वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्
Council of Scientific & Industrial Research
राष्ट्रीय वांतरिक्ष प्रयोगशालाएं
National Aerospace Laboratories

CSIR - NAL Estd. 1959
ISO 9001 : 2015
Certified Organization

INVITATION FOR TENDERS

Tender No. NAL/PUR/ASD/329/21-Y **Dated: 23/12/2021**

CSIR - National Aerospace Laboratories (NAL), Bengaluru, Republic of India, is one of the premier research laboratories under aegis of Council of Scientific and Industrial Research (CSIR), an autonomous body under the Department of Scientific and Industrial Research, Government of India, New Delhi. CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organisation. It is internationally known for its excellence in Scientific Research in Aerospace Engineering.

The Director, CSIR-NAL invites online quotation for procurement of the following item(s) for day to day research work.

Sl. No.	Description of Item(s)	Unit	Quantity
1	Intel Xeon 2U Rack Servers.	Nos	02
2	SAN Storage	Nos	01
3	Installation of ORACLE 10G RAC	Nos	01
(Please refer annexure for detailed specifications)			

Single / Double Bid	Single	Tender Type	Open
Bid Security (EMD) (in INR)	Bid Security Declaration should be enclosed with quotation	Bid submission end date	10-Jan-2022 10.00 Hrs
Performance Security	Nil	Bid opening date	11-Jan-2022 11.00 Hrs

01. Tender Documents may be downloaded from Central Public Procurement Portal https://www.etenders.gov.in. Aspiring Bidders' who have not registered in e-procurement can register free of cost before participating through the website https://www.etenders.gov.in. Bidders are advised to go through instructions provided at 'Instructions for Online Bid Submission'.

02. Tenderers can access tender documents on the website (for searching in the NIC site https://www.etenders.gov.in, kindly go to Tender Search option, select tender type and select 'Council of Scientific and Industrial Research', in organisation tab and select NAL-Bengaluru-CSIR in department type. Thereafter, Click on "Search" button to view all CSIR-NAL, Bengaluru tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://www/etenders.gov.in as per the schedule given in the next page.

पी बी सं. 1779, एचएएल एयरपोर्ट रोड , कोडिहल्ली, बेंगलुरु - 560 017, भारत,
P B No 1779, HAL Airport Road, Kodihalli, Bengaluru - 560 017, INDIA
फोन / Phone : (का./ Off) : +91 - 80 - 2508 6040 - 45, फैक्स / FAX : +91-80-2526 9611
http//www.nal.res.in purchasek@nal.res.in

03. Either the Indian Agent on behalf of the Foreign principal or the Foreign principal can bid directly in a tender but ***not*** both. However, the offer of the Indian Agent should also accompany the authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent ***cannot*** represent two different Foreign principals in one tender.

04. Unsolicited / conditional / unsigned Quotations/Quotations received after the due date and time shall be summarily rejected. The Bidder shall comply the terms and conditions of the tender, failing which, the offer shall be liable for rejection.

05. The bids failing to comply with the following clauses will be summarily rejected.

    a. The Bidders proposing to supply finished products directly/indirectly from vendors' of countries sharing the land border with India should submit copy of registration done with the Ministry of Home Affairs and Ministry of External Affairs.

    b. If the products supplied are not from vendors of countries sharing land border with India, the Bidders' have to enclose a declaration to that effect.

06. Bidders are requested to refer to the instructions regarding Procurement Policies for "Make in India", issued by Ministry of Commerce and Industry, Department of Industrial Policy and Promotion dated. 28-May-2018, and 4-Jun-2020 and guidelines as and when issued.

07. The prospective bidders are requested to refer to the Standard Terms and Conditions available on NAL Internet (www.nal.res.in) under the icon Tender-Purchase before formulating and submitting their bids

08. The Director, CSIR- National Aerospace Laboratories, Bengaluru reserves the right to accept any or all the tenders either in part or in full or to split the order without assigning any reasons there for.

