Annexure 16 - Technical Specifications for RFP – Empanelment of vendors for Supply, Installation & Maintenance of Windows based Servers and its components for FY 2021-2024.
RFP No: BCC:IT:PROC:113:02 **Dated: 28th January 2021**

Required Minimum Specifications "Annexure 16 A – Rack Server Type A"		Bidder's compliance (Yes / No)	Bidder's remarks
Hardware	Make & Model of Rack Server – _____		
Form factor	Rack mountable with rack mount kit and rails		
CPU	Intel Platinum / Gold / Silver Series Family Processors		
CPU Frequency	Min. 2.0 GHz Clock Speed scalable or equivalent or higher. (As per the Intel CPU requirement)		
Cores	Min. 8 Cores per CPU (socket) (As per the Intel CPU requirement)		
No. of CPU	Min. 2 (Two) scalable to Max. 4 (Four)		
CPU Expandability	Capable to accommodate 4 processor		
Chipset	Latest server class compatibility chipset		
Cache	Min. 13.75 MB L3 Cache scalable or equivalent or higher or equivalent or higher. (As per the Intel CPU requirement)		
Memory	Min. 64 GB DDR4 or higher with 2666 / 2933 MT/sec		
Memory Expandability	Expandable to Min. 1 TB per CPU		
Memory slot	Min. 12 DIMM slots per CPU (socket)		
Hard disk Drive	Min. 900 GB x 2 or higher - Hot Plug HDD SFF SAS / SSD / SATA drives. HDD with Min. 15K RPM		
HDD Expandability	Expandable to Min. 14.4 TB		
HDD slot	Min. 8 Hot plug HDD SFF SAS/SSD/SATA drive bays		
Storage controller	Integrated PCIe 3.0 based Hardware RAID Controller with Min. 2 GB cache with capacitor based backup and should support RAID 0, 1, 1+0, 5		
Network controller	Min. 2 nos. of 25G Dual Ported Ethernet card or higher (SFP+ Network Interface Ports) with required SFPs & Cables (capable to auto negotiate to 10G). AND Min. 1 no. of 1 GBPS Ethernet Card with 4 ports or higher (On-board / PCIe Card)		
HBA card	Min. 2 nos. of 16G Dual ported FC Cards or higher (capable to auto negotiate to 8G).		
PCI slots	Min. 6 PCIe 3.0 Slot (Server must be able to support Full Length & Full Height PCIe Cards)		
I/O interface	Min. 1 USB port, Min. 1 I/O port		
Graphics	Integrated Video Controller, Video modes up to 1920 x 1200, min. 16MB video memory+B22		
Remote Management	System remote management should support browser based Graphical Remote Console & Virtual Power Button.		
	Should be possible to manage the servers and get access to critical information about the health of the server from any remote location with just the help of a standard Web browser		
	Remote boot using USB / CD / DVD Drive and should be capable to offer upgrade of software and patches from a remote client using Media / Image / Folder server power capping and historical reporting should have support for authentication.		

	Should be possible to remotely manage each rack server individually.		
	Should support access rights for administrators for each rack server individually.		
	Server should support agentless management using the out-of-band remote management port instead of OS and SNMP port on the OS. This will enable zero downtime updates.		
	The server should support features which monitors and records changes in the server hardware and system configuration.		
Server Management	The system management software should provide role based security		
	The server management software should be of the OEM makes as of the server supplier		
	Should support scheduled execution of OS Commands, batch files, scripts and command line apps on the remote nodes		
	Should help to proactively identify out-of-date BIOS, drivers and server management agents and enable the remote update of system software/firmware components		
	Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.		
	Should support automatic event handling that allows configuring policies to notify failures via email or SMS gateway or automatic execution of scripts		
	Should be able to perform comprehensive system data collection and enable users to quickly produce detailed inventory reports for managed devices		
	Should support the reports to be saved in HTMS,CSV or XML format		
	Should be compatible with Banks HP Open View Tool		
Security	Boot password, Power-on password, serial interface control, Administrator's password, TPM 2.0, UEFI Hardware root of trust , secure boot, System Lockdown, System Erase , Cryptographically Signed firmware		
Compliance	Microsoft Logo certifications, USB 3.0 support, IEEE (specific IEEE standards depending on Ethernet adapter card(s) installed), PCIe 3.0 Compliant , TPM 2.0 support, SSL 2.0, Active Directory v1.0, ACPI 4.0 or above compliant, IPMI 2.0, Secure Digital 2.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP, ASHRAE A3, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH) or equivalent		
Operating System Certification	Microsoft Windows server, RedHat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMWare ESX 6.5		
Virtualization Software Support	Vmware, Microsoft Hyper-V. Red Hat KVM		
Power Cord	Male & Female Type Power Cord		
Power Supply & Fan	Server should be provided with Redundant hot swappable Power Supplies. The power supplies should FCC class A certified. Server should have redundant fully populated hot swap fans.		

