SOLUTION BRIEF

Flex embedded power solutions

Reliable, energy-efficient in-rack power delivery for data centers

KEY BENEFITS

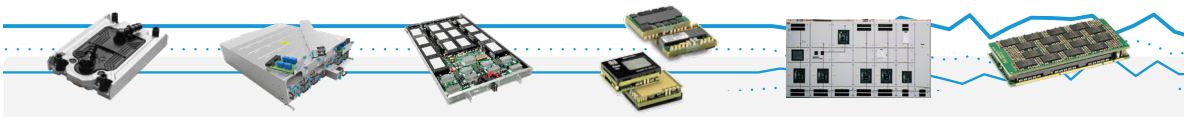
- Efficient in-rack power management
- Custom configured to rack-level requirements
- Innovative technologies for the demands of AI-era compute
- Worldwide manufacturing, localized to each region's unique power delivery requirements

Whether running traditional applications or high-performance workloads, reliable and efficient power distribution within data center racks is essential. The advent of 1+ megawatt racks intensifies the need to optimize space and manage power consumption effectively for maximum return on investment. The Flex embedded power portfolio offers a broad range of standard and custom solutions that improve power delivery and energy efficiency at the rack, board, and chip levels.

Performance and efficiency within the rack

Physical space constraints and thermal requirements play a decisive role in where and how data center power solutions are deployed. New approaches to in-rack power management enable data center operators to maximize performance while mitigating issues such as voltage drop (Vdroop), even as the power draw for AI-era computing escalates. In addition to standard power products, Flex customizes solutions to suit facility needs and regional specifications.

THE PORTFOLIO FEATURES:



Thermal management solutions | Power shelves | Capacitive energy storage | Power modules | Voltage regulator modules | Vertical power delivery

Data center power demand is forecast to increase 160%* from 2023 to 2030.[2]

*excluding cryptocurrency

Innovative power management

AI and high-performance computing (HPC) workloads draw immense bursts of power on an intermittent basis, presenting data center operators with a unique challenge as they seek to balance power fluctuations during large transients. Integrated with Flex power storage products, Flex capacitive energy storage systems (CESS) are designed to provide reliable delivery of power at moments of peak demand while mitigating the impact to the data center infrastructure when voltage drops. With a longer lifespan than batteries — and requiring less maintenance — a CESS lowers the total cost of ownership while enhancing energy efficiency and reliability. Eliminating the need for frequent battery replacement and reducing reliance on backup generators contributes to the achievement of sustainability goals as well.

Power consumption from data centers could exceed **1,000 TWh by 2026,** roughly equivalent to the electricity consumption of Japan.[1]

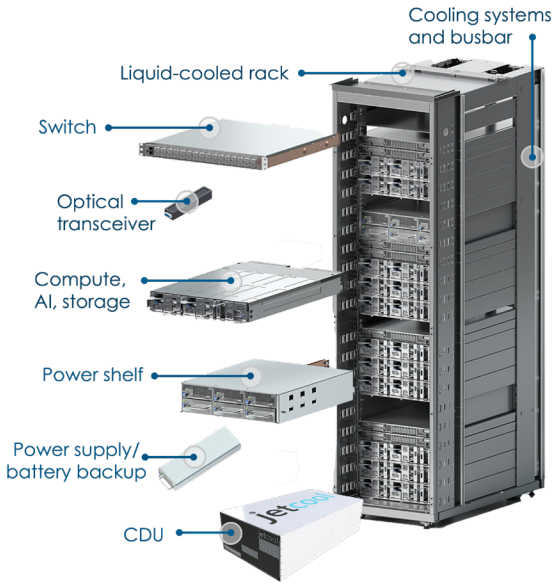
ABOUT FLEX

Flex provides advanced manufacturing capabilities, innovative power and cooling products, and services that solve for data center power, heat, and scale challenges in the AI era. Accelerate data center infrastructure deployment worldwide with Flex.

Vertical rack integration for scalable deployment

Flex helps companies scale faster and simplify operations in the AI era with vertically integrated, cost-effective rack and enclosure solutions that are custom-built and manufactured near deployment sites worldwide.

- Vertically integrated, in-region manufacturing accelerates deployment
- Advanced automation and quality controls for consistent performance
- Engineered to customer requirements and regional standards
- In-rack power, cooling, and IT solutions fully tested and validated
- ORv3 rack compliant to meet hyperscaler design imperatives



The Flex advantage

Delivering power reliably and efficiently to the rack, board, and chip is mission-critical for data center operators. Flex collaborates closely with the world's leading chipmakers and hyperscalers years in advance of new technology launches to ensure exceptional power management and energy efficiency at deployment. In addition, the Flex suite of power products, cooling solutions, and end-to-end services spans 80 percent of the data center, enabling customers to solve the power, heat, and scale challenges of the modern era.

Optimize in-rack power delivery, reliability, and efficiency with embedded power solutions from Flex.

Learn more

Embedded Power Products | Data Center Solutions

1. https://www.iea.org/reports/electricity-2024/executive-summary
2. https://www.goldmansachs.com/pdfs/insights/pages/generational-growth-ai-data-centers-and-the-coming-us-power-surge/report.pdf

For more information, visit **flex.com/connect**

Flex (Reg. No. 199002645H) is the manufacturing partner of choice that helps a diverse customer base design and build products that improve the world. Through the collective strength of a global workforce across 30 countries and responsible, sustainable operations, Flex delivers technology innovation, supply chain, and manufacturing solutions to various industries and end markets.