Thanking you,

Yours faithfully

23/12/24

Controller of Stores & Purchase
For and on behalf of CSIR

1. Server Configuration

2U Rack Server Specification	
Parameter	**Description of Requirement**
Chassis(Form Factor)	2U Rack Mountable
CPU (Processor)	Two number of latest generation Intel Xeon Processors should be supported on the server. Should be populated with Single Intel 4208 or higher, 8 Core or more, 2.1GHz or more CPU.
Motherboard	Intel® C621 or equivalent Series Chipset
Memory	Minimum of 24DIMM slots. 192 GB Memory to be installed, scalable upto 1024 GB or more using DDR4 Registered DIMM (RDIMM) operating at 2666 MHz or more Capability to identify and report whether genuine OEM memory is installed or not for system reliability is preferred.
Memory Protection	Advanced ECC with multi-bit error protection, Online spare, mirrored memory and fast fault tolerance
HDD Bays	Support for Up to 24+6 SFF HDD/SSD
Hard disk drive / SSD	3*900GB SAS 10K or better HDDs to be installed
RAID Controller	Server should support Onboard SATA software RAID controller supporting SSD/HDD and at least two M.2 drives. PCIe 3.0 based 12Gb/s SAS RAID Controller with 2GB battery backed write cache RAID 1/1+0/5/50/6/60/ should be installed with the server Storage controller should support Secure encryption/data at rest Encryption
Ethernet Adaptor and FC HBA	Server should be with below NIC & FC HBA cards; Along with the cables & transceiver modules. Minimum Eight numbers of 1Gb Base T ports. Two numbers of Single Port Fiber Channel HBA supporting 16GB or Higher Server should have dedicated 1Gbps remote management port
Interfaces	Minimum of USB 3.0 support and minimum 5 USB Slots VGA port - 1 No
Bus Slots	Support Eight PCI-Express 3.0 or above slots at least Two x16 PCIe slots
Accessories	Rack Mount kit and Cable Management arm
GPU support	System should support NVIDIA's latest computational accelerators and graphics accelerators

23/12/21

Power Supply	Should have hot plug redundant low halogen power supplies with minimum 90% efficiency
Fans	Should have Redundant hot-plug system fans
Operating System	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) HyperV Vmware Ubuntu
Optical Drive	DVD RW drive (Internal)
Industry Standard Compliance	Minimum/ equivalent of: ACPI 6.1 Compliant PCIe 3.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 3.0 Support Energy Star ASHRAE A3/A4 UEFI (Unified Extensible Firmware Interface Forum)
System Security	Minimum/ equivalent of: Intel Secure Boot / Silicon Root of Trust UEFI Secure Boot and Secure Start support Security feature to ensure servers do not execute compromised firmware code Secure Recovery - recover critical firmware to known good state on detection of compromised firmware Ability to rollback firmware FIPS 140-2 validation Common Criteria certification Configurable for PCI DSS compliance Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser Support for Commercial National Security Algorithms (CNSA) Tamper-free updates - components digitally signed and verified Secure erase of NAND/User data TPM (Trusted Platform Module) 2.0 option
System tuning for performance	1. System should support feature for improved workload throughput for applications sensitive to frequency fluctuations. This feature should allow processor operations in turbo mode without the frequency fluctuations associated with running in turbo mode 2. System should support workload Profiles for simple performance optimization. 3. License of the System Management tools to manage the server should be provided by the Vendor/OEM if any.

23/12/24

Warranty	Warranty includes 5-Year Parts, 5-Year Labor, 5-Year Onsite support & minimum NBD response with DMR (Defective Media Retention)
Embedded Remote Management and firmware security	1. System remote management should support browser based graphical remote console. 2. Remote management port should have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware 3. Server should support agentless management using the out-of-band remote management port 4. Applications to access the server remotely using popular handheld devices based on Android or Apple IOS should be available 5. The Systems Management software should provide Role-based access control 6. Remote console sharing up to 6 users simultaneously during pre-OS and OS runtime operation. Microsoft Terminal Services Integration. 7. Should provide support for Java free graphical remote console. 8. Should support RESTful API integration 9. System should support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support . 10. Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD. 11. The Server Management Software should be of the same brand as of the server supplier.

