

Proportion of each component of an AI server



Summary of Content

AI servers are dominated by GPUs and semiconductors, with supporting roles for CPUs, memory, storage, power, and cooling systems.

Hardware Breakdown

- **GPU Board Assembly** The GPU assembly is the defining component of an AI server, responsible for parallel processing and AI acceleration. In systems like the NVIDIA DGX A100, the GPU board assembly includes GPU substrates, NVSwitch modules, and supporting boards. This assembly represents the largest portion of PCB value, roughly 50-60% of the total hardware value, reflecting its critical role in AI computation .
- **CPU Motherboard Assembly** The CPU motherboard contains high-core-count CPUs, system memory, network adapters, and PCIe switches. While essential for orchestration and general computation, its relative value is smaller than the GPU assembly, typically 20-25% of the PCB value .
- **Memory (RAM and HBM)** AI servers use high-bandwidth memory (HBM) and large-capacity DRAM to feed GPUs efficiently. Memory is a significant cost driver, often 10-15% of the total server value, and is critical for maintaining throughput during AI workloads .
- **Storage** Storage includes NVMe SSDs or other high-speed drives, providing persistent data access. In DGX systems, internal storage can reach 30 TB, but in terms of value, storage typically accounts for 5-10% of the total system .

Article Content

Key Components of a High-Performance AI Server Explained

To achieve this level of performance, AI servers rely on several specialized hardware components working together

What Are the Key Components of AI Server Architecture?

Core Components of AI Server Architecture Modern AI infrastructure represents a sophisticated integration of

Deconstructing AI Servers: A Look Inside PCB Composition and Value

Explore AI server PCB architecture, including GPU boards, AI server motherboard PCB design, and insights into the

AI Hardware Requirements: A Comprehensive Guide

This guide covers AI hardware requirements in detail, including CPUs, CPU, TPUs and

What Is an AI Server? Architecture, Components & PCB Requirements

Understanding those differences is essential for anyone involved in designing, manufacturing, or procuring the printed circuit boards

The State of AI: Global Survey 2025 | McKinsey

In this 2025 edition of the annual McKinsey Global Survey on AI, we look at the current

Building the AI Server

Powering Advanced Workloads with AI Servers Artificial intelligence (AI) is being adopted

What Are the Key Components of AI Server Architecture?

Discover AI server architecture, including hardware and software components. Learn to optimize dedicated hosting

Artificial Intelligence (AI) Servers – Intel

Explore key considerations for AI servers and how to design them to support AI workloads optimally.

Deep Dive: AI Server and Core Chip Analysis

Explore the intricate world of AI servers and core chip technology in our in-depth analysis. Uncover the secrets of

A Jargon-Free Guide on How AI Server Architecture Works

Whether you're deploying AI in your business, tinkering with a project, or just want to understand the tech shaping our

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Explore the core components of AI like machine learning, NLP, and computer vision, and understand how they work

7 Key Components of AI Data Center Infrastructure

This article explains the 7 key components that make modern AI data centers work, from specialized hardware and power systems to

AI Server PCB Hardware Breakdown

This article explains the internal PCB composition of an AI server by disassembling the server hardware, so readers

What is an AI server?

AI servers support different execution patterns depending on how and where AI workloads are run. The primary distinction between

Powering Up Your AI: A Guide to Selecting the Ideal Server ...

This guide will help you navigate the often overwhelming landscape of AI hardware, focusing on selecting the ideal

Understanding the Basic Components of AI

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What is an AI server?

Discover what an AI server is, how it supports artificial intelligence workloads, and why businesses rely on GPU-powered

Components of Artificial Intelligence (AI)

Artificial Intelligence (AI) helps machines to think, learn and act like humans. Components of AI help systems to mimic

AI Server Hardware Components and Requirements

Conclusion Selecting the right hardware components for AI servers is critical to achieving optimal performance and efficiency. By

Unihost: Choosing the Right Server Specs for AI Workloads – CPU vs

Each of these components offers distinct advantages and limitations, making the choice highly dependent on the

Breaking down the Five Key Components of an AI Server

GPU Board Tray: The rear section of the AI server is where the critical components come together. The GPU board

How Do Artificial Intelligence & Different Components of AI Work?

Problem Solving, Learning, Reasoning, and many more components work together in AI. Let's know about those

What Is an AI Server, and What Does It Do?

Unlike traditional servers designed for general-purpose computing, AI servers boast specialized hardware and

AI Infrastructure: Key Components and 6 Factors Driving Success

AI infrastructure refers to the combination of hardware and software components designed specifically to support artificial intelligence

How to Select AI Server Hardware

For an AI server, the most important feature is its ability to provide maximum data bandwidth to each GPU. This is determined almost

What Is AI Infrastructure? Key Components Explained

Learn what AI infrastructure is and why it's essential for modern AI development. Explore core components,

What is an AI Server? AI Server Architecture Explained

Learn what AI servers are and how they power artificial intelligence. Complete guide to AI server components,

Contact Us

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