# 400V server racks for highway use

## Overview

This specification will hopefully serve as the future fundamental base for a disaggregated power rack to deliver ±400VDC to a nearby IT rack. The base of the mechanical rack follows the Open Rack standard. Currently three companies have worked together to provide a high-level overview of the Diablo. This brings us to the modern day issue, which is the fast-moving rack power densities for accelerated compute platforms like the NVIDIA GB300 NVL72 that runs 72 GPUs in parallel at 142 kW per rack. Power must be transformed from the utility, most likely around 35kV down to 12V into the server. In this exclusive Q&A, Vicor contends that ±400-V DC power distribution to AI racks in data centers is inevitable. The demand for increased compute density. Since the maximum voltage conventional IT equipment accepts is 240V, it will be the job. Our solution is to separate the single rack into an server rack and a power rack, each optimized for its primary function.

## 400V server racks for highway use

### Why AI Data Centers Are Adopting ±400V HVDC Instead of

An ±400V HVDC Power Rack is a modern power delivery and backup system designed to supply high-voltage direct current (HVDC) power at ±400 volts (meaning +400V and -400V relative ...

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### Revolutionizing AI Data Centers: Is ±400V DC the Future or

The adoption of ±400V DC architecture for powering server racks in data centers represents a significant evolution in power distribution, particularly driven by the escalating demands ...

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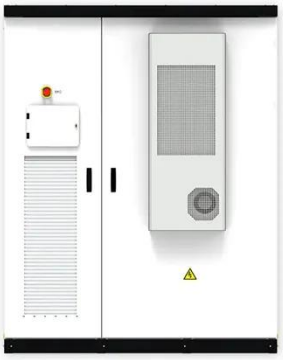

### The 1 MW AI IT rack is coming, and it needs 800 VDC power

Power must be transformed from the utility, most likely around 35kV down to 12V into the server chassis. The two main power distribution approaches feeding into the servers today are 400V ...

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### Disaggregating Power in Data

**Centers**

In this exclusive Q& A, Vicor contends that ±400-V DC power distribution to AI racks in data centers is inevitable.

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**Diablo 400 Project: Rack and Power**

Currently three companies have worked together to provide a high-level overview of the Diablo 400V architecture. The goal is to standardize items such as, high voltage connectors and ...

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**Disaggregating Power in Data Centers , Vicor**

To increase compute density and to deal effectively with the prospect of racks that consume up to 140kW or more, hyperscalers are now advocating an evolution to ±400V DC distribution to next ...

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**Enabling 1 MW IT racks and liquid cooling at OCP EMEA Summit**

The first embodiment of this work is an AC-to-DC sidecar power rack that disaggregates power components from

the IT rack. This solution improves the end-to-end efficiency by ~ 3% while ...

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**NetSure HVDC Power Systems , Vertiv , Vertiv DC Power System**

Vertiv(TM) NetSure(TM) HVT is a high voltage direct current (HVDC) power solution designed to ensure the highest levels of system efficiency and reliability. Based on a flexible architecture, 400V HVDC power ...

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**Deploying High Power to IT Equipment Racks**

Download our white paper, Deploying High Power to IT Equipment Racks, to learn about high power best practices, trends, common configurations, future industry speculation and more.

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