



EMERGING TECHNOLOGIES LAB

INVITATION TO BIDS

1. Emerging Technologies Lab, a PSDP project of Ministry of Defence, Government of Pakistan, invites sealed bids from the firms/ general order supplier/ companies registered with Income Tax, Sales Tax Departments and who are on FBR's Active Taxpayer's List (ATL) for **Procurement of Hardware and IT Equipment** to Emerging Technologies Lab, Islamabad through EPADS.
2. Bidding documents containing detailed terms and conditions, method of procurement, etc may be obtained from the Office of the undersigned on payment of **Rs.2000/- (Rupees Two Thousand only)** non-refundable. Bidding documents can also be downloaded from ETL's website www.quantum.org.pk and EPADS/PPRA (Pay order of Rs.2000/- may be attached in case downloaded from website).
3. The bid prepared in accordance with instructions in the bidding documents, along with **Bid Security/ Earnest money of 2% of the total bid value in the shape of Bank draft/ Pay order** drawn in favour of Emerging Technologies Lab may reach Office of the undersigned by **Jun 13, 2025 at 1030 hours via EPADS**. Technical bids will be opened on the **Jun 13, 2025 at 1100 hours** in the presence of representatives of the bidders and financial bids will be opened on **Jun 18, 2025 at 1030 hours**.
4. As per PPRA Rules 33(1), 2004, Emerging Technologies Lab, Government of Pakistan, has the right to reject any or all bids/ proposals at any time prior to the acceptance of a bid/ proposal.
5. Bids shall only be submitted on EPADS online system available on PPRA Website else bidder shall be disqualified on spot.

Haseeb Akbar
Procurement Manager
Emerging Technologies Lab
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EMERGING TECHNOLOGIES LAB

Request for Proposal (RFP)

For

Procurement of

Hardware & IT Equipment

EMERGING TECHNOLOGIES LAB

Government of Pakistan

Web: www.quantum.org.pk

Email: procurement@quantum.org.pk

May 2025

Emerging Technologies Lab, Office No. 406, 4th Floor, Evacuee Trust Complex,
F-5/1, Agha Khan Road, Islamabad



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1. Executive Summary

Emerging Technologies Lab (ETL) is a PSDP funded project focused on Quantum Technologies. The core objective of this project is to **establish capability to initiate indigenous design and development** of specialized hardware, software and new cyber security **solutions to counter Quantum computing threats**. The lab will undertake **innovative** initiatives in **cryptographic, communication, computing and other domains**.

This Request for Proposal (RFP) solicits proposals from companies, service providers & vendors who can provide Hardware and IT Equipment. This information should include, but not limited to, the history of the organization, its experience, financials, technical capabilities, and experience for providing similar success stories.

2. Mandatory Terms & Conditions

Following are the General Terms of References for collaborative proposal of QRNG:

| General terms and conditions compliance | Yes/No |
|---|--------|
| The RO must be registered in SECP , incorporation certificate should be provided. | |
| RO must be registered with the FBR sales tax and should have a valid NTN number. Copies of the certificates must be provided with the bid. | |
| A bid bond, in the shape of a Bank Draft/Pay Order in the name of the “Project Director, Emerging Technologies Lab” , for an amount of 2% of bidding amount/- . | |
| RO shall submit an affidavit on stamp paper of PKR 100/- , that the company/individual is not blacklisted by any federal, provincial public sector organization | |
| RO and its employees involved in the execution of this contract must obtain and maintain security clearance from relevant Law Enforcement Agencies (LEAs) . The company must possess valid clearance certificates for itself and its designated employees . | |
| Bidder must provide Certificate that the bidder will ensure all source code and detailed hardware designs handover (where necessary). (Certificate has to be attached) | |
| Detailed documentation should be provided, including user manuals, technical guides, and troubleshooting procedures etc. | |
| RO must provide an undertaking that the proposed solution (including its components): <ul style="list-style-type: none">• Does not contain any back-doors or any hidden elements.• Is free from any vulnerability at the date of submission of proposal and subsequently at the time of delivery.• Is customizable according to the requirements. | |

3. Scope of Work, Timeframe & Penalties

The scope of this RFP includes the supply, delivery, installation, configuration and testing of **hardware and IT equipment specified at Annexure-I**, ensuring functionality and compliance with the required technical specifications. The vendor shall provide the necessary documentation, user manuals, and initial training to the concerned staff. Moreover, Vendor is bound to provide the required



equipment within 30 days from the issuance of purchase order. Delays, non-compliance, or failure to meet agreed deliverables will attract penalties as defined in the contract, including but not limited to liquidated damages, withholding of payments, or termination of the agreement.

4. Timeframe

| Milestone | Date & Time |
|---|------------------------------|
| RFP Released | 23 May 2025 |
| RFP Bid Submission Date and Time | 13 Jun 2025, 1030 hrs |
| Last Date to submit Queries related to RFP requirements | 29 May 2025, 1400 hrs |
| Pre-Bid Meeting | 30 May 2025, 1400 hrs |
| Opening of Technical Bids | 13 Jun 2025, 1100 hrs |
| Opening of Financial Bids | 18 Jun 2025, 1030 hrs |

As a result of this Request for Proposal, ETL may do one of the following at its discretion:

- Award a contract for this Request for Proposal on the basis of prescribed technical evaluation criteria and financial comparison (lowest bidder).
- Cancel the whole process.

5. Proposal

This is **“TWO STAGE TWO ENVELOPE BIDDING PROCEDURE”** as per PPRA rules. The bidders shall submit their proposals in one sealed envelope containing two different separate sealed envelopes marked as **“Technical Proposal”** and **“Financial Proposal”**. Only Technical envelope will be opened in the presence of bidders and financial proposal envelopes will stay in ETL custody till the opening of financial bids. After Technical scrutiny, bidders may be asked for revised technical and supplementary financial proposals. Financial proposals from bidders that met the technical qualification score will be opened in front of bidders. Final date of opening of Financial Bids which will be communicated to all the bidders in advance. Further final evaluation reports containing technical and financial evaluation will be published on ETL website and PPRA as well. After the finalization of evaluation, the successful bidder will be issued **“Letter of Intent”** which will be followed by the Service agreement and Service order.

6. Preparation of Bids

- 6.1. The bid bond is to be enclosed in a separate envelope, labelled as **“Bid Bond”** and should be sealed. It must be ensured that the bid bond should be in the same envelope as the **“Technical Proposal”**.
- 6.2. The envelope for financial proposals should be marked **“Financial Proposal”** and submitted according to **Annexure-II**. Two hard copies of the technical proposal and financial proposal are required. Soft copies (in USB) of both the technical proposal and financial proposal must be provided along with their respective envelopes.
- 6.3. There will be **02 envelopes** marked as **“Original Technical Proposal”** and **“Copy of Technical Proposal”** respectively, soft copy should be part of the original technical proposal.
- 6.4. RO should duly fill in and submit all the attached bid forms stamped and signed. **In case of any discrepancy or absence** of any sort of information ETL has the right to disqualify the RO immediately.
- 6.5. A bid bond, in the shape of a **bank draft/Pay Order** in the name of the “Project Director, Emerging Technologies Lab, for an amount of **2% of bidding amount/-**.



- 6.6. RO shall submit an affidavit on stamp paper of **PKR 100/-**, that the company is not blacklisted by any federal, provincial public sector organization.
- 6.7. All proposals and prices shall remain valid for **120 days** from the closing date of the submission of the proposal.
- 6.8. RO shall provide prices in PKR.
- 6.9. Hardware equipment should have **1x year local warranty**, including parts and labor with onsite support including patch updates and bug fixes.
- 6.10. The end-user licenses, end-user warranties and end-user contracting support services will be in the name of the ETL, for all the equipment and software loaded on the equipment delivered during the project.
- 6.11. RO should supply the equipment in the given time mentioned in “**Clause 3**” of this RFP.

