



THE REVOLUTIONARY GOVERNMENT OF ZANZIBAR

ZANZIBAR e-GOVERNMENT AGENCY

Government Hardware and Software Specification

Version.1.0

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Contents

| | | |
|---------------|--|-----------|
| 1 | INTRODUCTION | 3 |
| 2 | SPECIFICATIONS | 4 |
| 2.1 | Hardware Specifications | 4 |
| 2.1.1 | Laptop Computer | 4 |
| 2.1.2 | Desktop Computers | 7 |
| 2.1.3 | UPS | 8 |
| 2.1.4 | Server | 9 |
| 2.1.5 | Firewall Devices | 10 |
| 2.1.6 | Wireless Access Points | 11 |
| 2.1.7 | Edge Routers | 13 |
| 2.1.8 | Biometric Devices Specifications | 14 |
| 2.1.9 | Photocopy Black/White | 15 |
| 2.1.10 | Laser jet Printer | 16 |
| 2.1.11 | Color Laser Jet Printer | 17 |
| 2.1.12 | Production Scanner | 18 |
| 2.1.13 | Aggregation Services Router Specification | 19 |
| 2.1.14 | Departmental Scanner | 20 |
| 2.1.15 | Fax | 21 |
| 2.1.16 | Monitor | 21 |
| 2.1.17 | Workgroup Scanner | 22 |
| 2.1.18 | PBX | 23 |
| 2.1.19 | IP Phone | 24 |
| 2.1.20 | Display Screen | 26 |
| 2.1.21 | Projector | 28 |
| 2.2 | Software Specifications | 29 |
| 2.2.1 | Generic Applications | 29 |
| 2.2.2 | Operating Systems | 30 |
| 3 | GLOSSARY | 31 |

1 INTRODUCTION

Zanzibar e-Government Agency is a public institution established by the e-Government Act No. 12 of 2019. The Agency is mandated to Coordinate, Oversee and Promote e-Government initiatives and Enforce e-Government related Policies, Laws, Regulations, Standards and Guidelines in Public Institutions. Among the objects of the establishment e-government is to develop and administer the implementation of ICT policies, rules, standards and guidelines in the public services.

The e-government Act empowers the Agency to: -

- to coordinate automation of e-Government administration processes and the provision of Government services through the utilisation of ICT
- to ensure accessibility of the government services countrywide in an affordable, effective and efficient manner through the appropriate use of ICT
- to promote the use of ICT in the public services
- give effect to policy directives and other decisions made by the Government in relation to ICT in the public service

Therefore, the Agency has prepared hardware and software specifications guides to be adhered to by public institutions. Public institutions shall comply with the specifications at the time of preparing requirements for hardware and software.

2 SPECIFICATIONS

2.1 Hardware Specifications

2.1.1 Laptop Computer

a) Directors and Managers

| Features | Minimum Specifications |
|--------------------------------------|---|
| Processor | Intel R Core TM i7 |
| Memo | RAM - Minimum 8 GB or 16GB |
| Display | Screen Size: 13" or above. Preferred Laptop/ Tablet Model. Touchscreen: Yes |
| Operating Systems | -Windows 10 (64bit) or later -Linux -Mac |
| Internal Storage | SSD – 512GB or HDD - 1TB |
| Communications/ Wireless support | LAN: 10/100/1000 Ethernet NIC WLAN: 802.11ac Wireless LAN Bluetooth: Yes USB 3.0 Connectivity Mobile Broadband Module (recommended) |
| Input Device: | Keyboard: Illuminated Backlit, spill-resistant keyboard with drain. Webcam: Yes |
| Supplemental Items | Thickness: 11-15mm Docking connector Stereo headphone/ microphone combo CD/DVD, R/RW Drive: Internal or External CDs for Drivers Mouse |
| Power | Primary Battery: 6-cell or above long-life battery. Secondary Battery: 6-cell or above long-life Battery |
| Minimum Warranty of 12 months | |

b) Technical Directors/Managers and Technical Staffs

| Features | Specification |
|--------------------------------------|---|
| Processor | Intel R Core TM i7 or above |
| Memo | RAM - Minimum 16GB or 32GB |
| Display | Screen Size: 13" or above. Preferred Laptop/ Tablet Model. Touchscreen: Option |
| Operating Systems | -Windows 10 (64bit) or later -Linux |
| Internal Storage | HDD – 1TB or SSD 512GB or above |
| Communications/ Wireless Support | LAN: 10/100/ 1000 Ethernet NIC or latest WLAN: 802.11ac Wireless LAN or latest Bluetooth: Yes USB 3.0 Connectivity Mobile Broadband Module recommendation |
| Input Device: | Keyboard: Illuminated Backlit, spill-resistant keyboard with drain. Webcam: Yes |
| Supplemental Items | Graphics Card Brand NVIDIA Stereo headphone/ microphone combo CD/ DVD, R/ RW Drive: Internal or External CDs for Drivers Mouse |
| Power | Primary Battery: 6-cell long life battery or above. |
| Minimum Warranty of 12 months | |

c) Non-Technical Staffs

| Features | Specification |
|-------------------------------------|---|
| Processor | Intel R Core TM i7 |
| Memory | RAM - Minimum 8 GB |
| Display | Screen Size: 14" or above. |
| Operating Systems | Windows 10 (64bit) |
| Internal Storage | HDD - 500 GB or 1TB |
| Communications/ Wireless Support | LAN: 10/100/1000 Ethernet NIC or latest WLAN: 802.11ac Wireless LAN or latest Bluetooth: Yes USB 3.0 Connectivity; 2 Slots or more. Mobile Broadband Module (recommended) |
| Input Device: | Keyboard: Illuminated Backlit, spill-resistant keyboard with drain. Webcam: Yes |
| Supplemental Items | Graphics Card - Brand NVIDIA (128 MB or better business class) Stereo headphone/ microphone combo CD/DVD, R/RW Drive: Internal or External CDs for Driver: s Mouse |
| Power | Primary Battery: 6-cell long life battery or above. |
| Minimum Warranty of 12months | |

