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ACM and IEEE Computer Society Honor Uri Weiser with 2016 Eckert-Mauchly Award

NEW YORK, NY & LOS ALAMITOS, Calif., May, 18 2016 – The Association for Computing Machinery (ACM) and IEEE Computer Society will jointly present the Eckert-Mauchly Award to Uri Weiser for leadership, as well as pioneering industry and academic work in high performance processors and multimedia architectures. In a nearly 40-year career that has included roles in government, industry and academia, Weiser has made seminal contributions, including defining the first Intel Pentium Processor architecture and being a recognized leader in asymmetric and heterogeneous manycore architecture.

In the late 1980s, Weiser was an engineer with Intel’s Design Architecture Group. At the time, Intel was using a Complex Instruction Set Computer (CISC) design for its X86 microprocessors. A debate emerged within the computing field as to whether Reduced Instruction Set Computer (RISC) design would eclipse the CISC design. Intel was contemplating whether to continue to manufacture its X86 processors using the CISC design or abandon the program and repurpose the company to design its microprocessors using RISC-based architecture.

Weiser single-handedly convinced Intel executives to continue with the CISC-based X86 processors by showing that through adding new features such as superscalar execution, branch predication and more, the X86 processors could perform competitively against the RISC family of processors. Weiser’s architectural enhancements laid the foundation for the Intel Pentium Processor.

Weiser and his student Alex Peleg invented the Trace Cache, which increases performance and reduces power consumption by storing traces of instructions that have already been fetched and decoded. This innovation made a fundamental change to the design principles of high performance microprocessors. A trace cache was incorporated into each of the over 500 million Intel Pentium 4 processors Intel has sold.

Shortly after enhancing Intel’s line of CISC-based processors, Weiser co-invented and led the MMX— a set of 64-bit Single Instruction Multiple Data (SIMD) instructions that increase the performance of digital signal processing, graphics processing, speech recognition and video encoding/decoding.

In the early 2000s, Weiser began investigating improved power/performance architectures to speed up media applications. This research led Weiser to become a pioneer in the areas of heterogeneous

computing (systems that use more than one kind of processor or core) and asymmetric computing (systems in which separate and unique code can run on both the parallel and general-purpose cores simultaneously).

Weiser is currently an emeritus professor in the Electrical Engineering department of the Technion – Israel Institute of Technology (IIT). He holds 13 patents and has authored over 50 publications. He was recognized with the Intel Achievement Award on two occasions. Additionally, he has been named an Intel Fellow, a Fellow of IEEE and an ACM Fellow. Weiser is active on the advisory boards of numerous startups.

The Eckert-Mauchly Award is known as the computer architecture community's most prestigious award. Weiser will receive the 2016 Eckert-Mauchly Award at the ACM/IEEE International Symposium on Computer Architecture (ISCA) to be held June 18 – 22 in Seoul, Korea.

ACM and IEEE Computer Society co-sponsor the Eckert-Mauchly Award, which was initiated in 1979. It recognizes contributions to computer and digital systems architecture and comes with a \$5,000 prize. The award was named for John Presper Eckert and John William Mauchly, who collaborated on the design and construction of the Electronic Numerical Integrator and Computer (ENIAC), the pioneering large-scale electronic computing machine, which was completed in 1947.

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 IEEE Computer Society

IEEE Computer Society, www.computer.org, is one of the world's leading computing membership organizations and a trusted information and career-development source for a global workforce of technology leaders including: professors, researchers, software engineers, IT professionals, employers, and students. IEEE Computer Society provides high-quality, state-of-the-art information on an on-demand basis. The Computer Society provides a wide range of forums for top minds to come together, including technical conferences, publications, a comprehensive digital library, unique training webinars, and professional training. IEEE is the world's largest professional association for advancement of technology and the Computer Society is the largest society within IEEE.

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