

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent of: Udo Hartmann, Sascha Nerger  
U.S. Patent No.: 7,124,325 Attorney Docket No.: 24069-0004IP2  
Issue Date: October 17, 2006  
Appl. Serial No.: 10/680,782  
Filing Date: October 7, 2003  
Title: Method And Apparatus for Internally Trimming Output  
Drivers and Terminations in Semiconductor Devices

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**DECLARATION OF NICK TREDENNICK**

I, Nick Tredennick, declare as follows:

**I. Introduction**

1. I am making this declaration at the request of Petitioner NVIDIA Corporation in the matter of *Inter Partes* Review of U.S. Patent No. 7,124,325 (“the ’325 patent”).

2. I am being compensated for my work. My compensation does not depend on the outcome of this proceeding.

3. I have been asked to consider whether certain references disclose or render obvious the claims of the '325 Patent, either alone or in combination with each other.

4. I have been advised that a patent claim may be invalid as obvious if the differences between the subject matter patented and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention to a person having ordinary skill in the art. I have also been advised that several factual inquiries underlie a determination of obviousness. These inquiries include the scope and content of the prior art, the level of ordinary skill in the field of the invention, the differences between the claimed invention and the prior art, and any objective evidence of non-obviousness.

5. I have been advised that objective evidence of non-obviousness directly attributable to the claimed invention, known as “secondary considerations of non-obviousness,” may include commercial success, satisfaction of a long-felt but unsolved need, failure of others, copying, skepticism or disbelief before the invention, and unexpected results. I am not aware of any such objective evidence of non-obviousness that is directly attributable to the subject matter claimed in the '325 patent at this time.

6. In addition, I have been advised that the law requires a “common sense” approach of examining whether the claimed invention is obvious to a person

skilled in the art. For example, I have been advised that combining familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I have further been advised that this is especially true in instances where there are a limited numbers of possible solutions to technical problems or challenges.

7. I understand claims 14, 16-18, and 20 are subject to IPR here.

**II. Materials Reviewed**

8. In forming the opinions, I express below, I considered my own knowledge of the art and at least the following references:

1001	U.S. Patent No. 7,124,325 (“the ’325 patent”)
1004	U.S. Patent No. 6,693,450 (“Volk 450”)
1005	U.S. Patent No. 6,356,105 (“Volk 105”)
1006	Decision Denying Institution of <i>Inter Partes</i> Review dated June 23, 2017 for Case No. IPR2017-00382.
1007	Patent Owner’s Preliminary Response to Petition for Inter Partes Review of Patent No. 7,124,325 (Case No. IPR2017-00382)
1008	U.S. Patent No. 6,201,733 (“Hiraki”)
1009	Excerpts from Microsoft Computer Dictionary, Fifth Edition, 2002
1010	Excerpts from Barron’s Dictionary of Computer and Internet Terms, Eighth Edition, 2003
1011	Excerpts from McGraw-Hill, Dictionary of Computing & Communications

### III. Qualifications

9. I summarize my relevant knowledge and experience below. My Curriculum Vitae contains additional information and is attached as Exhibit A.

10. I have a background in electrical engineering that is primarily in the areas of logic design and microprocessor design and I have completed college work through a Ph.D. in electrical engineering. I worked in industry at Motorola and IBM designing microprocessors and at Altera in programmable logic. I taught electrical and computer engineering courses at the University of California, Berkeley and at the University of Texas, Austin. I wrote a graduate-level textbook, *Microprocessor Logic Design*. I spent twelve years as a member of the Army Science Board and sixteen years as an Aerospace Engineering Duty Officer for Naval Air Systems Command, Navy Reserve, studying military applications of science and technology.

11. I was a senior design engineer for Motorola, where I did the logic design and microcode for the MC68000 microprocessor, which was the brains of the original Apple Macintosh computers. I was a research staff member at IBM's T.J. Watson Research Center, where I did the logic design and microcode for the Micro/370 microprocessor. I was founder and director of engineering for Nexgen Microsystems, where I hired and managed the engineering groups that designed Nexgen's Intel-compatible x86 processor. I founded and managed Tredennick,

Inc., a logic design and consulting company for a number of years. I was also chief scientist at Altera, a programmable logic company. I have nine patents from work at these companies.

12. For the past three years, I have been at a startup company, Jonetix, working in the area of cryptography and online transaction security. I am a named inventor on more than a dozen patent applications and provisional applications filed for this work, one of which recently issued as U.S. Patent No. 9,635,011.

#### **IV. Person of Ordinary Skill in the Art and State of The Art**

13. In my opinion, a person of ordinary skill in the art as of the time of the '325 Patent would have a Bachelor's degree in Electrical Engineering and at least 2 years of experience working in the field of semiconductor logic design. I believe this to be a reasonable statement of the level of ordinary skill in the art for the patent and claims at issue. I also believe that I was one of ordinary skill in the art at the time the '325 Patent was filed.

14. The opinions that I provide in this declaration are consistent with the knowledge and experience of one of ordinary skill in the art at the priority date of the '325 Patent.

15. At the time of the '325 Patent's priority date, those of ordinary skill in the art recognized that trimming an interface device (based on a value measured on the interface device) could be done within the semiconductor device. This

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