

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUALCOMM INCORPORATED
Petitioner,

v.

NETWORK SYSTEM TECHNOLOGIES, LLC
Patent Owner.

REPLY DECLARATION OF NIKIL DUTT, PH.D. UNDER 37 C.F.R. § 1.68

I, Dr. Nikil Dutt, hereby declare and state as follows:

1. I hold the position of Distinguished Professor at the University of California, Irvine. My academic credentials include a Bachelor of Engineering in Mechanical Engineering (Hons) from the Birla Institute of Technology and Science, Pilani, India, in 1980, a Master of Science in Computer Science from the Pennsylvania State University in 1983, and a Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign in 1989. Attached as Exhibit 1045 is a true and correct copy of my CV.

2. I understand that for this matter, a person of ordinary skill in the art (which I understand is referred to as a “POSA”) would typically have had “would have had at least a Bachelor’s degree in computer science, electrical engineering, computer engineering, or an equivalent technical degree, and two or more years of experience with system-on-chip, interconnect, or networking technologies.” I also understand that “[a]dditional education would compensate for less experience, and vice-versa.” I currently meet this definition, and I also met this definition of a POSA by 2002. *See* Exhibit 1045. *See*, for example, Exhibit XXX, 38 (BC9, 2001 book chapter regarding “Embedded System-On-Chip”), 42 (J25, 2000 journal article regarding a tool for “System-On-Chip Exploration), 69.

3. I am also a Fellow of the IEEE, a Fellow of the ACM, and an International Federation for Information Processing (IFIP) Silver Core awardee.

4. I am being compensated at a rate of \$500 per hour for my time. This is my normal hourly consulting rate. My compensation is not dependent on, and in no way affects, the substance of my statements in this Declaration.

A. The Annual Design, Automation, and Test in Europe (DATE) Conference

5. I have worked for 34 years in the fields of Electrical Engineering and Computer Science. My primary focus is on embedded systems and computer-aided design with a specific focus on the exploration, evaluation and design of domain specific embedded systems spanning both software and hardware. During the course of my 34-year long career, I have attended and presented at numerous technical conferences focused on computer chip design.

6. One of the technical conferences I have attended many times is the annual Design, Automation and Test in Europe (DATE) Conference. This conference is sponsored by IEEE and other organizations. It was (and still is) known as an important conference in the computer chip design field.

7. I attended my first DATE conference in 1998, and I have attended nearly every DATE conference thereafter. DATE was formed in 1998 as a merger of several other conferences.

8. Over the years, I have authored or co-authored at least 51 papers presented at these DATE conferences.

9. For as long as I can recall, including in the early and mid-2000s, it has been the practice of the DATE conference organizers to provide a set of all the papers accepted for that year's DATE conference to attendees at the conference check-in table as part of the conference materials. This set of papers was known as the "proceedings" for that year's conference.

10. There were not any confidentiality restrictions on the information contained in papers accepted for the DATE conferences during this time-period, as it was understood that whatever was submitted for the conference would be open to all members of sponsor organizations, including the IEEE. In fact, presenters and authors were informed in advance that any material presented at the DATE conference may be exposed to a wider group of members and were warned against submitting or presenting any proprietary information.

B. The March 4-8, 2002 DATE Conference in Paris, France ("DATE 02")

11. I personally registered for and attended the DATE 02 Conference. That conference was held March 4-8, 2002 in Paris, France.

12. I also authored and co-authored four papers that were accepted for the DATE 02 conference.

13. A copy of all the papers accepted for the DATE 02 conference (either in paper or CD form) was given to conference participants upon registration at the start of the conference, as part of the conference materials.

14. A copy of the proceedings for DATE 02 was provided to conference participants upon registration at the start of the conference, as part of the conference materials.

15. When I checked in at the DATE 02 conference, I was given a physical copy of the DATE 02 proceedings (either in paper or CD form). This physical copy of the DATE 02 proceedings included all the papers accepted for that year's conference.

16. I recall that there were on the order of at least 400 to 500 in-person attendees at the DATE 02 conference.

17. There were no confidentiality restrictions at the DATE 02 conference, and notetaking was common practice.

18. One had to register to attend the DATE 02 conference, but registration was open to any interested member of the public. Authors of accepted papers were required to register and present their papers in person at the conference. Authors, as well as members of sponsoring organizations (for example members of IEEE) would get a discount on the registration fee.

19. I personally moderated one of the DATE 02 sessions, entitled "High-Level Synthesis and Asynchronous Pipelines." I also co-authored four papers that were presented at DATE 02.

20. Exhibit 1039 is a true and correct copy of excerpts of the proceedings of the DATE 02 conference including that year's table of contents, from the online archives of the DATE conference, found at the website <https://past.dateconference.com/proceedings-archive/2002/YEAR.HTM>. The session I moderated, as well as the papers I co-authored, are reflected in this online archive. Exhibit 1039 at pp. 15, 7, 8, 10, 14. I was also on the Technical Program Committee for DATE 02, and this is also shown at Exhibit 1039, page 2 (the excerpt listing the Technical Program Committee).

21. I also see the paper entitled "Networks on Silicon: Combining Best-Effort and Guaranteed Services," by K. Goossens, P. Wielage, A. Peeters, and J. van Meerbergen ("Goossens2002") is included in this list of proceedings from the DATE 02 conference. Exhibit 1039, at pp. 10-11. This paper was presented at a session entitled "Hot Topic – Network on a Chip," also showing that DATE 02 was attended by POSAs.