2. SAN Storage Configuration

Sl. No	Parameter	Description of Requirement
1	Operating System & Clustering Support	1. The storage array should support industry-leading Operating System platforms including: Windows 2016 / 2019, VMware and Linux. 2. Offered Storage Shall support all above operating systems in Clustering.
2	Capacity & Scalability	1. The Storage Array shall be offered with minimum 7 numbers of 1.8TB SAS 10K RPM drives or higher 2. For effective power saving, Storage subsystem shall be supplied with 2.5" Small form factor SFF drives however storage subsystem shall also support LFF drives with the addition of required disk enclosures. 3. Storage shall be scalable to minimum of 90 number of SAS SFF drives.
3	Front-end Ports & Back-end Ports	1. Offered Storage system shall be supplied with 4 * 16 Gbps Fiber Channel ports on the array 2. Offered storage system shall support 12G SAS Back-end connectivity.
4	Architecture	The storage array should support dual, redundant, hot-pluggable, active-active array controllers for high performance and reliability
5	No Single point of Failure	Offered Storage Array shall be configurable in a No Single Point of configuration including Array Controller card, Cache memory, FAN, Power supply etc.
6	Disk Drive Support	1. Storage system shall support Enterprise SAS spinning drives, SSD and near line SAS / 7.2K RPM drives. 2. Offered storage array shall also have support for FIPS 140-2 validating self-encrypted drives.

23/12/21

7	Cache	1. Offered Storage Array shall be given with minimum of 12GB cache per controller in a single unit or higher. 2. Cache shall be backed up in case of power failure for indefinite time either using batteries or capacitors or any other equivalent technology. 3. Offered Storage shall also have optional support for Flash cache using SSD / Flash drives. Offered storage shall support at-least 4TB Flash Cache. 4. Offered Flash cache shall be tuned for random read operations.
8	RAID Support	1. Offered Storage Subsystem shall support RAID 1 , 10, 5 and RAID 6 2. All RAID Sets shall support thin provisioning. Vendor shall offer the license of thin provisioning for complete supported capacity of the array. 3. Thin provisioning shall be supported with offered Flash Cache. 4. RAID processing shall be offloaded to a dedicated ASIC instead of CPU. In case vendor is not supporting it then vendor shall ensure that additional 12GB cache per controller is configured to offset the RAID processing workload.
9	Point in time and clone copy	1. Offered Storage array shall be configured with array based Snapshot and clone functionality and shall be configured for minimum of 512 snapshot licenses. 2. Offered Storage array shall support at-least 512 point in time copies (Snapshots) and 128 volume / Clone copies
10	Replication	Offered storage subsystem shall support storage based replication to DR location. License for maximum supported capacity of the array shall be offered.
11	Virtualization and Thin provisioning	1. Offered storage shall be offered and configured with virtualization capability so that a given volume can be striped across all spindles of given drive type within a given disk pool. Disk pool shall support all listed RAID sets of RAID 1, RAID 10, RAID 5 and RAID 6. 2. Offered Storage shall be configured with Thin Provisioning capability.

23/12/21

12	Data Tiering	Offered Storage shall be configured for Sub-Lun Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc. License shall be configured for maximum supported capacity of the array.
13	Global and dedicated Hot Spare	1. Offered Storage Array shall support Global hot Spare for offered Disk drives. 2. Offered storage array shall have the support for distributed hot spare
14	Logical Volume & Performance	1. Storage Subsystem shall support minimum of 512 Logical Units. Storage Array shall also support creation of more than 120TB volume at controller level. 2. Offered Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.
15	Load Balancing & Multi-path	1. Multi-path and load balancing software shall be provided, if vendor does not support MPIO functionality of Operating system.
16	Performance	Offered storage shall have listed benchmark for performance of more than 100,000 IOPS in RAID 5 using appropriate drives at 8k block size. Vendor shall provide documentary proof for it.
17	Array Integration	Offered storage array shall have plug-in for VMware VCenter, Microsoft System center as well as vStorage APIs (VAAI) for array integration.
18	Warranty	Warranty includes 5-Year Parts, 5-Year Labor, 5-Year Onsite support & minimum NBD response with DMR (Defective Media Retention)

3. Installation of ORACLE10G RAC

Installation of Oracle 10G RAC with 2 node cluster for load balancing and automatic failover on the above hardware, also commissioning and training

23/12/21

BID-SECURING DECLARATION FORM

Date: _____

Bid No. _____

To (insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

(a)	have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
(b)	having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or refuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown)
in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing he Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of: (insert complete name of Bidder)

Dated on _____ day of _____(insert date of signing)

Corporate Seal (where appropriate)

Note:

1. In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid.
2. Bid Security declaration must be signed in by the Proprietor/CEO/MD or equivalent level of Officer of the company.