# *ANNEX II + III:* TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

**Contract title: Supply of Computer equipment p 1 /…**

**Publication reference:** 19SER01/01/51-10-ICT

**LOT 2: IT Hardware and Software**

**Columns 1-2 should be completed by the contracting authority**

**Columns 3-4 should be completed by the tenderer**

**Column 5 is reserved for the evaluation committee**

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

* Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
* Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words ‘compliant’ or ‘yes’ are not sufficient)
* Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offeredspecifications.

| **1.**  **Item no.** | **2.**  **Specifications required**  **(minimal technical characteristics)** | | **3.**  **Specifications offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation committee’s notes** |
| --- | --- | --- | --- | --- | --- |
| **1** | **Laptop Type A - Internationally recognized laptop manufacturer, Quantity: 1** | |  |  |  |
| Display | 16″ WQXGA (≥ 2560 × 1600 resolution) |  |  |  |
| Processor | Top-tier, high-end performance mobile processor released within the past two years, providing at least 16 processing cores with multi-threading capability, designed for advanced multitasking and professional workloads |  |  |  |
| Operating System | Professional-grade operating system, fully compatible with Windows 11 Pro environment |  |  |  |
| Graphics | Top-tier high-end graphics capable of real-time ray tracing and AI-assisted rendering. Equipped with sufficient dedicated video memory (≥16 GB) to handle complex 3D modeling, rendering, and simulation tasks |  |  |  |
| Memory | 64 GB DDR5 |  |  |  |
| Storage | 1 TB SSD, M.2 PCIe Gen4 or later, with high read/write performance |  |  |  |
| Battery | Long-life battery capable of supporting at least 6 hours of continuous professional workload operation, with rapid charging (≥50% in 30 minutes) |  |  |  |
| Camera | Integrated webcam, minimum Full HD (1080p) resolution |  |  |  |
| Wireless | Wi-Fi 6E or later, Bluetooth 5.2 or later |  |  |  |
| Ports/Slots | At least: DC-IN, HDMI 2.1, 2 × USB-C (data + DisplayPort), 2 × USB-A, RJ45 Ethernet, and audio combo jack |  |  |  |
| Speaker/mic | Integrated stereo speakers and microphone |  |  |  |
| Keyboard | Full-size keyboard with numeric keypad and backlighting |  |  |  |
| **2** | **Laptop Type B - Internationally recognized laptop manufacturer, Quantity: 15** | |  |  |  |
| Display | 16-inch FHD+ (≥ 1920x1200) |  |  |  |
| Processor | High-performance mobile processor released within the past two years, designed for professional productivity, AI-assisted applications, and multitasking workloads. The processor must provide at least 12 physical processing cores with integrated AI acceleration capable of delivering a minimum of 12 trillion operations per second (TOPS), and be optimized for use in modern business-class laptops requiring energy-efficient high performance. |  |  |  |
| Operating System | Professional-grade operating system, fully compatible with Windows 11 Pro environment |  |  |  |
| Memory | 32 GB DDR5 |  |  |  |
| Storage | 512 GB PCIe NVMe SSD |  |  |  |
| Wireless/LAN | Wi-Fi 6E or later, Bluetooth 5.3 or later, RJ-45 or USB – RJ45 adapter |  |  |  |
| Ports/Slots | Multiple USB ports (including USB-C), HDMI  output, RJ-45 Ethernet port (or USB adapter), Integrated fingerprint reader (FPR) |  |  |  |
| Speaker/mic | Integrated stereo speakers and microphone |  |  |  |
| Camera | 5 MP |  |  |  |
| Keyboard | Full-size with numeric keypad, Spill-resistant |  |  |  |
| Primary battery | 3-cell, 62 Wh |  |  |  |
| **3** | **Laptop tip C - Internationally recognized laptop manufacturer, Quantity: 20** | |  |  |  |
| Display | 15,6" FHD (≥ 1920x1080) |  |  |  |
| Processor | High-efficiency mobile processor, 13th-generation or newer, optimized for professional productivity and multitasking workloads, supporting advanced power management; equivalent performance class to modern business-class processors in the U-series segment. |  |  |  |
| Operating System | Professional-grade operating system, fully compatible with Windows 11 Pro environment |  |  |  |
| Memory | 16 GB DDR4 |  |  |  |
| Storage | 512 GB PCIe NVMe SSD |  |  |  |
| Wireless | Wi-Fi 6E or later and Bluetooth 5.3 or later |  |  |  |
