

Technical specifications Original	Technical specifications amended
<p align="center">Technical Specifications for Bench Top Digital Slide Scanner System with analysis software and storage</p> <p>A. Scanner</p> <ol style="list-style-type: none"> The main scanner should be a non-microscope based complete WSI (Whole Slide Imaging) scanner with capability for both bright field image scanning technology and fluorescence image scanning technology. The scanner should be able to load a minimum of 50 slides or more in one go at a time. Should be able to handle all standard commercially available glass slides of at least 25-26 mm x 75-76 mm dimension. The scanner should be able to prioritize the slides as per user requirements. The scanner must be capable of end to end scan (i.e. from slide insertion in scanner to image display on screen) at a standard rate of 240 seconds or less at 40x magnification for brightfield microscopy (15mm x 15mm Tissue area) and fluorescence microscopy. Should have a resolution of 0.25 to 0.27 pixel/μm or better when scanning at 40x magnification for bright field. The system should have at least 4 MP monochrome CMOS/SCMOS camera or better. Scanner should automatically detect all tissues on a pathology slide. It should be fully automatic. Scanner should be capable to scan histopathology slides including hematoxylin and eosin (H&E) stain, special stains and immunohistochemistry slides. It should also be capable to scan cytology smears, frozen sections. The scanner should have continuous optical auto-focus and Z-stacking (minimum 30 Z Stacks with size 0.1 micron) so as to capture all undulated tissue. It should not have any digital stitching of the images. Should have automated image focus correction, shading correction, auto white balance and automatic machine 	<p align="center">Technical Specifications for Bench Top Digital Slide Scanner System with analysis software and storage</p> <p>A. Scanner (1 No with an additional back up.)</p> <ol style="list-style-type: none"> The main scanner should be a non-microscope based complete WSI (Whole Slide Imaging) scanner with capability for both bright field image scanning technology. The scanner should be able to load a minimum of 50 slides or more in one go at a time. Should be able to handle all standard commercially available glass slides of at least 25-26 mm x 75-76 mm dimension. The scanner should be able to prioritize the slides as per user requirements. The scanner must be capable of end to end scan (i.e. from slide insertion in scanner to image display on screen) at a standard rate of 150 seconds or less at 40x magnification for bright field microscopy of 15mm x 15mm tissue area and 60 secs or less at 20X. Should have a resolution of 0.25 to 0.27 pixel/μm or better when scanning at 40x magnification for bright field. The system should have at either CCD or CMOS/SCMOS camera or better. Scanner should automatically detect all tissues on a pathology slide. It should be fully automatic. Scanner should be capable to scan histopathology slides including hematoxylin and eosin (H&E) stain, special stains and immunohistochemistry slides. It should also be capable to scan cytology smears, frozen sections. The scanner should have continuous optical auto-focus and Z-stacking (minimum 15 Z Stacks with size 0.1 micron) so as to capture all undulated tissue. It should not have any digital stitching of the images. Should have automated image focus correction, shading correction, auto white balance and automatic machine

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calibration.

12. The scanner should have an automatic recognition of failure to scan. In case of slide scan failure it should still continue scanning the remaining slides without any need of manual intervention.

13. The system should be provided with one additional scanner of capacity 6 slides or more at a time with all other same specifications and the monitors as back up.

14. **Server (Storage):** The system should be supplied with server with at least 100 TB inbuilt storage at no additional cost. Rate of additional storage should be quoted separately. The system should be flexible for expansion of storage for future. Data access for at least a few years of stored data should be fast. The storage should be at full scanned quality (40 x magnifications).The storage has to be physical & local RAID (Redundant Array of Inexpensive Discs or Drives) storage on site at NEIGRIHMS supported by necessary rack type servers and not via Cloud storage solution. The technical offer should clearly specify the size of the storage (in TB/PB) that has been offered & also should clearly specify the type of storage (tape drive/disk drive etc).