2.1.2 Desktop Computers

a) Technical Staffs

| Features | Specification |
|-------------------------------------|---|
| Processor | Intel R Core TM i7 or above |
| Processor Speed | At least 3.0GHZ |
| Memo | RAM at Least 16GB or above |
| Display | HDMI or DVI support |
| Operating Systems | -Supports Windows 10 or above (64bit). -Supports Linux |
| Hard Drive | 1TB or Above |
| Video Card | Intel© Integrated Graphic |
| Monitor LCD | 27" Monitor flat panel LCD |
| Ports | At least 6 USB 2.0 or 3.0 standard serial port, 1 parallel port, 1, 1 VGA Port, Audio in out, |
| Keyboard | USB standard Keyboard |
| Point in Device | USB Optical scroll mouse |
| Connectivity | Integrated Gigabit Ethernet, 802.11b/ g/ n Wireless Interface |
| Others | Built in Speakers |
| CD/DVD, R/RW Combo Drive | Internal |
| Minimum Warranty of 12months | |

b) Non-Technical Staffs

| Features | Specification |
|-------------------------------------|--|
| Processor | Intel R Core TM i5 |
| Memory | RAM at Least 8GB |
| Display | HDMI or DVI support |
| Operating Systems | -Supports Windows 10 above (64bit). -Supports Linux |
| Hard Drive | 500GB or 1TB |
| Video Card | Intel® integrated Graphic |
| Monitor | 24" Monitor or above |
| Ports | At least 6 USB 2.0 or 3.0 standard serial port, 1 parallel port, 1, 1 VGA Port, Audio in out, |
| Keyboard | USB standard Keyboard |
| Point in Device | USB Optical scroll mouse |
| Connectivity | Integrated Gigabit Ethernet, 802.11b/ g/ n Wireless Interface |
| Others | Built in speakers |
| Minimum Warranty of 12months | |

2.1.3 UPS

| Features | Specification |
|-------------------------|---|
| Output Power | 1KVA or above |
| Nominal Output Voltage | 230v |
| Efficiency at Full Load | at least 97% |
| Output Frequency | 50 60Hz auto-sensing |
| Synchronization Range | ±3HZ |
| Other output Voltages | 220, 240 |
| Output Voltage Note | Configurable for 220, 230 or 240 nominal output voltage |

2.1.4 Server

| Features | Minimum Specification |
|---|---|
| Processor Speed | latest generation intel processor, 6 cores @2.3Ghz, Must support Hyper Threading |
| Memo RAM | 16GB |
| Expansion Slots | PCIe 3.0 |
| Internal Storage Capacity | Supported drivers: 8 SFF hot-plug drive model with Universal Media Bay Configuration: Hot plug SFF SAS/ SATA hot plug SFF Hard Disk Drive: 2 x 600GB Hot Plug SPF HDD |
| Network Controller | Embedded 4x1GbE Network Adapter |
| Storage controller | Embedded SATA Controller, (1) Smart Array with cache memory; RAID Controllers with RAID 0 1 1+0 5 50 6 60 1 |
| Display Graphics | 17" TFT Flat Panel LCD, same brand as CPU |
| Interfaces | 1 Serial |
| | 1 Pointing Device Mouse |
| | 1 VGA Graphics Adapter |
| | 1 Keyboard |
| | 1 External SCSI |
| | Dual Port PCI-X 1000T Gigabit Server Adapter embedded |
| | Four USB 3.0 one internal |
| Form Factor | Rack Mountable 2U |
| Support software, and configuration utilities | Include Server managements manufacturers packs |
| Power Supply Unit | 2 Redundant 500 W Power supply |
| | Input: 220 - 240 VAC |
| Operation System | No need for pre-installed operating system but the servers should support major OS including UNIX LINUX MS Windows. |
| Security Management | Remote Access Management Engine, Insight Control, UEFI System Utilities Support with Enterprise license Chassis intrusion detection option, configurable for PCI DSS compliance, Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Bezel. Locking kit, Tamper-free updates components digitally signed and verified Secure Recovery - recover critical firmware to known good state on detection of compromised firmware, Ability to rollback firmware. |

| | |
|--------------------|---|
| Optical drive type | SATA DVD-RW |
| Fans | Redundant hot- l u s stem fans |
| Warranty | 3/3/3 years of parts, labor, onsite support with next business day response |
| Other Features | Multi-port connectivity, Standard Rail Kit, Cable manager |

