UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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INTEL CORPORATION,

Petitioner

v.

FG SRC LLC,

Patent Owner

_____

CASE NO.: 2020-01449
PATENT NO. 7,149,867

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DECLARATION OF RAJESH K. GUPTA, PH.D.

Mail Stop **PATENT BOARD**
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450

Alexandria, VA 22313-1450

I, Dr. Rajesh K. Gupta, declare as follows:

1.   I am currently Professor and Qualcomm Endowed Chair at the Department of Computer Science and Engineering at University of California, San Diego ("UCSD"). I have served in that role since 2002.

2.   I conduct research in advancing computing technologies and computer system architecture, and supervise Ph.D. students.

Concurrent Systems Architecture Group ("CSAG")

3.   From 1994 to 1996, I was an assistant professor of Computer Science at the University of Illinois, Urbana-Champaign ("UIUC"). While at UIUC, I collaborated closely with Dr. Andrew A. Chien, who ran the Concurrent Systems Architecture Group ("CSAG") at UIUC from 1990 to 1998. The CSAG was Professor Chien's research group, and its original website address was www-csag.cs.uiuc.edu/. That website, and the links and information provided on the website, was available to the general public.

4.   One of the research projects undertaken by CSAG, which began at least as early as 1996, was called the "**M**ultiprocess**O**r with **R**econfigurable **P**arallel **H**ardware" ("MORPH") project. I led a later implementation of the MORPH project research into a machine prototype, called the "**A**daptive **M**emory **R**econfiguration **M**anagement" ("AMRM") project, when I moved to the University of California, Irvine in the Fall of 1996. These projects related to the same ideas about reconfigurable computer processor architecture and systems, and, thus, were referred to as the MORPH/AMRM project.

5.   Dr. Chien and I collaborated closely together at UIUC and thereafter, including by jointly applying for a research grant for the MORPH/AMRM project from the National Science Foundation ("NSF") and later to the Defense Advanced Research Project Agency ("DARPA"). *See* paragraph 9, below.

6.   In 1996, I took a position as an assistant professor in the Department of Information and Computer Sciences at University of California, Irvine ("UCI"). Dr. Chien and I continued to collaborate on the MORPH project (including with others) even after I had joined UCI. While at UCI, I helped maintain a website page for the AMRM project hosted by UCI which was accessible by the public via the link at https://www.ics.uci.edu/~amrm/. That website continues to be publicly available today.

7.   I left UCI to join UC San Diego (UCSD) in 2002. Dr. Chien and I worked together at UCSD between 2002 and 2006. When Dr. Chien joined UCSD in 1998, the work of the CSAG moved also, and the website was hosted by the Systems and Networking Group in the Department of Computer Science and Engineering at UCSD, via the link http://www-csag.ucsd.edu/. That website, and the links and information provided on the website, was available to the general public.

8.   Clicking on the link titled "MORPH/AMRM: High Performance computing based on Smart Reconfiguration" on the http://cseweb.ucsd.edu/groups/csag/html/ website takes users to the AMRM project website hosted by UCI via the link at https://www.ics.uci.edu/~amrm/. That website, and the links and information provided on the website, was and continues to be available to the general public.

National Science Foundation Grant

9.   In 1996, Dr. Chien and I applied for a research grant from the Office of Advanced Cyberinfrastructure of the National Science Foundation ("NSF").

10.   The NSF required award grantees to follow certain procedures as set out in Grant Policy Manual NSF95-26 ("GPM"), which was in effect from 1995 to July 2002. The GPM is still publicly available and can be accessed via https://www.nsf.gov/pubs/stis1995/nsf9526 (accessed June 22, 2020).

11.   One condition of the NSF award was that we submit annual reports and a final report. We were also required to make information about the project publicly accessible through publications, at conferences, or by other means, including Principal Investigator (PI) Meetings held by the community of researchers and the NSF. A number of the publications and conferences are discussed at paragraphs 17–25, below.

MORPH Project

12.   The application that Dr. Chien and I submitted in 1996 was successful, and we jointly received NSF Grant Award ASC-96-34947 ("the NSF Grant").

13.   The award grant was for $100,000, the period of the grant began in or around August 15, 1996 and was set to expire on or about July 31, 1998. The working title of the project was "PDS: A Flexible Architecture for Executing Component Software at 100 Teraops". Attached as Exhibit A is a true and correct copy of the award abstract, which is publicly available and can be accessed via https://www.nsf.gov/awardsearch/showAward?AWD_ID=9634947.

14.   Our research pursuant to the NSF Grant concluded in or around July 1998.

Publications of MORPH/AMRM Papers

15.   From July 1998 until about October 1998, Dr. Chien and I collaborated on the preparation of the Final Project Report.

16.   I submitted the Final Project Report to the NSF around October 1998.

17.   In addition to submitting the Final MORPH Report, Dr. Chien and I additionally disseminated the results of the research conducted pursuant to the NSF Grant through various conferences and papers, including at least the following papers described in paragraphs 18-26 below.

18.   In the first half of 1996, Dr. Chien and I coauthored a paper entitled *MORPH: A System Architecture for Robust Higher Performance Using Customization*. We presented this paper at *Frontiers '96, The Sixth Symposium on the Frontiers of Massively Parallel Computing.* ("Frontiers '96 Conference"). The Frontiers '96 Conference was sponsored by the Institute of Electrical and Electronics Engineers, Inc. ("IEEE") and held in Annapolis, Maryland between October 27-31, 1996. The IEEE is the world's largest technical professional organization, and is a widely-recognized publisher of technical papers spanning a wide range of technologies including electronics, electrical engineering, telecommunications, computing, and more. The IEEE publishes thousands of conference papers every year, including by making them publicly available via its *Xplore* digital library. The IEEE's collection of publications is recognized by academics and industry workers around the world as an authoritative source of consolidated published papers in electrical engineering, computer science, and related fields. Based on my experience in attending conferences sponsored by the IEEE, and based on the general practice in the scientific and engineering community, I believe this paper was distributed to the conference attendees prior to or during the conference.

19.   This paper was subsequently published as pp. 336-345 of the Frontiers '96 Conference Proceedings by the IEEE in 1996. As with other IEEE conferences, this paper was made available in 1996 to conference attendees at Frontiers '96, and I understand that it has been available from the IEEE Xplore website (https://ieeexplore.ieee.org/document/558112) since at least as early as August 6, 2002.

20.   I have reviewed Exhibit 1005, and it is a true and correct copy of this article, *MORPH: A System Architecture for Robust Higher Performance Using Customization (an NSF 100 TeraOps point design study)*, which was publicly

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