



COMMUNICATION TECHNOLOGY

APPLICATION EXAMPLE

High-end system platform for a high-availability telecommunication application

The infrastructure for mobile communications for which this system platform was designed is characterized by extremely high data throughput and complex data processing. At all times, it must perform without interruptions and despite the corresponding heat generation. The requirements placed on the system concept can be summarized as high transmission performance per slot, reliability, high availability, and easy maintenance. As a base architecture, HEITEC chose AdvancedTCA®, which is ideally suited for high-availability and carrier-grade applications and – thanks to standardization – provides access to various technologies as well as long-term, future-proof product availability. The backplane was fully adapted to the customer's specific requirements. To enable a high bandwidth and improved high-speed data transfer rates, the fabric interfaces of the line cards to the switches on the backplane were implemented with 2*140 Gbit/s each. The customer-specific control plane was implemented in PCI Express.

Because the intensive data processing results in high heat generation in this very compact system, HEITEC designed an intelligent cooling concept that includes not

only sophisticated air conduction but also two redundant fan drawers, each with seven fans, making it easy to “cool” 300 W per slot. The modules are designed for quick replacement if needed. In addition, the system can easily “handle” the failure of up to two fans per side and still continue to operate reliably.

By means of a special handle, filter mats can be replaced individually without having to extract the entire fan unit. A detection sensor with a software-controlled memory feature reminds the system that the filter mats must be reinserted after a replacement. The implemented temperature measurement compares the temperature of inlet and outlet air and regulates the speed of the fans according to current needs. The power supply modules are also redundant and, like all other parts of the redundancy concept, are accessible from the front and easily replaceable, even during operation (hot swap). HEITEC's robust housing technology is the ideal basis for this.

Intelligent cooling and redundancy concept



Overview of the overall system with fan unit and fan control



Front view of the high-availability system with backplane

Technical Summary

- › Customer-specific fan controller
- › Customer-specific solution based on ATCA®
- › 2 fan drawers with 14 fans > 300 Watts per slot
- › Hot-swappable fan drawers
- › D x W x H: 405 mm x 19" x 6U
- › 2 power entry modules

Customer Benefits

- › Individualized design and specification as per customer request
- › High availability
- › High data throughput (2 x 140 Gbit/sec/slot)
- › Redundant fan controller
- › Extremely powerful cooling
- › Redundant power entry modules
- › High-end system platform
- › Long-term availability and product stability

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