2.1.5 Firewall Devices

| Features | Specification |
|---------------------|--|
| Physical interfaces | Ethernet ports — at least two (2) 1 Ge ports of RJ 45 1/0 Ports - 2 x USB 2.0 1x Micro-USB 1x COM RJ 45 1 HDMI |
| Power Supply | Connectivity modules (optional) — SFP Transceivers |
| Layer 2 Supports | Supports for VLAN configurations. Zone segmentation |
| Layer 3 features | Static Routing and Dynamic Routing (OSPF, BGP, RIP etc) Network Address translation (NAT), DHCP, IP Address and Gateways configurations. Traffic Load balancing |
| Security | Access Rules and NAT rules, Threat protection capability IPS capability Optional |
| Performance | High Firewall throughput Concurrent Connections — At least 1,000,000 New Connections Per second — At least 20,000 IPsec VPN throughput — At least 1,000Mbps SSI, Concurrent Connections — At least 5,000 |
| Warrant and Support | 3 years warrant and support for hardware and supporting license software |

2.1.6 Wireless Access Points

| No. | Feature Description | Minimum Specification |
|-----|--|---|
| 1 | Modules | Provides full-spectrum scanning for, wIPS for comprehensive detection and mitigation of over the network attacks, Clean Air technology detecting devices causing network interference, rogue device detection, context (location) awareness, and radio resource management (RRM) solutions Provides full scanning of all 2.4- and 5-GHz channels while the Access Point is serving data clients on the integrated radios |
| 2 | 802.11n version 2.0 (and related) capabilities | 4x4 MIMO with three spatial streams Maximal ratio combining (MRC) 802.11n and 802.11a/g beamforming 20- and 40-MHz channels PHY data rates up to 450 Mbps (40 MHz with 5 GHz) Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) 802.11n dynamic frequency selection (DFS) Cyclic shift diversity (CSD) support |
| 3 | 802.11ac Wave 1 capabilities | 4x4 MIMO with three spatial streams, MRC 802.11ac beamforming, 20-, 40-, and 80-MHz channels, PHY data rates up to 1.3 Gbps (80 MHz with 5 GHz) Packet aggregation: A-MPDU (Tx/Rx), A-MSDU, (Tx/Rx), 802.11 DFS, CSD support |
| 4 | Data rates supported | 802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps 802.11n on 2.4 GHz: 6.5 to 216.7 Mbps depending on GI and MCS |
| 5 | Integrated antenna | 2.4 GHz, gain 4 dBi, internal omni, horizontal beamwidth 360° 5 GHz, gain 4 dBi, internal omni, horizontal beamwidth 360° |
| 6 | External antenna Must be included | Omni, Gains up to 6 dBi (2.4 GHz and 5 GHz) |
| 7 | Built-in/ Included Interfaces | 10/ 100/ 1000BASE-T autosensing (RJ-45) Management console port RJ-45 |
| 8 | Dimensions | Access point (without mounting bracket): 8.7 x 8.7 x 2.11 in. (22.1 x 22.1 x 5.4 cm) |

| | | |
|----|---|---|
| 9 | Operating Environment | <p>Non-operating (storage) temperature: -22 ° to 158 ° F (30 ° to 70 ° C)</p> <p>Non-operating (storage) altitude test: 25 ° C, 15,000 ft.</p> <p>Operating temperature: -4 ° to 122 ° F (-20 ° to 50 °C)</p> <p>Operating humidity: 10% to 90% (noncondensing)</p> <p>Operating altitude test: 40 °C, 9843 ft</p> |
| 10 | Indicators | Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors |
| | System Memory | <p>512 MB DRAM or above</p> <p>64 MB flash or above</p> |
| 11 | Warranty | Limited lifetime hardware warranty |
| 12 | Compatibility | Must be compatible with Supplied WLAN controllers |
| 13 | Compliance / Standards | UL 60950-1, CAN/CSA-C22.2 No. 60950-1, UL 2043 IEC 60950-1, EN 60950-1, EN 50155, Class III equipment |
| 14 | Security | <p>802.11i, Wi-Fi Protected Access 2 (WPA2), WPA 802.1X</p> <p>Advanced Encryption Standard (AES)</p> <p>Advanced Encryption Standards (AES), Temporal Key Integrity Protocol TRIP</p> |
| 15 | Extensible Authentication Protocol (EAP) types: | <p>EAP-Transport Layer Security (TLS)</p> <p>EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2)</p> <p>Protected EAP (PEAP) v0 or EAP-MSCHAPv2</p> <p>EAP-Flexible Authentication via Secure Tunneling (EAP-FAST)</p> <p>PEAP VI or EAP-Generic Token Card (GTC)</p> <p>EAP-Subscriber Identity Module SIM</p> |

2.1.7 Edge Routers

| Features | Specification |
|---------------------------------|---|
| Performance | Switching Capacity at least 1.92Tb s Per-slot switching capacity : 480 Gb s |
| Physical Specifications | Dimensions (W X H X D) - (17.45 x 8.71 x 24.5) in (44.3 x 22.1 x 62.2), Weight fully loaded 1301b / 59 kg Weight unloaded 521bs 23.6 k |
| Routing Engine | 2 x 16 MB NOR flash storage, 64GB of DDR4 RAM 2 X 50GB SSI), Number Of Cores — Six (6) |
| Redundancy Components | Power Supplies, Fans, Routing Engines RE |
| Resiliency | Redundant RES, Unified ISSU, Nonstop active Routing (NSR) Fast restoration Operation, Administration, (OAM) and Maintenance |
| Routing Protocols | BGP, GRE, MPLS, OSPF & OSPFv3 |
| Features/ Functionalities | Firewall protection, DHCP support, NAT support VPN support, IPv6 support, High Availability Quality of Service (QoS), MPLS VPN, Virtual Chassis technology, IPv4 support Virtual Routing and Forwarding, VRF |
| Inline Services | GRE reassembly NAT, Flow monitoring, Video monitoring Lawful intercept, Mirroring |
| Security | Firewall filters/ ACLs, DDoS—control plane DDoS—Flow spec, Stateless filters L2-L4, Stateful services |
| Service Card Supported Services | Deep packet inspection, CGNAT, Flow monitoring Traffic load balancing, IPsec, Stateful firewall, I-ITTP header manipulation |
| System Virtualization | Enhanced SLA and queuing, Logical systems Virtual router/ switch, Path Computation Element Protocol (PCEP), OpenConfig, YANG data modeling |