7. Pre-Bid Meeting

A pre-bid meeting will be held in the premises of the ETL, below mentioned address “Emerging Technologies Lab, Office No. 406, 4th Floor, Evacuee Trust Complex, F-5/1 Agha Khan Road, Islamabad on **30 May 2025 at 1400 hrs**. All queries relating to RFP should be emailed to procurement@quantum.org.pk as per given timelines. Answers to the submitted queries shall be given in the pre-bid meeting and will be emailed to all the participants of the pre-bid meeting (if-required). Queries raised in pre-bid meetings will be answered through email to all the participants within 24 - 48 hours of the pre-bid meeting.

You may contact following person, if you have any questions or require clarification on any topics covered in this request for proposal.

| |
|--|
| Haseeb Akbar Designation: Procurement Manager Email: haseeb@quantum.org.pk Phone Number: 03219112230 Address: Emerging Technologies Lab, Office No. 406, 4 th Floor, Evacuee Trust Complex, F-5/1, Agha Khan Road, Islamabad |
|--|

8. Submission of Bids

Proposals shall be delivered by hand or courier to the address given below “Emerging Technologies Lab, Office No. 406, 4th Floor, Evacuee Trust Complex, F-5/1, Agha Khan Road, Islamabad” before the date and time i.e. **13 Jun 2025, 1030 hrs**. RO must also ensure uploading of bids on **EPADS** system. Technical bids will be opened on the same day i.e. **13 Jun 2025, 1100 hrs**. Proposals received by fax or email shall not be accepted. The proposal should be addressed to “**Project Director, Emerging Technologies Lab**”.

9. Technical Bid Evaluation

There will be a two-stage technical evaluation. **Preliminary evaluation** (Initial Screening) of technical bids will be done on the basis of following criteria:-

- 9.1. RO must provide the name of the organization, details of offices, workplace, working facility, etc. across Pakistan and the location of the head office, if any, the size of the company (number of employees) etc.
- 9.2. RO shall comply with all PPRA requirements.
- 9.3. The RO must be registered with **FBR for sales tax** and should have a **valid NTN number**. Copies of the certificates must be provided with the bid.
- 9.4. RO is to provide information as per the template available at **Annexures I & II**.



- 9.5. RO should not propose any kind of refurbished, used, end-of-life, or near-end-of-life equipment in their proposals.
- 9.6. RO shall be responsible for payment of any **duties/taxes etc.** that are applicable during the tenure of the project. The bid price must be inclusive of all taxes. The RO is hereby informed that the government shall deduct tax at the rate prescribed under the tax laws of Pakistan, from all payments for services rendered by any RO that signs a contract with the government.
- 9.7. On-site **installation & relevant services** are to be provided by the vendor.
- 9.8. RO may provide completed and ongoing projects in the form of a completion certificate or list or a purchase order document.
- 9.9. The following documents/evidence should be attached in support of the Technical Proposal Evaluation as per the above criteria:
 - Copies of NTN Registration with Income Tax, Sales Tax Departments and who are on FBR's Active Taxpayer's List (ATL).
 - Experience Certificates
 - Authorized Partner/OEM Certificates, where applicable.
 - Detailed Product Specifications
- 9.10. Support center/staff should be available locally with respect to the quoted item.

Detailed technical evaluation will be done for firms who qualify the preliminary evaluation mentioned above. In detailed technical evaluation the Evaluation & Award Committee will verify the compliance with specifications mentioned in Annexure-I. Any bid containing less specifications will be rejected.

10. Financial Bid Evaluation

Financial bids of the technically qualified RO will be opened before the representatives who wish to attend the tender opening. Financial bids will be opened only for those vendors only who qualify (meet the specifications) in technical and detailed technical evaluation.

11. Notification of Award

The procuring agency will notify the successful bidder in writing that the bid has been accepted. The notification of award shall constitute the formation of the "Contract" between the procuring agency and the successful bidder. The enforcement of the contract shall be governed by Rule 44 of the PPRA.

12. Signing of Contract

After the notification of the award, the procuring agency shall send the successful bidder the contract form/document. The contract shall become effective upon affixation of the signature of the procuring agency and the successful bidder on the contract document. If the successful bidder, after completion of all codal formalities, shows an inability to sign the contract then bid security shall stand forfeited and the bidder's organization may be blacklisted and de-barred from future participation.

13. Performance Security

The successful bidder should provide a performance security or performance insurance security upon execution of the contract, a sum equivalent to five percent (5%) of the contract value, this security shall be issued from a scheduled bank/insurance company operating in Pakistan and shall be kept valid from the date of issue, and should cover the warranty period after all contractual obligations have been fulfilled. The bid security submitted by the successful bidder shall be returned upon



submitting the performance security. Failed to provide performance security by the successful bidder, is sufficient ground for annulment of the award and forfeiture of bid security.

14. Penalty Clause

The RO is bound to make delivery of proposed solution within the delivery timelines mentioned in "Clause 03" of this RFP. In case of failure then the procuring agency may cancel the contract and forfeit its performance security. The RO is bound to ensure the proposed solution is in line with the technical specifications mentioned in the bidding document, while technical inspection will be carried out by the technical team, on the premises of the procuring agency.

15. Redressed of Grievances by the Procuring Agency

- 15.1. ETL has constituted a committee comprising of odd number of persons, with proper powers and authorizations, to address the complaints of bidder that may occur prior to the entry into force of the procurement contract.
- 15.2. Any Redressal of grievances and settlement of disputes shall be done according to Section 48 of Public Procurement Rules, 2004.
- 15.3. Mere fact of lodging of a complaint shall not warrant suspension of the procurement process

16. Corrupt or Fraudulent Practices

- 16.1. Definition of the terms set forth below for the purposes of this bidding document, shall be according to Public Procurement Rules, 2004.
- 16.2. PPRA 2004 Rule 2(1) f: "corrupt and fraudulent practices" in respect of procurement process, shall be either one or any combination of the practices including:
 - 16.2.1. "**Coercive Practices**" which means any impairing or harming or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence the actions of a party to achieve a wrongful gain or to cause a wrongful loss to another party;
 - 16.2.2. "**Collusive Practices**" which means any arrangement between two or more parties to the procurement process designed to stifle open competition for any wrongful gain, and to establish prices at artificial, non-competitive levels;
 - 16.2.3. "**Corrupt Practices**" which means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the acts of another party for wrongful gain;
 - 16.2.4. "**Fraudulent Practices**" which means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; and
 - 16.2.5. "**Obstructive Practices**" which means harming or threatening to harm, directly or indirectly, persons to influence their participation in a procurement process, or affect the execution of a contract.

17. Implementation & Payment Schedule

Payment plan with percentages include govt or other taxes as per government rules at the time of payment. All payments shall be made through cross cheque in Pak Rupees.

| Ser | Milestone | Period | Payment |
|-----|-------------------------------------|--|---------|
| 1. | Supply of all Hardware and Software | Within 4x weeks from the date of signing of contract/issuance of purchase order | 60% |
| 2. | Installation, Configuration | Within 2x week after delivery | 20% |



| | | | |
|----|-------------------------|--|-----|
| | Commissioning, Training | | |
| 3. | Final Acceptance | 4x Weeks after delivery | 10% |
| 4. | After sales support | Warranty and perpetual license for software components of each item should be offered by vendor for 1x year | 10% |

Transactions will be structured in instalments. **Multiple purchase orders** may be issued **as per Annexure-I**.

