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INTEL'S MUKHERJEE WINS ACM AWARD FOR ADVANCING THE RELIABILITY OF COMPUTER ARCHITECTURE DESIGN

Discoveries Enabled Cost-Effective Solutions to Soft Errors in Computer Systems

NEW YORK, June 23, 2009 – The ACM Special Interest Group on Computer Architecture (SIGARCH) will present its 2009 Maurice Wilkes Award to Shubu Mukherjee of Intel Corp. for his contributions to the reliability of microprocessors and other silicon chips which are often affected by radioactive contaminants that result in a condition known as "soft errors." His techniques and methodologies laid the foundation for cost-effective solutions that can balance a processor's soft error rate (SER) with performance, power, and area. The award, which carries a prize of $2,500, will be presented on June 23, at the International Symposium on Computer Architecture (ISCA) in Austin, TX.

Mukherjee, who directs Intel's SPEARS Group (Simulations and Pathfinding for Efficient and Reliable Systems), developed terms and definitions that have provided a common language between industry partners and competitors including Intel, AMD, Hitachi, Fujitsu, NCR, CISCO, and others. Hailed as a "powerhouse" of research in architecture design by many in the microprocessor field, Mukherjee introduced a systematic method of computing SER using a concept called Architectural Vulnerability Factor (AVF), which expresses the fraction of faults resulting from radioactive particle strikes that can cause a user-visible error. This technique identified prime candidates for error protection and made it practical for chipmakers to determine efficiently which structures needed protection to ensure reliability.

A principal engineer at Intel and the author of a highly acclaimed book titled *Architecture Design for Soft Errors* published in 2008, Mukherjee has co-authored 50 technical papers, including the IEEE Micro Top Picks paper awards in 2003 and 2004. He is a Fellow of IEEE, and he holds 21 patents and has 27 additional patent applications pending. He graduated from the Indian Institute of Technology, Kanpur with a B.Tech, and was awarded an M.S. and Ph.D. from the University of Wisconsin-Madison.

The Maurice Wilkes Award is given annually for an outstanding contribution to computer architecture made by an individual in a computer-related profession for 20 years or less. It is named in honor of Maurice Wilkes, a recipient of the ACM A.M. Turing Award in 1967 who is best known as the

builder and designer of the Electronic Delay Storage Automatic Calculator (EDSAC), the first computer with an internally stored program.

About ACM

ACM, the Association for Computing Machinery **www.acm.org,** is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

About SIGARCH

The ACM Special Interest Group on Computer Architecture **www.sigarch.org** serves a unique community of computer professionals working on the forefront of computer design in both industry and academia. It is ACM's primary forum for interchange of ideas about tomorrow's hardware and its interactions with compilers and operating systems.

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