2.1.8 Biometric Devices Specifications

- i. Support the latest version of Android.
- ii. Support multiple connectivity options for communicating with the BAS server i.e. Ethernet, POE capability, USB, GPRS, Wi-Fi (802.11 b/g/n) and Mobile Broadband 3G/4G;
- iii. Supports Fingerprint, RF card, PIN and Facial;
- iv. Wall Mountable;
- v. Backup battery that can stay for more than 6 hours;
- vi. Provide APIs with lifetime license and Software Development Kit (SDK) to enable communication with the web server;
- vii. Support SSL VPN;
- viii. Higher capacity for managing multiple users and events;
- ix. Customized sign-in and sign-out buttons on the biometric device interface;
- x. RAM capacity: at least 4GB;
- xi. Storage: HDD at least 8GB
- xii. Support storage and computation of image (fingerprint) in various format including WSQ format;
- xiii. Display: 7inch color screen;
- xiv. At least Quad core 1.5 GHz;
- xv. Fingerprint sensor: 500ppi optical sensor;
- xvi. Grayscale: 256 levels
- xvii. Sensing area: 15.2 x 20.3 mm
- xviii. Platen size=20 x 33 mm (0.8" x 1.3") or Optical scanning area 24.4 mm x 16.3 mm
- xix. At least template matching speed (fingerprints per second): 3000
- xx. Identification Speed: Less 0.5 sec
- xxi. Operating Temperature: 0 - 45 Degree Celsius
- xxii. Image Capture Surface 15—18(mm)
- xxiii. False Acceptance Rate (FAR) :0.00001%
- xxiv. False Rejection Rate (FRR): 0.1%

2.1.9 Photocopy Black/White

| Feature | Minimum Requirements |
|----------------------------------|---|
| Main: | |
| Memory | 3 GB |
| Processor | 1.75GHz Dual Core Processor |
| Control panel | Standard: 10.1" TFT LCD WSVGA Colour Touch panel |
| Hard Drive | 320GB ,1TB Optional |
| Interface Connection | 1000Base-T/100Base-TX/10Base-T, Wireless LAN (IEEE 802.11 b/g/n), usb 2.0, usb 3.0 |
| Paper Supply Capacity | 4,200 sheets ,100-sheet Multi-purpose tray x1 550-sheet cassette x 2, 1,500-sheet Paper Deck x 2 Maximum: 7,700 sheets |
| Supported media sizes | Standard size: A3, A4, A4R, A5*1, A5R, A6R*2, B4, B5, B5R Custom size: 100.0 x 148.0 mm to 297.0 x 487.7 mm Free size: 100.0 x 148.0 mm to 297.0 x 487.7 mm |
| Power Source | 220-240V, 50/60Hz, 10A |
| COPIER: | |
| Copy Speed | up to 80 ppm (A4), up to 40 ppm (A3) |
| Resolution | 600 X 600 |
| Zoom | 50 – 400% |
| Multiple Copies | Up to 9,999 copies |
| Duplexing | Standard |
| Resolution | 600dpi |
| Main Unit Dimensions (W x D x H) | 485 x 450 x 481 |
| PRINTING: | |
| Speed | 20 print per minute/up to 80 ppm (A4), up to 40 ppm (A3) |
| Printing Resolution | 1200x1200 |
| Direct Print | Supported file types: PDF, EPS, TIFF/JPEG, and XPS |
| Printing from Mobile and cloud | Yes |
| SCANNER: | |
| Bundle driver | Network twin |
| Resolution | 600dpi |
| Software | Yes |
| Warranty | 1 year |

2.1.10 Laser jet Printer

| Features | Specification |
|--|---|
| Print Quality | 1200 x 1200 d i |
| Print Speed and throughput | U to 45 m black |
| Print technology | Laser black |
| Memo | 80MB or higher, expandable |
| Memo slots | 2 x100- in DDR DIMM |
| Processor Speed | At least 540Mhz |
| First page out | Less than 8 sec |
| Languages | PCL 5e,PCL 6 Postscript 3 emulation |
| Media Capacity | 100 multipurpose tray 500-sheet input trays |
| 1 manual feeding tray including envelopes, labels, transparencies and special media Output tray up to 300 sheets | |
| Media Sizes | Letter,legal,executive,A4and A3 |
| Media types | Plain paper Envelopes Transparencies Copier bond 60 to 200 m2 |
| Duplex printing | Automatic standard |
| Connectivity | IEEE- 1284 compliant bi-directional parallel port and/or Universal Serial Bus USB Gigabit Ethernet |
| RJ 45 Ethernet port | |
| Hard disk | 20Gb |
| Duty cycle | 200,000 per month |
| Network | Yes Standard |
| Compatibility | Smart switch printer Languages sensing |
| Software | Drivers for windows server 2012/2016 Windows 10 Macintosh Linux |