18. Procurement terms and Discretionary Rights

- 18.1. **Quantity Flexibility:** ETL reserves the right to increase or decrease the quantity of items to be procured at its sole discretion.
- 18.2. **Right to Cancellation:** ETL may cancel any or all items at any time without prior notice.
- 18.3. **Budget-Based Procurement:** Purchase Orders (POs) will be issued subject to the availability of budget.
- 18.4. The date for opening the financial bids is subject to change depending on the completion of the technical evaluation and the resolution of any related grievances or clarifications.
- 18.5. **Item Pricing Option:** The Supplier may offer items either on a cost-per-item basis or as standalone units. ETL reserves the right to evaluate and select items individually or collectively, based on cost-effectiveness, technical suitability and project requirements.



Annexure-I

19. Technical Specification (Minimum)

| Ser | Items | Specification | Qty |
|-----|------------|--|-----|
| 1. | Laptop | <p>13th Generation Core i7 (12-MB SmartCache): 3.6 GHz Turbo Boost 4.8 GHz (10 cores 12 threads)</p> <p>Operating System: Windows 11 English</p> <p>Storage: 1x 16GB SO-DIMM, dual-channel capable, 512GB SSD,</p> <p>Ports & Slots: 1x USB 3.2 Gen 1, 1x USB 3.2 Gen 1 (Always On), 1x USB-C 3.2 Gen 1 (support data transfer, Power Delivery 3.0 and DisplayPort 1.4) 1x Thunderbolt 4 / USB 4 40Gbps (support data transfer, Power Delivery 3.0, and DisplayPort 1.4), 1x HDMI 2.0, HD 720p with Privacy Shutter I/O Ports 1x USB 2.0, 2x USB 3.1 Gen 1 (1x Always On), 1x USB-C 3.1 Gen 1 (power delivery and DisplayPort), HDMI, ethernet (RJ-45), audio combo jack, security keyhole, SD Card Reader Wedge-Shaped Lock Slot Power Headphone & Microphone Audio Jack, Trusted Platform Module (TPM 2.0),</p> <p>Graphics Cards: Integrated Intel Iris Xe Graphics Functions as UHD Graphics,</p> <p>Wi-Fi 6, WLAN + Bluetooth Docking Compatible with USB 3.0 & USB-C docking solutions <i>or equivalent</i></p> <p>Software:</p> <ul style="list-style-type: none"> • Pre-installed OEM Licensed Windows 11 Pro (Verifiable from BIOS) • Licensed Microsoft Office Professional 2024 (Verifiable from Microsoft) • Licensed Real-time AV with online payment protection & performance optimization <p>(Equivalent and Above)</p> | 20 |
| 2. | Desktop PC | <p>Tower Desktop with normal Processor 13th Gen Intel® Core™ i7-13700 processor (16-Core, 24MB Cache, 2.1GHz to 5.1GHz)</p> <p>Operating System: (Dell Technologies recommends Windows 11 Pro for business), Windows 11 Home, Windows 11 Pro, Ubuntu® Linux® 22.04 LTS</p> <p>Video Card</p> <p>Memory 8GB, 8Gx8, DDR4, 3200MHz Storage, 256GB M.2 PCIe NVMe Solid State Drive + 1TB 7200 rpm 3.5" SATA Hard Drive</p> <p>Ports Front: 2 USB 3.2 Gen 1 ports, 2 USB 2.0 ports 1 Headset (headphone and microphone combo) port Slots, 1 PCIe x16 slot, 2 PCIe x1 slots 1 M.2 2230 slot for WiFi and Bluetooth combo card, 1 M.2 2230/2280 slot for solid-state drive, 2 SATA 3.0 slots for 3.5-inch hard drive, 2.5-inch hard drive/solid-state drive, 1 SATA 3.0 slot for optical drive 1 Wedge-shaped lock slot, 1 Padlock ring,</p> <p>Accessories: Mouse, Keyboard</p> <p>Wireless: Intel® Wi-Fi 6 2x2 (Gig+) and Bluetooth 5.2</p> <p>Power: 460 W Bronze internal Power Supply Unit (PSU)</p> <p>Software:</p> <ul style="list-style-type: none"> • Pre-installed OEM Licensed Windows 11 Pro (Verifiable from BIOS) | 10 |



| | | | |
|----|---------------------------------|---|-----------|
| | | <ul style="list-style-type: none"> Licensed Microsoft Office Professional 2024 (Verifiable from Microsoft) Licensed Real-time AV with online payment protection & performance optimization <p>(Equivalent and Above)</p> | |
| 3. | Heavy Duty Printer | <p><u>USB, Wireless, Network Ready Black & White Laser All-In-One Printer:</u></p> <ul style="list-style-type: none"> Auto Document Feeder (ADF): 50 sheets Black & White Print Speed: 31 to 40 PPM Certification & Standards RoHS Directive 2011/65/EU Copy Reduction or Enlargement - 25 to 400% Copy Resolution - Up to 600 x 600 dpi Copy Speed (cpm) - Up to 30 cpm (copies per minute) Depth in Inches - 16.6 Document Feeder Capacity - 50 sheets Fax Memory (MB, pages) - 5MB First Page Out (seconds) - As fast as 6.5 seconds Height in Inches - 17.7 Maximum Printer Monthly Duty Cycle - 50,000 pages Number of Users - 10+ Users Output Type - Black & White Paper Input Capacity - 300 sheets Printer Connectivity - USB, Wireless, Network Ready Printer Display (type or size) - Digital display Printer Fax Speed - 33.6 Kbps Printer Function - All-In-One Printer Language - PostScript 3, XPS, PCL 6, PCL 5e, PDF Printer Max Paper Size - 8.5" x 14" Legal Printer Memory - 1.5 GB Printer Output Capacity - 150 sheets Printer Processor - 1 GHz Printer Type - Laser Recommended Monthly Print Volume - 4000 pages Scan Resolution (maximum) - Up to 600 x 600 dpi Supported Paper Sizes - Custom Sizes: 5.6 x 5.8 in. to 8.5 x 14 in. <p>(Equivalent and Above)</p> | 03 |
| 4. | Heavy Duty Color Printer | <p><u>USB, Wireless, Network Ready Color, Black & White Laser All-In-One Printer:</u></p> <ul style="list-style-type: none"> Auto Document Feeder (ADF) - 50 sheets Color Print Speed 31 to 40 PPM Certification & Standards RoHS Directive 2011/65/EU Copy Reduction or Enlargement - 25 to 400% Copy Resolution - Up to 600 x 600 dpi Copy Speed (cpm) - Up to 30 cpm (copies per minute) Depth in Inches - 16.6 Document Feeder Capacity - 50 sheets Fax Memory (MB, pages) - 5MB First Page Out (seconds) - As fast as 6.5 seconds Height in Inches - 17.7 Maximum Printer Monthly Duty Cycle - 50,000 pages Number of Users - 10+ Users Output Type - Color, Black & White Paper Input Capacity - 300 sheets | 02 |



