Does the Dojo supercomputer need an optical module



Overview

All You Need to Know About the Tesla Dojo SupercomputerBefore Dojo, Tesla relied largely on conventional GPU-based supercomputing, similar to other AI comp.

Key Takeaways

Tesla Dojo is designed for high-bandwidth, low-latency AI training, and while it likely uses advanced interconnects, there is no public confirmation that it specifically requires optical modules. Tesla Dojo is a supercomputer built to train AI models for Full Self-Driving (FSD) and other Tesla applications, processing massive volumes of video data from millions of vehicles. Its architecture is centered around D1 chips, which are grouped into training tiles, and multiple tiles are combined into ExaPods to scale compute power efficiently.

Each D1 chip is designed with high I/O bandwidth to support rapid data movement between chips and tiles, which is critical for training large neural networks. The system emphasizes high bandwidth and low latency to handle petabytes of video data efficiently, and Tesla has integrated custom electrical, mechanical, and thermal solutions to optimize performance. While optical modules are commonly used in supercomputers to achieve high-speed interconnects over longer distances, Tesla has not publicly disclosed whether Dojo uses optical fiber or optical transceivers for its internal communication.



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The design could rely on custom high-speed electrical interconnects within tiles and cabinets, which may reduce the need for optical modules internally. In summary, Dojo's architecture requires extremely fast data transfer between chips and tiles, but whether this is implemented via optical modules or advanced electrical interconnects is not publicly confirmed. The system's design prioritizes scalability, bandwidth, and latency, which are the key factors that an optical module would typically support, suggesting that if optical technology is used, it would be for inter-tile or inter-cabinet communication rather than within individual tiles.

Article Content

All You Need to Know About the Tesla Dojo Supercomputer

Before Dojo, Tesla relied largely on conventional GPU-based supercomputing, similar to other AI companies. GPUs are powerful and flexible, but they are also expensive, power-hungry, and

All You Need to Know About the Tesla Dojo Supercomputer

No. Dojo is a training supercomputer used in Tesla data centers, not hardware installed in vehicles. Tesla cars run trained neural networks on onboard inference computers, while Dojo

Tesla Dojo 2026: 1 Exaflop AI Supercomputer, 1.062M Cores, 3000

Tesla Dojo represents one of the most ambitious efforts to build a purpose-built AI supercomputer designed specifically for training neural networks at extreme scale. Through custom

The Microarchitecture of Tesla''s Exa-Scale Computer

Why treat long range communication differently? Target hardware simplicity! Integration and utilization of these components is the subject of the next presentation!

Everything To Know About Tesla''s Dojo Supercomputer

Tesla is developing more advanced technology to enhance its electric vehicles, and that''s where the Dojo supercomputer comes in. Here''s what you need to know.

All You Need to Know About the Tesla Dojo Supercomputer

Dojo is one of Tesla''s most ambitious engineering projects, but building a custom AI supercomputer is difficult even for a company with deep hardware and software teams.

A look at Tesla''s Dojo supercomputer shared at Hot Chips 34

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The details shared about Dojo in Hot Chips 34 by Tesla''s Emil Talpes, who worked at AMD for about 17 years for Opteron processors, are only about the hardware and capabilities of the

Presentation

Speculative transmission is limited by SRAM size before a RTT ACK. This, in effect, forces a “TTP window size” beyond which bandwidth is lost. Local SRAM lines are not retired/deallocated until the

Tesla''s Dojo Supercomputer Explained

For Tesla to build the first actual Dojo supercomputer, it must form a compute cluster with the training tiles. According to the company, it can combine 2 x 3 tiles in a tray and two trays in a

Tesla''s Dojo Supercomputer Breaks All Established ...

Tesla''s Dojo supercomputer is an elegant beast that completely reinvents the supercomputer.

Tesla''s Dojo Supercomputer: A Paradigm Shift in Supercomputing?

Tesla''s Dojo Supercomputer specializes in AI for Full-Self Driving. Its unique architecture and scalability position Tesla as a key player in AI and supercomputing.

Tesla details Dojo supercomputer, reveals Dojo D1 chip

Since 2019 Tesla CEO Elon Musk has periodically tweeted about Dojo, a ''neural network exaflop supercomputer,'' but has shared few details up to

Tesla unveils new Dojo supercomputer so powerful it tripped the

Tesla has unveiled its latest version of its Dojo supercomputer, and it''s apparently so powerful that it tripped the power grid in Palo Alto.

Everything To Know About Tesla''s Dojo Supercomputer

Tesla''s Dojo supercomputer is one of the company''s most ambitious bets: a custom-built AI training system designed to process the enormous volumes of video data collected from Tesla vehicles.

Tesla Dojo: Elon Musk''s AI supercomputer explained

Tesla Dojo is the company''s purpose-built AI supercomputer, designed to train machine learning models on enormous amounts of driving video collected from Tesla vehicles. Instead of

Tesla Dojo Supercomputer Explained — How To Make Full Self

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The inhabitants of the Tesla fanboy echo chamber have heard regularly about the Tesla Dojo supercomputer, with almost nobody knowing what it was.

Tesla starts production of Dojo supercomputer to train

Tesla announced it started production of its Dojo supercomputer to train its fleet of driverless cars. Dojo will be capable of an exaflop, or 1 quintillion

Tesla''s BREAKTHROUGH DOJO Supercomputer Hardware Explained

Tesla recently unveiled a groundbreaking new chip architecture called Dojo which will be used to build a supercomputer for training machine learning and AI models in order to accelerate the road ...

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