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DC converter for server racks in data centers

Overview

Most data center server racks are not currently powered this way, but with the advent of servers on the market that can operate with either AC or DC, it is possible to use the DC powering approach, thus eliminating extra power conversion steps and losses. Power conversion is at the core of reducing the energy consumption of data centers. Data centers use an average of 3 kW to 5 kW per rack to power server, storage, and networking racks. The adoption of Artificial intelligence (AI), 5G and big data, are leading to more intelligence, but higher power. DC-DC converters in servers are essential for efficiently managing power distribution within servers, converting higher voltage DC from the main power supply to lower voltage levels required by various server components. As a technology enabler, mid-voltage GaN plays a relevant role on the primary side, enabling an increase in switching frequency. Inside each individual switch and server, the PSU or rectifier converts it back to the DC that the electronics wants. But there are drawbacks to all this. For additional information about ST trademarks, please refer to www.

Article Content

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r rack level is becoming an increasingly popular solution for future energy efficient data centers. A 48 V to 5 V dc-dc converter with an efficiency of around 90% is typical.

Comprehensive power delivery solution for modern AI data centers

Comprehensive power delivery solution for modern AI data centers Paolo Sandri, Gianni Vitale STMicroelectronics

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DC power in the racks

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DC-DC converter

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