

Radisys ATCA Products Deliver Three Generations of Upgrades for Network Test Equipment

Case Study

radisys®



Industry/Market

Network test equipment manufacturer.

The Challenge

Keeping up with rapidly evolving computing technology.

The Business Environment

Competitiveness is closely tied to employing the latest processors that can deliver the best cost/performance.

The Solution

The equipment manufacturer adopted ATCA because of its exceptional support for technology insertions.

The Benefits

Three generations of technology insertions yielded more than ten times performance improvement over the years, thus dramatically minimizing development cost.

Customer Profile

The equipment manufacturer serves the world's largest network operators, network equipment manufacturers and cable companies.

A manufacturer of test equipment offers a system for real-time monitoring of mobile core and access networks, providing statistics on network-wide mobility, call control, session management and quality of service (QoS), among other things. The system helps carriers ensure subscriber connections are “always on” (e.g., fewer drop zones), thereby increasing customer satisfaction and billable usage. The testing algorithms are compute-intensive, in that the system’s monitoring capacity tracks linearly with the performance of the compute blades. When network operators select test equipment, they carefully compare subscriber test capacity to system cost, and the advantage typically goes to solutions using the latest server processors. To gain a competitive edge, the equipment manufacturer adopted ATCA early on—due to its exceptional support for technology insertions (e.g., upgrades).

Over time, the equipment manufacturer deployed two technology insertions using the same 14 slot chassis and different generations of Radisys ATCA compute blades. However, the subsequent technology insertion required a new chassis and some significant engineering effort. Providing system level support, Radisys engineers profiled the customer’s chassis and suggested ways to improve airflow, leading to higher performance density. Despite the hardware changes, it was possible to reuse nearly all the software, including the shelf manager software and associated maintenance interface, saving development and training cost. By way of successful technology insertions, four generations of ATCA blades yielded more than a ten times performance improvement over eleven years.



The interoperability derived from standards-based ATCA provides a cost-effective approach for keeping up with the technology treadmill.

John Long ATCA Product Line Manager at Radisys



Increased Performance Through Technology Insertions

Ratified in 2002 by PICMG, ATCA has successfully cycled through several generations of processor architectures, while delivering interoperability, scalability and flexibility. This evolution has produced significant performance improvement, as demonstrated by the progression of Radisys blades shown in Figure 1. Starting with the MPCBL001 blade in 2004 and now using the Radisys ATCA-4550 compute blade, the test equipment manufacturer adopted four generations of blades, which produced more than a ten times performance improvement per SPECint_rate2006 testing.

Thermal Profiling

ATCA is founded on a comprehensive set of specifications aimed at promoting interoperability, including requirements for thermal engineering such as the parameters under which vendors should measure airflow. It provides a range of values for acceptable board impedance, a measure of a board’s resistance to airflow,

which is useful information when optimizing the cooling capabilities of the system. Radisys engineers use thermal simulations to design and characterize boards and systems (Figure 2).

When the test equipment manufacturer wanted to migrate to the A4500 blade, there were concerns that their first generation of chassis might not be able to cool the new blades. On behalf of their customer, the Radisys hardware engineering team performed thorough thermal analysis and found the equipment manufacturer's packet processing board had very low impedance; therefore, it received more than enough airflow. By having the customer add impedance to their board, it was possible to increase the airflow over the compute boards, thus allowing them to have more memory and greater performance.

Shelf Manager Software

One of the major benefits ATCA provides is establishing a set of standards that help drive interoperability and compatibility among different components. Playing a key role is the shelf manager, which watches over managed devices, reports anomalous conditions and takes corrective action to prevent system failure.¹ The software is an essential tool for technicians who perform system maintenance and repair. Although the equipment manufacturer's next technology insertion required a new chassis, Radisys was able to find a solution so the existing shelf manager, as well as the vast majority of the legacy software, could be reused.

¹ PICMG[®] 3.0 Revision 3.0 AdvancedTCA Base Specification, March 24, 2008.

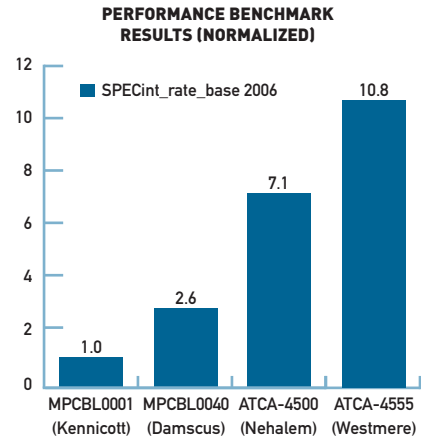


Figure 1. Performance of Several Generations of Radisys ATCA Compute Blades

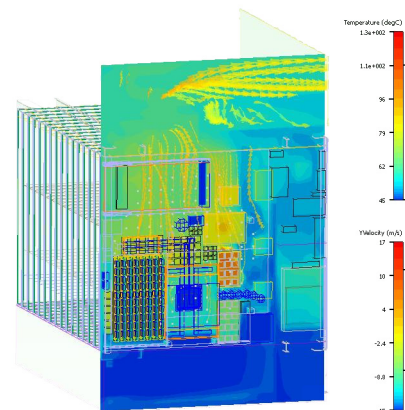


Figure 2. System-Level Thermal Simulation

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