Required Minimum Specifications "Annexure 16 B – Rack Server Type B"		Bidder's compliance (Yes / No)	Bidder's remarks
Hardware	Make & Model of Rack Server – _____		
Form factor	Rack mountable with rack mount kit and rails		
CPU	Intel Platinum / Gold / Silver Series Family Processors		
CPU Frequency	Min. 2.0 GHz Clock Speed scalable or equivalent or higher. (As per the Intel CPU requirement)		
Cores	Min. 8 Cores per CPU (socket) (As per the Intel CPU requirement)		
No. of CPU	Min. 1 (One)		
CPU Expandability	Capable to accommodate 2 processor		
Chipset	Latest server class compatibility chipset		
Cache	Min. 13.75 MB L3 Cache scalable or equivalent or higher or equivalent or higher. (As per the Intel CPU requirement)		
Memory	Min. 64 GB DDR4 or higher with 2666 / 2933 MT/sec		
Memory Expandability	Expandable to Min. 1 TB per CPU		
Memory slot	Min. 12 DIMM slots per CPU (socket)		
Hard disk Drive	Min. 900 GB x 2 or higher - Hot Plug HDD SFF SAS / SSD / SATA drives. HDD with Min. 15K RPM		
HDD Expandability	Expandable to Min. 14.4 TB		
HDD slot	Min. 8 Hot plug HDD SFF SAS/SSD/SATA drive bays		
Storage controller	Integrated PCIe 3.0 based Hardware RAID Controller with Min. 2 GB cache with capacitor based backup and should support RAID 0, 1, 1+0, 5		
Network controller	Min. 2 nos. of 25G Dual Ported Ethernet card or higher (SFP+ Network Interface Ports) with required SFPs & Cables (capable to auto negotiate to 10G). AND Min. 1 no. of 1 GBPS Ethernet Card with 4 ports or higher (On-board / PCIe Card)		
HBA card	Min. 2 nos. of 16G Dual ported FC Cards or higher (capable to auto negotiate to 8G).		
PCI slots	Min. 6 PCIe 3.0 Slot (Server must be able to support Full Length & Full Height PCIe Cards)		
I/O interface	Min. 1 USB port, Min. 1 I/O port		
Graphics	Integrated Video Controller, Video modes up to 1920 x 1200, min. 16MB video memory+B22		
Remote Management	System remote management should support browser based Graphical Remote Console & Virtual Power Button.		
	Should be possible to manage the servers and get access to critical information about the health of the server from any remote location with just the help of a standard Web browser		
	Remote boot using USB / CD / DVD Drive and should be capable to offer upgrade of software and patches from a remote client using Media / Image / Folder server power capping and historical reporting should have support for authentication.		

