

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CAVIUM, INC.,  
Petitioner

v.

ALACRITECH INC.,  
Patent Owner

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Case IPR2017-01733  
Patent No. 7,337,241

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**PATENT OWNER'S EXHIBIT 2001**  
**DECLARATION OF PAUL PRUCNAL, PH.D.**

Alacritech Exhibit 2001

1. I have been retained on behalf of Alacritech, Inc. (“Alacritech” or “Patent Owner”) for the above-captioned *inter partes* review (IPR) proceeding. I understand that this proceeding was filed by Cavium, Inc. (“Cavium”) and involves U.S. Patent No. 7,337,241 (“the ’241 Patent”), titled “Fast-path apparatus for receiving data corresponding to a TCP connection.” The ’241 Patent is currently assigned to Alacritech. I have been retained to provide my opinions in support of Alacritech’s Preliminary Response Pursuant to 35 U.S.C. § 313 and 37 C.F.R. § 42.107 pursuant to the legal standards set forth below. I am being compensated for my time at the rate of \$650 per hour. I have no interest in the outcome of this proceeding.

2. In preparing this declaration, I have reviewed and am familiar with the following prior art references:

*Connery* (Ex. 1043) is U.S. Patent No. 5,937,169, which issued on August 10, 1999 and is assigned to 3Com Corporation.

3. I have also considered all other materials cited and discussed herein, including all other materials cited and discussed in Cavium’s Petition for *Inter Partes* Review of U.S. Patent No. 7,337,241 (Case IPR2017-01733).

4. I have also considered the following:

No.	Short Name	Exhibit
2002	Interrupts	Jonathan Corbet; Alessandro Rubini; Greg Kroah-Hartman (2005), <i>Linux Device Drivers</i> ,

		3 <sup>rd</sup> edition, Chapter 10, “Interrupt Handling”
<b>2006</b>	Claim Construction Order	Memorandum Opinion and Order on Claim Construction, Case No. 2:16-cv-00693-JRG-RSP, <i>Dkt.</i> 362 (E.D. Tex., September 21, 2017)

5. The '241 Patent describes a system for protocol processing in a computer network that has an “intelligent network interface card” (INIC) or “communication processing device” (CPD) associated with a host computer. (Ex. 1001 at Abstract). The INIC provides a “fast-path” that avoids some or all protocol processing for large multi-packet messages, greatly accelerating data communication. (*Id.*) The INIC can also assist the host for those message packets that are chosen for processing by host software layers. A communication control block for a message is defined that allows Direct Memory Access (DMA) controllers of the INIC to move data, free of headers, directly to or from a destination or source in the host. (*Id.*) A context, for example, can be stored in the INIC as a communication control block (CCB) that can be passed back to the host for message processing by the host. (*Id.*) I am familiar with the technology described in the '241 Patent as of its October 14, 1997<sup>1</sup> effective filing date.

6. The statements made herein are based on my own knowledge and opinion. This Declaration represents only the opinions I have formed to date. I

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<sup>1</sup> The '241 Patent claims the benefit of U.S. Provisional App. Ser. No. 60/061,809, filed on Oct. 14, 1997.

may consider additional documents as they become available or other documents that are necessary to form my opinions. I reserve the right to revise, supplement, or amend my opinions based on new information and on my continuing analysis.

## **II. QUALIFICATIONS**

7. My qualifications can be found in my Curriculum Vitae, which includes a complete list of my publications. (Ex. 2010).

8. I am a professor of Electrical Engineering at Princeton University, in Princeton, NJ. I received my undergraduate education at Bowdoin College, where I graduated summa cum laude in 1974 with an A.B. in Mathematics and Physics. I then graduated from Columbia University in 1976 with a M.S. in Electrical Engineering, and went on to receive an M.Phil. from Columbia University in 1978 in Electrical Engineering and a Ph.D. from Columbia University in 1979 in Electrical Engineering.

9. Upon graduation from Columbia in 1979, I joined Columbia University as an Assistant Professor of Electrical Engineering, and in 1984 I was promoted to Associate Professor. In 1988, I joined the faculty of Princeton University as an Associate Professor of Electrical Engineering. My responsibilities included teaching and research. At that time, I also was the Founding Director of the New Jersey Advanced Technology Center for Photonics and Optoelectronic

Materials. My responsibilities included leading a \$10 million research center involving approximately thirty faculty members.

10. In 1990, I was promoted to the position of full Professor of Electrical Engineering at Princeton University. My teaching responsibilities have included courses in electronic circuits, signal processing, communications and fiber-optic networks. My broad research interests have included communications networks and switching, computer interconnects, and network security. I also head the Lightwave Communications Research Laboratory and the Center for Network Security and Access at Princeton University, through which much of my present research is conducted.

11. While at Princeton University, I received several awards and recognitions, including: (a) becoming a Fellow of the Institute for Electrical and Electronics Engineers (IEEE) where my fellow citation is, "For contributions to photonic switching and fiber-optic networks;" (b) becoming a Fellow of the Optical Society of America (OSA); (c) receiving the Rudolf Kingslake Medal and Prize from the Society of Photo-Optical Instrumentation Engineers (SPIE) for the most noteworthy original paper in Optical Engineering, titled, "Self-routing photonic switching with optically processed control;" (d) receiving the international Gold Medal Award from the Faculty of Mathematics, Physics, and Informatics from Comenius University; (e) receiving the Princeton University

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