INVITATION FOR BIDS
OFFICE OF PROCUREMENT & CONTRACTS

1. **INSTRUCTIONS FOR BIDDERS**

   a. Sealed bids will be received in the Office of Procurement & Contracts, Mississippi State University, for the purchase of the items listed herein.

   b. All bids must be received in the Office of Procurement & Contracts on or before the bid opening time and date listed herein. Delivery of bids must be during normal working hours, 8:00 a.m. to 5:00 p.m. CST, except on weekends and holidays when no delivery is possible.

   c. Bidders shall submit their bids either electronically or in a sealed envelope. To submit electronically, follow the instructions below. Bids CANNOT be emailed.
      i. Sealed bids should include the bid number on the face of the envelope as well as the bidders' name and address.   Bids should be sent to: 245 Barr Avenue, 610 McArthur Hall, Mississippi State, MS 39762.
      ii. At this time we only accept non-ITS bids electronically. For electronic submission of bids, go to: portal.magic.ms.gov.
      and use the RFX number on the next page as your reference number.

   d. All questions regarding this bid should be directed to the Office of Procurement & Contracts at 662-325-2550.

2. **TERMS AND CONDITIONS**

   a. All bids should be bid "FOB Destination"

   b. Bidders must comply with all rules, regulations, and statutes relating to purchasing in the State of Mississippi, in addition to the requirements on this form. General Bid Terms and Conditions can be found here:
   https://www.procurement.msstate.edu/procurement/bids/Bid_General_Terms_May_2019_V2.pdf

   c. Any contract resulting from this Invitation for Bid shall be in substantial compliance with Mississippi State University's Standard Contract Addendum:
   https://www.procurement.msstate.edu/contracts/standardaddendum.pdf

Bid Number/RFX Number: 25-05/RFX #3160007105
Opening Date: January 15, 2025 at 2:00 p.m.
Description: Data Storage System

Vendor Name: _____

Vendor Address: _____

Telephone Number: _____

Days the Offer is Firm: _____

Authorized Signature: _____

Name: _____

Title: _____

Item	Quantity	Description	Unit Price	Total Price
1	1	Data Storage System		

The Mississippi State University High Performance Computing Collaboratory request bids for a VAST Data all flash high performance data storage system providing multi-petabytes of data storage via nfs to a linux computational cluster system.

All equipment is intended to be used as a single system and must work together accordingly and integrate into existing computational cluster system.
Partial bids will not be accepted.

Minimum components to be provided include:

Qty 4 VAST (DF-3060) Ceres Enclosure 1U HA 1350TB NVMe Flash, 12.8TB SCM(TBC), Bluefield DPUs (ETH or IB)
Qty 5 VAST (QUAD-4N-IL-2NIC) Quad Server Chassis inc 4 x Ice Lake Servers (Dual NIC)(Quad Port 100Gb's QSFP28 or Quad Port HDR100 QSFP56)
Qty 2 VAST (ETH-NVMEF-1X64-200G) 64 Port 2U 200G NVMe Fabric Ethernet Switch
Qty 1 VAST (AOC-CABLES) Fiber optic cable and SFP bundle

Qty 30 (SW-U-100) 100TB Usable Gemini Services Term for 60 months
Qty 1 VAST (COPILOT) Data Co-Pilot Service for 60 months
Qty 1 VAST (INSTALL) Installation Service

General:
* storage shall utilize all flash technology using QLC, TLC, or SCM storage
* provide 5PB minimum physical capacity
* licenses for 3PB minimum usable capacity
* provide 6PB minimum effective capacity. If data reduction is utilized, a maximum 2:1 data reduction can be used for calculation
* ability to license additional usable capacity in 100GB increments
* support scaling of both throughput and capacity with no downtime
* support upgrades with no downtime
* provide nfs v3 /v4 to clients (Rhel 9.x)
* support NFS/RDMA, nconnect, multipath NFS options
* authentication to existing ldap/ipa server
* FIPS 140-2 or 140-3 encryption must be supported
* must provide snapshot ability supporting minimum of 180 snapshots
* simultaneous connection to HDR infiniband networks and 100GbE TCP/IP network
* all components must have redundant power supplies
* Provide for no single point of failure
* system management via web and/or cli interfaces
* Event notification and monitoring system for all hardware health and environmental conditions
* performance 200GB/s read throughput minimum
* performance 30GB/s write throughput minimum
* performance 1,440K read iops minimum
* performance 360K write iops minimum
* storage must be able to be divided/partitioned/sized into data stores
* data stores should support over subscription
* each data store should be re-sizable without downtime
* each data store should support separate user, group, and directory quotas
* must support nested directory quotas
* quota limits should allow for over subscription
* each data store should be presented as an individual nfs mount/share

Warranty/Maintenance/Support:
* all items must be new; no refurbished or used equipment is allowed.
* all items must include original manufacturer's warranty
* warranty/maintenance/support for overall system, individual components, and all included hardware and software shall be no less than the defined support time frame of 5 years.
* all components shall have a minimum 5 year warranty/support.
* the established support time frame shall be defined as no less than 5 years for all warranties, maintenance, and support
* all solid state storage drives must be warranted against wear for the full 5 years
* option to extend all warranty/maintenance/support including ssd drives for another 5 years
* warranty shall start upon completion of installation, start-up, and acceptance
* software, patches, and firmware upgrades shall be included at no additional cost during the defined support time frame. This should include all feature enhancements.

* vendor/manufacture shall perform all firmware and software upgrades during the defined support time frame (can be accomplished by remote assist)
* vendor/manufacture shall perform all hardware repairs on-site unless repairs can be accomplished by customer using parts classified as customer replaceable
* support hours must be minimum 7x12 local time for duration of defined support time frame
* all customer and field replaceable parts must be delivered next business day

Physical/Environmental:
* all components must be rack mountable in one 48U standard EIA 19 rack
* all components shall be air cooled utilizing room air at an average of 78 degrees Fahrenheit
* air flow shall be front of rack to back of rack
* all powered component must support 208 volt power input.

Shipping/Delivery/Installation:
* all shipping/delivery/installation costs shall be included
* vendor shall perform all installation tasks including mounting, cabling, configuration, initial setup, and training.
* vendor shall perform all tasks during normal business hours unless prior arrangements are approved
* power cables, rack mount kits, cable management arms, etc… must be included
* MSU will provide rack for mounting all hardware
* MSU will provide all HDR Infiniband and 100GbE cables for connecting storage into existing HDR and TCP/IP networks.

Vendor Credentials:
* Vendors should have credible experience with data storage for large scale high performance systems
* Vendor must provide up to three references upon request of customers using these or similar products of the manufacturer.

Acceptance Criteria:
* proof of performance numbers based on IOR benchmarks are required
* successfully integrating into existing ldap environment
* successfully accessing data from linux based rhel 9.x client via nfs v4 using rdma, nconnect, multipath options