| Ports/Slots | Multiple USB ports (including USB-C), HDMI output, RJ-45 Ethernet port |  |  |  |
| Speaker/mic | Integrated stereo speakers and microphone |  |  |  |
| Camera | HD Camera |  |  |  |
| Keyboard | Full-size with numeric keypad, Spill-resistant |  |  |  |
| Primary battery | 3-cell, 51 Wh |  |  |  |
| **4** | **Desktop A - Internationally recognized desktop manufacturer, Quantity: 10** | |  |  |  |
| Processor | The processor shall be of the latest generation, with a minimum of 12 physical cores and 20 threads, designed on a hybrid architecture that combines performance and efficiency cores, and equipped with at least 25 MB of shared L3 cache. It shall support modern platform technologies, including DDR5 or DDR4 memory and PCIe 5.0 connectivity |  |  |  |
| Operating System | Professional-grade operating system, fully compatible with Windows 11 Pro environment |  |  |  |
| Memory | 32 GB DDR4 |  |  |  |
| Storage 1 | 512 GB M.2 NVMe SSD |  |  |  |
| Storage 2 | 1TB 7200 RPM SATA HDD |  |  |  |
| Networking | Integrated 10/100/1000M GbE LAN |  |  |  |
| Case type | Microtower |  |  |  |
| Optical disc drives | DVD+-RW |  |  |  |
| Keyboard/Mouse | USB wired same brand |  |  |  |
| Ports/Slots | Multiple USB ports (front and rear), Video output ports (≥2), RJ-45 Ethernet port |  |  |  |
| Wireless | Wi-Fi 6E, Bluetooth 5.x (integrated or USB adapter) |  |  |  |
| **5** | **Desktop B - Internationally recognized desktop manufacturer, Quantity: 20** | |  |  |  |
| Processor | The processor shall be of a recent generation, with at least 10 physical cores and 16 threads, combining high-performance and efficiency cores in a hybrid architecture. It shall include a minimum of 20 MB shared L3 cache and support current platform technologies such as DDR4 or DDR5 memory and PCIe 5.0 connectivity. |  |  |  |
| Operating System | Professional-grade operating system, fully compatible with Windows 11 Pro environment |  |  |  |
| Memory | 16 GB DDR4 |  |  |  |
| Storage 1 | 512 GB M.2 NVMe SSD |  |  |  |
| Storage 2 | 1TB 7200 RPM SATA HDD |  |  |  |
| Networking | Integrated 10/100/1000M GbE LAN |  |  |  |
| Case type | Microtower |  |  |  |
| Optical disc drives | DVD+-RW |  |  |  |
| Keyboard/Mouse | USB wired same brand |  |  |  |
| Ports/Slots | Multiple USB ports (front and rear), Video output ports (≥2), RJ-45 Ethernet port |  |  |  |
| **6** | **Monitor - Internationally recognized monitor manufacturer, Quantity: 10** | |  |  |  |
| Display size | min. 27" |  |  |  |
| Panel technology | IPS (In-Plane Switching) or equivalent wide-view technology |  |  |  |
| Native resolution | QHD (≥ 2560 × 1440) at ≥ 75 Hz refresh rate |  |  |  |
| Aspect ratio | 16:9 |  |  |  |
| Response time | max. 5ms |  |  |  |
| Contrast ratio | 1000:1 |  |  |  |
| Brightness | ≥ 300 cd/m² |  |  |  |
| HDMI | ≥ 1 x HDMI 1.4 |  |  |  |
| Audio port | 1 x 3.5 mm Audio In/Out Combo |  |  |  |
| DisplayPort | 1 x DisplayPort 1.2  1 x DisplayPort 1.2-out |  |  |  |
| USB | 1 x Video and Data Transfer USB Type-C 5 Gb/s  4 x USB Type-A 5 Gb/s |  |  |  |
| Other features | On-screen controls; Anti-glare; Full ergonomic stand (height adjust, tilt, swivel, pivot) |  |  |  |
| Speakers/Webcam | Built-in speakers and integrated webcam (≥ 5 MP) |  |  |  |
| **7** | **Scanner, Quantity: 1** | |  |  |  |
| Scanner Type | USB Sheetfed Scanner |  |  |  |
| Optical Resolution | 600 DPI x 600 DPI (Horizontal x Vertical) |  |  |  |
| Paper Formats | A4, A5, A6, B5, B6, Letter |  |  |  |
| Output Resolution | 100, 150, 200, 300, 600, 1200 DPI |  |  |  |
| Document Feeder | Automatic, Single pass dual scanning |  |  |  |
| Automatic Document Feed | 100 pages |  |  |  |
| Scanning Speed | Monochrome/Color : 45 pages/min A4 , Resolution: 200 / 300 dpi, |  |  |  |
| Output formats | BMP, JPEG, TIFF, PDF, PNG |  |  |  |
| File compression features | JPEG, TIFF and PDF |  |  |  |
| Advanced document integration | Scan to Email, Scan to FTP, Scan to Print, Scan to Web folders |  |  |  |
| Connectivity | USB 3.0 |  |  |  |
| **8** | **NAS, Quantity: 1** | |  |  |  |
| Processor | 64-bit multi-core embedded processor, minimum 4 cores, base frequency ≥ 2.0 GHz |  |  |  |
| System Memory | ≥ 4 GB DDR4 ECC RAM, expandable to at least 32 GB |  |  |  |
| Drive Bays | Minimum 6 hot-swappable bays, supporting 3.5″ and 2.5″ SATA drives |  |  |  |
| Storage | 6 × 6 TB NAS-grade HDDs, compatible with 24/7 operation |  |  |  |