| | | | |
|----|----------------------------------|---|-----------|
| | | <ul style="list-style-type: none"> • Printer Connectivity - USB, Wireless, Network Ready • Printer Display (type or size) - Digital display • Printer Fax Speed - 33.6 Kbps • Printer Function - All-In-One • Printer Language - PostScript 3, XPS, PCL 6, PCL 5e, PDF • Printer Max Paper Size - 8.5" x 14" Legal • Printer Memory - 1.5 GB • Printer Output Capacity - 150 sheets • Printer Processor - 1 GHz • Printer Type - Laser • Recommended Monthly Print Volume - 4000 pages • Scan Resolution (maximum) - Up to 600 x 600 dpi • Supported Paper Sizes - Custom Sizes: 5.6 x 5.8 in. to 8.5 x 14 in. <p>(Equivalent and Above)</p> | |
| 5. | Heavy Duty Scanner | <ul style="list-style-type: none"> • Scan technology: Charged Coupled Device (CCD) technologies & Contact image sensors (CIS), preferably CCD • Sheetfed, automatic document feeder (ADF), two-sided scanning with ADF • Scan Resolution: Hardware: Up to 600 x 600 dpi; Optical: Up to 600 dpi • Scan Speed ADF (A4/A3/Letter): Up to 60 ppm/120 ipm (b&w, grayscale, color 200 ppi; b&w, grayscale 300 ppi), Up to 45 ppm/90 ipm (color 300 ppi) • Scan Media Types: Paper (plain, inkjet, photo), envelopes, labels, cards (business, insurance, embossed, plastic ID, credit) [flatbed only] • Maximum Scan Size (ADF): 8.5 x 34 in (216 x 864 mm) • Duty Cycle: Up to 5,000 pages • Standard Connectivity: 10/100/1000 Ethernet, 1 Hi-Speed USB Host (rear), 1 Hi-Speed USB Host (walk-up), 1 Hardware Integration Pocket (HIP) Hi-Speed USB • File formats PDF (formatted text and graphics, normal with images, searchable image over text, MRC, PDF/A, password protection, encryption); TIFF (single page, multi-page, compressed); JPG, BMP, PNG, DOC, RTF, TXT, WPD, XLS, HTM, OPF, UNICODE TXT, XML, XPS Control panel Sleep button, 4-line LCD with 8 buttons: Tools, Cancel, Display Controls (Up, Down, OK, Back), Simplex Scan, Duplex Scan Connectivity Hi-Speed USB 2.0 <p>(Equivalent and Above)</p> | 02 |
| 6. | Wireless Access Point | <ul style="list-style-type: none"> • Wi-Fi 6 Certified • supporting 802.11ax on both 2.4 GHz and 5 GHz bands • Multigigabit Ethernet Support • Up to 4 Wi Fi Radios: 5 GHz flexible radio (Single 8x8 or dual 4x4), 2.4 GHz (4x4), • Internal & External Antenna <p>(Equivalent and Above)</p> | 05 |
| 7. | Server Infrastructure (A) | <p><u>2U Server, 2 x Intel Xeon Silver 4310 2.1G 12C/24T, 18MB Processor Capable of Dual Processor,</u></p> <ul style="list-style-type: none"> • (4x 32GB) 128GB Dual Ranked DDR4-3200MT Memory • 4x 2TB NL 6GBPS NL-SAS Hotplugable 7.2K RPM • RAID CONTROLLER PERC H755 8GB NV Cache • 3.5" 8HDD LFF Cassis • Quad Port Giga Ethernet Ports | 06 |



| | | | |
|----|---------------------------|---|----|
| | | <ul style="list-style-type: none">• Sliding Rail Kit• STANDARD FRONT BAZEL Cable Management Arm• Redundant Power Supply (1+1) 800W• Security<ul style="list-style-type: none">○ TPM 1.2/2.0 optional○ Cryptographically signed firmware○ Secure Boot○ System Lockdown○ Secure erase• Operating System Support<ul style="list-style-type: none">○ Canonical® Ubuntu® LTS○ Citrix® XenServer®○ Microsoft Windows Server® with Hyper-V○ Red Hat® Enterprise Linux○ SUSE® Linux Enterprise Server○ VMware® ESXi• 3x years Channel Warranty <p>Software:</p> <ul style="list-style-type: none">• Pre-installed OEM Licensed Windows Server 2025, 16 Core, DF recovery, Add License• AV security Windows Server <p>(Equivalent and Above)</p> | |
| 8. | Server Infrastructure (B) | <p>FRONT STORAGE: Chassis with up to 8x2.5" Drives</p> <ul style="list-style-type: none">• Trusted Platform Module: Trusted Platform Module 2.0 V3• Chassis Configuration: 2.5" Chassis with up to 8 SAS/SATA Drives• Processor: Intel® Xeon® Gold 5317 3G, 12C/24T, 11.2GT/s, 18M Cache, Turbo, HT (150W) DDR4-2933• Additional Processor: Intel® Xeon® Gold 5317 3G, 12C/24T, 11.2GT/s, 18M Cache, Turbo, HT (150W) DDR4-2933 <p>OR</p> <ul style="list-style-type: none">• Up to two 3rd Generation Intel Xeon Scalable processors, with up to 40 cores per processor• Memory Configuration Type: Performance Optimized• Memory DIMM Type and Speed: 3200MT/s RDIMMs• Memory Capacity: (8) 16GB RDIMM, 3200MT/s, Dual Rank• RAID Configuration: C7, Unconfigured RAID for HDDs or SSDs (Mixed Drive Types Allowed)• Hard Drives: 960GB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD• Advanced System Configurations: UEFI BIOS Boot Mode with GPT Partition• Fans: Very High Performance Fan• Power Supply: Dual, Hot-Plug, Power Supply Fault Tolerant Redundant (1+1), 1400W, Mixed Mode• Power Cords: (2) NEMA 5-15P to C13 Wall Plug, 125 Volt, 15 AMP, 10 Feet (3m), Power Cord, North America• PCIe Riser: Riser Config 0, 6x16 + 2x8 slots• Motherboard: R750XA Motherboard DAO with Broadcom 5720 Dual Port 1Gb On-Board LOM• OCP 3.0 Network Adapters: Intel X710-T4L Quad Port 10GbE Base-T, OCP 3.0 Version 2 | 02 |



| | | | |
|-----|----------------|---|--|
| | | <ul style="list-style-type: none"> GPU/FPGA/Acceleration Cards: (Mentioned Separate) GPU Support: Up to four single-width 150 W or four double-width 300 W in the front and two single-width 75 W at the rear GPU/FPGA/Acceleration Cables: GPU Factory Installed cable kit for DW GPU W/CPU CONN + 2 GPU Blanks (2 GPUs) Operating System: Windows/ Linux Embedded Systems Management (Multi): iDRAC9, Express 15G Password: iDRAC, Factory Generated Password iDRAC Service Module Group Manager: iDRAC Group Manager, Disabled Rack Rails: Rack Rails or Cable Management Arm System Documentation: Systems Documentation, OpenManage DVD Kit <p>Software:</p> <ul style="list-style-type: none"> Pre-installed OEM Licensed Windows Server 2025, 16 Core, DF recovery, Add License AV security Windows Server <p>(Equivalent and Above)</p> | |
| 9. | GPUs | <p><u>Addl Graphic Card (for server Infrastructure B):</u></p> <ul style="list-style-type: none"> NVIDIA A100 PCIe 80 GB Memory Size : 80 GB Tensor Cores : 432 4x GPUs <p>OR</p> <ul style="list-style-type: none"> NVIDIA A40 PCIe 48 GB Memory Size : 48 GB Tensor Cores : 336 8x GPUs | <p>04 GPUS</p> <p>-OR-</p> <p>08 GPUS</p> |
| 10. | LED 85" | <p><u>Size: 85"</u></p> <ul style="list-style-type: none"> Panel Type: Full HD Resolution: 1920*1080 Power Consumption: 70W Viewing Angle: 178°/178° Refresh Rate: 60Hz Contrast Ratio: 4000:1 Colors: 16.7 M(8bit) HDMI: 2 Component IN: Yes, A/V IN: Yes, A/V Out: Yes SPDIF Out: Yes USB: 1 <p>(Equivalent and Above)</p> | 01 |
| 11. | LED 65" | <p><u>Size: 60"</u></p> <ul style="list-style-type: none"> Panel Type: Full HD Resolution: 1920*1080 Power Consumption: 70W Viewing Angle: 178°/178° Refresh Rate: 60Hz Contrast Ratio: 4000:1 Colors: 16.7 M(8bit) HDMI: 2 Component IN: Yes, A/V IN: Yes, A/V Out: Yes SPDIF Out: Yes USB: 1 | 06 |



