

## Technical Specifications for AI Platform Workstation

### 1. Processor (CPU)

- **Architecture:** Latest generation x86-64 professional desktop processor architecture with integrated Neural Processing Unit (NPU) for hardware-accelerated AI workloads.
- **Core Configuration:** Minimum 24 physical cores (combining Performance and Efficient cores), minimum 24 execution threads.
- **Cache:** Minimum 36 MB L3 Smart Cache.
- **Clock Speed:** Base frequency of  $\geq 2.5$  GHz with a maximum turbo boost frequency of  $\geq 5.6$  GHz.
- **Thermal Design Power (TDP):** Max 65W base power draw for high-efficiency workstation performance.

### 2. System Memory (RAM)

- **Capacity:** Minimum 64 GB total capacity.
- **Configuration:** Dual-channel deployment (2 X 32 GB) modules).
- **Type:** High-speed DDR5 non-ECC workstation-grade memory.
- **Speed:** Minimum 5600 MT/s execution speed.

### 3. Dedicated Graphics (GPU)

- **Architecture:** Dedicated professional workstation graphics card utilizing latest-generation architecture (NVIDIA Blackwell or fully equivalent professional line).
- **VRAM Capacity:** Minimum 24 GB of dedicated high-speed GDDR7 video memory with Error-Correcting Code (ECC) support.
- **Compute Capabilities:** Dedicated hardware-based Tensor Cores (minimum 5th Generation) and Ray Tracing Cores (minimum 4th Generation) to support local Deep Learning, Large Language Model (LLM) inference, and data modeling tasks.
- **Interfaces:** Minimum 4 X DisplayPort (version 2.1 or higher) outputs.
- **Power Consumption:** Total board power draw not to exceed 145W, single-slot or compact form factor optimization preferred.

### 4. Storage Architecture

- **Total Capacity:** Minimum 4 TB partitioned across three separate solid-state drives as follows:
  - **Primary OS Drive:** 1 TB M.2 PCIe Gen4 x4 NVMe Performance Solid State Drive, Self-Encrypting Drive (SED) ready.
  - **Secondary Cache/Temp Drive:** 1 TB M.2 PCIe Gen4 x4 NVMe Solid State Drive (TLC flash-based).
  - **Tertiary Data/AI Model Storage:** 2 TB M.2 PCIe Gen4 x4 NVMe Performance Solid State Drive, Self-Encrypting Drive (SED) ready.

## 5. Chassis, Power Supply, & Media

- **Form Factor:** Professional Mid-Tower / Tower Workstation configuration.
- **Power Supply Unit (PSU):** Minimum 360W enterprise-grade power supply, high-efficiency rating (80 Plus Gold or equivalent certification standard).
- **Optical Drive:** Internal or external 8x DVD+/-RW/RAM slimline optical disc drive.

## 6. Networking & Communications

- **Wireless Interface:** Integrated Wi-Fi 7 (802.11be standard) adapter supporting 2X2 MU-MIMO dual-band operational capabilities.
- **Bluetooth:** Integrated Bluetooth wireless connectivity matching the Wi-Fi standard tier.
- **Antenna:** External chassis-mountable antenna included for enhanced signal reception.
- **Wired Interface:** Minimum 1 X Gigabit Ethernet (RJ-45) onboard interface port.

## 7. Peripherals & Input Devices

- **Keyboard:** Standard USB wired keyboard, full-size layout featuring bilingual Arabic/English (QWERTY) keycaps.
- **Mouse:** Standard USB wired optical scroll mouse.

## 8. Operating System & Software Compatibility

- **OS License:** Pre-installed Microsoft Windows 11 Pro (64-bit Edition), fully licensed and activated.

- **Framework Readiness:** Must support native installation of containerized AI environments, CUDA toolkits, and standard Python-based data science workflows.

## **9. Warranty & Hardware Support Services**

- **Duration:** Minimum 36 Months (3 Years) comprehensive hardware coverage from the date of final delivery acceptance.
- **Service Level Agreement (SLA):** Next-Business-Day (NBD) basic on-site hardware support service provided directly by the original equipment manufacturer (OEM) certified technicians.