| External Ports | ≥ 4 × 1GbE LAN (RJ-45) with link aggregation and failover;  ≥ 3 × USB 3.0/3.2;  ≥ 2 × expansion ports for scalability |  |  |  |
| Supported RAID Type | RAID 0, 1, 5, 6, 10; support for hot spare |  |  |  |
| Virtualization Support | Compatible with major hypervisors (e.g., VMware vSphere, Microsoft Hyper-V, Citrix XenServer) |  |  |  |
| Web Access & Management | Web-based management, supporting current versions of Chrome, Firefox, Edge, and Safari |  |  |  |
| Access Control Integration | Full support for Windows ACL (Access Control Lists) |  |  |  |
| Authentication | Support for secure NFS with Kerberos |  |  |  |
| Backup Features | Scheduled folder/package backup; full system backup and recovery functions |  |  |  |
| **9** | **Switch, Quantity: 2** | |  |  |  |
| Interface | Minimum 16 × 10/100/1000 Mbps RJ45 ports with auto-negotiation and auto MDI/MDIX, plus ≥ 2 × Gigabit SFP slots |  |  |  |
| Mounting | Rack Mountable |  |  |  |
| Manageability | Fully manageable with web GUI |  |  |  |
| Switching Capacity | ≥ 36 Gbps switching capacity |  |  |  |
| MAC Address Table | Minimum 8,000 MAC addresses |  |  |  |
| Security Features | P-MAC-Port binding; ACLs; Port security; DoS defense; Storm control; DHCP snooping; 802.1X and RADIUS authentication |  |  |  |
| Management Features | Web-based GUI  Command Line Interface (CLI) through telnet  SNMPv1/v2c/v3  SNMP Trap/Inform  DHCP/BOOTP Client  Dual Image, Dual Configuration  CPU Monitoring  Cable Diagnostics  Energy Efficient Ethernet (EEE) SNTP  System Log |  |  |  |
| **10** | **Software, Quantity: 66** | |  |  |  |
| Office suit | The office productivity suite shall provide applications for word processing, spreadsheets, presentations, and email/calendar that ensure 100% compatibility with existing files in .docx, .xlsx, and .pptx formats without formatting loss, and must integrate seamlessly with the current Exchange-based email and calendar system. Perpetual Licenses (non-subscription), suitable for deployment & management on Windows11. |  |  |  |
| **11** | **Software, Quantity: 110** | |  |  |  |
| File Archiving Software | Archiving software for creation and extraction of RAR, ZIP archives and other formats such as 7z, TAR, GZ, ISO, and CAB. It must support AES-256 encryption for password-protected archives, integrate with the Windows 10/11 shell, and be licensed for commercial use. |  |  |  |
| **12** | **External storage, Quantity: 100** | |  |  |  |
| Form factor | Portable, compact, bus-powered via USB |  |  |  |
| Interface | USB 3.2 Gen 2 (or faster, backward compatible with USB 3.0/2.0) |  |  |  |
| Performance | Up to 1,050MB/s read, 1,000MB/s write |  |  |  |
| Capacity | 1TB SSD |  |  |  |
| **13** | **Computer Headset, Quantity: 50** | |  |  |  |
| Connectivity | USB cable 1.9 m |  |  |  |
| Microphone | Bi-directional, frequency response 100~10 kHz, sensitivity |  |  |  |
| Compatibility | Windows 11 (and later), fully compatible with common calling and video meeting applications (e.g. Teams, Zoom, WebEx) |  |  |  |
| Sensitivity | Output level ≥ 94 dB ± 3 dB |  |  |  |
| **14** | **Security key for strong authentication, Quantity: 5** | |  |  |  |
| Physical connector | USB-C |  |  |  |
| Wireless interface | NFC (Near Field Communication) |  |  |  |
| Authentication standards | FIDO2, U2F (Universal 2nd Factor), OTP (OATH-TOTP, OATH-HOTP, static password), Smart Card (PIV/PKI), OpenPGP, Challenge-Response |  |  |  |
| OS compatibility | Windows, macOS, Linux, Android, iOS |  |  |  |
| Browsers supporting | WebAuthn/FIDO2 (Chrome, Firefox, Edge, Safari) |  |  |  |
| Drivers | No drivers or additional software required for basic use |  |  |  |
| Characteristics | Resistant to water, dust, and mechanical damage. Does not require batteries or external power supply |  |  |  |

The offered goods must be legal, original, and new. The offered goods must fully comply with the above-mentioned minimum requirements in terms of characteristics. Deviation of the offered technical characteristics from the required ones is acceptable only if the offered goods have better technical characteristics than those required.

The Contracting Authority reserves the right to request additional technical documentation in order to determine compliance with the minimum requirements.

Delivery is to be completed within 60 days from the date of contract signing.