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|-----|---------|--|----|
| | | (Equivalent and Above) | |
| 12. | LED 55" | <p>General Features</p> <ul style="list-style-type: none"> • Size: 55" • Chassis: TC8000 Platform • CPU: Cortex A55*5 1.5GHz (normal) 1.9GHz (DVFS) • GPU: Mali G57 MC1 800MHz • OS: Android S • RAM/ROM: 2GBDDR4 +16GB Flash • UI Style: Google TV UI • Power Consumption: 135W • Certification Dolby Audio, Dolby Vision, Dolby Atmos, DTS-HD CTS (Google Official Certification), Netflix • Wi-fi: Yes • Voice Control Handsfree Voice Control <p>Display</p> <ul style="list-style-type: none"> • Display Type DLED • Display Resolution 3840x2160 • UHD Support Yes • HDR HDR10+ / Dolby Vision • HDR Support Yes • High Color Gamut 93% DCI-P3 (typ.) • Brightness (cd/m2) 320nit (typ.) • Contrast Ratio 5000:1 • Colors 1.07G (8 bit + FRC) • Refresh Rate 60Hz/120Hz DLG • Dynamic Contrast Yes • Backlight Adjustable Yes (0~100) <p>Audio</p> <ul style="list-style-type: none"> • Speaker Type Integrated Speakers (Bottom Side) • Audio Power Output (THD=7% 2x10W • Dolby Atmos Yes • DTS Yes <p>Connectivity</p> <ul style="list-style-type: none"> • Internet Link 2.4GHz/5GHz dual-band Wi-Fi 802.11 b/g/a/n/ac 2T2R • HDMI 3 • HDMI&HDCP Version HDMI1.4 & HDMI2.0&HDMI2.1, HDCP1.4 & HDCP2.2 • Cable Port Yes • USB USB 3.0 • A/V IN Yes <p>Warranty : TV Parts 2 Years (Panel, Parts, Or home service, except breakage of panel and electric spark and burnt)</p> <p>(Equivalent and Above)</p> | 03 |
| 13. | LED 50" | <p>General Features</p> <ul style="list-style-type: none"> • Size 50" • Chassis RT2875 • CPU A75*2 + A55*2 • OS GTV • RAM/ROM 2GB+16GB • Power Consumption 110W • Wi-fi Yes • Voice Control Yes | 03 |



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|-----|--------------------------------|--|-----------|
| | | Display <ul style="list-style-type: none"> • Display Type4K UHD • Display Resolution3840x2160 • HDRHDR10 • High Color Gamut72% NTSC (typ) • Brightness (cd/m2)260nit(typ) • Colors1.07G 8bit+FRC • Refresh Rate60HZ Audio <ul style="list-style-type: none"> • Speaker Type2.0CH • Audio Power Output (THD=7%10W Connectivity <ul style="list-style-type: none"> • HDMIYes Warranty <ul style="list-style-type: none"> • TV Parts2 Years (Panel, Parts, Or home service, except breakage of panel and electric spark and burnt) (Equivalent and Above) | |
| 14. | LED 43" | General Features <ul style="list-style-type: none"> • Size43" • ChassisRT2875 • CPUA75*2 + A55*2 • OSTV • RAM/ROM2GB+16GB • Power Consumption90W • Wi-fiYes • Voice ControlYes Display <ul style="list-style-type: none"> • Display Type4K UHD • Display Resolution3840x2160 • HDRHDR10 • High Color Gamut72% NTSC (typ) • Brightness (cd/m2)260nit(typ) • Colors1.07G 8bit+FRC • Refresh Rate60HZ Audio <ul style="list-style-type: none"> • Speaker Type2.0CH • Audio Power Output (THD=7%10W Connectivity <ul style="list-style-type: none"> • HDMIYes Warranty <ul style="list-style-type: none"> • TV Parts2 Years (Panel, Parts, Or home service, except breakage of panel and electric spark and burnt) (Equivalent and Above) | 05 |
| 15. | Video Conference System | CAMERA <ul style="list-style-type: none"> • Ultra HD (4K 16:9, 2160p), Full HD (1080p), HD (720p), 120° FOV • 5x zoom/EPTZ • Presenter mode AUDIO <ul style="list-style-type: none"> • Acoustic Clarity technology provides full-duplex conversations, • acoustic echo cancellation and background noise suppression • Noise Block AI technology • Acoustic Fence technology | 01 |



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| | | <ul style="list-style-type: none"> • Mute/unmute controls • Stereo microphones: • 6-element beam forming microphone array • - Up to 15 ft pickup range • - 120 Hz–16 kHz frequency response <p>SPEAKERS</p> <ul style="list-style-type: none"> • Stereo speakers with 100 HZ to 20 HZ frequency response • Output = 90 dB @ 0.5m <p>INTERFACES</p> <ul style="list-style-type: none"> • 1x USB 3.0 Type-C port with 2.0 compatibility) • Power connector • Optional external microphone • 3.5 mm stereo Audio In • Security lock • 802.11ac Wi-Fi wireless networking for manageability; IEEE 802.11a/b/g/n compatible • Bluetooth® 4.2 <p>POWER REQUIREMENTS</p> <ul style="list-style-type: none"> • 12VDC/5A @ 100~240VAC, 50/60 Hz <p>SYSTEM REQUIREMENTS</p> <ul style="list-style-type: none"> • Supported operating systems • Windows 7, 8.1, 10 • MacOS 10.12, 10.13, 10.14 • Support for standard audio and video device drivers <ul style="list-style-type: none"> ○ UAC 1.0 Audio ○ UVC 1.1/1.5 Video ○ HID 1.11 <p>DEVICE DRIVER SUPPORT</p> <ul style="list-style-type: none"> • USB 2.0/3.0/3.1 • UVC/UAC Plug and Play Compatible <p>COMPATIBILITY</p> <ul style="list-style-type: none"> • Compatible with any application that supports standard USB audio and video drivers • Certified for Zoom Rooms and Microsoft Teams <p>MANAGEABILITY (VIA WI-FI)</p> <ul style="list-style-type: none"> • App (running on Win/Mac PC connected to device) <p>Resource Manager</p> <ul style="list-style-type: none"> • Device Management Service • cloud management • Desktop App (local management via Windows/Mac) <p>SECURITY</p> <ul style="list-style-type: none"> • 802.1x support, Certification management • Must have SRTP Protocol Support, Authentication • TLS v1.3 support, Custom Certificate support <p><i>(Equivalent and Above with all accessories)</i></p> | |
| 16. | Smart Board | <p><u>SMART Board Interactive board</u></p> <p><u>Size:</u> 65 1/4" W × 49 1/2" H × 5 1/8" D (165.7 cm × 125.7 cm × 13 cm)</p> <p><u>Active Screen Area (maximum interactive, projected image)</u></p> <p>61 5/8" W × 46 1/8" H (156.5 cm × 117.2 cm) 77" diagonal (195.6 cm)</p> <p><u>Weight:</u> 30 lb. (13.6 kg)</p> <p><u>Software:</u> SMART Notebook software included</p> | 01 |



