

Paper No.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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XILINX, INC, Petitioner

v.

Patent of INTELLECTUAL VENTURES MANAGEMENT, LLC,  
Patent Owner.

Patent No. 5,632,545

Issue Date: May 27, 1997

Title: ENHANCED VIDEO PROJECTION SYSTEM

Reply Report Of Dr. A. Bruce Buckman

Inter Partes Review No. IPR2013-00029

IVI LLC EXHIBIT 2016

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## I. INTRODUCTION

1. I am making this declaration at the request of Xilinx in IPR2013-00029 of US Patent No 5,632,545 (“the ’545 Patent”) to Kikinis.

2. I previously submitted a declaration explaining why the ’545 patent is invalid. That declaration is marked as XLNX-1006, and sets forth my experience, qualifications, publications, materials considered and compensation.

3. As described in my prior declaration, I have over forty years of experience in the field of optics, including thirty-five years of experience as a professor in the electrical engineering department of the University of Texas at Austin. During this time, my teaching and research have focused on a wide range of topics in field of optics.

4. The list of materials I have considered is set forth in my opening report. In addition, I have reviewed the Board decisions, IV’s Oppositions, the Declarations of Mr. Smith-Gillespie, and all exhibits cited thereto in both the ’545 and ’334 IPRs. I have also reviewed the deposition of Mr. Smith-Gillespie (XLNX-1014 and XLNX-1015) as well as XLNX-1016, which contains excerpts from Spatial Light Modulator Technology (Uzi Efron ed., Marcel Dekker 1995). I have also reviewed the other exhibits cited in this report.

## II. SUMMARY OF OPINIONS

5. This declaration addresses a variety of issues that have arisen since I submitted my original declaration. This includes issues raised by (1) the Board’s Decision to institute review; (2) IV’s Opposition; and (3) the testimony of Mr. Smith-Gillespie. For the reasons set forth below and in my other declarations, it is my opinion that the ’545 patent is invalid.

## III. CLAIM CONSTRUCTION

6. The Board’s Decision addresses several claim construction issues. Although the Board addressed these terms at IV’s request, it did not adopt IV’s proposed constructions. The following is my response to the constructions proposed by IV and the preliminary constructions adopted by the Board.

### A. “Light-Shutter Matrix System”

Board Preliminary Construction	IV Proposed Construction
A set of matrices, such as monochrome LCD arrays, where each matrix comprises a rectangular arrangement of elements capable of limiting the passage of light.	A two-dimensional array of elements that selectively admit and block light.

7. I generally agree with the Board’s preliminary construction of “light-shutter matrix system.” In particular, I agree that a light shutter, in the context of the ’545 patent, is an element that is “capable of limiting the passage of light.”

8. IV’s proposed construction is problematic for several reasons. First, in practice, light-shutter elements (e.g., a pixel in an LCD) do not simply “admit” or

“block” light; frequently, the elements allow just some of the light through to create a “grayscale” effect. Thus, “limiting” is a better description of what light shutters do than is “blocking.” Second, IV’s proposed “admit and block” construction attempts to backdoor in a significant limitation on what it means to “block” light.

Specifically, IV’s expert, Mr. Smith Gillespie, opines that a light shutter must block light through absorption only, and not through scattering. [Ex. 2005, ¶ 16] I disagree. The ’545 patent does not contain a limitation on how the light shutters (e.g., LCD elements) limit, or for that matter, block, the passage of light. Some LCD elements (including some of the prior art references at issue here) block light by scattering it rather than absorbing it. Even the Board’s description of LCD technology describes liquid crystal elements as “scattering” light rather than merely absorbing it. Thus, to the extent that IV’s proposed construction is limited to light shutter matrix systems that block light by absorbing it, I disagree.

9. The Board’s preliminary construction limits the phrase “matrix system” to a “rectangular arrangement.” I do not object to this proposed construction, although I note that other reasonable constructions may be broader. A broader interpretation of “matrix system” would not impact my analysis.

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