2.1.11 Color Laser Jet Printer

| Features | Specification |
|--|---|
| Print speed, black best quality mode | 31m |
| Print speed, black normal quality mode | 31 m |
| First a e out black | As fast as 10 sec |
| First a e out color | As fast as 10 sec |
| Monthly duty cycle | U to 100,000 pages |
| Print resolution, black | U to 600 x 600 dpi |
| Print resolution, color | U to 600 x 600 dpi |
| Ink cartridges | 4 (1 each black, cyan, magenta, yellow) all reinstalled |
| Paper trays , minimum | 3 |
| Memo | 256MB |
| Duplex Printing | Automatic |
| Processor speed | At least 533MHz |
| Print languages, standard | PCL 6 PCL 5c postscript level 3 emulation |
| Maximum Input capacity | U to 1100 sheets |
| Connectivity | Hi h Speed USB 2.0 Gigabit Ethernet |
| Two enhanced input /output EIO slots | |
| Gigabit Ethernet Print Server | |
| Compatible operating systems | Macintosh, Windows 10 Windows Server 2012 2016 32 64 bit) Linux. |
| Software included | Print drivers and installation software on CD-ROM PCL6 PostScript Level 3 emulation |

2.1.12 Production Scanner

| Features | Specification |
|-----------------------------|--|
| Recommended Daily Volume | Unlimited |
| Throughput Speeds | Up to 200 pages per minute/ 800 images per minute (Throughput speeds may vary depending on your choice of driver, application software, operating system and PC.) (200 dpi landscape, letter-size document) |
| Scanning Technology | Dual Tricolor Plus CCD; Grayscale output bit depth is 256 levels (8-bit); Color capture bit depth is 40-bit (10 bits per red, green, blue and black channels); Color output bit depth is 24bit |
| Optical resolution | 300 dpi |
| Illumination | Dual Xenon lamps per side, mercury free |
| Output resolution | Black and white: 200/240/300/400 dpi; Color/ grayscale: 100 150 200 240 300 dpi |
| Maximum Document Size | 305 mm x 863 mm 12 in. x 34 in. |
| Minimum Document Size | 64 mm x 64 mm 2.5 in. x 2.5 in. |
| Paper Thickness and Weight | With standard feeder: 45 g/m ² (12 lb) bond to 200 g/m ² (110lb) index; With ultra-lightweight feeder: 25 g/m ² (7 lb) rice paper to 75 m ² 20 lb bond |
| Feeder | 500-sheet |
| Multi-feed Detection | Multi-feed detection with ultrasonic technology; three ultrasonic sensors that can work together or independently |
| Connectivity | IEEE- 1394 (FireWire) interface, 6-pin connector; IEEE-1394 card and cable included |
| Interface Support | TWAIN and ISIS Drivers (included)• KODAK Capture Software |
| Color Touch Screen Control | Operator control via color LCD touch screen |
| Ergonomic Height Adjustment | Integrated height adjustment span of 25 cm (10 in.) for seated or standing operation |

| | |
|-----------------------------|---|
| Imaging Features | Perfect Page Scanning, i Thresholding, auto crop, aggressive crop; deskew, image rotation, electronic color dropout, dual stream scanning, halftone removal, noise removal, zone processing, toggle patch, automatic color detection, automatic orientation |
| On-board Compression | CCITT Group IV, JPEG or uncompressed output |
| File Format Outputs | JPEG (for color and grayscale images); TIFF for black and white images |
| Image Address | Multi-level indexing/ batching capabilities |
| Patch Readers | Four permanently mounted patch readers that can work together or independently |
| Imprinting | Front pre-scan or rear post-scan imprinting; optional hi-res imprinter available |
| Electrical Requirements | 100-130 VAC, 50/60 Hz, 7 A; 200-240 VAC, 50 60 Hz, 3.5 A |
| Minimum PC Configuration | Pentium 4 2.4 GHz processor with 512 MB RAM |
| Supported Operating Systems | Windows 10 (32 and 64 bit), Macintosh, Linux |

2.1.13 Aggregation Services Router Specification

- i. 1GB DRAM, but supports maximum 4GB DRAM
- ii. 8 slots, (Each embedded module has 8 optical ports with IGE interface)
- iii. Rack height: 6RU
- iv. Up to 100G bps throughput
- v. Redundant AC and DC Power Supply
- vi. Redundant route processors and ESPs
- vii. Supports Multiprotocol Label Switching (MPLS) network infrastructure