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| | | <p>Warranty: Two-year limited equipment warranty on the projector, control module and extended connection panel. The projector lamp 500 hour/90 day warranty. The interactive whiteboard has a five-year limited equipment warranty upon registration.</p> <p>Mounting Template: projector and SMART Board 680 interactive whiteboard</p> <p>Cables: 6' (1.8 m) HD-DB15 male-to-male video, 9' 10" (3 m) DVI-I to HD-DB15 male video, 6' (1.8 m) 3.5 mm stereo audio, and 6' (1.8 m) and 16' (5.0 m) USB cables provided</p> <p>Pen Tray</p> <p>Pens and Eraser</p> <p>Resolution 4000 × 4000.</p> <p>Screen Surface</p> <p>Digitizing Technology</p> <p>Frame Finish Two-tone gray</p> <p>Wall-Mount Bracket 32" (81.3 cm) wide with five screws and drywall anchors to support a wall-mounted interactive whiteboard.</p> <p>On-Screen Interface Includes interactive tools for controlling the projector, making notes over projected images and saving Scratch Pad pages to a USB storage device</p> <p>Projector Head Includes a focus ring and a side-mounted access door for changing the lamp</p> <p>Display Type True XGA (1024 × 768) projector</p> <p>Display Technology Projection engine does not require cleaning or filter replacement. The projection engine uses DLP technology, Instruments and features, Vikuiti Super Close Projection technology</p> <p>Brightness 1500 ANSI lumens, typical</p> <p>Lamp Life 2000 hours (Standard mode), 3000 hours (Economy mode)</p> <p>Aspect Ratio 4:3 native, with support for 16:9</p> <p>Contrast Ratio 1000:1 (FO/FO) (minimum)</p> <p>Video Compatibility NTSC, PAL, SECAM, Composite, S-video, Component (YPbPr/YCbCr), SDTV (480i, 576i), EDTV (480P, 576P), HDTV (720P, 1080i), VGA, SVGA, SGA, SXGA, MAC (UXGA)</p> <p>Synchronization Auto image synchronization (auto tracking, frequency, position adjustment, source detect and phase detect)</p> <p>Scanning Rate H-sync 15 kHz to 82 kHz, V-sync 50 Hz to 85 Hz</p> <p>Color True color (16.7 million 24-bit colors)</p> <p>Audio System Integrated stereo amplifier and speakers (20 watts per channel)</p> <p>Mounting Hardware: Hardware supplied for mounting the projector and the extended connection panel to framed and concrete walls</p> <p>Input/Output Connections : DVI-I jack - analog or digital projector video input HD-DB15 jack - RGB video from computer, linked to extended connection panel Two 3.5 mm stereo jacks - audio inputs, one linked to extended connection panel 3.5 mm stereo jack - audio output Mini DIN 4-pin connector - S-video input, linked to extended connection panel RCA jack - composite video input, linked to extended connection panel Two RCA jacks - stereo audio input, linked to extended connection panel Three RCA jacks - component video input Two USB A receptacles - one for USB storage device, linked to extended connection panel - one for USB link to interactive whiteboard USB B receptacle - computer data connection, linked to extended connection panel DB9F - serial (RS-232) computer or external</p> | |
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|---------------------------|---|---|--------------------------|---------------------------------------|----------------------|------------|-----------------|---|-----------------|--|----------------|-------------------|------------------|-----------|--------------|-------|--------------|--|----------------|---|------|---|-------------------|--|----------|---|----------------|--|--------------|--|--|--|------|---------------------------|---|--|----------------|------|--------|-----------------|-------------------------|---|---------------------|---|--------------------------|--------------------------|----------------------------|----|
| | | <p>control system connection Power reset connector - linked to extended connection panel Reset button AC power receptacle - accepts standard IEC power cable or adapter</p> <p>Projector Noise: 34 dBA (Standard mode) / 32 dBA (Economy mode)</p> <p>Power Requirements: 100V to 240V AC 50/60 Hz, 450 W</p> <p>Power Switch Master power control switch</p> <p>Power Cable Three 14' 9" (4.5 m) power cables provided</p> <p>External Control RS-232 input configured to accept control codes from computer or room control system</p> <p>Power Consumption 450 W maximum</p> <p>Remote Control Provides an alternate method of controlling the 680i system's major features</p> <p>or Equivalent</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17. | Projector | <table><tr><td>1.Product classification</td><td>Reflective LCD panel (LCOS), 3 panels</td></tr><tr><td>Image device, number</td><td>Detachable</td></tr><tr><td>Projection lens</td><td>RS-SL01ST/RS-SL02LZ/RS-SL03WF/RS-SL04UL/RS-SL05WZ/RS-SL06UW</td></tr><tr><td>Optional Lenses</td><td></td></tr><tr><td>2.Image device</td><td>1920×1200 (WUXGA)</td></tr><tr><td>Number of pixels</td><td>0.71 type</td></tr><tr><td>Display size</td><td>16:10</td></tr><tr><td>Aspect ratio</td><td></td></tr><tr><td>3.Light source</td><td>Super high pressure lamp for projectors</td></tr><tr><td>Type</td><td>343/300/262W (Full power/Power saver1/Power saver2)</td></tr><tr><td>Power consumption</td><td></td></tr><tr><td>4.Images</td><td>Dichroic mirror and PBS color separation-combination system</td></tr><tr><td>Optical system</td><td></td></tr><tr><td rowspan="4">Light output</td><td>5800/5200/4500 lm (Full power/Power saver1/Power saver2)</td></tr><tr><td>* When the image mode is set to presentation</td></tr><tr><td>* When standard zoom lens RS-SL01ST is used for the projection</td></tr><tr><td>Lens</td></tr><tr><td rowspan="2">Marginal lamination ratio</td><td>* The luminance values for modes other than Full power are calculated 90%</td></tr><tr><td>* When standard zoom lens RS-SL01ST is used for the projection</td></tr><tr><td rowspan="2">Contrast ratio</td><td>Lens</td></tr><tr><td>2000:1</td></tr><tr><td rowspan="2">Electronic zoom</td><td>* All white : all black</td></tr><tr><td>* When standard zoom lens RS-SL01ST is used for the projection Lens</td></tr><tr><td rowspan="4">Keystone correction</td><td>**When the Lamp control is set to "On".</td></tr><tr><td>Maximum 12x (for length)</td></tr><tr><td>Vertical direction ± 20°</td></tr><tr><td>Horizontal direction ± 20°</td></tr></table> | 1.Product classification | Reflective LCD panel (LCOS), 3 panels | Image device, number | Detachable | Projection lens | RS-SL01ST/RS-SL02LZ/RS-SL03WF/RS-SL04UL/RS-SL05WZ/RS-SL06UW | Optional Lenses | | 2.Image device | 1920×1200 (WUXGA) | Number of pixels | 0.71 type | Display size | 16:10 | Aspect ratio | | 3.Light source | Super high pressure lamp for projectors | Type | 343/300/262W (Full power/Power saver1/Power saver2) | Power consumption | | 4.Images | Dichroic mirror and PBS color separation-combination system | Optical system | | Light output | 5800/5200/4500 lm (Full power/Power saver1/Power saver2) | * When the image mode is set to presentation | * When standard zoom lens RS-SL01ST is used for the projection | Lens | Marginal lamination ratio | * The luminance values for modes other than Full power are calculated 90% | * When standard zoom lens RS-SL01ST is used for the projection | Contrast ratio | Lens | 2000:1 | Electronic zoom | * All white : all black | * When standard zoom lens RS-SL01ST is used for the projection Lens | Keystone correction | **When the Lamp control is set to "On". | Maximum 12x (for length) | Vertical direction ± 20° | Horizontal direction ± 20° | 01 |
| 1.Product classification | Reflective LCD panel (LCOS), 3 panels | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Image device, number | Detachable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Projection lens | RS-SL01ST/RS-SL02LZ/RS-SL03WF/RS-SL04UL/RS-SL05WZ/RS-SL06UW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Optional Lenses | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.Image device | 1920×1200 (WUXGA) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Number of pixels | 0.71 type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Display size | 16:10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aspect ratio | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.Light source | Super high pressure lamp for projectors | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type | 343/300/262W (Full power/Power saver1/Power saver2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power consumption | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.Images | Dichroic mirror and PBS color separation-combination system | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Optical system | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Light output | 5800/5200/4500 lm (Full power/Power saver1/Power saver2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | * When the image mode is set to presentation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | * When standard zoom lens RS-SL01ST is used for the projection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Lens | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Marginal lamination ratio | * The luminance values for modes other than Full power are calculated 90% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | * When standard zoom lens RS-SL01ST is used for the projection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contrast ratio | Lens | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2000:1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electronic zoom | * All white : all black | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | * When standard zoom lens RS-SL01ST is used for the projection Lens | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Keystone correction | **When the Lamp control is set to "On". | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Maximum 12x (for length) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Vertical direction ± 20° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Horizontal direction ± 20° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18. | 24 Port Gigabit L2 Managed | <ul style="list-style-type: none">Chassis material: MetalHeight [mm]: 43.6 mmDepth [mm]: 220.0 mm | 08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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| | Switch with 4x SFP (SR) | <ul style="list-style-type: none">• Wide [mm]: 442.0 mm• Chassis height [U]: 1• Weight with packaging [kg(lb)]: 3.44 kg (7.58 lb)• Weight without packaging [kg(lb)]: 2.32 kg (5.11 lb)• Maximum power consumption [W]: 35.04• Typical power consumption [W]: 27.27• Heat dissipation mode: Air cooling for heat dissipation, intelligent fan speed adjustment• Maximum heat dissipation [BTU/hour]: 119.56• Typical heat dissipation [BTU/hour]: 93.05• Power supply mode: AC built-in• Input voltage range [V]: AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz• Rated input voltage [V]: AC input: 100–240 V AC; 50/60 Hz• Maximum input current [A]: 0.8 A• Memory: 2 GB• Flash memory: Physical space: 1 GB• Redundant power supply: Not supported• Types of fans: Built-in• Noise at normal temperature (acoustic power) [dB(A)]: 47• Noise at normal temperature (acoustic pressure) [dB(A)] : 35• Airflow direction: Air intake from left and front, air exhaustion from right• Storage temperature [°C(°F)]: –40°C to +70°C (–40°F to +158°F)• Long-term operating temperature [°C(°F)]: -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)• Restriction on the operating temperature variation rate [°C(°F)]: When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).• Long-term operating relative humidity [RH]: 5% RH to 95% RH (non-condensing)• Storage altitude [m(ft.)]: 0-5000 m (0-16404 ft.)• Long-term operating altitude [m(ft.)]: 0–5000 m (0–16404 ft.)• MTBF [year]: 70.75• MTTR [hour]: 2• Availability: > 0.99999• Maximum number of physical ports on the entire device: 28• Maximum number of 10GE ports: 4• Maximum number of GE ports: 28• Maximum number of FE ports: 24• USB: Not supported• Console port: RJ45• Service port surge protection [kV]: Common mode: ±7 kV• Power supply surge protection: Differential mode: ±6 kV; common mode: ±6 kV <p>(Equivalent and Above)</p> | |
| 19. | 24 Port Gigabit L3 Access Switch with 24 SFP (SR) | <ul style="list-style-type: none">• Chassis material: Metal• Height [mm]: 43.6 mm• Depth [mm]: 220.0 mm• Wide [mm]: 442.0 mm• Chassis height [U]: 1 | 01 |