Specifications:

- A. Rack type
- B. Processor-Latest Intel Xeon processor
- C. RAM: Min64GB
- D. 250 GB SSD RAID1(OS)
- E. 100TB HDD RAID6 for storage
- F. LAN:4x1 Gigabit Ethernet + Service LAN
- G. Latest Windows / Ubuntu Server

B. Workstation:

1. For appropriate viewing and reporting by multiple people, the system has to be supplied with minimum 2 computers with latest Intel Xeon processor, 32GB RAM, 250GB SSD (for OS), 2TB HDD (for storage), branded high end graphic card (at least 8GB), DVD writer, latest windows (licensed version) and 64 bits.
2. These computers should have 1 medical grade monitors with a screen size (diagonal) of at least 30"and resolution of minimum 6

calibration.

12. The scanner should have an automatic recognition of failure to scan. In case of slide scan failure it should still continue scanning the remaining slides without any need of manual intervention.

13. **Back up scanner:** The system should be provided with one additional scanner of capacity 6 slides or more at a time with provision for bright filed microscopy and a minimum speed of 150 secs or less at 40x and 60 secs or less at 20x. All other specifications and the monitors are same as the main scanner and should be provided with monitors and image acquisition software as per the main system.

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Specifications:

- i. Rack type
- ii. Processor-Latest Intel Xeon processor
- iii. RAM: Min64GB
- iv. 250 GB SSD RAID1(OS)
- v. 100TB HDD RAID6 for storage
- vi. LAN:4x1 Gigabit Ethernet + Service LAN
- vii. Latest Windows / Ubuntu Server

B. Workstation:

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Mega Pixel (3280x2048).The graphic card should be compatible with the monitor.

3. The key board and mouse should be wireless and Bluetooth compatible. The mouse should be ergonomic.
4. All the above work stations should be provided at no additional cost.
5. Rate of additional work stations (other than the above two) should be quoted separately.
6. All pathologists should be able to work on the system without any downgrade in the quality of the image. The technical offer should clearly specify the number of concurrent pathologists/ users [users accessing the digital WSI (Whole slide image) at the same time] who can access the network without compromising on user image experience. All necessary licenses to enable this should be provided as a part of technical configuration at no additional cost. System should be supplied with in-built tele-conferencing tools.
7. The scanner and all computers should be supplied with branded online UPS (5 KVA)(at no additional cost) with minimum one hour backup.

C. Image acquisition and management software

1. The scanner system should be supplied with integrated image management software (IMS) system with minimum 10 user licenses at no additional cost. It should also allow various image acquisition, viewing, annotation, measuring, sub-specialist consultation (on site and remote) and reporting capabilities. License should be valid for life-long without any additional cost. The update of software as and when available should be done at no additional cost.
2. The system should automatically combine the acquired images into one composite 'Digital slide' and present it in the desired magnification with seamless natural navigation and changes in magnification. Should have preset optical magnification (2x, 4x/5x, 10x, 20x and 40x) like the conventional microscope to change to specific magnification quickly.
3. The Image Management Software should allow gross images of the case and the reporting form to be displayed along with the scanned slide images.
4. Using the system the pathologists must be able to view and report cases remotely both within and outside the organization. This should not require any additional cost.

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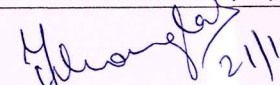
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5. The Image Management Software should have the capability to read 1D& 2D barcodes so as to enable grouping of multiple slides into its specific case. This feature (barcode integration) should be available at no additional cost for life long.
6. The image viewer software should allow user to zoom in a particular area of interest at high magnification, while simultaneously keeping the entire tissue section visible at lower magnification.
7. Software should have easily visible summary information relating to each case without the need of opening the case itself.
8. The system must allow for simultaneous access to image/images at multiple locations by different assigned users facilitating multisite collaboration and real time consultation.
9. During collaborative viewing and real-time consultation-participants should be able to identify and mark their particular areas of interest on the same shared image, thus making it clear and easy to identify who performed the annotations
10. The image viewer software should allow for the simultaneous assessment and aligned stacking of multiple images of a case on one monitor screen at the same time.
11. The system must allow a user to search for a case by different criteria such as name, case id, date etc.
12. The system should provide the ability to flag special cases(user defined)for additional importance or priority
13. The system must be able to track visited areas and support digital bookmarks which should be stored till cleared by the user.
14. The system should be up scalable in a Hub and Spoke environment if required in future as a part of up scalability.
15. The scanner image management system must be able to integrate fully and efficiently Bi- Directionally with the LIS/LIMS IT systems that is it should be able to pull from the LIS/LIMS: patient demographics and case reports retrieved from it and push back into LIMS any work done via the scanner image management system. For this the scanner company has to coordinate fully with the LIS vendor.