2.1.14 Departmental Scanner

| Features | Specification |
|----------------------------|---|
| Recommended Daily Volume | U to 9,000 pages per day |
| Throughput Speeds | Up to 45 pages per minute/ 90 images per minute *(200 dpi, landscape, letter size, black and white/ gray scale color |
| Scanning Technology | dual CCD Grayscale output bit depth is 256 levels (8-bit) Color capture bit depth is 48 bits (16 x 3) Color output bit depth is 24 bits 8 x 3 |
| Output resolution | 75, 100, 150, 200, 240, 300, 400, 600 and 1200 dpi |
| Maximum Document Size | 297 mm x 863 mm 11.7 in. x 34 in. |
| Minimum Document Size | 64 mm x 89 mm 2.5 in. x 3.5 in. |
| Paper Thickness and Weight | 34-413 m ² 9-110 lb. paper |
| Feeder | Up to 150 sheets of 60 g/m ² (16 lb.) paper |
| Multi-feed Detection | With' ultrasonic technology |
| Connectivity | USB 2.0, Gigabit Ethernet |
| Bundled Software | TWAIN, ISIS, SANE and Windows Imaging Architecture Drivers, KODAK Capture Desktop Software and Smart Touch |
| Imaging Features | Perfect Page Scanning; Thresholding; adaptive threshold processing; deskew; auto crop; relative cropping; aggressive cropping; electronic color dropout; dual stream scanning; interactive color, brightness and contrast adjustment; automatic orientation, automatic color detection, back ground color smoothing |
| File Format Outputs | Single and multi-page TIFF, JPEG, RTF, PDF, searchable PDF |
| Accessories | KODAK Imaging Guide Wiper Accessory Optional A4 black imaging background accessory |
| Electrical Requirements | 100-240 V (International); 50/60 Hz; universal power supply included |

| | |
|------------------------------|--|
| Recommended PC Configuration | For documents up to 356 mm (14 in.) long at 400 dpi: Dual core, 3.2 GHz processor, 2GB RAM; For documents up to 660 mm (26 in.) long at 400 dpi: Dual Core, 3.2 GHz processor, 2 CAB RAM; For longer documents/ higher resolutions: Dual core, 3.2 GHz processor, 4 GB RAM |
| Supported Operating Systems | Windows 10 (32 and 64 bit), Macintosh, Linux |

2.1.15 Fax

| Features | Specification |
|------------------------------------|---|
| Modem Speed | U to 33.6Kb s |
| Fax Resolution | U to 200 x 400d i |
| Compression Modes | MH, MR, MMR |
| Memory Capacity | U to 512 pages |
| One-Touch Dial | 30 dials |
| Speed Dial One Touch + Coded dials | U to 130 dials |
| Group Dials Destinations | Max. 129 dials Max. 129 destinations |
| Sequential Broadcast | Max. 140 destinations |
| Receive Mode | Fax only, Manual, Answering, Fax / Tel Auto switch |
| Memo Backup | Yes, 5 minutes |
| FAX Features | Fax Forwarding, Dual Access, Remote Reception, PC Fax (TX only), DRPD, ECM, Auto Redial, Fax Activity Reports, Fax Activity Result Reports, Fax Activity Management Reports |

2.1.16 Monitor

| FEATURES | MINIMUM REQUIREMENTS |
|------------------|-----------------------------------|
| Display | 39.7" IPS, W-LED, 5120x2160pixels |
| Viewing Angle | 178 / 178 |
| Brightness | 300 cd/m ² |
| Static contrast | 1000:1 |
| Dynamic contrast | 3000000:1 |
| Speakers | 2x9w |

2.1.17 Workgroup Scanner

| Features | Specification |
|---|--|
| Recommended Daily Volume | Up to 3,000 pages per day |
| Scanning Technology | Single CCD; i1220 Plus: Dual CCD; Grayscale output bit depth is 256 levels (8 bits); Color capture bit depth is 48 bits (16 x 3); Color output bit depth is 24 bits 8 x 3 |
| Throughput Speeds (portrait, letter size) | Bitonal/grayscale: Up to 45 pages per minute at 200 dpi Color: Up to 30 pages per minute at 200 dpi and 300 dpi (Throughput speeds may vary depending on your choice of driver, application software, *operating system and PC. |
| Optical resolution | 600 d i 1200 d i A4 flatbed accessory |
| Illumination | Dual fluorescent cold cathode |
| Output resolution | 75, 100, 150, 200, 240, 300, 400, 600 and 1200 d i |
| Max. / Min. Document Size | 215 mm x 863 mm (8.5 in. x 34 in.)/ 50 mm x 63.5 mm 2 in. x 2.5 in. |
| Paper Thickness and Weight | 34-413 g/m ² (9-110 lb.) paper; ID card thickness: u to 1.25 mm 0.05 in. |
| Feeder | Up to 75 sheets of 75 g/m ² (20 lb.) paper Handles small documents, such as ID cards, embossed cards and insurance cards |
| Multi-feed Detection | With ultrasonic technology |
| Connectivity | USB 2.0 cable included |
| Bundled Software | TWAIN, ISIS, WIA Drivers; KODAK Capture Desktop Software, Smart Touch; Nuance ScanSoft PaperPort and OmniPage. |
| Imaging Features | Perfect Page Scanning; iThresholding; adaptive threshold processing; deskew; autocrop; relative cropping; aggressive cropping; electronic color dropout; dual stream scanning; interactive color, brightness and contrast adjustment; automatic orientation; automatic color detection; background color smoothing; image edge fill; image merge; content based blank page detection; streak filtering ; image hole fill; sharpness filter |
| File Format Outputs | Single and multi-page TIFF, JPEG, RTF, BMP, PDF, searchable PDF |

| | |
|------------------------------|---|
| Recommended PC Configuration | For documents up to 660 mm (26 in.) long at 400 dpi: Duo Core Processor with 2 GHz or equivalent and 2 GB RAM For longer documents/ higher resolutions: Duo Core Processor or equivalent with 2 GHz and 4 GB RAM. Note: for optimal performance when using a PC running the Windows 7 operating system, at least 3 GB RAM is recommended. |
| Supported Operating Systems | Windows 10 (32 and 64 bit) Macintosh Linux |

