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(57) Abstract :

The invention discloses an adaptive power management device (100) for distributed computing systems, comprising a multi-sensor input unit (102), thermal monitoring unit (104), decision engine (106), power modulation unit (108), and communication interface (110). The device autonomously regulates power distribution across nodes by analyzing workload and thermal data in real-time. It improves energy efficiency, prevents overheating, and enables workload migration through inter-device communication, ensuring sustainable and high-performance computing across decentralized systems.

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