ZITHA TECH SPECIALTY CABLES (Pty) Ltd

AI server testing equipment



Overview

AI Power Electronics Testing Solutions | Enhance PerformanceAt Rexgear, we are at the forefront of this transformation. Our expertise in high-power testing.

Key Takeaways

AI server testing equipment includes power validation tools, GPU and PSU testers, rack-level simulators, and high-performance mini PCs for local AI workloads.Power and Electrical Testing

AI servers demand high reliability and efficiency, making power system testing critical. Equipment for this purpose includes:

• DC Electronic Loads: Simulate real-world power conditions for point-of-load converters (POLs), embedded DC-DC converters, and voltage regulator modules (VRMs) to validate performance under varying loads (e.g., Chroma 63202A-20) .

• Grid Simulators: Test AI servers' ability to handle fluctuating power inputs and disturbances, ensuring compliance and stability .

• Programmable DC Power Supplies: Provide precise voltage and current to VRMs and POL converters for design validation and efficiency optimization .



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• High-Power Architecture Testing: For modern data centers, centralized AC/DC cabinets distributing high-voltage DC (50–800V) require testing of power shelves, GPU trays, and NVLink switches to ensure efficiency and thermal performance . These tools allow engineers to optimize energy efficiency, validate reliability, and meet regulatory standards for AI server infrastructure.

Hardware and Mini PC Testing

For local AI server deployment or compact labs, mini PCs and high-performance servers are used to test AI workloads:

• Mini PCs: Models like the ACEMAGIC M5 or GMKtec AI Mini PC EVO-T1 provide sufficient CPU, RAM (64–96GB), and NVMe storage to run multiple local LLMs, enabling testing of inference, RAG pipelines, and model quantization .

• High-Performance Servers: Rack-ready servers with NVIDIA RTX PRO Blackwell GPUs (96GB VRAM, 5th-gen Tensor Cores), high single-thread CPUs, 128–512GB RAM, and NVMe SSDs allow testing of large-scale AI training and inference workloads .

• Networking and Cooling: Low-latency 10–100GbE networking and robust air/liquid cooling systems are essential for multi-GPU setups and realistic performance testing .

Comprehensive Testing Solutions

Companies like Chroma and Rexgear provide integrated solutions combining automated test software, real-world simulation, and instrumentation to validate AI servers across the entire power delivery chain . These solutions ensure:

• Repeatable and precise testing of GPUs, PSUs, and server racks.

• Validation of high-density AI infrastructure for efficiency and reliability.

• Optimization of thermal and electrical performance for next-generation AI workloads.

Practical Considerations

When selecting AI server testing equipment:

• Match the test setup to your AI workload: High-frequency inference, multi-agent systems, or large LLM training may require different power and hardware testing priorities.

• Consider scalability: Rack-level testing and modular power systems allow expansion as AI infrastructure grows.

• Balance cost and performance: Mini PCs are cost-effective for local testing, while full-scale servers provide realistic benchmarking for enterprise deployments. By combining power testing tools, high-performance servers, and mini PCs, engineers can ensure AI servers operate reliably, efficiently, and safely under demanding workloads.

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AISBench: an performance benchmark for AI server systems

Abstract Artificial intelligence (AI) server systems, including AI servers and AI server clus-ters, are widely utilized in AI applications.

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FaithTech AI Server Power Test System Solution

A 25-minute technical presentation from the AI Power Electronics Forum covering GPU power modules, copper busbar verification,

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