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| | | <ul style="list-style-type: none">• Weight with packaging [kg(lb)]: 3.44 kg (7.58 lb)• Weight without packaging [kg(lb)]: 2.32 kg (5.11 lb)• Maximum power consumption [W]: 35.04• Typical power consumption [W]: 27.27• Heat dissipation mode: Air cooling for heat dissipation, intelligent fan speed adjustment• Maximum heat dissipation [BTU/hour]: 119.56• Typical heat dissipation [BTU/hour]: 93.05• Power supply mode: AC built-in• Input voltage range [V]: AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz• Rated input voltage [V]: AC input: 100–240 V AC; 50/60 Hz• Maximum input current [A]: 0.8 A• Memory: 2 GB• Flash memory: Physical space: 1 GB• Types of fans: Built-in• Noise at normal temperature (acoustic power) [dB(A)]: 47• Noise at normal temperature (acoustic pressure) [dB(A)]: 35• Airflow direction: Air intake from left and front, air exhaustion from right• Storage temperature [°C(°F)]: –40°C to +70°C (–40°F to +158°F)• Long-term operating temperature [°C(°F)]: -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)• Restriction on the operating temperature variation rate [°C(°F)]: When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). Devices cannot start when the temperature is lower than 0°C (32°F).• Long-term operating relative humidity [RH]: 5% RH to 95% RH, non-condensing• Storage altitude [m(ft.)]: 0-5000 m (0-16404 ft.)• Long-term operating altitude [m(ft.)]: 0–5000 m (0–16404 ft.)• MTBF [year]: 70.75• MTTR [hour]: 2• Availability: > 0.99999• Maximum number of physical ports on the entire device: 28• Maximum number of 10GE ports: 4• Maximum number of GE ports: 28• Maximum number of FE ports: 24• USB: Not supported• Console port: RJ45• Service port surge protection [kV]: Common mode: ±7 kV• Power supply surge protection: Differential mode: ±6 kV; common mode: ±6 kV <p>(Equivalent and Above)</p> | |
| 20. | Rack 42-U | <p><u>42U server rack with glass door 800x1000x2000mm (WxDxH)</u></p> <ul style="list-style-type: none">• Glass front door• Sheet steel rear door• Detachable side panels• Bottom and roof panel with ventilation holes• 4 x 19 inch profiles with height indications• Doors can be installed both left and right handed• Cable entry at top and bottom | 02 |



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|-----|----------------------------|---|-----------|
| | | <ul style="list-style-type: none"> • 19" profiles with vertical cable opening • Front door, rear door and side panels with locks • Supplied ready to use • Maximum load weight: 800kg • Front and Rear Mounting Channels • Side Panels removable • 2 * Fixed Trays(Shelves) • 1 * Sliding Tray(Rail Arm Shelf) • 4 * FANS Installed • Completely dismountable • All accessories <p>(Equivalent and Above)</p> | |
| 21. | 9U Rack | <ul style="list-style-type: none"> • Mounting dimensions: W=19", H=9U, D=447mm • External dimensions: W=600, H= 502, D= 600 [mm, +/-2] • Net/gross weight: 23-25 kg • Material <ul style="list-style-type: none"> ○ RACK mounting rails: cold-rolled steel SPCC 1,5mm ○ Top and bottom panel: cold-rolled steel SPCC 1,2mm RAL 9004 ○ Frame: cold-rolled steel SPCC 1,2mm RAL 9004 ○ Front door: 5mm toughened glass / SPCC 1,2mm RAL 9004 ○ Side panels: cold-rolled steel SPCC 1,2mm RAL 9004 ○ Rear plate: cold-rolled steel SPCC 1,2mm RAL 9004 • Static load: 70 kg • Use: inside, IP20 <ul style="list-style-type: none"> ○ Notes: Adjustable distance between front and rear RACK rails ○ Ventilation holes in the top panel (2 x 105x105mm - mounting dimensions) ○ Cable ducts in the top and bottom panel (340x56mm) ○ Lockable front door – repeatable code (2 keys included) ○ Possibility of reverse front door – opening left/right ○ Side panels - lock assembly possible - RAZB16 (additional equipment) ○ Possibility of disassembly rear panel (518x434mm) ○ Ready-to-assemble <p>(Equivalent and Above)</p> | 08 |
| 22. | PDU | <ul style="list-style-type: none"> • 8 Port • Free Connect 1U Rack Mount 8 Outlet Overload Protector Power Distribution Unit. <p>(Equivalent and Above)</p> | 09 |
| 23. | Fiber Patch Cord | <ul style="list-style-type: none"> • Type: LC to LC • Length: 3 Meters <p>(Equivalent and Above)</p> | 32 |
| 24. | Cabling Manager | <ul style="list-style-type: none"> • RoHS: Free of hazardous substances according to RoHS 2011/65/EU • Access type: Rear access fixed • Application: Enterprise Networks , LAN , LAN/FAN Applications , DAS (wireless) • Mounting Type: Rack 19" • Product type: Frames and Cable Managers <p>(Equivalent and Above)</p> | 08 |
| 25. | 24 Port Patch Panel | 24 Port patch panel with RJ45 K6 Jack Cat 6 white (I/O Loaded) | 08 |