2.1.18 PBX

| Features | Specification |
|---------------------|--|
| PBX Capacity | 1 or 3 Outside CO Line, 8 Extensions, Non-expandable |
| Power Supply | 220VAC or 1 IOVAC 50Hz |
| Max. Consumption | 20W |
| Cross-tone Lose | > 70dB |
| Temperature | 0 45 c |
| Humidity | 10 ⁰ /— 95 ⁰ /0 |
| Intercom Ringing | 7SVAC 50Hz |
| External MOH | input 600 Q,out ut 0.25-1V |
| Inside Feed Voltage | 48VDC,20 30mA |
| CO Port Voltage | Lc 60VDC |
| Relar Phone | Lc 1000m cable length |
| Toll Restrict Level | 6 |
| DISA | 12Sec.,1-Level, channel |
| 000 Phone opener | 4-Jan |
| Conference Part | 3 art |
| Extension Number | 3-Di it only 100-999 |
| Power Fail Port | 2 |
| Operator | 2 |
| Flash Time | 300-2000ms |
| PSTN Access | Dial O out |

2.1.19 IP Phone

| Features | Specification |
|-------------------------|--|
| Protocols and Standards | SIP RFC3261 TCP/IP/UDP RTP/RTCP HYPP/HITPS ARP/RARP ICMP DNS (A record, SRV, NAPTR) DHCP PPPoE TELNET TFTP NTP STUN SIMPLE TR-069 802. Ix |
| Network Interfaces | Dual switched 10/ 100Mbps ports • Integrated POE (Power-over-Ethernet) |
| Graphic Display | 128 x 40 graphical LCD display |
| Feature Keys | 2 line keys with dual-color LED and 1 SIP account 3 XML programmable context sensitive soft keys 5 navigation/ menu/ volume keys 8 dedicated function keys for Hold, Transfer, Conference, Volume, Headset, Mute, Speakerphone, Send / Redial |
| Voice Codec | Support for G.723.1, G.729A/B, G.71 lu/a, G.726-32, G.722 (wide-band), iLBC, in-band and out-of-band DTMF (in audio, RFC2833, SIP INFO) |
| Telephony Features | Hold Transfer Forward 3-way conference Call park Pickup Shared-call-appearance (SCA) / Bridged-line-appearance (BLA) Downloadable phone book (XML, |

| | |
|---------------------------------|--|
| | LDAP, up to 500 items) Call waiting Call log (up to 200 records) Off-hook auto dial Auto answer Click-to-dial Flexible dial plan Hot desking Personalized music ringtones Server redundancy Fail-over |
| HD Audio | Yes, HD handset with support for wideband audio |
| Headset Jack | RJ9 headset jack |
| Base Stand | Yes, 2 angle positions available |
| Wall Mountable | Yes |
| QoS | Layer 2 (802. IQ, 802. Ip) Layer 3 (ToS, DiffServ, MPLS) QoS |
| Security | User and administrator level passwords MD5 and MD5-sess based authentication AES encrypted configuration file SRTP TLS 802. Ix media access control |
| Multi-language | English, German, Italian, French, Spanish, Portuguese, Russian, Croatian, simplified and traditional Chinese, Korean, Japanese etc. |
| Upgrades and Provisioning | Firmware upgrade via TFTP/HTTP/HTTPS Mass provisioning using TR-069 or AES encrypted XML configuration file |
| Power & Green Energy Efficiency | Universal power adapter: Input: 100-240VAC 50-60Hz•, Output: 800mA Integrated Power-over Ethernet (802.3af) Max power consumption: 2.5W power adapter) or 3W (POE) |
| Physical | Dimensions: 186mm (W) x 210mm (L) x 81 mm (D) Unit Weight: 0.7kg Package weight: 1.0kg |
| Temperature and Humidity | 32-104°F / 0-40 °C 10-90% (non-condensing) |
| Compliance | FCC Part 15 (CFR 47) Class B |

| | |
|--|---|
| | EN55022 Class B EN55024 ENC) 1000-3-2 EN61000-3-3 EN 60950-1 AS/NZS CISPR 22 Class B AS/NZS CISPR 24 RoHS UL 60950 (power adapter) |
|--|---|

2.1.20 Display Screen

| Feature | Minimum Requirements |
|--|--|
| LCD MODULE | |
| VIEWABLE IMAGE SIZE (DIAGONAL) | 85.6"/2,174.3mm |
| Active screen area (W*H) | 1,895.04 x 1,065.95 mm |
| Panel Technology | IPS |
| Native Resolution | 3,840 x 2,160 |
| Brightness (Typical with AG glass) | 350 cd/m ² |
| Contrast Ratio (Typical) | 1,200:1 (Native Contrast) |
| Viewing Angle | 178 Horizontal / 178 vertical (at CR>10) |
| Colour | Over 1.07 billion |
| Response Time (Typical) | 12ms (G to G) |
| Backlight | Direct LED Backlight |
| CONNECTIVITY | |
| Input terminals Digital Analogue Audio | HDMI * 3 VGA mini D-sub 15-pin *1 Digital: HDMI *3, Analogue: 3.5 mm Stereo mini jack *1 |
| Output terminals Audio | Optical: SPDIF *1, Analogue: 3.5 mm Stereo mini jack *1 |
| External Control RS - 232C | D-Sub 9 pin *1 |
| External Control Ethernet | RJ-45 10BASE-T/100BASE-TX*1 |
| USB HUB USB2.0 | USB Type A*6(Front x 2, Side x 3, Bottom x 1), USB type B x 2 (Side port (for touch)) |
| Expansion slots | Open pluggable specification (NEC/ intel OPS Standard) * 1 |

