

Guest Editorial

WITH THE advancements in RFIC, MMIC, and VLSI technologies, packaging of the resultant high-speed digital, RF and microwave, and millimeter-wave integrated circuits and systems in a cost-effective and high-performance manner has become a major challenge. The convergence of modern communication and computer technologies and the startling growth of corresponding high-frequency commercial electronics has brought new demands for increased performance with simultaneous decreases in cost and size on both integrated circuits and packaging and interconnect technologies. Clock rates for high-speed digital IC's are increasing and approaching gigahertz range, available board space is decreasing, and RF operating frequencies are increasing to *S*- and *C*-band for wireless communication components and up to 100 GHz for communications networks and automotive applications where parasitics can significantly affect performance. This special issue of IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, devoted to interconnects and packaging, has attempted to present recent advances in packaging for RF, microwave, and millimeter-wave circuits and highlight the applications of these microwave-oriented techniques to the development of high-speed high-density digital integrated circuits and modules.

Significant advances have been made in recent years on the electromagnetic simulation and modeling, measurement techniques, circuit modeling and computer-aided design of interconnections, and packaging, as evidenced by the papers included in this special issue. This special issue consists of one review paper on MCM technologies, 18 regular, and two short papers. We hope that the ongoing research and development activities in the areas of high-speed VLSIC's, RFIC's, MMIC's, and corresponding modules and high-density packaging structures will be facilitated by the papers presented here and reported in the future special and general issues of this TRANSACTIONS.

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