	Should be possible to remotely manage each rack server individually.		
	Should support access rights for administrators for each rack server individually.		
	Server should support agentless management using the out-of-band remote management port instead of OS and SNMP port on the OS. This will enable zero downtime updates.		
	The server should support features which monitors and records changes in the server hardware and system configuration.		
Server Management	The system management software should provide role based security		
	The server management software should be of the OEM makes as of the server supplier		
	Should support scheduled execution of OS Commands, batch files, scripts and command line apps on the remote nodes		
	Should help to proactively identify out-of-date BIOS, drivers and server management agents and enable the remote update of system software/firmware components		
	Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.		
	Should support automatic event handling that allows configuring policies to notify failures via email or SMS gateway or automatic execution of scripts		
	Should be able to perform comprehensive system data collection and enable users to quickly produce detailed inventory reports for managed devices		
	Should support the reports to be saved in HTMS,CSV or XML format		
	Should be compatible with Banks HP Open View Tool		
Security	Boot password, Power-on password, serial interface control, Administrator's password, TPM 2.0, UEFI Hardware root of trust , secure boot, System Lockdown, System Erase , Cryptographically Signed firmware		
Compliance	Microsoft Logo certifications, USB 3.0 support, IEEE (specific IEEE standards depending on Ethernet adapter card(s) installed), PCIe 3.0 Compliant , TPM 2.0 support, SSL 2.0, Active Directory v1.0, ACPI 4.0 or above compliant, IPMI 2.0, Secure Digital 2.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP, ASHRAE A3, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH) or equivalent		
Operating System Certification	Microsoft Windows server, RedHat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMWare ESX 6.5		
Virtualization Software Support	Vmware, Microsoft Hyper-V. Red Hat KVM		
Power Cord	Male & Female Type Power Cord		
Power Supply & Fan	Server should be provided with Redundant hot swappable Power Supplies. The power supplies should FCC class A certified. Server should have redundant fully populated hot swap fans.		

Required Minimum Specifications "**Annexure 16 C – Blade Server Type A**"		Bidder's compliance (Yes / No)	Bidder's remarks
Hardware	Make & Model of Blade Server – _____		
Form factor	Full/Half Height Blade		
CPU	Intel Platinum / Gold / Silver Series Family Processors		
CPU Frequency	Min. 2.0 GHz Clock Speed scalable or equivalent or higher. (As per the Intel CPU requirement)		
Cores	Min. 8 Cores per CPU (socket) (As per the Intel CPU requirement)		
No. of CPU	Min. 2 (Two) scalable to Max. 4 (Four)		
CPU Expandability	Capable to accommodate 4 processor		
Chipset	Latest server class compatibility chipset		
Cache	Min. 13.75 MB L3 Cache scalable or equivalent or higher or equivalent or higher. (As per the Intel CPU requirement)		
Memory	Min. 64 GB DDR4 or higher with 2666 / 2933 MT/sec		
Memory Expandability	Expandable to Max. 1 TB		
Memory slot	Min. 8 DIMM slots per CPU (socket)		
Hard disk Drive	Min. 900 GB x 2 or higher - Hot Plug HDD SFF SAS / SSD / SATA drives. HDD with Min. 15K RPM		
Hard Disk Drive Expandability	Expandable to min 3.6TB		
Hard disk drive slot	Min. 2 Hot plug HDD SFF SAS/SSD/SATA drive bays		
Storage controller	Integrated PCIe 3.0 based hardware RAID controller with Min 1GB cache with capacitor based backup and should support RAID 0 , 1 & 1+0		
Network controller & HBA card	The blade should offer Min. 50G converged FCoE card (Min. 2 x 25G Port) with capability of NIC partition of Min. 2 x 8G Ethernet and Min. 2 x 16G FC Ports.		
PCI slots	Min. 2 PCIe 3.0 slot		
I/O interface	Min. 1 USB port, Min. 1 I/O port		
Graphics	Integrated Video Controller, Video modes up to 1920 x 1200, min. 16MB video memory+B22		
Remote Management	System remote management should support browser based graphical remote console and virtual power button		
	Should be possible to manage servers and get access to critical information about the health of the server from any remote location with just the help of a standard web browser		
	Remote boot using USB / CD / DVD drive and should be capable to offer upgrade of software and patches from a remote client using Media/ Image / Folder server power capping and historical reporting should have support for authentication		
	Should be possible to remotely manage each blade server individually		
	Server should support access rights for administrators for each blade server individually		