22. All of the papers listed in the table of contents for the DATE 02 proceedings (see Exhibit 1039), including the papers I co-authored and the Goossens2002 paper, were papers that were accepted for the DATE 02 conference. As papers that had been accepted for the conference, they were included in the physical copy of the DATE 02 conference proceedings that was handed out to myself and other participants in the DATE 02 conference at check-in.

23. DATE 02 was at the time it happened a well-known conference in the field and that remains the case for DATE conferences even today. A POSA in early 2002 would have known about the annual DATE conference. System-on-chip (SoC), interconnect, and networking technologies are (and were in early 2002) a part of the “*design, automation, and test*” field. For example, the Welcome to Date 2002 message noted that “design automation [is] a strategic technology for modern electronic systems...[including] large systems on chip made of heterogenous processors communicating via on-chip networks.” Exhibit 1039, p.6. And as I also mentioned above, the Goossens2002 paper was presented at a DATE 02 session entitled “Hot Topic – Network on a Chip.” The physical copy of the DATE 02 conference proceedings that was handed out to the at least 400-500 attendees of the conference was available such that POSAs exercising reasonable diligence could locate it, for example by registering for and attending the conference. Various other sources that I and POSAs like myself would consider reliable also show this, including that the DATE 02 conference took place on March 4-8, 2002 and that the Goossens2002 paper was included in the conference proceedings that were handed out. These include:

- Exhibit 1040, 1 and 17 (the “Publications Page” of Kees Goossens, a co-author of the Goossens2002 paper, listing Goossens2002 as having been

published “In Design automation and test conference (DATE), March 2002”);

- Exhibit 1048 (the Library of Congress catalogue for the “Design, Automation and Test in Europe Conference and Exhibition 2002: proceedings,” in “Paris, France, March 4-8, 2002,” also showing that the conference occurred March 4-8, 2002);
- Exhibit 1038 (United States Copyright Office registration record for the “design, automation and test in Europe conference and exhibition : proceedings,” showing a “Date of Publication” of “2002-03-04,” which matches the first day of the DATE 02 conference).

C. IEEE

24. IEEE is a long-standing, very well-regarded professional organization in my field. It is the premier society for electrical and electronic engineers , including those who work with SoC design, and has been since before 2002. Any POSA in early 2002 would have certainly been familiar with IEEE.

25. IEEE’s electronic publication service, IEEE Xplore, was also well-known to POSAs by early 2002. Many major research universities in the United States at the time would have had a subscription to IEEE Xplore, and students, researchers and professors affiliated with the university would have commonly used IEEE Xplore to access IEEE publications, including IEEE-published

conference Proceedings. Based on my recollection, and as also confirmed to me by a librarian at the University of California-Irvine (who I would ordinarily rely on), my university (University of California-Irvine) has had access to IEEE Xplore since sometime in the year 2000. I also understand that IEEE Xplore launched in approximately May 2000. See <https://innovate.ieee.org/ieee-xplore-celebrates-15-years-of-information-driving-innovation/>, a true and correct copy of which is being filed as Exhibit 1041.

26. I understand that Goossens2002 was added to IEEE Xplore on 07 August 2002. Exhibit 1026; Exhibit 1025. In that timeframe (early 2002) a POSA, including myself, would have commonly perused conference proceedings via IEEE Xplore for information and updates on relevant technologies, such as System-on-Chip, soon after those proceedings became available on IEEE Xplore, including particularly the proceedings of the prestigious and well-known DATE conference,.

27. I recall that at the time conference proceedings digitally published on IEEE Xplore were easily searchable. For example, one could pull up a conference by title, and then peruse conference proceedings. The IEEE Xplore website from as early as 2001 also shows this. See Exhibit 1042. Conference proceeding papers such as Goossens2002 that were uploaded to IEEE Xplore (see paragraph 26 above) were available such that POSAs like myself using reasonable diligence could locate them.

28. A POSA in early 2002 would have been very familiar with IEEE conference proceedings specifically. To a POSA at the time, IEEE-sponsored conferences, and specifically the papers presented at those conferences, were regarded as one of the best sources of reputable, reliable information regarding technological developments. A POSA in the early 2002 would have frequently reviewed IEEE conference paper publications on IEEE Xplore, and also attended IEEE conferences, for information on relevant technologies including SoC design.

29. The 2002 DATE conference specifically was sponsored by IEEE. Given that the DATE 2002 conference was sponsored by IEEE, and that it was one of the premier annual conferences in the field at the time, a POSA at the time would have looked to the DATE 2002 conference Proceedings for information regarding advances in technology such as SoC, such as by registering and attending. If a POSA had not personally attended the DATE 2002 conference in Paris, France, he or she would have likely reviewed the Proceedings from that conference as soon as they were electronically available from IEEE Xplore. I myself commonly perused conference proceedings paper titles from conferences I did not attend using IEEE Xplore, and pulled up and reviewed papers that interested me.

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed on January 24, 2025

A handwritten signature in black ink that reads "Nikil Dutt". The signature is written in a cursive, flowing style.

Nikil Dutt, Ph.D.