| | |
|--|--|
| Speaker Output (internal) | 12 W +12 W |
| Front Camera | M912HD pan tilt zoom1080p usb 12x lens ptz video camera conference |
| POWER | |
| Power requirement | 6.2 A @ 100 – 120V, 2.5 @ 220 – 240 V |
| Power Consumption (typical) | 365 W |
| Power Consumption (network standby mode) | 2 W |
| Power Consumption (standby mode) | < 0.5 W |
| PHYSICAL SPECIFICATIONS | 6.2 A @ 100 – 120V, 2.5 @ 220 – 240 V |
| Bezel width | 71.2kg |
| Dimension (with wall mount: W x H x D) | 95.5kg |
| Dimension (with wall mount: W x H x D) | 800 x 600 mm (M8, 4 holes) |
| Packaging dimensions (W x H x D) | Landscape |
| Net weight (without wall mount) | 17.7mm (bottom: 45.7 mm) |
| Net weight (without wall mount) | 1,957.1 x 1,159.8 x 113.8 mm |
| Gross weight (with box) | 1,957.1 x 1,159.8 x 86.8 mm |
| Mounting interface | 2,211 x 1,370 x 280 mm |
| Supported orientation | 67.3kg |
| Power Consumption (typical) | 365 W |
| Power Consumption (network standby mode) | 2 W |
| Power Consumption (standby mode) | < 0.5 W |
| PHYSICAL SPECIFICATIONS | 6.2 A @ 100 – 120V, 2.5 @ 220 – 240 V |
| Bezel width | 71.2kg |
| Dimension (with wall mount: W x H x D) | 95.5kg |
| Dimension (with wall mount: W x H x D) | 800 x 600 mm (M8, 4 holes) |
| Packaging dimensions (W x H x D) | Landscape |
| Net weight (without wall mount) | 17.7mm (bottom: 45.7 mm) |

| | |
|---------------------------------|------------------------------|
| Net weight (without wall mount) | 1,957.1 x 1,159.8 x 113.8 mm |
| Gross weight (with box) | 1,957.1 x 1,159.8 x 86.8 mm |
| Mounting interface | 2,211 x 1,370 x 280 mm |
| Supported orientation | 67.3kg |

2.1.21 Projector

| Feature | Minimum Requirements |
|-------------------------|-----------------------------------|
| Display System | 3LCD System |
| Resolution | 1080p (1920 x 1080) FHD |
| Brightness | 5000 Light/Colour |
| HDtv | 1080p, 1080i, 720p |
| Interface | LAN, HDMI, VGA, audio in/out, USB |
| HDMI CABLE | 30 METRE LONG |
| Power Supply | 240V |
| Universal Ceiling Mount | Universal |
| Management Software | Yes |
| Warranty | 1Year |
| Display System | 3LCD System |
| Resolution | 1080p (1920 x 1080) FHD |

2.2 Software Specifications

2.2.1 Generic Applications

a. Office Software

| S/no | Software | Software Item | Details |
|------|---|---|---|
| 1. | Word Processors, Spreadsheets, Presentation | Microsoft Office LibreOffice (Linux) | MS Word, MS Excel, MS PowerPoint, MS Access, MS Publisher |
| 2. | Internet Browser | Microsoft Internet Explorer 7.0 Microsoft Edge Firefox Mozilla Chrome Opera Safari | Including all security Patches |
| 4. | PDF Document | Adobe Reader | Latest stable version. |
| 5. | Virus Protection | Anti-virus software available in the market | Latest stable version. |
| 6. | Media and design tools | Adobe Creative cloud | Latest stable version |

b. ICT Management

ICT Management software enables the capabilities to support the administration and upkeep of a public institution's technology assets, including the hardware, software, infrastructure network, licenses and service components that comprise those assets.

| S/ No | Software Type | Software Item | Details |
|-------|--------------------------|---------------|--|
| 1. | Incident Management | | The system should allow to send or provide notifications |
| 2. | Problem Management | | The system should allow to log all problems |
| 3. | Configuration Management | Rancid | The system should allow configuration identification |

| | | | |
|----|--------------------------|---|---|
| | | | The system should allow configuration change control The system should allow configuration status accounting The system should allow configuration audits |
| 4. | Change Management | | The system should be able to track all changes done. |
| 5. | Release Management | | The system should allow scheduling and control the movement of release. |
| 6. | Service Level Management | | The system should be able to track the commitment between service provider and client. |
| 7. | Monitoring | SolarWinds Nagios Zabbix eSight Cacti | The system should be able to monitor all ICT assets of the institution. |
| 8. | Security Management | Radius TACACS+ QRadar Security Onion | The system should be able to ensure availability, integrity and confidentiality of institutional information. |

2.2.2 Operating Systems

| Software Type | Software Item | Details |
|------------------|---|--|
| Operating System | Unix/Linux Microsoft Windows 10 MacOS | (Ubuntu, CentOS, Suse, Linux Mint) (64bit) |

3 GLOSSARY

Technical Staffs

These are personnel that perform activities related to computer programming, Designing, Simulations, Computer Modelling and all other related activities that requires high-end computer processing resource requirements.

Non-technical Staffs

These are personnel that perform basic computer operations that does not require high-end computer processing resources.