UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HTC CORPORATION, HTC AMERICA, INC.,
and LG ELECTRONICS, INC.
Petitioners,

v.

PARTHENON UNIFIED MEMORY ARCHITECTURE LLC
Patent Owner.

Case IPR2016-00847
U.S. Patent No. 5,812,789

DECLARATION OF HAROLD S. STONE, PH.D., REGARDING U.S. PATENT NO. 5,812,789

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I, Harold S. Stone, Ph.D., declare as follows:

I. INTRODUCTION

A. Engagement

1. I have been retained by counsel for the Petitioners to submit this declaration in connection with Petitioners' Petition for *Inter Partes* Review of claims 1, 3-6, 11 and 13 of U.S. Patent No. 5,812,789 ("'789 patent") (Ex. 1001).

B. Background and Qualifications

2. I was awarded a Ph.D. and Master's Degree in Electrical Engineering from the University of California-Berkeley in 1963 and 1961, respectively. I received a Bachelor of Science degree in Electrical Engineering from Princeton University in 1960.

3. After my graduation from Berkeley in 1963, I served as a Research Engineer at Boeing and SRI International. I then held faculty positions at Stanford University and at the University of Massachusetts, where I served as a professor of computer science and electrical engineering.

4. In 1984, I started working for IBM as a Manager of Advanced Architecture Studies. In 1990, I became a Research Staff Member at IBM. During my time at IBM, I managed and conducted research in the area of memory systems and optical interconnections. I worked at IBM until 1994, when I became a Fellow at the NEC Research Institute, the highest technical position in the company. At NEC, I conducted research in image processing. I am an inventor of a patent to

NEC regarding a technique for decompressing JPEG images in a novel way that permits images to be searched without fully decompressing them. The decompression technique is based on inverse discrete cosine transforms, which are one of the basic elements of MPEG decompression.

5. I have authored, coauthored, or edited 9 books in various technical areas, the most recent of which appeared in 2011. My textbooks have sold over 100,000 copies. My work on the use of the perfect shuffle interconnections for supercomputers is widely recognized, and many supercomputers based on these interconnections were developed and marketed. For this work and my textbook contributions to the field, I was elected an IEEE Fellow and ACM Fellow, and received the IEEE Piore Field Award, the IEEE Computer Society Taylor Booth Award, and the Charles Babbage Award. I am the principal inventor or co-inventor of 27 patents, including seven in the area of computer architecture - U.S. Patent Nos. 4,989,131, 5,065,310, 5,163,149, 5,611,070, 5,742,785, 5,790,823, and 6,311,260.

6. I have served as a consultant to industry while holding my academic positions and have extensive experience in computer design for embedded computers as a consequence, including low-power computers for use in satellites and ultra-reliable computers for use in nuclear submarine navigation systems. In recent years I have been a member of two Division Review Committees at Los

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