	Server should support agentless management using out-of-band remote management port instead of OS and SNMP port in the OS. This will enable zero downtime updates		
	The server should support features which monitors and records changes in the server hardware and system configuration		
Server Management	The system management software should provide role based security		
	The server management software should be of the OEM makes as of the server supplier		
	Should support scheduled execution of OS Commands, batch files, scripts and command line apps on the remote nodes		
	Should help to proactively identify out-of-date BIOS, drivers and server management agents and enable the remote update of system software/firmware components		
	Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.		
	Should support automatic event handling that allows configuring policies to notify failures via email or SMS gateway or automatic execution of scripts		
	Should be able to perform comprehensive system data collection and enable users to quickly produce detailed inventory reports for managed devices		
	Should support the reports to be saved in HTMS,CSV or XML format		
	Should be compatible with Banks HP Open View Tool		
Security	Boot password, Power-on password, serial interface control, Administrator's password, TPM 2.0, UEFI		
Compliance	Microsoft Logo certifications, USB 3.0 support, IEEE (specific IEEE standards depending on Ethernet adapter card(s) installed), PCIe 3.0 Compliant , TPM 2.0 support, SSL 2.0, Active Directory v1.0, ACPI 4.0 or above compliant, IPMI 2.0, Secure Digital 2.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP, ASHRAE A3, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH) or equivalent		
Operating System Certification	Microsoft Windows server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMWare ESX 6.5		
Virtualization Software Support	Vmware. Microsoft Hyper-V. Red Hat KVM		
Power Cord	Male & Female Type Power Cord		

Required Minimum Specifications "**Annexure 16 D – Blade Server Type B**"		Bidder's compliance (Yes / No)	Bidder's remarks
Hardware	Make & Model of Blade Server – _____		
Form factor	Full / Half Height Blade		
CPU	Intel Platinum / Gold / Silver Series Family Processors		
CPU Frequency	Min. 2.0 GHz Clock Speed scalable or equivalent or higher. (As per the Intel CPU requirement)		
Cores	Min. 8 Cores per CPU (socket) (As per the Intel CPU requirement)		
No. of CPU	Min. 1 (One)		
CPU Expandability	Capable to accommodate 2 processor		
Chipset	Latest server class compatibility chipset		
Cache	Min. 13.75 MB L3 Cache scalable or equivalent or higher or equivalent or higher. (As per the Intel CPU requirement)		
Memory	Min. 64 GB DDR4 or higher with 2666 / 2933 MT/sec		
Memory Expandability	Expandable to Max. 1 TB		
Memory slot	Min. 8 DIMM slots per CPU (socket)		
Hard disk Drive	Min. 900 GB x 2 or higher - Hot Plug HDD SFF SAS / SSD / SATA drives. HDD with Min. 15K RPM		
Hard Disk Drive Expandability	Expandable to min 3.6TB		
Hard disk drive slot	Min. 2 Hot plug HDD SFF SAS/SSD/SATA drive bays		
Storage controller	Integrated PCIe 3.0 based hardware RAID controller with Min 1GB cache with capacitor based backup and should support RAID 0 , 1 & 1+0		
Network controller & HBA card	The blade should offer Min. 50G converged FCoE card (Min. 2 x 25G Port) with capability of NIC partition of Min. 2 x 8G Ethernet and Min. 2 x 16G FC Ports.		
PCI slots	Min. 2 PCIe 3.0 slot		
I/O interface	Min. 1 USB port, Min. 1 I/O port		
Graphics	Integrated Video Controller, Video modes up to 1920 x 1200, min. 16MB video memory+B22		
Remote Management	System remote management should support browser based graphical remote console and virtual power button		
	Should be possible to manage servers and get access to critical information about the health of the server from any remote location with just the help of a standard web browser		
	Remote boot using USB / CD / DVD drive and should be capable to offer upgrade of software and patches from a remote client using Media/ Image / Folder server power capping and historical reporting should have support for authentication		
	Should be possible to remotely manage each blade server individually		
	Server should support access rights for administrators for each blade server individually		

