BAHIR DAR UNIVERSITY

INSTITUTION OF TECHNOLOGY

FACULTY OF COMPUTING

DEPARTMENT OF INFORMATION SYSTEM

PROJECT ON ORACLE SERVER PC BRAND

SUBMITTED BY: SOSINA SOLOMON

SUBMITTED TO: LEC.ALEMITU

Oracle Server PC Brand Evaluation (Oracle Sun Servers)

1. Hardware Quality & Performance

Core Components

- **CPU performance**
  - Uses **Intel Xeon Scalable (Ice Lake, Sapphire Rapids)** and **AMD EPYC (Milan, Genoa)**
  - Designed for **24/7 enterprise workloads**
  - Extremely high core counts, strong memory bandwidth
  - Excellent efficiency for data centers (not consumer efficiency)
- **GPU performance**
  - Mostly **headless servers**
  - Optional **NVIDIA A100 / L40 / H100** for AI, HPC, database acceleration
  - Not intended for gaming
- **RAM**
  - **DDR4 / DDR5 ECC Registered (RDIMM/LRDIMM)**
  - Supports **1–6 TB RAM per server**
  - Hot-plug and error-correcting
- **Storage**
  - **NVMe SSDs (PCIe Gen 4 & Gen 5)**
  - SAS/SATA HDDs for cold storage
  - RAID hardware controllers supported
  - Enterprise-grade endurance

Thermals & Noise

- **Cooling system**
  - High-airflow redundant fans
  - Designed for rack environments
- **Fan noise**
  - **Very loud** (not office-friendly)
- **Thermal throttling**
  - Rare due to aggressive cooling and thermal headroom

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2. Build Materials & Durability

- **Chassis**
  - Industrial **steel rackmount chassis**

- **Durability**
  - Built for **continuous operation (99.999% uptime targets)**
- **Certifications**
  - Data-center and enterprise compliance standards (not MIL-STD like laptops)

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3. Design & Ergonomics

- **Weight**
  - Heavy (rack-mounted 1U–4U servers)
- **Keyboard/Trackpad**
  - Not applicable
- **Hinges**
  - Not applicable
- **Design philosophy**
  - Functionality, density, airflow, reliability

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4. Display Quality

✕ Not applicable (headless servers, managed remotely)

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5. Reliability & Brand Reputation

- Extremely strong in:
  - **Enterprise databases**
  - **Cloud infrastructure**
- Designed to run **years without shutdown**
- Very low failure rate
- Trusted by banks, telecoms, governments

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6. Battery & Power Efficiency

- No battery
- Uses:
  - **Redundant hot-swappable power supplies**
  - Platinum/Titanium efficiency ratings
- Optimized for **data-center power management**

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7. Software & Ecosystem

- **Operating Systems**
  - Oracle Linux
  - Red Hat Enterprise Linux
  - SUSE Linux
  - VMware ESXi
- **Ecosystem**
  - Optimized for:
    - Oracle Database
    - Oracle Cloud Infrastructure (OCI)
- **Driver stability**
  - Extremely stable, long-term support

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8. Security Features

- **BIOS/UEFI**
  - Secure Boot
  - Signed firmware
- **TPM**
  - TPM 2.0 supported
- **Encryption**
  - Hardware-accelerated encryption
- **Remote Management**
  - Oracle ILOM (out-of-band secure management)

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9. Upgradeability & Repairability

- **RAM**
  - Fully upgradeable
- **Storage**
  - Hot-swap NVMe/SAS drives
- **CPU**
  - Socketed (generation-dependent)
- **Repairability**
  - Excellent for certified technicians
- **Restrictions**
  - Oracle-certified components preferred

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10. Connectivity & Ports

- **Networking**
  - 10GbE / 25GbE / 40GbE / 100GbE
- **Expansion**
  - PCIe Gen 4 / Gen 5 slots
- **USB**
  - Limited (maintenance use)
- **Wireless**
  - ✕ None (servers don’t use Wi-Fi/Bluetooth)

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11. Price & Value

- **Price**
  - Very expensive upfront
- **Value**
  - Excellent for:
    - Databases
    - Cloud services
    - Mission-critical systems
- **Lifespan**
  - 7–10 years typical
- **Not cost-effective** for personal or small office use

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12. Special Use-Case Factors

For Gaming

✕ Not suitable

For Business (Enterprise)

✓ Excellent

- Strong security
- Extreme reliability
- Scalable

For Creative Work

⚠ Only for studios using render farms or AI workloads

For Students

✕ Not suitable (cost, size, power usage)
