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## FOREWORD

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### Special Section on Hardware and Software Technologies on Advanced Microprocessors

For digital systems in today's digital-convergence era, various functions such as communication, security, audio, video, and recognition must be implemented by a microprocessor. Functional diversification will keep increasing, and demands for the improvement of the microprocessor's performance will thus continue. Microprocessors must meet these requirements while considering cost, power consumption, reliability, and so on. Facing these challenges, new hardware and software technologies are indispensable.

In light of our pursuit of advanced technologies for microprocessors, it is my great pleasure to announce the publication of this special section on hardware and software technologies on advanced microprocessors. This section is devoted to an exploration of the latest advances in not only hardware such as micro-architectures and circuit designs but also software such as compilers and operating systems. It consists of two invited papers and five regular papers.

The guest editor-in-chief would like to express his sincere appreciation to all the authors for their contributions and to all the reviewers for their critical readings. He would also like to thank the editorial committee members for their work on this special section.

#### Special Section Editorial Committee

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Kunio Uchiyama, Guest Editor-in-Chief

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**Kunio Uchiyama** (*Member*) received B.S., M.S., and Ph.D. degrees from Tokyo Institute of Technology, Japan. Since 1978 he has been working at the Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan, on design automation, mainframe computers, and microprocessors. He is a Chief Scientist & Corporate Officer of Hitachi, Ltd. From 1985 to 1986 he was a visiting researcher in the Department of Computer Science, Carnegie-Mellon University, Pittsburgh, PA. He serves as a visiting professor at Waseda University. He received the Ichimura Award, the R&D 100 Award, the Chief Officer's Award of the Japanese Science and Technology Agency, and the National Medal of Honor with Purple Ribbon in 1998, 1999, 2000, and 2004, respectively. He is a member of the IEEE.