| | | | |
|-----|-------------------------|---|-----------|
| 26. | CCTV IP System | 8 Full HD IP Cameras <ul style="list-style-type: none"> • 2MP – 1080p Water Proof – Day & Night Vision CCTV Cameras • 8 Channel Network Video Recorder • 1-TB Hard Disk Drive • 8 port POE switch • 540 Feet CAT6 wire with RJ45 connector • Waterproof Box for Connectors • Including Installation with 2 Year Warranty | 01 |
| 27. | Biometric Device | Fingerprint Capacity 5,000 Face Capacity 3,000 (1:N) / 5,000 (1:1) Card Capacity 10000 Transaction Capacity 100,000 Communication TCP/IP, USB Host / Client, Wiegand Output Hardware 1.2GHz Dual Core CPU, Memory 128MB RAM / 256MB Flash, SilkID Fingerprint Sensor, 4.3 Inches TFT-LCD Screen, Hi-Fi Voice & Indicator, Tamper Switch Alarm Standard Functions ID Card, Work Code / ADMS, DST / SMS / Bell Schedule, Attendance Status Auto-Switch, Record Query / Photo ID, Custom Wallpaper & Screen Saver Optional Functions HID / Mifare Card Reader, External Printer , Wi-Fi / 3G, Battery (2,000 mAH), POE Special Functions Multiple Biometric Verification Modes, Alive Finger Detection, Duplicate Face Detection Access Control Lock Relay Output, Alarm Output, Exit Button, Door Sensor, External Bell Output Interface Compatibility BioTime 7.0 Working Temperature 0 °C ~ 45 °C Dimensions 199.2 × 171.8 × 96.9 mm Warranty 1x Year (Extendable) | 04 |
| 28. | Vertical Monitor | <ul style="list-style-type: none"> • Size (Inch): 27.6 Size (cm) 70.1. • Resolution: 2560 x 2880 • Panel Type: IPS. • Aspect Ratio: 16:18 Pixel Pitch 0.18195 x 0.18195 mm. • Brightness (Min.): 240 cd/m² • Color Depth (Min Number of Colors): 1.07B. • Contrast Ratio (Typ.): 1000:1 • Viewing Angle: (CR≥10) 178°(R/L), 178°(U/D) (Equivalent and Above) | 10 |
| 29. | UPS | Output Output Power Capacity 7000 Watts / 10000 VA Max Configurable Power (Watts) 7000 Watts / 10000 VA Nominal Output Voltage 230V Output Voltage Note Configurable for 220 : 230 or 240 nominal output voltage Output Voltage Distortion Less than 3% | 02 |



| | | | | |
|--|--|---|--|-----|
| | | Output Frequency (sync to mains) Other Output Voltages Crest Factor Waveform Type Output Connections Input nominal Input Voltage Input Frequency Input Connections Input voltage range for main operations Input voltage adjustable range for mains operation Other Input Voltages Batteries & Runtime Battery Type Included Battery Modules Typical recharge time RBC Quantity Communications & Management Interface Port(s) Warranty Rack Mounted • (Equivalent and Above) | 50/60 Hz +/- 3 Hz user adjustable +/- 0.1 220, 240V 3 : 1 Double Conversion Online Sine wave IEC 320 C19 (Battery Backup) , IEC Jumpers (Battery Backup) , IEC 320 C13 (Battery Backup) 230V 50/60 Hz +/- 5 Hz (auto sensing) Hard Wire 3-wire 160 – 280 V 100 – 280 (half load)V 220 , 240 Maintenance-free sealed Lead-Acid battery with suspended electrolyte : leakproof 2 2.5 hour(s) 1 RJ-45 10/100 Base-T , RJ-45 Serial , Smart-Slot 1x Year (Extendable) Size Upto 4U | 0.1 |
|--|--|---|--|-----|



Annexure-II

20. Format for Financial Proposal

| Ser | Item | Specifications | Qty | Unit Price (Inclusive of all applicable taxes) | Tax Amount | Total Cost (Inclusive of all applicable taxes) |
|-----|------|----------------|-----|---|------------|--|
| | | | | | | |



Bid Ref No. _____

Date of the Opening of Technical Bid

Letter of Intent

Name of the Tender: { }

To: [The Project Director, Emerging Technologies Lab, Islamabad]

Dear Sir

Having examined the bidding documents, we offer to supply and deliver the goods under the above-named contract in full conformity with the said bidding documents and at the rates/unit prices described in the price schedule provided in the financial bid or such other sums as may be determined by the terms and conditions of the contract. The above amounts are by the Price Schedules attached herewith and are made part of this bid.

We undertake, if our financial bid is accepted, to deliver the goods following the delivery schedule specified in the schedule of requirements.

If our financial bid is accepted, we undertake to provide a performance security/guarantee in the form, in the amounts, and within the times specified in the bidding documents.

We agree to abide by this bid, for the bid validity period specified in the bidding documents and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.

Until the formal final contract is prepared and executed between us, this bid, together with your written acceptance of the bid and your notification of award, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any financial Bid you may receive. We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in Pakistan.

| |
|---|
| Dated this [insert: number] day of [insert: month], [insert: year]. |
|---|

Signed:

In the capacity of [insert: title or position]

Duly authorized to sign this bid for and on behalf of [insert: name of Bidder]



Name of the Firm

Bid Reference No: _____

Date of opening of Bid.

Documentary Evidence for Determining Eligibility of the Bidders & Evaluation of Bids. Bidders should only initial against those requirements that they are attaching with the form. Bidders are required to mention the exact page number of relevant documents placed in the Bid. Bidders are advised to attach all Supporting documents with this form in the order of the requirement as mentioned in column 1.

| Required Documentation | Signature of Bidder | Supporting Document's Name | Page Number in the Bid |
|---|---------------------|----------------------------|------------------------|
| SECP Registration | | | |
| NTN Certificate | | | |
| GST Certificate | | | |
| On Active Tax Payers List of FBR | | | |
| Incorporation Certificate | | | |
| Complete Company profile | | | |
| Operational Office in Islamabad | | | |
| Affidavit: bidder is not blacklisted by any federal, provincial public sector organization. | | | |
| MAL certificate (Verifiable) | | | |
| The bid validity period of 120 days | | | |
| Compliance with a schedule of requirements | | | |
| Submission of the required amount of bid security along with technical bid | | | |
| Compliance with technical specifications | | | |
| OEM warranty: 01-year & onsite support | | | |
| Technical brochures/data sheets | | | |
| Original bidding documents duly signed/stamped | | | |



MANUFACTURER'S AUTHORIZATION*

To: [Project Director, Emerging Technologies Lab, Islamabad]

WHEREAS [name of the Manufacturer] who are established and reputable Manufacturers of [name and/or description of the goods] having factories at [address of factory] do hereby authorize [name and address of Supplier/Agent] to submit a bid, and subsequently sign the Contract with you against the Invitation for Bids (IFB) No. _____ for the goods manufactured by us.

We hereby extend our full guarantee and warranty as demanded for the goods offered for supply by the above firm against this Invitation for Bids.

Signature: -----

Designation: -----

Official Stamp: -----

*This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to bind the manufacturer. It should be included by the bidder in its bid.

**Firm's Past Performance.**

Name of the Firm: _____

Bid Reference No: _____

Date of opening of Bid: _____

| Name of the Client/Institution | Purchase Order No. | Description Of Order | Value of Order | Date of Completion | Work Completion Certificate by |
|--------------------------------|--------------------|----------------------|----------------|--------------------|--------------------------------|
| | | | | | |
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Bidders may use additional Sheets if required.

All certificates are to be attached to this form.