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ADVANCED HIGH-SPEED MODULAR SYSTEMS WITH NEW INTERCONNECTS

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Development of Electronics, Communication and Computer technologies are moving to full integration of these fields into compact modular systems, integrated by modern networks. High-frequency processor are not more a basic way for advanced high-performance systems and multi core processors become more perspective, and tradition parallel bus based system architectures (VMEbus, cPCI/PXI) are not more perspective for new generation high-speed systems and some new serial approaches to advanced high-performance modular systems are required now. Today existing resources of tradition modular systems should be used in compatible new generation modular systems as much as possible, including mechanics and electronics in first order.

Fundamentals in system architecture development are compact component approach, low power processor with new serial high-speed interface chips and high-modular structure on all levels of both system and network interconnects. There are many parameters that define advanced system design, including basic microprocessor type and interfaces, network architecture and topology, basic interconnects and node interactions modes in distributed system. Advanced modular system components and development approaches based on new international standards are described and discussed, including new high-speed serial interconnects, module structures, new connectors, interactions of processor cores in distributed compact nodes and general network architecture and topology. Perspective tendency is especially effective for high-performance data acquisition and image processing system development in any application fields.

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