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16. The Image Management System should allow remote access through mobile devices and web based viewer should be available.
17. The system should have facility for secure web based viewing of unlimited number of scanned slides at multiple local and remote sites for at least 100 users. This should be provided at no additional cost.
18. Image management system should be DICOM compatible.
19. Image viewer should have the ability to view other primary formats on site and at remote location which may involve use of vendor neutral software or web based software at no additional cost. In addition, the images scanned by the system should be usable or viewable in other viewers.
20. The export of scanned images in tiff and JPEG/JPEG2000 format should be possible.
21. The system should support third party or other scanners scanned images at no additional cost.
22. The system should allow images to be stored in the local department/institute server in proprietary format and other standard formats.

D. Security

1. The data storage and transmission should use the HTTPS protocol for secure image transmission.
2. The designated system manager(s) must have the facility to create, maintain and retire users, or groups of users (i.e. roles), and associated privileges.
3. Individual users should be able to view on their screens only those menu options or icons that they are entitled to use as designated.
4. The system must provide the facility for the authorized user to be authenticated and restriction placed on each authenticated account by: Allocation of a unique name (user-ID) and a personal password.
5. The system should provide and maintain a full audit trail or event log that is accessible and viewable to the reporting consultant.

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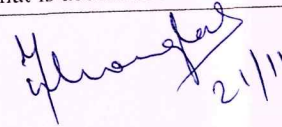
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This should include on each occasion that a case image is viewed, amended, reported etc. that the user details and date/time is recorded.

6. Manufacturer to provide a manufacturer developed software development kit (SDK) to access data stored in proprietary format to enable research purposes.

E. Quality Indicator: The scanner together with its associated software should have a European CE Mark for In Vitro Diagnostics, i.e. conform to CE/IVD standard or have US FDA approval for primary diagnosis or equivalent Indian standards

F. General Specifications:

1. Company has to provide vibration free table/ trolley to keep equipment. Required infrastructure will be developed and the provided by the bidder (fiber cable for data transfer cabin etc). Company has to visit the site before supplying the same to ensure proper infrastructure and other requirement.
2. Warranty should be at least 5 years from the date of installation and 5 year CMC should be quoted after warranty.
3. Demonstration of the quoted model for at least 4 weeks is mandatory before the pre-bid meeting as per the decision of the technical committee. If the firm fails to demonstrate the quoted instrument for the said duration, it will not be considered.
4. Penalty clause: In no case the instrument should remain in non-working condition for more than 7 days, beyond which a penalty of 0.25% of machine cost will be charged per day.
5. Since digital pathology is a highly complex IT driven and evolving field the vendor should have a good service and application support backup in India directly from manufacturer and not via a 3rd party/distributor along with instruments to provide an effective application related troubleshooting and response(Response Time <24hours).In addition, the scanner vendor needs to provide a

reporting consultant. This should include on each occasion that a case image is viewed, amended, reported etc. that the user details and date/time is recorded.

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trained official staff to the department for 12 months who can train the multiple users in the department in official hours for the scanner usage and also help out in hardware, software and connectivity issues to set up the digital pathology system at the Department of Pathology at NEIGRIHMS, Shillong, at no additional cost.

6. All the components and requirements as specified at all the above points including the equipment, server, storage, work stations, hardware, software and licenses have to be provided at no additional cost.
7. All technical bids, comparative statement to the tender specifications must be enclosed along with the reference page no. paragraph no. from the original catalogue of equipment. The bid for the particular equipment may be summarily rejected in case bid fails to provide compliance statement with its reference from the catalogue.
8. Undertaking from the specifications committee stating that the specifications are broad based, general in respect to the requirement of instrument and not made to suit any particular firm or brand.

Accessories to be quoted along with the scanners:

1. AI for complete Breast Panel
2. GPU base server with 50 TB storage & for processing the AI on scanned Slides


response(Response

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