	Server should support agentless management using out-of-band remote management port instead of OS and SNMP port in the OS. This will enable zero downtime updates		
	The server should support features which monitors and records changes in the server hardware and system configuration		
Server Management	The system management software should provide role based security		
	The server management software should be of the OEM makes as of the server supplier		
	Should support scheduled execution of OS Commands, batch files, scripts and command line apps on the remote nodes		
	Should help to proactively identify out-of-date BIOS, drivers and server management agents and enable the remote update of system software/firmware components		
	Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.		
	Should support automatic event handling that allows configuring policies to notify failures via email or SMS gateway or automatic execution of scripts		
	Should be able to perform comprehensive system data collection and enable users to quickly produce detailed inventory reports for managed devices		
	Should support the reports to be saved in HTMS,CSV or XML format		
	Should be compatible with Banks HP Open View Tool		
Security	Boot password, Power-on password, serial interface control, Administrator's password, TPM 2.0, UEFI		
Compliance	Microsoft Logo certifications, USB 3.0 support, IEEE (specific IEEE standards depending on Ethernet adapter card(s) installed), PCIe 3.0 Compliant , TPM 2.0 support, SSL 2.0, Active Directory v1.0, ACPI 4.0 or above compliant, IPMI 2.0, Secure Digital 2.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP, ASHRAE A3, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH) or equivalent		
Operating System Certification	Microsoft Windows server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMWare ESX 6.5		
Virtualization Software Support	Vmware. Microsoft Hyper-V. Red Hat KVM		
Power Cord	Male & Female Type Power Cord		

Required Minimum Specifications "**Annexure 16 E – Blade Enclosure**"		Bidder's compliance (Yes / No)	Bidder's remarks
Hardware	**Make & Model of Blade Enclosure –** _____		
	Make & Model of Other Hardware (if any) – _____		
Form Factor	Min. 8 Blade Servers of Half Height Blade Server		
Blade Chassis	Should support for full height and half height blades in the same enclosure, occupying a max of 10U rack height.		
	Same enclosure should support Intel Platinum, Gold, Silver or equivalent blade servers.		
	Should support Hot Pluggable & Redundant Management Modules with onboard KVM functionality.		
	Should provide a high performance, reliability and availability design in the blade enclosure.		
	Should be able to accommodate the blade servers of specifications mentioned in the proposed Blade Encl.		
	Support simultaneous remote access for different servers in the enclosure.		
Interconnect	Should support simultaneous housing of FCoE (Converged Switch), Ethernet, FC interconnect fabrics offering Hot Pluggable & Redundancy as a feature. The chassis switch should provide the following uplinks: • Min. 2 x 10G/25G SFP plus Ethernet (redundant) per Blade Server • Min. 2 x 16G/32G FC connect (redundant) per Blade Server There should be Min. 2 Switches for redundancy in LAN Switching and SAN Switching.		
Power Supply	The enclosure should be populated fully with power supplies and should support N + N redundancy configuration, where N is greater than 1.		
Cooling	Each blade enclosure should have a cooling subsystem consisting of redundant hot pluggable fans or blowers enabled with technologies for improved power consumption and acoustics.		
System Software	Management / Controlling Soft have to be from the OEM.		
Remote Management	Must provide a remote management functionality to operate the server in both in-band and out-of-band. Must be part of the server without the need to install any additional hardware or software.		
	Must have a real time Virtual KVM functionality and be able to perform a remote Power sequence.		
	Must have the ability for multiple administrators across remote locations to collaborate on the remote session in a server with multiple sessions even in server powered OFF mode.		
Power Management	Must be able to show the actual power usage and actual thermal measurement data of the servers.		
High Availability	100% High Availability should be provided for LAN Switching and SAN Switching		

Note: As part of above Blade Servers and Blade Enclosures vendor needs to clearly mention and quote the required Licenses, SFP Modules or any other hardware for implementation of Servers. These additional Hardware / Licenses should be clearly mention in BOM (Bill of Material).