ Ports Switching Fabric 320 Gbps and 10 fiber connectivity cables.	1
Comprehensive warranty with Next Business Day service, valid for 60 months.	1

Specification 1G Switch -- 1 No.

Description	Qty
Rack Mountable, 24 Port	1
Comprehensive warranty with Next Business Day service, valid for 60 months.	1

42 U Rack Description 1 No.

Description	Qty
TECHNICAL SPECIFICATION FOR 42U Floor Mount RACK:	1
Racks manufactured out of steel sheet punched, formed, welded and Powder coated	
Standard for Racks configuration will be welded frame with side panel and vented top cover	
Rack should have Front tinted Glass door and Metal perforated dual door at Rear.	
Rack should have provision to mount racks on Floor & it should be with castor & levelers.	
Rack should be 42U (1U = 44.45 mm) in Height.	
It should be 800MM Wide & 1000MM Deep. with 19 inch adapter kit	
Rack 4 No Adjustable, 19" verticals with Punched 10mm Square Hole and Universal 12.7mm- 15.875mm- 15.875mm alternating hole pattern offer greater mounting flexibility, maximizes usable mounting space.	
Rack should have Numbered U positions,	
Rack should have 100% assured compatibility with all equipment conforming to DIN 41494 (General industrial standard for equipment)	
Powder coated finish with seven Tanks pre-treatment process meeting IS	
Rack should have Proper Grounding & Bonding	
Rack should have one Hoz. Cable Manager.	
Rack should have one Heavy duty shelf.	
Rack should have Fan module Mount Provision on top Cover	

with 4 Fan Housing unit

The PDU setup requires two rack-mount, Zero U units rated at 7.3 KVA, supporting 230V, 32A, 50/60Hz power with 12 Indian-standard outlets for C14 port. Each unit includes two 16A MCBs for protection, a recommended 2-pole plug with earth, and a 3-meter bottom feed cable for organized power distribution.

Rack should have provision for cable entry Exit from Both top & Bottom.

Rack should have 1 Packet of mounting hardware, Pack of 20.

UPS 10 KVA 1 No.

Description	Technical Specification	Qty
Capacity (in kVA / kW)	10kVA/10kW Single Phase Input / Single Phase Output	1
Technology and Capability	a) True Online double conversion UPS, VFI-SS-111	
	b) UPS should be designed at Rated PF of 1	
	c) 3- level IGBT based inverter and rectifier	
	d) Should have arrangement for paralleling upto 4 UPS for redundancy	
Input		
Input facility - Phases / Wires	1-Phase / 2-Wire & Gnd (Phase & Neutral + Ground)	
Input Voltage Range	180 - 295 VAC (On 100% Load)	
Input Power Factor	≥ 0.99 (with full linear load)	
Input Current Harmonic Distortion (THDi)	< 5% at full load in normal UPS operating voltage	
Generator Compatibility	Compatibility to genset supply required	
Input Frequency Range	45-70 Hz	
Output		
Nominal Output voltage	230 V (adjustable to 220/230/240 VAC)	
Output Voltage Regulation	±1%	
	50 / 60 Hz ± 0,1%	

Nominal
Output
Frequency

Output Wave Form	Pure sine wave
Output Voltage Distortion (THDv)	<2% Full Linear Load
	<5% Full Non Linear Load
Crest Factor	3;1
Efficiency	
AC/AC (overall efficiency)	Up to 86%
Overload capacity	Continuous operation at <105%, 5 mins from 111-130%, 1 min from 130-150%
Battery Backup	
Backup Required	30 Minutes or more
Battery Bank Voltage	240 VDC
Battery Bank Van	Min 10080 VAH
Recharge Time (to 90%)	4 Hours
Batteries Type (VRLA)	Sealed Maintenance Free (SMF) - 12V Cells, 18 Ah or More
Communications	
RS232	Available
USB Com port	Available
Intelligent slot	SNMP/MODBUS
Electrical	
Input terminal	Terminal block 75 A, 4 way
Output terminal	Terminal block 75 A, 3 way
Features	
Converter mode	Available
Emergency power off (EPO)	Available

Display	LED + LCD Display for real time monitoring and control
Mechanical	
Ingress protection	IP 20
Environmental Conditions	
Operating temperature	0~40°C Continuous
Relative humidity	20% to 90% (non-condensing)
Storage temperature	from -10 degC to +40 degC
noise level at 1m (dBA)	< 50 dBA
Safety	IS 16242:2014 or equivalent
EMI / EMC	IS 16242 (Part 2) : 2020 or EN62040-2:2005 (EMC)
Performance	IS 16242 (Part 3): 2014 or IEC 62040-2: 2020
Certification	BIS/CE, or IEC/EN 62040-3:2011
RoHS Compliance	PEP/CE
Warranty	2 years comprehensive warranty on UPS and Batteries