UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STMICROELECTRONICS, INC.
Petitioner

v.

NEODRON, LTD.
Patent Owner

Case Nos. IPR2021-01160; IPR2021-01161
U.S. Patent No. 8,749,251

DECLARATION OF DR. TONY GIVARGIS

I, Tony Givargis, hereby declare the following:

I. INTRODUCTION

1. I, Tony Givargis, have been retained by counsel for Petitioner as a technical expert in the above-captioned case. Specifically, I have been asked to render certain opinions in regard to the concurrently filed IPR petitions[1] with respect to U.S. Patent No. 8,749,251 (the "'251 Patent"). I understand that the Challenged Claims are claims 1-20. My opinions are limited to those Challenged Claims. Previously, I provided a similar declaration relating to the '251 patent in IPR2020-00998 and IPR2020-1000. Those IPRs were instituted.

2. My compensation in this matter is not based on the substance of my opinions or the outcome of this matter. I have no financial interest in Petitioners. I am being compensated at an hourly rate of $500 for my analysis and testimony in this case.

3. In reaching my opinions in this matter, I have reviewed the following materials:

[1] I understand that Petitioners have filed two separate IPR petitions challenging the validity of all claims of the '251 Patent. For reference herein, the petition filed in IPR2021-01160 will be referred to as the "102(b) Petition" and the petition filed in IPR2021-01161 will be referred to as the "Priority Petition."

- Exhibit 1001 - U.S. Patent No. 8,749,251 ("*the '251 Patent*")
- Exhibit 1002 - The '251 Patent File History
- Exhibit 1004 - Stay Orders, W.D. Tex.
- Exhibit 1005 - Microsoft's Computer Dictionary ("*Microsoft Computer Dictionary 4th Ed.*")
- Exhibit 1006 - Barron's Dictionary of Computer and Internet Terms ("*Barron's Computer Dictionary*")
- Exhibit 1007 - Touchscreens 101: Understanding touchscreen technology and design ("*Touchscreens 101*")
- Exhibit 1008 - U.S. Patent No. 8,599,150 (the "*'150 Patent*")
- Exhibit 1009 - U.S. Patent No. 9,632,628 (the "*'628 Patent*")
- Exhibit 1010 - U.S. Patent No. 9,823,784 (the "*'784 Patent*")
- Exhibit 1011 - U.S. Patent No. 9,024,790 (the "*'790 Patent*")
- Exhibit 1012 - *ITC Markman Order*
- Exhibit 1013 - U.S. Patent No. 6,058,485 to Koziuk, et al. ("*Koziuk*")
- Exhibit 1014 - U.S. Patent No. 5,283,559 to Kalendra, et al. ("*Kalendra*")
- Exhibit 1015 - Quantum Research Group QT110 Data Sheet ("*QT110*")
- Exhibit 1016 - U.S. Patent Pub. No. 2005/0121980 to Bruwer ("*Bruwer*")
- Exhibit 1017 - Quantum Research Group QT60161 Data Sheet ("*QT60161*")
- Exhibit 1018 - Affidavit from Chris Butler at the Internet Archive – QT110

- Exhibit 1019 - Affidavit from Chris Butler at the Internet Archive – QT61061
- Exhibit 1020 - U.S. App. No. 12/179,769 (the "*'769 Parent Application*")
- Exhibit 1021 - Provisional Application No. 60/952,053 ("*Provisional Application*")
- Exhibit 1022 - '366 Parent Patent File History
- Exhibit 1023 - U.S. Pat. Pub. 2007/0076897 (the "*'897 Publication*")
- Exhibit 1024 - U.S. Patent Publication No. 2009/0027068 to Philipp, et al. ("the *'068 Publication*")
- Exhibit 1025 - U.S. Patent Publication No. 2007/0109276 to Kim et al. ("*Kim*")
- Exhibit 1026 - U.S. Pat. No. 5,730,165 (the "*'165 Patent*")
- Exhibit 1027 - U.S. Pat. No. 6,466,036 (the "*'036 Patent*")
- Exhibit 1028 - U.S. Pat. No. 6,452,514 (the "*'514 Patent*")
- Exhibit 1029 - Renesas's pulse-width modulation regulator ISL6534 ("*ISL6534*")
- Exhibit 1030 - U.S. Patent No. 3,979,240 to Ghezzo ("*Ghezzo*")

A. Background and Qualifications

4. I am a Professor in the department of Computer Science at the University of California, Irvine (UCI) since July of 2001. I served as the Associate Dean in the School of Information and Computer Sciences at UCI from 2011 to 2016. I am currently serving as the Vice Chair of the department of Computer Science at UCI. On July 1, 2021, I will begin serving as the Department Chair of

UCI's department of Computer Science. I graduated Cum Laude with a Bachelor of Science in Computer Science in 1997 and PhD in Computer Science in 2001 from the University of California, Riverside. My PhD thesis was entitled "*System-Level Exploration for Pareto-Optimal Configurations in Parameterized System-on-a-Chip.*" It received the School's Best Thesis Award that year.

5. My research interests are generally directed at various aspects of the design of Embedded Systems. Embedded Systems are computing devices that operate within a larger system and include things such as consumer electronics, handheld devices, office equipment, industrial equipment, medical devices, autonomous and self-driving vehicles, and many other types of systems. Embedded systems are characterized as having rich sensing capabilities (e.g., keypads and touch sensitive input devices, heat/pressure sensors, etc.), actuation capabilities (e.g., displays, robotic arms, etc.) and heavy control logic (e.g., programmable embedded processors, dedicated processing elements and extensive software logic). More specifically, my research focuses on software for Embedded Systems, real-time systems, Internet of Things devices, mobile and handheld devices, ML/AI control algorithms for Cyber Physical Systems, compilers for embedded software and code transformations techniques for efficient software to hardware migration.

6. In addition to research, I have taught embedded systems courses at UCI both at the undergraduate as well as the graduate levels. My upper division

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